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Journal

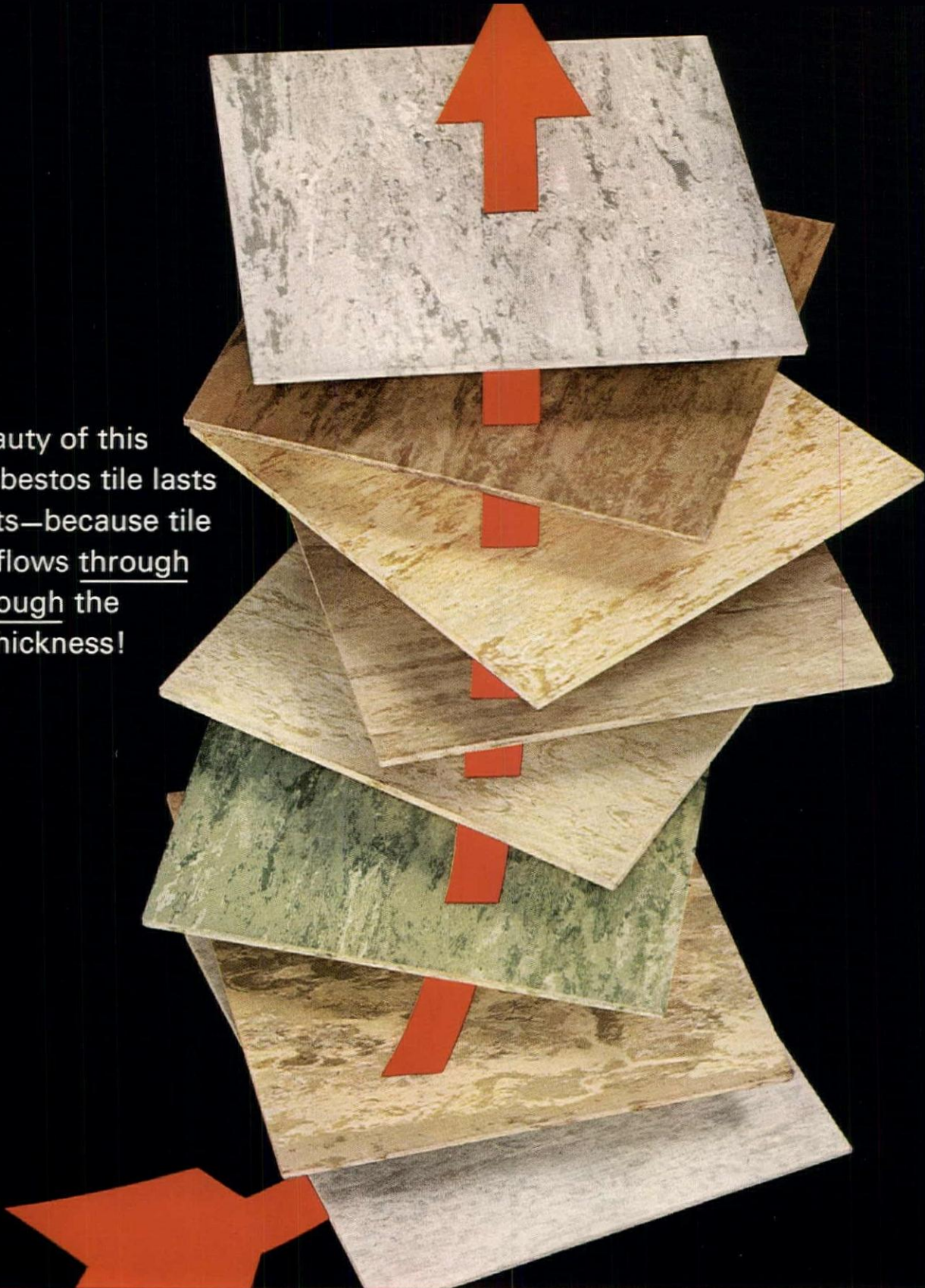
December 1964

INDIANA'S DUNES:
ARCHITECTS MEET
A CHALLENGE

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DECEMBER 1964

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Opinions expressed by contributors
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Cover: Drawn by Thomas U. Walter in 1859, this section through the dome of the Capitol (p 43) demonstrates the elaborate rib construction and truss system. Photo courtesy of Architect of the Capitol

LOOKING AHEAD TO JANUARY

The Meaningful City: In Search of Personal Symbols

BY DENISE SCOTT BROWN

What is the image of today's city? What are our symbols? Assistant Professor Brown seeks the answers in this provocative exposition, which she illustrates with her equally thoughtful sketches

A Case Study of Seattle's Municipal Art Commission

BY ROBERT L. DURHAM FAIA

Architects in the Queen City have joined forces with other citizens in their crusade against urban ugliness. The story's not finished by any means, but the chapters written in the first eight years already teach a lesson

An Architect's Guide to Fine Woodwork Design

BY WILLIAM T. SUTHERLAND

Here, for the first time in a blue moon, the advantages and limitations in the use of wood for custom design are spelled out—with the benefit of Madison Avenue lingo and multicolor brochures. The author, director of the Architectural Woodwork Institute, has compiled data on the eight most relevant factors affecting the selection of species in a comprehensive table for easy reference

Domesmanship: The Landmarkian Postulate Comes into Its Own

BY M. R. WOLFE

This author-illustrated spoof by a professor of urban planning is directed at the academic in architecture as well as urban design. But the tongue-in-cheek quality has meaning for others

Site Evaluation and the Soil Survey

BY JOHN R. QUAY

There's a new tool available to architects and planners who want to refine their technique in this important area of responsibility. A fellow architect explains the detailed soil map with its interpretations for urban uses

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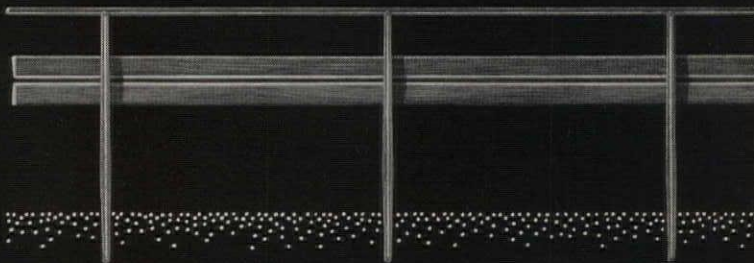
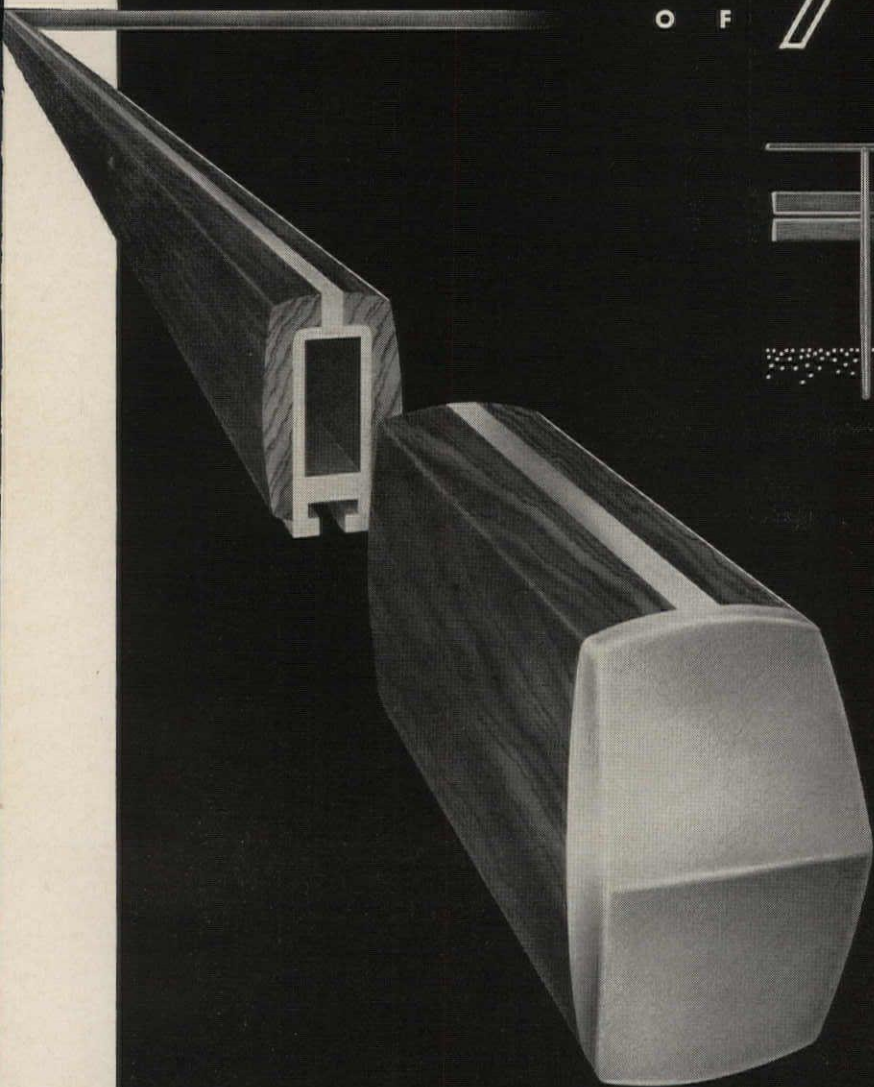
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OCTAGON OBSERVER

Memorials / "I Could Stay Here Forever"

A simple, spreading design that incorporates marble, stone and landscape elements will mark the final resting place of John F. Kennedy in Arlington National Cemetery. A model of the grave designed by John Carl Warnecke FAIA was unveiled publicly only six days prior to the anniversary of his death.

Situated on the slope just below the Custis-Lee Mansion on the axis of Memorial Bridge and the Lincoln Memorial, the appropriate setting for the grave presented many problems, which appear to be solved in the final design. No sculpture—except that the whole thing can be considered sculpture—no mausoleum, no flags, nothing to intrude upon the sweep of the hillside and the simplicity of the surrounding grave markers. It was at this very site early in 1963 that the late President was overheard saying to a friend, "I could stay here forever."

Approached from the roadway by a circular granite walk 210 feet in diameter, the constant flow of visitors will be kept moving without confusion. (The Cemetery's superintendent estimates that 7,740,000 persons have visited the grave site in the past year, more than the Lincoln Memorial and the Washington Monument combined.)

The hillside has been molded to create a gently sloping shelf; the area within the circle is mounded



A President's Grave: The plan at right shows the circular walk leading to the grave at top center. Below, the grave is viewed from the Custis-Lee Mansion, with the Memorial Bridge, Lincoln Memorial and Washington beyond.



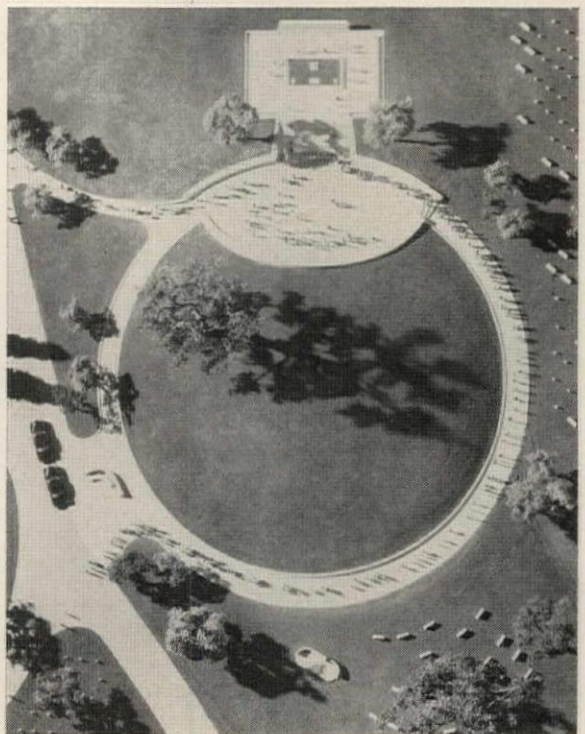
so people on one side don't see those on the other, thus reducing the sense of crowd and congestion. In the circle stands a 150-year-old oak. The walk leads to an oval overlook, which will hold a thousand people. Enclosing it on the downhill side is a low, broad parapet with a sloping surface upon which will be incised quotations from the late President's speeches.

On the uphill side, marble steps rise to the level of the grave, which is surrounded by a marble platform 42 by 66 feet. In its center is the grass-covered grave plot, with a simple slate slab marking the grave, and two smaller slabs marking the graves of the two Kennedy infants. At the head of the grave the eternal flame, lighted by Mrs. Kennedy, rises from a three-pronged bronze font, which sets upon a marble base. Framing the grave, at each side of the approach steps, are magnolia trees—first to bloom in the spring.

Four months of research went into the effort before design studies were begun, studying burial traditions, the graves of all other US Presidents, the relation of the site to the Washington plan, the flow of traffic and visitors, etc. Consultations were held with landscape architects, sculptors, stone cutters, specialists in religious symbolism and many others. Countless design studies, tested on the President's family and friends, were made and discarded or modified. To quote from Warnecke's statement:

"The questions that were raised suggested that we explore further the symbolism inherent in the forms we had selected. We wanted to be sure that the meaning of the forms—to the extent they had other meanings—would add to a visitor's total experience of the grave. Most of the forms that resulted from our search for simplicity were the simplest geometric forms, the forms that have been used over centuries and thus have acquired the strongest symbolic meanings."

The model and renderings will be on public view at the National Gallery of Art until December 14.



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This Ceramic Cooling Tower, recently completed for Houston's St. Joseph Hospital (operated by The Sisters of Charity of The Incarnate Word) is designed to grow in parallel with the hospital's heat transfer requirements.

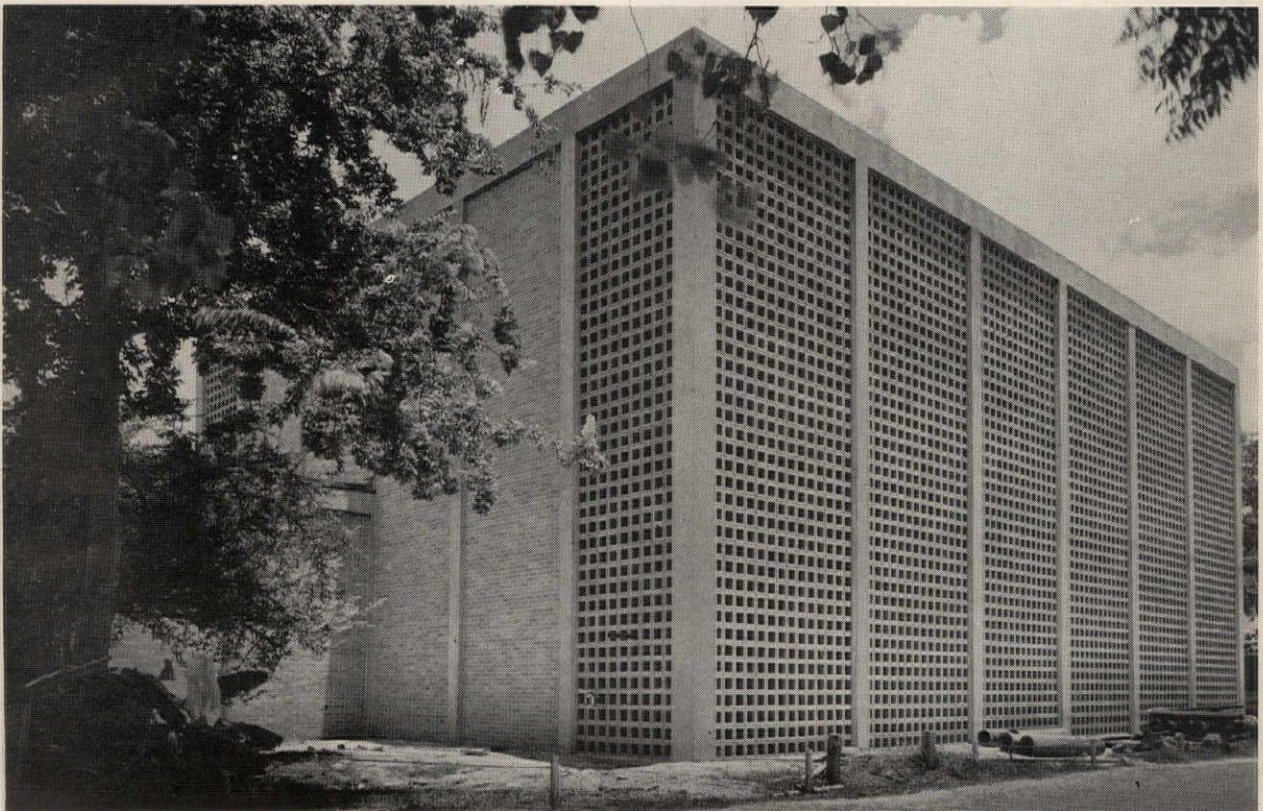
The hospital will ultimately require a six-cell tower capable of handling by absorption 2240 tons. At present, however, only half that capacity is required. So the entire structure was erected and three cells received internals to handle 1120 tons. The other three cells will receive internals as the need arises. This ability to design for immediate heat transfer needs while providing for long-range requirements can greatly reduce heat transfer costs.

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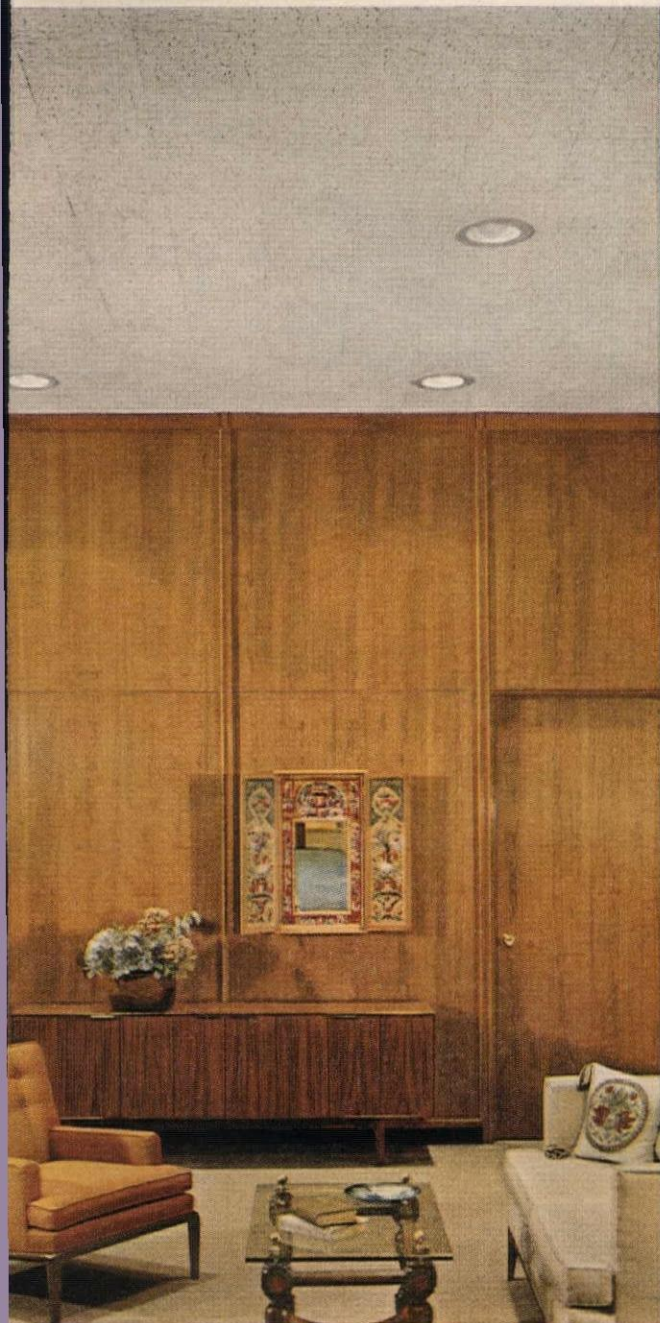
ACOUSTI-CLAD* ST. JOSEPHS HOSPITAL, CHICAGO. PHOTO BY HEDRICH-BLESSING.

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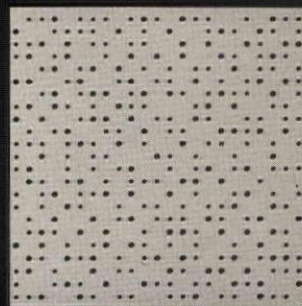
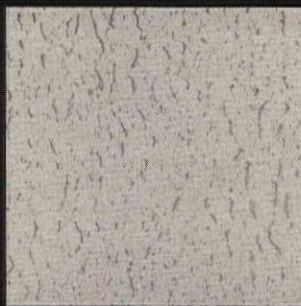
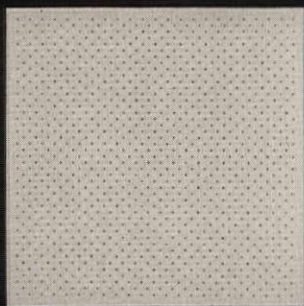
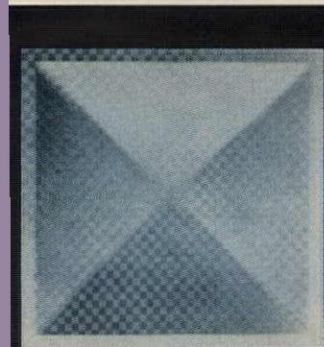
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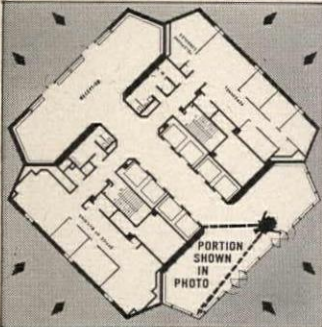
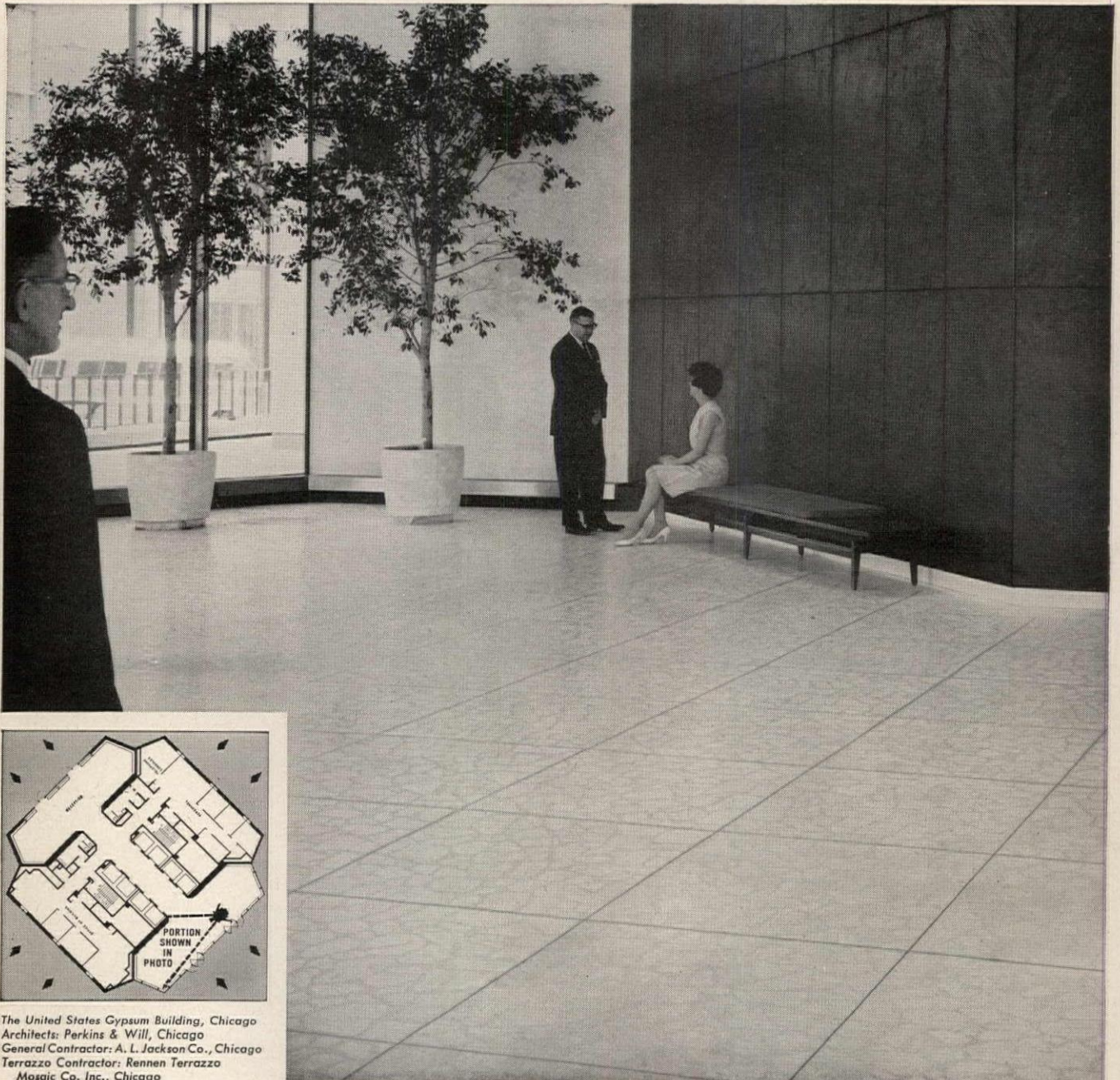


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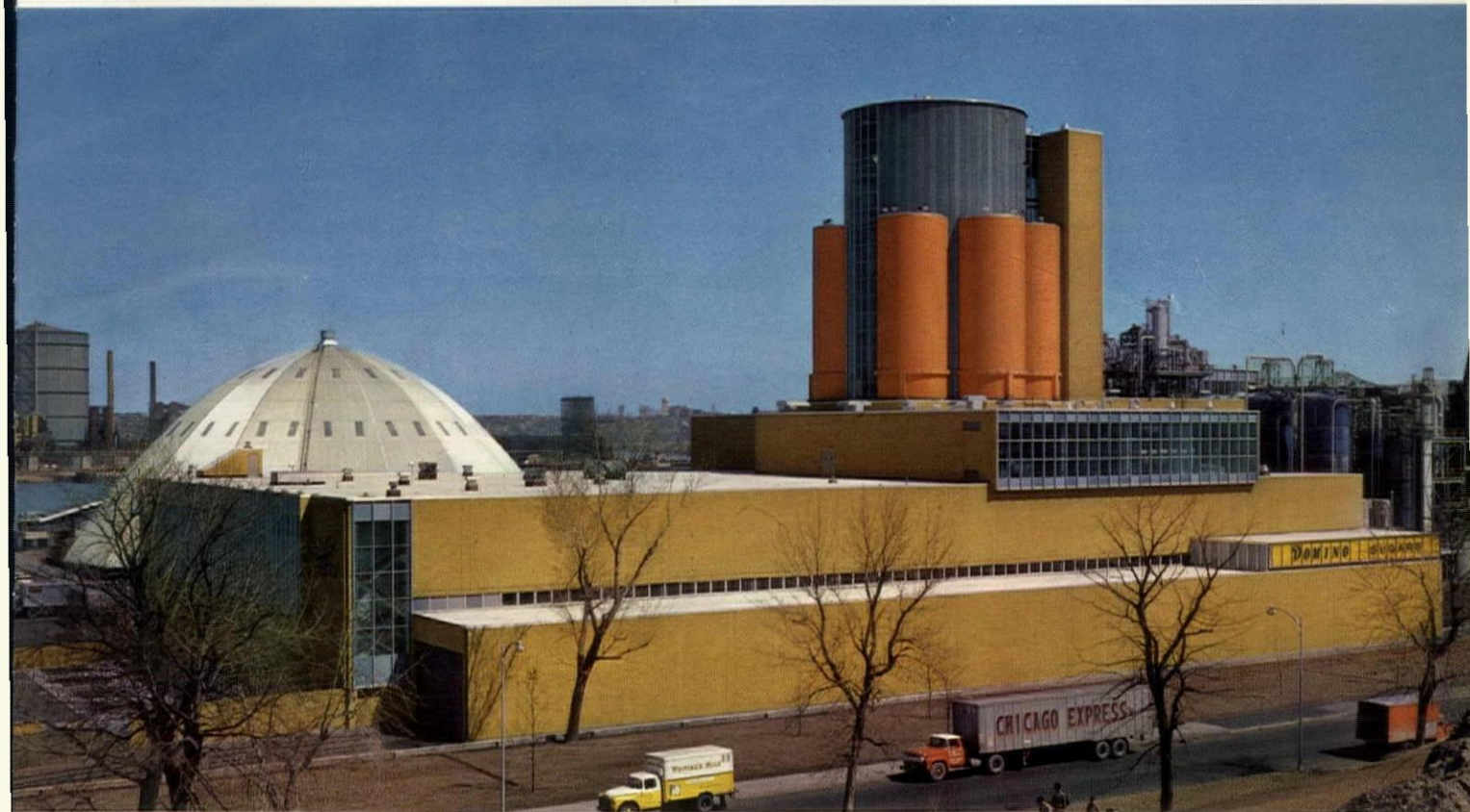


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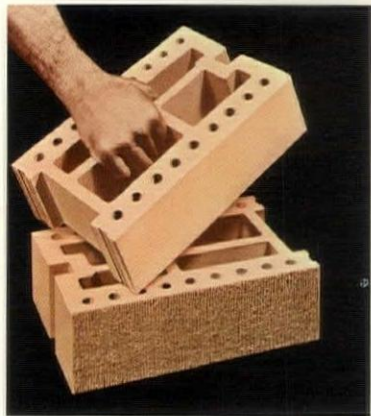
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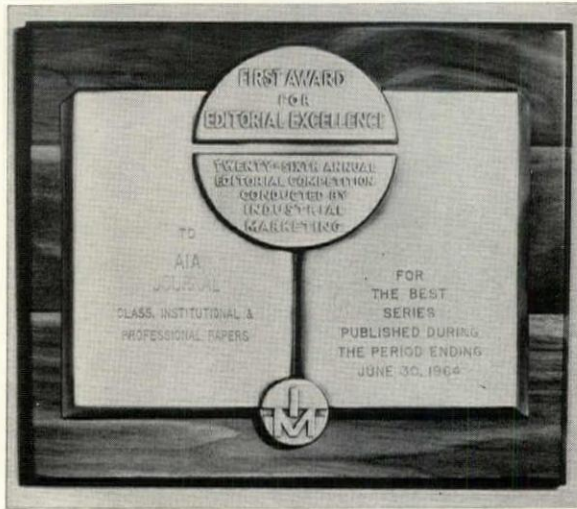
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Awards Programs / AIA Journal Wins Again

For the fourth time since 1960, the AIA JOURNAL has received an award for editorial excellence in the only competition open to all business publications. The Urban Design Series was judged the "best series of related articles on one theme" in its category—class, institutional and professional papers (the other two: industrial; merchandising and trade).

The First-Award metal plaques and Certificates of Merit were presented by the sponsor, *Industrial Marketing* magazine, at a November 12 luncheon in New York's Waldorf-Astoria Hotel.

This year's winning entry, entitled "Urban Design: The Architecture of Towns and Cities," made its debut in the JOURNAL in December 1962, culminat-



ing with the 12th installment last month. Financed by the Institute's supplementary dues, the series was written and illustrated by Paul D. Spreiregen AIA and edited by Joseph Watterson FAIA. It is slated for publication in book form some time next year.

Industrial Marketing's competition, now in its 26th year, is unique in that each publication is limited to two entries: one in any of the first four classifications—"best series," "best single article," "best single issue" or "best original research"—and one in the fifth—"greatest improvement in design." The JOURNAL not only took a top prize in the latter category in 1961 but also captured another with its March issue on urban design that year. In addition, the magazine won a Certificate of Merit for its January 1960 issue devoted to the architect and the homebuilder.

MORE AWARDS AT THE OCTAGON: Three Institute publications have been cited recently for their outstanding graphic design. The most honored of the three is the "AIA Annual Treasurer's Report 1963," which 1) was selected to hang in the annual show of the Art Directors Club of Metropolitan Washington, 2) was named one of the top 41 annual reports of the year by Mead Papers, 3) was featured in the November issue of *Industrial Art Methods* as one of the top 17

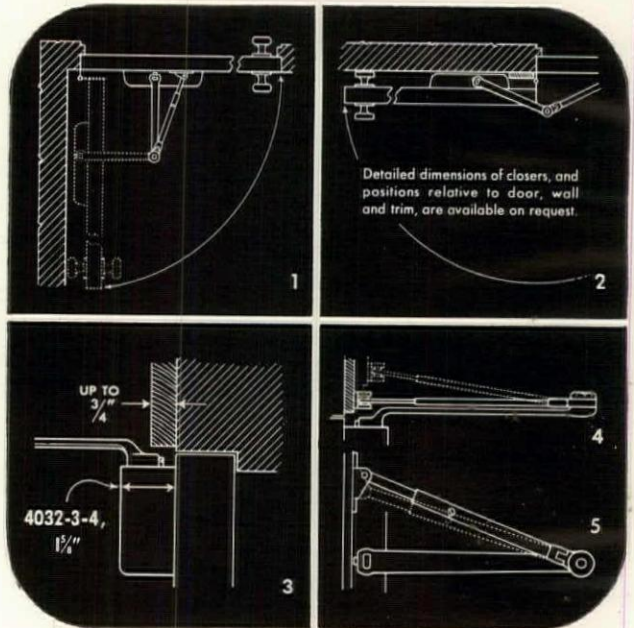
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THE EDITOR'S PAGE

We've Got a Job to Do—and Now

The plight of the city, both economically and visually, has at last become a matter of public concern. You rarely pick up a newspaper in any city today without reading of an argument over an urban renewal plan, or a fight over the location of an expressway which is to come slashing through the city. Magazines like *Harper's* and *Fortune* have articles nearly every month focused upon the ugliness and confusion of cities and highways; upon architecture and the apparent defection of the architect (I'm referring here, of course, to Russell Lynes' article in *Harper's* a couple of months ago); and upon the destruction or preservation, as the case may be, of historic buildings or areas, and the need for conservation of the countryside and the wilderness.

All this has become news today, and a matter of public concern. What are we going to do with the powerful energy which is being generated by this gradually growing public opinion? What are our first steps toward orderly urban growth?

First of all, we must recognize that this tremendous source of power, like a great waterfall, has to be harnessed and directed. And it is we professionals who, trained in design and esthetics, in visual perception, in imaginative planning and in the orderly organization of these activities, must step forward in our various communities and *show* how this can be done. We, as individuals if necessary but better as chapters of the Institute, must offer a comprehensive plan for the long-range betterment of the community.

I would like to propose a five-point program that individual architects and chapters of the AIA can undertake in their own communities.

First of all, we must gauge the extent to which our own community is aware of or aroused to its own local needs and problems. It may be zero; it may be tremendous. This will give us the measure and the direction of the effort needed.

Second, we must take steps toward the making of a visual survey of the community: its assets and liabilities, esthetically, scenically, historically, and in terms of its local traditions and amenities—everything which affects the human spirit. (You see, I am not now thinking about traffic flow, population densities, etc. All those are matters which vitally concern us as planners; but I am now talking about what we must do as designers.)

As part and parcel of the visual survey, or as a separate project, we must make a survey of the landmarks of the community, historic and/or scenic. Most communities of the Eastern Seaboard have a family lineage fully three hundred years old, which has invariably left its marks upon the town. There is no community so young that it does not have relics of its own local family life which are meaningful to its own people. There is no community, however barren, that does not have a vista, a hilltop, a waterfront or a watercourse, a tree or a grove of

trees, or some gift of nature that should not only be preserved and restored but framed and enhanced. This we are trained to do.

As an aside, let me point out that a visual survey of a community, and the designation of certain "special places," would provide many opportunities for profitable investment by private developers which they undoubtedly would never have seen for themselves.

Third, "Master Plan" has become, in many circles, almost a dirty word, for too many people think of it as only a straitjacket directing but limiting future city growth and development. It is, of course, no such thing. A master plan is, as we know well, a pattern for future growth, developed, we hope, with foresight and imagination, but flexible and capable of adaptation to changing future conditions. Every town, city, metropolitan area and region should have its own, each dovetailed into the other. Members of our profession are in an excellent position to focus the public's attention upon the need for a master plan, and upon the dangers, economic as well as esthetic, of uncontrolled growth. Nearly every community in the land now has zoning ordinances, but *zoning* is not *planning*.

It will probably amaze you, as it did me, to learn that the great city of New York has no master plan. There is no comprehensive plan for the over-all growth of the city.

Not long ago, the New York Chapter AIA published a document entitled "The State of the City," based upon a year's study and work by some of the best minds of its members. It received widespread editorial attention and has provoked stimulating interest and controversy within the city itself. Its principal emphasis was upon the urgent need for a master plan for the metropolis. Supporting and aiding it is the important fact that the new chairman of the City Planning Commission, appointed about a year ago, is William W. F. Ballard, a member of one of the city's most prominent firms of architects.

Let me quote a paragraph from the report, for its words could apply to any city:

"... the field of speculative and investment architecture requires much more serious consideration than it has received heretofore. . . . In fact, the major amount of building activity in New York is of the speculative or investment nature. It is erected for the sole purpose of income or a quick profit. Yet, these buildings deeply affect present and future dollar values, community desirability, the rate of urban decay and obsolescence, the city's attractiveness and inspiration for residents and its appeal to tourists." The New York Chapter has performed an exceedingly valuable public service—it may have stirred up a hornet's nest. *This is a good thing!*

Fourth, we come to the traditionally delicate matter of design controls. A great many upper-class residential communities have had design-control boards in more or less effective action for many years. The time has now come when every city which values its physical appearance must face up to the fact that it is just as much the responsibility of

Cont'd on p 88



How to put up a good front in the banking business

When Shigenori Iyama and his associate, Robert Tanaka, designed the new Oakland branch office of the Sumitomo Bank of California, they created three entrances that would not only carry out the bank's clean, modern appearance but would also endure for years under the anticipated heavy traffic.

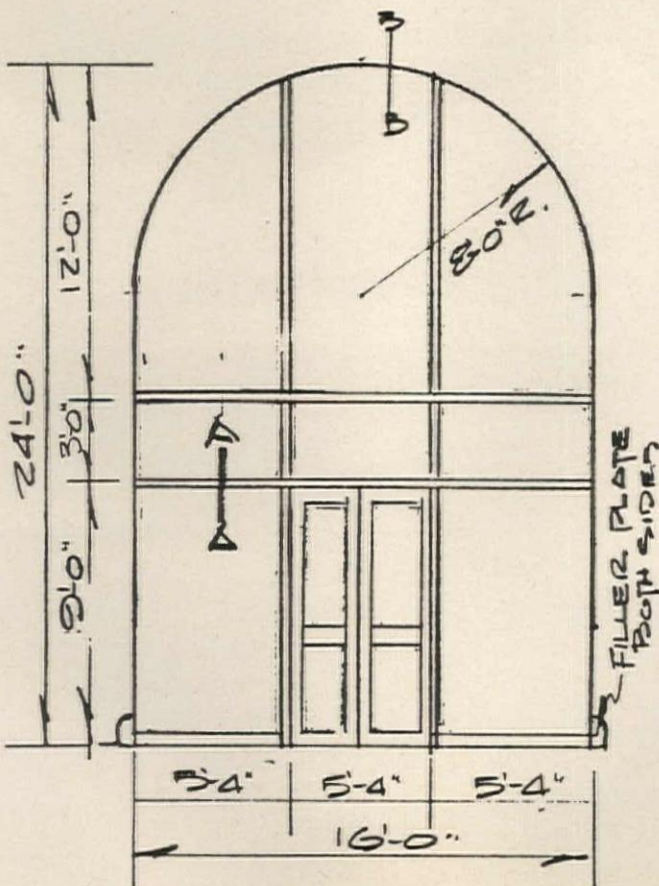
They found a practical answer in stainless steel entrances, manufactured by The Alumiline Corporation, Pawtucket, R. I., from stainless steel sheet provided by Jones & Laughlin

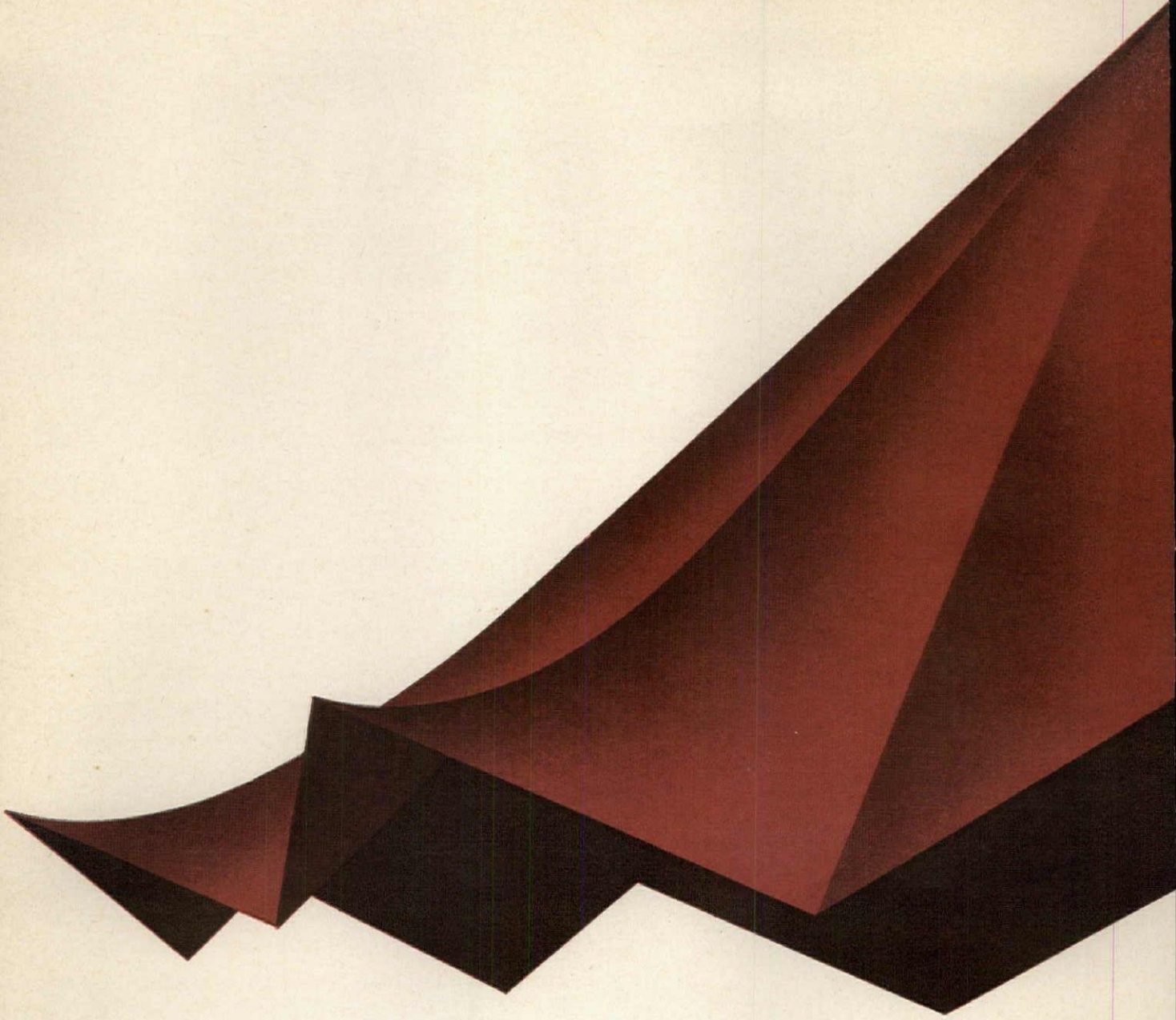
Steel Corporation. The stainless motif was also carried out in the design of the sixteen windows, where stock stainless framing was utilized.

What made the stainless steel entrances and windows practical was the mass production technique developed by Alumiline. The high strength/weight ratio of stainless was an added factor. The lasting beauty, low maintenance cost and durability of stainless were also plus advantages.

If you have a design idea that involves stainless doors and entrances for commercial or monumental buildings, contact The Alumiline Corporation. For further information concerning stainless steel, let us refer you to our Architectural Services.

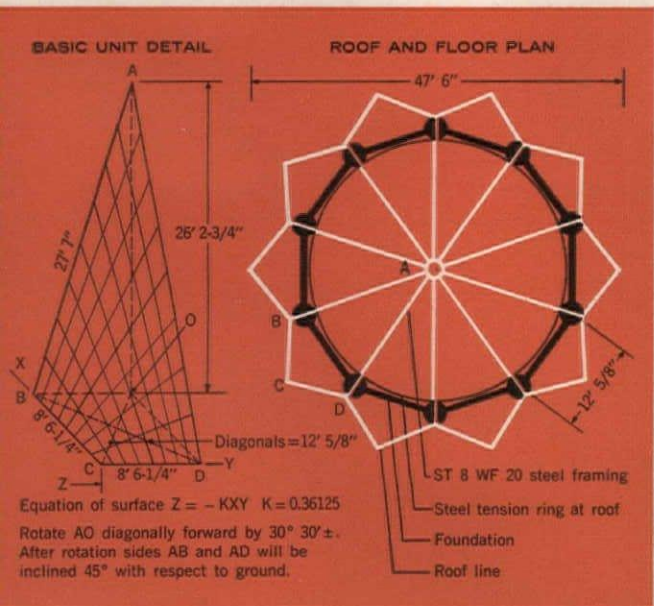
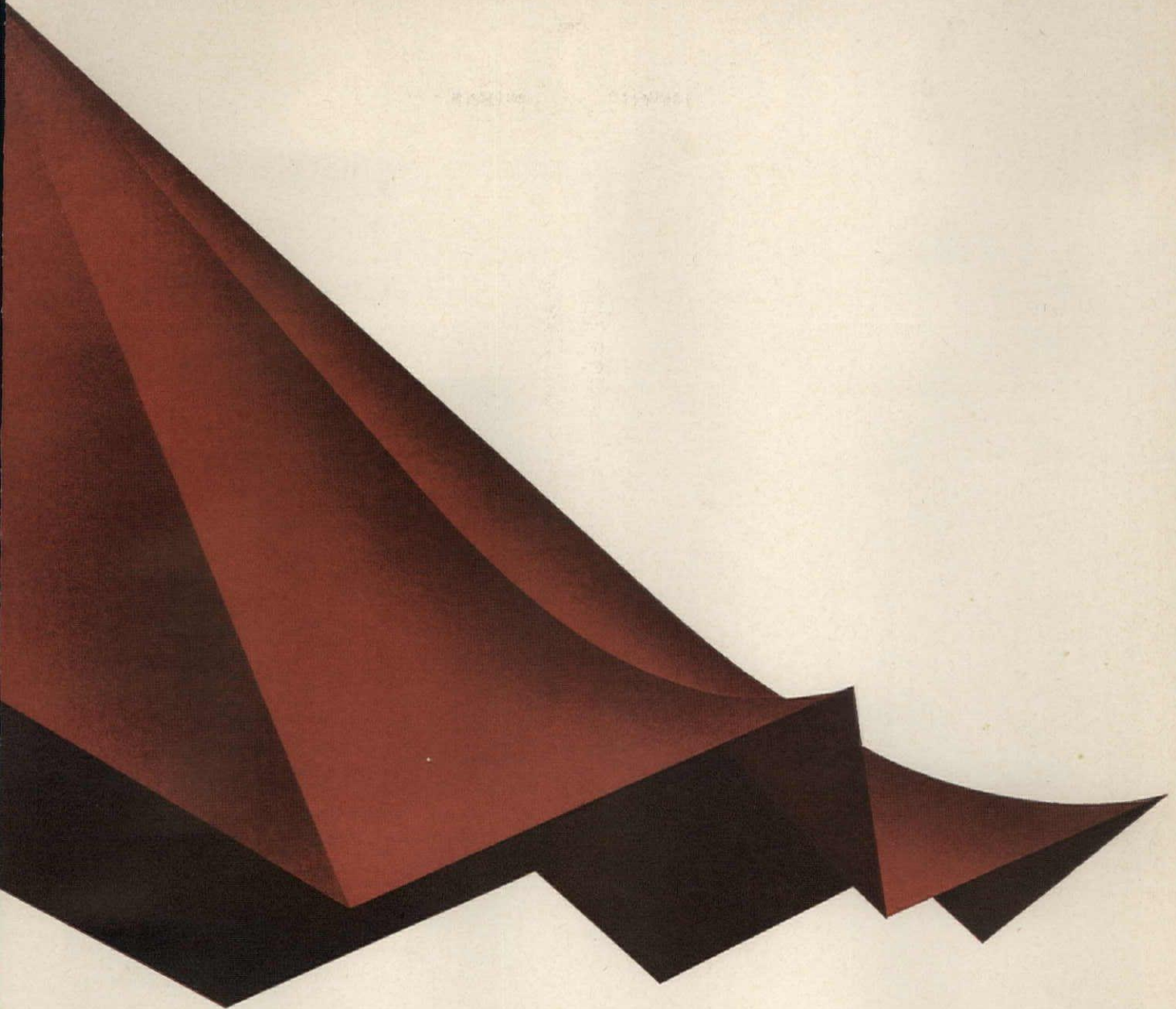
Jones & Laughlin Steel Corporation
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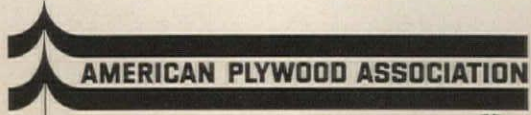


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Paul Rudolph, Architect

George B. H. Macomber, General Contractor

A leading architectural magazine calls this unique new building "an event." Embodying ideas likely to exert strong design influence on its generation, the structure has attracted an unusual amount of attention from critics, industry and press.

Walls of the building are either glass or striated concrete, except for smooth-finished structural members. A portion of the fenestra-

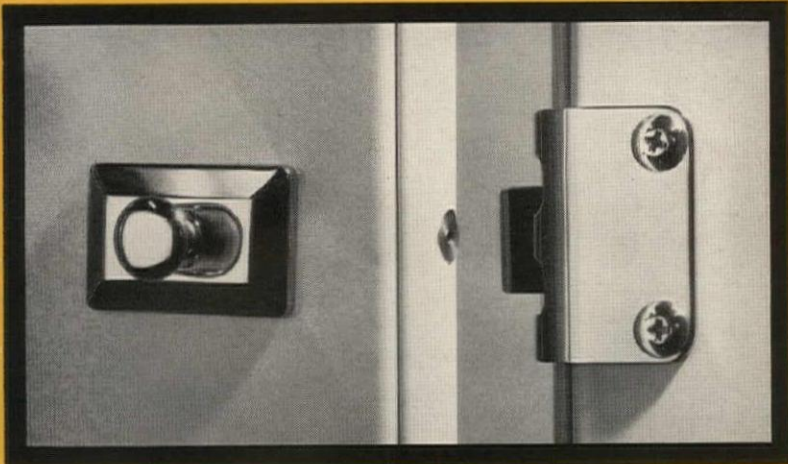
tion which complements the exterior walls was custom-designed by Hope's engineers to meet the architect's requirements. Hope's Heavy Intermediate horizontally pivoted and fixed windows were utilized.

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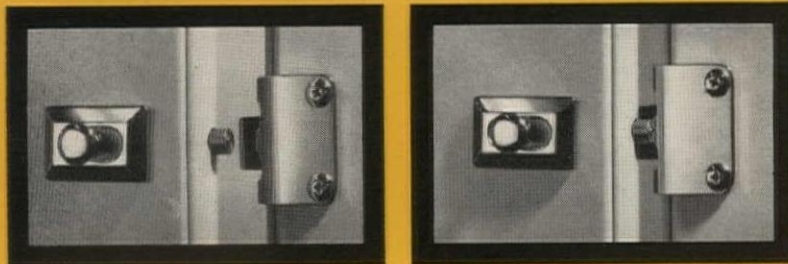
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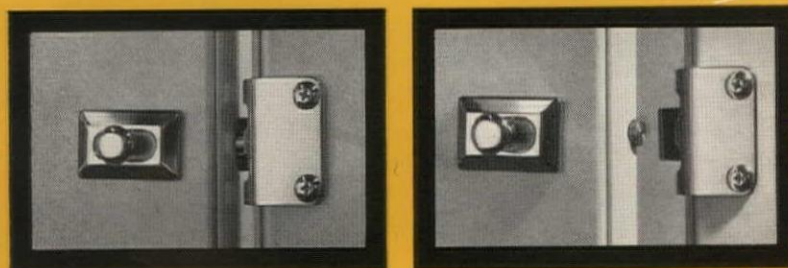
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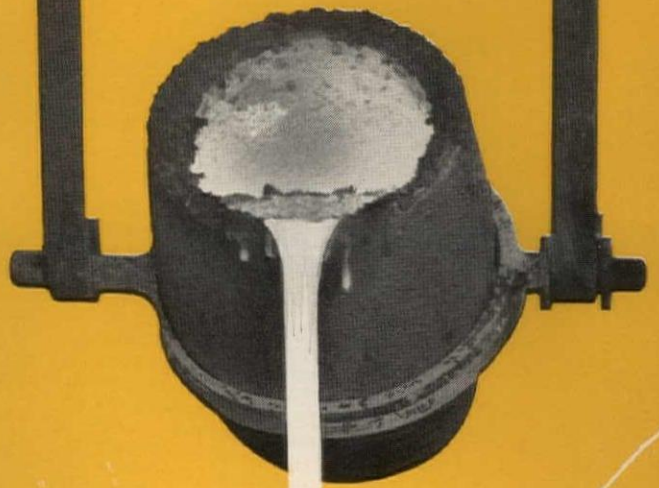
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Black & Veatch, Consulting Engineers, Kansas City, Missouri

GENERAL CONTRACTOR

Winn-Senter Construction Company, Kansas City, Missouri

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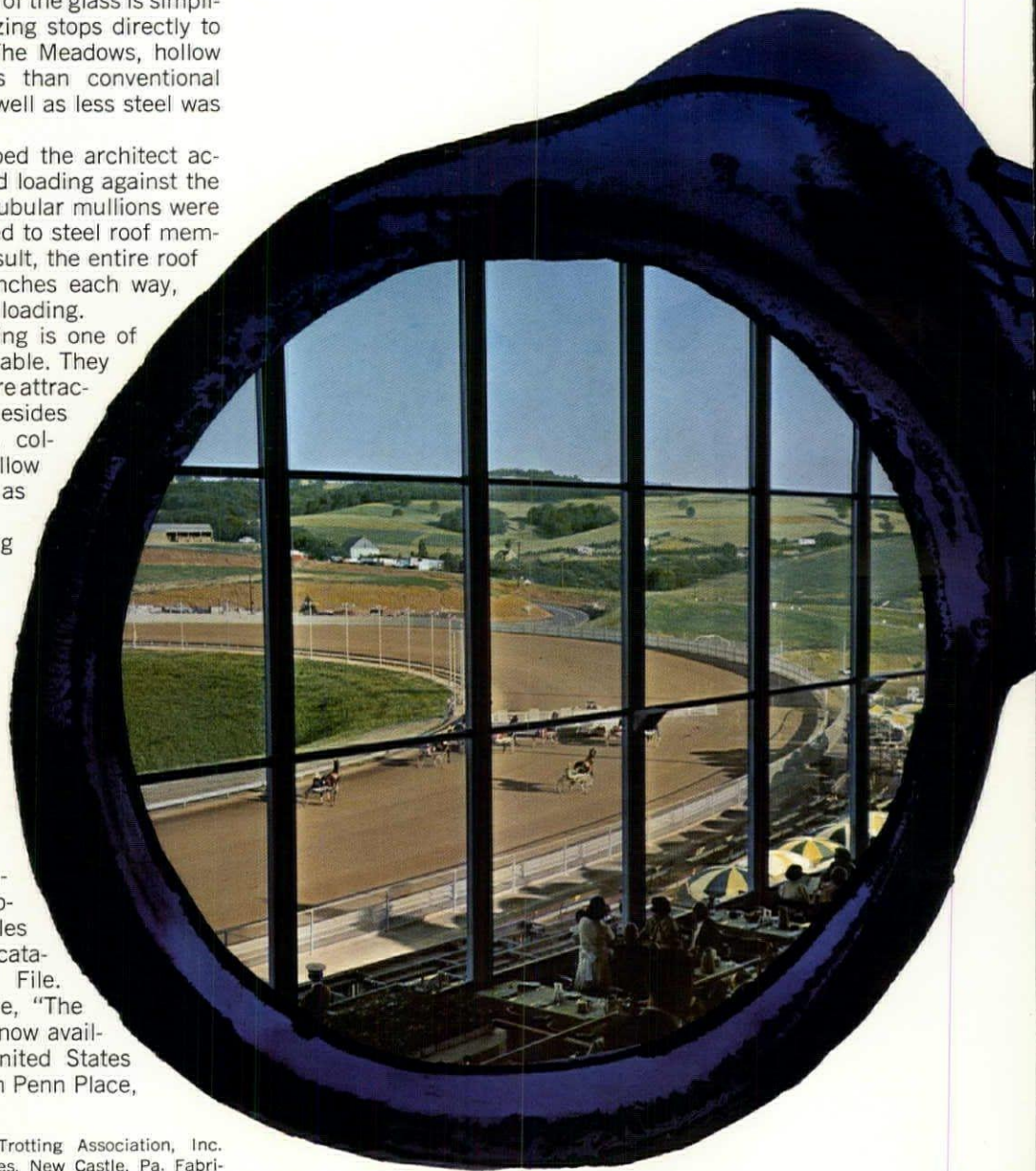
Hollow structurals also helped the architect accommodate varying heavy wind loading against the cantilevered clubhouse roof. Tubular mullions were left open at the top and sleeved to steel roof members with plug inserts. As a result, the entire roof overhang "gives" up to 1¾ inches each way, depending on severity of wind loading.

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The Meadows—Owner: Washington Trotting Association, Inc. Architects: Thayer-Menges & Associates, New Castle, Pa. Fabricated and erected by American Bridge Division of U. S. Steel.

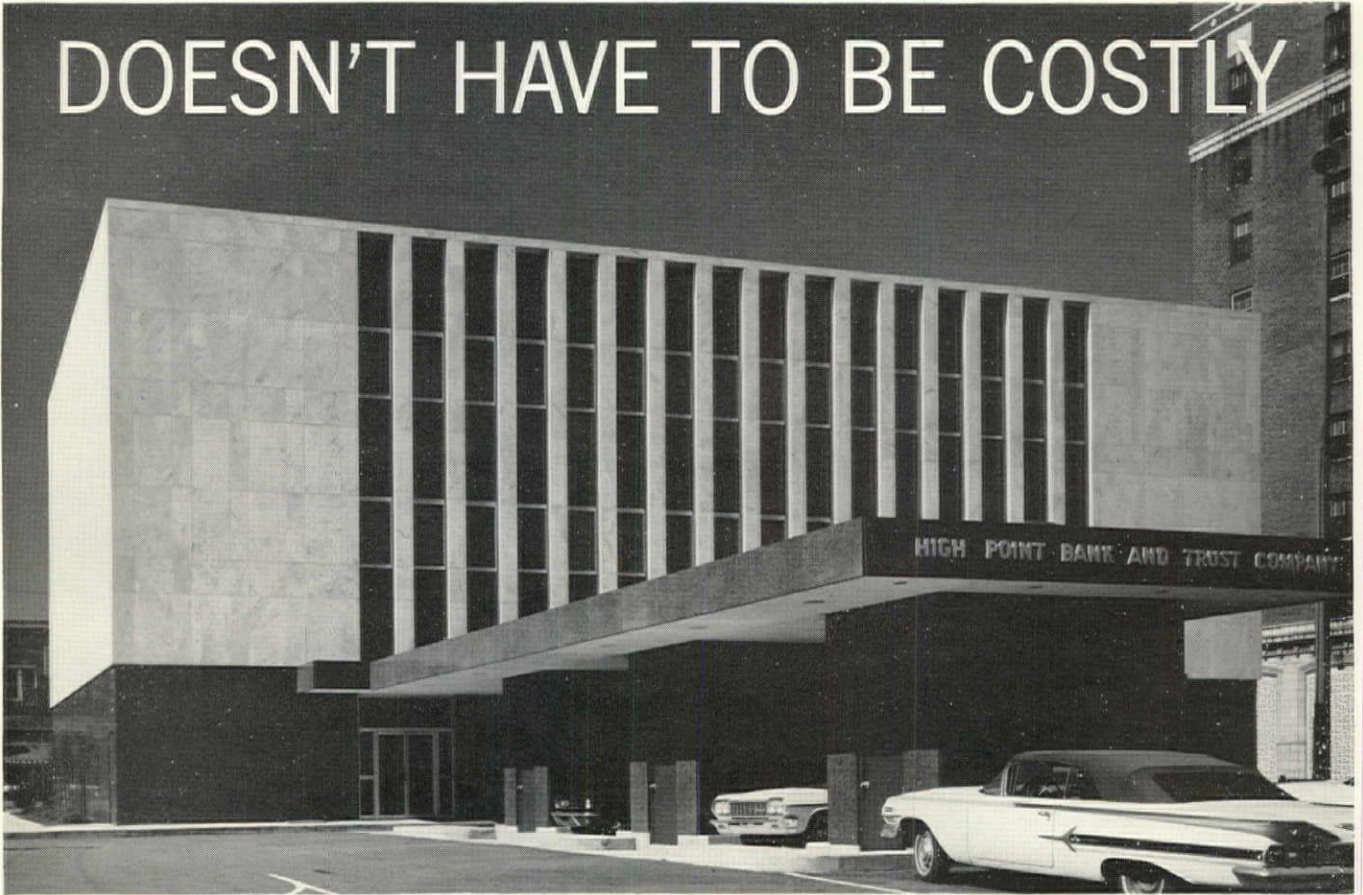


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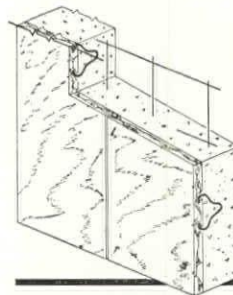
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A · I · A

Journal



Smokestacks on the Dunes

SHIFTING SANDS IN INDIANA

BY GEORGE N. HALL AIA

Four AIA chapters in the area involved in the Indiana Dunes controversy formed the Lake Michigan Region Planning Council and drew up a planning proposal which would permit the dunes to remain virtually untouched, yet give Indiana its much-needed harbor and related industrial area. The AIA JOURNAL presents the story as another example of AIA chapter public service. As for the dunes, nobody yet knows how the story will end

THE RIDGE of sand dunes along the Lake Michigan shoreline in northwest Indiana has long been the center of controversy between proponents of economic development of the shoreline area and those insisting on preservation of this unique, beautiful and historic duneland. The controversy is not new, for the arguments of development versus preservation have been the history of the dunes country for fifty years or more. Pressures for economic development at a natural waterway in Indiana (known locally as the Burns Waterway location) have increased tremendously over the past ten years. These have culminated in construction of industrial facilities, Federal approval of funds for initiation of a Public Port for the State of Indiana, and Senate proposals for preservation of the remaining dunes country through the creation of a National Dunes Park.

The Lake Michigan Region Planning Council, whose concern is the regional city developing around the southern end of Lake Michigan from Milwaukee to Benton Harbor, is dedicated to comprehensive planning. The Council is an outgrowth of an interest in city and regional planning shown by four Lake Michigan chapters of the AIA. This specific interest, dating from 1961, is symbolic of the architects' recognition of the need for planning which embraces natural regions without restriction of political boundaries. Through such interest architects may be expected to contribute their energy to help resolve issues such as that known to the Council as its case study report, Project 62-5.

The intent of our report is to stimulate objective comprehensive planning. To illustrate this approach, we have proposed an alternate scheme which is a concept of land-use providing for development of a Public Port of Indiana and industrial expansion, without destruction or impairment of the timeless beauty and usefulness to man of the majestic dunes enhancing and protecting this serene shoreline. We question the further pollution of this shoreline and the needless destruction of the duneland, whose scientific, educational and recreational value is well known. We do not



The ridge of sand dunes along Indiana's Lake Michigan shoreline has long been the center of a controversy between proponents of its economic development and those insisting on preservation of this matchless area

question the economic development of this subregion; we encourage it and realize it is already with us. Our concept intends that the dunes and shoreline become an interrelated and integral part of the comprehensive subregional plan, achieving a proper balance of land-use to serve industry, commerce, habitation, recreation and conservation in order that all needs of the people are objectively considered.

The case for preservation in its natural state of the dunes country and its shoreline is a very strong one—as a social investment in future generations in terms of education, enjoyment and individual enrichment. Open land, however vast it may be, is of little use to the urban dweller if hundreds of miles away. Open space easily reached by the urban worker is the immediate concern. We believe the dunes country, even if it were less important geologically and botanically, is an essential open-space resource for the expanding population serving commerce and industry of this subregion and region.

The case for commerce and industry is both realistic and impressive. The economic demands upon the State of Indiana to develop a public harbor on its

Lake Michigan shoreline are understandable. The great Midwest market demands industrial service within the area. Perhaps it was inevitable that Bethlehem Steel Co and Midwest Steel Division of National Steel Corp, join competitively their steel-producing neighbors serving this market. Other industries will follow and commerce will continue to expand here. The "How" of this subregional growth is of concern to the Lake Michigan Region Planning Council.

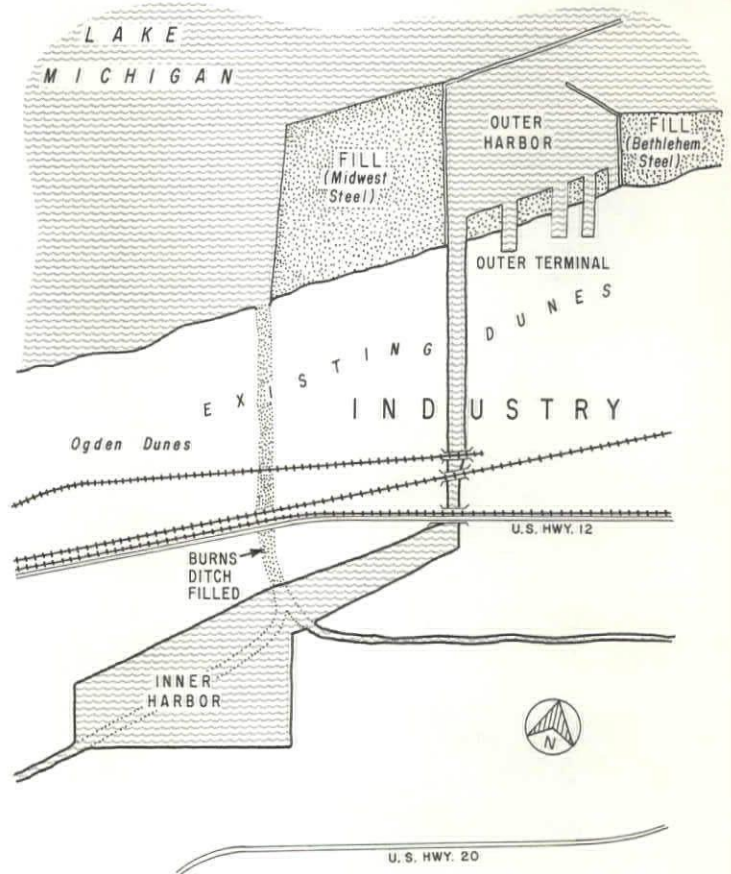
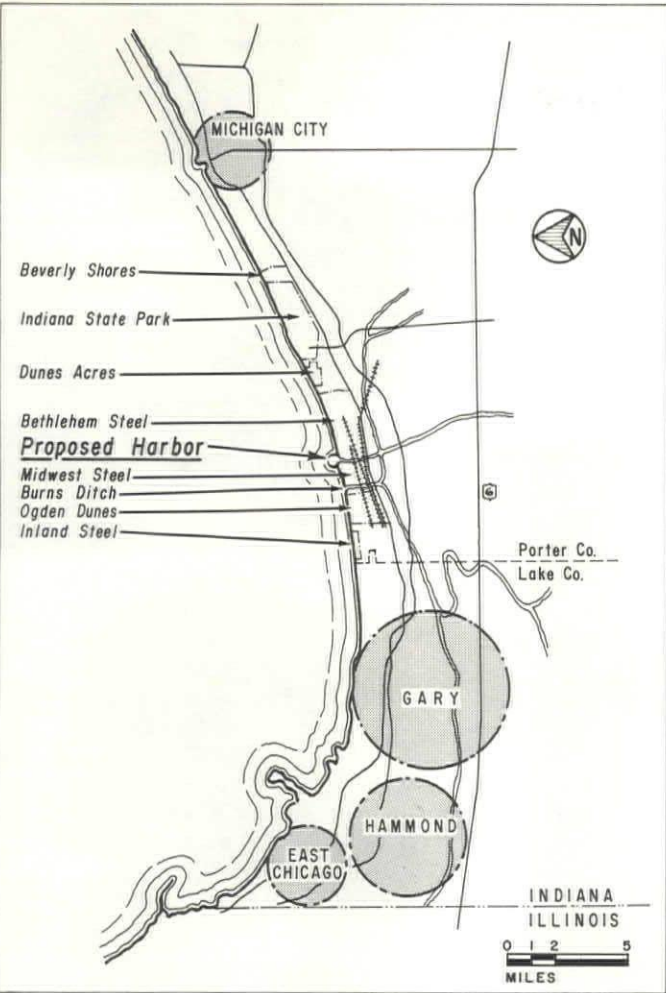
The Public Port at Burns Waterway, as proposed by the State of Indiana, indicates that the development will be located between the properties now owned by Midwest Steel and Bethlehem Steel. This site lies along the Indiana shoreline of Lake Michigan, approximately one mile east of the existing outlet of Burns Ditch into the lake. The site is about eighteen miles east of the Indiana-Illinois state line. The preliminary planning material available to the Lake Michigan Region Planning Council indicates that the ultimate development proposed for this Public Port will be constructed in three stages.

As a part of the proposed plan, Midwest Steel and Bethlehem Steel will be permitted to fill in the lake to the terminal point of the east and west shore connections. This will provide Midwest Steel with an additional 225 acres and Bethlehem Steel with an additional 300 acres of "made land." This lakefill will be obtained by leveling the dunes in the area, providing a level site for construction of the proposed facilities. The outer harbor breakwater extends a considerable distance from the existing shoreline and this offshore projection plus the landfill on either side will effect a great man-made change in the shoreline. Thus the program now underway will eliminate forever the majestic dunes in this area, create a great change in the shoreline and result in further encroachment of man-made industrial environment along the shores of our Great Lakes.

A Public Port of Indiana can be developed in the Burns Waterway area to fulfill the requirements of developing commerce and industry without destroying for all time the dunes and shoreline. The purpose of Project 62-5 was not to solve this problem but rather to encourage and stimulate objective comprehensive planning. We believe this to be man's best means of developing and controlling his expanding and changing environment in his determination to satisfy and protect all of his needs, now and in the future.

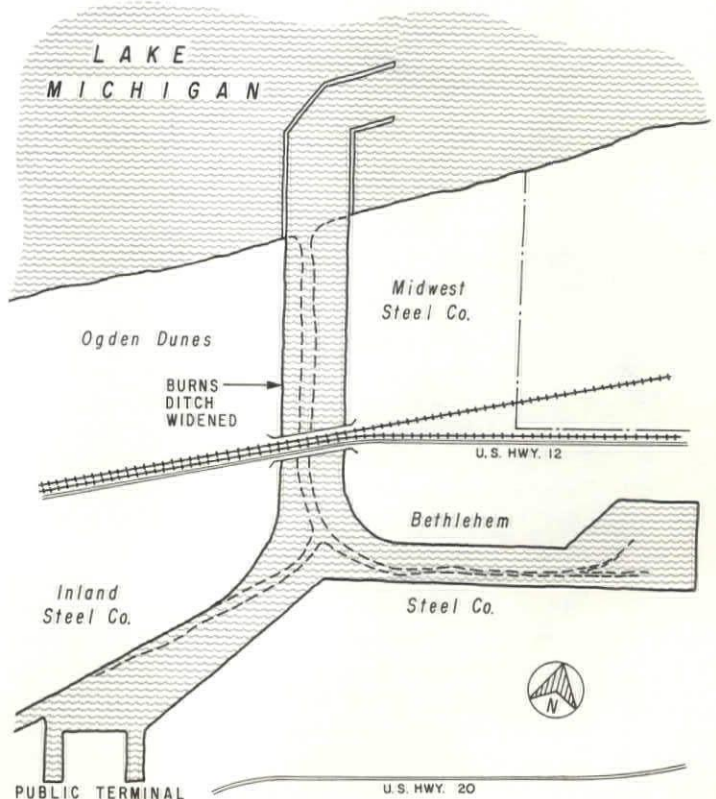
Project 62-5 includes an alternative scheme for the Burns Waterway Harbor and contiguous industrial development to illustrate this possibility. This concept is *not* a compromise proposal nor a recommended solution.

The Dunes Harbor concept of an inland harbor lying behind the dunes ridge involves a minimal breakwater installation and precludes landfill in the lake. Thus, the dunes provide natural protection to the retained shoreline, reducing pollution of adjacent beaches while permitting continued use of the dunes for recreation and conservation. This concept is neither new nor startling and unquestionably requires many important adjustments for its realization, especially as regards zoning and land acquisition. The latter requires full assistance and cooperation by all



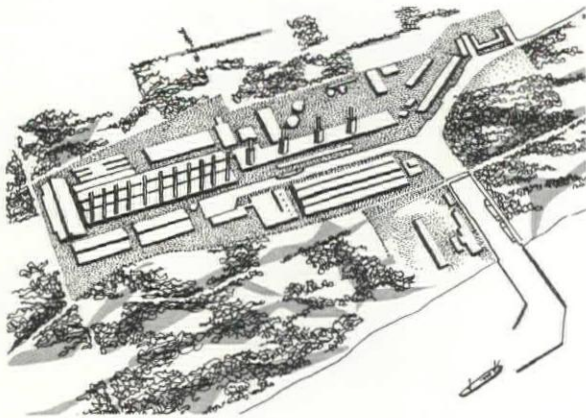
The proposed Burns Waterway Harbor (above) will be located between the properties now owned by Midwest Steel and Bethlehem Steel. This site (detail, upper right) lies along the Indiana shoreline, about one mile east of the existing outlet of Burns Ditch into the lake and about eighteen miles east of the Indiana-Illinois state line

The Dunes Harbor as proposed by the Council (lower right) forms an inverted "Y": its two inland branches, southwest and east-west, meet the north-south stem, which follows Burns Ditch to the lake. The east-west branch would serve Bethlehem Steel and include a turning basin at its eastern extremity. The southwest branch would serve property now owned by Inland Steel and include public harbor terminal facilities at its southwest extremity. The north-south stem connecting the lake and harbor would serve Midwest Steel and provide separation of Ogden Dunes, a residential community, and the industrial development. This scheme puts the harbor between US Highway 12 and 20, requiring only one combined rail-highway bridge for transportation service crossing the north-south stem



levels of government (in fact new legal procedures seem indicated) to make it possible for private enterprise to take its full part in the achievement of this comprehensive approach. This lack of method, particularly in land acquisition, appears to be a great void and a challenge to comprehensive planning. The will to plan objectively in the basic interest of the region further requires a method to insure the orderly and proper growth of the region into a beautiful, dynamic and comprehensive whole.

The Dunes Harbor concept takes the form of an inverted "Y" from its limited breakwater system as it follows Burns Ditch and its two branches inland northwest and east-west. The east-west branch of the harbor is designed to serve Bethlehem Steel and includes a turning basin at its eastern extremity. The southwest branch is designed to serve property now owned by the Inland Steel Company and includes public harbor terminal facilities at its southwest extremity. The north-south stem connecting the breakwater-protected entrance channel of the harbor will serve Midwest Steel and provide separation of the conflicting land-uses of Ogden Dunes (a residential community on the western bank) and the industrial development. This inland harbor scheme lies between



The Dunes Harbor concept is an inland harbor behind the dunes ridge, with a minimal breakwater installation and no landfill in the lake. There would be ample facilities and docking space for industrial users; all contiguous major users would have direct access to their property; the dunes and shoreline would remain unspoiled

US Highways 12 and 20, permitting transportation service on one combined rail-highway bridge crossing the north-south stem of the proposed harbor.

The Dunes Harbor concept provides ample public terminal facilities, docking space for all contiguous major users with direct access to their property. The dunes and lake shoreline remain in their natural state and only the minimal breakwater system will project offshore, there being no "made land" required or permitted in the lake. This alternative approach provides a Public Port of Indiana at the Burns Waterway location to serve contiguous and other industrial users without destroying or impairing the important land resource of the dunes and shoreline.

On a national scale we have been proceeding in a prodigal manner during past decades to decimate our natural resources essential to the needs of man.

The problems of urban sprawl, misuse of land, vanishing open space, and a host of other critical land-use questions, have not been considered objectively or comprehensively to relate inherent human needs with those economic factors vital to our national development. America still possesses vast areas of open country and there is little danger of these being built over. But, in the region which is the concern of the Lake Michigan Region Planning Council, it is clear that we must plan and fight to protect our prime open-land resources close to our concentrated urban areas.

We must understand that "non-economic needs" are *not* less important than "economic needs" and comprehend our objective of balance and order in the satisfaction of the environmental needs of man. Balance and order must prevail as part and parcel of man's environment if he is to fulfill himself and his desires for production, education, spiritual consideration and repose.

Project 62-5 hopes to point up the vital and urgent necessity of resolving critically against further unplanned use or misuse of our irreplaceable resource, *land*. A way must be found, and soon, to achieve proper balance in our further land-use programming between economically productive uses and living and leisure uses.

Private enterprise will need methods of assistance and cooperation to participate fully and profitably in attaining balance between economic and noneconomic uses of land. Commerce and industry are an integral part of comprehensive planning and must be so considered to achieve our objective. Proper land-use must be brought to the fore as the determining factor for all future generations and for all time—that *all* needs of the people may be objectively resolved. Through such resolution, the dynamics of this, or any region, will be controlled and regenerated *toward the region*, not any *particular segment* thereof.

The issue joined in the particular controversy related here is well determined already. The concern of the architects comprising the Council as expressed in this paper is not only for their own region but also for similar problem regions elsewhere in the United States. The recently announced interest of the AIA's Urban Design Committee to stimulate (through a subcommittee on regional planning) a greater consciousness of regional problems is adequate recognition of the Council's efforts. ■

Editor's Note

Senate Bill 2249 (Indiana Dunes National Lakeshore) has been passed by the Senate in the last session of Congress. However, if the bill is to stay alive, it must be reintroduced when the next session of Congress convenes early in 1965. At this point in time, it is difficult to foresee the future of the bill in the 89th Congress. On this subject the author of the article now has this to say: "The Lake Michigan Region Planning Council feels it has attained its goal of bringing the comprehensive planning approach to the attention of the people of influence and of the public. We have no wish to become involved in politics or arguments."

THE ALASKA EARTHQUAKE

What the Task Force Has to Say

*Architects and Engineers Look In
on the Forty-ninth State*

BY PAUL SPREIREGEN AIA

APPROXIMATELY a million earthquakes occur each year, most of them in remote places and of unnoticeable severity. The recent earthquake in Alaska was the occasional exception that proves a disaster.

Shortly after 5:30 PM on March 27, 1964, Alaska suffered the sixth in a series of recorded major earthquakes that have struck there in this century. Earthquakes have a number of killing effects. Seismic shocks can topple buildings, cause landslides and land settlements, as well as wreck roads and bridges. Ruptured gas and electric lines can start fires. Panic may break out among crowds. Seismic waves can sweep away buildings, docks, ships and trains, and flood large areas with burning oil.

Perhaps the most remarkable thing about the March 27 Alaska earthquake is the relatively small number of people who lost their lives. The earthquake occurred late in the afternoon on Good Friday during a period of low tide. Had it occurred at another time, many more people would have been killed. But, looking at the disaster in another way, perhaps the most fortunate thing about it is the opportunity it offers to rebuild, utilizing the talents and means of modern America.

The Federal government was quick to act. President Johnson established the Federal Reconstruction and Development Planning Commission for Alaska under the chairmanship of Senator Clinton P. Anderson. The AIA was also swift in responding. On April 3 then AIA President J. Roy Carroll Jr, FAIA telegraphed the White House to offer the AIA's assistance in an advisory capacity. This offer was accepted and an advisory panel subsequently assembled by former President Henry L. Wright FAIA and Northwest Regional Director Robert L. Durham FAIA. The Alaska AIA Chapter was contacted for advice, and it was decided mutually that an AIA panel of non-Alaskan architects would be able to make recommendations most effectively, as disinterested observers.

The AIA panel was made up of experts in construction, design, building technology, industrial buildings, urban design, city planning and building codes. Its members were William H. Knowles of San Francisco,

A report by two members of the AIA-EJC panel sent to view the damage and make recommendations; and an article by an engineer who has given the problem of aseismic design much study

serving as chairman, William Glenn Balch FAIA of Los Angeles, Charles A. Blessing FAIA of Detroit, Kenneth W. Brooks of Spokane, Craig A. Harmon of Seattle, Herman C. Light FAIA of Los Angeles, Stephen H. Richardson of Seattle and the author.

At the same time a similar advisory group of engineers from the Engineers Joint Council was being assembled. EJC represents 600,000 professional engineers through their separate professional societies. The EJC advisory panel consisted of Maj Gen Keith R. Barney, USA (ret), serving as EJC chairman; George E. Brandow of Los Angeles, structural engineer; Dr William J. Harris of Washington, DC, scientist with the Battelle Memorial Institute; Dr Donald E. Hudson of Pasadena, seismologist; William G. Meese of Detroit, electrical engineer; Dr A. Nelson Sayre of Washington, DC, geologist; and Josef Sorokin of Kansas City, civil engineer. Serving without pay, the groups received a reimbursement for travel expenses from the government.

The AIA and EJC joined forces in Alaska, an arrangement which proved to be most stimulating. The charge to the conjoined group was to 1) survey the damaged areas, 2) determine the progress being made, 3) recommend specific improvements in reconstruction and 4) suggest improvements in coordination. Findings were to be reported in writing to the Governor of Alaska, William A. Egan.

On Sunday evening, June 7, the group arrived at the Anchorage airport and was met by Lt Col William Penley, a US Army Corps of Engineers officer on special duty to the Alaska Reconstruction Commission. Colonel Penley made the arrangements for travel in Alaska and for meetings with local officials. He was ably assisted by Capt William Randolph USAF, who ushered the group from town to town via Air Force transport planes.

Tired as the group was upon arrival, no one could fail to be impressed by the natural beauty of Alaska—and those first sights were to be only modest preludes. Simultaneously one became aware of the characteristic topography of southern Alaska. There mountains rise almost vertically from the sea. Melting glaciers have carved huge valleys out of the mountain ranges, leaving bays as they receded. The only possible sites for cities are the delta-like flats created by alluvial wash, fine particles of stone which have been crushed and carried down by the melting snow. The town sites are often at the head of a bay or along its side, chosen for convenient access to inland trails and anchorage.

This land is loose and unstable. In geological time it is no older than yesterday. Its angle of repose where it slopes down into the sea is about twenty or thirty degrees. Occasionally a large section of this land slides off, as land slides from the palisades of

Los Angeles. Seismic shock causes both slides and compaction. During an earthquake this loose soil actually moves in visible waves of shock, like ocean waves. And its jellylike consistency subjects a building to a longer and more damaging oscillation than would compacted land, which transmits a more concentrated and less damaging single shock.

The first day in Alaska was spent on orientation. Col K. T. Sawyer, US Army District Engineer, showed photos and maps of the damaged cities and outlined the effects of the earthquake. He then went on to discuss the efforts under way to rebuild. The group heard other officials, architects, engineers and planners describe their work. From this first day's session several things became apparent. It was obviously vital to expedite all reconstruction work because of the short Alaskan construction season and in order to quickly restore the economic bases of the damaged cities. But it was also vital to coordinate the work of several hitherto unrelated groups.

From late Monday through Thursday the group surveyed the damaged towns and spoke to townspeople, mayors, fishermen, construction workers and railroad men. The group visited the Turnagain residential area of Anchorage which had slid into the sea, the Fourth Street section of Anchorage which had dropped 20 or 30 feet, central Kodiak which had been obliterated by a series of tsunamis (huge waves similar to tidal waves) lasting all night, Homer Spit which had suffered damage to its port, the port of Seward which had been rendered completely inoperative by the tsunamis, Whittier which was also badly damaged but operational as a port and had taken over shipping from Seward and, finally, Valdez which is so vulnerable to a recurrence that the town must be rebuilt on a different site.

Much of the rubble had been cleared away but the extent of the destruction was still awesome. The work of the armed forces and numerous individuals had been heroic. The efforts of the townspeople were admirable but many of them were considering leaving, feeling uncertain of their future.

The need of enforced building standards, zoning and town planning was clearly evident. Concrete often contained unsuitable aggregate, because proper rock is not always readily available. Structural ties

between foundations and frames were frequently missing. Oil storage tanks had been erected near a hospital. Small boat harbors were located directly in front of the towns—the boats had been lethal missiles on the crests of the tsunamis which also carried flaming oil and wreckage. A railroad track circled the shore of Seward completely, cutting the town off from the water's edge and exposing freight trains to the full force of the ocean.

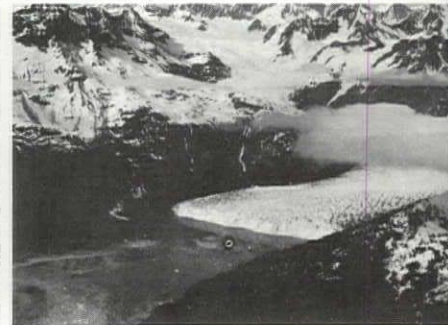
The natural beauty of the settings of the towns is overwhelming. Snow-capped mountains rise to five or six thousand feet from the sea. The journey took the group over countless glaciers. (College Bay is fed by two glaciers called, respectively and respectfully, Harvard Glacier and Yale Glacier.) The land approach to Valdez over Thompson Pass and through the Keystone Canyon equals anything in Switzerland for sheer spectacle.

On Friday, June 12, the AIA and EJC groups began putting their thoughts on paper for Governor Egan. Several members of the group visited officials in Anchorage to obtain information on phases of the report in which they were particularly involved. In the evening the AIA team assembled with the Alaskan architects—some of whom it had already met on Monday. The local architects helped conduct the damage survey and are busily involved in reconstruction projects. A fruitful exchange of ideas took place about various aspects of work to be done.

The AIA-EJC report was in two parts and to the point. The AIA's report covered immediate needs, long-range needs, architectural design and planning, building construction regulations and techniques, as well as the architectural and planning aspects of tourism, badly needed for the economy of this new state.

The AIA group recommended immediate restoration of essential facilities, prohibition of construction on unstable sites, examination of alternate proposals in planning, the recording of the experience of self-help, the study and recording of structural damage and the appointment of a committee of Alaskan architects to review all town or renewal plans.

The AIA members specifically proposed that the 1962 Federal Highway Act, excepting Anchorage from comprehensive land-use planning as a prerequisite for obtaining Federal funds, be changed to



This series of photos by the author vividly explains what the task force saw in Alaska—from awesome natural beauty to equally awesome destruction



include Anchorage. It advocated that each town be designed functionally and esthetically in relation to its total surroundings, that planning efforts be coordinated, that emergency water supplies be created and that industrial elements, oil storage facilities and harbors be located intelligently. Regarding a building code and its enforcement, it was recommended that a sound earthquake code be written, adopted and enforced, and that local officials be trained in its use and application. The public must at the same time be made aware of its necessity. Finally, recommendations were made for developing tourist facilities for all types of year-round vacation activities. Two appendices on urban and architectural design were attached to the AIA section of the report.

The EJC panel dealt with somewhat more technical matters, however. The joint report was mutually complementary. EJC's proposals covered soil tests, seismographs, utilities, power generation, road usage, changes in Public Law 875 (restoration of public facilities) to better suit Alaska's needs, research into utility systems which better resist seismic shocks, reconstruction coordination, the private sector of the economy and numerous other details. Any attempt to capsule the joint report would be inadequate.

The report was in the hands of Governor Egan and other Alaskan officials and citizens soon after its completion. The AIA-EJC group hopes that a follow-up survey will be possible to investigate the adequacy of subsequent efforts. This is essential for Alaska in both the short and the long run.

The question of the next earthquake in Alaska is not a question of *if*. It is a question of *when*. It would be sheer stupidity to recreate the same hazards which caused so much damage and to overlook the combination of fortuitous factors that saved so many lives. That would only serve to undermine Alaska's progress toward a more self-sufficient economy, not to mention the unnecessary loss of life and property.

For the AIA this experience stands as an experiment in professional action when professional action was needed. As the AIA continues to enlarge its role it may well find itself involved in similar situations—where the calm judgment and expertise of its members is essential, indeed where it is actively sought. The Alaska task force was such a step. ■

Which Buildings Fail?

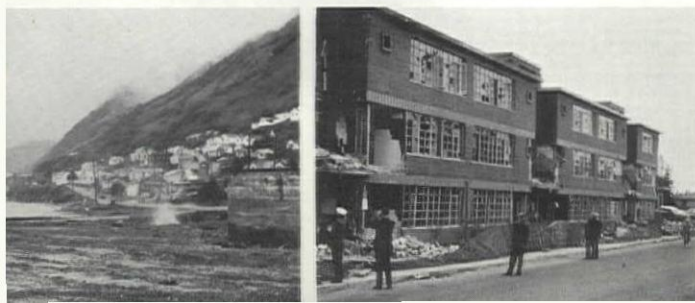
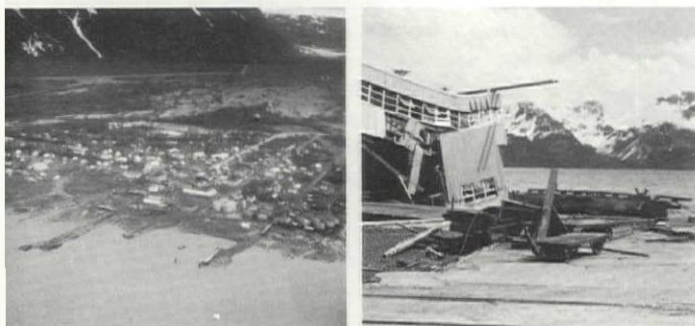
Corrective Action Can Minimize Damage

BY HERMAN CHARLES LIGHT FAIA

DISASTER struck south-central Alaska on Good Friday, March 27, 1964, in the form of a crippling earthquake. The magnitude, or relative energy, released by the shock has been rated by seismologists in the range of 8.4 to 8.6 on the Richter scale. The Richter scale is a measure of magnitude of force and ranges from 0.0 to 8.9. Actual readings are taken from seismological measuring instruments. This evaluation is to be differentiated from the Mercalli scale which is an expression of intensity and effect of damage caused by the force. The Mercalli scale ranges from 1 to 12 and the rating is based on a visual survey of the area affected. No Mercalli evaluation has been assigned to the Alaska earthquake as of this writing. The Alaska temblor was greater than the 1906 San Francisco shock (8.3) and equaled or exceeded the 1960 Chilean earthquake (8.4). Alaska's earthquake caused significant damage (estimated at \$200 million in Anchorage alone) to buildings and properties over more than a 50,000 square-mile area and cracked ice on some lakes and rivers within a 100,000 square-mile range.

The initial and main shock occurred at 5:36 PM and lasted approximately 4 to 4½ minutes. By 7 AM March 30 some 52 aftershocks were recorded. The largest of these was 6.7 in magnitude, and 11 shocks occurring within the first 24 hours after the initial shock were of magnitudes greater than 6. The quake is described as a short, sharp jolt followed by a strong, continuing, rolling motion. Tectonic uplifts and subsidence in the order of 7½ to 10 feet were common and extremes of 15 feet plus were encountered. Submarine landslides were of an even more spectacular nature. At Seward, water at a former dock-site reported at 60 feet deep is now 150 to 200 feet deep. Similarly, the Valdez dock-site water is 125 feet deep where formerly it was about 35 feet.

The tsunamis that were generated struck all along the seacoast and at Kodiak Island. Had this disaster struck during business or school hours and had the tsunamis associated with the shock occurred at high tide, rather than low tide, the loss of life and property would have been many times greater. The unusually vast amount of damage is attributed to the great magnitude of the seismic force, the long duration and to the shallow focus or point of origin of the shock (estimated at about 12½ miles below the surface).



Reports submitted by visiting professionals were unanimous in stating that the building ordinances had not been adhered to nor had they been adequately enforced. In general the Uniform Building Code (Zone 3 Seismic Condition), had been adopted with reservations in some areas. However, buildings as erected, and the drawings for these buildings, bore little or no indication of compliance with this code; nor did they demonstrate understanding of the problems of designing and building to resist seismic forces. The drawings for a recently constructed school building gave only lip service to these requirements by lettering a note on one sheet of the structural drawings "Criteria, Uniform Building Code, Zone 3 Seismic." The drawings, however, did not show the proper transfer of stresses from vertical shear walls to horizontal diaphragms, proper bracing, correct dowelling of slabs to walls, or any of the basic considerations in tying a building together. To say that the building itself failed, separated and distorted would be a gross understatement. Lack of attention to proper connection design and calculation, and to detailing, was found to be the common practice rather than the exception.

Meetings with some building officials divulged that their understanding and even their vocabulary of seismic engineering principles was limited. In the smaller communities the mayors or city managers were issuing building permits as revenue-raising devices rather than as regulatory control. Buildings erected within the past two or three years often had inadequate nailing of wooden members, an absence of footing pads under concrete foundation stem walls, and concrete made with fragile friable aggregates. Lack of bond between concrete and reinforcing steel was visible in many instances. One apartment house (multistory) erected with a steel frame and concrete block filler walls was a shambles. The filler walls was composed of two thicknesses of concrete block separated by rigid insulation board. No dowels to the beams or columns existed and there were no ties of any description in the walls. The walls actually peeled off layer by layer prior to collapsing.

The attitude of "do as we wish rather than as we should" was being projected into some of the city and town planning under way. Much of the work in progress that was displayed was "paper design" that might make elegant reproductions but showed a definite lack of awareness of geology, topography and other basic problems peculiar only to Alaska. Designs were being produced everywhere by everyone. Work was being scheduled more on how fast it could be done than on how well it could be done. Hurry! Hurry!

Many well-designed buildings survived the earthquake without any appreciable amount of damage. In general, wood frame buildings performed better under seismic shock than other types of structures. Poor quality concrete ingredients and the lack of bond to reinforcing steel was readily apparent in most concrete structures; structural steel failures indicated a lack of care in detailing; and the performance of precast concrete and lift-slab structures was completely unsatisfactory. One can not expect any building, no matter how meticulous the structural design,

to withstand having its foundation drop 10 feet or more, but where sound soil conditions are available, good structural design still makes a significant contribution.

The reconstruction and redevelopment of Alaska must encompass and solve the problems that are peculiar to the region. The redevelopment of existing towns or portions of same and the development of new towns must be done on soil that has been proven to be firm and stable. Those areas that have unstable ground could be developed into parks and open spaces. Since the earthquake Anchorage has shown a large increase in the designated areas of unstable soil. Planning must be oriented to the natural beauty of the site as well as having consideration given to the other factors of good architectural design for the individual building, but of paramount importance in building design is the ultimate in safety.

Alaska has a unique problem in the administration of construction regulations. The state has an area roughly twice that of Texas and four times that of California, and within this huge area is a population of less than 300,000 persons. The governmental system of Alaska is based on city and state governments without intermediate bodies such as counties or boroughs. The maintenance of building departments and building inspectors by the very small communities is therefore impossible. Furthermore, the construction season, in most instances, is limited to about five months. This condition, if used properly, could lend to the establishment of a very attractive form of building code administration. In the first instance a building code for the entire state should be adopted with one central building department or planning commission to enforce the provisions for the entire state. The larger and more affluent cities could be allowed to maintain their own enforcement agencies.

The seven-month period in which construction is shut down due to inclement weather could be spent in correcting and reviewing plans for code compliance and for other administrative duties. During the five-month period available for active work the inspectors could visit construction project sites throughout the state. According to recent figures two inspectors with an airplane is all that would be necessary for making these inspections. Building enforcement personnel must, however, be recruited from the ranks of skilled engineers schooled and experienced in structural design and inspections under an existing code requiring seismic considerations. Finally, the design professions in this area must be required to pursue studies to acquaint themselves with the intricacies and refinements that are peculiar to earthquake-resistant structures.

Given sufficient time to make detailed and mature studies with adequate consideration to the planning and structural requirements of the region, and then proceeding under a disciplined program, the redevelopment and reconstruction of Alaska can result in one of the most beautiful and structurally safe areas of the world. And with this type of program being used for Alaska—or a modified version to fit other areas—damage from future earthquakes should and could be minimized. ■

Where the Architect Stands on the Team

An Introduction to Aseismic Design

BY ROBERT L. ALEXANDER

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THE United States was most fortunate that the death toll in the great Alaska earthquake of March 27, 1964, was relatively low; however, this earthquake has focused attention on the need for an evaluation of aseismic design procedures for buildings in the mass occupancy classes. The communications media have taught the American public that a medical operating facility functions effectively only when its co-operating surgical specialists function as a team. The public may soon realize that a modern multistory building subject to the torment of an earthquake is more likely to survive when the specialists that create it function as a team.

It is not here implied that all buildings should be expected to survive a major earthquake any more than it is implied that every patient should be expected to survive major surgery.

Newspaper articles describing the activities of committees sent to investigate the causes and resulting damage from major earthquakes name the geologists and the engineers involved more often than the architects. Since the architect is the coordinator of the building design team, his professional standing is not enhanced in the eyes of the reading public if he appears to take a back seat during such investigations.

The notion that an architect can relegate his aseismic design problems entirely to others is as invalid as the one that he need have no concern with the lighting or ventilation of his buildings provided he has competent electrical and mechanical consultants to do the entire job for him.

How Much Seismology for the Architect?

Neither structural geology nor basic seismology is a required course in our schools of architecture and it is not here suggested that either of them should be. An architect designing buildings for construction in an area of high earthquake expectancy can get an adequate post-graduate introduction to these subjects by a little selective reading.

The main types of earthquakes are tectonic, volcanic and plutonic. Tectonic earthquakes are associ-

ated with the relative movement of rock on the two sides of a fault and are structural in character. The elastic rebound theory is the generally accepted explanation of the mechanics of the tectonic type. This theory states that before faulting occurs, strain energy is stored in the crustal rock over a period of time. As the strain increases, so does the stress; finally the applied stress equals the strength at a particular place and failure starts. The failure zone spreads to form a fault or shear while the rock releases its strain energy in the forms of shock waves and heat.

Volcanic earthquakes are associated with explosions, tension fractures or faults within the structure of a volcano. Forces originating in the magma chamber are responsible, and they, in turn, may be caused by the pressure of confined gases or the withdrawal of lava. Plutonic earthquakes are those associated with deep foci, sometimes at depths of 200 or 300 miles. They differ from ordinary types of earthquakes in that their intensities are erratically distributed.

The *intensity* of an earthquake is an attribute of a specific geographic place because it measures the damage suffered by the place. The *magnitude* is an attribute of the source of the earthquake and is related to the amount of energy released when it occurred. One way to avoid confusing these two terms is to remember that intensity should not be expressed without the specific geographic location relative to it.

The investigation of the intensity of an earthquake in an urban or suburban area usually proceeds as follows: Questionnaires are distributed to as large a number of area residents as practicable, and they are checked for erroneous or exaggerated answers or to see if a local psychological attitude has influenced a majority of the persons answering. Experts will be assigned to make an independent study of the damage in the area, including the relationships between structural damage and types of soil and rock formations. It now remains to record all this data meaningfully.

It is intended to use the data in such a way that a kind of contour map of the area can be drawn, but one on which the "contour lines" connect points of equal intensity and are called *isoseismal lines*. It is necessary therefore to have some standard scale by which intensity effects can be measured. There are a number of such scales in use and most of them attach verbal descriptions of the intensity of damage done to Roman numerals from I to X or XII. For example, *Intensity I* may be described as being so low that the shock was felt by very few persons and then only under favorable circumstances; *Intensity XI* may be described as being so intense that few masonry buildings remain standing, underground services are disrupted and landslides occur in soft ground.

An architect will appreciate that there may be a big difference in the earthquake intensity that will leave "few masonry buildings" standing in Naples and one that will leave few standing in Long Beach. The first really internationally used intensity scale was the Rossi-Forèl; it was followed by the Mercalli scale, which was modified by Wood and Neumann. In 1956 Richter devised what he suggests be called the "Modified Mercalli Scale, 1956 Version." One feature of his modification of particular interest to architects is the

inclusion of four qualities of masonry construction; this mitigates the weakness of those scales that imply that masonry is masonry the world over.

Although seismologists in other countries have developed magnitude scales, the scale used in the United States was developed by Richter. The Richter scale is based on the logarithm of the amplitude of the largest horizontal trace made by a standard seismograph 100 kilometers from an earthquake's epicenter. Arabic numerals are used to indicate magnitude on the Richter scale; a magnitude of 2 corresponds to a shallow shock of barely perceptible intensity at the epicenter, and a magnitude of 7 corresponds to the lower limit of a major earthquake.

One practical basis for the study of earthquakes from the architect's point of view exists in the form of the question: What is the chance that my next building will be called upon to withstand a destructive earthquake during its service life? No seismologist can yet predict with scientific certainty that an earthquake will occur at a certain place, at a certain time and with an approximately stated magnitude. Under certain circumstances a seismologist may say that an earthquake is not likely to occur in a certain area during the lifetime of a building.

Geology and the Building Site

Should a client be planning to build what will be the first important building in a seismic area, his architect should recommend that he retain a consulting geological engineer to investigate the site and its vicinity. The consultant will prepare a report that should include the nature of the site deposits, their geological history, dynamic properties, moisture conditions, damping values, probable amplitude during a severe shock and the location of the water table. It should also include such information as the existence of shears, faults, slides and a discussion of the seismic activity of the entire region.

When seeking a suitable site in a seismic area, the main consideration may not be: How near is the nearest active fault? Sometimes the character of other land forms and soil conditions are most important. Any site in a seismic area may be shaken sooner or later, either by a large shock at some distance or by a small one comparatively nearby. Certainly no conventional multistory building that happens to straddle a fault or shear involving a differential displacement of its foundation of several feet can be expected to remain undamaged, no matter how well the design met code requirements.

One of the most critical site locations occurs at the edge of a weak deposit that is bounded by a basin of firm ground; during a shock, the weak deposit can be compared to jelly in a vibrating bowl. Landslides can be triggered by earthquakes, and this should be considered when selecting hillside sites for important structures. However, although there is much evidence to show that landslides and earthquakes occur concurrently, by far the predominant number of landslides is not earthquake-triggered.

When the architect considers the creeping plague of unplanned speculative building in many of our nation's metropolitan areas, he may wonder how much

choice his clients will have when selecting a site a decade or two from now. Middle class families are building houses on marginal suburban lots, some of which are on average gradients in excess of 20 per cent. Many of these houses are of stilt construction of doubtful seismic stability; others are cracking and settling differentially due to landslides and creep.

It should be assumed that as time goes on the main function of the preliminary geological investigations of sites for an important building will not be to give the client a chance to select an ideal location. More usually its function will be to afford him an estimate of the cost of building on the seismically least undesirable of the few choices that may be available.

Given the present state of knowledge in the fields of structural, rock and soil mechanics it is possible to build with relative safety on almost any site in the most severe seismic zones if the money is available to pay for it. The architect and his aseismic design team must give the owner a solution he can afford.

It may be true that a rose is a rose is a rose, but it does not follow that soil is soil is soil! There are so many types of soils that their structural properties vary as much as roses do from cabbages. Granular cohesionless-type soils such as clean dry sand occur at one end of the soil spectrum, and cohesive types such as soft saturated clays occur at the other end.

Sand that is loosely deposited can usually be compacted efficiently by vibrational means with an accompanying settlement of its upper surface. Should building foundations be placed on loose deposits of dry sand, subsequent vibration of the sand will cause settlement and possible damage to the building. If the sand is fine and saturated with ground water in the loose state, vibration may cause the sand to liquefy and flow initially as a liquid with devastating results to the entire building. It follows from these statements that loose granular foundation soils must not be expected to resist even the temporary dynamic overloads of mild earthquake shocks.

Consider a building on a sandy soil with a fairly low original relative density. Should the supervising field engineer omit to see that the contractor compacts the soil as specified, minor natural tremors may remedy the omission sometime after the building has been completed, thereby inducing settlement shears and moments in its frame. Such a building may now suffer serious damage from a subsequent shock that would not have fazed it had the sand been adequately compacted prior to construction.

Saturated clay does not settle or consolidate rapidly under either static or dynamic loadings of usual intensities. The undesirable differential settlements that do occur in some buildings on clay soils are caused by loads acting for months or years. It takes time for the load, which is at first supported by the trapped clay water, to squeeze the water out—which it must do if settlement is to occur without a bearing failure.

There are few building sites that contain thick, extensive, homogeneous deposits of either sand or clay. Uneven strata of sands, silts and clays may alternate and the water table may cut across the strata. It usually takes a little less than one-third of cohesive soil to give cohesive properties to a mixed soil, and

the mixtures have a whole range of physical properties that distinguish them from the simplified extremes.

The dynamic relationship between a building structure and its supporting soil is very complex. For example, initially the energy of an earthquake shock is transmitted through the soil to the foundation and superstructure. Vibrations set up in the latter subsequently induce an energy transfer back to the soil, and damping effects further complicate the problem.

In order of desirability, soil types in a seismic area can be classified generally as follows: bedrock, dense dry confined granular soils, hard clays, dense mixed soils, softer clays, loose silts, organic soils and poor fills. A fairly poor but uniform foundation soil over the entire site is often preferable to distinct variations from good to very poor under the building.

Resisting Earthquake Forces

Earthquakes cause the ground to vibrate vertically as well as horizontally, but only the horizontal components of accelerating forces transmitted from the ground to the building are considered in conventional design practice.

The summation of the horizontal accelerating forces in any one direction equals the building's inertia vector in that direction. To simplify matters, the inertia vector for each story is assumed to act in the plane of its floor slab. Since the magnitudes of the accelerating forces and their respective inertia vectors are equal, it is convenient to assume that each floor slab is acted upon by an accelerating force external to the building.

Compare the structural elements that connect one building floor to the next to the rivets that connect two steel plates. If the rivets are loaded concentrically with respect to their center of rigidity, each will try to resist the total load in proportion to its contribution to the total rigidity of the joint. If one rivet is made of a more rigid but weaker material than the others, it will try to resist more than its share of the total load and, as its counterpart in the building, may be shattered in the process.

If the rivets are loaded eccentrically with respect to their center of rigidity, the resulting twisting action will change the magnitudes and the directions of the forces in some or all the rivets. The same sort of twisting action occurs in the structural elements between the floors of a building when the resultant earthquake force does not line up with the center of rigidity of those elements.

There are three methods commonly used to provide resistance to earthquake loads. In the order of their probable relative contributions to the rigidity of a building, they are shear walls, bracing and frame continuity. Since the method of frame continuity is the least rigid, its use alone may be criticized by those who advocate rigid design as the most suitable method. A building with a heavy steel or reinforced concrete frame and many reinforced concrete shear walls at the right places would be classified among the most rigid types. The relatively rigid shear walls attract the major share of the seismic forces to them, and the structural consultant sees to it that they are detailed to resist them.

Aseismic design is not entirely a floor-by-floor process. The architect should visualize his building as a whole and trace the provisions he has made for his engineer to carry the horizontal forces from roof level right on down to the soil or foundation rock.

A running argument between the proponents of rigid and those of flexible design has been going on for many decades. Since the tragic earthquake at Tokyo in 1923 the majority of engineers has agreed that the more rigidly designed buildings have suffered less property damage than the flexible ones. In the case of high-rise-tower buildings, the proponents of rigid design concede that flexibility is a factor even in the more rigid designs.

Among the most active proponents of rigid design are the insurance firms and the engineers that represent their interests. They concede that it is possible to design a building with no more than an earthquake-resistant flexible frame and that such a frame could remain intact and relatively undamaged during a severe shock. However, they imply that a frame is not a building; and that an intact frame from which cracked floors sag, crushed walls bulge and from which construction fragments have been tossed about upon the general public does not constitute an example of successful aseismic construction. In many cases the frame constitutes about 30 per cent of the cost of a building and is not therefore an all-exclusive financial consideration.

Some of the advocates of the dynamic design concept of flexible design are highly knowledgeable theoreticians rather than engineers; they imply that the present use of statical methods is out of keeping with advanced design theory. During an earthquake a building vibrates with resulting oscillatory stresses; these stresses are affected by the physical characteristics of the building and the ground motion. The proponents of dynamic design suggest that the present code methods just do not consider the reality of the problem. But the dynamics involved are highly complicated; and since it is impossible to predict the exact nature of a future earthquake, it is not yet feasible to try to make a precise dynamic stress analysis for every important building erected.

The flexible link approach to flexible design is an attempt to reduce the accelerating forces transmitted to the superstructure from the foundation. It is suggested that this can be done by the use of flexible basement or ground floor columns. If these flexible columns were designed to function elastically during an earthquake, they would absorb very little energy and the superstructure would be subjected to large amplitudes of oscillation. If these columns were designed to yield plastically, they would probably have to be detailed for post-shock replacement. Replaceable friable panels poured between elastic columns could conceivably absorb a great deal of energy, but would they function effectively for shocks of prolonged duration such as the 1964 Alaska earthquake?

Drift is primarily related to the design of multi-story buildings to resist wind action, but it is recognized that drift control and aseismic design are related. Drift is the lateral deflection of tall buildings. Not enough is yet known about the psychological

effects that excessive drift has on the occupants of the upper floors of high-rise buildings. Drift caused by a major earthquake cannot be avoided, and the psychological consequences upon the occupants are simply a part of the unpleasantness that almost all persons caught in a high-intensity shock area will suffer.

It is difficult and expensive to keep wind-load drift within tolerable limits in a tall glass-sheathed building framed in steel unless the architect provides his consultant with enough opportunities to use shear walls or bracing. One firm of structural consultants proceeds as follows:

Ideally, it designs the steel frame to resist whatever minimum lateral load the governing design code requires of frames, and then it uses shear walls to resist all the lateral loads anyway. This usually insures that the building will have good drift resistance. If the architect does not provide adequate opportunities for shear wall location, then the consultants design the frame to resist the entire lateral load. But enough walls somewhere in the building must be marshalled if drift due to wind alone is to be reduced economically. These latter walls will resist horizontal forces due to wind and due to mild seismic shocks but may be cracked or crushed under a severe shock. It is this sort of design criteria that the insurance firms oppose, but in this case the criterion was not made as a matter of free choice on the part of the consulting engineer.

Ultimately the architect is responsible for the structural limitations imposed upon the engineer. Please note that this is not primarily a question of public safety; it is a question of policy relating to property damage and compensation. It is one more reason why a basic understanding of the requirements of aseismic design is a part of the business of architecture.

Building Codes and Earthquake Insurance

The Japanese architectural engineer, Riki Sano, is credited with being the person who introduced the use of the seismic coefficient method of static design upon which most of the codes are still based.

The Uniform Building Code was one of the first American codes to include seismic provisions. This code includes a seismic probability map of the United States prepared by the US Coast and Geodetic Survey that zones the nation into four probable seismic intensity areas. It stipulates how the seismic coefficients shall be used, what gravity loads shall be considered and what torsion shall be provided for.

American building codes are usually enforced by virtue of their adoption by city or county legislative bodies, but there are notable exceptions. As a consequence of the damage done to the public school buildings in the Compton-Long Beach earthquake of 1933, the Field Act was passed by the California Legislature. Not only did the act impose earthquake resistant standards of construction for the public schools, but it also provided for adequate inspection during construction—which is just as important.

Although it may seem that determining the amount of damage done to a building by a severe earthquake is a straightforward job of estimating or quantity surveying, this is not so. Just as landslides can be trig-

gered by relatively minor events such as a local blasting job, so can building failures due mainly to unsuspected chronic causes be triggered by an earthquake shock.

It would take a very large team of expert engineering detectives to trace the actual failure histories of all the buildings damaged in an urban area during a severe shock. Since there are not nearly enough such experts, the insurance firms pick up the bill—or do they? Does the architect's client, the building owner, actually pick up the bill in the form of increased premiums?

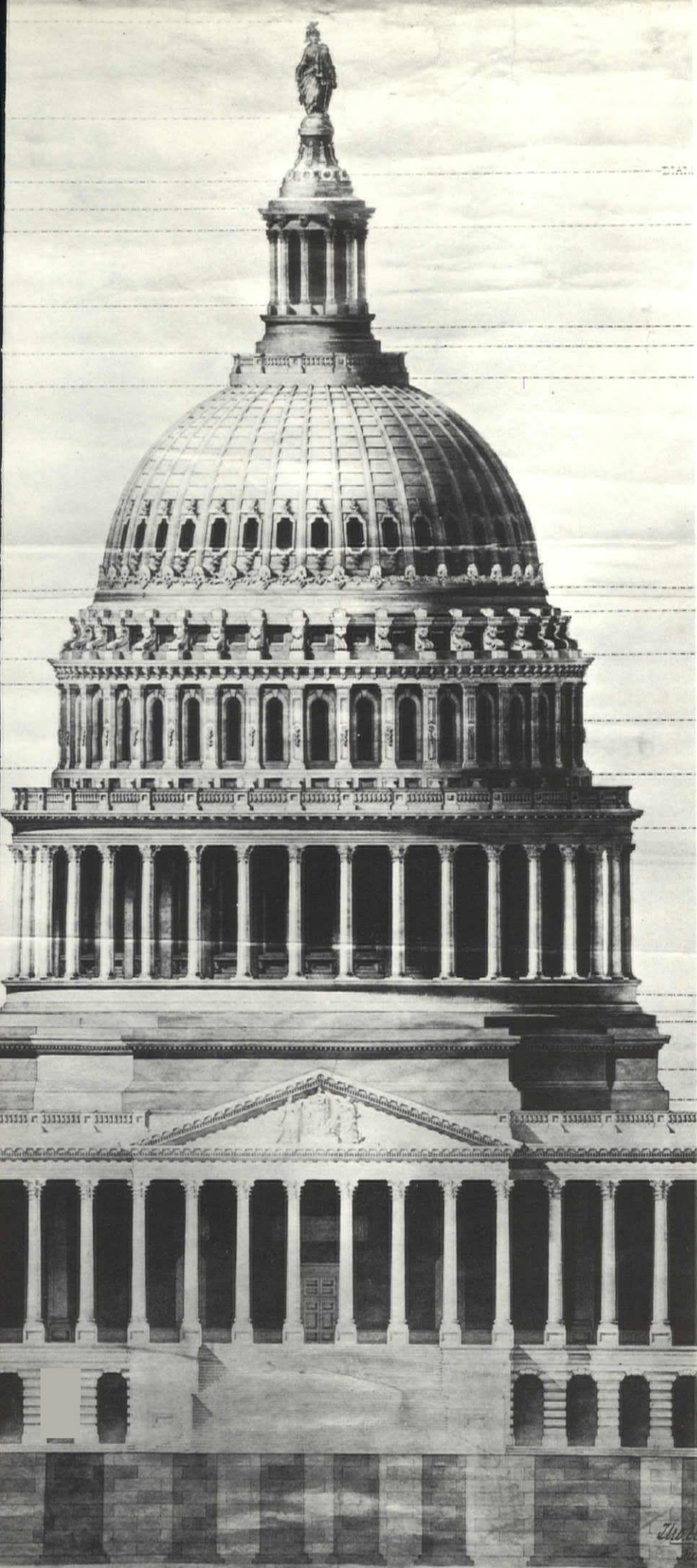
In his role as agent of the owner, it is a part of the architect's job to know a little of how premium rates are fixed and to influence changes in the right direction when they are desirable. The old method of classification based simply upon the materials of construction is not now adequate. What really matters is the answer to the question: Have the materials used in the building been designed to resist seismic forces and fire in the light of present knowledge? The answer to this question can be yes for concrete, steel, aluminum, wood, plastics and masonry.

Coordinating the Aseismic Design Team

The erection of a major earthquake-resistant building involves coordination among the seismologist, foundation specialist, structural consultant, materials manufacturers, contractors and others in order that the owner will have met all the requirements for public safety and property protection demanded by the various governmental and insurance agencies. It is the author's opinion that the architect should coordinate the aseismic design team rather than play the role of another consultant on it.

Some of our larger architectural firms should assign a particularly well-qualified staff member to check the aseismic design continuity throughout all the stages of sizeable projects. Such a specializing architect would be responsible for answering the less publicized questions of public safety during earthquakes: Can the computer consoles on the seventh floor shift and crush the occupants? Can the public negotiate the darkened stairwells without emergency lighting? Should certain critical areas of buildings be designed to aseismic standards much higher than present code minimums? There are many more questions of this sort to be asked.

As an experienced architect conceives the spatial and esthetic requirements for a multistory building in a seismic area, he thinks in terms of structure intuitively. From his rough sketches of inspiration to his preliminary drawings, he has determined the structural form, column and story spacings, shear wall locations and surface openings. His feeling for good architectural design precludes his conceiving such seismic monstrosities as very heavy spandrels floating on panels of glass and minute columns or precast curtain walls as massive as their supporting frames. If he does a thorough job, his structural consultant will not be placed in the unfair position of having to choose between seeking revisions or resorting to the use of deformed structural solutions to the problems of bad architecture. ■

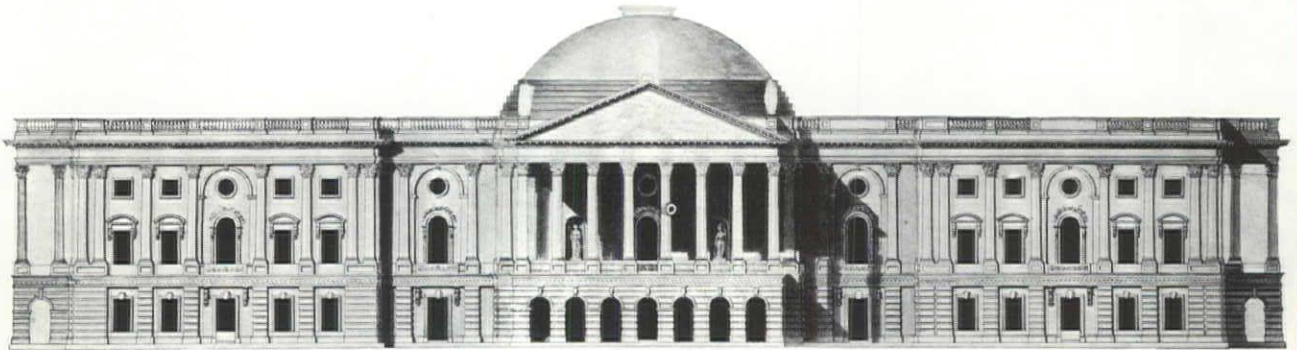


ELEVATION OF DOME OF U.S. CAPITOL

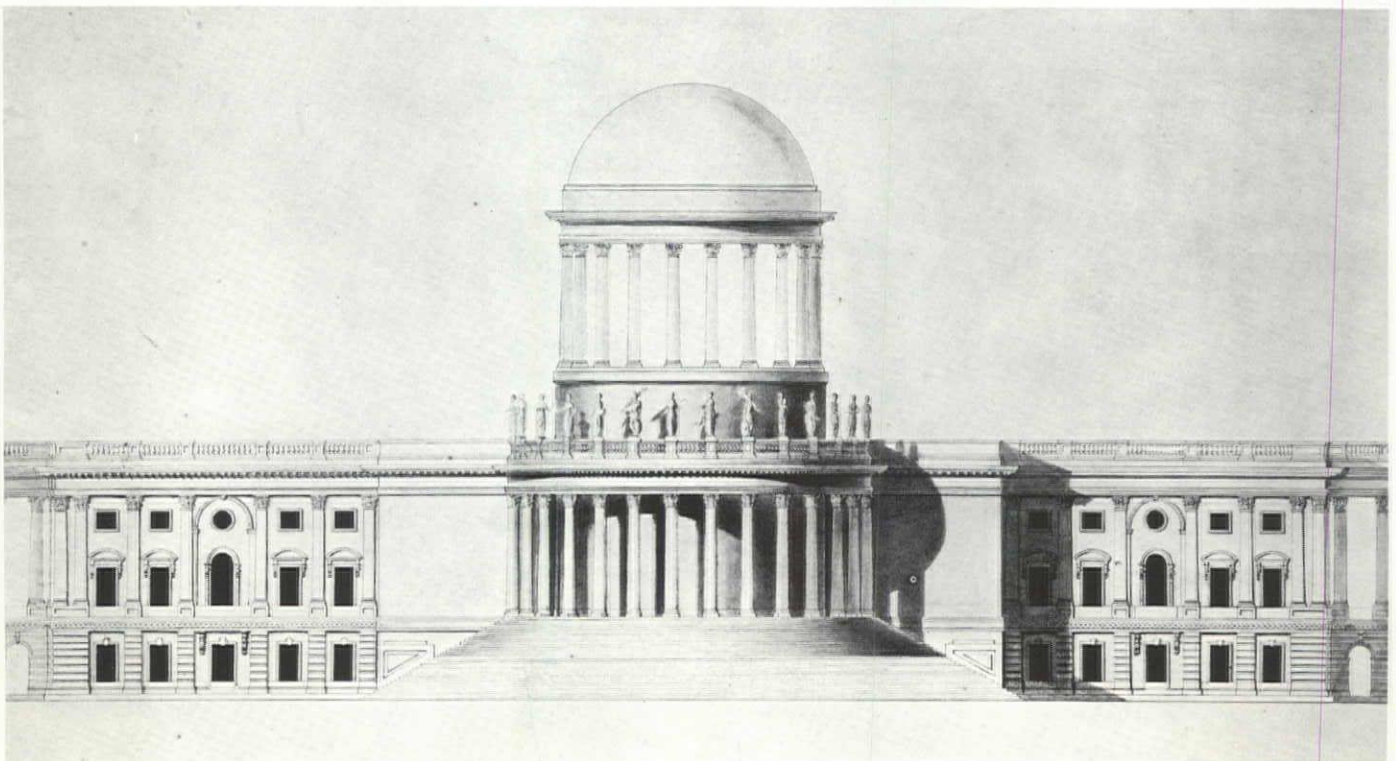
*From William Thornton
to Benjamin Latrobe
to Thomas Walter*

THE
CAPITOL BUILDING
EMERGES

Three elevations—Thornton, 1795-96:
1 After being appointed a commissioner in September 1794, the architect drew the proposed east elevation “presenting the general ideas but making such alterations as the difference in dimensions of the grand plan rendered necessary.” He restored the dome over the circular vestibule, 114 feet in diameter. **2** In his proposed west elevation, Thornton conceived a circular “temple” or dome resting on an open ring of columns over the “Conference Room,” a circular chamber 90 feet in diameter to the west of the main vestibule. He was, therefore, actually proposing two domes in this revised scheme. **3** The elevation of the north wing, east side, corresponds generally to that of Thornton’s revised drawing of the east front

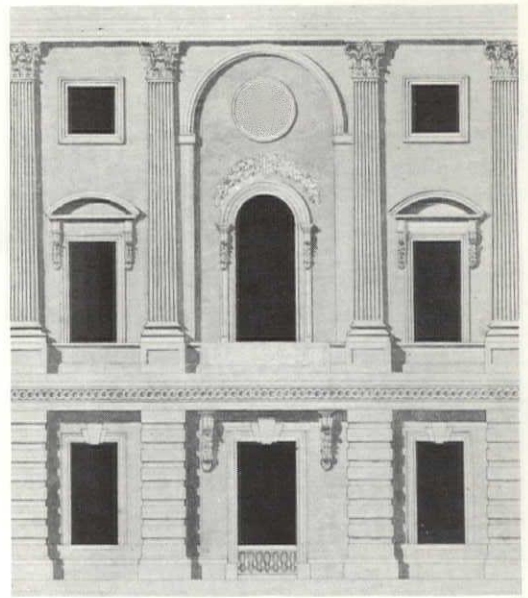


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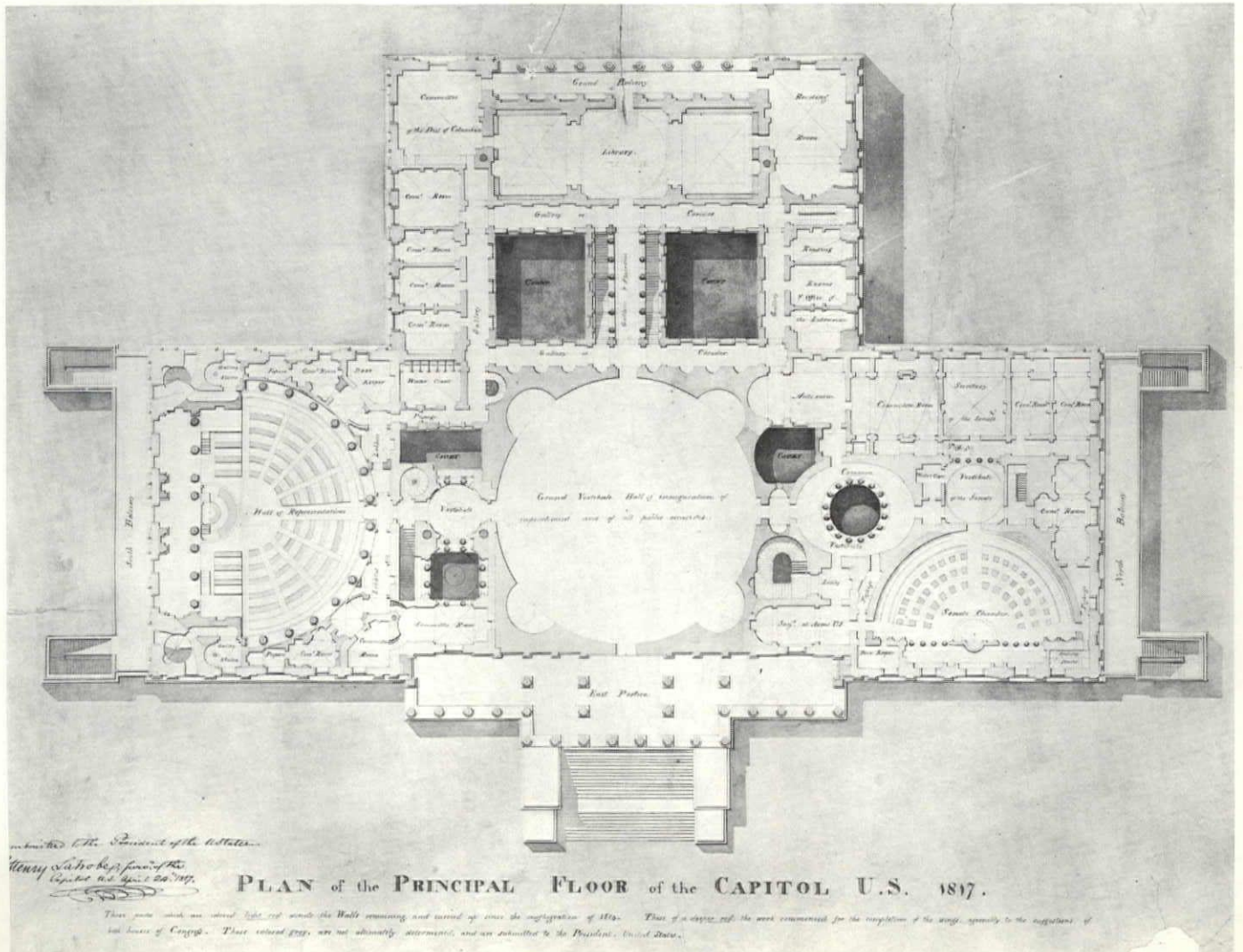


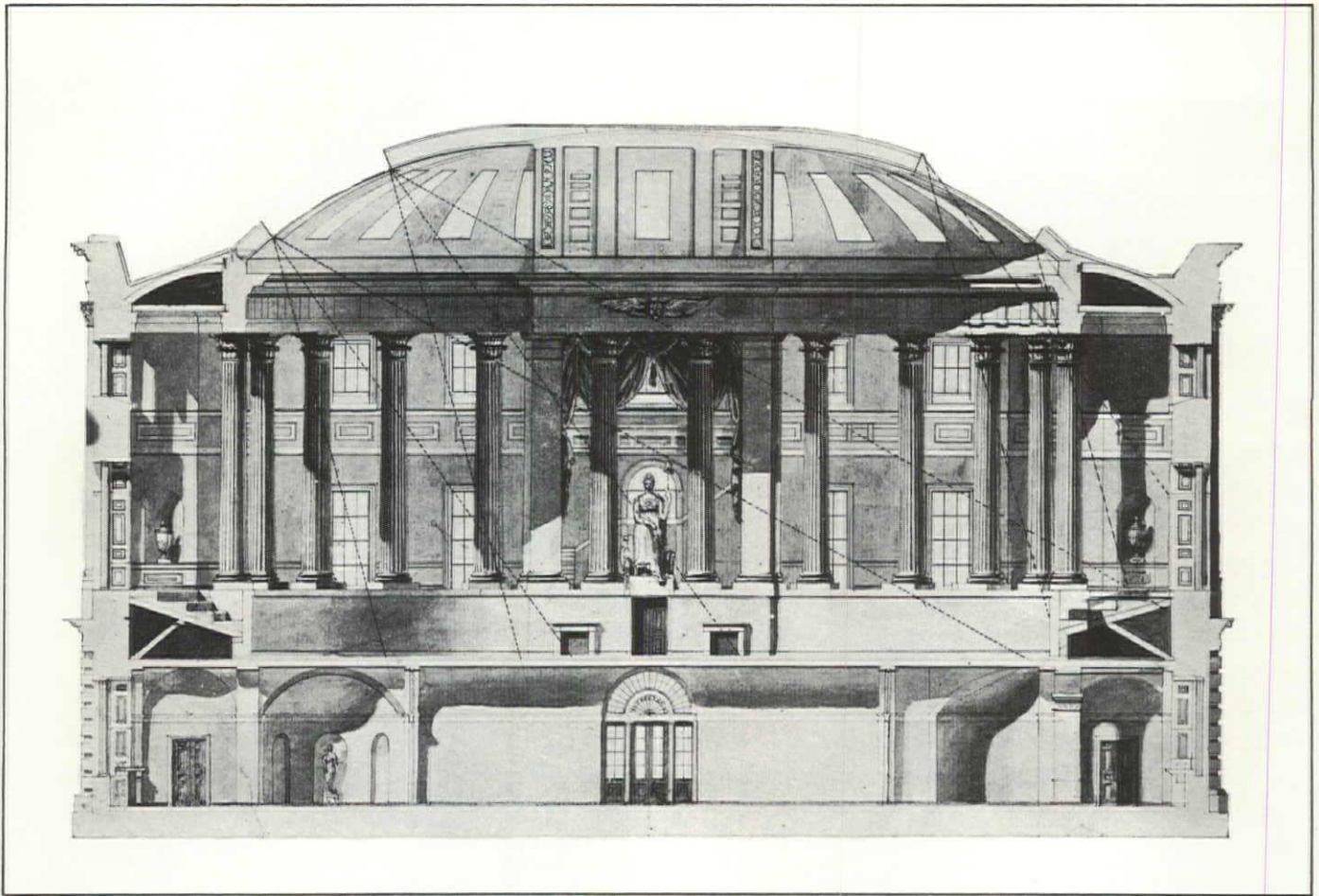
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During this 200th-anniversary year of the birth of Benjamin Henry Latrobe, architect and engineer so long associated with the building of the United States Capitol, it is fitting that attention be focused on the early architectural drawings of the legislative seat of our nation. Reproduced on these pages are eight of thirty original drawings in ink and watercolor, many of which have never been published before, by Latrobe (1764-1820) and two other architects prominently involved in the Capitol development: William Thornton (1759-1828) and Thomas U. Walter (1804-87), the Institute's second President. They were loaned by the Division of Prints and Photographs of the Library of Congress and the Office of the Architect of the Capitol for a showing earlier this year in the Octagon—designed, appropriately enough, by Dr Thornton. As winner of the Capitol competition, he was the inspiration for the original scheme, although the actual execution was entrusted to Latrobe and still later to Walter. The Octagon exhibition, while containing many of the finest drawings, has encouraged further research and the suggestion that a picture-book be issued on the subject.

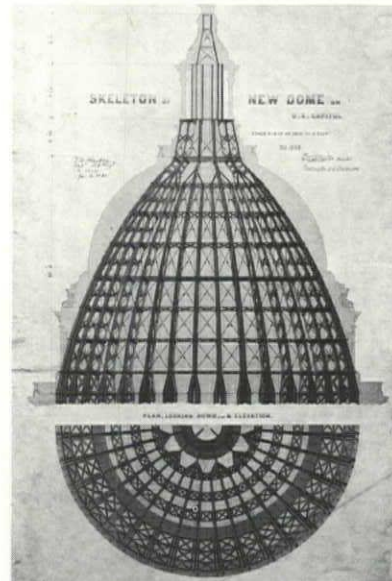
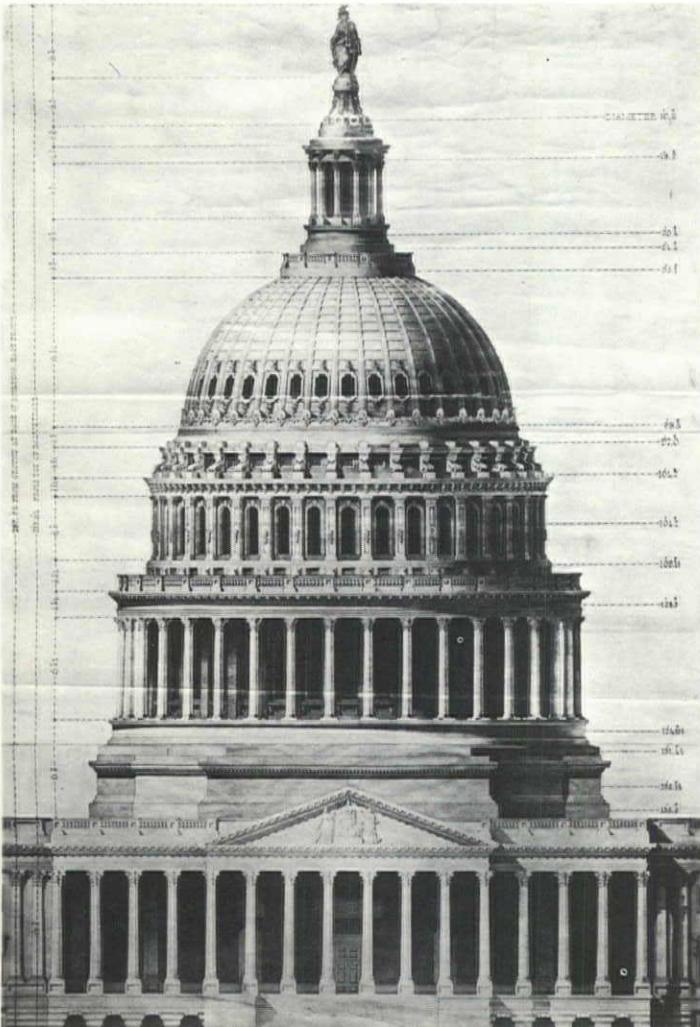


Latrobe, 1817: Plan of the principal floor of the Capitol. It fell to Latrobe to resolve the objections inherent in the Thornton drawings





Latrobe, 1804: Longitudinal section of the House of Representatives is a modification of Thornton's plan



Walter, 1859: His "giant pineapple" design for the skeleton of the dome was never executed. Section of the exterior of the east portico and the dome shows the Luigi Persico figures of America, Justice and Hope, completed in 1833 and placed in position on the pediment four years later

ARCHITECTURE is unquestionably the most optimistic of the arts. It is built in the present for the future. It is committed to continuity in the activities it accommodates; it is designed to perpetuate the social institutions that it serves and that called it into being in the first place. Some buildings—like many Gothic cathedrals, for example—took generations to build; but those who began the work had confident faith, from the start, that their children's children would carry on their work to completion.

The fundamental basis for this optimism would seem to lie in the *participation* that architecture enjoins. One may or may not continue to look at a given painting or sculpture; one may or may

not continue to perform or to listen to certain musical compositions; but with architecture,

people continue to *use* a building throughout its effective life, for as long as it can serve them. Architecture's permanence is its guarantee of serviceability; its continuing presence states its confidence in the future.

The presence of people in a building signifies the vitality of that building by their use of it. They, more than any decoration, any figure sculpture, any trees or other greenery, *humanize* the building and make its purpose authentic. Almost any building seems cold and sterile or even somewhat ominous when it is not in use: instance the Sunday morning aspect of an office building on Park Avenue or a bank on Wall Street. This is not true of a painting, for example, for a painting does not demand the presence of people to complete or complement it—in a word, to justify it. It should be noted in this connection that renderings of proposed buildings almost invariably show people in relation to them, passing by or in and out of them. Where a building's surroundings are presented devoid of people or cars or some evidence of human activity, the effect is too stark, too abstract and unreal. People are included in the representation of a building not just to give it scale, but to make it seem authentic by their presence, by their participation in its existence.

If one feels disconcerted and a little uneasy in the presence of an untenanted or unused building, this feeling is very much intensified in the case of an abandoned building. An out-and-out ruin—the Parthenon, for example—is quite another matter. We have no illusions about the status of such a building; and we can therefore consider it—enjoy it, in fact—without restraint or any undertones of uneasiness. Rather, it is the building that is whole but obviously no longer in use, no longer serviceable, that evokes an uneasy feeling. Instinctively we sense that such a building, even though it may appear still to be physically whole, is none the less unmistakably dead, a husk from which the quick spirit has fled.

The vitality of architecture is constantly being

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Architecture, the Optimistic Art

manifested through the activity of *erecting* buildings, an activity that is public and unconcealed. There is something a little mysterious about the act of creativity in many of the other arts, where it is essentially private and individual. One occasionally comes upon a painter at his easel or sketch pad in the open air; and if this happens in a public place the curiosity of kibitzers seems to endow the painter with some taint of exhibitionism. But nothing of the sort is true about a building going up. For this is a corporate enterprise, with no overtones of self-consciousness.

Of course, the two fields are not comparable, because creativity and execution are interdependent and simultaneous in the case of the painter; whereas execution alone, in the case of the building, takes place independently of any imaginative creativity, as far as the observer is aware. With a building in process of erection, all is energy and activity and planned coordination of machines and men and materials in a cumulative sequence of physical operations. Here is externalized the very essence of the idea of *building*: a creative undertaking in which inert materials are assembled so as to produce permanent man-made shelter, a controlled environment, an organization of space for man's use. Neither the onlooker, fascinated by the purposeful bustle of men and machines, nor any of the skilled mechanics who contribute to the materialization of the building, can sustain a feeling of pessimism in the presence of such activity. To build is to generate; and such activity cannot be other than optimistic in the deepest sense.

Unlike most painting and sculpture, architecture cannot be transported to a place of safety in time of danger. Yet people have built on the flanks of simmering volcanoes, they have inhabited river valleys subject to periodic floods, they have built in the paths of tornadoes, in areas subject to earthquakes and on shores exposed to tidal waves. With adequate warning, they themselves can usually flee from these catas-

trophes, with whatever belongings they can bundle off with. But their buildings have to be left behind, to withstand the fury of the elements to whatever extent they can. Yet construction goes on in these vulnerable places; and people return to them even after complete demolition, starting over again when nothing remains to be salvaged. Moreover, the hazards are not only those of nature. At Albi in southern France, for example, work on building the cathedral was not only begun but was carried on uninterruptedly throughout the long and desperate siege of that city, during the Albigensian Crusade. What reckless hardihood! What undaunted optimism!

Because of the essential optimism of architecture, it is surprising and disheartening that there should be so much shoddy building today: so much drabness in individual buildings, so much disorder in our towns and cities. Undoubtedly, no period in the past was without its slums, its jerry-built structures, its architectural monstrosities. But these have mercifully succumbed to the erosion of time; so that surviving out of the contemporary dross of their day is the pure metal of substantial and significant works, the monuments we cherish and to which we make our pilgrimages. It is in our own time that we can see all about us the emptiness and squalor and unworthiness—the viciousness, even—of sprawling ugliness and expensive but haphazard modishness. And this is the more disheartening, the more indefensible, because today we have such multiple and unprecedented means for making our cities healthy and attractive, our individual buildings—both great and small—not only efficient and comfortable but also spiritually rewarding.

If we no longer wish to make monuments, this does not mean that we have to build meanly or superficially or merely expediently. And it does not mean, either, that we need always be self-consciously sober and solemn in the design of our architecture. There have been many occasions throughout history when architecture has not neglected the optimism of a festive gaiety or a decorative brightness or a fresh, inviting openness in building—even, in fact, a playfulness, as in certain charming, small-scale structures, intimate in character, and perpetuating in wood or in stone the cheerful, unpretentious vitality that originally actuated their creation. If most of the books on architecture ignore the intimate courtyards and gaily-tiled fountains, the picturesque town squares and open marketplaces, the bosky “temples of love” and rural shrines of piety, they are none the less a delight to many tourists who come upon them unwittingly in following their guidebooks to more famous and important spots. Some of these unheralded, anonymous structures were well and lovingly designed; and the sensitive traveler responds instinctively to them because of their genuine charm, their cheerfulness and their evident look of having been used and delighted in for generations.

This sense of humanity, of unpretentious continuity of use, of sometimes ages-old service to men and women and children, not only makes such architecture valid but bestows upon it the aura of optimism we have been talking about. Where people have

cared about their physical environment—whether of townscape or countryside; whether of home or shop, garden or recreation spot—there their humanity has come to be manifest in a community of interests and ideals whose architectural expression is varied but unified, authentic, healthy and steadfastly optimistic.

In architecture, each age has produced popular songs and ballads, along with spirited marches, somber dirges, lively dance tunes and festive hymns. Here, in this “everyday” architecture, whether rural folk buildings or urban blocks of shops and tenements, the pulse of human life has gone on, day and night, day in and day out. But each age has also produced its heroic symphonies in architecture. The symphonic buildings, unlike the everyday buildings, crystallized the *ideals* that men lived by: these were their symbols and the measure of their public capabilities and accomplishments. Hence there was always something of dedication—of being special and set apart—about these outstanding buildings, even when they were devoted to nonreligious purposes: to the Roman people, for example, as in the case of the imperial baths, or to some great and powerful family, as in the case of a Renaissance palace.

Whether temple or monastery, imperial bath or palace, these greatest buildings of any age represented a special kind of optimism. For, in spite of human oppression and greed, and in the midst of misery and poverty and exploitation, men accepted or at least tolerated the necessity for some basis of social organization, some sovereign authority, spiritual or temporal, no matter how tyrannical and despotic it may have been. Their identity—both as a group and as individuals—was contingent on and committed to association with some general order, some recognized and organized establishment, whether in terms of king or commune, bishop or abbot, emperor or city-state. Architecture externalized this identity as it perpetuated it, even for the have-nots.

Thus, to the very workers who were exploited by it, the nineteenth century factory gave identity and a sense of confraternity. To the serfs and peasants it oppressed—sometimes to the point of violent and bloody revolt—the hilltop castle of the Middle Ages was a sovereign emblem of their collective existence. To the shopkeepers and artisans whose lives were so intimately and comprehensively regulated by it, the thirteenth century cathedral was a beacon of hope and a pledge of personal salvation. To the hungry unemployed in endless breadlines, the vast amphitheaters and circuses of imperial Rome were the material basis for pride in citizenship.

Always, the major monuments of architecture have been both abstract symbol and concrete, immediate materialization of some sort of social organization. And as such, they are essential exemplifications of man's trust in symbols: they stand emphatic, enduring and overt, as paradigms in his need for both individual identity and collective membership. Foursquare, conspicuous, corporeal, they answer none the less to man's unconscious, hidden allegiances, his blind and sometimes hopeless longing for fraternity. And in this sense, such architecture makes a positive, social contribution to man's incurable optimism. ■

A Current View of Area Preservation

BY STEPHEN W. JACOBS AIA
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Cornell University*

AREA preservation has already produced a wide range of results under a variety of auspices. This paper attempts to indicate the typology of current American area preservation and to indicate the ways in which architects and architectural historians can usefully bring their influence to bear. It is also a plea for cooperation by architects and architectural historians in the urban decision-making process, in the determination of which of our stock of city buildings and forms are to be removed and replaced, and which are to be retained and perhaps protected. Since we cannot replace them all instantly, let us attempt to influence owners, designers and officials to remove the less valuable and to keep the significant. If immediate economic return is not to be the only criterion, if more sophisticated economic, social and artistic determinations are to be made, it is up to us to provide the necessary background and, for some of us professionals, to move into the foreground of historical commissions, landmark activities, surveys and planning proposals.

Motivation for Area Preservation Activity

Practical considerations—temporal, material and economic—make it certain that the new cannot entirely replace the old in an urban environment. Even where acres of buildings have been totally destroyed, the investment in invisible underground utilities makes it economically unsound to disregard the previous urban pattern. Only a small percentage of our stock of buildings can be replaced each year. Furthermore, the urge for variety, for esthetic interest, for associations of a continuing sort with other lives and other times felt in some measure by all experienced urban dwellers suggests that this economic and technical limitation (which might be overcome in time with the growth of expendable buildings and overindebted communities) is an unsuspected asset.

A spate of recent books decrying the "soullessness" of large-scale urban projects, their overscaled, isolated and cemetery-like characteristics indicates the source of the current interest in historic contexts and area preservation. It is not so much a matter of disenchantment with the brave new world of the machine age and a cry for a return to the archaic charms of the pedestrian experience, although this is certainly a factor. It is rather a growing familiarity with

Adapted from an address delivered at the annual meeting of the Society of Architectural Historians in Philadelphia, January 1964
* EDITOR'S NOTE: See also "The Stockade Story," AIA JOURNAL, October 1963

the problems which the mass-produced superblock and "slurb" bring with them—the fragmentation of life, the isolation of the individual in the midst of a dizzying and unending "traffic pattern," the sense of the grandiose scale and immovability of our often well-intentioned mistakes.

Historically, area preservation in the United States has followed an interesting path. In the course of its development here and there it has moved gradually from the realm of local effort to the regional and national; from the private to the public project. Thus there are six kinds of procedures: Both public and private projects exist at the national, the regional and the local level of activity. All six procedures are in use, and all are needed.

1) *Private Local Area Preservation*—Elfreth's Alley in Philadelphia provides an instance of a private local preservation effort. Such a small enclave of usable buildings can be maintained by private interests unaided.* Where the community's area preservation problems are not so readily solved, local volunteer organizations may make a contribution. An instance is the survey and evaluation of all Bay Area buildings built before 1920 recently sponsored by the San Francisco Junior League.

In some localities area preservation is achieved by private rehabilitation of groups of substandard buildings. Charitable endeavors of this sort have been carried on for a long time by Philadelphia's own Octavia Hill Association.

2) *Public Local Area Preservation*—In Charleston and New Orleans zoning was introduced to assure the protection of the distinctive architecture of their oldest areas. Undertaken in cities which had seen little renewal of their buildings since before the Civil War, the example of these southern cities was little regarded until after World War II when a series of notable historic districts were instituted in other areas. Perhaps the best-known is Beacon Hill in Boston,



whose development was coached and publicized by John Codman. Making use of the police powers of local government, design conformity is generally assured by an architectural review board which decides whether a given project or change will enhance or detract from the historic character of the area.

Now historic districts may extend beyond urban limits and include isolated or remote buildings or

sites. For instance, the historic district legislation of Lexington, Kentucky, applies to the city's "planning area," which includes sections of the surrounding Fayette County.

3) *Private Regional Area Preservation*—On the intermediate or regional level, private organizations have attempted to collect buildings representative of more than one community in order to preserve them in a museum context. Such reconstitutions of the old New England town as Sturbridge, Massachusetts, or Shelburne, Vermont; groupings like the Farmers' Museum in Cooperstown, New York, follow Scandinavian tradition.

A private regional organization, like the Society for the Preservation of New England Antiquities, the most scholarly and important pioneer organization in the field, may supply information and expertise to many other interested groups. It, in fact, serves as the only quasi-official public preservation agency of the state of Massachusetts (most other states have official agencies of some kind devoted to preservation). The Society might well become custodian of a historic area, but in fact has devoted itself to the important and so far unique task of maintaining rare antique architectural elements and structures in their original locations and conditions.

4) *State Area Preservation*—The states are particularly important to area preservation, since most matters affecting property are regulated by them. Not only do the states themselves have the right of eminent domain, which enables them to take private property (including historic properties) for public purposes—with just compensation—they also authorize local use of eminent domain. The states must authorize all local property taxes and ordinances, and then have responsibility for equalizing property taxes which affect organizations or institutions on a statewide basis. State legislation enabling localities to make use of the necessary police powers must be

buildings. Some state park commissions have undertaken the preservation of entire early towns. A case in point is Columbia, a gold-rush town in California restored by the State Division of Beaches and Parks and available for tenants who will maintain uses generally in keeping with the activities of the inhabitants during the town's now-vanished heyday. (Presumably sin and gambling, two of the major industries, will not be reestablished by the public authorities concerned.)

5) *Private National Area Preservation*—On the national level, a private organization chartered by Congress, the National Trust for Historic Preservation, serves as a coordinating body and source of information for a wide variety of local and regional preservation groups.

Other private organizations set up on a national basis to help cope with broad problems of area preservation include such unarchitectural groups as the Wilderness Society.

Our oldest historic preservation society, the Mount Vernon Ladies' Association (set up to protect George Washington's home plantation) was established as a private organization on a national basis, with regents appointed to represent the various states. It has succeeded in protecting a large rural area on the doorstep of our national capital.

6) *Federal Area Preservation*—The Federal government inadvertently stepped into the area preservation business a century ago when it proved necessary to acquire large areas of land to dispose of unclaimed Civil War dead. Arlington, the ancestral home of Mrs Robert E. Lee, then serving as a military encampment, was made a national cemetery by order of Secretary of War Stanton. Not until sixty years later was the preservation of the historic buildings on the estate attempted. Since 1935 the National Historic Sites program of the Park Service has undertaken the preservation for museum purposes of



Carrington Square sketches courtesy of Historic Richmond Foundation

passed before historic districts can be created, or historical commissions can be set up, or protection of historic landmarks can be undertaken by local jurisdictions. Fortunately, more and more states are enacting this kind of legislation.

All the states are engaged in area preservation, largely on a non-urban recreational basis. Inevitably, they have acquired a large stock of historic sites and

larger and larger groups of buildings. Today our National Historic Sites registered by the Federal authorities include such complexes as the buildings surviving from the mid-eighteenth century of the immigrant German religious community in Ephrata, Pennsylvania, while Park Service-administered groupings include such items as the center of the historic junction town of Harper's Ferry, West Virginia.

Federally Aided Local Programs

1) *WPA*—More important than the Federal government's own area preservation achievements are the results of local use of Federal funds provided for social purposes under a variety of programs. During the 1930's, Works Progress Administration projects were often devoted to clean-up or study of historic areas. Perhaps the most interesting area preservation project undertaken at that time was the creation of the river walks of San Antonio, Texas. Here the clear green river waters which had made the community an oasis, mission, and administrative center of Spanish Texas were polluted and disregarded behind the modern and not-so-modern buildings of the commercial center of the town. The usual solution was proposed—recognizing the sewer-like nature of the stream and burying it under a culvert. However, the Spanish tradition of the evening stroll in the city survived in San Antonio—perhaps a unique social survival in the continental United States—and an alternative solution was adopted. The pollution of the stream was cleaned up, and the banks, considerably below the modern street level, were developed as picturesque semitropical gardens.

2) *Renewal Grants*—In the last decade the Urban Renewal Administration of the Housing and Home Finance Agency of the Federal government has become the most important factor in area preservation. Grants to assist state and local agencies with housing and redevelopment projects were provided for by the Housing Act of 1949, and subsequent legislation (in 1954) made possible Federal assistance for rehabilitation and conservation of substandard areas as well as for the kind of total land clearance normally anticipated in redevelopment. For the first time it was economically feasible for agencies on the spot to study and propose procedures for the protection of distinctive or traditional structures ordinarily cast aside in city rebuilding.

Two-thirds of the cost of the Providence, Rhode Island, College Hill Demonstration Project was covered by an Urban Renewal Demonstration Grant. Completed in 1959, this study is a landmark in the evolution of American area preservation procedures. It permitted the architectural riches of a coherent historic city area to be identified, evaluated and provided for. Fortunately, a leading architectural historian, Antoinette Downing, was available to assist with the historical and architectural studies as well as the evaluation of the buildings in the area.

3) *Open Lands*—The latest Federal move to encourage area preservation was provided by the Housing Act of 1961. Funds were provided to assist state and local agencies to purchase open lands in urban areas for historic or scenic purposes, as well as for conservation and recreational use. A wide range of expertise and financial assistance is now available from the Federal government to local groups and agencies interested in area preservation.

4) *Philadelphia*—Perhaps the most interesting collection of area preservation endeavors to be found anywhere is in Philadelphia. In contrast to the modest, private Elfreth's Alley, there is the four-block area to the east of Independence Hall set aside in 1948 as the

Federal Independence National Park. Because the legislation was interpreted to require the preservation only of structures built before 1800 (when Philadelphia ceased to be the national capital), a series of fine nineteenth century structures were destroyed—to the dismay of many people.

Of greater interest for cities less burdened with a historic past of national concern is the nearby Society Hill. Developed in the late eighteenth century by the Free Society of Traders (organized in William Penn's time), Society Hill was selected by the City Planning Commission in 1947 as a place to "create a harmonious setting for historic buildings in this section of old Philadelphia so as to encourage their restoration and preservation for the employment of future generations." After an unusual amount of preparatory work by the City Planning Department in cooperation with the Redevelopment Authority, assisted by local architects and leading citizens, the Washington Square East project was established. A selective mixture of antique and modern, it has aroused considerable interest in architectural and preservation circles. It features high-rise apartment towers and new row housing interspersed with the surviving eighteenth century brick row houses.

5) *Conclusions*—The conclusions to be drawn from this brief discussion are historical, social, political, economic and artistic. Recent history indicates that urban area preservation is the most important preservation effort going forward today. This is because the richest concentrations of structures and associations are found in our older urban areas. The city core is also the area of greatest threat from the forces of development (always more powerful than the forces of decay). The character of our public, private and political institutions is such that area preservation in the large city must in almost every case be a product of local rather than Federal or state initiative. Effective proposals are possible only when both private and public groups cooperate. But implementation of area preservation projects today requires government legal action and controls and, generally, infusions of government funds. Despite the enormous progress made in the last few years to stabilize important historic areas, further effort is called for. We need to refine our economic analyses and modify our tax policies to reflect the public's concern for historic properties. We need to relieve further the social and economic distress which "upgrading" of historic areas produces. We need more sophisticated inventory work and more documentary procedures, as well as special regional historic architectural archives. Finally, we need more designers able to enhance an historic context and planners endowed with the skill and experience to insure its survival.

Reassessment of Our Involvement

Architecture's role as image, stimulus, symbol or visual incident is often a by-product, and generally a function of the attitude and perceptions of the observer rather than an inherent feature of the materials and forms. In the happiest instances the designer's intent, the perceptible forms and the observer's recognitions have a reasonable degree of compatibility over

an extended period of time. It is one of the recognized functions of the architect and the architectural historian not only to be conscious of these interacting elements in the artistic equation but also to coach others to develop an intelligent awareness—to teach “appreciation.”

Those of us who are concerned with creative aspects of architecture, have a further commitment. We are responsible for the development of new design and its effective integration into the now thickening pattern of man-made environmental phenomena. In endeavoring to further the cause of progressive area preservation, with its concomitant protection of the architectural and townscape heritage, we face some important issues. Some are of general concern. Others are intramural, and reflect the need for more sophisticated approaches and techniques.

Social Issues

It has been suggested that the current enthusiasm for area preservation is reactionary, with all the negativism and irrationality which this implies. The social issues involved continue to haunt us, and they have increased in seriousness with the trend of the times. We have a problem unlike that of the many European societies which have achieved a consistent policy and attitude toward preservation matters.

What is new is a recognition, most recently on the Presidential level, that the recovery of districts where sufficient numbers of older buildings survive to make area preservation worthwhile means considerable hardship not only for slumlords, but also for their victims. Almost invariably the urban preservation project has depended on two basic displacements. First, the elimination of many objectionable “non-conforming” uses of the structures in the area—generally light industry or small family-scale service businesses. Second, the replacement of a disadvantaged population—now generally Negro—with a sophisticated and more socially mobile one. The burden of area preservation falls most heavily on those who have used the relics most recently and who are rarely offered other accommodations as inexpensive or as conveniently located when they are priced or forced out of the neighborhood.

Economic Issues

Experience has shown that area preservation is extraordinarily profitable in urban communities, since land and building values rise and the rate of obsolescence is retarded to the point that the preserved buildings have a stable or increasing economic potential if minimum maintenance is available. We are already faced with the problem that the originators of urban area preservation projects are in turn being forced out by the rising scale of values, since concomitant costs for taxes and services are faced by property holders. Here, as elsewhere, we need recognition in our tax structure of the public utility of historic structures and those who preserve them.

1) *English Practice*—We should note carefully the procedures established in England, where properties made over to the National Trust are off the tax rolls and eligible for government maintenance or restora-

tion grants, and where the former owners or their descendants are often encouraged to continue to use the premises (subject to rights of public visitation). In this way the character and even the traditional associations of the property are retained, presumably to the advantage of the grand tradition, the tourist business and the public at large.

2) *Taxes*—Perhaps more significant for urban area preservation is a sophisticated tax policy. Ownership of the elements involved is usually either subject to rapid turnover among individuals and speculators, or is impersonal, tied up in trusts or controlled by institutions. Instead of adhering to the normal competitive patterns which require owners of land to be taxed on maximum economic potential rather than current revenues, we should demand a separate tax system for historic sites and buildings. Instead of penalizing the owner who refuses to discard a significant relic in favor of a more profitable replacement, we should attempt to encourage him where this fits the over-all objectives and pattern of development of the area. If a more sophisticated cost-benefit analysis were available, it could be readily demonstrated that the influence of an attractive relic on the environment often means increased tax yield from surrounding properties. In many cases this in turn causes the monument itself to be uneconomic (in the face of the mounting tax bills) and produces a kind of involuntary economic suicide. What is needed is legal recognition of the economic problems involved in the preservation of structures and sites not in the public domain. This might be accomplished through the establishment of a board of equalization or other specialized agency, a statewide apparatus for the consistent adjustment of taxes on preserved properties.

3) *Conflicting Public Policies*—Area preservation difficulties arise when local and regional authorities or public and private groups have different objectives. More serious and more common are the effects of the conflicting policies of different agencies within a single jurisdiction. Attempts to protect the view from Mount Vernon across the Potomac to the low-lying wooded areas beyond have indicated a typical conflict of public interests, with agencies concerned with matters of health and sanitation or economic development seeking to thwart those anxious to protect the visual status quo. Recently the city of New York made an award to the owners of the Seagram Building, commending it as a civic ornament. This was shortly after the municipal taxing authorities decided that it should be subject to an abnormally high rate of taxation because it was a “prestige” building.

This kind of lack of coordination is apparent at all levels of government. There is rarely anyone responsible for protecting the interests or assuring the survival of significant relics, areas or views from the demands of rival bureaucracies, let alone the pressures of normal commercial “development.” In fact, it is generally not until considerable time, energy and skill have been devoted to a “proposal” that those in a position to speak up for monuments learn that they are threatened. Here is a field in which architectural historians might well help, in conjunction with planning agencies, to establish in advance of their being

threatened or planned for, the areas, effects and artifacts which should be considered for preservation. The current New York landmarks effort might well serve as a prototype for other communities concerned with the survival of their architectural heritage.

Problems for the Historian

1) *Inventory*—Squarely within the architectural historian's province is the inventory: the collection and classification of existing architectural and historic resources. Where the range of potentially valuable survivals has been sensed, as it was in the pioneer study of Charleston, South Carolina, the existence of topographic and natural forms of interest, of cityscape and landscape features, of views and landmarks, of "street furniture" and textures, of characteristic and aberrational forms will be recognized. In all of the successful area projects undertaken to date, historically oriented architects or architecturally informed historians have played major roles. As a professional group, we must encourage the efforts of these kinds of people and recognize the current demand for their services in our educational and planning programs.

2) *Planning Process*—We must see to it that our urban development and redevelopment processes include a sophisticated survey, analysis and publication of the valuable features as well as the deficiencies of the areas in question. Too often our educational efforts are undertaken after the design decisions have been made. We usually conduct the post mortems on the historic items, rather than the examinations which will lead to prevention of disaster or cure of nonfatal maladies.

3) *For Outdoor Museums with Walls*—In this connection we should resist the "museum without walls" tendency. We should not permit our immediate environments to be denuded of inherited features on the basis of either of the two currently fashionable specious rationalizations most often employed (usually by us). We should not say that because photographs and other documents exist, because a building has been published, we can well afford to dispense with the original and be just as happy with the library file which is cheaper and less inconvenient to maintain. In a relativistic age this is too absolutist a position for even the most complacent scholar to honestly maintain. If the esthetic experience means anything, the confrontation of the individual with the real thing is important.

A more sophisticated and insidious kind of abdication of responsibility is rationalized by the museum-oriented who prefer the "best example" to the run-of-the-mill historic survival. This is the traditional approach of the curator responsible for obtaining the best possible exemplars for public display and edification. It is also the approach of the eclectic architects and historians for whom museums served as cliché collections rather than training grounds. These folk are satisfied to destroy all Greek temples provided the Parthenon (an untypical example) survives to be visited and photographed. As for imitation temples, such as the nineteenth century wooden ones which reverted to the original materials, they too are thoroughly expendable, except perhaps for one or two

"examples" inviolate in special preserves, the outdoor equivalent of glass cases.

4) *Regional Archives*—But our concern for the "life" of our monuments should not make us overlook our other responsibilities. We are most knowledgeable about the documentary facts and resources on which scholarship, maintenance and restoration rely. We must play a responsible role in collecting and handing on the data which make the forms in our preserved areas understandable. Today the collection of architectural documents—particularly those of purely local interest—is haphazard.

When we are prepared to appreciate the local scene we discover it has its own distinctions. Local personalities—historic or social or artistic—are enshrined. Characteristic forms evolve and disappear. Techniques and ornaments chronicle changing resources and tastes. These are things which need to be understood and documented on a local basis. Each area and each enterprising community should attempt to understand its sequence of historic "images," and to retain the documents which identify and record them. Collections of early views and descriptions, drawings, proposals, sketches and working drawings of designers, planning proposals and land-use developments, ought to be collected and coordinated to provide a source of information for decision-makers and designers and for publications designed to orient the public to the nature of its artistic and physical environment.

Fortunately the local historical societies have served as repositories for all sorts of early materials, and through the agency of the American Association for State and Local History, are being encouraged to concern themselves with visual aspects and architectural survivals of the past.

It would be particularly pertinent if the SAH and the AIA could undertake to encourage the development of regional deposit libraries where archival materials of architectural interest could be routed and a haven provided for items of relatively local importance. Ideally these would be the libraries accessible to students and professionals and convenient for scholars. In many cases they would be university administered. Other areas could not and should not attempt to eclipse the extraordinary wealth in architectural history materials of, say, Columbia's Avery Library or the Library of Congress. They might very well, however, undertake to pick up the local pieces as the library of the College of Environmental Design at Berkeley and the library of the College of Architecture and the New York State Regional Archive at Cornell attempt to do. If the whole country were provided with this kind of regional resource, the proper disposition of architectural documents could be a matter of course, rather than the way it now is—an occasional happy accident in an endless series of unthinking destructions and fumbled opportunities.

Once we have made rational plans for the preservation of the documents which explain and justify our historic predilections in architecture, we are in a much stronger position to proceed with an orderly and rational preservation effort for the buildings and areas which are our concern. ■

Blueprint for Learning



BY B. FORD PARKER

We present with joy this little account by Mrs Parker, who is librarian of the Monterey City Schools, Monterey, California. Here again is an architect who is really doing something about preparing an educated public for architecture. As we said in the case of Arthur Fehr's article two years ago, may his example inspire others to do it too!

CHILDREN at Noche Buena Elementary School in Seaside, California, are still talking about the day the architect visited them. It came about because we had a community high school under construction and a beautiful airport control tower recently completed in the neighborhood. The youngsters were vitally interested in all aspects of building, but it was evident from their questions they had no awareness of the need for an architect or of his role in the proceedings.

Because active experiences with real people and processes can give such awareness at a very early age, and awaken interests which are the valid beginnings of comprehensive appreciations later, we asked the architect for the high school, Fred Keeble AIA*, to come and talk with the children. Since youngsters of all ages (grades one through six) were equally in-

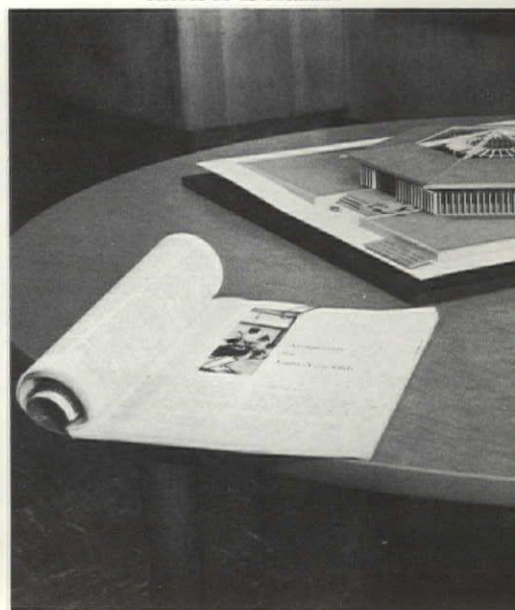
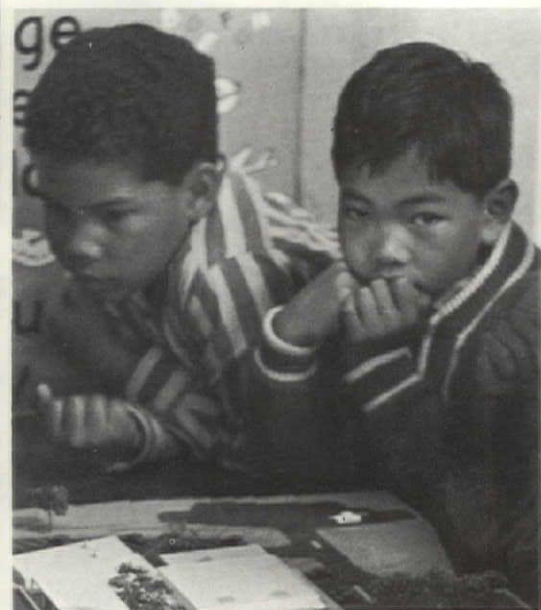
terested, we had Mr Keeble in the library where classes could come in turn to see, hear and have questions answered in groups small enough to avoid the "lecture" approach.

We worked hard preparing for his visit, borrowing and displaying materials from local architects: models of schools, churches, libraries and homes; blueprints, color renderings and large wall charts of photographs showing the actual steps of construction. A model of the entire campus of the high school was supplemented by individual models of some of its buildings. Favorite among these was the school library** which children saw in the larger model and then in a close-up, from which they could remove the roof to peer inside. This library, Willey Library, Seaside High School, Fort Ord, California, subsequently received an Award of Merit from the Library Buildings Award Program sponsored by the AIA, American Library Association and National Book Committee.

When the big day arrived, Mr Keeble found himself addressing not only the elementary classes and

*Keeble & Rhoda, Monterey: past president, local chapter AIA; chairman, Planning Commission, Carmel

**See photo of the model on the table with the AIA JOURNAL, August 1962, opened at the article, "Architecture for Eight-Year-Olds," where the Editor says, "may [this] example inspire others to do it too"



their teachers but a group of students from the high school and interested parents who had come to hear. He used his time well, showing and discussing the architect's tools, telling how he works, answering questions of every conceivable kind regarding land contour, building construction, the entire process from initial drawings through final inspection.

But he gave to our children that day something far greater than a detailed report of the architect's job. Their questions grew surprisingly perspicacious as they became comfortable with this friendly, direct man who avoided the cardinal error of talking down to them and thus achieved rapport with the different age groups—no mean trick as any educator can tell you. He made the children aware of architecture as a fundamental human experience, the result of the thought and discipline of hard-working people. He showed the variety of materials used by these people and the wide range of their modes of expression as they create useful buildings which are yet beautiful and integrated with their environment. He caused many a little chap to sit taller in pride at his daddy's work when he stressed the importance and value of every worker on the job. Without laboring his points he told of the need for conservation of natural and historic beauties; he impressed upon the children the

responsibility of each citizen to consider the buildings, streets and parks of his own neighborhood and community and, as a consequence, to take an active part in its development.

When their time was up the children didn't want to go but clustered about Mr Keeble asking questions until they were forced to leave so the next group could come in. Visiting parents told us afterwards they had had no idea of the scope of the architect's job, or of the value of his contribution to even a small single dwelling. One of the boys from the high school who met Mr Keeble that afternoon and has received encouragement from him since is now studying to become an architect.

It was a rewarding and satisfying afternoon. In two hours Mr Keeble talked with over 200 students in an informal atmosphere which freed children to really look, touch and ask. Small wonder they talked of it for months and are still asking, "When will the architect come again?"

Preparing for such an experience is work, and a busy man must be willing to give of his time, but the rewards are immeasurable and we certainly hope to repeat it in other schools. It is one way we can help to develop the enlightened public so crucially needed in our increasingly urbanized world. ■

BOOKS

Community Planning in the 1920's—The Contribution of the Regional Planning Association of America. Roy Lubove. University of Pittsburgh Press 155 pp \$2.75

Anyone concerned with American community planning and housing soon learns that the 1920's was a key period. Roy Lubove's book is a highly informative and easily readable account of the events of those years.

The cast of personalities includes names like Ackerman, Stein, Mumford, Perry, Wright, MacKaye and Bauer. Their unusual organization was the Regional Planning Association of America.

The accomplishments of the period include the oft-cited 1926 report of the New York State Commission, the famous plan for the whole state of New York drafted by Henry Wright. Another plan, often confused with the New York State Plan, was the Regional Plan of New York (City) and its Environs. This latter plan was prepared a few years after the New York State Plan and was sharply criticized by the RPAA group for its lack of physical scope. We also get a better perspective on Sunnyside and Radburn from this book.

The explanations which Lubove gives of these and other events is among the several merits of this book. So is the background to thought and action of the period which he presents. Lubove puts a considerable amount of hitherto hazy information in clear perspective for us. His 127 pages can be read very quickly, and the balance of the book has references for those who want to delve further.

Coming as a sequel to the author's "The Progressives and the Slums: Tenement Housing Reform in New York City 1890-1917," Lubove's book is must reading for those of us who are vitally concerned with rebuilding America's cities. As we go forward we often find we are treading ground which has been traversed by others. So it is with our planning today, seen in comparison with the ideas of the twenties. We will undoubtedly avoid some gross errors if we know the thoughts and deeds of our predecessors.

We hope Professor Lubove will continue to inform us, perhaps now with a book that covers the thirties.

P.D.S.

The Eternal Present—Beginnings of Art. S. Giedion. Pantheon Books 588 pp illus \$12.50

A brief first part of this text summarizes the rest under the heading "Art a Fundamental Experience"—concepts of abstraction, transparency, movement—then longer analysis of the symbols, the sacred animals, the human figure and finally the space conception of prehistory. All sections are handsomely illustrated with more than 500 photographs and drawings, including twenty exceptionally fine color-photo-reproductions of paleolithic art. Good maps, a lengthy bibliography and a twenty-page index tes-

tify to the care with which this book (a collection of the A. W. Mellon Lectures in the Fine Arts sponsored by the Bollingen Foundation, along with Vol II: "Beginnings of Architecture") has been produced. The translation, except for a few awkward passages where it follows the original too closely, is clear and readable as well.

While a specialist-reviewer has taken violent exception to the invasion of the field of prehistory by a mere art historian (was he left out of the references?), this reviewer found many characteristically perceptive comments in this text. The discussion of space conception in no way implies that the cases themselves which preserved these beginnings of art expression were conceived or appreciated as spatial design—they were merely natural hiding places for rituals and visual representations related to hunting and fertility. Dr Giedion, with case after case, illustrates how different this primeval expression is from our tradition.

In particular, these references to space conception are important for architects, as we move from a constructed environment (which for the most part has been rectilinear and biased by concepts of Renaissance perspective and axial planning) into free forms and the new-old concept of polar perception. With this realization, and its corollary that the experience of architecture is not a static experience from a fixed station point, we prophesy that the motion picture will see more use as a sophisticated record of architecture.

ERIC PAWLEY AIA

Intensity of Development and Livability of Multifamily Housing Projects. Robert D. Katz. FHA Technical Studies Program TS 7.14 US Government Printing Office 116 pp illus \$2.00

Without question, much site planning in the United States is of poor quality. The abundance of open land coupled with revolutions in the mechanization of mass construction procedures and of earth-moving techniques have led all but the most sensitive designers and builders well away from considerate use of site planning technology. And, since clustering of structures intensifies any errors made in site work, the problems of planning a site for a cluster of near-identical buildings, such as multifamily housing complexes, are everywhere evident.

Site design being a great deal more than contouring and landscaping, it is significant to find that FHA has lifted its vision beyond a concern for drainage and plant materials. In an attempt to identify some of the qualities that distinguish good housing projects and to determine the significance of regulation of intensity of site development on the livability of housing areas, FHA joined with its sister agencies in the HHFA, PHA and URA, and with the cooperation of The American Institute of Architects and the University of Illinois, sent Mr Katz, an associate professor of city planning at Illinois, to some eleven European and three American cities to review and report on sixty projects ranging from row units to high rise.

The study identifies five principal measures of in-

tensity of development—density, coverage, floor area ratio, building type and size, and spacing—and a number of other measurable project characteristics such as parking facilities, balconies, communal recreation facilities, non-residential site uses and distance to city center. Against these measures of intensity the study discusses aspects of livability. Data sheets, plot plans and many, many photographs of each project visited are offered in illustration of the text discussions.

The author concludes with five specific proposals to upgrade multifamily housing quality while noting that he has focused on only a small area of housing—namely design—and calling for continued study in all other phases of this building type.

As an outgrowth of these recommendations the FHA, URA and the Mobile Home Manufacturer's Association are presently sponsoring a two-year technical study by the University of Illinois to determine which factors are *essential* to good site design and how intensity of housing development can be *increased* without sacrifice of livability. Professor Katz is conducting this second study which will visit some 200 housing sites in twenty-four American cities with results and recommendations to be assembled by June 1965. This second study is undertaken with the cooperation of the PHA, HHFA, AIA, NAHB and ULI.

Hopefully, these two publications will prove to be the initiation of a continuing housing agency concern for better design and for the intangibles that support or destroy design.

R.J.P.

A Dictionary of Art Terms. Reginald G. Haggard. New York, Hawthorn Books, Inc, 1962. 416 p. illus 7¼" x 4¾" \$5.95

A small dictionary of terms pertaining to the fields of painting, sculpture, architecture, engraving, etching, lithography, heraldry. The main alphabet is supplemented by three glossaries of French, German and Italian terms with English equivalents. The illustrations are line drawings. Although the definitions are generally adequate, the references to American architectural registration are faulty, likely due to the English origins of the book.

G.E.P.

The Challenge of Megalopolis. Wolf Von Eckardt HON AIA, based on the original study by Jean Gottmann. Macmillan 128 pp illus \$1.95

When Dr Jean Gottmann's "Megalopolis" appeared in 1961 it attracted attention far outside the circles of planners, sociologists, economists and others who are usually concerned with such studies, for to a casual reader it conveyed the rather terrifying impression that the author was predicting that, in a few years, the whole area between Boston and Washington would be one solid, built-up city. Such, of course, was not quite the case, for two-thirds of the area is woodland. But along the lines of communication there is a fast-growing tendency toward urbanization, which must be brought under control.

The Twentieth Century Fund, which financed the study and published the original 800-page report,

has done a great service in getting out this condensed popularization of it, completely rewritten by Wolf Von Eckardt and profusely illustrated with charts, maps and all the paraphernalia of modern graphic representation—designed and laid out by the writer. It is a splendid job and places this tremendously valuable study within the reach, both financially and intellectually, of the high school and college student—which means that you and I can read it too, with relish and with profit!

J.W.

The Withering Away of the City. York Willbern. University of Alabama Press 139 pp \$3.95

In these five lectures delivered at the University of Alabama, the author, who is professor of government and director of the Bureau of Government Research at Indiana University, discusses the often-observed fact that although people continue to move to the city, still more people are now moving from the city to the suburbs. We still do not know the full implications of this new movement, but it is obvious that it throws the responsibility for supplying a vast quantity of public services, traditionally furnished by the city, onto village, town and county governments.

Police and fire protection, schools and libraries, parks and recreational facilities, hospitals and sewage disposal—all these services must be provided now in vast areas where a few years ago they were furnished by individual property owners, if at all, with the exception of schools, and even there only grade schools were usually provided. These changes have resulted in a disruption of the systems of public finance and frequently piecemeal local governments. The great need is for trained and informed leadership, and for a great deal of research into urban and suburban problems. Dr Willbern doesn't pretend to have the answers, but he very keenly points up the questions.

J.W.

Engineering Contracts and Specifications. Robert W. Abbett. New York, John Wiley and Sons, Inc, (4th ed) 1963. 461 pp 6" x 9¼" \$8.50

This is a compact presentation of the legal and business aspects of the engineering profession for the use of practicing engineers, architects, contractors and students in the field. It develops the fundamentals of business law which are most significant in contract relations in the construction industry. This fourth edition includes four new chapters, and old material has been brought up to date or made more comprehensive.

Architectural Supervision of Modern Buildings. Martin D. Dubin. New York, Reinhold, 1963. 298 pp illus 8¾" x 5¾" \$10.00

A thorough discussion, from every point of view, of the responsibilities of the various principals involved in construction with the purpose of developing harmonious and superior projects. It describes in up-to-date context the roles and prerogatives of the architect-engineer, the contractor and the owner during the building project.

LIBRARY NOTES

GIFTS FOR CHRISTMAS: Worth consideration are "World Architecture, One," John Donat, ed (Studio, \$15); "Cities," Lawrence Halprin (Reinhold, \$15); "International History of City Development, v 1, The Heartland: Central Europe," E. A. Gutkind (Free Press of Glencoe, \$17); "World Architecture," Introd by H. R. Hitchcock (McGraw-Hill, \$17.95); "Greek Temples, Theatres and Shrines," Helmut Berve and G. Gruben (Abrams, \$30).

HOSPITAL PLANNING was the subject of a recent library bulletin board. Included in the suggested readings were E. T. Wheeler's "Hospital Design and Function"; Guy Aldis' "Planning Requirements for the Mentally Subnormal"; and Nuffield Foundation's "Children in Hospital." Available on loan to corporate members, as well as other books on the design of hospitals.

NEW HIGH IN LOANS TO MEMBERS is projected for 1964. Statistics to date indicate this may be a record year. A small fee of 50 cents for the first book and 25 cents for each additional book requested at the same time to cover postage and handling is the only charge for this privilege of loans to corporate members.

PARKING FACILITIES? We can send members a list of books available for loan. A somewhat related and interesting British publication is Paul Ritter's "Planning for Man and Motor." This book takes into consideration the much-discussed Buchanan Report of Great Britain's Ministry of Transport entitled "Traffic in Towns." This study of long-term problems of traffic in urban areas is recommended reading.

THE SACRIFICE AND THE RESURRECTION, the film on Coventry Cathedral, is available to chapters and members for a rental fee of \$10. Schedule well in advance, for this film is popular and bookings are still heavy. Those who have seen it are impressed with its beauty. The Institute's public relations films are distributed by the Library, and we will be happy to send a list of them to anyone requesting it.

URBAN LANDSCAPE DESIGN, written by Garrett Eckbo, is a book which combines imagination and practicality to show how beautiful and functional landscape can be achieved. Recommended reading.

OPENING A CORNERSTONE: The Library frequently receives inquiries about cornerstone layings; so it seemed peculiarly appropriate to view a cornerstone opening. The occasion was the demolition of the Mills Building, 17th and Pennsylvania Avenue, NW, in Washington, erected in 1903. The cornerstone was under one of the columns forming a kind of porch at the main entrance. A crane removed the column and cap and then the base. A little chiseling removed the layer of mortar covering the box, and with some difficulty the box was withdrawn from its hole. Drastic chiseling was required to open the box, no adequate opening device having been provided. The container was about half full, and only a few of the contents were withdrawn on the site. They seemed to

be in good condition, in marked contrast to those removed from the cornerstone of the Arlington, Va, Court House a few years ago.

AIA MEMBERS AS AUTHORS. We wish to obtain copies of your books if the subject is within the Library's sphere of interest. Let us know when you write a book or pamphlet, such information being of peculiar interest to this library, of course. In 1963 members who donated their own writings included John Bolles, John A. Bryan, Marvin Eickenroht, H. C. Forman, Richard W. E. Perrin, Walter F. Petty, T. J. Russell and Joseph H. Young. Sir Percy Thomas HON FAIA and Dr E. S. Frey HON AIA also contributed copies of their writings.

TEN BUILDINGS THAT POINT THE FUTURE is the subject of a provocative article in the October issue of *Fortune*. Choice is based upon the buildings which have "contributed something new to the continuously changing art of architecture." The functions and sites of the buildings vary, but a common denominator is that "all ten are designed by well-known architects with proved reputations." It seems perhaps one of the imaginative and strikingly beautiful new churches in Europe might have qualified, but the only foreign building is the Engineering Building, University of Leicester, England.

MODERN CHURCHES IN DENMARK, SWEDEN, GERMANY and other European countries are now represented in our growing slide collection. We recently added some 40 such slides to our predominantly American examples. It has not proved feasible to have a printed catalog of our slide holdings, but we will send information on the scope of the collection to any inquirer and will try to make a selection to fit his purposes. Slides rent at the rate of \$2.00 for 48 slides.

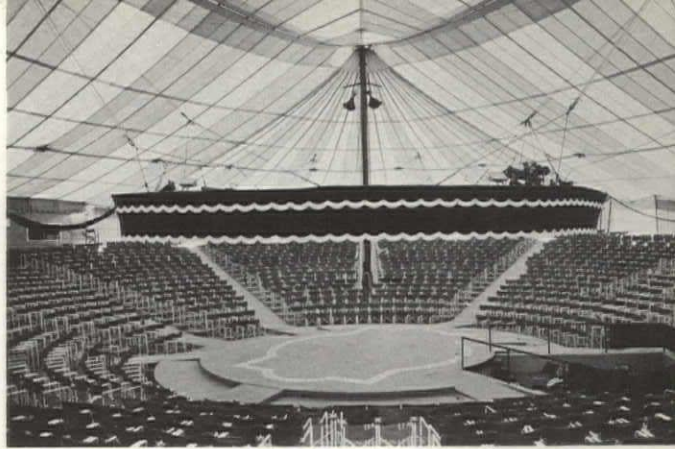
THE INDEX TO ARCHITECTURAL PERIODICALS compiled by Avery Memorial Architectural Library, Columbia University, has been published in 12 volumes. We have acquired this reference work and find it a valuable tool. Of more special interest is Avery's "Obituary Index of Architects and Artists," which should be useful in locating biographical data.

ALASKA, HAWAII AND VERMONT, WHERE ARE YOU? During the ten years in which the Library Loan Service has been in being, books have been borrowed by members in every state except Alaska, Hawaii and Vermont. Even a member residing in Denmark has used our services.

ABBEYS TO WAREHOUSES: The AIA Library catalog contains books on at least 130 building types, ranging alphabetically from abbeys to warehouses. We wish the range were from abbeys to zoological museums, because we often have calls for books on the latter, but we know of no good book on the subject. We have to rely on periodical articles and pamphlets.

PAPERBACK BOOKS ON ARCHITECTURE are increasingly available, indicating a growing and widespread public interest. Titles cover a wide variety and include such works as Gropius' "Scope of Total Architecture," Lavedan's "French Architecture," Saylor's "Dictionary of Architecture," Summerson's "Georgian London," Wright's "The Natural House" and Mumford's "The Highway and the City." ■

1 Camden County Music Fair, Camden County, New Jersey; Hassinger & Schwam, architects. 2 Tyrone Guthrie Theater, Minneapolis; Ralph Rapson AIA, architect. 3 Arena Stage, Washington, DC; Harry Weese & Associates, architects. 4 Clowes Memorial Hall, Butler University, Indianapolis; John M. Johansen AIA and Evans Woollen AIA, associated architects.



1

BOB JACOBSON



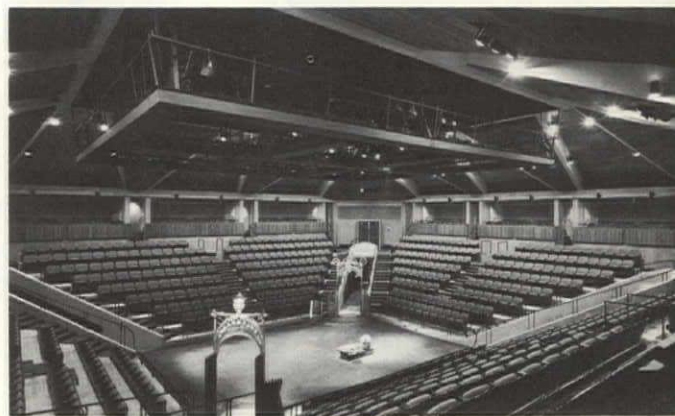
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AIA·AETA THEATER ARCHITECTURE EXHIBIT

The AIA-AETA Theater Architecture Exhibit is a project sponsored jointly by The American Institute of Architects and the American Educational Theater Association. The exhibit will be shown in Chicago, Illinois, December 28-30, at the Bismarck Hotel, in conjunction with the annual convention of the Speech Association of America and the American Educational Theater Association. It will ultimately be available as a traveling exhibit.

Illustrated are nine of the twenty theaters accepted by the screening jury, which was composed of three members of AIA, one representative of the educational theater and one professional from the performing arts. The theaters illustrated were selected arbitrarily. No awards were made. The projects were judged on the bases of fulfilling the program requirements and providing a workable facility.

The jury felt that the number of entries submitted does not give an accurate indication of the current interest in theater design, nor the variety of styles of theaters being constructed on college and university campuses, as community and repertory theaters, and as civic cultural centers. However, those selected by the jury do reflect some of the trends apparent in contemporary theater philosophy and practice. The jury stated that the fact that these theaters were accepted for exhibition does not indicate that they should be considered as exemplary. Other theaters worthy of being considered for exhibit could not be included because the architects were unable to meet the deadline.



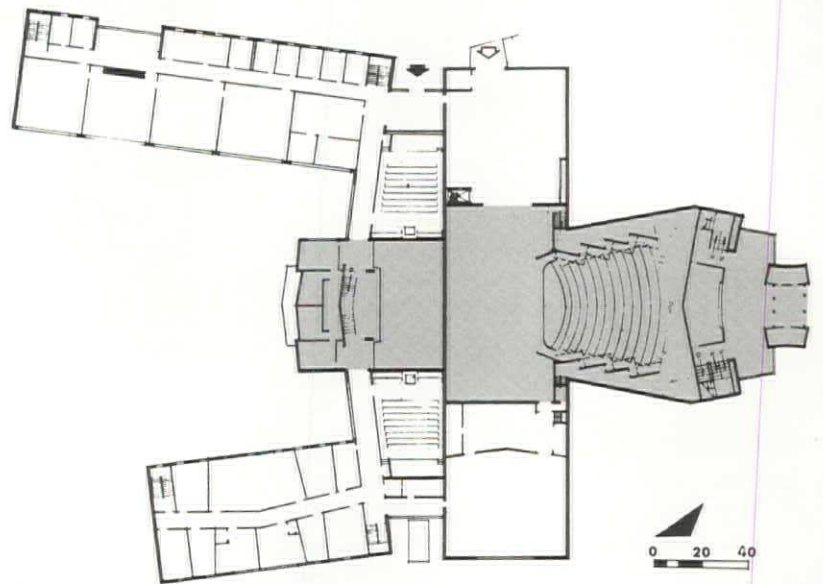
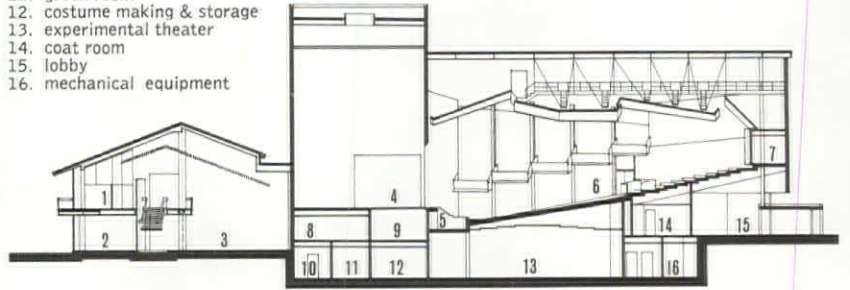
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GEORGE CSERNA

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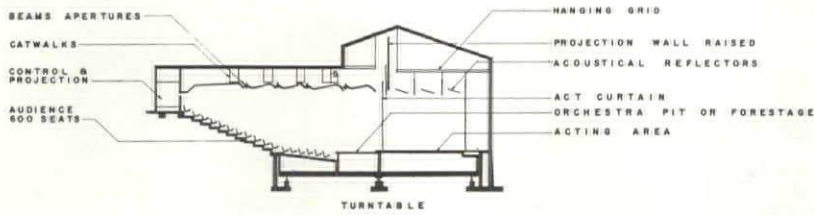
1. offices
2. small exhibition gallery
3. large exhibition gallery
4. stage
5. orchestra pit
6. theater seating (750 seats)
7. projection booth
8. storage
9. traps
10. dressing room
11. green room
12. costume making & storage
13. experimental theater
14. coat room
15. lobby
16. mechanical equipment



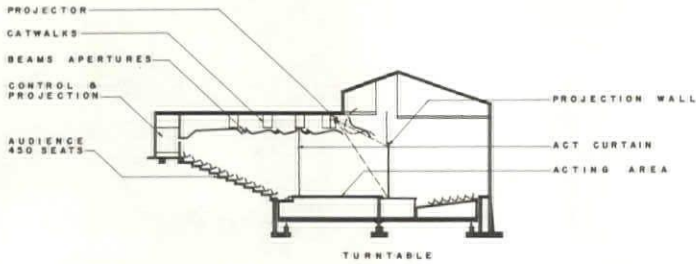
Paul Creative Arts Center
 University of New Hampshire
 at Durham
 Shepley Bulfinch Richardson
 & Abbott, Architects



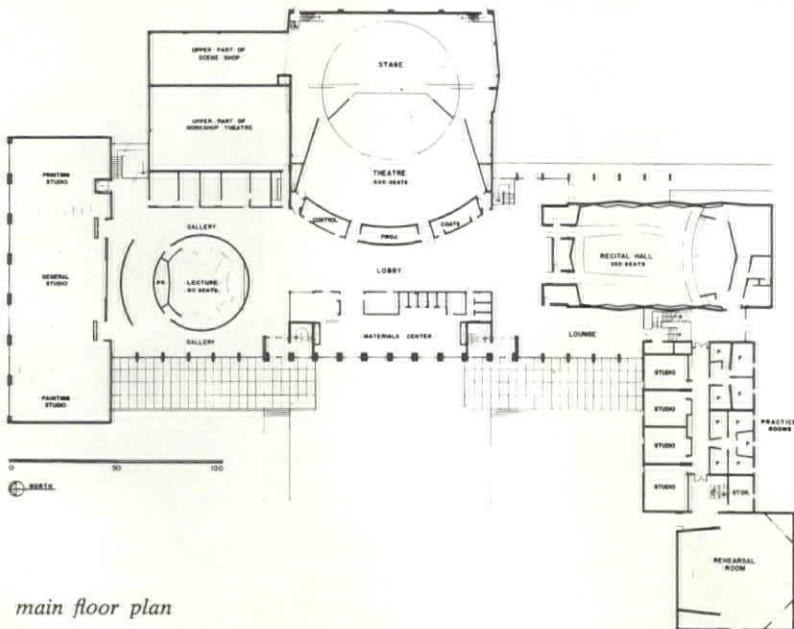
Knox College Fine Arts Center
 Galesburg, Illinois
 The Perkins & Will Partnership
 Architects



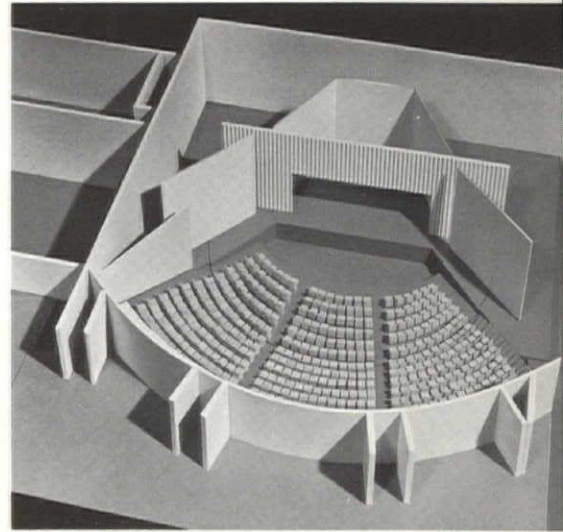
proscenium theater



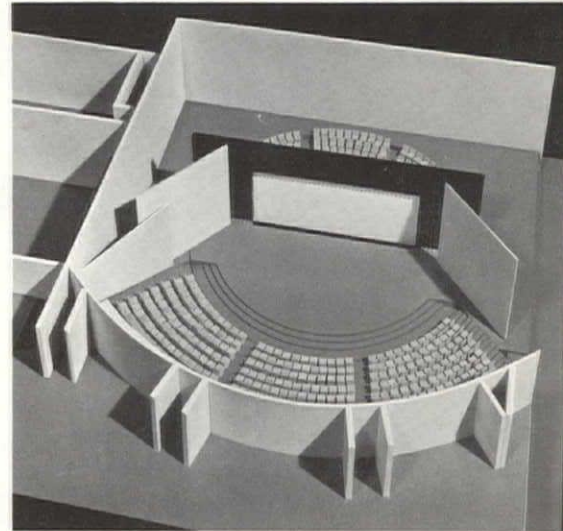
open-stage theater



main floor plan



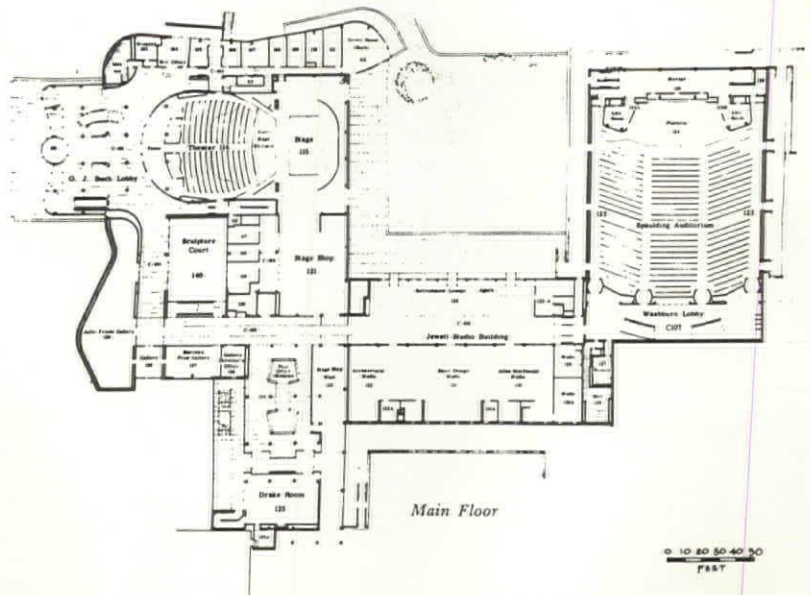
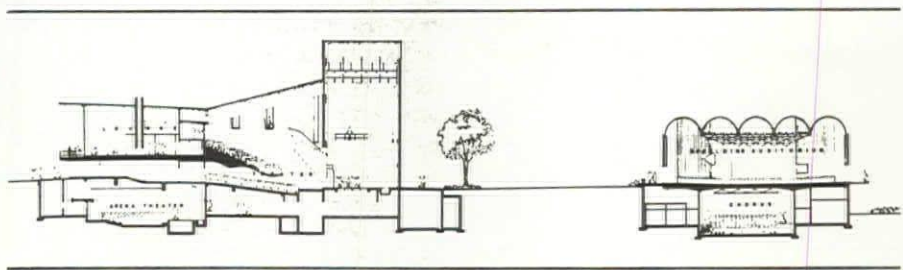
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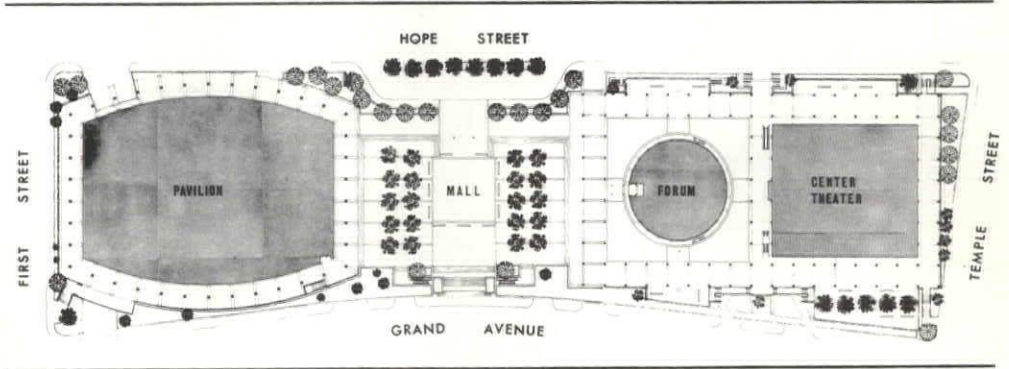
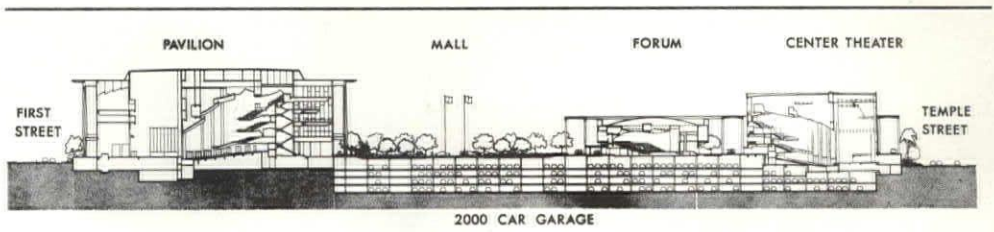


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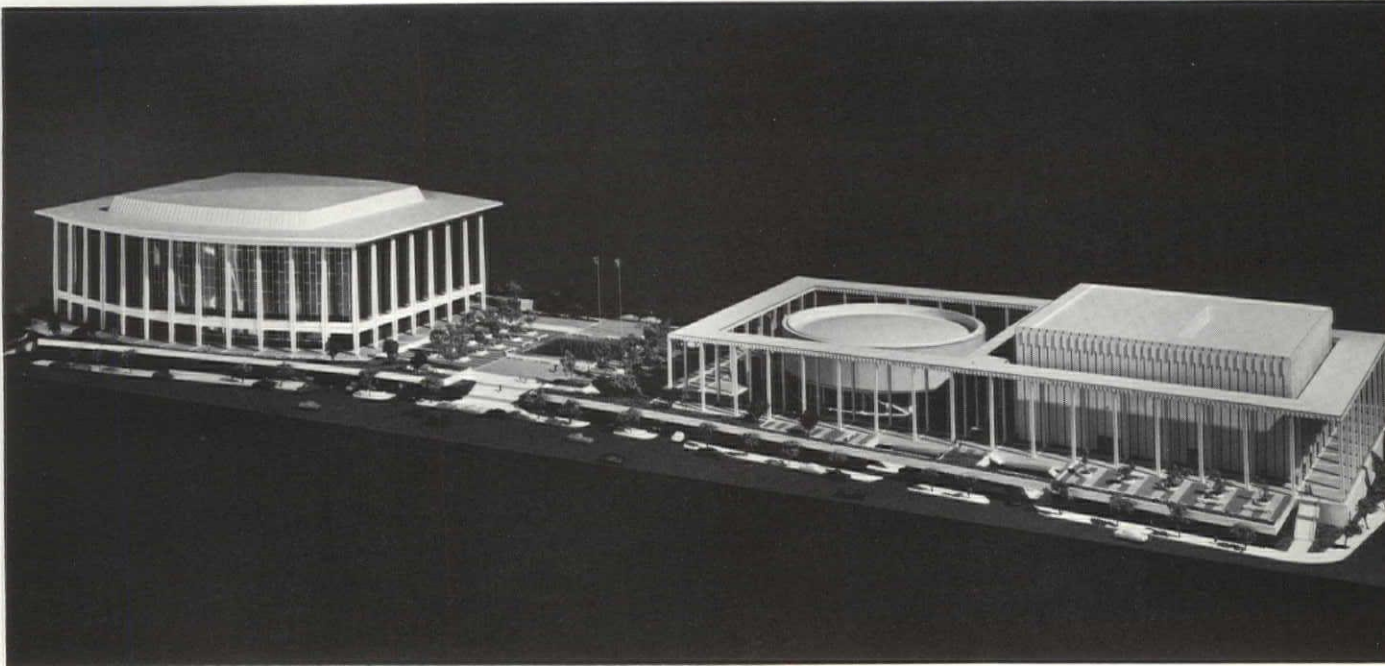
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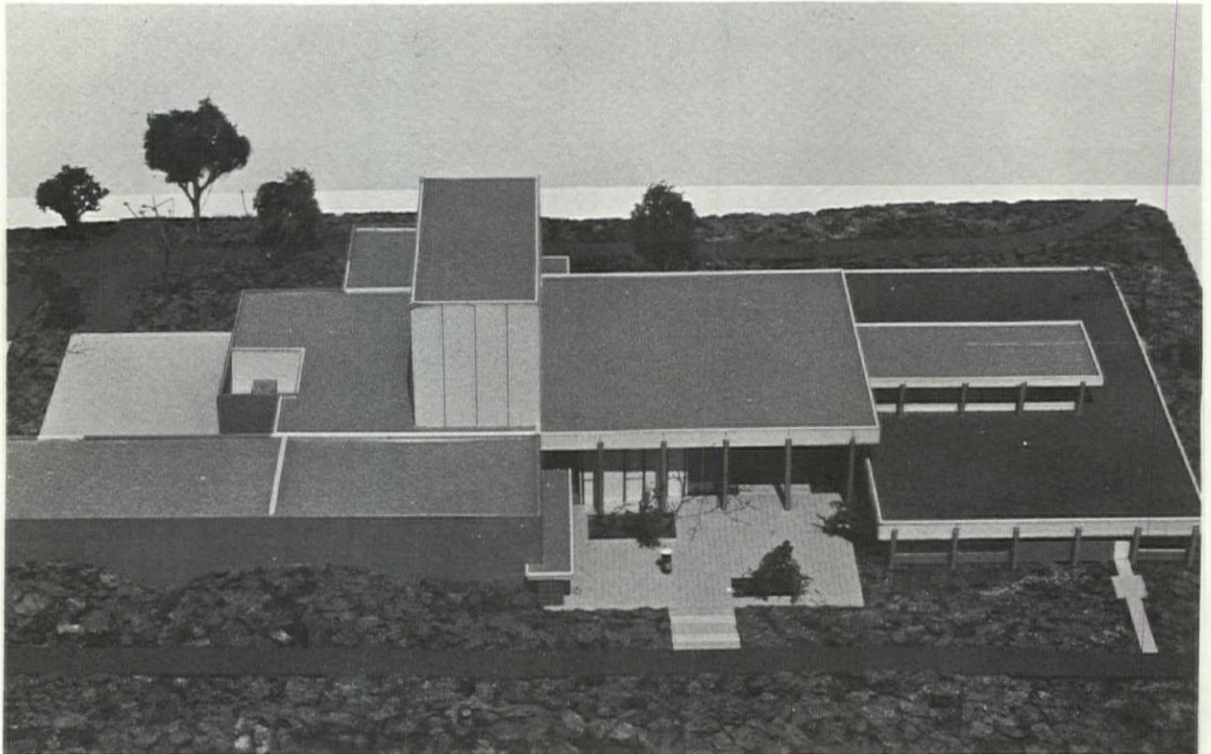
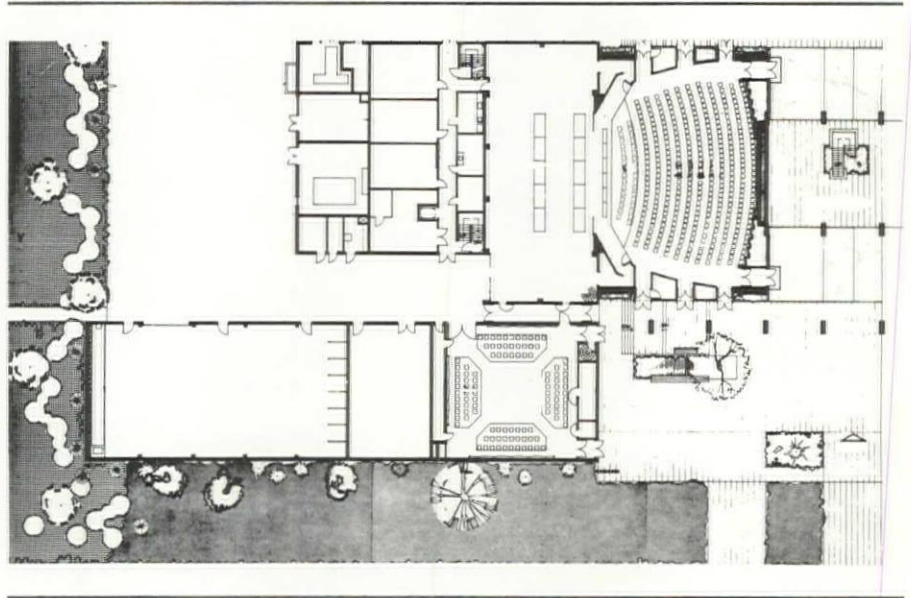


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Speech and Dramatic Arts Building
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Pre-Programming and Programming for the Live Performing Arts

WITH SPECIAL EMPHASIS ON THE CIVIC FACILITY

BY WILLIAM A. BRIGGS AIA

THE PAST few years have brought a renaissance in building for the live performing arts. Except for isolated institutional examples, construction in this field has been virtually dormant since the glittering days of Roxy. Facilities for the live performing arts, in the form of amphitheaters, arenas, auditoriums, bandshells, concert halls, community and cultural centers are incubating all over the country due to availability of leisure time, accelerated population growth, longevity and an insatiable thirst for culture. Supper-club theaters and arena stages are rejuvenating old barns and taverns; repertory groups are playing to SRO houses in shopping centers; and downtown the city fathers and city planners are fervently finding space in their civic centers and in their master plans for millions of dollars worth of "homes" for the live performing arts.

Box office receipts from the live performing arts for the year 1960 amounted to roughly \$400 million—more than the receipts for all other recreation combined (including movies). Most of the performances were being produced then, as now, in makeshift spaces, and few of the offering groups had anything at all that could be called a home. They did have an audience and a dedicated lot of performers. This phenomenon is on the increase throughout the country.

The newly erupted and avid audience is of such concern that the

Twentieth Century Fund has under contract a formidable research project to attempt to determine audience composition and characteristics—maybe we'll soon see paid ads painted on the curtain as in the old vaudeville days!

The architect is suddenly being confronted with a building type that may be somewhat new to him, simply because he probably hasn't had a commission of this nature during the last thirty-five years. He may have to brush up on his vocabulary, but he certainly should seek the spotlight, and the best time is *not* after the curtain is raised on Act I but during the Prologue.

The following pointers are intended as helpful hints.

The Prologue in this case is a mutation of the "feasibility" study which, when applied to a major facility for the live performing arts, becomes quite specific; it involves *pre-programming* and *programming* and must be tailored to fit its established purpose for each project. Here's why.

Unlike housing projects, hospitals, schools and office buildings, facilities for the live performing arts are conceived in devious and sometimes mysterious ways. Economic factors used in forecasting the financial success of a routine construction venture are often absent, usually obscure and always conjectural. Usually the principal individuals involved are a heterogeneous cross section of the community, rather than an individual or a building committee.

The client for the initial studies may or may not be the ultimate client for the A&E contract. Either client could be a political body, a steering committee, or a utilizing agency such as one or several professional or amateur organizations. The very complexity of the interested groups makes for conflicts in purpose and personality. The individuals know only that they are championing a good cause and that the goal is a building complex to house entertainment facilities.

There is usually no one to show them the ways and means nor to delineate a realizable end-product, yet often all of the ingredients of the project are in an advanced stage of marination and require only some intelligent pre-programming to congeal the venture.

Pre-programming may be thought of as a diagnosis, while programming is akin to the prescription.

Pre-programming and programming often overlap one another and sometimes project themselves into schematics. Normally they will become the Prologue to the contract documents and progress directly into the standard AIA phasing of schematics, preliminaries, working drawings, etc. Therefore, the architect should enter the scene at the pre-programming stage and hopefully continue to coordinate the complete venture. Granted he may not know "all there is to know" about the theater—no one is expected to possess this amount of knowledge, but qualified technical assistance is readily available.

What is involved in pre-programming and in programming? A partial list of possible areas of investigation follows.

The pre-programming study or diagnosis may:

- a) Study adequacy of existing facilities
- b) Evaluate the need as evidenced in available talent
- c) Determine probable acceptance and utilization
- d) Evaluate potential box-office receipts versus operating expenses
- e) Project optimum seating capacities
- f) Investigate the effect the project may exert upon the social, cultural and economic life of the community
- g) Evaluate designated sites
- h) Define scope by number and types of *activities* desired to be included
- i) Establish the scope by number and types of *elements* to be included
- j) Determine efficiency and extent of multiple usage of various elements
- k) Determine financial feasibility.

The programming study or pre-description (sometimes part of the pre-programming study) may serve several purposes:

- a) Establish desirable relationships between the various elements
- b) Set specific criteria
- c) Allocate optimum areas required for each element
- d) Prepare schematics in minimum detail *
- e) Set target cost statements for budgeting purposes
- f) Recommend methods of financing
- g) Recommend a program for implementation of the project.

The results of the study may turn out to be positive or negative. If positive, then the study, in whatever depth it may have been conducted, should produce a package, with or without graphic aids, which can be easily employed to effectuate realization of the project. It may in no event be biased—this would automatically cancel its effective use (and, no doubt, yours, too!).

Consider:

- the comfort of the artist and the spectator who will use the end-product
- accessibility
- parking
- traffic
- civic clubs as well as the amateur artist groups

- the junior league
- local unions
- senior citizens
- the handicapped
- municipal welfare and recreation departments
- the Mayor
- the planning commission

Regardless of the depth of the study in question, and regardless of who is paying for it, don't forget that your permanent client is the local populace!

In addition to furnishing a showcase for the artist and entertainment for the spectator, the effect upon the complexion of the community as a living whole must not be overlooked. With strong sponsorship and skilled management, a facility for the live performing arts can pay its operating costs and show a profit. But the cost of the steel and concrete must usually be measured in terms of benefits to local commerce and industry, to the merchant and the innkeeper, as well as to the cultural health of the community. ■

* Schematics are often necessary even at this stage in order to arrive at areas and volumes for estimating purposes. Areas established on a "per seat" basis can be most misleading. The performance technique must be studied since it will dictate the playing area, the backstage requirements and the sight-lines; all of which, together with acoustics, affect the area and volume of the house and stage portions of the structure.

Multipurpose and Multiform Places of Assembly

BY BEN SCHLANGER AIA

SEVERAL of man's art forms are temporal in nature, and are created by live performers in the presence of an audience. Although the performers work from a script, a score, or choreography, the art form they create endures only for the space of time it takes to perform it. Consequently no two creations from the same script are identical. These art forms include drama, musical comedy, operetta, light opera, grand opera, concert and dance. Each requires a special architectural structure which provides facilities for the performers and for the audience.

The design criterion for this architectural structure, which in itself

is an art form, is that it must provide space in which the performers may work and a space in which the audience may be comfortably accommodated and from which they can see and hear the performers.

Attempts to solve the architectural problems peculiar to the live performing arts have resulted in different kinds of structures. In some cases, a structure has been designed to meet the requirement of one particular art form, such as the opera. In other cases, the structure has been designed to accommodate several, such as drama and musical comedy. Not all of the performing arts can be produced successfully in a single structure, although from an economic standpoint this might be

desirable. Nevertheless, attempts have been made to house several in a single structure, by making the structure sufficiently flexible that it can be quickly and easily modified to meet the demands of various types of performances.

"Multipurpose" refers to more than one type of use in a building of fixed design. "Multiform" refers to different shapes that an auditorium and performance area may assume.

Multipurpose places of assembly are built primarily in an effort to effect construction economies. Multiform theaters are considered principally as experimental theaters, often in conjunction with a teaching facility, and are used for more than

one philosophy of presentation in a single performing art.

An auditorium or audience area, and a performance or stage area, planned with a fixed relationship between the two, cannot be a multi-form theater. A multi-form theater is one in which these elements are changeable in either their relative positions to one another or in their detailed shapes, or both.

Multipurpose theaters can be used for only one purpose at a time, and therefore present limitations on the number of times the facilities are available for different disciplines of the performing arts. Multipurpose facilities may be used with acceptable results for only a limited number of kinds of performances. Different seating capacity requirements bring about special acoustical and visual problems, especially when the auditorium capacity is larger than approximately 300 seats. A combination multipurpose/multi-form auditorium becomes even more difficult, for these reasons. These problems affect first costs as well as subsequent operational costs.

Acoustics and sight-line requirements are the primary design criteria which determine limitations for the multipurpose facility. This is also true, to a lesser extent, for the multi-form building. Acceptable viewing distances and viewing angles, auditorium sound reverberation time, and other acoustical characteristics all set their limitations on the variety of uses feasible in a multipurpose facility.

As the term implies, multi-form theater could take on countless variations in design and concept, but there are two types which are most common. The first of these is *proscenium vs non-proscenium*. With a proscenium stage, audience area and performing area are definitely separated by the proscenium frame, and by a darkened audience area in contrast to the illuminated performance area behind the frame. In the non-proscenium situation, the audience and the playing area are in one envelopment; there may or may not be a variation in the lighting level between the two areas.

Another basic variation in theater presentation philosophy and resulting type of seating pattern is the selection of *unidirectional or multi-directional viewing*. In the case of

unidirectional viewing, the audience is so disposed that practically all of the spectators face the playing area in the same direction. With multi-directional viewing, the audience area partially or wholly surrounds the playing area, and each spectator gets a slightly or quite different view of a given scene. (Obviously, multidirectional viewing dictates a non-proscenium facility.)

The most suitable combination of performance philosophy and facilities is constantly being sought. The need to provide for the "road show," which is still generally staged in the proscenium format, continues to influence design. Experimentation is more easily carried on in college, community and repertory projects where the productions are "home-grown" and rarely travel.

There appears to be evidence of a desire to eliminate the proscenium; however much controversy remains as to how the audience should be arranged to view the performance. Variations in philosophy and actor/audience arrangements of presentation are well-illustrated in the 1961 Ford Foundation (Ideal Theater) Studies, published by the American Federation of Arts.

Multipurpose— Some Acceptable Combinations

Whenever possible, it is desirable to avoid multipurpose structures for the performing arts. However the following combined uses are feasible, within the limitations stated.

Dance

Dance is an art form which creates response in the audience through seeing movement and pattern of the dancers. Auditory stimulus and response are of lesser importance, and sufficient visual acuity to see dancers' facial expressions is also unimportant. Because of the visible effects of physical exertion involved, a separation between performers and audience is desirable. Greater viewing distances are possible than with drama, musical comedy and operetta. A steeper slope in the auditorium seating floor is desirable, to give spectators a view of the horizontal plane of the dance floor and the patterns of movement.

Dance can combine reasonably well with grand opera and concert use, provided the seating-floor slope

is sufficient. Acoustical experts differ in their opinions as to the desirability of strongly pitched floors for philharmonic concert use.

Multilevel tiers of seating typical of concert and opera houses usually produce a main-floor seating slope too slight for satisfactory viewing of the dance.

Operetta, Musical Comedies and Light Opera

Speech intelligibility becomes almost as important for these musical and spoken-word presentations, as for the drama. Visual acuity, which controls maximum viewing distance, is almost as critical for these light musical presentations as for drama. The theater for these light musicals combines best with that for drama, except that its optimum capacity would be almost twice that for drama, based on the relative popularity of the two art forms. Light musical theaters would generally be too small for grand opera or dance, where the acoustical and visual problems are less critical and where there is a demand for a large audience capacity.

The light musical theater would not serve well for concert use, which requires a high sound reverberation time, not desirable for speech intelligibility. It could, however, serve quite adequately for general assembly or lecture purposes.

Drama

Drama cannot be combined well with grand opera or concert because of the more critical requirements for visual acuity and speech intelligibility. Optimum capacity for drama is about one-third that needed for grand opera and concert. (See notes on dance and operetta, regarding feasibility of combining drama with other performing arts and places of assembly.)

Drama can be, and is being, presented in a wider variety of formats than in the past, reflecting different philosophies of presentation. This is in contrast to the more specific and limited number of accepted philosophies affecting the presentation of grand opera, dance and even light musical presentations. This fact indicates a need for real caution when considering a multipurpose facility for drama and these other art forms.

Concert and Grand Opera

The viewing requirements for concert and grand opera are almost the same. These two art forms may be presented in a single facility if certain compromises are made: First, the acoustical treatment should not be designed to favor the "concert-hall" aspect of the auditorium. A compromise must be made on sound-reverberation time, between that which is desirable for concert and that for grand opera. Very costly devices for changing the auditorium volume and surface shaping and absorption are questionable.

Second, large staging areas not required for concert use must be provided for grand opera. Third, a removable acoustical shell should be installed on the stage for use in concert performances. This shell is necessary for blending and projecting sound to the audience, as well as eliminating the cavernous voids of the fly-loft and side stages which are troublesome acoustically. (See notes on other performing arts in relation to concert use.)

Coliseums

Coliseums are, generally, assembly places of more than 3,500-seating capacity with a large, flat floor within the seating envelopment. These structures occasionally must be used for some of the performing arts demanding large seating capacities for special-limited-schedule appearances. Many compromises are necessary with regard to acoustical and visual requirements if the coliseum is to be multipurpose.

The most important of the design criteria in a coliseum is the unob-

structed view of the performance area, which will be used on occasion by several different types of performing arts, as well as for other kinds of attractions. In addition, there are the added problems of traffic flow and safety in the handling of large audiences.

Coliseums are unsuitable for drama and light musical presentations, mainly because of the great viewing distances and the necessity for electrical sound amplification. However, in addition to the sports events, spectacles and rallies for which they are primarily designed, coliseums may occasionally be used for important name dance-groups, grand opera and personal celebrity appearances heard through loudspeakers and seen at a sacrifice of facial expressions.

Motion-Picture Theaters

Since the advent of home television, the motion-picture theater has become almost exclusively a single-purpose structure. Before this time it was quite common for full stage live performances of the vaudeville variety to be presented along with a film. With the exception of a few theaters such as the Music Hall in New York City, this combined use is almost extinct.

The motion-picture auditorium must have specially absorbent acoustical provision and completely neutralized auditorium surfaces, to allow for better screen projected image and image dominance. Optimum capacity varies from 400 to 1,000 seats. Film rental problems preclude availability for other uses. Motion pictures can be exhibited with acceptable (compromise) quality in other types of assembly struc-

tures, but a properly designed motion picture theater is hardly adaptable for other uses because of its low sound-reverberation time and purposely omitted stage facilities.

Comparative Criteria

Speech intelligibility and visual acuity are critical in the following order:

SPEECH INTELLIGIBILITY

Drama
Light musical productions
Dance
Concert
Organ recitals
Lecture*
Motion pictures*

VISUAL ACUITY

Drama
Light musical productions
(Dance, grand opera and concert present equal problems as to visual acuity.)

VERTICAL ANGLE OF VISION

Dance
Drama
Light musical productions
Grand opera
Concert

Optimum angles are suggested by real-life visual experience, by special dramatic effects desired and by need for visibility of patterns of movement, in the case of dance. The rather slight floor slopes of the main-floor seating of most traditional theaters and the rather steep slopes of some of the recent thrust stages enveloped by the audience are exaggerations and deviations from desirable optimum angles of vision. ■

* (Lecture and motion pictures can utilize speech amplification.)

Audience Considerations in Theater Design

SEATING can be arranged with aisles at auditorium sidewalls only, or with multiple aisles, conforming with building-code requirements in each case. Relative efficiencies in terms of producing largest seating capacity for a given floor area depends on the generosity in row spacing for the multiple-aisle-scheme, and the optimum row spacing determined for the wall-aisle (continental) scheme (Fig 1).

Faster normal and emergency emptying time is possible with sidewall aisles only ("continental seating"). Fill-time can also be minimized for this arrangement because traffic is more organized outside of the auditorium from designated sidewall openings, reducing otherwise-slower travel time needed through multiple aisles within the auditorium. The greater row-spacing used with continental seating

insures more comfort for the seated patron. Type of aisle arrangement should be determined after consideration of all other functional factors involved.

Vertical Sight Clearance

Other spectators' heads and protective railings are the sight obstructions to be overcome in determining the elevations of the seating rows. Sight clearance lines are aimed to an

APS (arrival point of sight) located on the stage floor from one to four feet back (upstage) of the stage apron or a forestage apron. The four-foot dimension is used for the smallest downward angle of main-floor seating, and the one-foot dimension for the strongest downward viewing angle for upper tiers of seats (Fig 2).

Two-Row Vision

With the exception of seating limited to less than about eight rows, two-row vision must be used as the criterion for sight-line clearance calculations. (One-row vision gives sight clearance over the heads of all preceding spectators, but causes excessive use of the available vertical space dimension.) Two-row vision provides sight clearance over the heads of spectators seated two or more rows forward and is best with staggered positioning of chairs to overcome obstruction of vision caused by heads immediately in front of the spectator.

Sight-line clearance calculations are based on a five-inch distance between the top of the head and eye level, with the assumption of a uniform torso height for the seated figure. Forty-four inches is used as the dimension from the floor to the eye level of the seated figure.

Horizontal Sight Clearance

Portions of auditorium sidewalls and structural or scenic frames (side portals) can obstruct vision of extreme side portions of the performance areas. At least approximately 97 per cent of the total seating capacity should come within a cut-off angle of 15 degrees, measured between a perpendicular to the stagefront, drawn from edge of the obstruction, and the line drawn to the point of vision. The remainder of the seating should be kept within a 22-degree cut-off angle. The programmed non-structural working portal opening, and not the structural maximum opening, should determine the seating pattern shape and width (Fig 3).

Usual portal openings for drama average from 28 to 38 feet wide, and up to 46 feet wide for light opera and musical comedy productions. Large symphonic groups require an opening up to 62 feet, and opera commonly uses up to 54 feet.

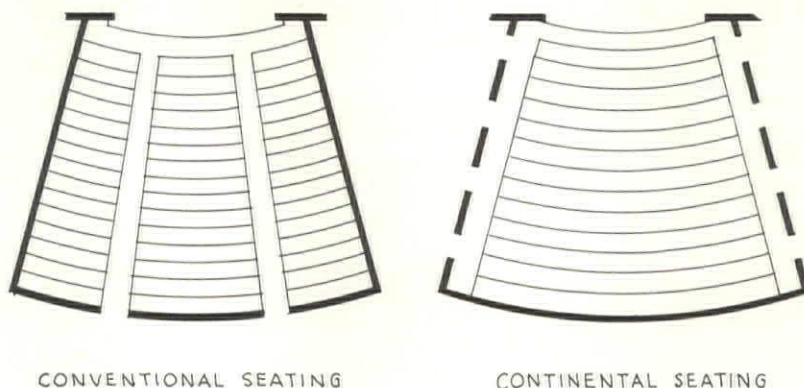


FIGURE 1

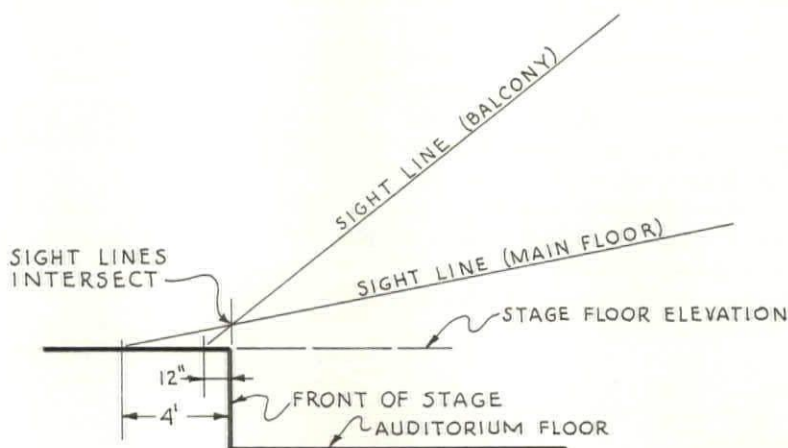


FIGURE 2

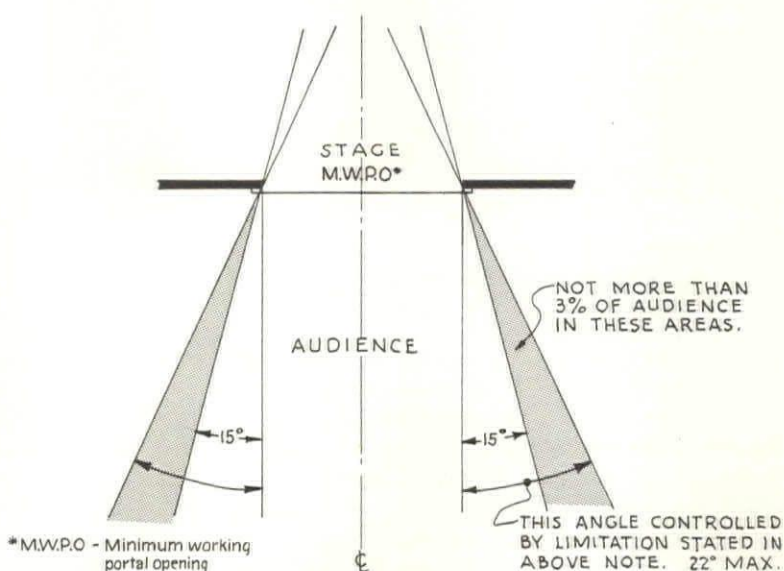


FIGURE 3

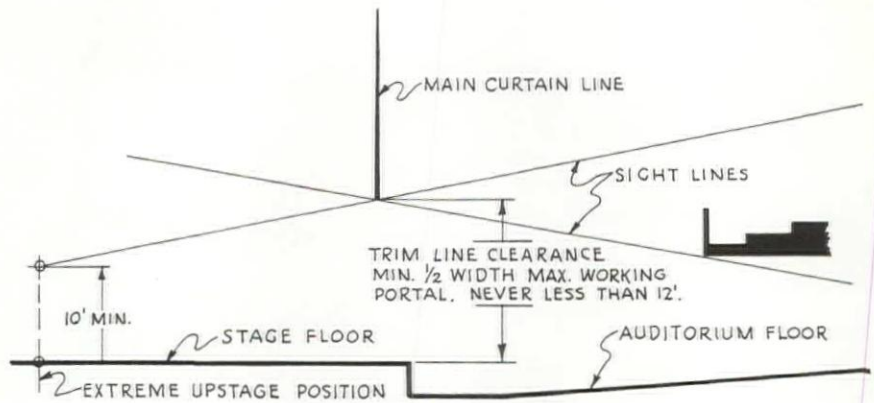


FIGURE 4

The need to accommodate traveling productions requires adherence to the most common existing portal working openings, but with some adjustments it is usually possible to work with an increase of portal openings of about 20 per cent over the original set design. Repertory and "homegrown" productions lend themselves to wider stages and wider portal openings with less dependence on flown scenery, and to wider seating patterns. Performance areas partially or wholly surrounded by audience area (thrust stage and center stages) usually will not include frame or set pieces which could cause horizontal visual obstruction.

Trim Sight-Line Clearance

Where an overhanging ceiling or soffit covers any area of seating, no part of such overhang should obstruct the vision of any spectator. The uppermost point in the vertical plane of the downstage main curtain line (line of most forward point toward audience marking beginning of acting area) to which vision has to be assured is the trim-line clearance. This clearance point above the stage floor should be at least one-half the width of the maximum working portal opening and in no case less than 12 feet above the stage floor (Fig 4).

Upstage Vertical Clearance

Where upper tiers of seating or a sharply-raked main tier of seating is used, the eye level of the highest row of spectators must be located so that at least 10 feet of vertical dimension, measured upward from the stage floor at the extreme upstage position, is visible without

sight obstruction. The lowest horizontal trim-line usually at main curtain line has to be cleared for this purpose.

Visual Acuity (Determining Maximum Viewing Distances)

The need to be able to see details of facial expression or any other critical detail in the performing area varies with each of the disciplines of the performing arts or assembly uses. The drama presents the greatest need, with the lighter musical productions and then opera, dance and concert following in order of relative need. Maximum viewing distance for drama is about 75 feet, and about 90 feet for light musical productions. For concert and opera about 135 feet is advisable. These dimensions should be reduced as much as possible by using as wide a seating pattern as is feasible, recognizing all other design factors. Use of upper tiers of seating reduces viewing distance.

Unlike the voice and sound effects which can be amplified electrically, vision cannot be magnified without hand-held individual optical devices.

Chair-Width Sizes

(Measured from center to center of arm-rests): *Minimum* 20 inches (19 inches for seats bordering on aisles only.) *Maximum* 22 inches (to control shifting of spectators' heads so that two-row vision staggered seating can function effectively.)

Chair Supports

Where possible, riser-attached chair supports should be used in order to leave floor between seat

rows free for cleaning. Five-and-a-half inch minimum riser height is required for anchorage support. This dimension can be obtained by introducing backward slope of seat platforms (which also aid foot posture), where platform-level differences are less than five and a half inches.

Continuous Floor Slope Under Seats

Should not be used unless slope is less than one-in-nine. Level floors, or a reverse pitch of each of the floor platforms, makes for a more comfortable footrest.

Fixed Seat Cushion Chairs

Fixed-seat chairs can be used instead of automatic seat cushion lift-up chairs, by providing an additional four inches of row spacing over and above that required for other reasons.

Building Codes

Seat row spacing, aisle widths and arrangements, exiting and many other features of theater planning are usually determined by building code requirements. Where specific codes do not govern, there is usually an agreement among all those concerned to follow one of the better national or regional codes. (At this time, the code governing theaters in the city of New York is being rewritten and updated to allow for better theater design as well as providing for the public safety.)

Acoustical Considerations

The architect should also consider acoustical factors as they may affect the vertical and horizontal seating disposition. ■

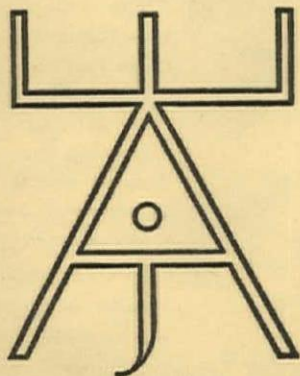
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**Environment and Education:
Past, Present, Future**

by Sam T. Hurst, University of Southern California

The Dean of the School of Architecture and Fine Arts at USC discusses the theme of a conference held at the University of Washington on the occasion of its centennial, as it relates to architectural education, in a paper presented at the conference.

Architecture's obsession with its own past, glorious as it may have been, is of such pervasive force that we cannot yet escape the fallacy that historical interpretation is an adequate and primary generator of present action or future theory. The forces of eclecticism in practice and academicism in education are far from dead in America today in spite of new names and modern forms. Ours is still largely an object-oriented educational system based upon building case-study projects and a style-oriented practice, be it ever so modern. The ridiculously wild swings of the pendulum of design practice and the failure of many of our best buildings to function well or improve the lives of a significant number of our people reflect this fact.

On all sides today we acknowledge the need for criticism of our art and the need to affirm its principles. We embrace the necessity for change and extension of the educational experience without any clear idea of the new content it should embrace or the new methodology which would make more effective our efforts. Further, we are inclined to substitute the *fact* of change and the development of new tools with which to do work for the *purposes*

of change and the values to which those tools might be directed.

I once sat with a council of deans reviewing changes occurring in the school of agriculture and I was struck by the apparent belief that changing the names of things would in fact improve teaching: all reference to chickens was changed to poultry, pigs were called swine, and cattle-raising became bovine culture. We engage in similar name games in a more sophisticated area of automated technology today and one must understand the lingo of cross-talking computer systems, data bank storage of information, PERT and critical path methods and the all-embracing and nowhere definitive practices of systems research, management technology and all the related activities.

Faith in Education

In our generation, we exhibit a faith in education which is unshakable. In spite of evidence to the contrary, we believe that knowledge leads to virtue and that truth will indeed generate goodness. Our solution to foreign problems is seen in terms of *getting to know the people*, and we yearn for simple verities which make white and black out of many areas of gray. The evidence of disparity between what we know and what we do is all about us. Indeed, I believe that history might show that the wars we have fought have often been with the peoples we

knew best. In an excellent article in *Saturday Review* some months ago, Milton Mayer pointed to this disparity, particularly in the field of education. "What if the human crisis is first, last and always a moral crisis and not an intellectual crisis? The end of man is action and not thought, however noble."

It seems evident that this gap between knowledge and action can only be closed by the application of values and that the greatest failures of our educational systems have to do with cultivation of values which are relevant to the needs of our time. I submit that these are not absolute values; nor do they come directly out of history. Surely the delineation of these values must come principally from philosophy and theology. It is their interpretation in terms of physical environment which becomes our unique responsibility. Certainly we can see in any city that the knowledge of what can and should be done far outstrips the action the city is willing to take.

I recall a student project done in the Graduate School of Design at Harvard in which we were called upon to program educational requirements for a high school over a period of twenty years. Our studies resolved themselves into three categories of prediction: 1) the immediate future, 2) the distant future, 3) potshots at destiny.

Before taking any potshots at destiny in the field of architectural education, I believe it is fruitful to examine some of the present certainties which must be acknowledged as primary forces in our future. Many of these are now clearly seen by scholars and critics, though not yet acknowledged in the marketplace of our daily enterprises. In fact, our unwillingness to acknowledge them is a discredit to our confidence in our institutions and systems and their ability to deal with the future. The current outcries of extreme conservatism—whether they be in the field of the economic "conventional wisdom" which Galbraith has challenged, or in the theological and religious area of prayer in the public schools, sex in the university, or censorship in literature and the movies, or in the field of foreign policy where the eminent Senator Fulbright from Arkansas has recently shaken many of our habits of thought—these outcries are manifestations of that lack of confidence or ability to change our posture in relation to former convictions dearly loved.

Some Relevant Certainties

Let me suggest at least some of the certainties of the present and future which are relevant to our concern and the problems which each engenders. Each has major implications for us.

1) *The certainty of abundance*, abundance of people, abundance of goods, abundance of leisure time. Up to this century in our history, productivity in

all of these areas was a necessity and a virtue. Families produced children to perform work in order to produce material necessities, and the values of our society have grown out of this basic fact. Technology, biology and medicine have now reversed this relationship and we are called upon to accommodate an ethical and moral position which puts a premium on the limits of the birthrate, limits on agricultural productivity, industrial productivity, limits on work. This is not to say that poverty and need are yet erased in the world or in our own country, but rather that the means exist to do so if our systems of distribution would allow it, and that present overproduction and unemployment is a threat to our economy, overpopulation a threat to our natural resources and excess of leisure time a threat to our conventional social and ethical standards.

2) *The certainty of mobility*, upward and outward social and economic mobility of individuals and racial and ethnic groups, geographical mobility at all scales of distance, professional mobility, practice in many places and practice across professional lines of normal demarcation. It is well known that the average family in America today moves every few years and that social rootlessness (loss of community) is a major urban problem. How valid then can be many of our attitudes toward community as the basis for urban organization? How can architecture really contribute to social stability and the development of community rather than accommodating and, in fact, promoting mobility? Does the urban citizen today want community?

3) *The certainty of urbanization* is already well documented. The forces which contribute to it are well seen: jobs, cultural advantages, wealth, mechanization on the farms are operative in all parts of the world and may be expected to continue—up to a point. What we may not yet see is that a society of abundance in which work in the conventional sense is not available to many men nor, in fact, necessary to our productivity and wealth, where transportation and mobility by choice is universally possible, where the cultural assets of the city or many of them are transmissible by communication of all sorts—such a society may indeed turn towards ruralism for a better life. It is not clear to what extent urban growth today is a result of *choice* or of *necessity*.

4) *The certainty of increasing socialization*. By whatever name we call it, the increase in the allocation of responsibilities and means of control to government at all levels is a natural consequence of urbanization and the problems it engenders. Private or non-government institutions have neither the scale of control, magnitude of capital—or the incentive to deal with environmental problems unique to urban growth, in land allocation or use, in transportation, in resource development and conservation, in preserva-

tion. It is our custom in this country to create instruments of law by means of which action remains in private hands while government furnishes the incentives and insures the risk. Housing and urban renewal programs have thus been enacted. Problems expand in scale as density increases and problems cross political boundaries. Political instruments are therefore necessary to solve them.

5) Finally, *the certainty of uncertainty and change*. Change accelerates with the growth and distribution of knowledge and the interaction between peoples, institutions and nations. The good old days, if they ever existed, when simple demands and simple decisions were adequate to our needs are gone forever. As we acknowledge the new time scale and mobility of our living and the complexity of decision-making even in the smallest social unit—the family—we cannot but be dismayed by the diversity of problems and the confusion apparent in our solutions. We must work to create the kind of management mechanisms necessary to encompass such diversity and to accommodate the time scale, to arrest the demonic effects of change and direct its forces to useful ends. We must learn to live with uncertainty and thrive on complexity. (And I should say that practitioners who speculate seriously about education by making naively simple analogies and prescriptions should drag themselves into the twentieth century. It is as useless to compare Paris to Los Angeles as to send Baron Haussmann before the Los Angeles City Council and Mayor to sell a rapid transit plan.)

Changes in the Profession

What changes in the profession can we expect? Some are already evident in the profession's own efforts. Others may indeed be so far away as to be called "potshots at destiny."

1) *Professional lines of demarkation will break down in response to increasingly necessary integration of services between the design-centered professions*. Narrow professionalism in education or practice is neither desirable nor possible. The professions of architecture, landscape architecture, urban planning, industrial design and building engineering will come to share a core of undergraduate educational experience with components of general and professional education. Such a development does not herald the training of any master professional but rather states again the essential unity of principle and method which yet is not reflected in education generally. Specialized graduate study will then lead to the established professional goals with greater recognition of their mutuality of concern.

2) *The architect will become again a builder in the sense that he controls the construction operation*. The lingering separation between conception and execution, ie, design and construction, is neither efficient for owner and architect nor necessary to ethical practice. It is painfully apparent that the client can be cheated in the rendering of services as readily as in the supply of materials and that *control of construction may be separated from profit from construction*. First-class projects are increasingly

contracted on a negotiated basis; owners name the contractor at the outset of design; architects participate in ownership as stockholders and in speculation as feasibility planners. The courts interpret the "supervision" responsibility to be responsibility for the builders' errors, and the costly legal and insurance apparatus necessary to protect the architect and insure performance of the construction contract becomes ever more burdensome.

3) A *system of architectural education will develop which will acknowledge necessary external relationships between the colleges and the secondary schools on the one hand and the practicing profession on the other*. It will acknowledge new internal relationships with respect to unification of design professions and reorganization of subject matter in ways most conducive to learning. Our past and present exclusive concentration on the five (or six) years of college training may be compared to a military defense system concentrating on warheads without the supply of material necessary to build them or the intelligence to defend against the other side.

A *system* does not imply a single, monolithic way of doing things but rather a comprehensive way, allowing much diversity, yet recognizing critical relationships now widely ignored and providing a means of influencing these relationships. Such a system must treat the problem of supply of ready students, of qualified faculty, of financial and physical resources. It must insure internship training and adequate recognition of education in registration. It must develop means of evaluating the end product of our labor as a basis for improvement.

The Need for Theory

In the wake of the Beaux Arts we have embraced diversity without affirming the substance of that diversity. We stand now at the point where the profession in all its parts—AIA, ACSA, NAAB, NCARB—shows the readiness to affirm the importance of formal education in architecture and the unity between design professions which leading schools have sought for many years. Further, the profession seems ready to muster resources to study alternative routes to goals upon which there is much agreement.

Such a system finally must generate a new *search for theory*, for the reconciliation of the increasingly complex concerns of architecture today, and the best ways of teaching it. More respect must be paid to principles, methods and values as contrasted to objects or buildings. If this is done, the graduates of today may be better able to cope with the problems and challenges which lie twenty years ahead than are those of us today who see clearly the failures of our own pasts and pontificate so hopefully about the future.

We must attack problems within the limits of possible accomplishment, we must get on the merry-go-round of change at a point where we can get things done. Meanwhile, we must be willing to project ever broader, more comprehensive concepts of a better future as a basis for the analysis, criticism and conceptual leadership which the public expects of us.

Graduate Programs

3: The University of Illinois

by A. Richard Williams, University of Illinois

Graduate studies at America's largest school of architecture, here described and discussed by Mr Williams, who heads graduate architectural design at Urbana, are based upon a faith in the liberal view, finding expression in a free but disciplined approach and acknowledging competition as a fact of life. Previous articles in the series appeared in September 1963 (by Joseph Esherick, Sami Hassid and Charles Moore of the University of California) and in September 1964 (by G. Holmes Perkins of Pennsylvania).

Through its long history¹ as a mid-continent center of architectural education, the Department of Architecture at the University of Illinois has developed both its undergraduate and graduate programs in a way that reflects its indigenous American environment. In responding to the pace and variety of a vigorous regional culture, it has grown from the same roots that produced the Chicago School, Chicago Jazz, the Prairie House and the Big Ten. From this background has emerged a rather free philosophy of teaching characterized mainly by an aspiration to identify and develop the creative capacity of the individual student, based on discipline and professional competency. This objective is indeed shared by many other American architectural schools, with differences in degree and emphasis. It is these differences which seem important to identify and describe as they reveal richness and variety of approach, and in diversity lend depth and strength to the basic idea of an educational system which directs its major focus on the enormous intellectual potential of the individual.

This notion, as an educational reflection of the ever-increasing philosophic tendency toward self-realization, is also evident in other uniquely American art forms and cultural expressions. In the best jazz, for example, the highly developed personal idiom of the individual artist is a fundamental attribute; yet

success depends not only on the quality of virtuoso performance but also on acceptance and mastery of common disciplines of beat, structure and cohesive musical idea. In architecture, however, it is this base of disciplined competence and teamwork as well as real respect for outstanding talent that is so often missing in practice, even though it may be a strongly stated educational and professional objective. Design conscience and recognition of hierarchical order in environment are rare in today's scene, giving way to expediency, mediocrity and undisciplined exhibitionism. It is important to note that the forces creating this situation lie mostly outside the control of professional education and are represented, for example, by the fact that design ability and true architectural quality are so seldom major considerations in society's process of selecting architects. Nevertheless, it should be the continuing effort of architectural education as well as the profession to reaffirm the principles of order and beauty in environment and the means by which individuals, talented or otherwise, may relate themselves satisfyingly to this higher discipline. It is a strong conviction at the University of Illinois that the focus on developing the creative capacity of the individual should remain, with even further intensification of disciplined professional competence and awareness of the architect's increasing responsibility in problems and opportunities of urbanization.

Discipline and Freedom

A curriculum based on the need for disciplined professional competence has evolved at Illinois, as elsewhere, as a set of separate but parallel disciplines or divisions all intended to build an over-all competency. These divisions are the old familiar ones of architectural design, structural theory, history of architecture and construction technology, extending through the undergraduate curriculum to form the various areas of concentration at the graduate level. Because of the large size of the Department, its laboratory resources and outstanding library, these divisions have

¹ Illinois and MIT were the first architectural schools in the US. At present, as for most of its history, Illinois is the largest American school of architecture with an enrollment of approximately 750 undergraduates and 50 graduate students.

become more specialized than in most other schools, with highly specialized faculty in each area. The result is that each set of courses forming a division is intensely organized, thorough and rigorous. The sequence in architectural design, however, does serve as a core, with increasing catalytic intensity in the advanced years. Such compartmentation of courses and its greater than usual dependence on the individual student for meaningful integration is therefore an implicit expression of faith in the scholarship and intellectual capacity of the individual.

This educational scheme has resisted the star-disciple system of teaching as anachronistic and limiting. In avoiding star-discipleship or other more formalistic dogma, the more difficult plastic adjustment to the educational problem of the individual and the adaptation to change as a force in environment requires a more humble and perhaps less celebrity-conscious form of leadership. Despite the problems inherent in any free doctrine, the advantages of a free but broadly disciplined approach seem overwhelming, as long as the goals are high enough. It mirrors the free competitive spirit and energy of American life and so tends to promote high effort and high productivity. This drive seems especially beneficial to the good student who may not yet be identifiable as top talent but who is constantly pushed to surpass himself as well as others. The most gifted students are singled out early and are given added recognition, incentive and challenge. There is also ample opportunity to point out satisfying future roles for the less gifted and instill the beginnings of a design conscience. With fewer places to hide, the weakest students should know their inaptitude sooner and transfer to something else with little loss of time. While the free competitive system in design, coupled with rigorous scholarship in history, structures and construction, makes strenuous demands on a student's personal performance and is ruthless in some respects, it is nevertheless a foretaste of professionalism and the realities of practice.

The Liberal View

Perhaps the best aspect of the liberal view is its freedom from a fixed design bias. It therefore accepts the broadest definitions of architectural quality and can dispassionately look for common denominators in the wide spectrum of work by the great modern masters, in history, in technology or in entirely new concepts. Seemingly different architectural philosophies, whether determinist, heuristic, star-led, or whatever, are all respected as components of a vast frontal movement along which further qualitative choices can be made.² In the belief that diversity is good as opposed to one standardized ideology³ for all, the benefit of a closer look at the various graduate programs (as offered by this series) is not just an informative and clearer analysis of specific cases, but a deeper insight by each of the schools into its unique character and the ways in which it may be further strengthened and intensified. In this view it is, of course, fundamental that a broad but commonly shared set of values exists and serves as a matrix for

rich individual variety. These common values may certainly not be agreed upon at this moment in history, but their foreshadowing is evident.⁴

Areas of Specialization

For a long time, Illinois has maintained two major areas of specialization in architecture, one in architectural design and the other in architectural engineering. Although in the undergraduate curriculum the two areas are kept practically together until the fifth year and they both lead to the Bachelor of Architecture degree, complete specialization in one or the other is possible at the graduate level. The advanced degrees offered are Master of Architecture, which allows concentration in architectural design, history or construction, and Master of Science in Architectural Engineering. Because of the size of the graduate school and its extensive library and laboratory resources, a wide variety of graduate courses in architecture and allied subjects is offered. Since these are amply listed and described in catalogues and brochures, only their basic objectives and special characteristics will be amplified in this discussion.

Although it is possible to complete work for one of the above degrees in one academic year (two semesters), only full-time students and those holding fellowships usually attempt to do this. The majority of students extend their period of study to three or more semesters since most of them hold graduate assistantships or other part-time positions.⁵ Within these dimensions of time and variety of course offerings, a very flexible program can be arranged for each student, in keeping with the basic idea of highly individualized orientation. Aside from the rather liberal requirement that only half of the total credit time must be in the student's major area, very few other restrictions exist. In addition to the nominal courses offered in each of the areas of design, structures, etc, each subject area has a "special projects" course, for varying credit, which encourages research and special individual studies, especially after basic major courses are completed. No formal thesis is required for the master's degree, although many projects in other subject areas have thesis character.

² As suggested by Huston Smith ("Revolution in Western Thought," *Saturday Evening Post*, August 26, 1961), our position in philosophy today transcends the mere comfortable choosing of sides between determinist and humanist poles (cf. C. P. Snow "Two Cultures and the Scientific Revolution") to a more demanding "Post-Modern" philosophy which embraces both, and figuratively presents an ellipse with "Cosmos" at one focus and "Man" at the other. The thought of Teilhard de Chardin also presents the idea of transcending convergence (toward a single consciousness) along a very broad front of increasingly complex individual consciousnesses. That these thoughts may be mirrored in the design of physical environment is exhilarating and hopeful as an antedote to chaos.

³ Eg. Ecole des Beaux Arts, Paris, circa 1900; Bauhaus, Dessau. This is not to deny the enormous contribution made by each of these movements, as well as others.

⁴ Eg. criteria used by architectural juries or in comprehensive architectural criticism. Accumulating through successive vanguard positions there is now a rather common understanding of such broad values as spatial and structural organization, appropriateness to function, clarity and depth of expression, quality of space, form and materials, integration of technical progress, appropriateness in the larger context of environment, etc, though the relative emphasis on each of these values is of course still variable.

⁵ Average number of fellowships, tuition and fee waivers, graduate assistantships:

(a) University fellowships	2-3
(b) Special fellowships	2-3
(c) Tuition-fee waivers	3-4
(d) Half-time graduate assistantships	15-17

The Enrollment

For many years Illinois was the only sizeable school of architecture in the Midwest, attracting students not only from its own region but from all over the country and abroad. The graduate program during the past ten years has gradually increased in enrollment from about twenty to fifty students so that, considering numbers and resources, it is now one of the most extensive in the country. The total number of students is divided about equally between candidates for the Master of Architecture and for the Master of Science in Architectural Engineering, while the distribution according to origin averages about one-half from other schools in the US, one-quarter from foreign schools and one-quarter from Illinois. Needless to say, this variety of backgrounds greatly enriches the program.

Because of this wide variety of backgrounds, a great deal of time and energy is devoted by the faculty to evaluating academic records, brochures and letters, not just as a screen for admission, fellowships and assistantships but as a key to advice about individual programs. This material is sometimes notoriously misleading; not only may it conceal the weaknesses of some undergraduate programs and individual incompetency but also (more rarely) it may fail to indicate really outstanding ability. In view of this the first few weeks of a new student's time are directed to a rigorous review of his past performance, which is brought directly in focus with a ten-to-fourteen-day design problem which attempts to be comprehensive and to serve as an aid in individual counselling. If an adequate level of competency is established—sometimes additional undergraduate work must be required—every effort is made to intensify and develop further a student's strong points rather than to remedy his weaknesses. Students are not encouraged to pursue programs at the graduate level that are remedial or "refresher" in nature.

Studios and Seminars

The faculty is very much concerned that every advantage of energetic interaction is available. The atmosphere of studios and seminars is active, astringent yet informal. As it is known that the frankest and most incisive kind of criticism comes from interchange among students, the quality and size of the class is very important. Experience has shown that the ideal number for best group dynamics is between ten to fourteen in both studios and seminars. A friendly and enthusiastic ambience seems to be the most catalytic and stimulating for the wonderful process of learning and one in which the constant pressure of "mind-stretching" can flourish. On the theory that advanced study in architecture should be a big professional and intellectual jump ahead, and that it

should stimulate a more mature kind of intellectual curiosity that will continue through professional life, there is heavy emphasis on the subjective "What do you think?" as well as the rigorous demands of objective analysis.

The precision, rigor and experimental excitement of seminars and laboratories in structural design are available not only to students majoring in architectural engineering but to the designers as well. They embrace topical studies of materials and structural principles, so that the best current knowledge is presented in analysis of systems and details. Advanced courses in steel, concrete and soil mechanics are offered, as well as a new structural planning course which investigates the correlation and function of architectural, structural and mechanical requirements in the selection of optimal systems for complex buildings. In these, as well as in special problems courses in structures, there are frequent visits by prominent architects and engineers who have had outstanding experience in complex structures. A research laboratory has been developed to study the structural behavior of buildings with the aid of scaled plastic models and to provide opportunity for research with models in such fields as construction techniques, lighting, acoustics, vibration and other technological problems. Computer facilities are at hand, not only in the architectural engineering laboratories but for programming design and construction problems which may involve the large-scale computer resources of the University.

Seminars are also offered in the area of construction technology. They cover various aspects of the building industry, labor, general and speciality contracting, the manufacture and distribution of materials, finance, government regulations, building operation, investigation into selected building construction techniques and other relationships of the building industry to the design professions.

Students concentrating in history of architecture have library resources available which are equaled in but few institutions here or abroad. In addition to individual investigations and courses in architectural history, they may elect courses in art history and social and political history in other departments in the University. A seminar in contemporary architectural thought as seen in historical perspective compares the contributions of modern masters such as Corbu, Mies, Wright, Aalto and others with the thinking of Vitruvius, Palladio and other great architects of the past.

Collaboration with the Planners

Although urban planning and landscape architecture constitute a separate department in the University, there is considerable collaboration with architects at the graduate level in urban and regional design projects of large scale. For a number of years

extensive projects at the scale of urban and regional design have been undertaken by the graduate class in architectural design in collaboration with the planning staffs and officials of the cities themselves, with good support from local sources as well as foundations. Collaboration with advanced students in planning has taken the form of an overlapping tandem process. The basic research and programming are done first by the planners, and the architects follow through the design stages; each group participates in the other's decision-making, in which the overlap scheme offers numerous opportunities for feedback. At present a joint studio in urban design brings architects and planners together in an even closer relationship. In this studio problems of large-scale redevelopment and new growth are undertaken with particular emphasis on design opportunities at large scale, such as transportation systems and other elements of infrastructure, elements of urban anatomy and their hierarchical order, and the importance of change as a design principle. These projects involve both individual and team activity and employ models extensively for both studies and final presentations.

Students in design may concentrate eventually at any level of scale or in some special building type, but at the start projects range in scale from the definitive design of small buildings to urban and regional design. These require one-half to two-thirds of their studio time, reflecting the conviction that the architect's role now requires greater competency not only in the traditional aspects of individual practice but also in the realm of complex urban problems, demanding as they do a greater awareness of social and economic structure, urban anatomy and the interaction of "composite clients."

In respect to definitive design projects, which may be either one program for a number of students or individually researched and executed projects (usually of some new prototype), there is considerable restraint imposed on the scale of the projects, reducing them to small enough size so that they can be studied in depth. The quality of research and the rigorous design study process found in the best offices are aspired to: the aim is to identify and thoughtfully consider as many design decisions in relation to the project as

possible, from spatial organization, relation to site, choice and integration of systems, to final selection of materials and furnishings. In keeping with the basic philosophy of freedom of individual expression combined with high discipline, the work in aggregate reflects the diversity of a Saarinen, rather than that of a single design idiom.

Theory and Criticism

Two architectural design seminars are offered as parallel inquiry to the studio courses. The first of these is a review of design theory and design process, at all scale levels but with some emphasis on the new theories of urban design. Students present reports on such general subjects as the relation of building to ground, decision-making processes, proportioning of circulation spaces, theory of openings, etc. The second seminar is essentially a series of critiques of significant works of architecture at any level of scale or of any epoch. In both seminars the emphasis is placed heavily on the involved reaction a designer has relating to his own work and developing philosophy, rather than on the more detached view of a non-designer critic.

In design studios and seminars, and in the seminars in structures, history and construction, visiting architects, engineers, planners and outstanding thinkers from other areas participate frequently in criticisms, discussions and juries. These visits may be concentrated periods of a few days or less or spaced at weekly or biweekly intervals over a longer time, with talented young designers from outstanding offices in the region serving as critics. Sometimes these critiques are held in the offices of the architects themselves and may involve presentation and discussion of their current work.

With these currents flowing through and contributing to the graduate program, with its belief in the disciplined imagination and free expression of the individual, its search for quality in diversity and its recognition of change and the mobile equilibrium of good influences, Illinois is confident in its ability to fill an important place in the mosaic of American architectural education.

Books

History: Picture Book and Treatise

The price one pays for academic tenure is a constant search for new teaching material. In our own youth there was no such problem. Belles Lettres, dispensed by Brentano's and such, were for entertainment and culture. Textbooks, dispensed by Barnes and Noble and such, were for instruction and degrees. Today the corner drugstore, the five and ten, and the newsstand supply anything from Aristophanes to Bertrand Russell; every mail brings lusciously il-

lustrated folders of pictorial surveys dispatching "The Glory That Was Greece" and "Art Movements of the Twentieth Century" to every American Home; TV furnishes information on the Hittites and the Dead Sea Scrolls on equal time with laxatives and deodorants, and every publisher who can lay hands on a stack of uncopyrighted pictures brings out an "encyclopedia."

In the field of art and architecture the duplications are staggering. Librarians plead in vain that the cost of keeping a single volume on the shelf has become

astronomical. The deluge rolls on. The teacher who sees education as perhaps the last remaining activity outside the arithmetic of profit is faced with the unenviable task of protecting his students from the hackwork and potboilers of his colleagues.

To establish criteria by which to make a selection is actually not as difficult as it sounds if one doesn't mind personal recrimination. A professional who knows what he is teaching and who has accumulated enough mileage for independent convictions looks for two different kinds of text—compendiums and treatises. From a compendium he expects a summary or brief, comprehensive in coverage of the theme on hand, precise in data and fresh in pictorial material. From a treatise he expects originality of conception, depth of thought, and clarity of argument and style—not necessarily to support his own viewpoint but to stimulate the student to quiddative reasoning. Some of the historical volumes in the Braziller series, "The Great Ages of World Architecture," have turned out to be good compendiums, and so, for instance, is Mario Salvadori's "Structure in Architecture." Valuable treatises are Steen Eiler Rasmussen's perennial "Experiencing Architecture" and William H. McNeill's "The Rise of the West." It is characteristic of the deterioration of book publishing that these two types of essential texts have become so rare that one remembers them years after their appearance and that new titles, advising of a contemporary approach to old teaching problems, are greeted with high expectations. To anyone familiar with their record and their personalities, Henry A. Millon's "Key Monuments of the History of Architecture,"¹ and Sigfried Giedion's "The Beginnings of Architecture"² sounded like a perfect compendium and a perfect treatise.

Millon's collection of architectural prototypes "was conceived by the publishers as a companion to H. W. Janson's 'Key Monuments of the History of Art,'" brought out a mere five years ago by the same firm. A companion in any language is not a twin but a complementary element, advertised as such in Millon's preface with "new selections, plans, sections, details . . . structural systems . . . sewers, defensive walls, roads and other engineering works . . . city plans." Yet the ball so promised never takes place.

Beyond a well-worn section of the Cheops pyramid and the relieving arches of the Pantheon, the first part of the book covering 3,000 years of basic structural development offers no proof of arcuation, geometric design, concrete vaulting, Roman roads or Roman bridges. And this, sadly enough, sets the pat-

tern. There is no medieval town plan, no Lombard architecture short of the Early Christian Sant' Ambrogio, not a guild hall, town house, marketplace or city gate—things one surely has a right to expect after the opening assertion that Janson's volume has been broadened by "further additions designed to produce the setting in which the major architectural achievements play their roles." Renaissance and Baroque, the special fields of the author, are richer in plans of famous ecclesiastic and princely buildings and city plans, but Georgian England in its fateful influence on America, and the Baroque and Rococo row houses of the Continent, do not exist. Examples of the turn-of-the-century movements are well chosen, but with the exception of one Maillart bridge and one Nervi vault detail, the total revolution of structural engineering is confined to rigid frame skyscrapers.

The amazing and highly embarrassing thing about Millon's volume as well as Pevsner's "Outline," Janson's "Key," and the rest of "5000 years of . . ." compilations, is the fact that none of them goes a step beyond the much ridiculed Banister Fletcher, now in its seventeenth edition, and that none comes near its quality. The price difference between Millon and the revised Banister Fletcher is immaterial if seven additional dollars not only buy the same unhandy weight, the same overly-familiar selection of buildings and plans, the same halftones and the same captions, but in addition historical, social and architectural information, measured and lettered plans and sections, profuse structural details and exhaustive bibliographies at the end of each chapter.

Toward the close of his 46 lines of introductory text Henry Millon states: "This volume is intended to do no more than provide the neophyte with a chart on which he may plot his voyages, and the initiate with a visual record of what he has seen." This disclaimer tries to protect "Key Monuments of the History of Architecture" from professional criticism, while every effort is made by the publisher to stress the textbook character of the book to the point of offering a "cheap" text edition and a "de luxe" trade edition. To a respected young colleague we offer the urgent advice to quit the 3-cents-a-word, a-dime-a-dozen market. Book publishing has become part of the artificial obsolescence cycle, offering retitled, rebound stock editions under the same profit motive as impels industry to offer redesigned automobiles and toilet bowls without redesigning their function. Rhodes Scholars are rarely found in *Popular Mechanics* and Frank Lloyd Wright did not work for the Brothers Levitt.

Millon may not have produced a compendium, but Giedion certainly has written a treatise. To speak of its external shape, "The Beginnings of Architecture" is a poorly organized, tiresomely repetitive collection of lectures offered without consideration of

¹ Prentice-Hall (Englewood Cliffs, NJ) and Harry N. Abrams (New York), 1964. \$9.95

² "The Eternal Present," Vol II. A. W. Mellon Lectures in the Fine Arts, 1957. Bollingen Series, published by Bollingen Foundation, distributed by Pantheon Books (New York), 1964. \$12.50

the difference between a listener and a reader. Illustrations and cross references have to be hunted down through five pounds of heavy gloss paper, and even the most belligerent foe of the footnote syndrome becomes nostalgic for the relative ease of the small print marginal note. And how ungraciously it is written! "In neither the Greek nor the Egyptian civilizations was there any development of interior space that could compare with the immense force their builders knew how to express when confronting their structures with the open sky."

However, these shortcomings are neutralized by a freshness of bone and meat deriving from that rarest of scholarly gifts: enthusiasm = entheos, meaning inspired by the gods. Giedion's inspiration is original and profound whenever he breaks the formal moulds of the stylistic specialist and analyzes Mesopotamian and especially Egyptian art and architecture according to concepts. Monumentality, movement, verticality, space provide a timeless continuity of ideological intent that is shared by all environment-designing cultures. These conceptual interpretations reach great force where Giedion deals with Egypt—his exposition of the geometric mind, for instance, or the symbolic interpretation of Hatshepsut's necropolis. Where ethnic chaos and socio-economic motivations interfere with his "mythopoeic interpretation," as in Mesopotamia, his perceptive imagination fails. This is particularly unfortunate whenever he falls back on the comparative juxtapositions, invented by his old master, Heinrich Wölfflin. "The Procrustes bed of Wölfflin's theory," as Benjamin Rowland has aptly called it, might have served to find an equation between Renaissance and Baroque. It fails utterly to establish any comparative standards between Mesopotamia and Egypt because these two cultures have nothing in common except chronological and geographic proximity. The anthropocentric imagination and theocratic democracies of Sumer created conceptual values that were neither inferior nor superior but merely totally different from those of the hierarchic, transcendental and non-urban world of Egypt.

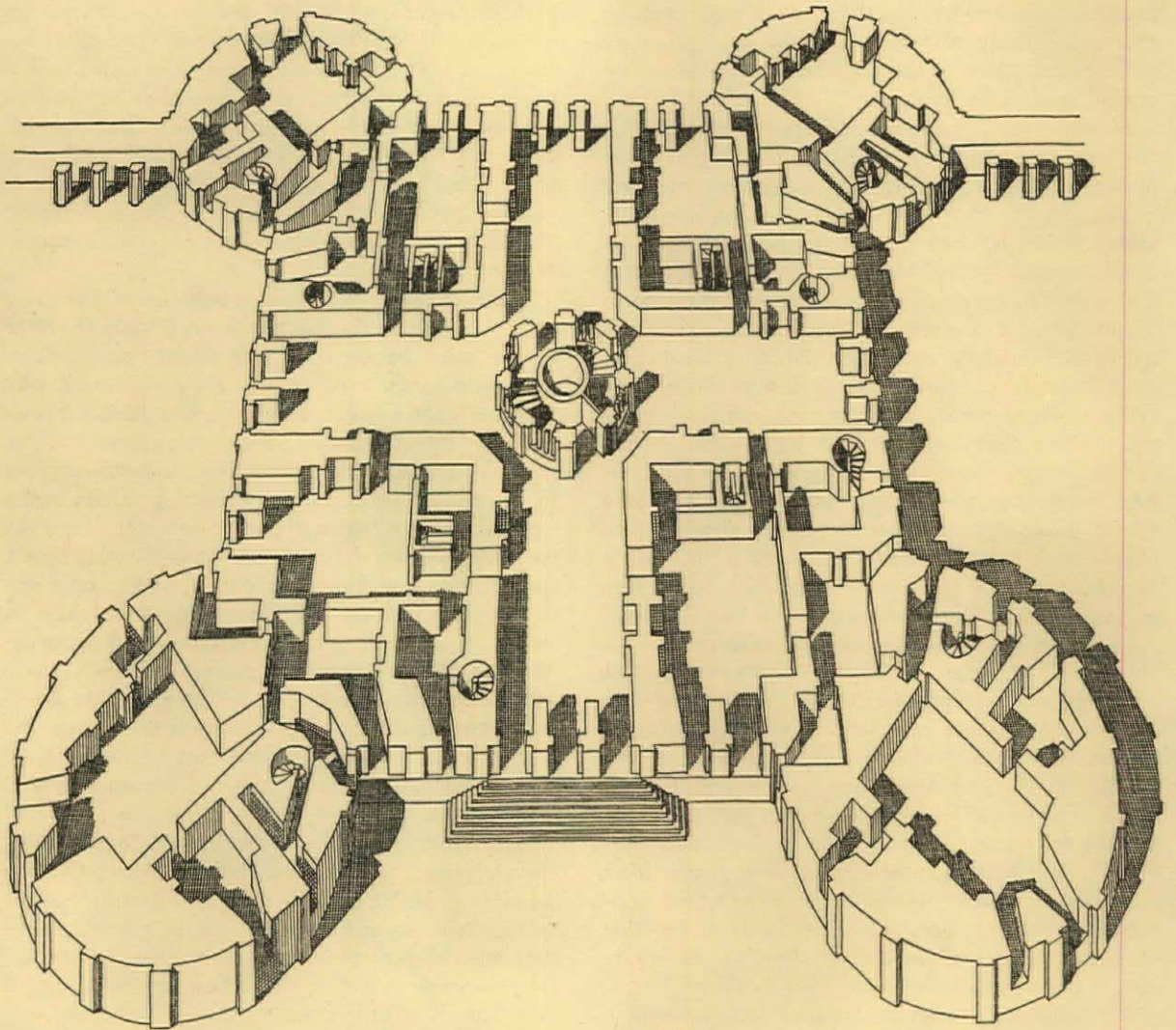
But who would want to refuse a look through a differently ground historical lens—"The architecture of Egypt and Greece share the same space perception"—or fail to welcome a shared viewpoint—"Greek art is not the universal standard against which perfection and less than perfection can be assessed"? Despite his long, industrious life in the vineyards of twentieth century functionalism, Giedion has remained at heart an iconographer who deducts his interpretations from a priori theories. To him the ziggurat is only astrological communication and not a vain expression of civic pride. "Let us build a city and a tower whose point shall reach the sky that we shall make ourselves a name." Symmetry is purely divine harmony and not the instinct for stability through equilibrium of mass. If verticality has to be proved as an ecumenical concept the most horizontal of buildings, the hypostyle hall, and the prehistoric "dolmens, table-like resting places for the dead" are pressed into service. The most curious outgrowth of this scholastic deduction is Giedion's glorification of Egyptian animal cults in all their

absurd and often repulsive manifestations as direct continuations of the art historical concepts established in the first volume of "The Eternal Present," "The Beginnings of Art." It does not occur to him that the inability of the dynastic Egyptians to liquidate the paleolithic animism of their Nilotic forebears makes them culturally inferior to the anthropomorphic Sumerians who had discarded their animal deities on the long trek from the north into the Two-streamland. One could add here as an aside that it might be not without significance that the earliest Mesopotamian trinity of the One God Ilu consisted of Anu—Time, Nush—Intelligence, and Bel—Coordination, while the powerful Heliopolitan trinity of the Pyramid texts remained to the end purely physical: Atum Ra—Sun, Shu—Air and Tefnut—Moisture.

Much of the fascination and irritation of Giedion's work, not only in this latest volume, derives from the contradiction between the conventional academician who feels compelled to verify each conclusion with tiresome quotes from other historians and archeologists, and the creative art philosopher whose heuristic persuasion vaults unconcernedly over facts recorded by these same historians and archeologists. He denies Egyptian sacred writing despite available texts by the shelf-full because it suits a Mesopotamian-Greek comparison. The finite termination, visible on every temple plan, of the Egyptian processional axis in sanctuary or birth chamber is ignored in favor of "Eternal Wandering," to establish a parallel with Mesopotamia and Greece, while historically the open-ended temple axis appears only with Buddhism, and he upsets all chronological evidence by deriving the fully developed ziggurat from the pyramid instead of vice versa.

Walt Whitman, on being reproached for inconsistency, replied: "I contain multitudes!" And Giedion certainly does. He is brilliant in his exposition of the Sacred Triangle and the plane in their influence on stereometric perception. He can characterize the Saïte Revival in a single sentence that will remain valid for all eclectic periods: ". . . a despairing . . . attempt to permeate the present with the past in order to create a new continuity," and for the first time he shifts attention away from the hypostyle hall at Karnak to the columned space of Thutmosis' festival hall that would become prototypical for Greek temples and Christian basilicas. When all the facts and fancies are sorted out, there remains in Giedion's conception a historical essence sustaining truth by a delicate balance between causality and irrationality. He never lets his reader or listener forget that civilization is order superimposed on primordial chaos, and that all historical writing must contain beyond supported argument a breath of the immense antiquity of life on earth. It is this breath that holds Giedion's treatise together—a confirmation that the human will to form and space radiates from the creative tension between chthonian vitality and a divine force the Egyptians called Ka, the Greeks called Logos and the Christians called Soul.

SIBYL MOHOLY-NAGY
Pratt Institute



Various Dwellings Described in a Comparative Manner

Drawings by fifteen students of the School of Design, North Carolina State, all to the scale of 1:384 which is one inch equals thirty-two feet, with an additional seven site plans at 1:1200, drawn by fifteen second-year architectural students of the School of Design, North Carolina State of the University of North Carolina at Raleigh," this book is as charming as its quaint title suggests and nearly as valuable. Richard Saul Wurman, co-editor of the "Notebooks and

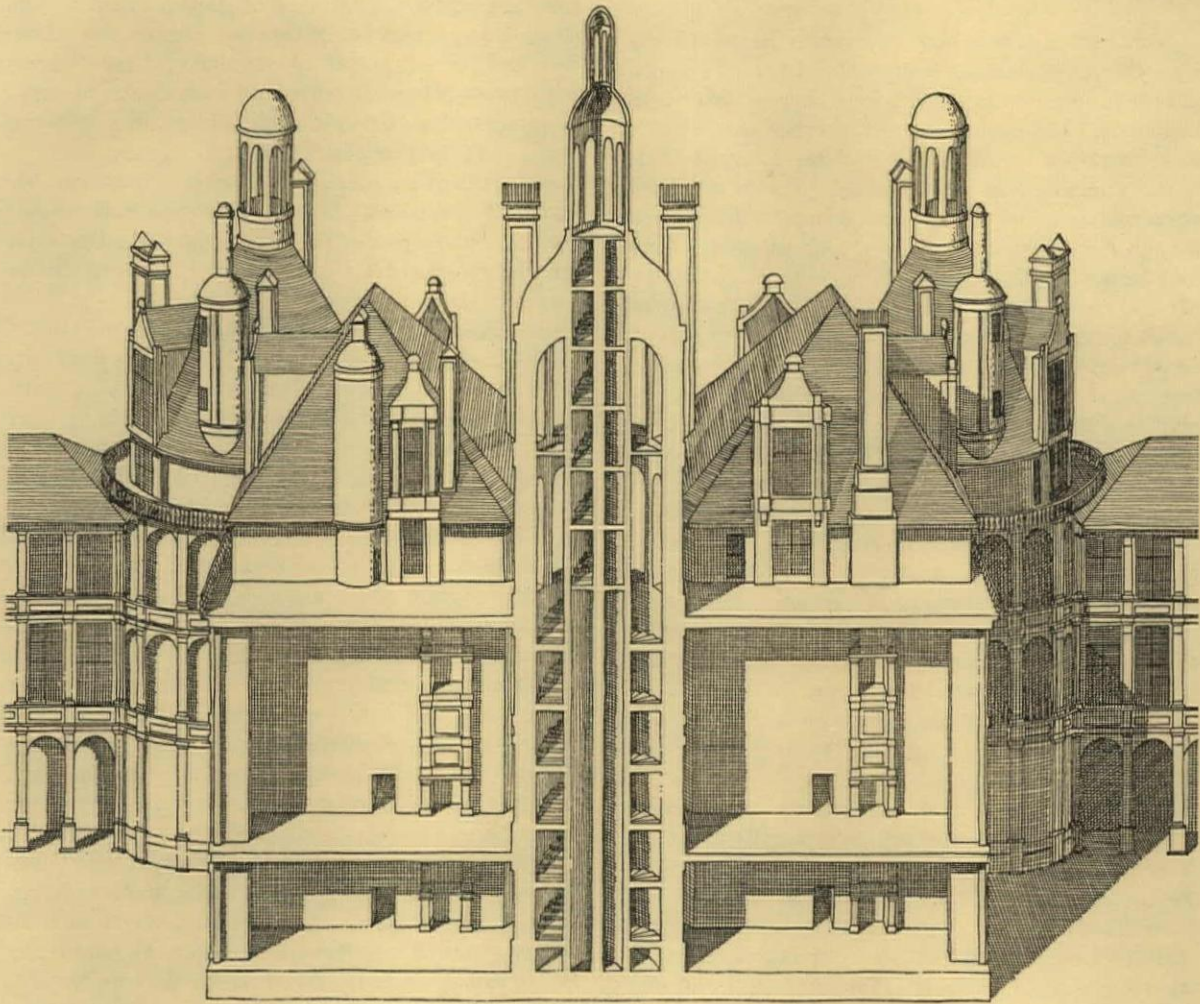
Drawings of Louis I. Kahn," instigated the project on the heels of the publication of "The City, Form and Intent," and it is, he tells us, "another of a series of simple exercises toward the evolution of a means of graphic communication which I hope will take the form of a visual language of architectural intention."

With acknowledgements to Steen Eiler Rasmussen, Mr Wurman has set his students about making for each of the various dwellings four drawings, which are reproduced one above the other. An ordinary plan is at the base, above which is projected a perspective horizontal section that serves as an easy reference for the vertical section just above, which in turn is surmounted by a perspective elevation. All drawings are freehand and fineline and each set of perspectives is constructed to one vanishing point.

The descriptive scheme is compelling and odds are that it will turn up in the *Progressive Architecture*

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Perspective sections, vertical and horizontal,
of Chambord, reproduced from
"Various Dwellings Described in a Comparative Manner,"
reviewed on these pages



Design Awards Program. Indeed, like that program, it nourishes an interest in schemes rather than buildings, which is characteristic of a disaffected and self-critical generation that hopes to discard the applecart and return to the tree. This book is a particularly enjoyable sampling of the fruits of that tree; the choice of dwellings is admirably various, the descriptions are complete and the comparisons intriguing. The manner, alas, can not support gracefully the examination it invites. Study of the drawings is attended by vexations: most examples contain petty but confusing inconsistencies that discourage close examination; the lines are often too free and insufficiently fine to describe forms at small scale; the structure is frequently unclear, the materials erratically indicated. Most vexing of all are the captions that give, besides identification, the net and gross area, net and gross volume and base elevation for each, but little direct

information concerning the specific context or the density of use—and no sources for further study.

A more serious difficulty is the scheme's apparent objectivity. Rigorously slicing each building through the center gives, in fact, a heavy bias to those which have been developed around a central axis, while the spatial complexities of the Villa Savoye or the Kaufmann house escape suggestion. Furthermore, it is difficult for the thin-walled present to compete *en poché* with French chateaux. When, as at Chambord, masonry fills the slip between rectangular room and cylindrical tower, the graphics are so smashing that one thirsts to see Kahn's Salk Center similarly described. An exercise such as this might well be followed by one wherein the student would seek to find for each project the descriptive scheme which best fits its particular intention.

DONLYN LYNDON
University of Oregon

Urban Landscape Design

By Garrett Eckbo. New York: McGraw-Hill, 1964. \$16.50

Although this is a book on urban landscape design, the subject matter is not confined to city parks. A broad interpretation of the term "urban" nowadays includes all the places where the urban dweller sets foot, or rather heads his automobile—after all, if he is the principal user of a facility, there is a certain appropriateness in calling it an urban land-use, even though the particular golf course or summer colony may be way out in the suburbs or in the High Sierras. Mr Eckbo, one of the leaders of the profession of landscape architecture, with a worldwide reputation, recognizes this new fact of life, and ranges from urban courts to college campuses, even including a city plan as a demonstration of the "flow" of a landscape treatment through the entire community. As he puts it himself:

"Any existing landscape is a result of a constant historical flow of decisions on specific fragments within a framework of general control. Thus we really have two kinds of landscape design, one dealing with the specific development of single sites, the other with the general accumulation of such decisions into a community or regional landscape. Today . . . we have a tendency to fill the gap between these specific and general processes, that is, between planning and design."

In other words, the role of landscape architecture is being recognized by authorities, especially urban redevelopment authorities, as necessary in all parts of the urban complex. They should read this book so as to learn that it is not just a matter of "filling the gaps" or screening a parking lot, but a comprehensive art which can give an extra dimension to life in city and country.

It is, however, on the design of parks—and there are many examples in the book—that I would like to dwell. The scarcity of new parks (in spite of the fact that we have hundreds of new communities) is a scandalous blot on our recent cultural history, and has caused the Federal government to enter the urban open space business with financial assistance to communities for the acquisition of parkland—with so far, very feeble gratitude from many parts of the country, but that is another story. What models can a community seek when about to lay out a new park for community use?

One of the problems which faces an American community is the variety of uses an urban park must fill. I don't mean overuse, although as Mr Eckbo demonstrates in his redesign for the Long Beach Polytechnic High School, this can be a serious matter in areas of high density unless the landscape architect can influence behavior by his skill. But the fact is that a shortage of open space and the recreational habits of Americans have combined to force the de-

sign of metropolitan parks into an all-purpose jungle of uses which Olmsted himself could make no sense of today. The battle to keep new facilities out of Central Park in New York symbolizes this dilemma, the latest engagement being between Huntington Hartford and Robert Moses on one side and the Municipal Art Association together with thousands of park-users on the other—over the millionaire's wish to put a café in the park's southeast corner. Mostly, however, the new uses are of a more active kind. Mr Hartford's proposed gift is an attempt to Europeanize the fashionable part of the city by the Plaza Hotel, on the theory that cafés are lacking in the American scene.

Although conditions *are* rather different in Europe, there is more than mere café-sitting that we can learn from the European park. First of all, we could learn to *walk* in parks, and I don't mean scrambling over rocks on exhausting hiking parties. This activity can be indulged in by the over-fifties, as it is in the Black Forest and in many a large pleasure garden laid out with interesting walks and refreshment stops. Then, we could see that younger people had an active recreation program connected with their schools, on the lines of President Kennedy's fitness program. In Europe recreational grounds are developed on the basis of schools and clubs, even though they may be far from the school or club building, and they are private. (The organization, of course, may be public.) Further, we could change our concept of the park from the romantic forest-and-meadow complex to the flower-bedecked pleasance which makes so attractive the great parks at Wiesbaden, Karlsruhe, Hamburg, Antwerp and other European cities too numerous to mention. I think a country more advanced culturally when I see flowers in boxes all along the bridge railings over the rivers as one does in Bavaria, or even flowers in pots decorating every private stairway as one does in supposedly-backward Sicily.

California is more advanced than the East or the Midwest in some of these matters, and Mr Eckbo does not neglect the small things that add to life's pleasures, even while telling us of an entire landscape plan for El Centro, California. In fact, the details of his city park of this Imperial Valley hot-spot are delightful, and all through the book the reader will find vignettes of attractive small parts of larger designs. One such collection is to be found in the sketches for Eagle Rock Park in Los Angeles, by Tite Patri, where we can enjoy a play mountain of terraced wading pools and a "fantastic village" (a sort of miniature western mining town) as well as some pleasant walks and promenades. This site taxed the skills of Mr Eckbo's firm to the utmost. The topography was very rough, and the list of facilities to be included very long.

I would recommend the student (and client) to read the section on public maintenance contributed by Mr Eckbo's partner, Edward A. Williams, at the end.

Architects are so often disappointed by the condition of the grounds around their buildings that it will be salutary for them to learn how some of these conditions come about and how they can be avoided. Mr Williams thinks that collaborative relationships with architects and engineers will produce better results in site planning than nowadays obtain, and he chides those designers whose lack of knowledge of a big group of materials limits the possibilities both of design and maintenance which more wide-ranging professionals can provide.

There is a very healthy tone to this book which may help to sweep away the art for art's sake approach of so many contemporary designers. Everywhere it considers the social needs first, and even the design esthetic is based on human symmetry. Man's intimate relation with the surrounding landscape, whether it be of natural or artificial forms, has been the life-long study of this author. That his observations and works stem largely from California is a challenge to other urbanizing regions to go and do likewise.

CHRISTOPHER TUNNARD
Yale University

The Prairie School

Edited and published quarterly by W. R. Hasbrouck, 117 Fir St, Park Forest, Ill. \$1.50 a copy

To one whose boyhood interest in architecture coincided with the concluding stages of the work of what is generally described as the Chicago or Prairie School, it is interesting to note the value the work of the School has had for such persons as Mark Pesch of Columbia University and Allan Brooks of the University of Toronto, both of whom did me the honor of consulting me about that design efflorescence preparatory to writing about it. This new quarterly is a further indication of the regard in which it is now held.

Without the impetus derived from the teaching of Louis H. Sullivan and, for more immediate usefulness, the examples created by the work of Frank Lloyd Wright, the existence of the Prairie School would scarcely have been possible. That it should succumb to the rising architectural eclecticism of the nineteen hundreds was inevitable. While George Elmslie and Mr and Mrs Walter Burley Griffin (who on winning the Canberra competition went to Australia) persisted in the effort to develop a creative, indigenous architecture, most of the members of the School had, by 1914, succumbed to client pressure and were working in the then fashionable traditionally inspired eclecticism.

The decay of the movement was inevitable; it was due, I believe, to the fact that its members saw architecture as basically a matter of style or esthetic treatment. The latter took the form, initiated by the work of Frank Lloyd Wright, of marked horizontality in mass and general character. Wright and Sullivan, however, saw style not as a basic matter but, more truly, as a resultant factor. They knew that architectural styles are many but that architecture, in the basic sense, is one. They were, therefore, on a foundation that could not be undermined by the

flood power of architectural eclecticism any more than either would have been affected by the current fashion of stylistic modernism.

My own debt of stimulation to the work of George Maher (to whom this first issue of *The Prairie School* is devoted), to that of Robert Spencer, Hugh Garden and others, incurred when my youthful interest was awakened by their designs, is a definite one. I knew their work before I became aware of that of Frank Lloyd Wright. I soon realized, however, that the designs of these members of the Prairie School were not well-based and to a very great extent reflected the work of Sullivan and Wright. I regret now that this realization unduly impaired my appreciation of these talented members of the School for many years—until I came to see that the work they did, while beset with limitations, was still an interesting and important contribution to the architecture of this country.

I am very glad, therefore, to welcome this new quarterly and to wish it success. (Its value would certainly be enhanced by improved layout and typography, and this, I am told, the editor has in mind.) It is important that the predominance in the United States of European-derived modernism should have a counteracting influence deriving from a knowledge of our own architectural heritage.

BARRY BYRNE
Evanston, Illinois

American Architecture

By Thomas H. Creighton. America Today series, No 1. Washington, DC: Robert B. Luce, 1964. Distributed by David McKay Co, New York. \$1.95

To write a handbook for the general public summarizing American architecture from the colonial period to the present is not an easy assignment. The buildings and ideas presented in this one are all well enough known to the readers of this Journal. Yet if given the task, each would outline his own commentary differently. What Mr Creighton has selected for us in this brief account (eighty-two pages including twenty-four illustrations) cannot please everyone.

Much space is given to quick mention of names and places, especially those of the twentieth century, the period with which he is chiefly concerned. Surprises occur. Raphael Soriano is mentioned three times. Frederick Law Olmsted and Buckminster Fuller are not mentioned at all. Dams are included but not bridges. In general, the book is an example of journalistic writing, nonanalytical and nonevaluating. (Regarding nineteenth century figures, Mr. Creighton has given us standard opinions of Richardson and Sullivan.) A strange inclusion for the general public are the intramural comments about architectural schools and deanships.

Of Wright, Mr Creighton states: "... his interest in technology was nominal" (p 18). This is hardly true when Wright himself lamented to a Taliesin apprentice that critics praised his plans and spaces but ignored his technological applications, of which he was very proud. We know of his use of steel beams in the Robie House, of his special foundations for the

Imperial Hotel, of his acoustic treatment and air-conditioning in the Larkin Building.

The book is negligent in many details. For example, Unity Church is located only "in Illinois," whereas Mies's Chicago apartments (860-80 Lake Shore Drive) are specifically placed three blocks away on the wrong street, Michigan Avenue. Taliesin West was begun in 1938, not the 1920's. Nor do the numerous misspellings (Charles Follen McKim, Craig Ellwood, George Fred Keck) create reader confidence in the quality of the material.

In his summing-up, Mr Creighton acknowledges that confusions and contradictions mar the present architectural scene. But he is hardly discouraged and in his rising coda he sees "a picture of growth, vigor and imagination." This is clearly an inspirational book for the young reader.

H. F. KOEPER
University of Illinois, Chicago

Other Books Received

FORMWORK FOR CONCRETE STRUCTURES. By R. L. Peurifoy. New York: McGraw-Hill, 1964. \$12.00

PRESTRESSED CONCRETE FOR ARCHITECTS AND ENGINEERS. By H. Kent Preston. New York: McGraw-Hill, 1964. \$8.50

ARCHITECTURAL ENGINEERING: NEW STRUCTURES. Edited by Robert E. Fischer. New York: McGraw-Hill, 1964. \$10.00

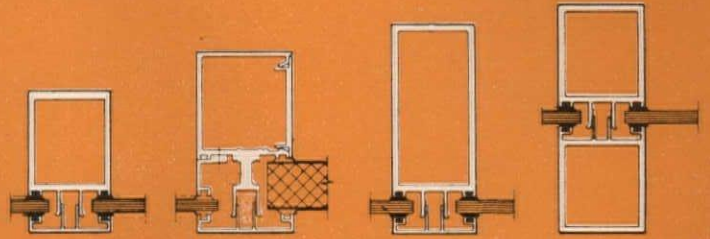
ARNE JACOBSEN. By Tobias Faber. New York: Praeger, 1964. \$17.50

ELEMENTS OF THE ART OF ARCHITECTURE. By William Muschenheim. New York: The Viking Press, 1964. \$6.50

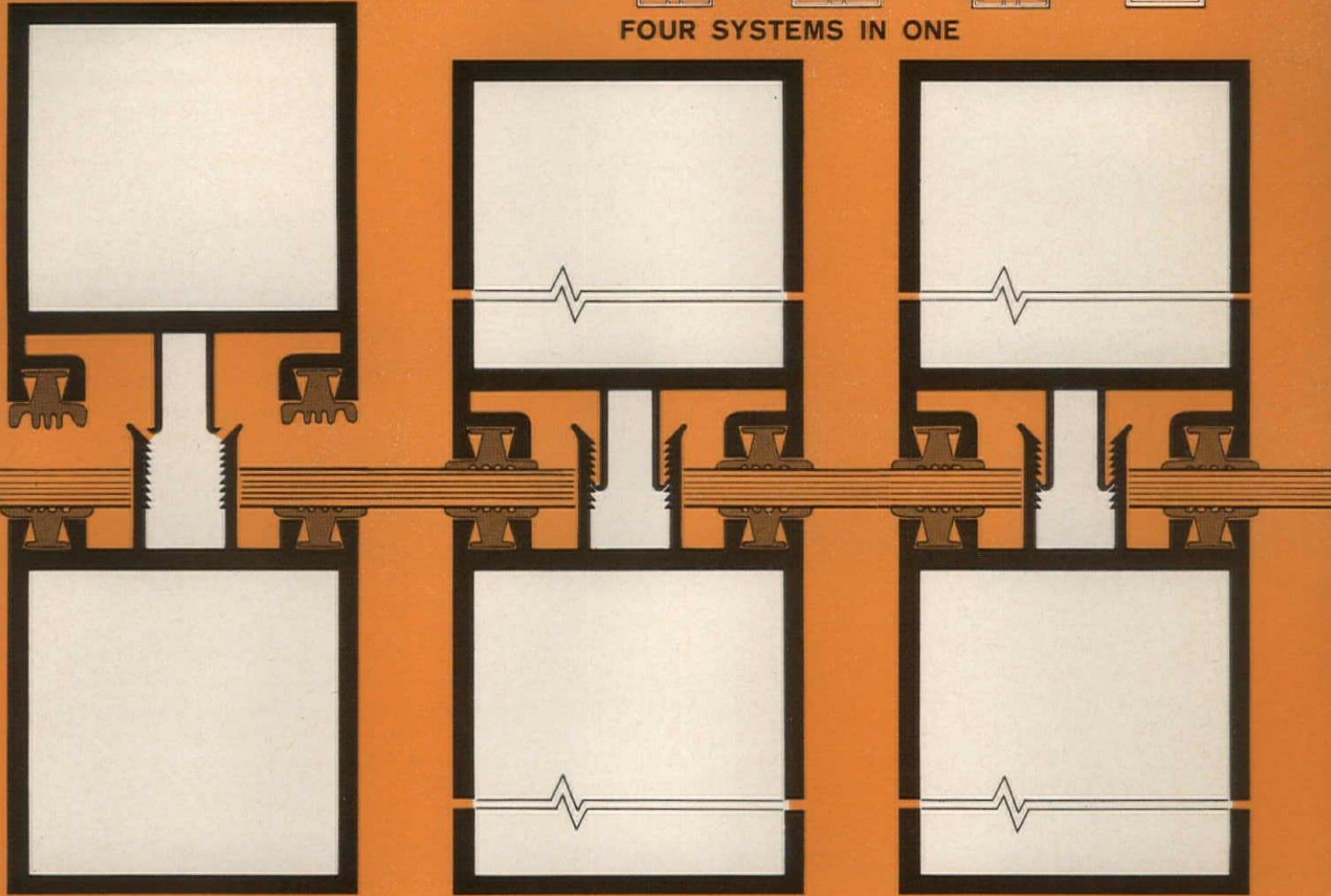
LOST EXAMPLES OF COLONIAL ARCHITECTURE. By John Mead Howells. Paperback edition. New York: Dover Publications, 1963. \$2.75

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Notice of Penalties for Unprofessional Conduct

Disciplinary action has been taken by the National Judicial Board against the following corporate members, listed with standards violated and penalties invoked:

Sinclair A. Adam and Malcolm N. Crabtree (Connecticut Chapter)—8 and 12—censure.

Robert A. Mattern (Mid-Michigan)—12 and 15—suspension for six months beginning September 23, 1964.

E. V. Mikles (Santa Barbara)—7 and 12—termination.

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(In effect at the time of the acts complained)

7) An architect shall not engage in building contracting.

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12) An architect shall not use paid advertising nor use self-laudatory, exaggerated or misleading publicity.

15) An architect shall at no time act in a manner detrimental to the best interests of the profession.

Editor's Page Cont'd from p 20

every property owner that his new building be a visual asset to its neighborhood as it is that it be safe and sanitary.

The well-known US Supreme Court decision of *Berman vs Parker* long ago gave the community the authority to control its appearance. The cities of Europe have done it for centuries: that is why we flock over to admire them wistfully today. There is now no reason, other than having to work and fight for it, why every city cannot enact legislation that will require the owner of a proposed improvement to appear before a proper authority—probably the Planning Commission or a Fine Arts Commission, if you can get one—and demonstrate that his proposed building will be a visual and esthetic asset to its immediate environment and to the community as a whole. It's as simple as that. But you've got to work and fight for it.

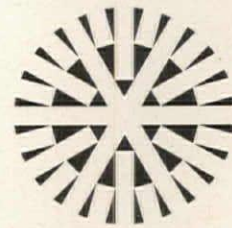
Fifth and finally, how best to accomplish all this? How to swing public opinion and get its support? How to create a favorable climate for accomplishing these things? The answer lies in creating an organization to catalyze and concentrate popular opinion. Much has been said about the need for reaching the "decision-makers." That is a good effort, but I submit that it is more important to reach the people who support the decision-makers, whether it be by their votes or by their purchasing power. I refer to what I call the members of the "intelligent community," that broad segment of the population whose interests and organized activities, fragmented as they may be, can speak with a powerful voice when brought together.

J.W.

Octagon Observer Cont'd from p 18

annual reports of the year and 4) won the Champion Papers Award for combining imagination in the choice of paper and expert craftsmanship in its use to achieve a printed communication. The "AIA Board's Annual Report 1963" also was selected to hang in the Washington Art Directors Show. The Annual Dinner Program/Menu of the 1964 AIA Convention in St Louis was cited for "Creativity on Paper" by *Art Direction* magazine and will hang in exhibits at Mead Papers' New York and Chicago Libraries of Ideas. All three publications were designed by the Washington, DC, graphic design firm of Beveridge & Associates.

PAN AM '65 / No. 3: BIG Show's in the Works



In keeping with the theme of the XI Pan American Congress of Architects and the AIA national convention set for Washington, DC, next year, an exhibition devoted to "Cities of the New World" will open at the Smithsonian Institution's Museum of Industry and Technology during the June 14-18 sessions. Tentative plans call for the opening to be preceded by the traditional Institute President's Reception, which is slated for the Pan American Union, one of the buildings included on the recently released list of National Capital Landmarks.

Registration for the Congress-Convention has not officially opened, but nearly 700 Latin American architects, wives and dependents already have indicated their intention to attend. About 3,500 US architects and others associated with the building industry also are expected.

Among other developments: Lewis Munford, whose selection to deliver the initial Edmund R. Purves Memorial Lecture was announced last month, has formally accepted the invitation. He was elected an Honorary Member of the Institute in 1950.

FELLOWSHIPS / Monetary Boost for Brunner

Applications will be accepted for one of the nation's major architectural awards, the \$6,000 Arnold V. Brunner Scholarship grant, by the New York Chapter AIA until January 15. The award, which up to now had been \$5,000, was raised by \$1,000 to make possible broader programs of study.

Open to active architects and those in related fields, the grant calls for study in an area which will contribute to the achievement of the architectural profession. Each candidate is free to choose his subject of study. For details write the Chapter, 115 E 40th St, New York, NY 10016.

ALSO UP FOR GRABS: For the ninth consecutive year, the Sears-Roebuck Foundation will award two-year graduate fellowships in the field of city planning, including a grant of up to \$3,000 a year to the student and an unrestricted grant of up to \$1,000 to the school where he studies.

Cont'd on p 92

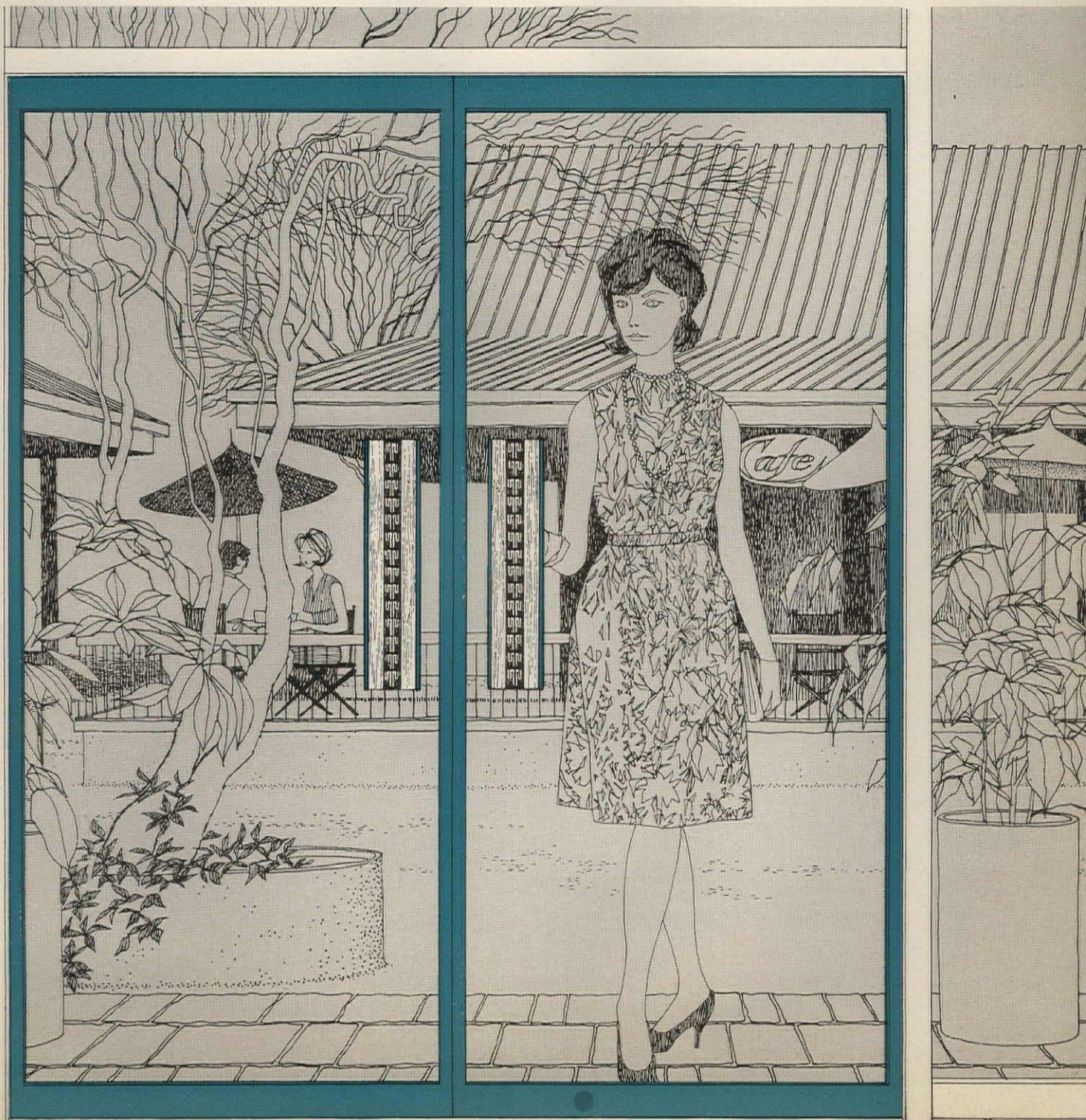
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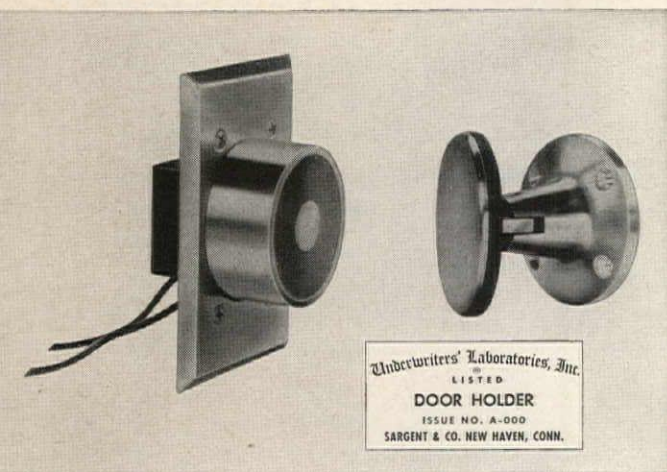
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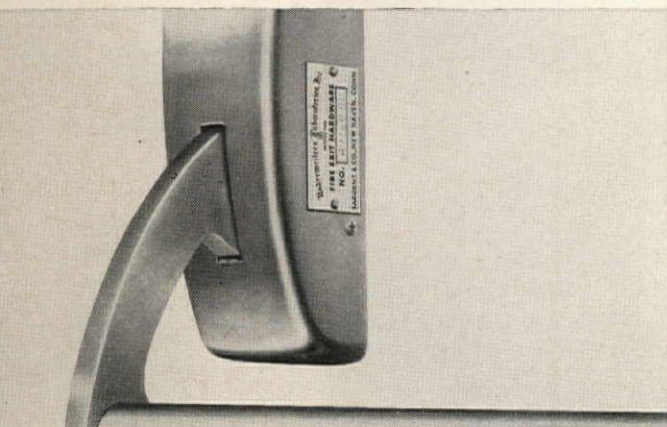
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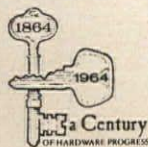
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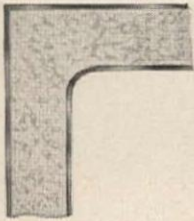
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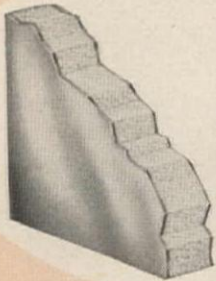
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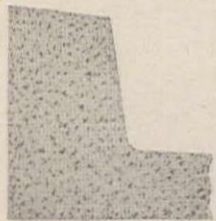
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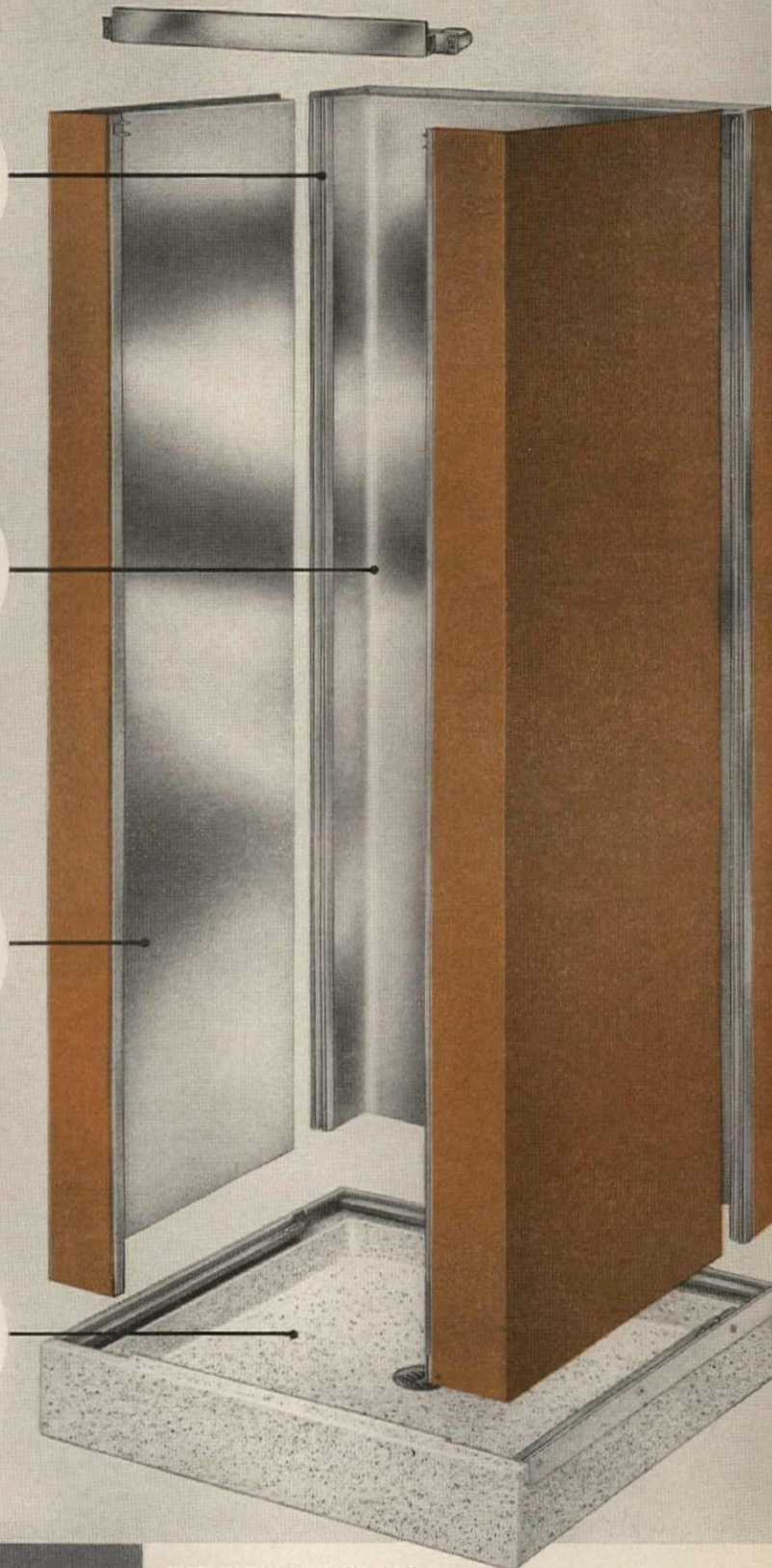


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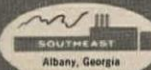
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Octagon Observer Cont'd

QUOTES / Making One's Mark

Phil Stitt's editorial in the July *Arizona Architect* took the form of a letter to granddaughter Debra. It was so warm and understanding that some of Granddad's remarks are reprinted here for added impetus and exposure.

“Eagerly, and in clear, strong letters, you last month signed your name to the visitor's register provided by The American Institute of Architects in its Octagon House. By doing so, you ‘left your mark’ at that beautiful and historic building. . .

“There's something almost instinctive about leaving an identification when we have been some special place. Inscription Rock and other famous spots in the Southwest are noted and protected for the names left there by early visitors. And do you remember the initials scratched on the view-glass in the head of the Statue of Liberty? So many marks that it is difficult to see through the glass?

“But there are other kinds of ‘marks’ that people leave behind them. No one knows, for example, the builders of the strange structures of Stonehenge. The individual workers on the pyramids of Egypt and the great Gothic cathedrals of Europe left their indelible marks on history and culture, although not their names.

“And—scratched deeply into a sandstone wall, high in Colorado's beautiful ‘Garden of the Gods,’ I recently saw that vulgar, four-letter word which so disturbed you when you found it written on the stop sign on your street. A self-operating elevator in a Phoenix office building had the same vulgarity scratched on its door. In all three cases, immature persons had regrettably left their ‘mark,’ which tells us more about them than would their names.

“The point I'm making is that the true ‘mark’ of a person—the enduring and identifying quality—is not so much in his name as in his character and what he does with his life and his talents. It is his courage and contribution to society that really marks his presence in time and place.

“So it is with us. If what we do

makes a better place for others—better families, better cities, better buildings, better paintings, better government—then we have left the kind of mark that will endure and be respected. . .

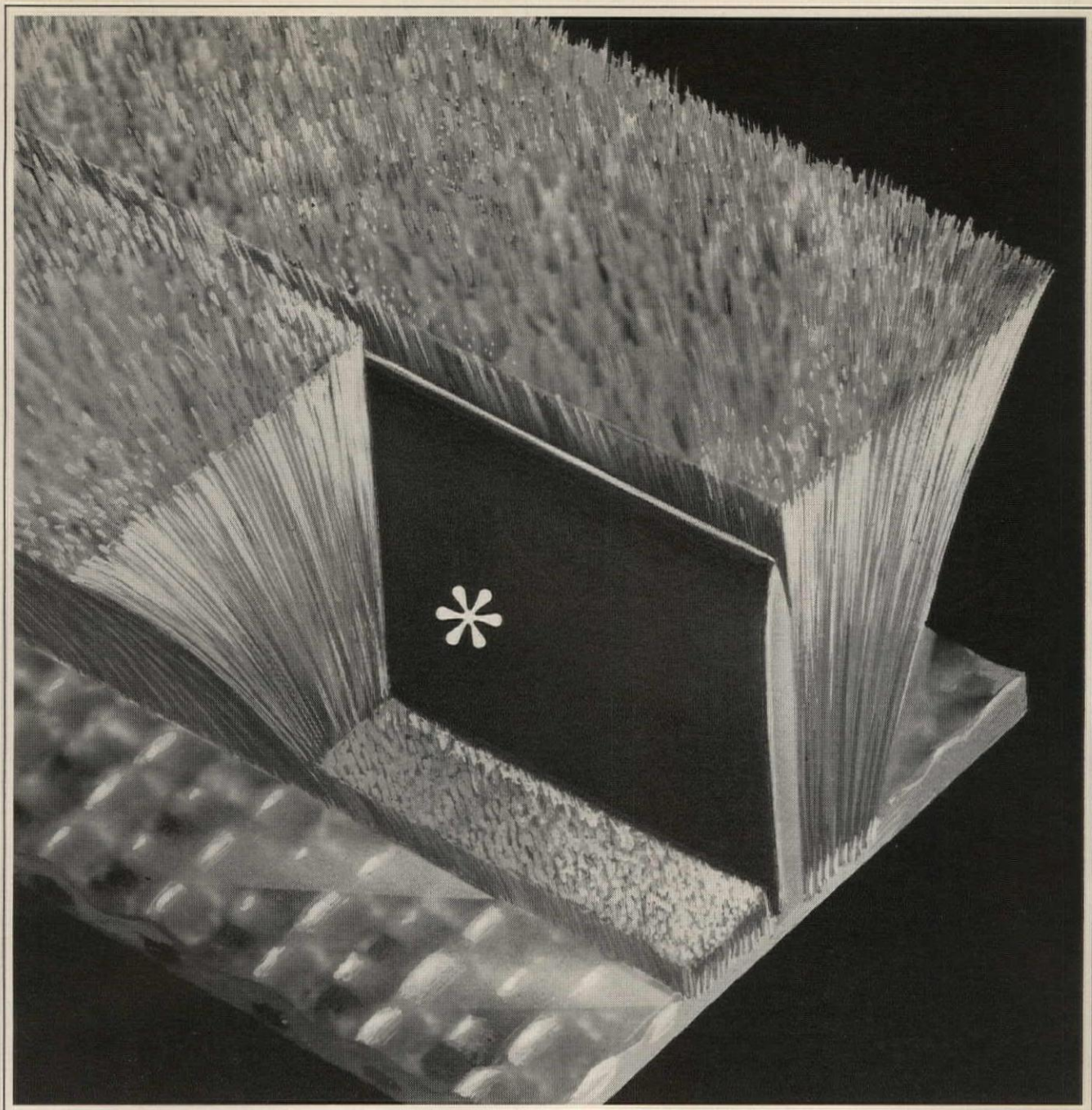
“But if our marks are those of thoughtlessness or contempt for others, as on the Statue of Liberty and the stop sign and canyon wall, or if they are marks of selfishness, as in the excessive and blatant commercial signs on our landscape that spoil its beauty for others, then the contempt we show will surely make our own ‘mark’ a contemptible one.

“Buildings that are inferior because of poor design, construction or materials will endure for a time as the ‘marks’ of their builders. And how really tragic that a slum may become the ‘mark’ of a developer whose lust for personal wealth permits him to misuse the land and to build without real plans. . . .”

FOOTNOTES / Front & Center

Architects who are particularly interested in the quartet of articles devoted to theater design in the current *AIA JOURNAL* also will want to note the following:

- The AIA Committee on Auditorium and Theater Architecture shortly will release a paper on “Current Practices in Planning and Building a Theater.” Send requests to the Research Department, AIA, 1735 New York Ave NW, Washington, DC 20006.
- The US Institute for Theater Technology is compiling a survey of all theaters and auditoriums built in this country since 1960 for use as a working reference. Architects can assist in insuring the comprehensiveness of the survey by obtaining checklist data cards for each theater to be listed. Write to USITT, Box 866, Radio City Station, New York, NY 10019.
- The Board of Standards and Planning for the Living Theater, a committee of the Greater New York Chapter of the American National Theater and Academy, has utilized professionals both in its own field and in architecture in producing two publications: “The Open-Stage Checklist” and “The Proscenium-Stage Checklist.” Contact the Chapter, ANTA, 245 W 52nd St, New York, NY 10019. ■



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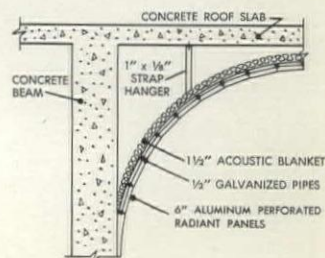
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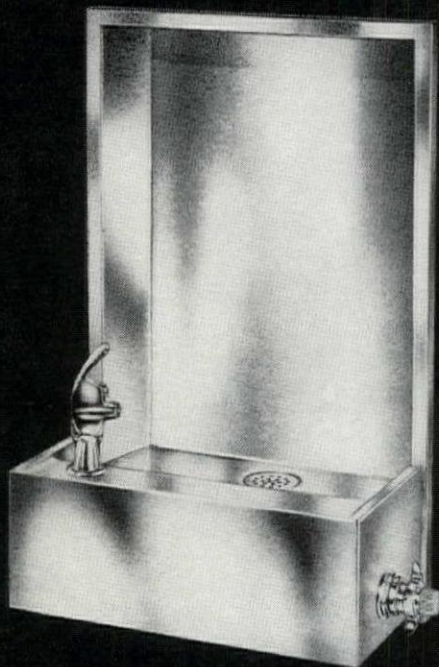


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CALENDAR

Dec 26: Doric Debutante Cotillion, Metropolitan Club, New York. Scholarship-fund project sponsored by Women's Architectural Auxiliary, New York Chapter AIA

Jan 12-15: AIA Board of Directors, Washington, DC

Feb 2-4: SPI Reinforced Plastics Division Conference, Edgewater Beach Hotel, Chicago

Feb 7-19: National Trust Conference for Historic Museum Associates, Woodlawn Plantation, Mount Vernon, Va

Feb 9: Building Industry Conference, Brown Palace Hotel, Denver

April 21-23: Urban Life Conference sponsored by the St Louis Regional Planning and Construction Foundation, Washington University, St Louis

April 24-May 1: Historic Garden Week in Virginia. Contact: Room 3, Mezzanine, Jefferson Hotel, Richmond

June 9-11: ASCE Specialty Conference on Wood (one session co-sponsored by AIA), Pick Congress Hotel, Chicago

June 11-12: NCARB Annual Meeting, Sheraton-Park Hotel, Washington, DC

June 14-18: AIA National Convention and XI Pan American Congress of Architects, Sheraton-Park Hotel, Washington, DC

June 14-19: Congress of International Union of Local Authorities (one theme to be urban renewal), Belgrade, Yugoslavia

AIA Regional and State Conventions

March 17-19: Michigan Region, Detroit

March 24-27: Gulf States Region, Biloxi, Miss

Aug 18-21: Northwest Region, Glacier National Park, Mont

Oct 6-10: California Region, Yosemite Valley

Oct. 14-16: Ohio Region, Atwood Lake Lodge, New Philadelphia

Oct 21-23: Pennsylvania Region, Hershey

Nov 17-20: Florida Region, Jack Tar Hotel, Clearwater

AIA Committee and Related Meetings

(At the Octagon unless otherwise specified)

Dec 7-8: Research for Architecture

Jan 11: Committee Chairmen and Commissioners

Jan 13-14: Reynolds Architectural Students Prize Jury

Mar 3-4: Honor Awards Jury

NECROLOGY

CAMPBELL, ALDEN W., Sacramento, Calif

CATO, CLAUDE R., Houston, Tex

DOWLER, PRESS C., Pittsburgh, Pa

FRAMPTON, WILLIAM R., Huntington, W Va

LANTZ, REUBEN S., Boone, Iowa

MATTHES, CARL EMIL, JR, Hattiesburg, Miss

POLSS, HERMAN, Philadelphia, Pa

RAY, SYDNEY W., Tyler, Tex

SMITH, FRANCIS JOSEPH, Brooklyn, NY

SNOOK, THOMAS E., New York, NY

STERN, EUGENE JOHN, Mexico, DF

Honorary Member

HOOVER, HERBERT C., Palo Alto, Calif

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ED—Editorial
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SPS—School Plant Studies
UD—Urban Design
UR—Urbanisms

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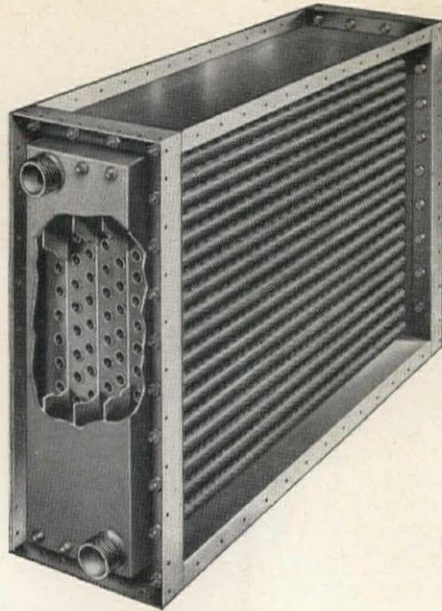
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