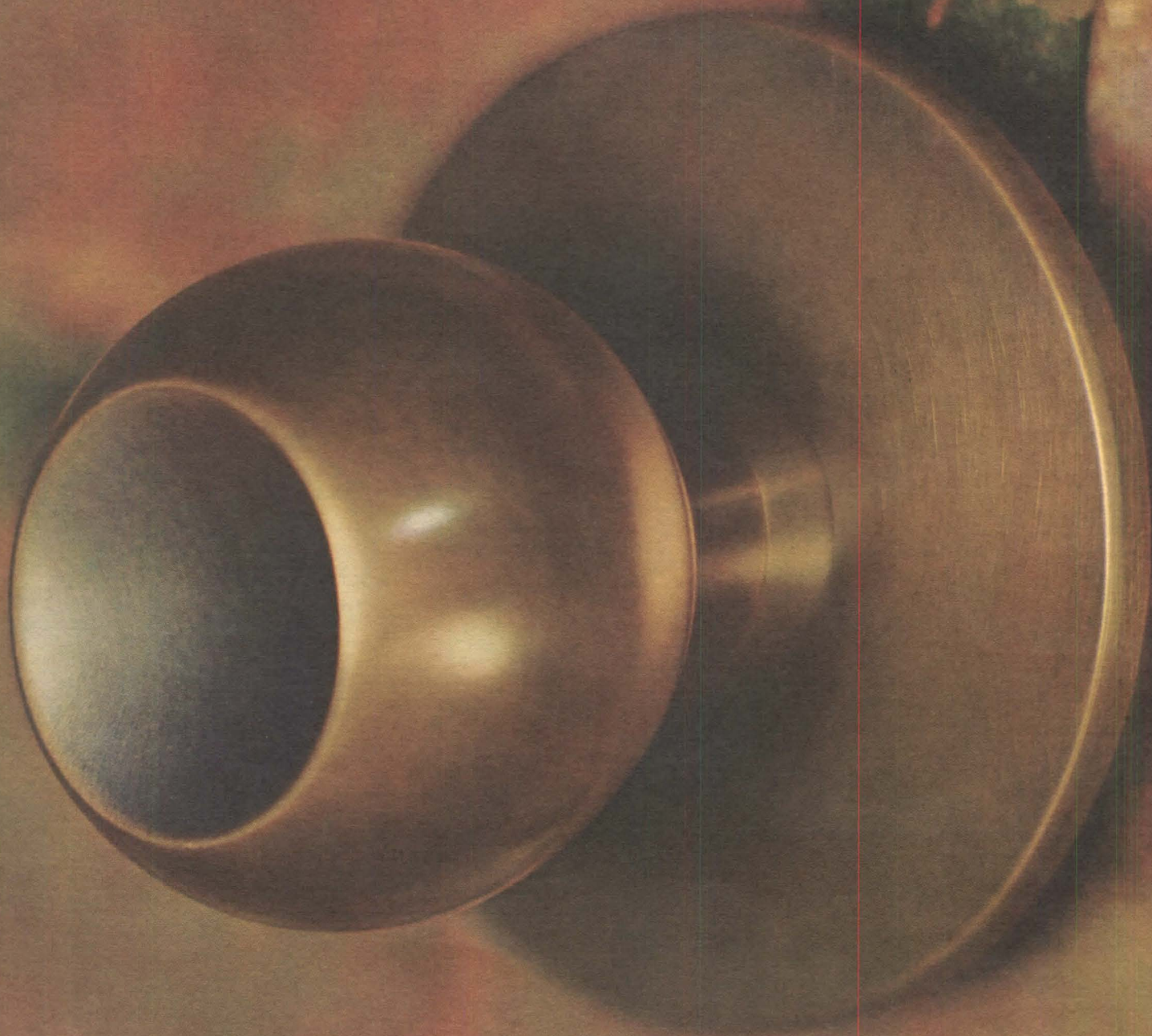




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Cover: Photograph by Denise Scott Brown (story, page 36)

THE ARCHITECTURAL FORUM
 Vol. 128 No. 2, MARCH issue.
 Published 10 times a year, combining Jan./Feb. and July/Aug. issues, by Urban America, Inc., 111 W. 57 St. New York, N. Y. 10019.
 Sent without charge to architects registered within the U.S.A. Qualified persons are invited to write the Circulation Manager on company letterhead. Please give your principal state of architectural registration, your title, and the kind of work you do. Correspondence regarding service, change of address, etc., should be sent to the Circulation Manager.
 Subscription rate is \$12 within the U.S.A. and possessions; Canada, \$15; Elsewhere, \$20. College Rate for students and faculty members of U.S. accredited schools of architecture, \$6.
 Single copies, \$1.50.
 Member of Business Publications Audit of Circulation, Inc.
 Controlled circulation postage paid at New York, N.Y.
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PUBLISHER'S NOTE

Every time we turn around, so it seems, we find reason to tell you how important Paul Grotz is to the Forum. This time, however, it is not us but the AIA who has a medal for Paul. In announcing the 1968 medal winners (page 25) we were delighted to learn that Forum's managing editor, formerly its art director for 30 years, is the winner of this year's AIA Industrial Arts Medal. The citation which accompanies the award says:

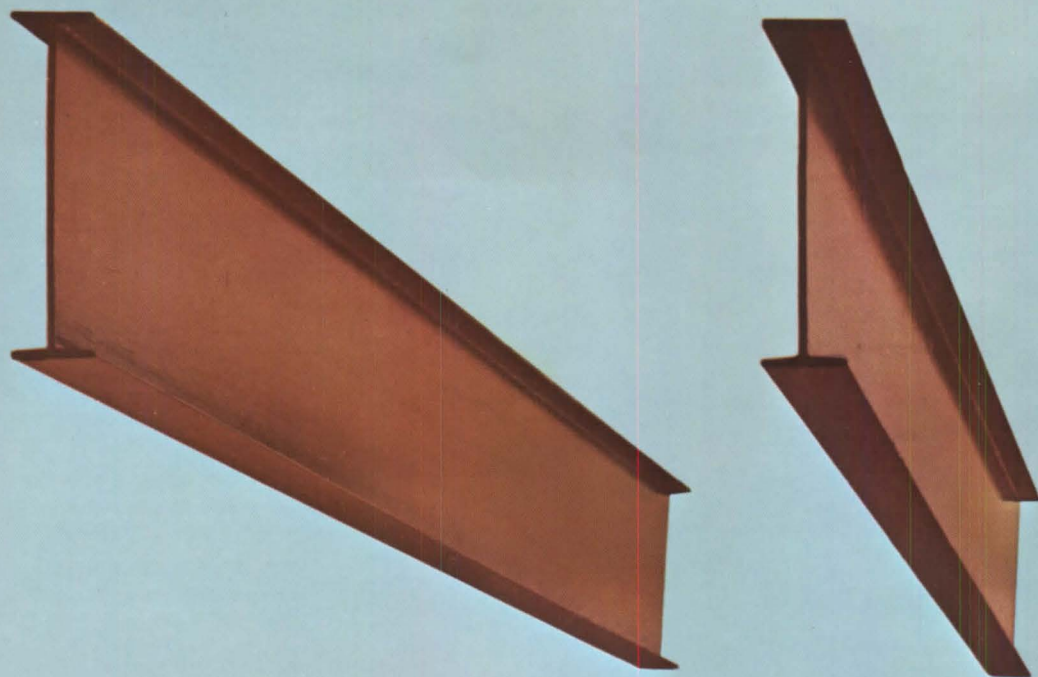
"It seems fitting that the art direction of layout, typographic treatment, photography, and cover design for a magazine devoted to architecture should be recognized not only for excellence of design, but also for the magazine's close association with our profession."

We, too think it fitting and are grateful to the AIA for having said so.

As the AIA also noted, the Forum is "a magazine devoted to architecture." Nevertheless, the latest count reveals that more than 10,000 people, all nonarchitects, subscribe to our magazine, despite the fact that we have no serious subscription promotion program to speak of. Actually, we do little more than make the magazine available when asked. Evidently these subscribers come to us, full subscription price in hand, because they want to read a magazine like ours.

So we also want to express our gratitude to these wonderful people who, in their own way, testify monthly to the award-winning performance of Paul and the rest of his editorial colleagues.

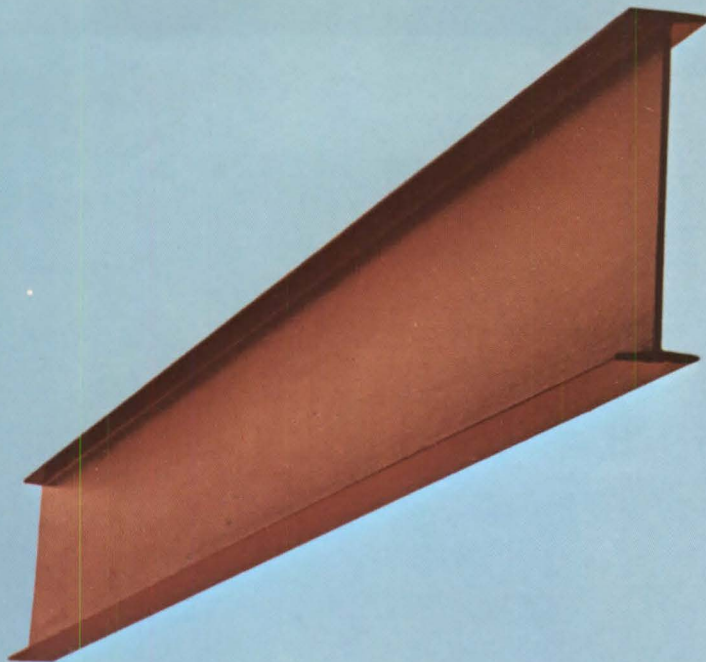
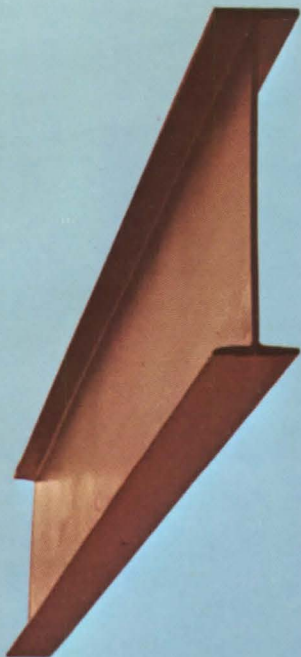
—L.W.M.



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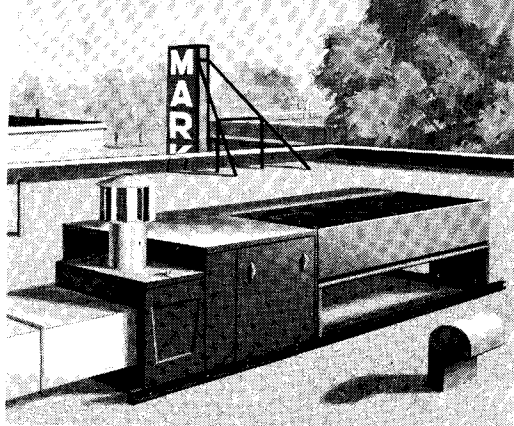
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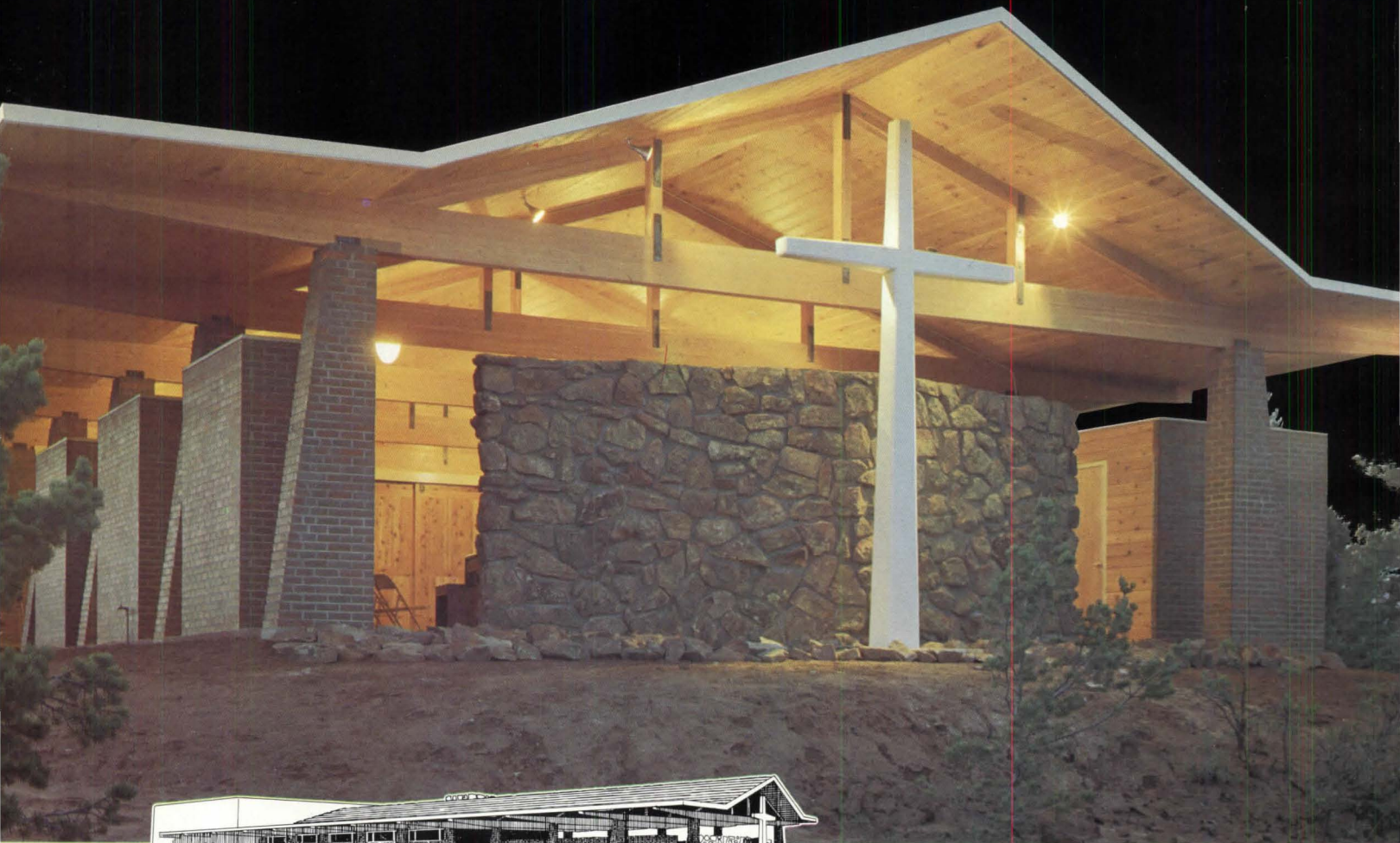
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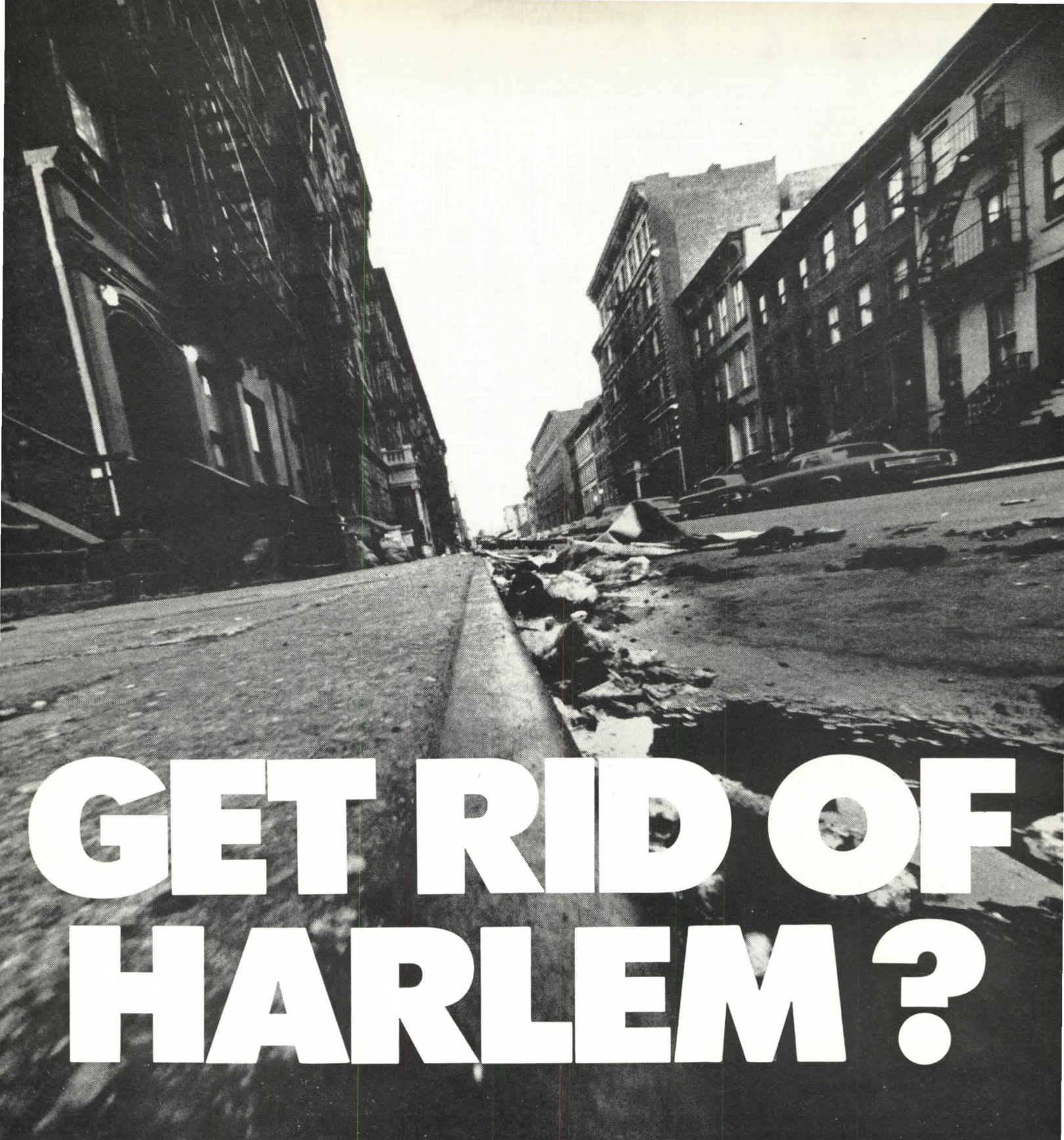


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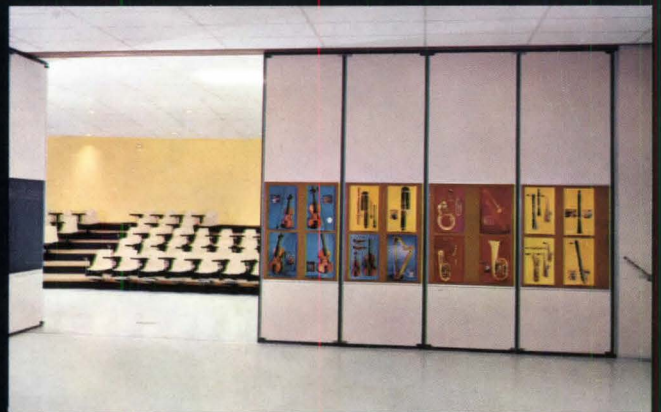
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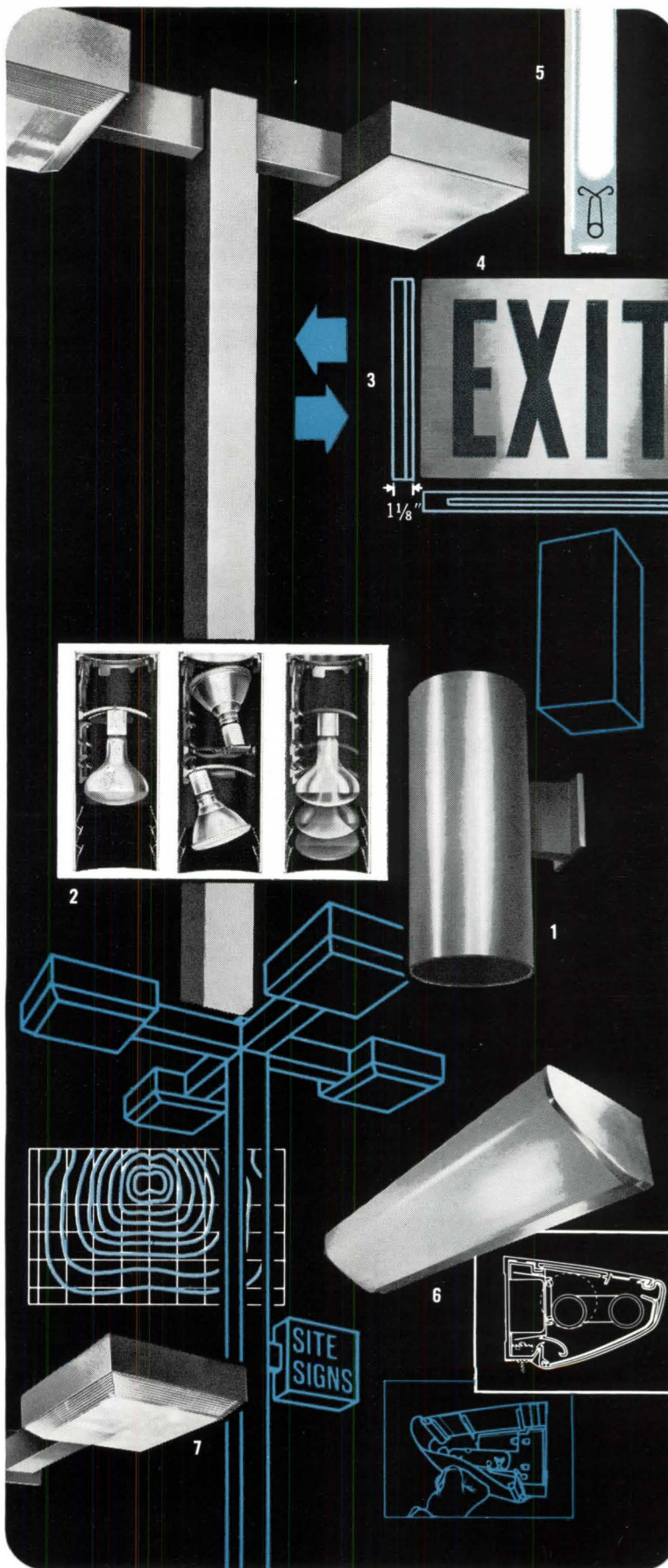
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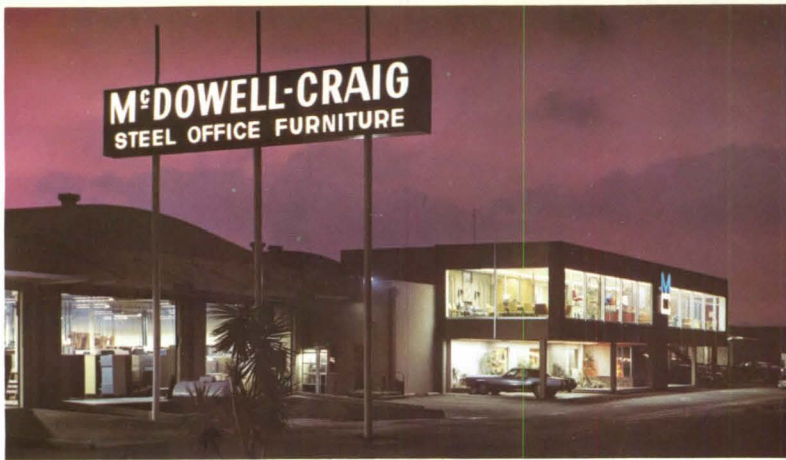
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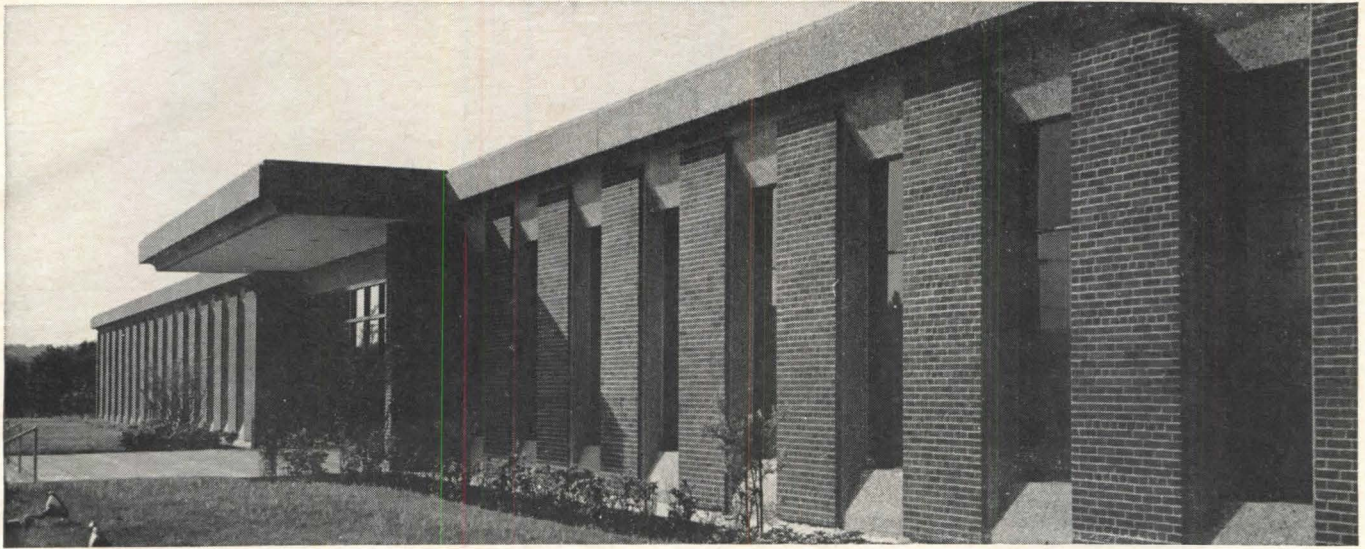
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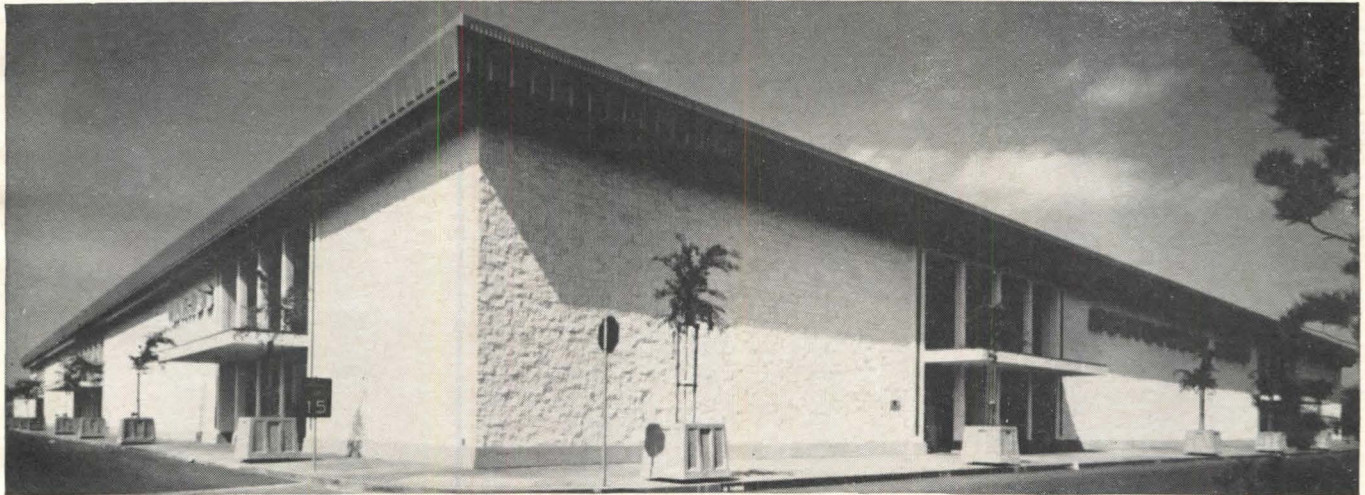
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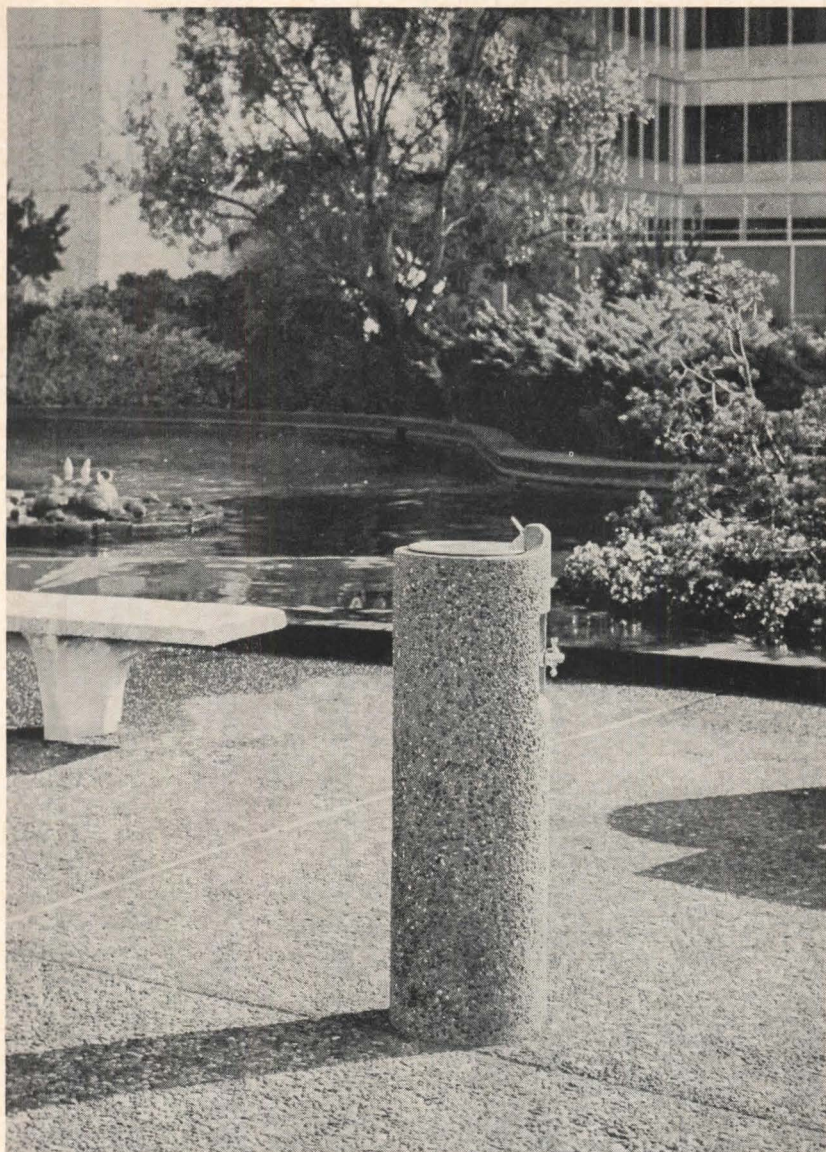
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DRINKING FOUNTAINS

LETTERS

TRANSPORTATION

Forum: I have good reason to be biased in favor of the latest issue of Forum. But even the most objective reader would have to agree that you did a great job in ranging across the complex subject of transportation.

STANLEY B. TANKEL
Planning Director

New York City Regional Plan Association

PREDATING BARNSTONE?

Forum: Your December presentation of the Harris County Center for the Retarded in Houston was well done and showed a good facility for which you and Mr. Barnstone are to be congratulated.

I think you will find, however, that there is at least one other, and probably older, such facility built and operated with community funds: our three-year-old, smaller-scale Mobile Retarded Training Center, which is the outgrowth of a much older community program previously conducted in very inadequate facilities. We have recently built an addition to expand our program....

ARTHUR PRINCE
Dietz, Prince & Fischrupp
Architects

Mobile, Ala.

MIXED NOTICES

Forum: You publish accounts of buildings, accompanied by dazzling photographs that seldom, if ever, give a true figure of the design of the building, its scale, or, more important, what it does for its setting....

Perhaps the Forum is not entirely to blame for the almost

total disruption of the cityscape by personal monuments to individual architects, but it disseminates this attitude as something admirable. Architecture becomes a series of pseudo-events, in Daniel Boorstin's meaning. Something whose sole purpose is to be publicized. So it has to be exciting, smashing, literally stunning.

I'm tired of being stunned the time.

JOSEPH M. SHELLE
Architect

New York City

Forum: I'll take this moment to compliment you on your achievements. The magazine is great. Articles in depth, comparisons, editorials (right or wrong), reappraisals. All these things that are so necessary, you are doing. Keep it up.

THOMAS RUSSELL POTT
Architect

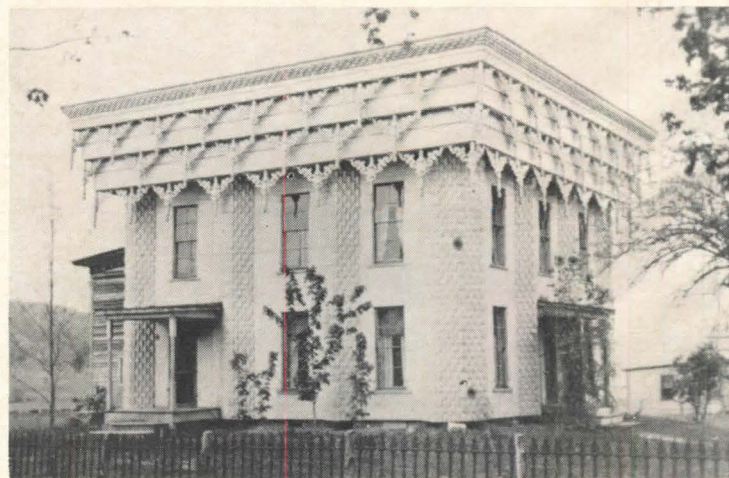
San Francisco

HISTORY LESSON

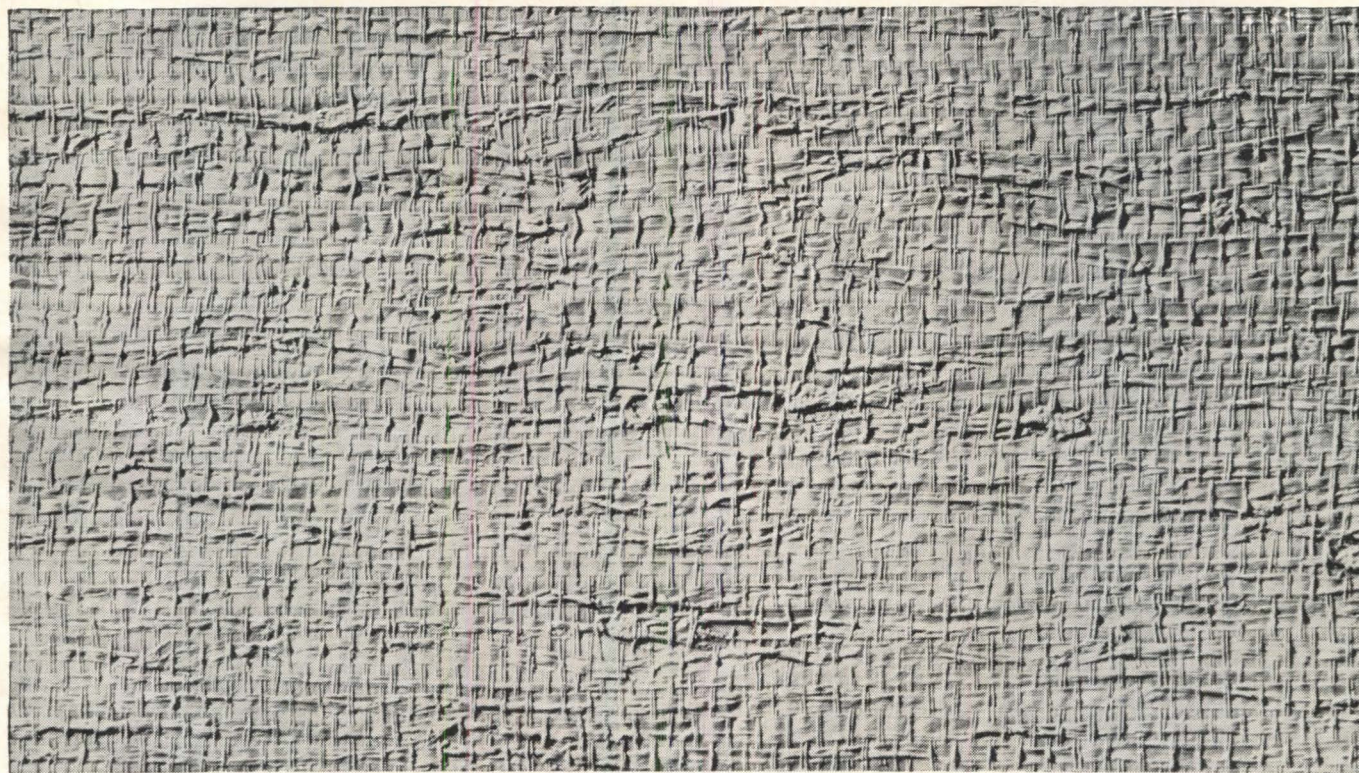
Forum: While the general impression is that cantilevering out the upper two or three stories of a building was originated by the prize-winning designers of the new Boston City Hall, and that other architects have been adopting this gimmick as a cliché in recent years — including Ulrich Franzen, who is following the fashion in at least two New York buildings currently on his boards — the Jehovah's Witnesses' headquarters in Brooklyn Heights and the Cooper Union annex at Astor Place [Jan./Feb. issue] — it would appear that the idea dates back at least 100 years, viz. the old pre-Civil War house in upstate New York, near Syracuse, of which I snapped a picture [below] when I was driving past. I do not know its exact date or other particulars.

ROBERT C. WEINBERG
Architect

New York City



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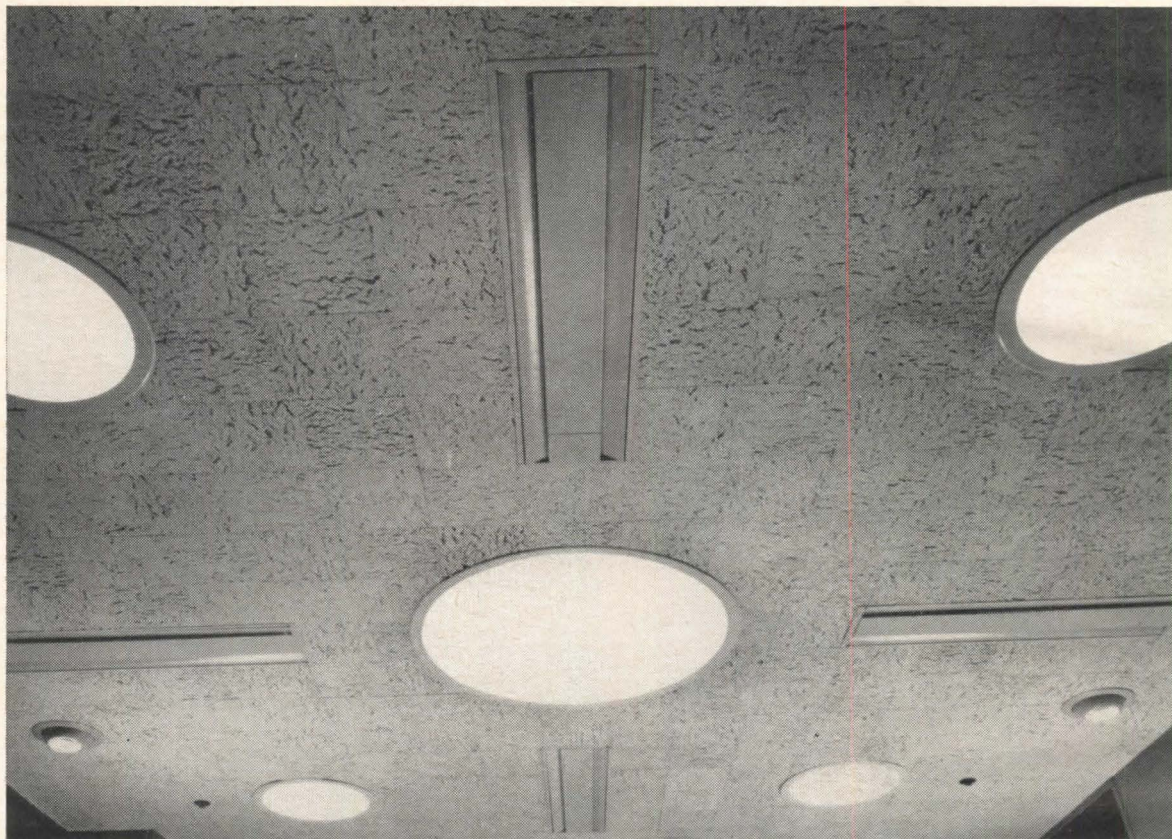
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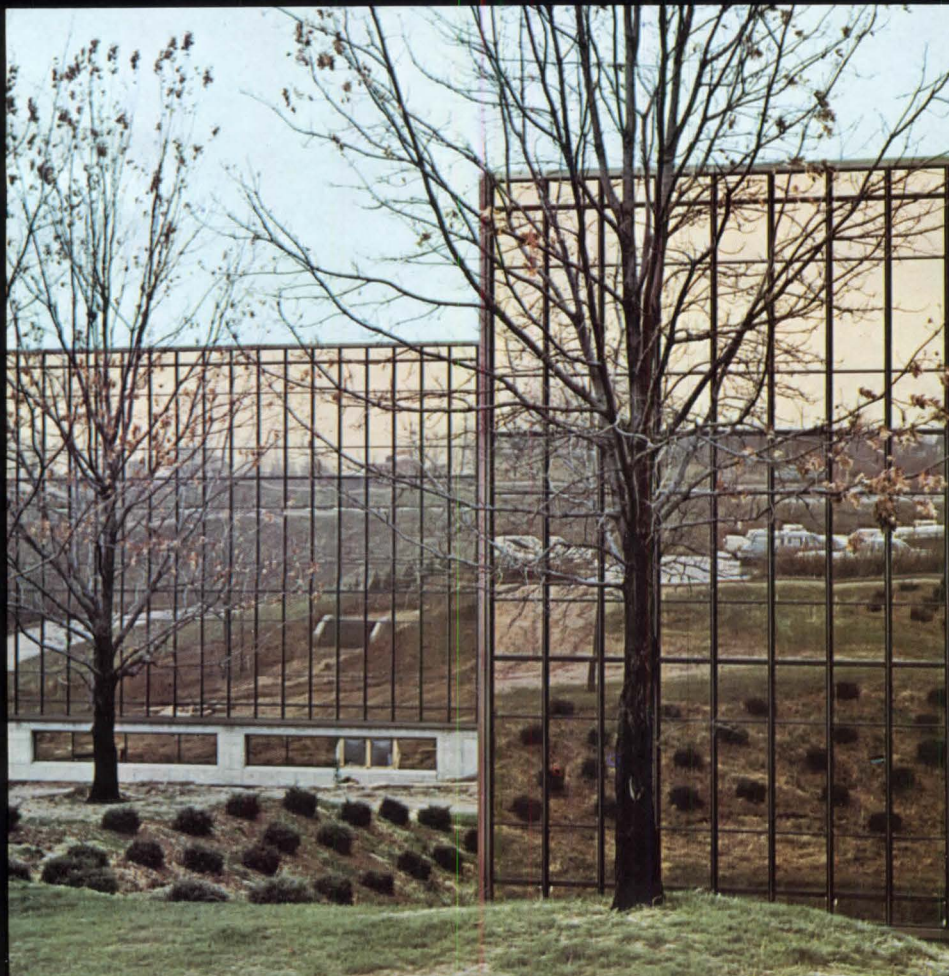
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
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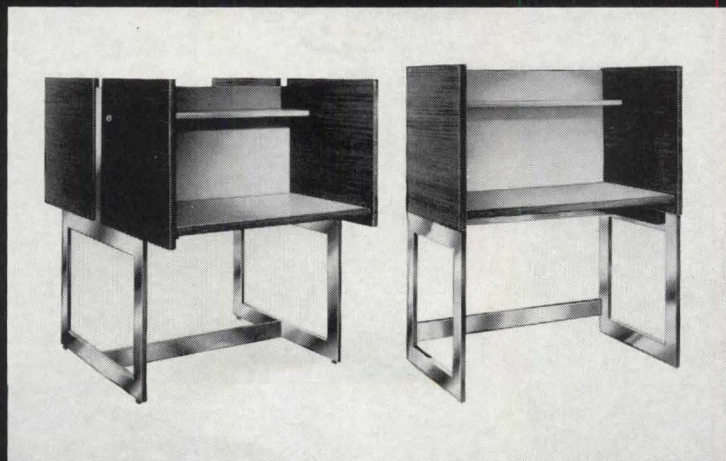
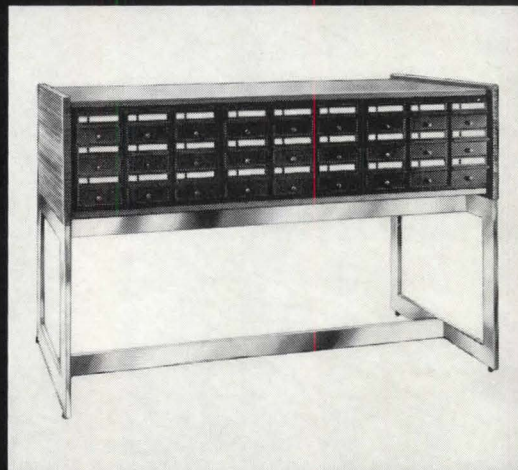
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 SPERRY RAND

This executive office building's steelwork is "painting" itself



Bliss and Laughlin Industries' executive offices photographed about three years after erection.

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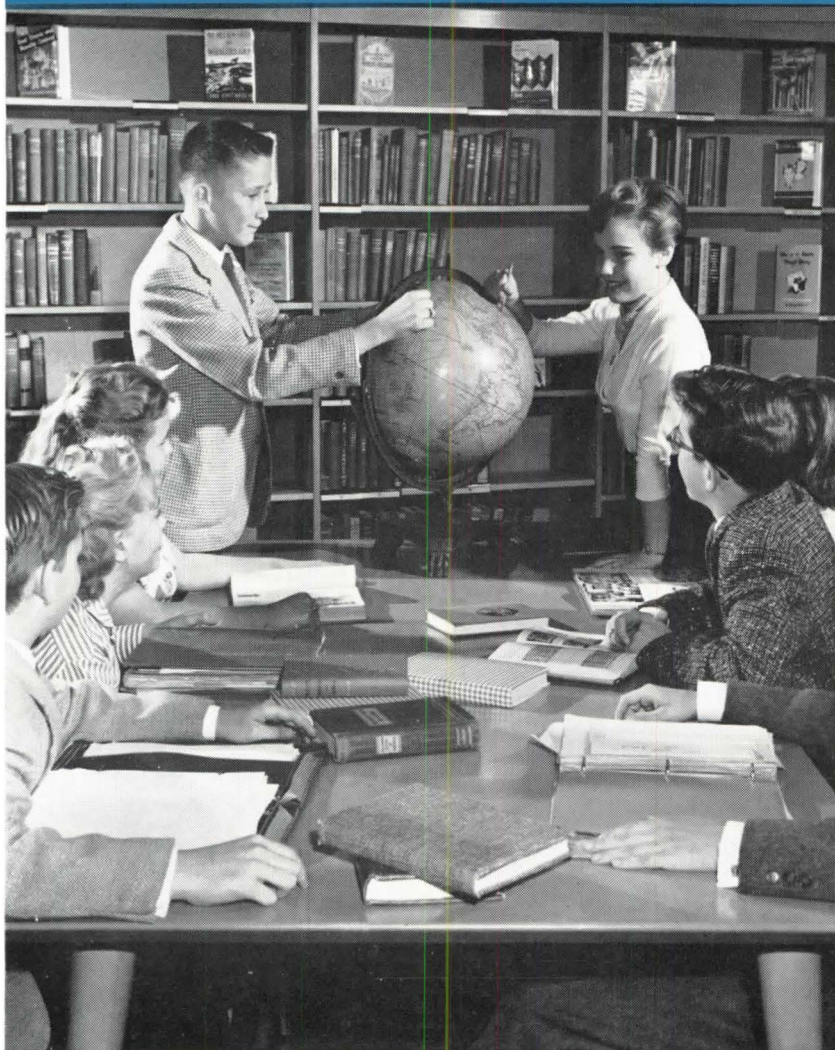
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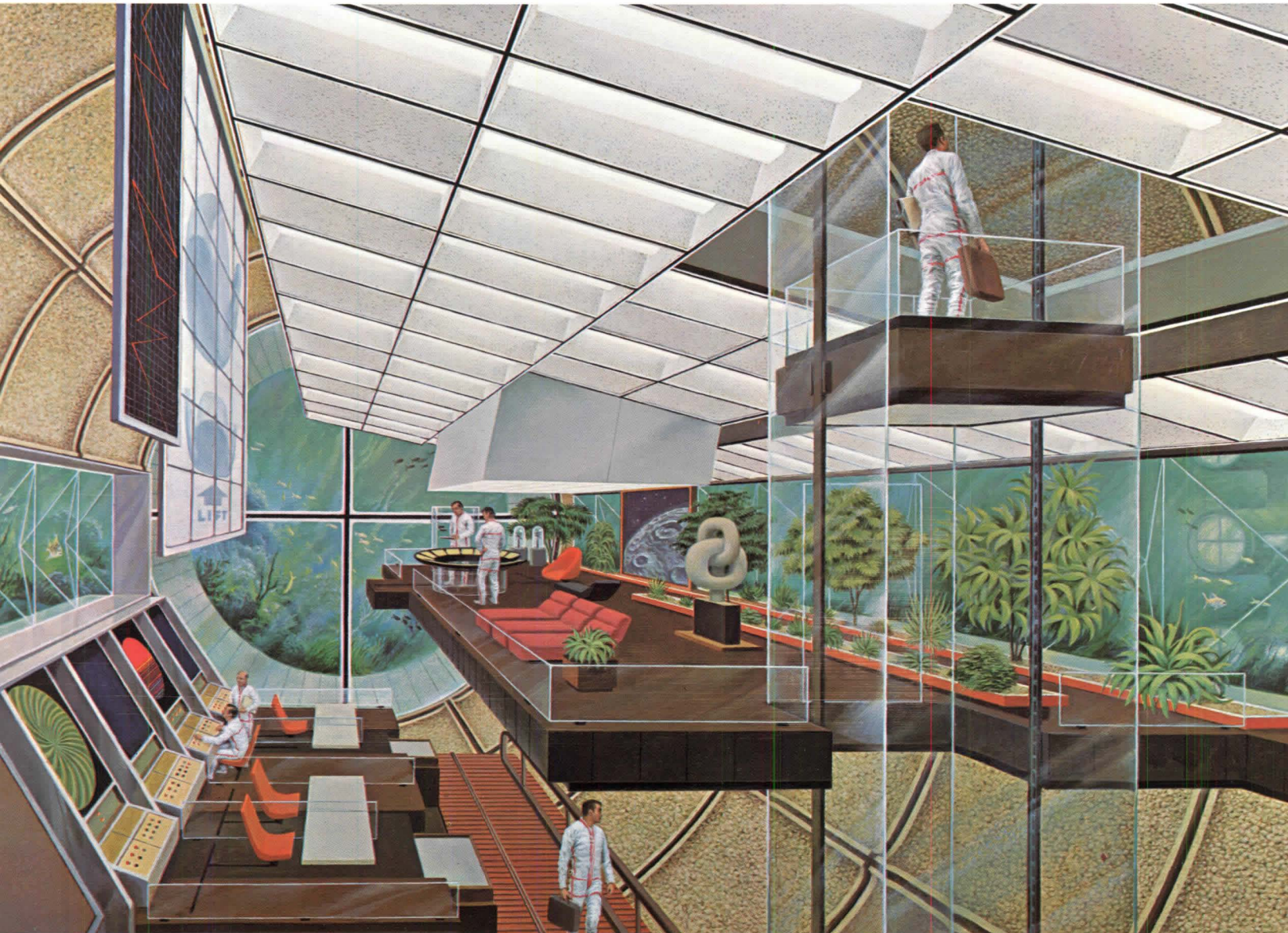
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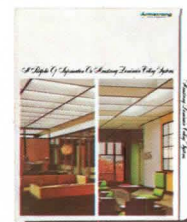
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FORUM

John W. Gardner's appointment as chairman of the Urban Coalition, announced February 14, is significant for two major reasons. First, it means that Gardner's resignation as Secretary of Health, Education, and Welfare early this year did not, as many feared, remove one of the nation's most forceful and eloquent urban advocates from the scene of action. Second, it means that the Coalition has gained an invaluable leader in its crucial program to mobilize the private sector and local and national governments to cope with our mounting urban problems.

The importance of Gardner's appointment was spelled out clearly in a statement issued jointly by the Urban Coalition's co-chairmen, Andrew Heiskell, chairman of the board of Time Inc. and of Urban America Inc., and A. Philip Randolph, president of the Brotherhood of Sleeping Car Porters: "At this critical point in our history, with the nation challenged as never before by the crises of civil rights, hard-core poverty, and urban decay, only a man with the exceptional stature and the rare combination of executive ability, intelligence, and idealism of John Gardner can provide the leadership needed to achieve the Urban Coalition's goals. It was, in fact, Mr. Gardner himself who anticipated and sparked the formation of the coalition a year ago in speeches urging our cities to form 'loose coalitions of responsible leadership elements' to meet the crisis."

GOOD NEWS

LAURELS FROM AIA

We were delighted to hear last month that several of our closest friends will be receiving gold and other medals from the AIA at the national convention in Portland, Ore., next June. We were delighted, partly because this will force our friends to attend the upcoming convention, which will considerably add to the festivities; but mostly because we think that all the medalists and other award winners more than deserve the honors.

Specifically, we are happy to see that Marcel Breuer (right) will get

the Gold Medal—and our May '68 issue will demonstrate how richly he deserves it; we are happy that I. M. Pei & Partners will receive the Architectural Firm Award—and our October '67 issue demonstrated that we fully agree. And the Publishers Note on page 1 reports our particular pleasure with the Industrial Arts Medalist, Paul Grotz.

Others who will be honored in Portland are Gyorgy Kepes (Fine Arts), Jack Lenor Larsen (Craftsmanship), Le Messurier Associates (Allied Professions), and several other distinguished professionals in the field. A special citation will be handed to the Graham Foundation, and none too soon.

LABOR'S NEW LEAF

The nation's major building trades unions, whose past record in providing equal job opportunities for Negroes has left much to be desired, vowed on February 13 to turn over a new leaf.

The presidents of 18 unions totaling 3.5 million members announced a major new program designed to recruit more Negro members, to work out apprenticeship programs with civil rights groups, and to end discrimination by their local unions. Involved in the program are AFL-CIO unions representing carpenters, steelworkers, bricklayers, painters, plumbers, operating engineers, and several other trades. The union leaders did not specify how many Negroes they hoped to recruit, or how soon.

The announcement was, in itself, something of a milestone: it marked the first time that the unions have admitted to past discrimination against Negroes and other minority groups. It also marked a victory for the Department of Labor, which had been pressuring the unions for months to take on the responsibility of recruiting more Negro members.

"When these proposals are carried out," said Labor Secretary W.



Willard Wirtz, "they will in my opinion represent a strong and progressive forward step toward answering, once and for all, complaints that building trades unions may not be exerting their best efforts in full support of private and public action to eliminate discrimination on the basis of race, creed, color, or national origin."

REBIRTHS

MORE IS LESS

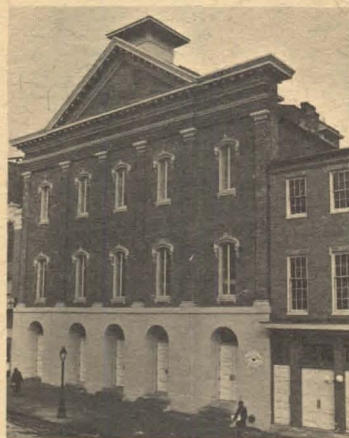
Three remarkable theater restorations in as many months have shown what can happen when culture cultist meets preservationist. Rescued: an architectural landmark for \$2.25 million (Adler & Sullivan's Chicago Auditorium—see Dec. '67 issue), a national monument for \$2 million (Ford's Theater in Washington), and a happily restrained example of Movie Palace Baroque for \$2 million (Powell Symphony Hall in St. Louis).

Powell Hall (below), unlike the Moorish-Kitsch movie temples of the 1920s, was modeled by its original architects, Rapp & Rapp, after the opera house at Versailles, its white walls and ceilings patterned with gilt plaster moldings.

Powell's elegant materials and fabrics have been used, eliminated, or improved upon by Decorator Clark Graves and Architects Wedemayer-Cernik-Corrubia: there is only one touch of decadence, red-velvet-covered cuspidors.

Architect Harris Armstrong was moved by another aspect: "Space—great luxurious space—how I love it!"

The house, which seats 2,685, was pronounced "a smashing success acoustically" by the *New*



York Times's music critic, Harold C. Schonberg.

By comparison with Powell Hall, the Ford's Theater in Washington is an intimate little playhouse (above) that looks as if it might have been built on a 19th-century estate, for family entertainments. (The Lincoln box and the one opposite it—top photo—are actually in the proscenium arch overlooking the stage.)

The interior fittings and finishes were thoroughly researched and

their reproduction supervised by Dennis Cory, Washington director of interior design for Lord & Taylor. He relied largely on photographs by Matthew Brady, famed Civil War photographer.

Measuring artistic gains against financial outlay, these restorations prove that more can be less.

REJECTS

ROLLING BACK THE FREEWAYS

A startling decision, perhaps temporary but with potential impact on the urban portions of the nation's entire interstate highway system, has been handed down by the U.S. Court of Appeals in the District of Columbia. At stake is not only the pattern of bringing ever more high-speed traffic into inner cities, but also the hitherto unassailed right of the highway engineer to locate freeways with almost complete impunity.

The February 9 decision halts all activity—land purchases, surveys, and preliminary construction—on four major Washington, D.C., freeways, including the controversial Three Sisters Bridge across the Potomac. The court order will remain in effect until a public hearing has been held, which will not come for at least a month. (By February 12, however, the District government had asked the Court of Appeals to modify its ban and allow the completion of \$3.4 million of work in contracts already in progress—to prevent the city from being sued for breach of contract to the tune of \$13 million. Congress is in the act, too. Rep. John C. Kluczynski (Dem., Ill.), chairman of the House subcommittee on public roads, says he will seek legislation requiring these freeways to be completed as designed. And Rep.

William H. Natcher (Dem., Ky.), chairman of the House subcommittee on the District's budget, says that unless the expressways go through, there will be no more funds for subways.) The court had entered the entire dispute when 30 civic groups filed a suit seeking an injunction; the suit was thrown out of the U.S. District Court, and the civic groups appealed. The groups contend that the highway program was not properly authorized, or approved, among other things.

The restraining order puts the court behind an unusual coalition—of citizens, the AIA, preservation groups, and Secretary of Transportation Alan S. Boyd.

Boyd has stated, among other things, that the North Central Freeway route through the northeast part of the District was chosen because the lower-income whites and Negroes whom it would displace lacked the political influence of whites who had long ago fought a freeway out of the northwest. The northeast route, says Boyd, would not only be inefficient in terms of traffic, but would also be unfairly disruptive of a low-income neighborhood. Said one highway planner in Washington: "What's he trying to do, start a riot?" Members of his own department think he may have been "too candid."

TRANSIT'S TERMINUS

Voters in Seattle and its suburbs have rejected rapid transit and opted for more highways in their future. At a special bond election held February 13, a \$392-million rapid-transit proposal (Jan./Feb. issue) got only 50.7 per cent of the required 60 per cent for passage, while an \$81.6 million program for more arterial highways to supplement Federal and state freeways won by a 62 per cent majority.

The results came as a shock to Seattle's Mayor J. D. Braman and other transit advocates, whose pre-election optimism was based partly on the belief that a great majority of the voters were fed up with disruptive freeways and anxious for an alternative. Polls taken a month before the election had helped to confirm their optimism.

But in the last weeks before the election, a well-heeled pro-highway group launched an intensive anti-transit campaign of newspaper ads and leaflets. The result, according to Braman's assistant, Edward



Devine, "was the gradual erosion of rapid-transit support."

Devine said the defeat will not halt rapid-transit plans. "We are going to pick a date to go back to the voters, when we can explain in great and minute detail to them just what rapid transit can mean to this area." A new transit vote could be held as early as September, he said.

BANDWAGON

LEFRAK CITY—HARLEM

After two years of research into the problems of slum rebuilding, Samuel J. Lefrak, builder of the mammoth apartment community in Queens, N. Y. (Lefrak City), has announced plans to build in the slums. His partner in the venture: Tex McCrary. When Lefrak builds, he does it with scale—if not always with style.

In preparation by Architect Robert Bruce Cousins is a master plan for N.Y.'s Park Avenue, using the air rights over the Grand Central railroad tracks where they emerge from under the avenue at 97th Street. First stage of the plan entails a \$55-million megastructure (below) containing light industry and offices, community facilities, and 1,400 apartment units. It would be built on the four blocks from 97th to 101st Sts. (now containing 1,100 apartments)—the portals of Harlem.

The tracks would first be covered, creating a "spine" in which light industry would be located on several levels. Elevator shafts built over the spine would connect with diagonal pylons rising from street level. Prefabricated apartment units would be slotted

into the pylons. The 30-story-high tower (left on rendering) is reserved for offices. Open spaces at street level would be transformed into landscaped plazas, and the roof of each apartment would serve as a terrace for the one above.

Only a few brownstone houses would have to be torn down initially to make room for construction, or so the builders claim. A good look at the rendering, however, suggests that this is wishful thinking. But at \$40 a room, it is unlikely that the local residents could afford to move into the new apartments in the first place.

HARD FACTS: SOFT SELL

Carl Byoir & Associates, Inc., the public relations firm, announce that it has retained a sociologist and "race relations expert" to give it "an invaluable perspective for understanding urban problems and also enlarge our ability to deal with these issues on behalf of our clients."

The expert is Dr. Raymond W. Mack, former chairman of the sociology department at Northwestern University, and author of (among other things) *Our Children's Burden*, a forthcoming study of school desegregation.

The urban problems—as Byoir sees them—are air and water pollution, urban renewal, and race relations. Among its clients are Eastman Kodak, Woolworth, A & P, Bendix, Goodrich, Kimberly-Clark, P. Lorillard, Schenley, Studebaker-Worthington, and Howard Johnson. It seems as if a few of these could have used help with their "urban problems" in the home office, during recent years, instead of in the image-making



business. Still, it is some kind of progress to have the problems recognized at any level, even if the solution is a weapon that fires in the wrong direction.

ROOSTS

TEMPLES OF LOVE

To find out which features in a home stimulate the libido of its inhabitants, a survey of home buyers was recently conducted by Loewy/Snaith, at the behest of 28 producers and at a cost of \$175,000. Mainly to be concluded from this inquiry was that sex appeal is all things to all people.

This motivational research, however, was not based on a dispassionate interest in the sexual behavior of the American male and female, but on a hard-headed concern with merchandising—what can the homebuilding industry do to bail itself out of its present slump? As the admen have observed, "If you can tie it in to sex, you've got it made." And, muses a special report on the study published in the housing industry's newsletter, *MinFax*, what, if not a home, has a better claim to sex; and what, if not the homebuilding industry, has less exploited it?

True, some attempts have been made to harness the sex motive to design and merchandising. *MinFax* reports an "orgy-inspiring" bathroom and a conversation corner referred to as a "sex pit" (example above). A story in the magazine, *Practical Builder*, "Sex and the Single-Family Home," speaks bravely of "built-in sex."

But *MinFax*, seeing a loftier impulse in man's manifestations of

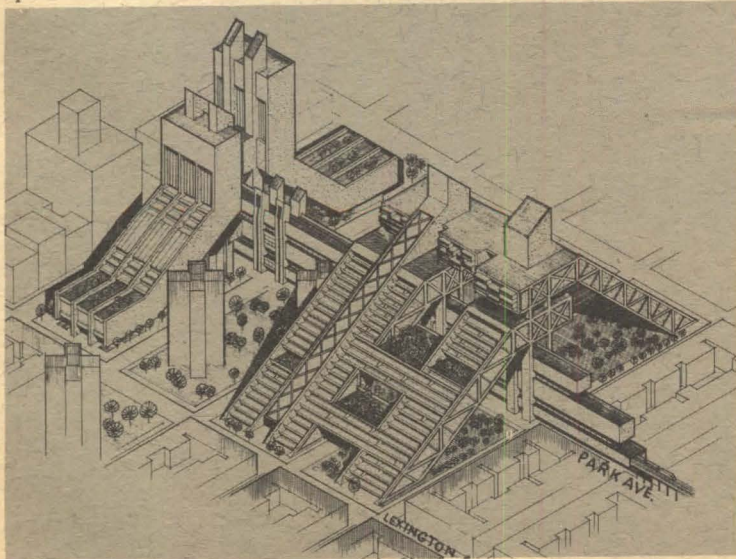
sexuality, urges housing advertising to stress "the tantalizing idea of Union" (1). And it sums up its recommendations for sexually conducive house designs in this dictum: "Proportion is the criterion for the success of all these guidelines. This means nothing less than total functionality." Proportion, criterion, guidelines, functionality—come off it, *MinFax*!

THE HOMECOMING

What will be the first things our astronauts returning from the moon will want to look at, smell, touch, hear, taste? Probably no one has asked them—and possibly they wouldn't be able to say without first having been up there, which won't be for another three years, at least.

But in the meantime NASA has prepared their homecoming: three weeks of quarantined isolation in an \$8,100,000 Lunar Receiving Laboratory in Houston. The reason for this is that if there is anything jumping around on the moon we don't want it here.

To guard against extrastellar viruses and bacteria, and to eliminate any possibility of an epidemic, the astronauts will pass from spacecraft to carrier to receiving laboratory without once getting a whiff of fresh air. A plastic tunnel will connect the spacecraft to a hermetically sealed van standing on the carrier deck. The astronauts will walk through the tunnel into the van, carrying their samples of lunar rock and soil in vacuum-sealed cases. There they will stay with one doctor and an engineer, isolated from any exterior contact, until the carrier has arrived at port. At that point the





van will be flown—in toto—to the Manned Spacecraft Center in Houston, where the crew will walk through another sealed tunnel into the Lunar Receiving Laboratory.

The LRL is a very ordinary-looking building, 83,000 sq. ft. in area and containing the most elaborate equipment for the analyzing and data processing of lunar material. A highly complex system dubbed the "biological barrier" will protect scientists from contamination by foreign germs, and lunar material from contamination by our home-grown variety.

The totally antiseptic atmosphere has been carried through into the spacemen's living quarters. It is relieved only by the furniture, which is Early American by Sears Roebuck (above).

REMEDIES

DOWN IN NEWARK

When the New Jersey College of Medicine and Dentistry was first offered a site in the heart of Newark, to prevent its move from Jersey City to rural Madison, the deal was for 150 acres. After the summer, and the realization that this contract between city and college in June 1967 was a key factor in the subsequent riots, the total acreage began to fall, or at least fluctuate (Sept. '67, page 33).

On behalf of the several local opposition groups, the NAACP Legal Defense and Educational Fund filed a complaint in December against the city of Newark and its housing authority. Pleading with HUD not to approve the site, the NAACP charged that the area was excessive; that the city lacked adequate relocation housing for the 10,000 people who would be displaced; that the medical center didn't meet the health needs of the city of Newark (which they pinpoint as having the highest rate of maternal mortality in the nation); and that

there had been no provision for participation by Negro citizens in the planning of the project.

The NAACP document was filed December 19, 1967; by December 23, the college had agreed to reduce the acreage to less than 100.

Now, two months later, the site is down to 57.9 acres. This was agreed to by local groups but only upon full implementation of a series of conditions set forth to Governor Richard J. Hughes in a January 10 letter from Robert C. Wood, under secretary of HUD, and Wilbur J. Cohen, under secretary of HEW. (Both agencies are contributing to the cost of the \$60 million medical college.)

The Wood-Cohen provisions, in brief, seek to insure that the site is compatible with the plans for the neighborhood as a whole; that medical services to the neighborhood are increased in scope and quality; that all parties meet to discuss neighborhood concerns and resolve their disagreements; that a relocation plan is developed to meet the needs of residents (and that it receive a firm commitment from the Newark Housing Authority; that neighborhood residents are employed in both the construction and operation of the center; that residents receive training in the health fields; and that further planning of education and health facilities is coordinated with the Model Cities program.

The agreement is a result of arduous mediation efforts, but in a sense is only a beginning. There will almost certainly be further ups and downs in the planning, perhaps even ultimately in the total acreage. A spokesman for the NAACP Fund suggests that the surrounding area be developed so that the college (with its power of eminent domain) cannot acquire additional area at some future time. The college, for its part, in announcing this latest reduction to 57.9 acres (by canceling an option on land earmarked for long-range expansion) said, in a statement, "We feel confident that when land is required in the future for clearly defined purposes of importance to the community and the college, public support will be readily forthcoming."

INSURANCE FOR THE INSURERS

Property insurance in ghetto areas is difficult to obtain, and expensive. Whole areas have been "red-lined" to discourage the insuring of their business and resi-

(continued on page 83)

FLUTED CONCRETE IN THE FLORIDA SUN

Miami public housing complex for the elderly represents a big forward step in architecture and planning.





Unusual housing development is three buildings in a park

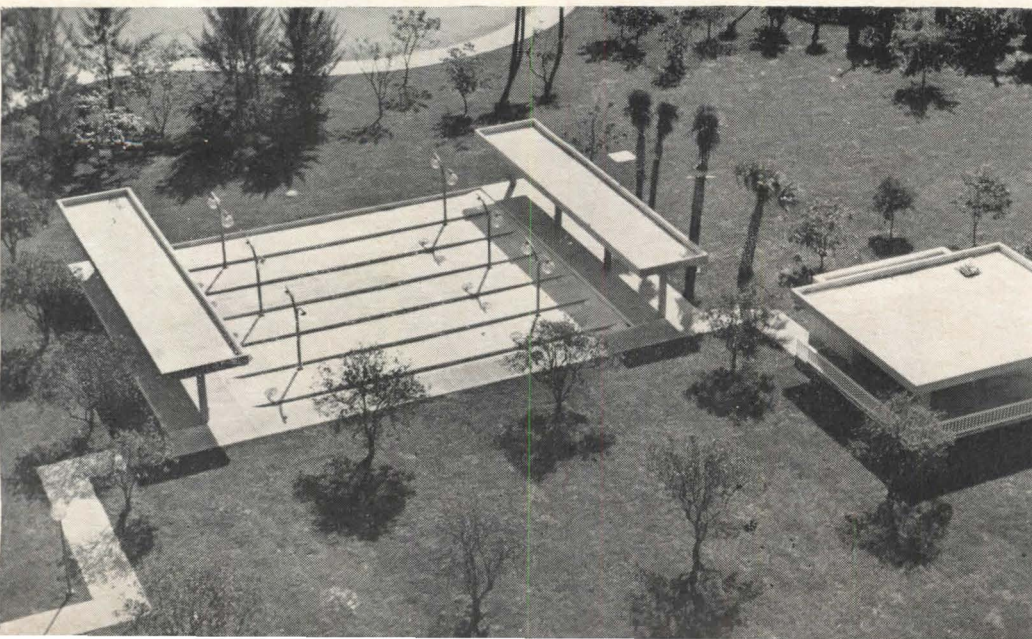
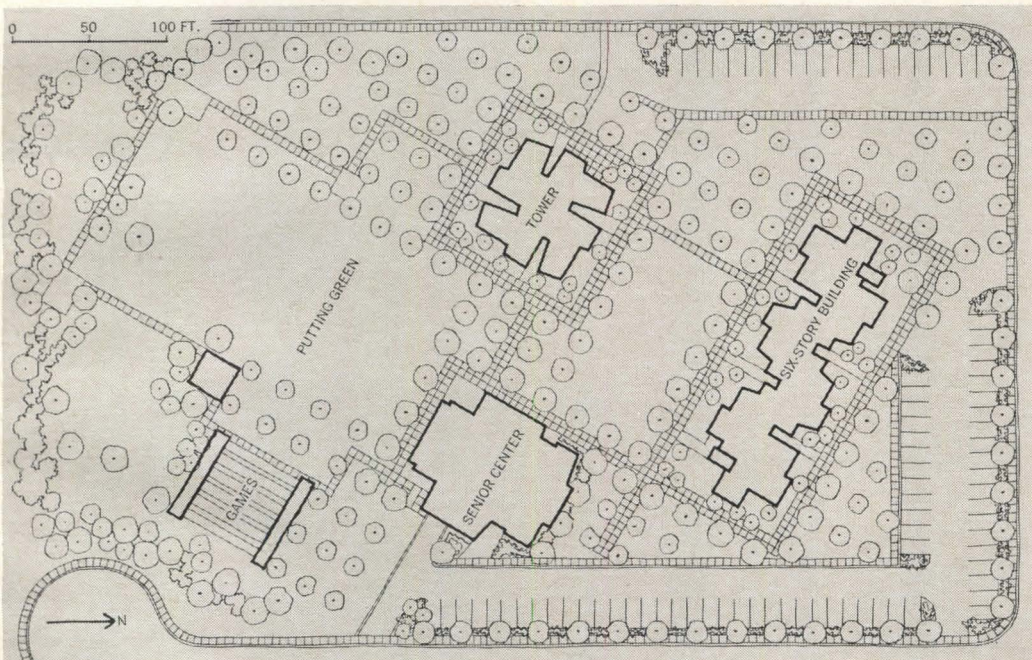
George A. Smathers Plaza is a 6.7-acre park in the midst of a community of trailers and little bungalows. When the site was acquired by the Miami Housing Authority some 10 years ago, there was plenty of local opposition to the idea of a "project" in the neighborhood (partly because it would be integrated).

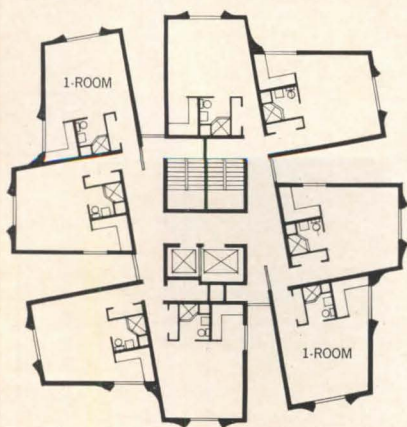
Local groups got the site's zoning "up-graded" to rule out multifamily housing of any kind. In order to get this zoning change reversed—and win neighborhood approval—city housing officials had to promise that most of the "project" would be, in effect, a neighborhood park. To make the promise stick, the city set up mandatory building envelopes for the site. By basing these envelopes on a preliminary study by the project's architect, Robert B. Browne, the city turned in to a pattern for one of the best public housing projects in the U.S. to date.

Architect Browne had to bend or break a good many Federal guidelines to achieve that quality. PHA officials had reservations about clustering the project's 182 units into two elevator buildings, on a site with plenty of room for walk-ups. Two elevators were required (by local code) in each of the apartment structures—one a 13-story tower with eight apartments per floor, the other a long building only six stories high, with 14 units per floor.

Other features of the design that shattered PHA conventions: exposed concrete walls, outside and inside (except inside apartments, where walls are plastered); irregularly shaped unit plans; and highly imaginative landscaping and site planning.

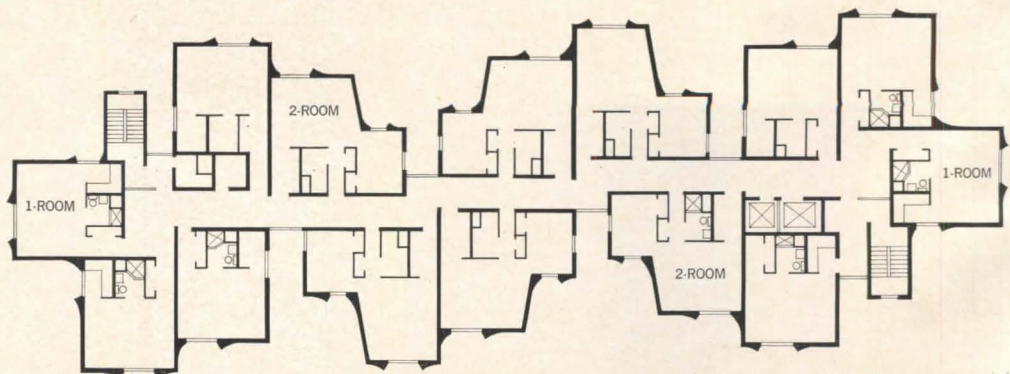
Development consists of three dissimilar buildings (Photo, top left) placed diagonally on park-like site, and occupying only 10 per cent of it. Diagonal siting permits more convenient pedestrian walks through park, creates an illusion of greater space (because of longer vistas). Left: various garden shelters around shuffleboard court at southeast end.





TYPICAL PLANS

TOWER



6-STORY BUILDING

0 10 20 30 40 FT



Slotted and undulating walls produce dramatic play of light

The irregular contours of the two apartment buildings (the six-story one is shown at left) were determined not by esthetic considerations alone, but by practical ones as well.

Because there was no money in the budget for air conditioning, Architect Browne decided to make use of the natural breezes, and cut deep slots into both of his apartment buildings, all the way into the public hallways, to provide cross-ventilation for all apartments (at least when the doors are open).

And because PHA room sizes are minimal, Browne decided to splay the walls of his apartment units to make the rooms seem larger than they really are.

Finally, to reduce the apparent length of the corridor in the six-story building, he created a couple of offsets in the hallways, and these add another undulation to the building facades.

The concrete walls, as completed, are extremely handsome and very different from what one might expect in a low-cost development: Browne wrote some very tough concrete specifications, insisted upon aggregates from the same quarry and upon tight limits on slump. The board forms in which the walls were poured were reused about a dozen times; the concrete surfaces were treated with a transparent sealer with a warm, greenish stain which, according to Browne, gives the walls a "permanent wet look." The effect is excellent.

Both apartment buildings are wall-bearing, and the thickened vertical ribs that flank the windows (see plans) help stiffen the structure.



Horizontal windows in one facet of six-story building (top photo) designate stair tower. All other windows are grouped in vertical slots, recessed for sun protection. Typical plans of the two buildings show studied irregularity of spaces, deep breezeway slots on each floor. (See also views of hallways at near left.) Apartments rent for about \$25 to \$35 per month.

Small center for the elderly is third building in this park

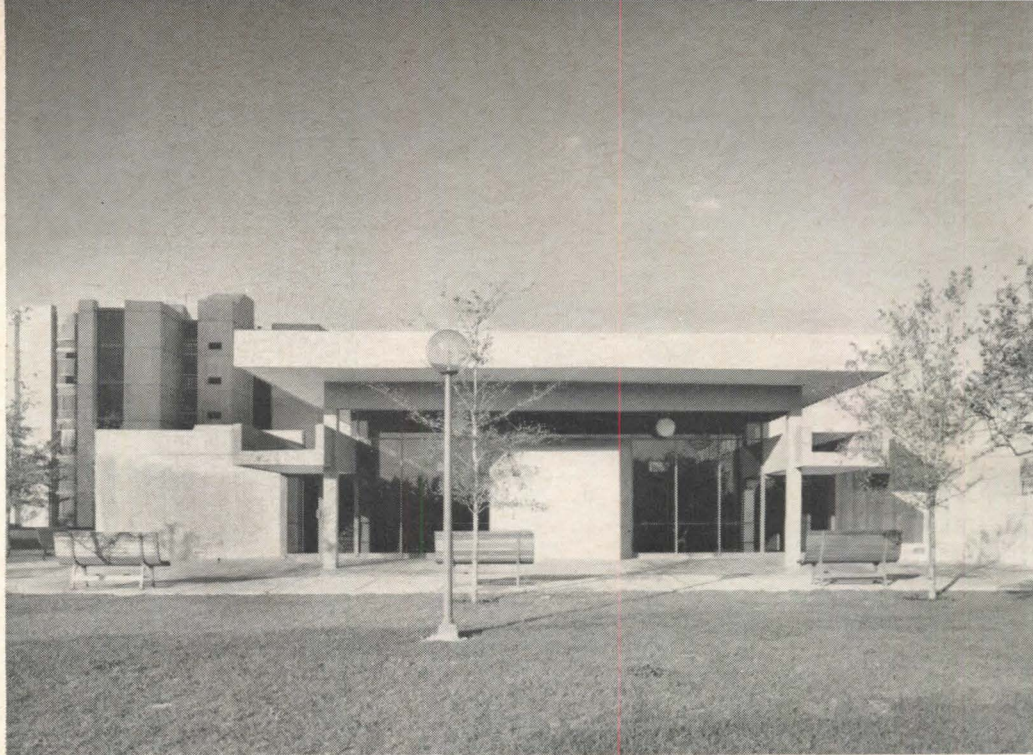
About 220 people live in the apartments shown on the previous pages, and their average age is 70. To provide recreation, health, and other services for them (and for others of that age group in the neighborhood), the Miami Housing Authority commissioned the "senior center building" shown on these pages.

The center is planned around a spacious social hall (photo, bottom right), with adjacent meeting rooms and other facilities, such as kitchen, a shop, and a nurse's office. Some of the details of the building—e.g., the vertical ribs poured into the concrete walls—are reminiscent of those of the main building; but, in most respects this is, necessarily, a different kind of structure.

Smathers Plaza has been occupied for only a very few months, and its inhabitants have yet to adjust to some of the unfamiliar aspects of their new environment. But initial reports suggest that the adjustment will not take very long: the entire development has been thoughtfully and imaginatively planned, and the impact of its overall forms, its details, and its pleasant landscaping is strong. That impact will not be limited to those who live in or near the development; it will be felt by all those to whom the word "project" has long conjured up dreariness and desolation.

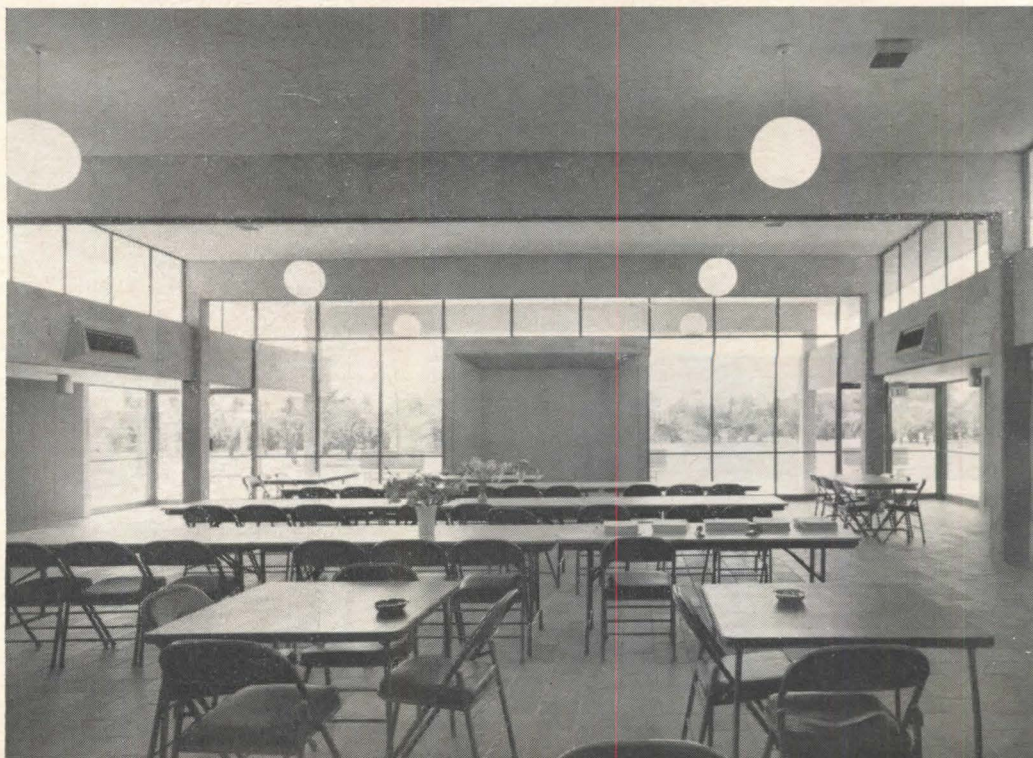
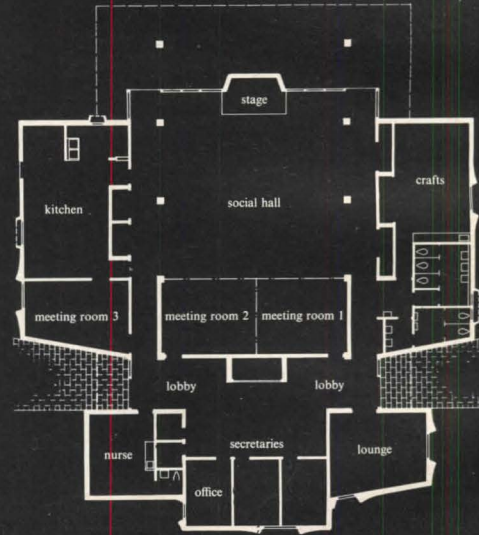
Undoubtedly, Smathers Plaza was a little more expensive than such a "project" might have been—but not much more. Says Architect Browne: "The housing officials let us work out *where* the money should be spent." If so, the difference, obviously, is in the scale of values applied here.

Social center for the elderly is one-story high building due east of the tall apartment tower (visible in photo on opposite page). Biggest space is high-ceiling social hall (right), lit through glass end wall as well as clerestory windows around its perimeter. The center serves inhabitants of Smathers Plaza and older neighbors as well.



FACTS AND FIGURES:

George Smathers Plaza, Miami, Fla.
Owner: Miami Housing Authority. Architects: Robert Bradford Browne; Charles Morrison Pawley and Hernando Acosta, associates. Engineers: H. J. Ross Associates. Landscape architect: Edward D. Stone Jr. & Associates. General contractor: Appar & Markham Construction Co. Building Area: 115,050 sq. ft. (total area). Cost: \$1,984,000 (including \$230,000 for site improvements). Cost per sq. ft.: tower, \$15.80; six-story building, \$14; senior center, \$22.
PHOTOGRAPHS: George Cserna; aerial by Smith Aerial Surveys.









LEARNING FROM LAS VEGAS

BY ROBERT VENTURI AND
DENISE SCOTT BROWN

"Substance for a writer consists not merely of those realities he thinks he discovers; it consists even more of those realities which have been made available to him by the literature and idioms of his own day and by the images that still have vitality in the literature of the past. Stylistically, a writer can express his feeling about this substance either by imitation, if it sits well with him, or by parody, if it doesn't."

Richard Poirier¹

Learning from the existing landscape is a way of being revolutionary for an architect. Not the obvious way, which is to tear down Paris and begin again, as Le Corbusier suggested in the 1920s, but another way which is more tolerant: that is to question how we look at things.

The Commercial Strip, the Las Vegas Strip in particular—it is the example par excellence—challenges the architect to take a positive, non-chip-on-the-shoulder view. Architects are out of the habit of looking nonjudgmentally at the environment because orthodox Modern architecture is progressive, if not revolutionary, utopian and puristic; it is dissatisfied with *existing* conditions. Modern architecture has been anything but permissive: architects have preferred to change the existing environment rather than enhance what is there.

But to gain insight from the commonplace is nothing new: fine art often follows folk art. Romantic architects of the 18th century discovered an existing and conventional rustic architecture. Early Modern architects appropriated an existing and conventional industrial vocabulary without much adaptation. Le Corbusier loved grain elevators and steam ships; the Bauhaus looked like a factory; Mies refined the details of American steel factories for concrete buildings. Modern architects work through analogy, symbol, and image—although they have gone to lengths to disclaim almost all determinants of their forms except structural necessity and the pro-

gram—and they derive insights, analogies, and stimulation from unexpected images. There is a perversity in the learning process: we look backward at history and tradition to go forward; we can also look downward to go upward.

Architects who can accept the lessons of primitive vernacular architecture, so easy to take in an exhibit like "Architecture Without Architects," and of industrial, vernacular architecture, so easy to adapt to an electronic and space vernacular as elaborate neo-Brutalist or neo-Constructivist megastructures, do not easily acknowledge the validity of the commercial vernacular. Creating the new for the artist may mean choosing the old or the existing. Pop artists have relearned this. Our acknowledging existing, commercial architecture at the scale of the highway is within this tradition.

Modern architecture has not so much excluded the commercial vernacular as it has tried to take it over by inventing and enforcing a vernacular of its own, improved and universal. It has rejected the combination of fine art and crude art. The Italian landscape has always harmonized the vulgar and the Vitruvian: the *contorni* around the *duomo*, the *potiere's* laundry across the *padrone's* *portone*, Supercoortemagiore against the Romanesque apse. Naked children have never played in *our* fountains and I. M. Pei will never be happy on Route 66.

Architecture as space

Architects have been bewitched by a single element of the Italian landscape: the piazza. Its traditional, pedestrian-scaled and intricately enclosed space is easier to take than the spatial sprawl of Route 66 and Los Angeles. Architects have been brought up on Space, and enclosed space is the easiest to handle. During the last 40 years, theorists of Modern architecture (Wright and Le Corbusier sometimes excepted) have focused on space as the essential ingredient which separates architecture from painting, sculpture, and literature. Their definitions glory

in the uniqueness of the medium, and although sculpture and painting may sometimes be allowed spatial characteristics, sculptural or pictorial architecture is unacceptable. That is because space is sacred.

Purist architecture was partly a reaction against 19th-century eclecticism. Gothic churches, Renaissance banks and Jacobean manors were frankly picturesque. The mixing of styles meant the mixing of media. Dressed in historical styles, buildings evoked explicit associations and Roman-tic allusions to the past to convey literary, ecclesiastical, national, or programmatic symbolism. Definitions of architecture as space and form at the service of program and structure were not enough. The overlapping of disciplines may have diluted the architecture, but it enriched the meaning.

Modern architects abandoned a tradition of iconology in which painting, sculpture, and graphics were combined with architecture. The delicate hieroglyphics on a bold pylon, the archetypal inscriptions on a Roman architrave, the mosaic processions in Sant' Apollinare, the ubiquitous tattoos over a Giotto chapel, the enshrined hierarchies around a Gothic portal, even the illusionistic frescoes in a Venetian villa all contain messages beyond their ornamental contribution to architectural space. The integration of the arts in Modern architecture has always been called a good thing. But one didn't paint on Mies. Painted panels were floated independently of the structure by means of shadow joints; sculpture was in or near but seldom on the building. Objects of art were used to reinforce

Mr. Venturi is the Philadelphia-based architect whose recent book, *Complexity and Contradiction in Architecture*, created a good deal of controversy at the time of its publication (see review in June '67 issue). Denise Scott Brown, who took most of the photographs accompanying this article including the one on our cover, is a teacher in architecture and urban design, and an earlier contributor to the Forum. She is also Mrs. Venturi. This article in expanded form will be published as a book by A'fieri, Venice. A second article, dealing specifically with some of Mr. Venturi's work, will appear in The Forum next month.

¹"T. S. Eliot and the Literature of Waste," p. 21, *The New Republic*, May 20, 1967.

architectural space at the expense of their own content. The Kolbe in the Barcelona Pavilion was a foil to the directed spaces: the message was mainly architectural. The diminutive signs in most modern buildings contained only the most necessary messages, like "Ladies," minor accents begrudgingly applied.

Architecture as symbol

Critics and historians who documented the "decline of popular symbols" in art, supported orthodox Modern architects who shunned symbolism of form as an expression or reinforcement of content: meaning was to be communicated through the inherent, physiognomic characteristics of form. The creation of architectural form was to be a logical process, free from images of past experience, determined solely by program and structure, with an occasional assist, as Alan Colquhoun has suggested,² from intuition.

But some recent critics have questioned the possible level of content to be derived from abstract forms. And others have demonstrated that the functionalists despite their protestations, derived a formal vocabulary of their own, mainly from current art movements and the industrial vernacular; latter-day followers like the Archigram group have turned, while similarly protesting, to Pop Art and the space industry. Indeed, not only are we "not free from the forms of the past, and from the availability of these forms as typological models, but . . . if we assume we are free, we have lost control over a very active sector of our imagination, and of our power to communicate with others."³ However, most critics have slighted a continuing iconology in popular commercial art: the persuasive heraldry which pervades our environment from the advertising pages of the *New Yorker* to the super-billboards of Houston. And their theory of the "debasement" of symbolic architecture in 19th-century ec-

lecticisism has blinded them to the value of the representational architecture along highways. Those who acknowledge this roadside eclecticism denigrate it because it flaunts the cliché of a decade ago as well as the style of a century ago. But why not? Time travels fast today.

The Miami-Beach Modern motel on a bleak stretch of highway in southern Delaware reminds the jaded driver of the welcome luxury of a tropical resort, persuading him, perhaps, to forgo the gracious plantation across the Virginia border called Motel Monticello. The real hotel in Miami alludes to the international stylishness of a Brazilian resort, which, in turn, derives from the International Style of middle Corbu. This evolution from the high source through the middle source to the low source took only 30 years. Today, the middle source, the neo-Eclectic architecture of the 1940s and 1950s is less interesting than its commercial adaptations. Roadside copies of Ed Stone are more interesting than the real Ed Stone.

The sign for the Motel Monticello, a silhouette of an enormous Chippendale highboy, is visible on the highway before the motel itself. This architecture of styles and signs is antispacial; it is an architecture of communication over space; communication dominates space as an element in the architecture and in the landscape. But it is for a new scale of landscape. The philosophical associations of the old eclecticism evoked subtle and complex meanings to be savored in the docile spaces of a traditional landscape. The commercial persuasion of roadside eclecticism provokes bold impact in the vast and complex setting of a new landscape of big spaces, high speeds, and complex programs. Styles and signs make connections among many elements, far apart and seen fast. The message is basely commercial, the context is basically new.

A driver 30 years ago could maintain a sense of orientation in space. At the simple crossroad a little sign with an arrow confirmed what he already knew. He knew where he was. Today

the crossroad is a cloverleaf. To turn left he must turn right, a contradiction poignantly evoked in the print by Allan D'Areangelo, 1. But the driver has no time to ponder paradoxical subtleties within a dangerous, sinuous maze. He relies on signs to guide him—enormous signs in vast spaces at high speeds.

The dominance of signs over space at a pedestrian scale occurs in big airports. Circulation in a big railroad station required little more than a simple axial system from taxi to train, by ticket window, stores, waiting room, and platform, virtually without signs. Architects object to signs in buildings: "if the plan is clear you can see where to go." But complex programs and settings require complex combinations of media beyond the purer architectural triad of structure, form, and light at the service of space. They suggest an architecture of bold communication rather than one of subtle expression.

The architecture of persuasion

The cloverleaf and airport communicate with moving crowds in cars or on foot, for efficiency and safety. But words and symbols may be used in space for commercial persuasion. The Middle Eastern bazaar contains no signs, the strip is virtually all signs. In the bazaar, communication works through proximity. Along its narrow aisles buyers feel and smell the merchandise, and explicit oral persuasion is applied by the merchant. In the narrow streets of the medieval town, although signs occur, persuasion is mainly through the sight and smell of the real cakes through the doors and windows of the bakery. On Main Street, shop-window displays for pedestrians along the sidewalks, and exterior signs, perpendicular to the street for motorists, dominate the scene almost equally.

On the commercial strip the supermarket windows contain no merchandise. There may be signs announcing the day's bargains, but they are to be read by the pedestrians approaching from the parking lot. The building itself is set back from the high-

way and half hidden, as is most of the urban environment, by parked cars. The vast parking lot is in front, not at the rear, since it is a symbol as well as a convenience. The building is low because air conditioning demands low spaces, and merchandising techniques discourage second floors; its architecture is neutral because it can hardly be seen from the road. Both merchandise and architecture are disconnected from the road. The big sign leaps to connect the driver to the store, and down the road the cake mixes and detergents are advertised by their national manufacturers on enormous billboards inflected toward the highway. The graphic sign in space has become the architecture of this landscape. Inside, the A & P has reverted to the bazaar except that graphic packaging has replaced the oral persuasion of the merchant. At another scale, the shopping center off the highway returns in its pedestrian malls to the medieval street.

Historical tradition and the A & P

The A & P parking lot is a current phase in the evolution of vast space since Versailles. The space which divides high-speed highway and low, sparse buildings produces no enclosure and little direction. To move through a piazza is to move between high enclosing forms. To move through this landscape is to move over vast expansive texture: the megatexture of the commercial landscape. The parking lot is the parterre of the asphalt landscape. The patterns of parking lines give direction much as the paving patterns, curbs, borders, and *tapis verts* give direction in Versailles; grids of lamp posts substitute for obelisks and rows of urns and statues, as points of identity and continuity in the vast space. But it is the highway signs through their sculptural forms or pictorial silhouettes, their particular positions in space, their inflected shapes, and their graphic meanings which identify and unify the megatexture. They make verbal and symbolic connections through space, communicating a complexity of

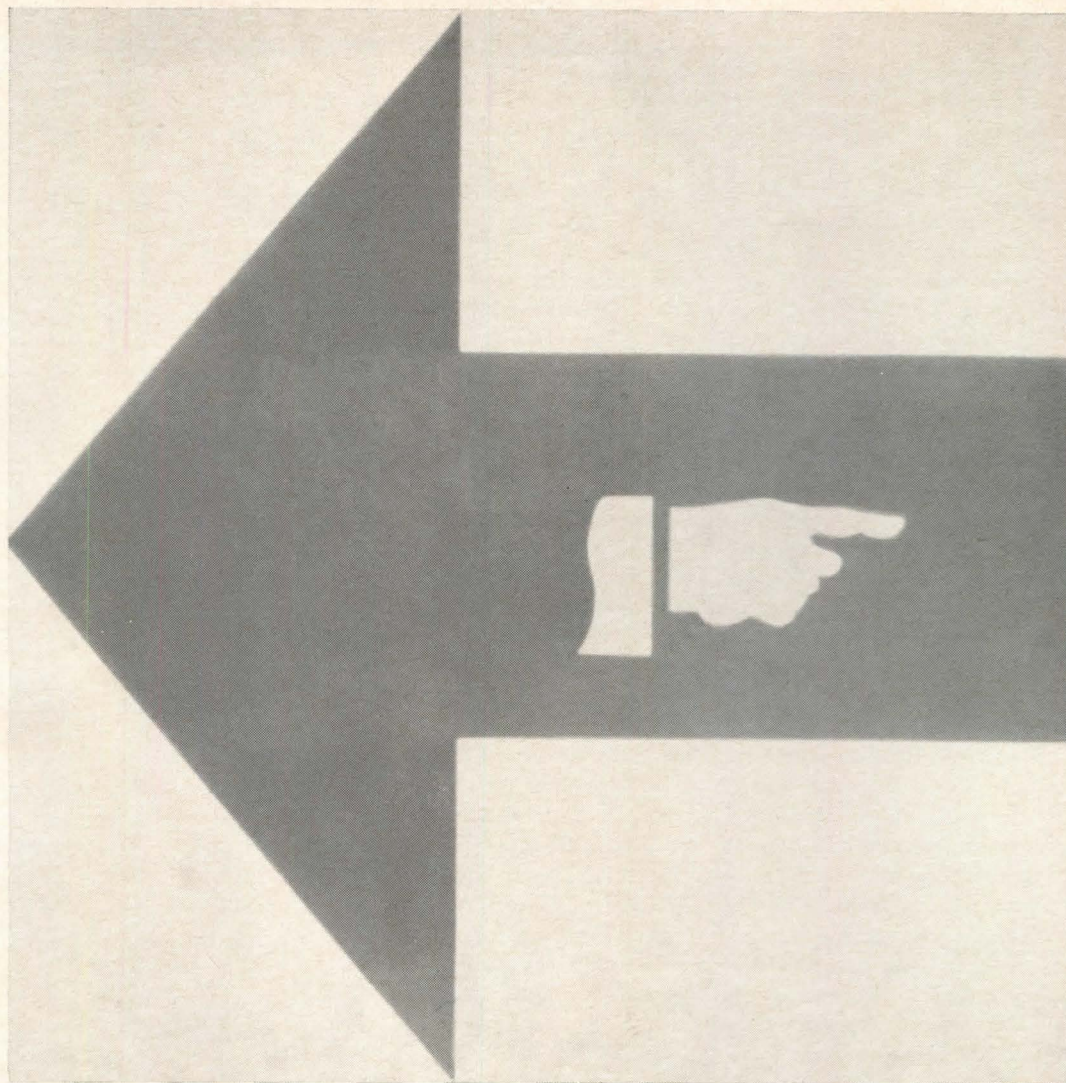
²Alan Colquhoun, *Typology and Design Method*, *Arena, Architectural Association Journal*, June, 1967.

³Alan Colquhoun, *Ibid.*, p. 14.

meanings through hundreds of associations in few seconds from far away. Symbol dominates space. Architecture is not enough. Because the spatial relationships are made by symbols more than by forms, architecture in this landscape becomes symbol in space rather than form in space. Architecture defines very little: the big sign and the little building is the rule of Route 66.

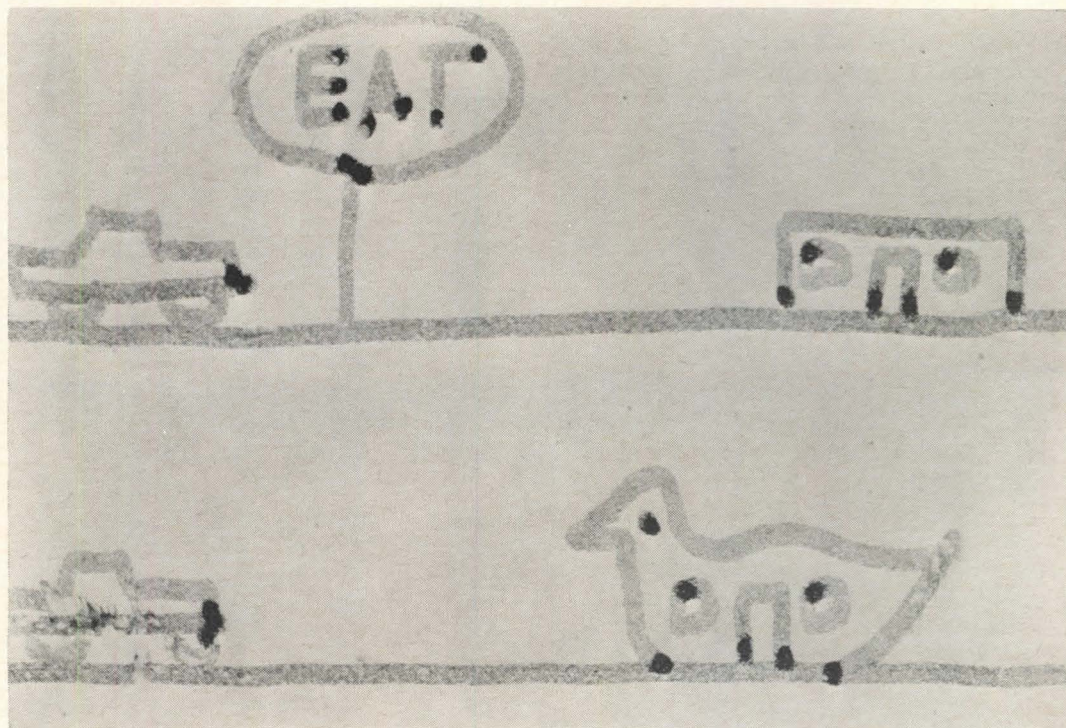
The sign is more important than the architecture, **2**. This is reflected in the proprietor's budget: the sign at the front is a vulgar extravaganza, the building at the back, a modest necessity. The architecture is what's cheap. Sometimes the building is the sign: the restaurant in the shape of a hamburger is sculptural symbol and architectural shelter. Contradiction between outside and inside was common in architecture before the modern movement, particularly in urban and monumental architecture. Baroque domes were symbols as well as spatial constructions, and they were bigger in scale and higher outside than inside in order to dominate their urban setting and communicate their symbolic message. The false fronts of western stores did the same thing. They were bigger and taller than the interiors they fronted to communicate the store's importance and to enhance the quality and unity of the street. But false fronts are of the order and scale of Main Street. From the desert town on the highway in the West of today we can learn new and vivid lessons about an impure architecture of communication. The little low buildings, grey brown like the desert, separate and recede from the street which is now the highway, their false fronts disengaged and turned perpendicular to the highway as big high signs. If you take the signs away there is no place. The desert town is intensified communication along the highway.

Las Vegas is the apotheosis of the desert town. Visiting Las Vegas in the mid-1960s was like visiting Rome in the late 1940s. For young Americans in the 1940s, familiar only with the auto-scaled, gridiron city, and



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the antiurban theories of the previous architectural generation, the traditional urban spaces, the pedestrian scale, and the mixtures yet continuities of styles of the Italian piazzas were a significant revelation. They rediscovered the piazza. Two decades later architects are perhaps ready for similar lessons about large open space, big scale, and high speed. Las Vegas is to the Strip what Rome is to the Piazza.

There are other parallels between Rome and Las Vegas: their expansive settings in the Campagna and in the Mojave Desert, for instance, which tend to focus and clarify their images. Each city vividly superimposes elements of a supranational scale on the local fabric: churches in the religious capital, casinos and their signs in the entertainment capital. These cause violent juxtapositions of use and scale in both cities. Rome's churches, off streets and piazzas, are open to the public; the pilgrim, religious or architectural, can walk from church to church. The gambler or architect in Las Vegas can similarly take in a variety of casinos along the Strip. The casinos and lobbies of Las Vegas which are ornamental and monumental and open to the promenading public are, a few old banks and railroad stations excepted, unique in American cities. Nolli's map of the mid-18th century, **3**, reveals the sensitive and complex connections between public and private space in Rome. Private building is shown in gray hatching which is carved into by the public spaces, exterior and interior. These spaces, open or roofed, are shown in minute detail through darker poché. Interiors of churches read like piazzas and courtyards of palaces, yet a variety of qualities and scales is articulated. Such a map for Las Vegas would reveal and clarify the public and the private at another scale, although the iconology of the signs in space would require other graphic methods.

A conventional map of Las Vegas reveals two scales of movement within the gridiron plan: that of Main Street and

that of the Strip. The main street of Las Vegas is Fremont Street, **4**, and the earlier of two concentrations of casinos is located along three or four blocks of this street. The casinos here are bazaar-like in the immediacy of their clicking and tinkling gambling machines to the sidewalk. The Fremont Street casinos and hotels focus on the railroad depot at the head of the street; here the railroad and main street scales of movement connect. The bus depot is now the busier entrance to town, but the axial focus on the rail depot from Fremont Street is visual, and possibly symbolic. This contrasts with the Strip, where a second and later development of casinos extends southward to the airport, the jet-scale entrance to town.

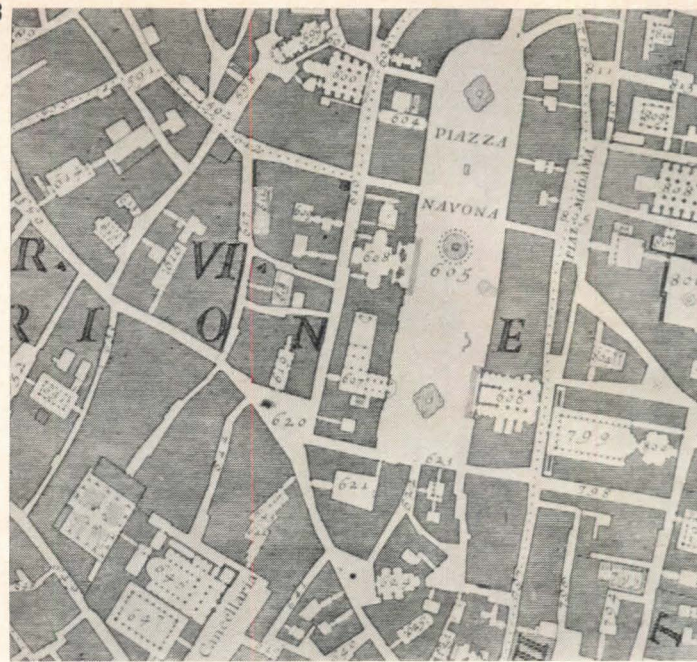
One's first introduction to Las Vegas architecture is a replica of Eero Saarinen's T.W.A. Terminal, which is the local airport building. Beyond this piece of architectural image, impressions are scaled to the car rented at the airport. Here is the unraveling of the famous Strip itself, which, as Route 91, connects the airport with the downtown.

System and order on the Strip

The image of the commercial strip is chaos. The order in this landscape is not obvious. The continuous highway itself and its systems for turning are absolutely consistent. The median strip accommodates the U-turns necessary to a vehicular promenade for casino-crawlers, as well as left turns onto the local street pattern which the Strip intersects. The curbing allows frequent right turns for casinos and other commercial enterprises and eases the difficult transitions from highway to parking. The street lights function superfluously along many parts of the Strip which are incidentally but abundantly lit by signs; but their consistency of form and position and their arching shapes begin to identify by day a continuous space of the highway, **5**, and the constant rhythm contrasts effectively with the uneven rhythms of the signs behind.

This counterpoint reinforces the contrast between two types

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of order on the Strip: the obvious visual order of street elements and the difficult visual order of buildings and signs. The zone *of* the highway is a shared order. The zone *off* the highway is an individual order. The elements of the highway are civic. The buildings and signs are private. In combination they embrace continuity and discontinuity, going and stopping, clarity and ambiguity, cooperation and competition, the community and rugged individualism. The system of the highway gives order to the sensitive functions of exit and entrance, as well as to the image of the Strip as a sequential whole. It also generates places for individual enterprises to grow, and controls the general direction of that growth. It allows variety and change along its sides, and accommodates the contrapuntal, competitive order of the individual enterprises.

There *is* an order along the sides of the highway. Varieties of activities are juxtaposed on the Strip: service stations, minor motels and multimillion-dollar casinos. Marriage chapels ("credit cards accepted") converted from bungalows with added neon-lined steeples are apt to appear anywhere toward the downtown end. Immediate proximity of related uses, as on main street where you *walk* from one store to another, is not required along the Strip since interaction is by car and highway. You *drive* from one casino to another even when they are adjacent because of the distance between them, and an intervening service station is not disagreeable.

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The architecture of the Strip

A typical casino complex contains a building which is near enough to the highway to be seen from the road across the parked cars, yet far enough back to accommodate driveways, turn-arounds, and parking. The parking in front is a token: it reassures the customer but does not obscure the building. It is prestige parking: the customer pays. The bulk of the parking, along the sides of the complex, allows direct access to the hotel, yet stays visible from the high-

way. Parking is never at the back. The scales of movement and space of the highway determine distances between buildings: they must be far apart to be comprehended at high speeds. Front footage on the Strip had not yet reached the value it once had on main street and parking is still an appropriate filler. Big space between buildings is characteristic of the Strip. It is significant that Fremont Street is more photogenic than the Strip. A single post card can carry a view of the Golden Horseshoe, the Mint Hotel, the Golden Nugget and the Lucky Casino. A shot of the Strip is less spectacular; its enormous spaces must be seen as moving sequences.

The side elevation of the complex is important because it is seen by approaching traffic from a greater distance and for a longer time than the facade. The rhythmic gables on the long, low, English medieval style, half-timbered motel sides of the Aladdin Casino read emphatically across the parking space and through the signs and the giant statue of the neighboring Texaco station, 6, and contrast with the modern Near-Eastern flavor of the casino front. Casino fronts on the Strip often inflect in shape and ornament toward the right, to welcome right-lane traffic. Modern styles use a portecochere which is diagonal in plan. Brazilianoid International styles use free forms. Service stations, motels, and other simpler types of buildings conform in general to this system of inflection toward the highway through the position and form of their elements. Regardless of the front, the back of the building is styleless because the whole is turned toward the front and no one sees the back.

Beyond the town, the only transition between the Strip and the Mojave Desert is a zone of rusting beer cans, 7. Within the town the transition is as ruthlessly sudden. Casinos whose fronts relate so sensitively to the highway, turn their ill-kempt backsides toward the local environment, exposing the residual forms and spaces of mechanical equipment and service areas.

Signs inflect toward the highway even more than buildings. The big sign—*independent of the building and more or less sculptural or pictorial*—inflects by its position, perpendicular to and at the edge of the highway, by its scale and sometimes by its shape. The sign of the Aladdin Casino seems to bow toward the highway through the inflection in its shape. It also is three dimensional and parts of it revolve. The sign at the Dunes, **8**, is more chaste: it is only two dimensional and its back echoes its front, but it is an erection twenty-two stories high which pulsates at night. The sign for the Mint Casino on Route 91 at Fremont Street inflects towards the Casino several blocks away. Signs in Las Vegas use mixed media—then words, pictures, and sculpture—to persuade and inform. The same sign works as polychrome sculpture in the sun and as black silhouette against the sun; at night it is a source of light. It revolves by day and moves by the play of light at night. It contains scales for close up and for distance. Las Vegas has the longest sign in the world, the Thunderbird, and the highest, the Dunes. Some signs are hardly distinguishable at a distance from the occasional highrise hotels along the Strip. The sign of the Pioneer Club on Fremont Street talks. Its cowboy, 60 ft. high, says "Howdy Pardner" every 30 seconds. The big sign at the Aladdin has spawned a little sign with similar proportions to mark the entrance to the parking. "But such signs!" says Tom Wolfe. They "soar in shapes before which the existing vocabulary of art history is helpless. I can only attempt to supply names — Boomerang Modern, Palette Curvilinear, Flash Gordon Ming-Alert Spiral, McDonald's Hamburger Parabola, Mint Casino Elliptical, Miami Beach Kidney." Buildings are also signs. At night on Fremont Street whole buildings are illuminated, but not through reflection from spotlights; they are

made into sources of light by closely-spaced neon tubes.

Las Vegas styles

The Las Vegas casino is a combination form. The complex program of Caesar's Palace—it is the newest—includes gambling, dining and banqueting rooms, night clubs and auditoria, stores, and a complete hotel. It is also a combination of styles. The front colonnade, **9**, is San Pietro-Bernini in plan, but Yamasaki in vocabulary and scale; the blue and gold mosaic work is Early Christian, tomb of Galla Placidia. (Naturally the Baroque symmetry of its prototype precludes an inflection toward the right in this facade.) Beyond and above is a slab in Gio Ponti, Pirelli-Baroque, and beyond that, in turn, a lowrise in neo-Classical Motel Moderne. Each of these styles is integrated by a ubiquity of Ed Stone screens. The landscaping is also eclectic. Within the Piazza San Pietro is the token parking lot. Among the parked cars rise five fountains rather than the two of Carlo Maderno, **10**. Villa d'Este expresses further punctuate the parking environment. Gian da Bologna's Rape of the Sabine Women, and various statues of Venus, **11**, and David, with slight anatomical exaggerations, grace the area around the portecochere. Almost bisecting a Venus is an Avis: a sign identifying No. 2's office on the premises.

The agglomeration of Caesar's Palace and of the Strip as a whole approach the spirit if not the style of the late Roman Forum with its eclectic accumulations. But the sign of Caesar's Palace with its Classical, plastic columns is more Etruscan in feeling than Roman. Although not so high as the Dunes sign next door or the Shell sign on the other side, its base is enriched by Roman Centurians, **12**, lacquered like Oldenburg hamburgers, who peer over the acres of cars and across their desert empire to the mountains beyond. Their statuesque escorts, carrying trays of fruit, **13**, suggest the festivities within, and are a background for the family snapshots of Middle Westerners. A mas-

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*Tom Wolfe, *The Kandy-Kolored Tangerine Flake Streamline Baby*, Farrar, Straus and Giroux, New York, 1965, p. 8.

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TURNING A NEAT CORNER

Most architects talk about relating their buildings to the surroundings, but few of them do very much about it. The architects of this small office structure in the old financial district of Boston—F.A. Stahl & Associates—not only succeeded in relating their building to its urban environment; they also did it with style, and at a remarkably low cost (\$20 per sq. ft.).

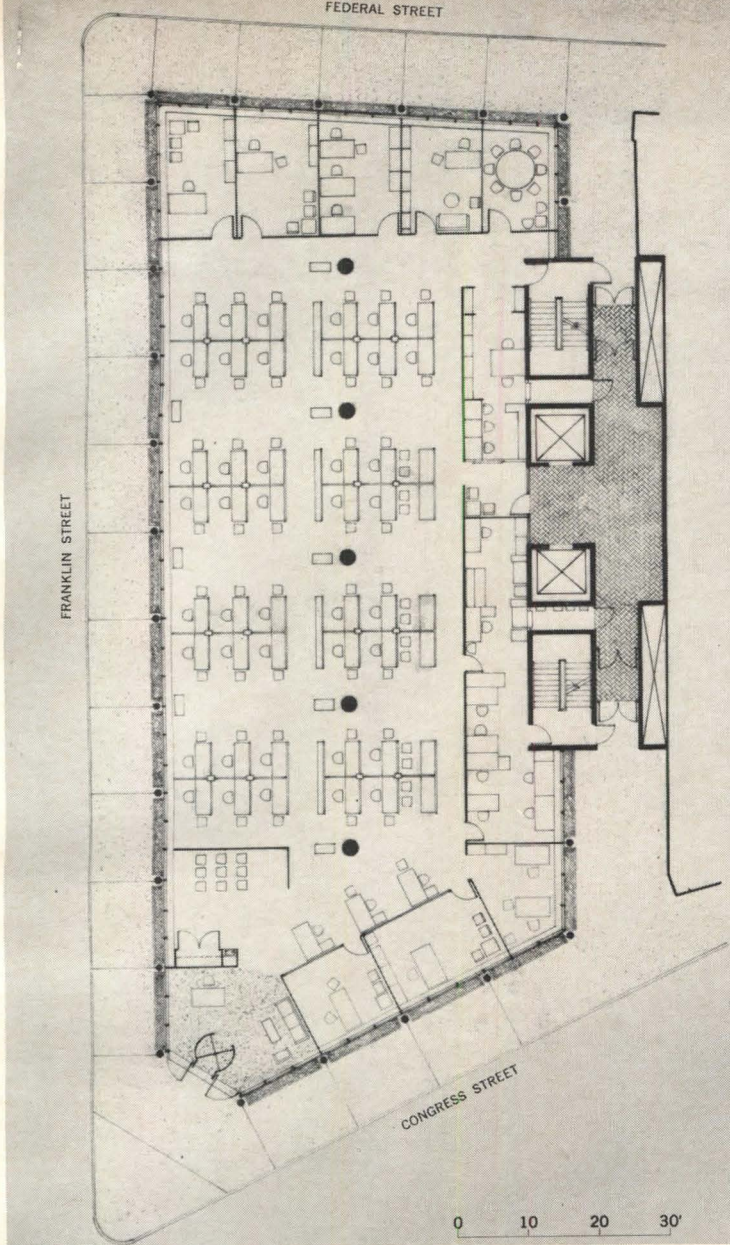
The site of the Massachusetts General Life building is a little more than 9,000 sq. ft. in area, and it is bounded by streets on three sides. In an important corner location of this sort most architects would be tempted to do one or both of two things: they would put the entrance to their building on one of the three peripheral streets, and make it as impressive as possible; and they might want to make their building, in its exposed location, look strikingly different from its neighbors.

These architects took a very different tack: instead of trying to create an impressive entrance portal they, in effect, decided to enter their building by the back door: a 14-ft.-wide slot between the new building and its existing neighbor serves as a pedestrian passageway, leading to a modest but efficient lobby from two of the three surrounding streets. The result of this unorthodox entrance arrangement is that very little floor space in the seven-story building is devoted to elevator lobbies or corridors. (A further result is to assure the neighbors of continued light and air along the property line.)

And instead of trying to make their structure on its highly exposed site look as different as possible from its neighbors, these architects tried to create a building in the Boston scale and the Boston color: structural bays only 13 ft. wide, and exterior finishes that range from the grey of precast concrete to the bronze of anodized aluminum.

A good many self-assertive buildings have gone up in Boston; and they have not made a very sensitive contribution to the Boston scene. This one may not win many famous prizes, but it is likely to wear extremely well.

Ground floor plan and bird's eye view (near left) show 14-ft.-wide slot between new building and neighboring office block. This slot creates an entrance passage from two of the three major streets that surround the site. Corner entrance (far left) serves brokerage firm which occupies ground floor.





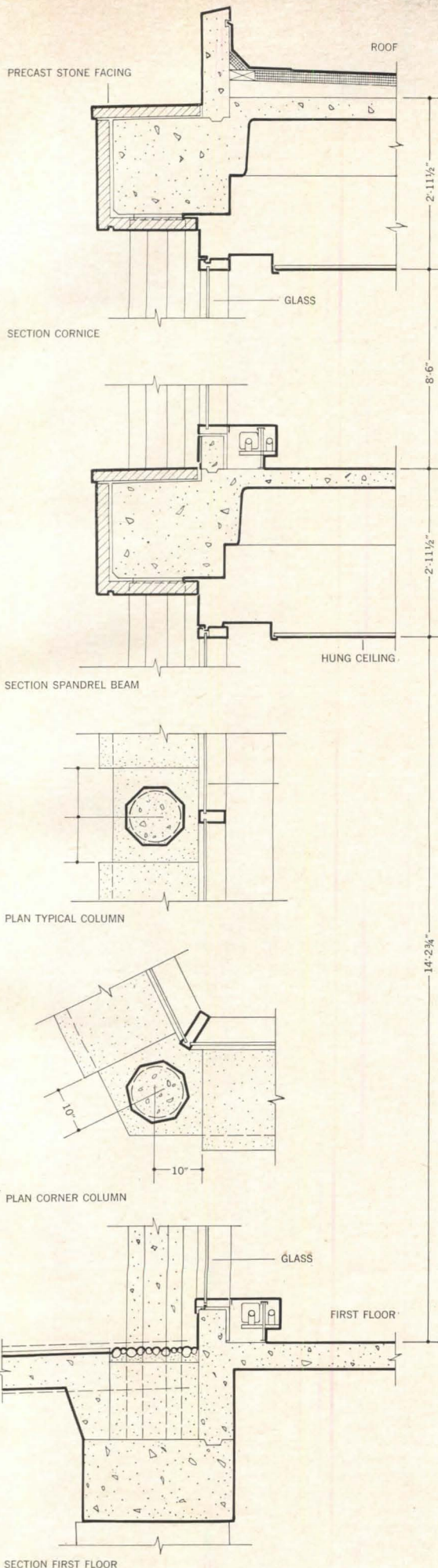
Strong frame is made up of delicate details

The structure of this building is of reinforced concrete, and the framing system is rather unusual: there are only five interior columns, spaced 21 ft. on centers, to allow for the greatest possible flexibility on each floor; but there are five times as many exterior columns, spaced about 12 ft. apart, and forming small, nearly square bays.

The close spacing of the perimeter columns was not determined solely by the architects' desire to make their building small in scale. Actually, it was found that the existing foundation walls left over from a vintage-1906 building could be re-used; and any wider column spacing along the perimeter of the building would have entailed enlarging those walls. Moreover, the owners decided for economic reasons to limit their building to seven stories (plus a penthouse). The code would have permitted a ten-story building on this site, and the architects feel that such a slightly taller structure might have looked better; but they also admit that a taller building would have required an entirely different structural system, and the old foundation walls would have been inadequate to carry the greater loads. As it is, the concrete floors were designed to carry live loads of up to 100 lbs. per sq. ft., to allow for heavy office equipment.

The perimeter wall of the building is not only pleasant in scale, but subtle in detail as well. The octagonal concrete columns stand free of the glass and bronzed-aluminum curtain wall (see details at left), and the result is an airiness and a lively play of light and shade. The fact that the columns are octagonal, rather than round in cross-section, accounts for additional lively effects as the sun lights up the walls of the building. The spandrel beams were given a precast concrete enclosure only between columns, and this adds further depth to the facade.

The remarkably low unit cost (\$20 per sq. ft.) was made possible by close coordination of the architectural work with that of the structural and mechanical engineers and suppliers.



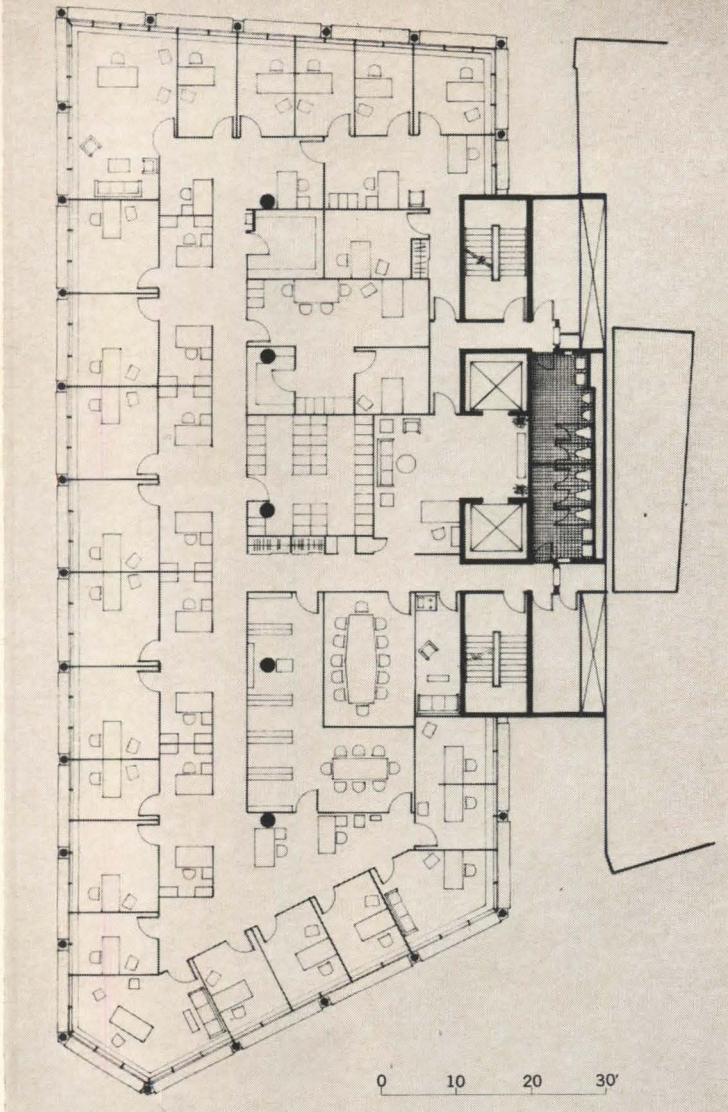
Close-up of exterior wall (far left) shows lively play of light and shade that results from having kept column and spandrel grid outside the actual skin of the building (see details.) Octagonal rather than round columns add to the elasticity of the wall. Spandrel beams only are finished in precast concrete.

Interiors adjust easily to the irregular site

Although a life insurance company is officially the principal tenant of this building, the company occupies only three out of seven floors. The remaining four floors are rented to brokerage and law firms, each with different (and sometimes difficult) requirements.

Yet, despite these differences and difficulties, and despite the odd shape of the site and of each floor, the building seems to accommodate its various tenants extremely well. Admittedly, most of the interior planning is rather tight; but the virtual absence of interior columns makes possible the sort of openness in planning and design that gives an illusion of greater-than-actual space: the corridor of the law office, shown at left, is only 4 ft. 8 in. wide; but because the secretarial cubicles are enclosed by partitions just 4 ft. 3 in. high, the corridor appears to be almost three times its actual width.

So this building is a rather remarkable achievement: a very inexpensive solution in a complex location; an entirely modern structure completely in keeping with its traditional neighbors; and an efficient office building on an impressive site.



Typical floor plan—in this case, occupied by a firm of lawyers—demonstrates easy adaptability of office layout to irregular building shape. Corridor (at left) is made to look wider by low secretarial cubicles. Opposite page: view of the building from Federal Street, showing second entrance between it and its neighbor.

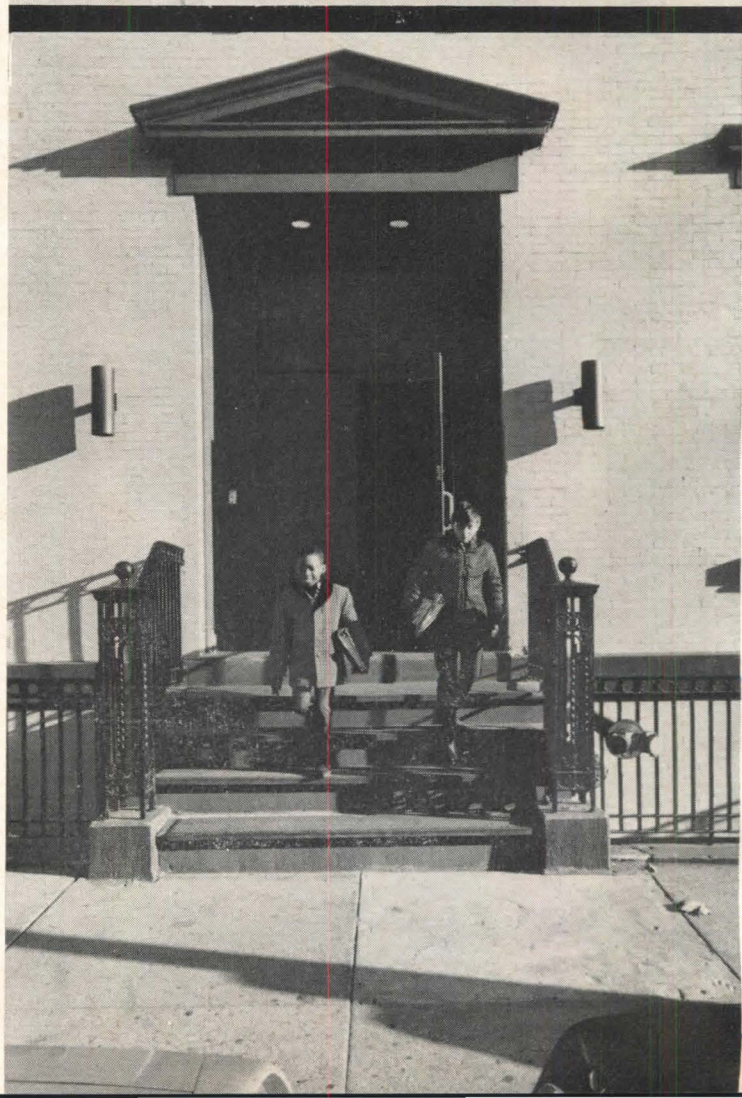
FACTS AND FIGURES

Massachusetts General Life building, 70 Federal Street, Boston, Mass. Owner: Max Philippon. Architects: F. A. Stahl & Associates, Inc. Engineers: LeMessurier & Associates, Inc. (structural); R.G. Vanderweil (mechanical). General contractor: Gilbane Building Co. Building area: 75,400 sq. ft. gross area (62,000 sq. ft. rentable area). Cost: \$20 per sq. ft. PHOTOGRAPHS: Phokion Karas





AN OLD STATIONHOUSE GETS A NEW MISSION



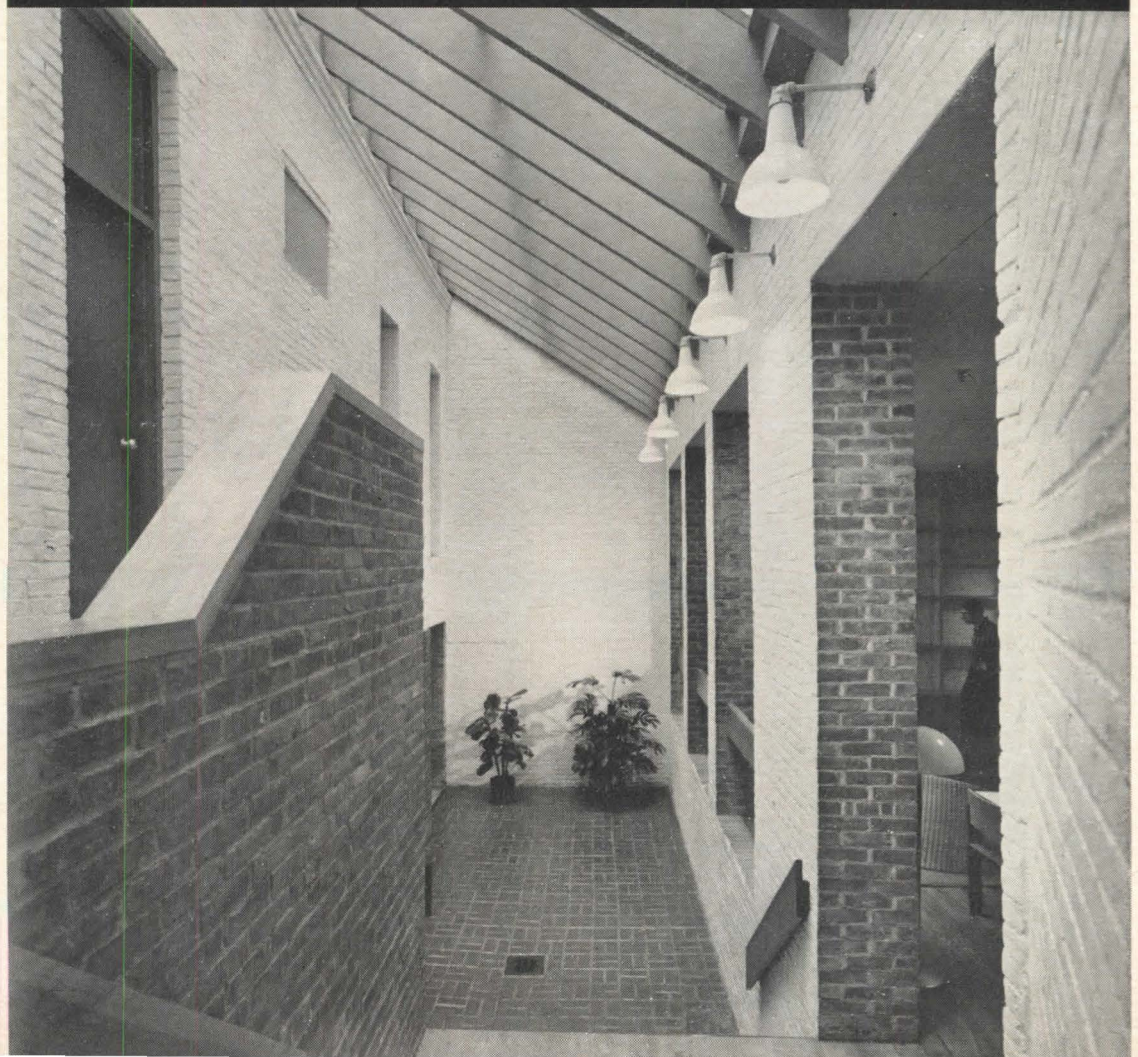
On East 22nd Street, in Manhattan, in a building constructed during the Civil War for the 13th Police Precinct, Architects Polshek and Toscanini have put on an impressive demonstration of how to remodel an existing structure for very different use.

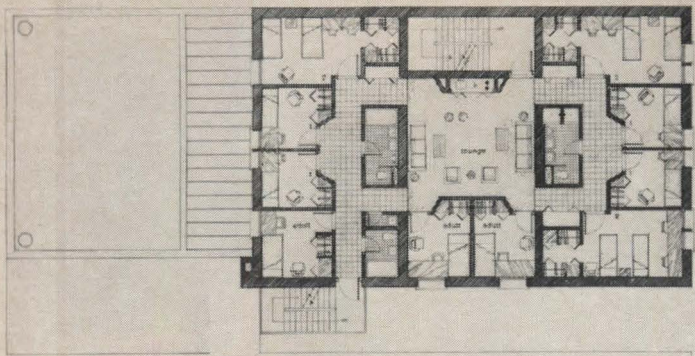
For the old 40-ft.-wide station-house was completely gutted and rebuilt inside to serve as a cheerful and friendly residence for 30 fatherless boys being looked after and rehabilitated by the Big Brothers organization. And what was once, on the inside, a grim collection of spaces serving the tough needs of law-enforcement—police desk, jail cells, even a morgue—has been turned into something resembling a student dorm and community center at a comfortable boarding school.

Not that the new interiors are lavish—they are not: the entire job, including all built-in furniture(and most of it is), was done for less than \$16 per sq. ft. What makes the interiors so pleasant is the degree of imagination that went into their planning. A good example is the conversion of a dingy areaway (top, right) into a brightly skylit interior court, onto which open a dining room, recreation room, and living room, on several levels (see also next page).

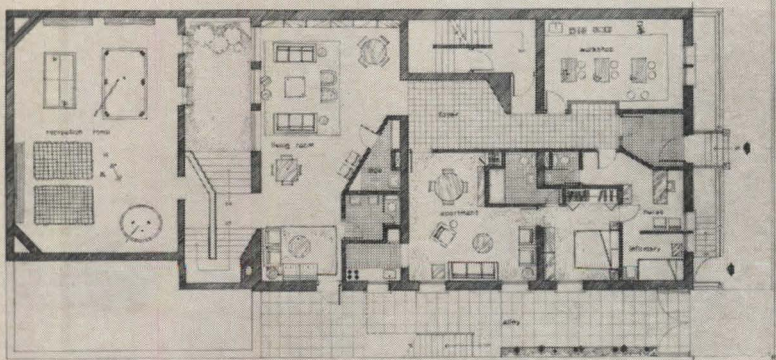
All the facilities in this building—the bedrooms on the top three floors, as well as the communal facilities on the two lowest levels—have been designed to look as unlike those of an institution as possible: the finishes are natural brick, wood, plaster, etc.—i.e., surfaces that are associated with domestic, rather than institutional architecture. And while this has created some maintenance problems (partly because the boys have yet to adjust to this sort of environment), the results seem to be worth the extra cost of keeping furniture and finishes in decent shape.

Before and after views of the street facade of the old stationhouse (left), and of the areaway in back of the main building. Although the 40-ft.-wide Civil War building was not an official landmark, its facade was handsome enough to merit preservation.

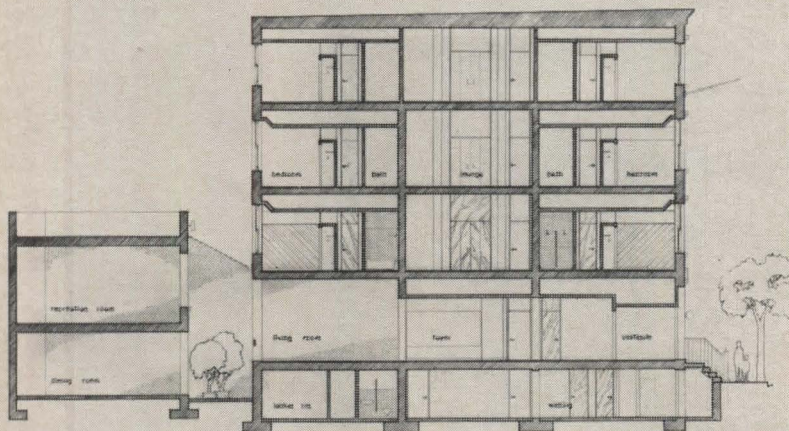




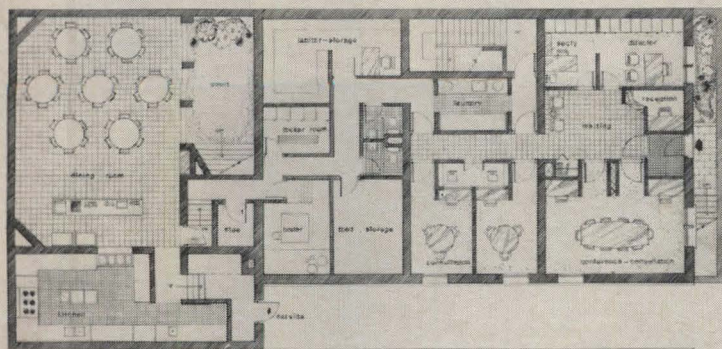
Typical bedroom floor plan shows grouping of single and double rooms around central lounge. Two counselors-in-residence live on each floor.



Main floor of building contains recreation and living rooms on facing sides of new skylit court. Apartment is for the manager of the center.



Section explains complex changes in levels on two lowest floors. Two-story-high annex used to contain cell block, morgue, and garage.



Lowest floor has dining room and kitchen in back, consultation rooms for use by visiting psychiatrists in front with separate entrance.

The function of the remodeled building is to house boys whose home environment has lead them into juvenile delinquency, or close to it. The boys live in single or double bedrooms on the top three floors, and each floor also houses two full-time counsellors (typical plan at left).

The bedrooms on each floor are grouped around a central lounge, furnished like a living room, and equipped with TV and a built-in kitchenette. All the furniture (excepting chairs) was especially designed and built in; and it has taken (and withstood) quite a beating. Yet these boys, despite their occasional vandalism, clearly love their new home, and there seems to be "nothing personal" in any damage they may sometimes do to it.

Though the bedroom floors are fine, the best part of this remodeled building is the area around the newly created skylit court. Onto this court open three handsome rooms: a dining room at the lowest level; a recreation room above it (that one used to be the cell block!); and, on the opposite side of the court, a living room and library. These facilities compare favorably with those of any good fraternity house, and they were created at very low cost.

The remaining rooms, on the lowest level, are for the use of visiting psychiatrists who interview the boys and their mothers, singly or in groups.

The building was primarily financed by the Vincent Astor Foundation, and it is considered a significant pilot project in the field of rehabilitation. The boys who come here will stay for a couple of years, and it is too early to tell if the project will succeed. But if the rehabilitation efforts *should* fail, it will not be for want of trying on the part of the architects.

FACTS AND FIGURES

Big Brothers Residential Treatment Center, 327 East 22nd Street, New York. Owner: Big Brothers, Inc. Architects: James Stewart Polshek and Walfredo Toscanini. Engineers: Wm. Atlas (structural); Paolo Squassi (mechanical). General contractor: I. Mass & Sons. Building area: 14,500 sq. ft. Cost of renovation: \$242,000 (excluding fees and furnishings). PHOTOGRAPHS: Robert L. Beckhard; "before" photos, Stanley Rosenthal.



THE MAKING OF CLASSICAL EDINBURGH, 1750-1840. By A. J. Youngson. Published by Edinburgh University Press. xvi + 338 pp. Illustrated. 7 by 9 in. \$10.00.

REVIEWED BY ROGER MONTGOMERY

Inside Professor Youngson's innocent looking history book the unsuspecting reader will find two nice surprises. When he first leafs through *The Making of Classical Edinburgh*, it reveals a stunning collection of pictures. Later, on careful reading, he will discover an account of an extraordinary series of governmental initiatives aimed at stimulating and directing the expansion and renewal of a city. It shows how these in turn generated a set of cooperative public-private institutions to build each unit of planned development. Today's techniques were pioneered 150 or 200 years ago in Edinburgh!

Professor Youngson and his publishers show a rare sensitivity in getting Edwin Smith to embellish the book with a handsome set of photographs beautifully printed on highgloss enameled paper [see right]. Reproductions of contemporary maps and views scattered through the text give additional visual support to the narrative.

When such effective illustrations have been supplied it seems ungrateful to complain. Nevertheless, more architectural plans would help. Many buildings and site groupings cannot be visualized adequately from the descriptions. Some aerial photographs would help too. By relying entirely on contemporary maps, reproduced at such small scale that street names cannot be read, those unfamiliar with Edinburgh will have difficulty with orientation. Fortunately in writing this review a tourist's guide map was at hand. Readers will find one useful.

Professor Youngson, who holds the chair of economic science at the University of Edinburgh, obviously loves his city. His book celebrates that love.

Mr. Montgomery, a Forum correspondent, is professor of architecture and city planning at the University of California in Berkeley.



Clearly he wanted to set down for once and all how it happened; what wondrous combination of invention, skill, sensitivity, and doggedness built the New Town and other splendors of Edinburgh in the years between 1750 and 1840.

While such a worthy objective surely justifies the book, actually it contains something more: important insights into urban development processes. It does for planned unit development very much what Sam Bass Warner's indispensable *Streetcar Suburbs* does for unplanned laissez-faire marketplace city building.

Professor Youngson convincingly supports what David A. Crane has called the "capital-web" theory. This thesis holds that planned public works built in advance of private market development have a powerful ordering effect on urban form. *The Making of Classical Edinburgh* joins such documents as Sigfried Giedion's brief account of Sixtus V and Fontana in baroque Rome, Bruno Zevi's long exposition of the earlier accomplishments of Rossetti in Ferrara and Edmund Bacon's work, in corroborating the organizing force of *public design initiative*. It shows how much initiative can make into a coherent and useful entity what otherwise would occur as a formless collection of disjointed elements.

Youngson details the modes of public initiative and the symbiosis of public and private enterprise they engendered. He shows, for instance, that behind Craig's great plan for the New Town lay a skillfully thought out developer-design competition. Its format seems startlingly similar to those that have been used so successfully in some recent American urban renewal projects.

The history of this event is particularly instructive. Crowding, an expanding economy, and heightened aspirations made it imperative to expand Edinburgh after 1750. The city fathers began by constructing North bridge across the lowland that had bounded the medieval city. This was the catalytic public work. But instead of simply building

it and letting market speculation take over in the development of the new land thus made accessible, they set up a set of performance standards and held a competition for a development plan. Mr. James Craig then was not simply a lucky designer who found a sympathetic speculator. Instead, utilization of his professional skill came in response to clear public demand and effectively managed public initiative.

Imagine how different American suburbs would be under similar circumstances. Suppose instead of simply building free-ways we required developer-design competitions for the right to urbanize the new lands thus opened up.

Such instructive parallels abound. Lest one think the world then was so different, the book indicates that the coordinated building of Georgian Edinburgh occasionally came up against rightwing opposition similar to that which today argues against planning in the United States. Youngson quotes a pamphleteer of 1827 who denounced the use of public powers and tax monies for urban development in words much like those used by modern critics who see urban renewal as a dangerous leftwing plot.

The methods used in building Edinburgh depended upon the joint public-private entities for finance and management. Often the public treasury was used to supply working capital for private development. At other times private banks loaned the funds necessary to build the armature of public works. Generalist readers may become impatient following Professor Youngson's detailed accounting of these financial transactions. But taken together they provide a precedent for our current efforts to invent public-private corporations for rebuilding and extending urban areas. They make an instructive comparison to the proposals of Senator Kennedy and others for attacking New York's slums through a "Comsat-type" corporation, and for the recently proposed New Jersey legislation for creating a new town district on the Hackensack Meadows.

Ninety years of continuous

planned building in Edinburgh would have amounted to far less if they had not been accompanied by a vigorous defense of values already existing and newly achieved in the ongoing development process. The most significant of these unremitting efforts went to prevent later despoliation of the crucial North Loch open space which separated the New Town from Old Edinburgh. This campaign included achievements such as tearing off the upper stories of already built structures in order to maintain open prospects across the green space. More than legislation is necessary to preserve urban designs once begun. They require the power of the public purse in their defense.

In *The Making of Classical Edinburgh* Professor Youngson makes clear that responsibility lay in the hands of a power structure: "broadly speaking it was oligarchic rule, the rule of tradesmen and a few merchants backed by men of taste, which started and carried out, or facilitated, the great developments." There may lie the weakness of the analogy. In our day, if we are to build equivalent urban habitat, we must find the secret to mobilizing mass society behind planned development.

URBINO. By Giancarlo De Carlo. Published by Marsilio Editori, Padua, Italy. 259 pp. Illustrated. 9 in. by 11½ in. Available through Wittenborn & Co., New York, N. Y. \$33.

REVIEWED BY SHADRACH WOODS

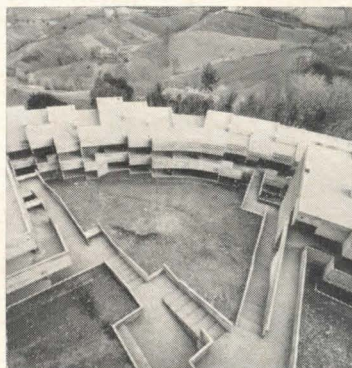
Giancarlo De Carlo, a talented architect and urbanist, has produced a touching tale, depressingly familiar in Western Europe, one which takes on heroic proportions because his subject, the seat of the Dukes of Montefeltro, had and still has a certain majestic quality.

Urbino is like one of those *musées farfelus* (outlandish museums) which André Malraux

Mr. Woods is an American architect and urban designer practicing in France and Germany. His work includes the new town of LeMirail, near Toulouse (June '63 issue), and the Free University in West Berlin.



Urbino: views from the approach road and from the air; corresponding views (below) of De Carlo's student building on a nearby hill.



likes "because they play a game with eternity."* Federico, Duca di Montefeltro, made Urbino one of the scenes of Renaissance action, cut a notch in his nose to restore his field of vision when he lost the sight of one eye, commissioned Francesco di Giorgio to make strange and beautiful palaces and forts, surrounded himself with scholars and artists, made fortunes at war games, and even now seems to dominate the Urbino scene.

Federico lives!

But Urbino is dying. In Federico's palace are art works of inestimable worth (as long as they stay there). The commune of Urbino is stricken with creeping poverty; the agony of an inherited rural economy, incapable of coexistence on equitable terms with an expansionist, consumer-oriented world. The colonization of the provinces by the giant industrial empires of the North has not spared Urbino and the stronghold of the proud Dukes is being crushed as wretchedly as the least village by the inexorable, insatiable juggernaut of a G.N.P. on the make.

This book, an exhaustive work of love, describes the situation and evolves a plan for the physical improvement of Urbino. Giancarlo De Carlo's contributions to Urbino include: the plan, the book, the building.

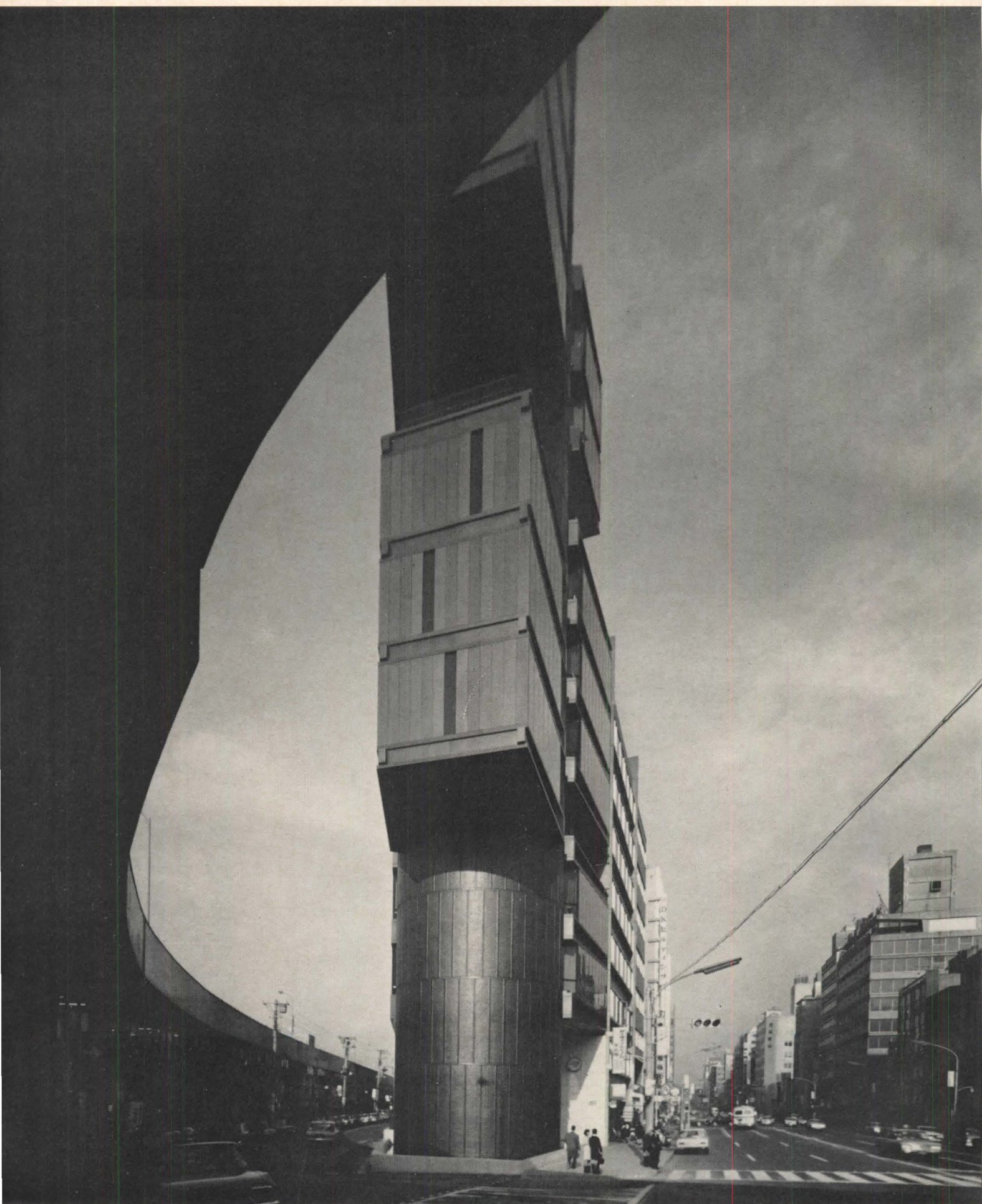
The book is about the plan—an analysis of Urbino both as a complex object and as a typical case. It is in every respect an admirable book, and it puts forth an admirable plan which includes elements of conservation, renewal and extension, carefully investigated and weighed. It combines restraint and a sober kind of daring in an intelligent balance.

The building is a congenial castle for students that Giancarlo built on a hill near the town [see April '65 issue].

The plan for Urbino is simple but not simple-minded, sensible and sensitive. Conserve what is worth keeping and what can be kept, finding new uses for build-

* "J'aime les musées farfelus, parce qu'ils jouent avec l'éternité." Malraux, *Antimémoires*.

(continued on page 93)



TOKYO'S FLATIRON BUILDING

On a pie-shaped corner site in the crowded Ginza District of Tokyo, Architect Kenzo Tange has built one of the most astonishing *tours de force* put up anywhere since New York's Flatiron Building was constructed in 1902.

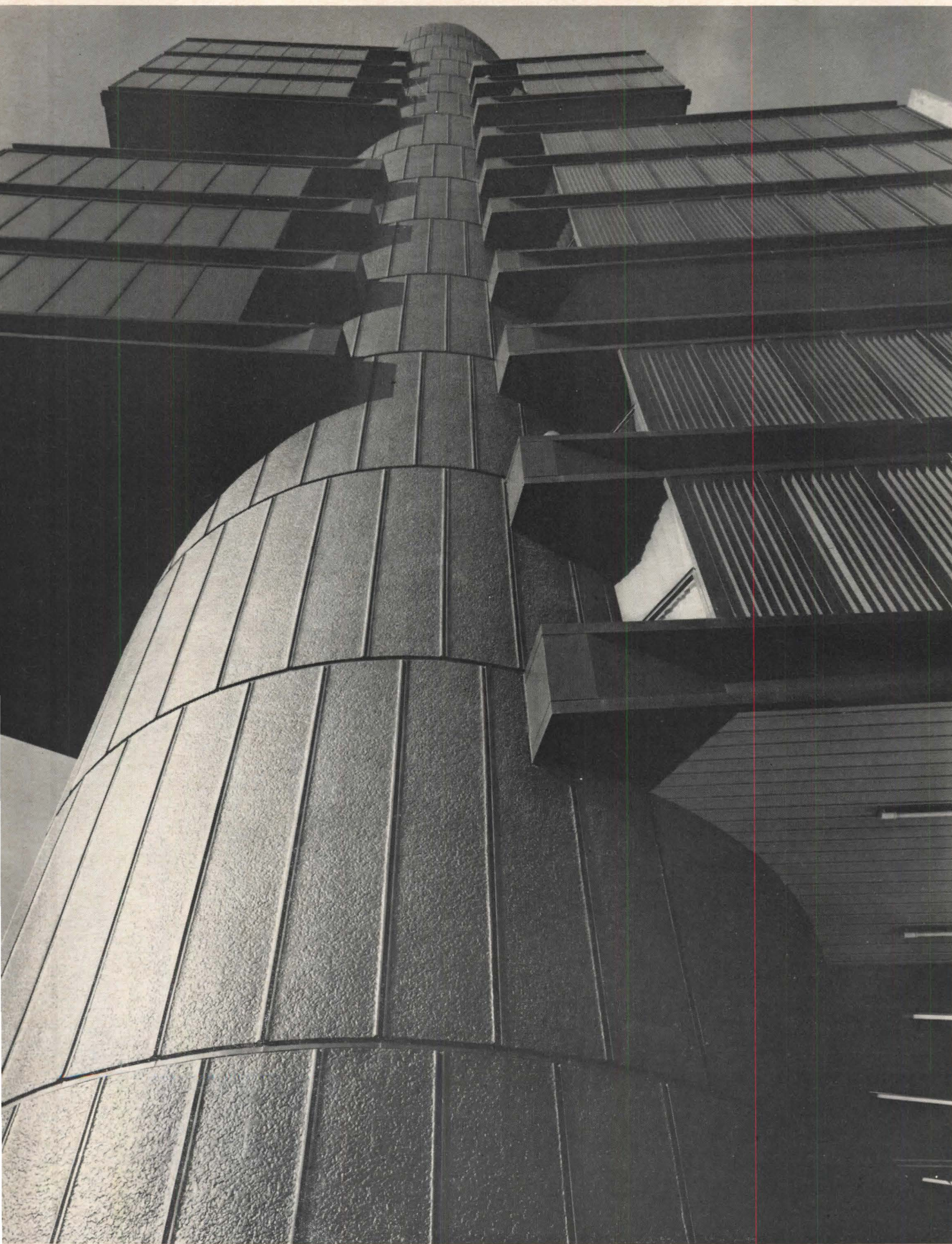
The building houses the Tokyo branch offices of the Shizuoka Newspaper Company; it is about a dozen stories high, and occupies a site measuring about 2,000 sq. ft.; and, while it is a striking and amusing solution to an inherently impossible problem, the building is significant, mostly, as a prototype for something else.

Basically, it is a cylindrical shaft 190 ft. tall, rising out of a triangular pool at its base, built of concrete, and beautifully finished with cast aluminum panels, anodized a very dark bronze and given a sort of bush-hammered surface. This shaft contains elevators, stairs, and utilities; and from it are cantilevered glass-enclosed capsules that contain the actual office spaces. They are entered directly from elevator landings inside the cylinder, and they vary in size from about 150 sq. ft. to 1,100 sq. ft. Their glass walls are tinted and equipped with interior vertical blinds.

As in his Yamanashi Communications Center in Kofu (Sept. '67 issue), Tange left big gaps between his various floors, both to permit future additions to the basic core of the building and to create occasional terraces on the roofs of some of the office capsules. (In fact, Tange would never think of closing the gaps in this building; much of the excitement of this structure is in its openness.)

In terms of practical office planning, the Shizuoka building is, of course, sheer nonsense. But as a giant piece of urban sculpture—a 190-ft.-tall crankshaft on a Claes Oldenburg scale, for example—it is a knockout.





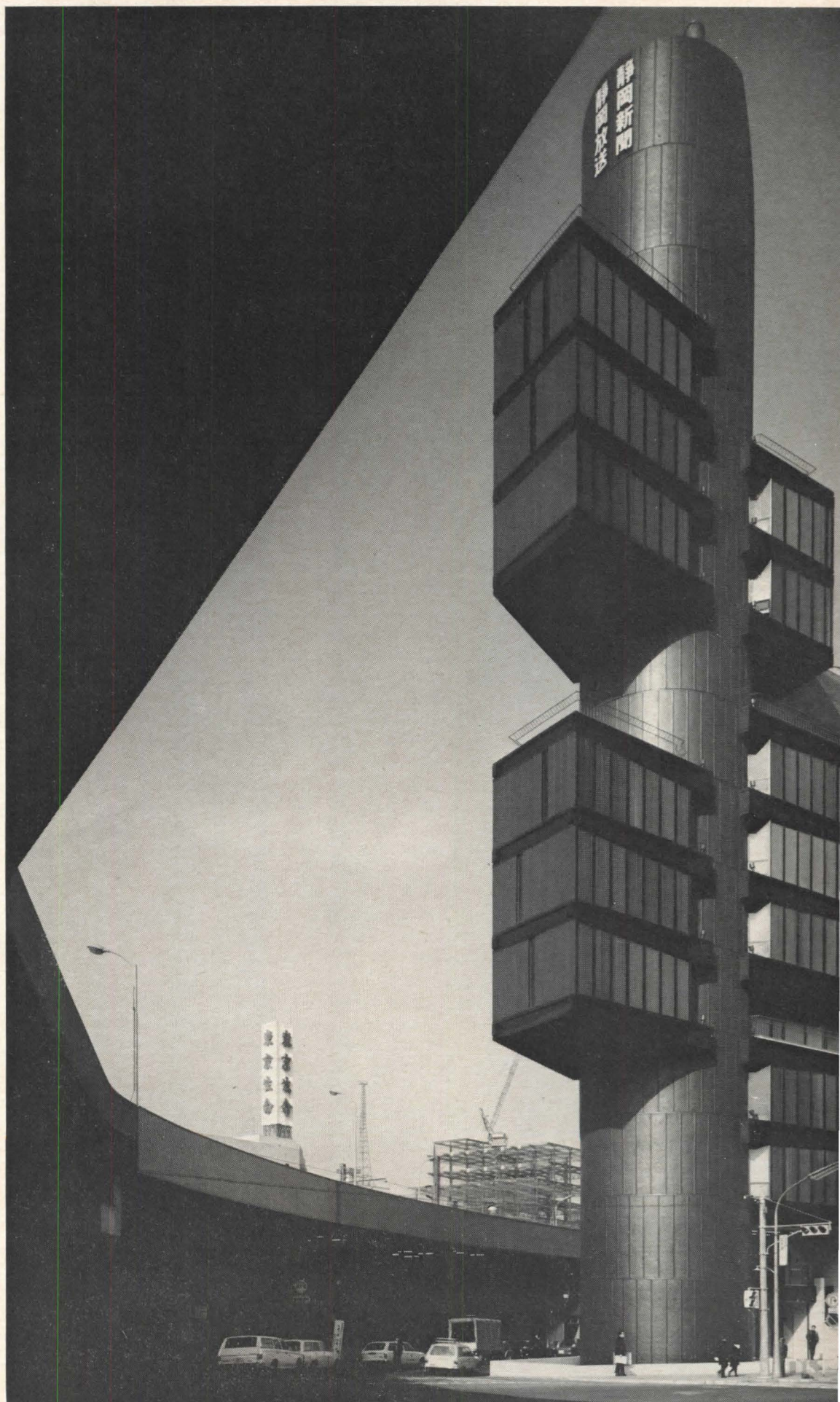
A German architect who went to see Tange's big crankshaft was infuriated by it. "It is completely laughable," he wrote, "to find an over-dimensioned service shaft, that could easily provide access to large floor areas, serve instead only a few tiny rooms—and all this just to demonstrate some kind of principle!"

The principle referred to is, of course, Tange's familiar concept of a city of vertical service and circulation towers, between which are suspended buildings that are "plugged into" the towers at will. His Yamanashi Communications Center was the first prototype for such a megastructure; and his prize-winning design for the City of Skopje (Sept. '67 issue) demonstrates how he envisages the extension of the system on an urban scale.

Admittedly, the little Shizuoka building is not likely ever to grow into an urban megastructure—though the adjacent buildings, while new, would hardly be missed if some tycoon were to decide to expand the building into its hinterland. But while the building makes little practical sense in terms of urban development, it is a striking gesture: not merely a giant crankshaft *a la* Oldenburg, but a notable point of reference on the urban scene. "It is the best new building in Tokyo," the American architect, James Polshek, said recently upon his return from Japan. "It occupies a very important corner—a new high-speed, two-level highway sweeps past it, and this building is a real guidepost." New York's Flatiron Building is not the most efficient office tower either, but it is a significant landmark and Manhattan would be poorer without it.

FACTS AND FIGURES

Shizuoka Newspaper Co. building, Nishi-Ginza, Tokyo, Japan. Architects: Kenzo Tange Team. Gross floor area: 25,000 sq. ft.
PHOTOGRAPHS: Osamu Murai.



COMPUTERS FOR DESIGN AND A DESIGN FOR THE COMPUTER

Two architects make an important early step in analyzing the design process and thus bring closer its systemization.

Computers in the building industry are multiplying. Already in use are computer applications in such areas as stress analysis, climate simulation, spec writing, cost estimating, project scheduling, program analysis, and space allocation. Some of these are better suited to the contractor or engineer than to the architect; and those that have more specific architectural application are still not widely used, for reasons tied to their inherent qualities rather than to an unreceptive architectural profession.

A new study just released by MIT's Center for Building Research is addressed to this situation. Analyzing the process of architectural design, John R. Myer and Richard I. Krauss have evolved a broad set of specifications for a computer system that will answer more closely to the architect's needs, because it will speak to him in his language and about his major concerns. Myer and Krauss are architects themselves, a principal and another member of the young Cambridge firm of Ashley, Myer & Associates.

As Myer and Krauss explain their study: "We kept saying to the computer people, yes it's fine for production drawings, or for estimating, once you have the basic design established, but how do you get to that point? They said to tell them how we design, and they'd work something out. We told them something different every day, depending on what we were doing that day. It was a case of the analysts showing architects what analysts *could* do; we had to show them what architects *do* do. . . . They had taken the problem to be essentially one of information storage, which is true to a certain extent, but there is also a dynamic process of operating on the information. We couldn't tell them what, though, until we looked into it. . . . Some of our conclusions are surprising, even to us, and the study may well be a kind of confrontation to the approach taken by Christopher Alexander and those working with him. There has been a great deal of activity recently, putting a quantitative value on as many variables as

possible, then generating a system that deals in these variables. We don't think there's much design in that. There are already comments that our report is something of a sellout to form-making . . ."

Setting up a design history

Myer and Krauss thus began with the assumption that existing computer techniques are not extensively used because they have been developed apart from the architectural context. The techniques sometimes require definition of design criteria that cannot be given in the required way, or are awkward in use, or are insufficiently useful by themselves.

To fit a computer technique into the architectural context, they reasoned, it is necessary to identify the problem-solving procedures used by the architect, then develop the tools "either as adjuncts to, or as a replacement for, the presently used design process."

They considered several possibilities for identifying design method—playing a design game, or observing an actual design in process. Neither of these seemed as likely to give unbiased results, however, as the case history of an actual design, recorded after preliminary design was completed and thus not susceptible to alteration in the process. They chose one of their own projects—a small nursery school for 120 children, now under construction in Cambridge. It is a "traditional" project, not requiring an unusually heavy investigation of special aspects such as programming. The architects chose it because it was small enough and recent enough to be explored in detail, and because it included what they call "a broad range of architectural issues."

Going back through their records, they rounded up all sketches, notes of meetings, bookkeeper's records, telephone calls, memos and correspondence, adding to it a recollection of the day-to-day happenings as prompted by these records. The history took the form of a chart on which detail could be recorded yet total process could also

be seen (see foldout, right). On the Y axis of the chart are the major activities the architects could isolate, in three groups: programming, generation and manipulation of form, and technical concerns (see list of Groups A, B, and C). On the X axis are calendar days, with man-hours plotted in a bar graph at the bottom. Occurring throughout the design period were meetings with clients (major decisions represented by dark vertical bars, lesser conferences by lighter ones) and with consultants (represented by asterisks). Horizontal bars, of course, depict the kind of work done as design proceeded.

Observations from the record

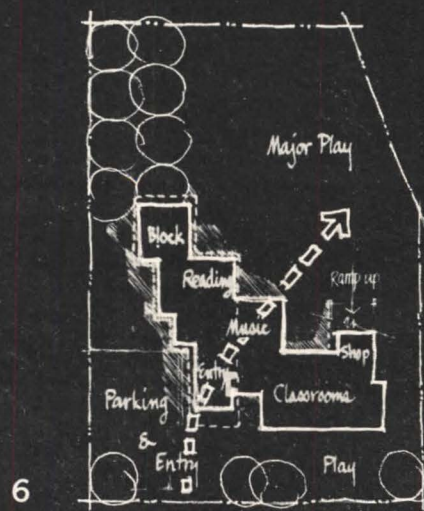
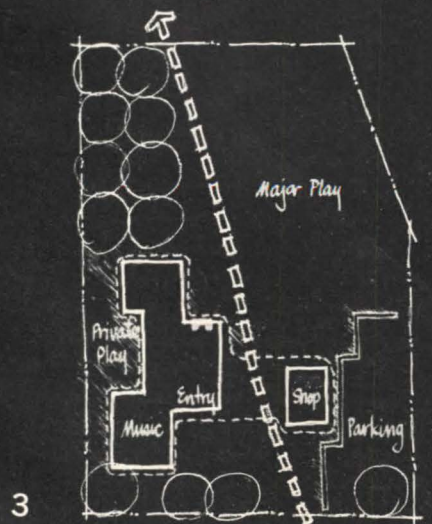
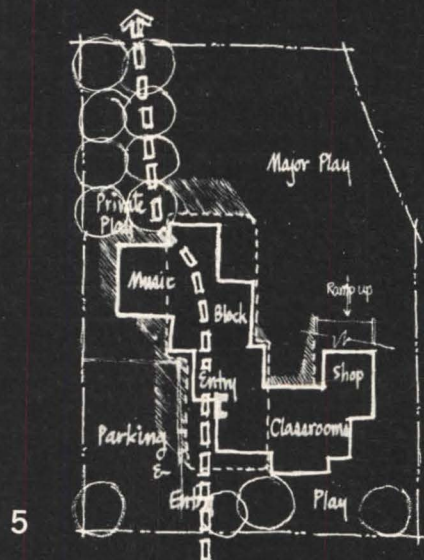
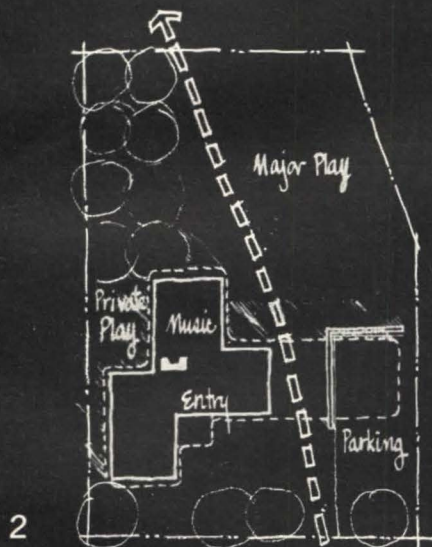
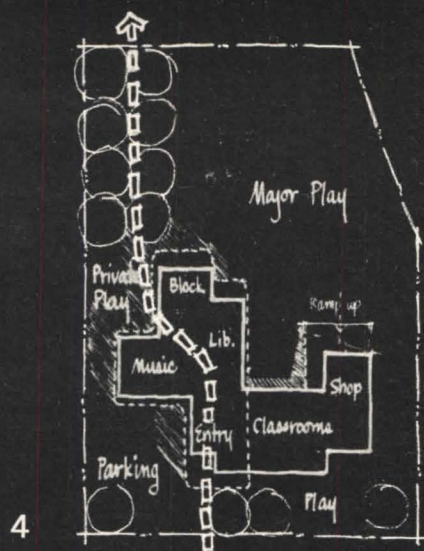
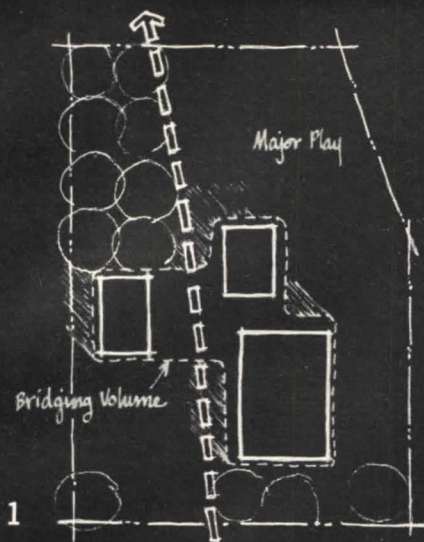
Without going into detail, it is possible to see the demarcation points in this design process and to draw some conclusions on the design process in general.

First, the major design decisions were made in two relatively short periods of time. During the first of these, which the architects have called the Space Allocation stage, "all important form alternatives were considered and the basic outlines of the final design were generated."

Second, and of more significance, as will be seen, is the observation that in developing the design to this point, each new scheme originated as a reaction to questions (or defects) of an earlier scheme (see schematic sketches). For instance, Scheme 2 is a reaction to Scheme 1, maintaining a diagonal circulation through the site, but locating the building in the southwest corner, to keep it away from the neighbor to the east, and to release the play area from shadow during the morning. Similarly, Scheme 6 is a reaction to 5, maintaining the general relationship of "space-use units," but moving the Music Room back into an appropriately central position.

Further analysis: space allocation

Then followed an analytical study, to add to the historical. The architects wanted to look especially at the time during which



The design of the school developed in a series of steps (left). From their study of this record, the architects conclude that each new scheme originated as a reaction to questions (or defects) of an earlier scheme. The architects were conscious of the whole form, at all times, although they identify other criteria as geometric, and the relationships between spaces. These three sets of variables are indicated in the flow diagram (right), each variable to be eventually worked up into a computer routine. "The final form of the design," say these architects, "is the direct result of the order in which a designer chooses to consider variables"—a conclusion of considerable importance, they feel, for a computerized system that will be useful in the design process.

the basic design was established, and at the primary activity of that time—space allocation. They again analyzed the schematic drawings, distinguishing each succeeding scheme from the one before on the basis (for simplicity) of changes in only one element, the Music Room.

The Music Room location was subject to three sets of variables (see diagram, right). (The architects emphasize that these variables are abstractions formulated after the act, and as such can only approximate a description of the process.) In brief, the variables include: 1) *geometric requirements*—the dimensions of an area, its shape, and any external constraints such as contours and zoning; 2) *relationships between spaces*—orientation, for instance, and proximity; and 3) *relationship to the whole* design. This third set of variables is the most important, Myer and Krauss feel, yet most difficult to define, and includes considerations of spatial sequence, appropriateness of expression, and dominance of some functions over others.

The three groups of variables, state Myer and Krauss, "indicate an expanding set of concerns, from the geometry of a single space, to the relation of spaces one to the other, to the relationships of all of them together. Yet there was no such logic used in the actual design process. Rather the range of variables came into the history as a reaction to form, after an initial form arrangement was proposed. In a sense, each proposed form was intended to fulfill the set of criteria which brought it into being. But then, the designers decided that the form did not meet some of these criteria; or it *suggested new criteria* (generally ones that the proposed form most obviously did not meet). There was a continuous cycling of form and criteria until there was no conflict between them."

They discovered that “as variables are considered and neglected, the design changes,” and they conclude that “the final form is the direct result of the order in which a designer chooses to consider variables.” This is a point

of major importance in the eventual development of a computerized approach to design, as the architects later explain.

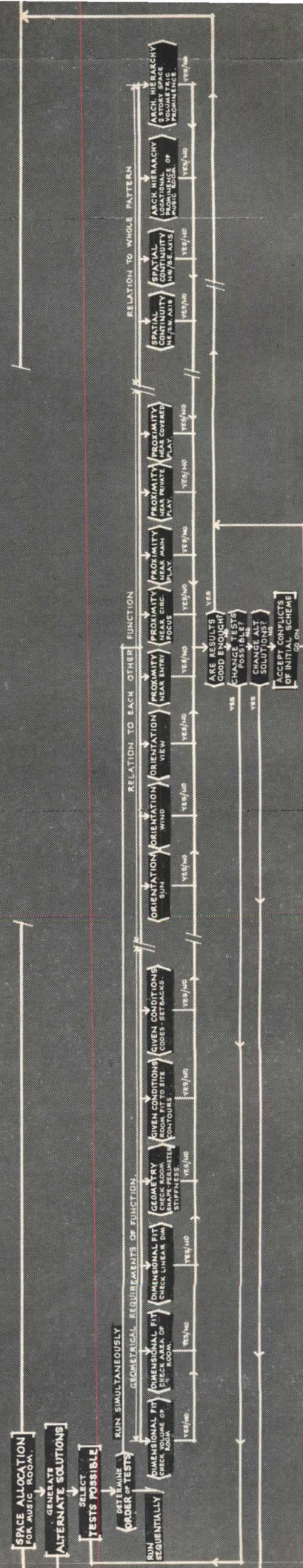
Definition of the design process

Myer and Krauss acknowledge that with a different design project, or different designers, there might be more attention to technical or programming problems. Yet, they argue, there is much in this case study of theirs "that is familiar and similar at root to the design of any human environment . . . there is the large number of variables, whose composition will change during the solving process, and whose definition will be quantitatively difficult or impossible. The treatment of variables occurs in no clearly set order, and the dependency between variables is a function of both the characteristics of the problem and of the designer."

The design process, as these two architects define it, has as its most frequent and constant activity, "the creating and reacting to form." They find that they dealt with the form of this building *as a whole* from the outset, reacting to it and changing it step by step. They find it quite clear that they did *not* proceed "by analyzing carefully a set of goal statements, setting up a different geometrical solution for each, and then proceeding to resolve the relationship among these units. This is only part of the process."

They further define the design process: "It was appropriate for the designer to have investigated issues as they became important to him and as he reacted to form, because many of the issues he deals with can only be handled intuitively until they become explicit in form." One nonquantifiable goal, for instance, was a "special location" for storytelling. This implied requirement could find appropriate expression only as the form grew.

There are also changes in program as a design develops—the client decided quite late in the preliminary design phase that cars would not actually be parked on the required parking lot, thus making it possible to have the “parking” area merge



with the rear play area.

The designers also changed their criteria, one important change having to do with the location of the building relative to the site (the major circulation was first viewed as a progression through the site, then later as a progression through the building). Thus a design project yields up its peculiar problems for solution only after the designers have begun to study it, and even then these problems will change with new insights and new demands.

Essentials of a computer system

From the essence of the design process — the making of forms and the exercise of judgments—Myer and Krauss propose a set of broad specifications on which a computer system useful to architects must be based.

1. Because the designer deals primarily with form, the system must be graphic, and must be able to handle nonquantifiable and visually defined variables.

2. Because the designer contributes by evaluating a problem as he manipulates form, and changes the problem according to the possibilities and problems suggested by this form manipulation, the system must allow criteria to be handled in any order during the history of a design, at any time and at any scale.

3. Because the designer's insights come from his understanding of the variables in a problem, and their relationships, he must fully understand the system's operations and be able to develop it as his insights occur.

4. Because the designer needs a system that complements his strengths and interests, without being awkward or limiting, it should be developed in close collaboration with him.

Implications of this research

Professor Albert G. H. Dietz, of MIT's Center for Building Research, supervised this study and the several companion studies done under the NSF grant. To Dietz, the significance of the Myer-Krauss work is not that it

developed a computer approach (because it didn't), but that it "nicely pinpointed the steps in the design process, seeing which aspects are amenable to systemization and which are not." One of the primary observations towards this end, according to Dietz, is that the design process incurs frequent change of mind (or change of constraints, in mathematical terms) and a system would have to permit the constraints to be changed; this can be done. There is no doubt, says Dietz, that one of the areas where the computer can be helpful to an architect is in space allocation, helping him find a larger number of possible schemes at an early stage of design, and helping him choose the best one for further development. As Dietz says, though, "If you don't like the way it looks, you can always throw it out."

How much time would be saved if the computer could help in this way? It's not a question of saving time, say Myer and Krauss, so much as doing other things with that time. The architect would have a chance to exercise his real architectural judgment more of the time, and use his less specialized facilities less of the time.

A greater saving than time is in store, though. As an architect now works, he develops one scheme to a point where he is, in effect, in love with it and committed to it; or, by another metaphor Myer and Krauss use, the architect's labor gives birth to his own child, and he is not able to abandon it. How much better if at an earlier stage, several alternatives were posed by computer, before the special commitment or expenditure of time makes it impossible to abandon what may later be less than satisfactory.

It will be a heady experience, having a series of thumbnail sketches rapidly worked up by a computer. Will it put the architect more out of balance in terms of human values? Myer and Krauss see it as a question. Architects are easily seduced, they say, and this may be a danger, but no worse than being easily seduced now by the

one single love-object, of which the architect becomes enamored after weeks at the drawing board.

If there is less human time spent in developing design sketches, and less experience evaluating them, will there be the same facility to gain insights from them? Yes, say these architects, if the designer is aware of the problem. All the more reason to be involved in the creation and operation of the computer system; the architectural designer must know its possibilities just as he has come to know the less dynamic tools of his trade.

Prospects for the future

Dietz emphasizes that this is still only an early stage of research. An architect can not yet sit down at a console and develop a design this way. Perhaps he will be able to "in a few years," if solid effort is placed behind the necessary research.

Already at MIT, with the BUILD system, the architect can describe spaces that might go into a building, telling the computer the dimensions of these spaces, how they should be arranged, and the characteristics of their materials. The computer then arranges them, pointing out conflict in the design, and computes such factors as weight, volume, load, cost, etc. So far, the commands are in English; they ought to be in graphic terms, says Dietz. There is also work being done that vastly increases the capacity of information storage and retrieval, with computer graphics. There is far to go. Myer and Krauss say, "We'd like to go further, set up the graphic tools responsive to problems of space allocation—make sure that the units the machine plays with are the ones that the architect plays with." Perhaps there will be some kind of malleable three-dimensional output, instead of the two-dimensional shapes (or three-dimensional on the flat) now possible.

Dietz sees this new work at MIT less as a confrontation of the Alexander approach than a

parallel effort. But, from Myer and Krauss, "We think the design process is far less rational than they do. We consider it an analytical process, of course, but from this case study we'd say it is highly evaluative and judgmental. We do concede that others may work more analytically; or on a larger project (as, for example, urban design) the designer may proceed from an analysis of each part to a summation of the parts." (The work of Alexander may be considered this kind of analysis, finding the best solution to a series of questions, moving to the next higher question, finding the best solution to that, and so on.) Myer and Krauss don't think this is a useful system for the architect, for reasons brought out by their case study—because you can't put a quantitative value on every variable, and because you don't want to avoid the hot dynamic issues of design, and because you want to consider the design as a whole, and consider variables at any time, and so on. It is possible that Alexander himself is dissatisfied with the limitations of his approach, they suggest.

More case studies would be useful, think Myer and Krauss—of different problems, at different scale, and in different offices—to see if these observations hold. "Architects are not conscious of their method; they're too involved in substance to focus on method. They can't articulate verbally what they're after, and we're surprised ourselves to feel so strongly about some of our conclusions—for instance, that the final form is the direct result of the order in which the designer considers the variables. We wouldn't have thought this, before we began."

In a sense this work is a response to what went before, and they hope others will build on theirs. A science only begins to develop, according to one theory, when someone tries to refute a concept and develops another in the process. "Our hope," say Myer and Krauss, "is not so much that this is accepted, but that it's responded to."

—ELLEN PERRY BERKELEY



Although I am not particularly fond of regionalism in architecture, the design of this library was very much influenced by the traditional domestic architecture of Northern Ghana. While the forms, scale, and ma-

Mr. Bond, the architect for the library he describes in this article, is an alumnus of the Harvard Graduate School of Design. He worked in Ghana for two years, and he has recently become the director of the Architects' Renewal Committee in Harlem (ARCH), an organization formerly headed by Forum Contributor C. Richard Hatch.

terials are not derived from local mud dwellings, the handling of masses (for example the softened corners of each of the four "buildings" under a single roof), the predominance of solid wall as opposed to glazed areas, and the sequence of multiple use spaces (through which areas of specific activity are reached)—all these are directly related to local practice. Therefore, it seems appropriate to describe first the marvelous Fra-Fra houses, and then the library.

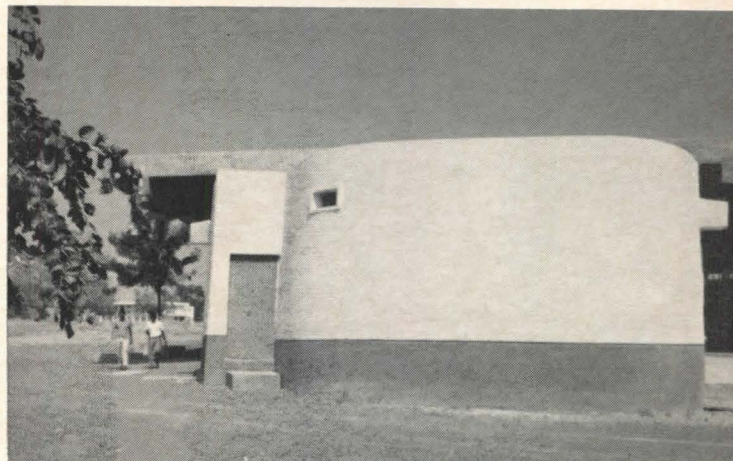
During the rainy season the savannah surrounding the town of Bolgatanga looks like a vast stretch of uninhabited farmland. As the dry season approaches and crops are harvested, the Fra-Fra houses begin to emerge and spot the landscape.

Each house appears to be a complex of several small, round houses which are, in fact, circular rooms slightly separated from one another. Every space, even including a nook for chickens, is clearly defined. "Round-

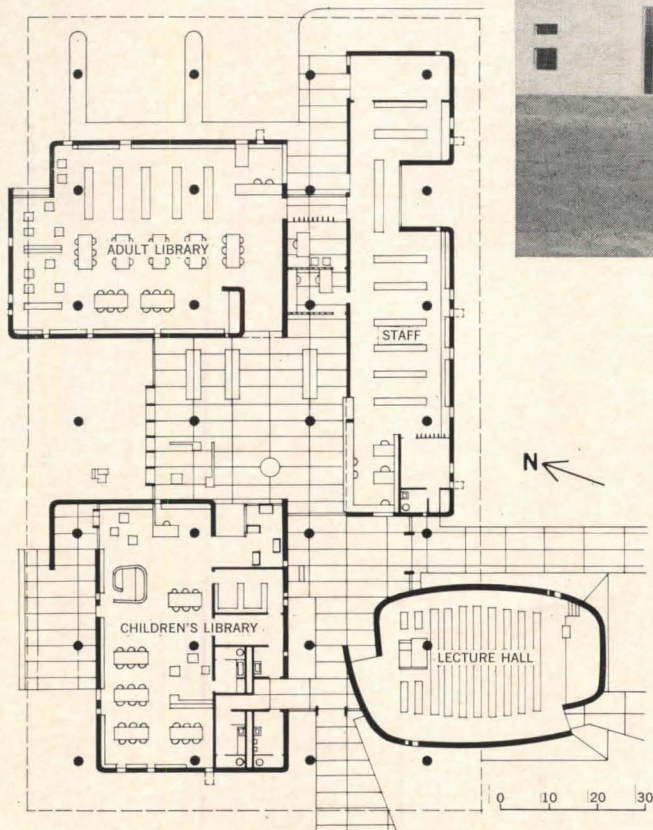
ness" predominates and is expressed on many different scales: the sleeping rooms are from 10 ft. to 12 ft. in diameter; the granaries are approximately 3 ft. across, and niches for chickens, fetishes, and other small objects are merely bulges in the wall linking the circles. The near-spherical earthen cooking pots are clustered like the rooms. The granaries and some of the rooms are topped with conical thatched hats, while other rooms have flat rendered roofs used for

A LIBRARY FOR BOLGATANGA

BY MAX BOND



Left: library is, in fact, four separate buildings under a reinforced concrete "umbrella," with a ventilating space between the underside of this umbrella and the tops of the buildings. (See also plan, below). Right: Fra-Fra houses near library (top photo) were a regional source that suggested forms in the new building.



drying grain in the sun and reached by stairways which curve upward between the rooms.

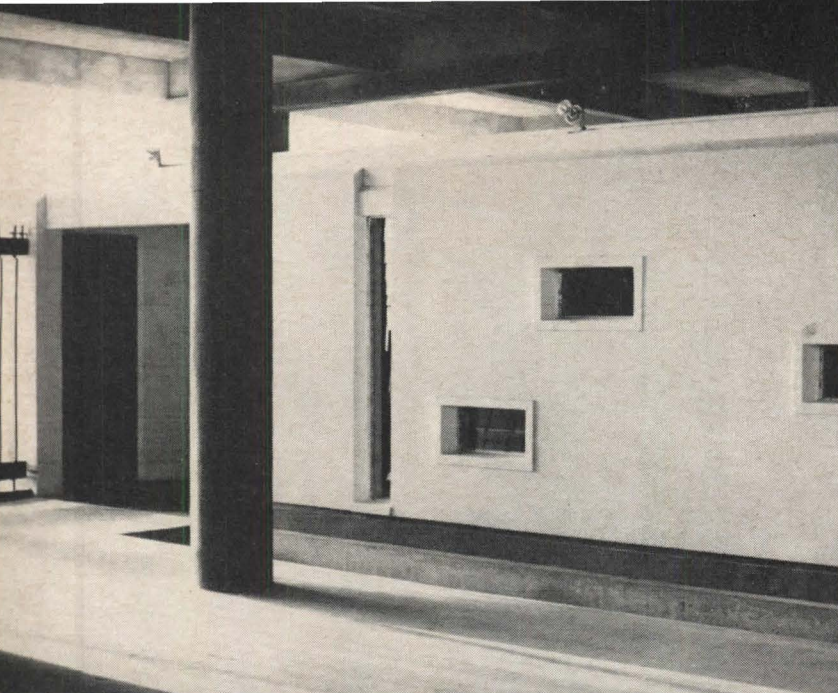
Spatially these traditional houses are extremely rich, and the unroofed courtyards and the closed rooms provide a sense of privacy and security. The houses do, however, require quite a lot of maintenance—primarily for the roof and the base of the walls (eroded by wind and rain).

All public libraries in Ghana are built and administered by

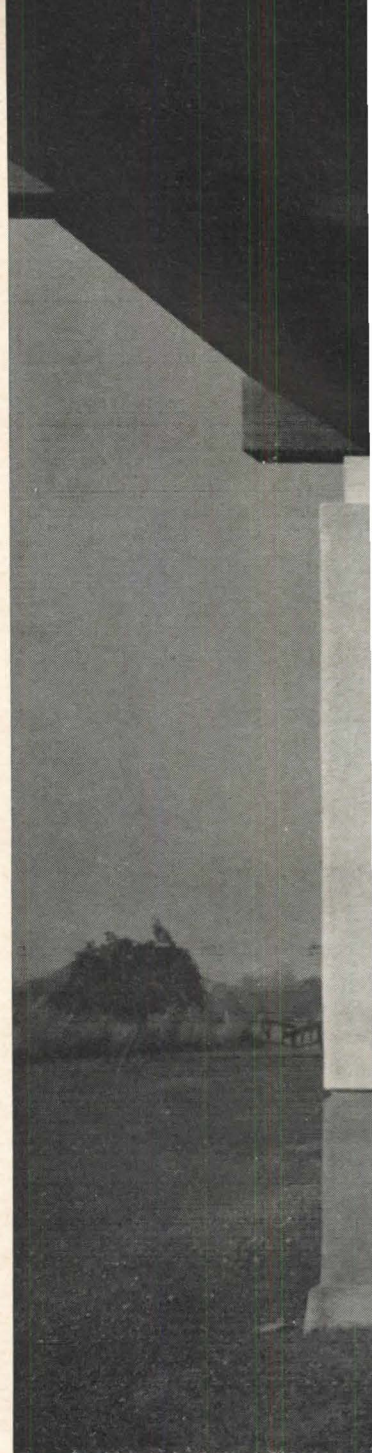


the Ghana Library Board. A regional library for each of the administrative districts of Ghana is projected for the future. The central library serves all outlying libraries in the region. The director of library services, Mr. A.G.T. Ofori, wants each library to be a significant and unique building, a symbol of the emphasis on literacy in Ghana.

The brief for this Upper Region Library at Bolgatanga required: an adult library with open stacks; a children's library



Top left: one of two open courts that separate the four elements of the library. Wall at right is part of children's library unit. Bottom left: workroom for library staff, before furniture was installed. Right: walls are stuccoed concrete block. Special blocks were used for window frames.



with an outdoor story-reading area; a lecture hall with accessibility even when the library is closed; a staff area; stacks to serve bookmobiles based in *Bolgatanga*; sheltered parking and loading areas for the bookmobiles; and space for small exhibits.

Good building timber is scarce in the Upper Region of Ghana, and concrete is commonly used for modern buildings. Although concrete blocks are made, there is no facility for precasting

large elements. The Government has a fairly large, well-equipped building yard in the area. Yet when the concrete is poured above grade, it is usually carried by workers up long ramps in "headpans."

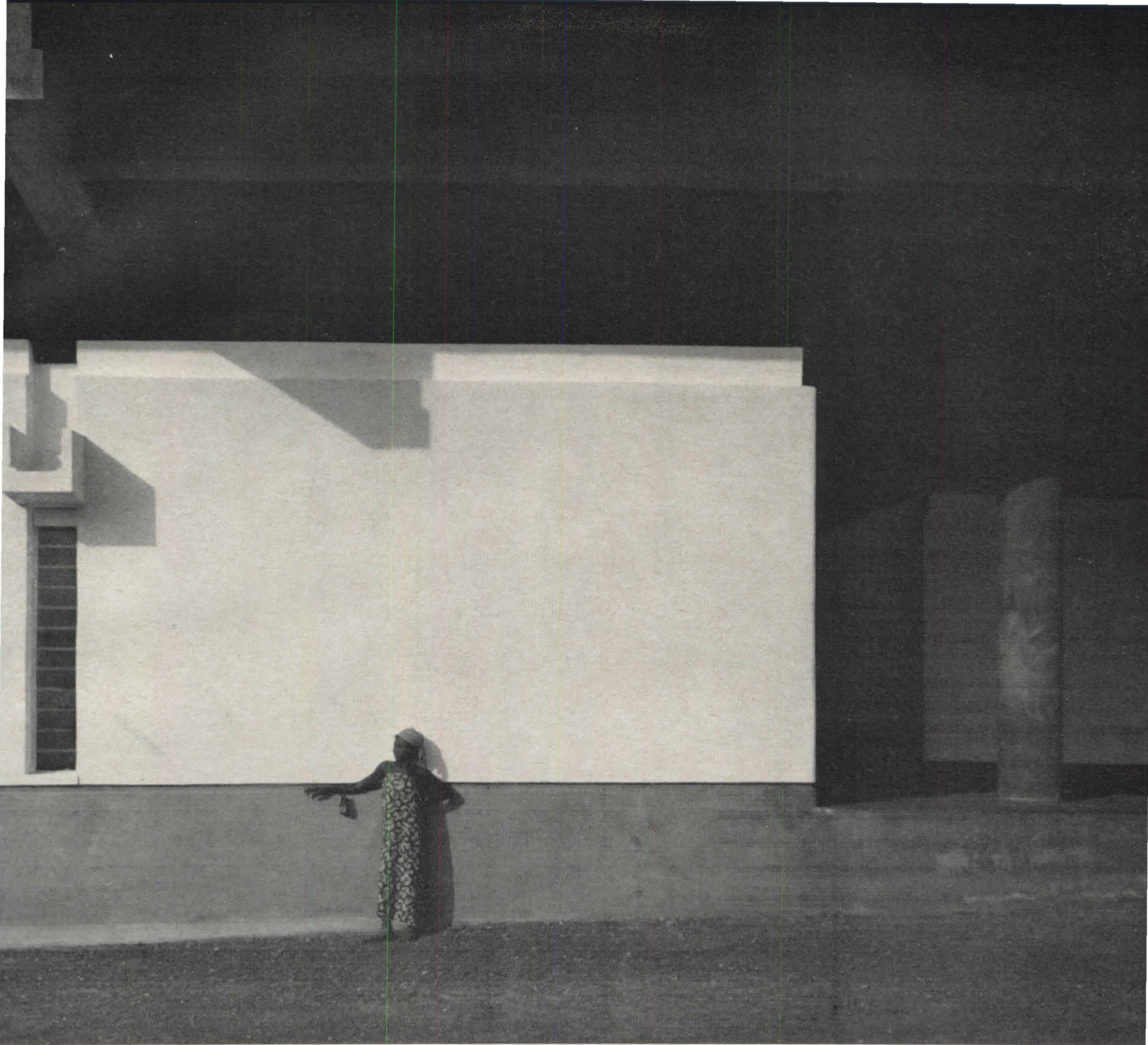
The new library was built of in-situ concrete and concrete block. Special blocks were used for the window frames. In the schematic phase all the walls above the base were to be of "landerete" blocks (composed of

earth and cement, similar in appearance to the traditional mud walls), but no local authorities would permit this material to be used for a "prominent modern building."

In designing the library I attempted to reflect some elements of traditional architecture and to deal, if only symbolically, with some of its problems—hence the exaggerated base. The library's program and my subjective responses to such factors as climate constitute other elements of the

design. I wanted to escape from the sun and Mr. Ofori wanted to avoid glare in the building—hence the big roof and its columns, forming an artificial grove within which the individually roofed buildings are gathered around two spaces. Very comfortable temperatures resulted from this arrangement and a breeze flows naturally through the court spaces.

The open spaces between the four buildings extend to the main roof above. One is a



public space serving the lecture hall, and another is the library's common room, to be used for card files and small exhibitions. The latter is controlled from the main desk. The building was sited so that the courtyard, which is not open to the sky as in traditional buildings, would open on one side towards a large existing bao-bab tree. (According to legend, these strange trees offended the Gods, and were uprooted and replanted upside down.) The major spaces

otherwise have a minimum number of windows opening to the outside.

Many problems arose during construction owing to shortages of materials and to the fact that many of the laborers could not interpret drawings.

We were often called upon to supply supplemental sketches, and the site foreman had to tax his ingenuity to get the job done. Very little timber had been specified and in each instance of its use the joinery work was ter-

rible. Every effort to improve it backfired.

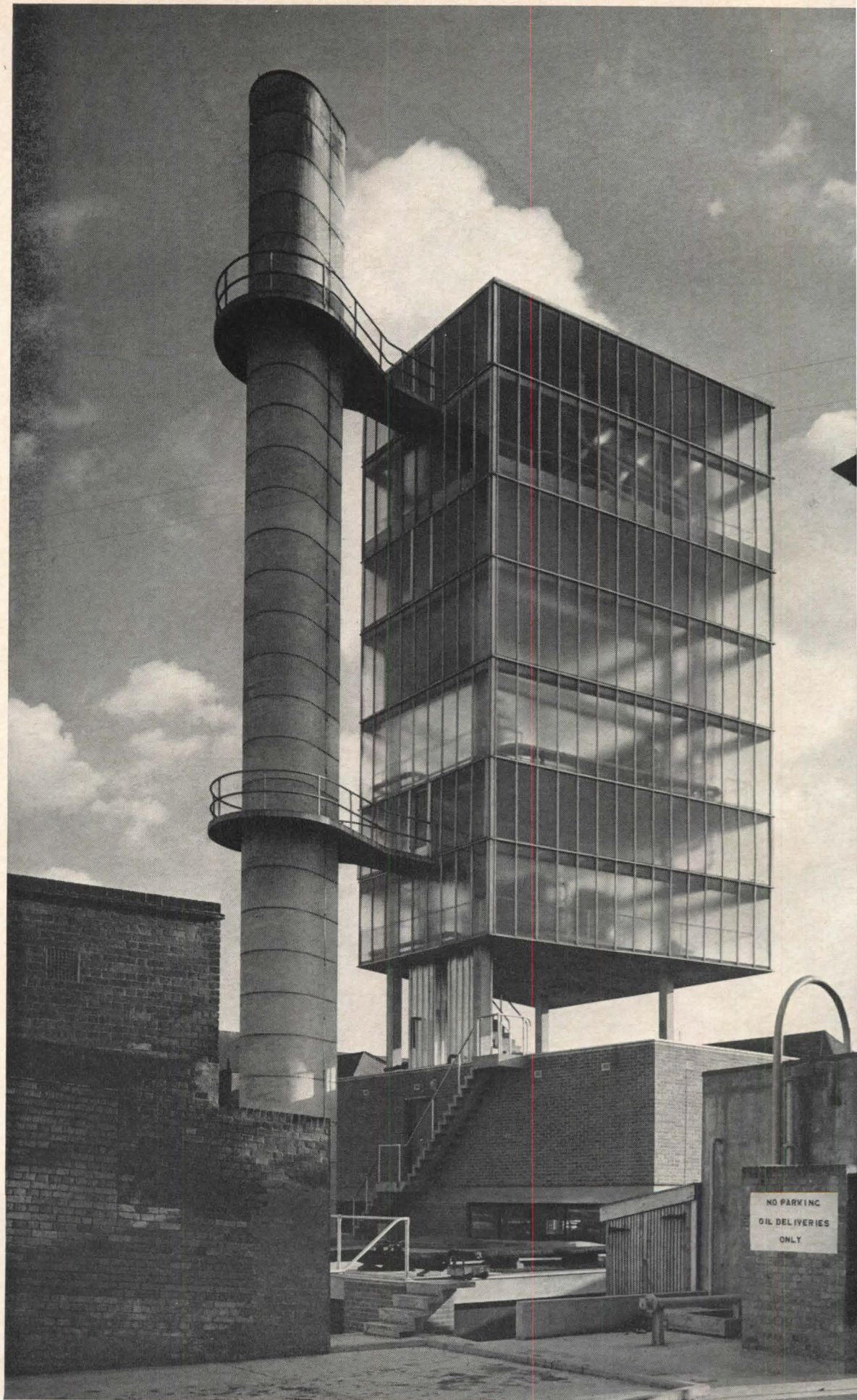
Surprisingly, the building went up quickly; but various shortages, and a radical change in the Government of Ghana, which prompted the reorganization of the state construction corporation, delayed final completion.

On our last trip to the library a schoolboy, who, I like to believe, lives in a round compound house, said to us, "the house is nice-oh!"

FACTS AND FIGURES

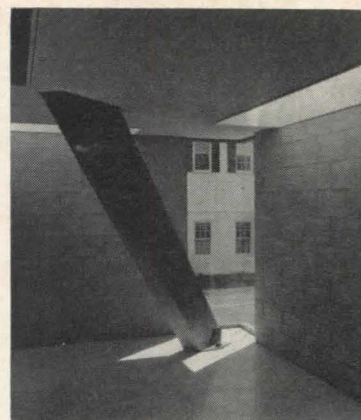
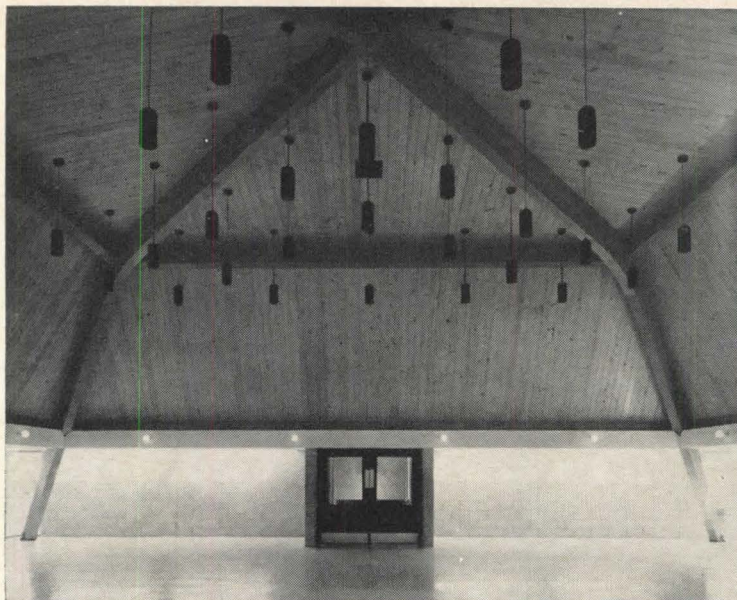
Upper Region Library, Bolgatanga, Ghana. Owner: Ghana Library Board (A. G. T. Ofori, director of library services). Architect: Max Bond (Nat Cofie, chief draftsman). General contractor and engineer: Ghana National Construction Corp.

PHOTOGRAPHS: Willis Bell.



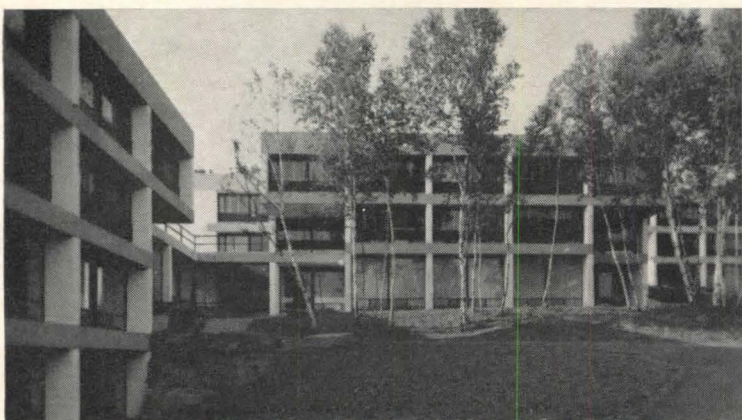
A CLUSTER OF PLANTS

Peter Barefoot & Associates have made the most of an already congested site by their grouping of utilities functions for the Ipswich and East Suffolk Hospital in England (opposite). Each function has its own form and material. The glass and aluminum tower, with only three full floors, contains water tanks and a water softening plant. It perches on slender concrete columns over the oil-fired boiler and incinerator plant enclosed in brick. Fumes are carried off by the keyhole-shaped concrete stack. Although it appears to be rectangular in this photograph, the water tower is trapezoidal, the sides slanting outward from the chimney. On each of the parallel sides of the trapezoid three full-length glass panels open outward for ventilation.



HIGH-ROOFED MEETINGHOUSE

Fellowship Hall, an addition to Huntington Congregational Church in Shelton, Conn., is the open-ended first stage of an expandable design by Architect Paul Mitarachi. It provides 7,800 sq. ft. of meeting and study space—hall above grade, classrooms below. The hall is square, walled with concrete block, and dominated by its Mansard-like roof (left). The pitched wooden crown of the roof is supported by intersecting laminated arches and rises above a reinforced concrete "brim." The brim itself is lined with skylights at the perimeter and pierced at all four corners by the legs of the arches (detail above). Phase two of the expansion will extend from the north facade (lower left).

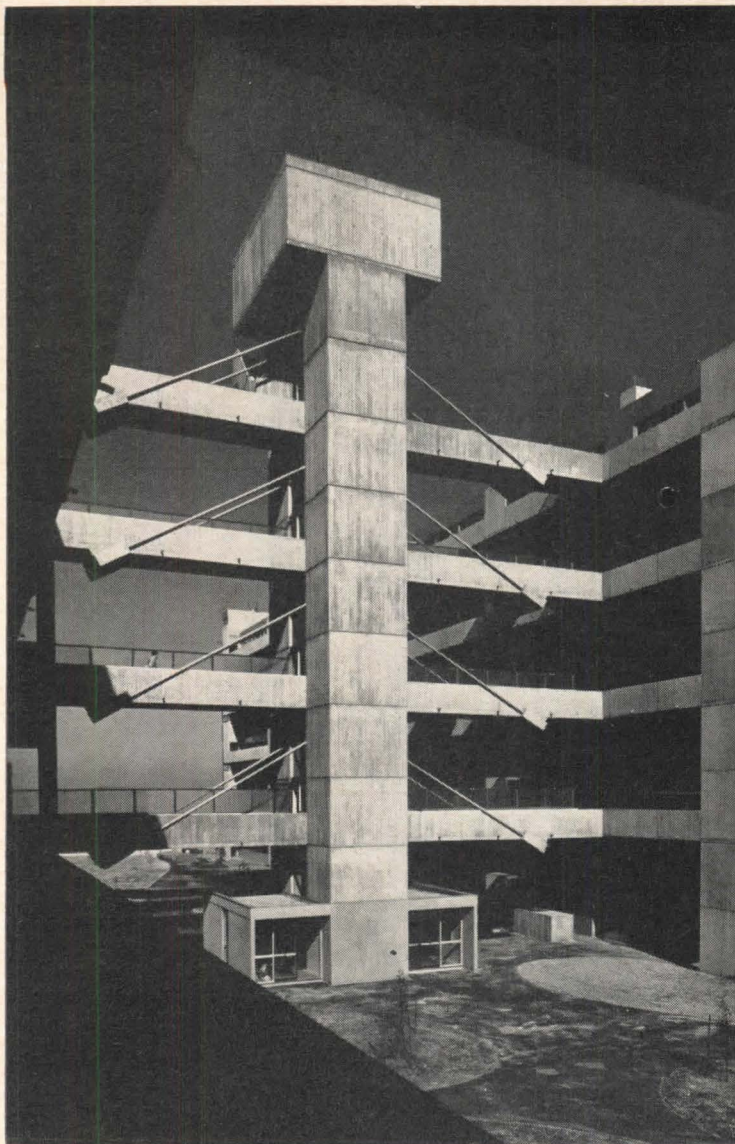


SOLID GEOMETRY

A steep rock ledge near Waterville, Maine, was blasted away to clear platforms for a terraced housing arrangement at Colby College. The four dormitories and one fraternity house by Architect Benjamin Thompson bring severe angles and planes to the craggy landscape: natural gray concrete floor slabs contrast

with verticals of white-painted brick; top-floor overhangs mark corner entrances (above); floor beams are exposed intermittently for accent in the filled brick walls along the back (right). The separate dormitories at descending levels have interconnecting study lounges shared by men and women students.





UP AND OVER, DOWN UNDER

Described by its architects, Harry Seidler & Associates, as "rational, rectilinear, and industrialized," this low-cost housing development in Rosebery, New South Wales, is remarkable for at least one detail: the elevator shaft with hanging bridges (above) that gives access to upper floors. Two parallel but staggered buildings (right) are serviced by this single, economical expedient. Bridges accommodate two stories in each building.



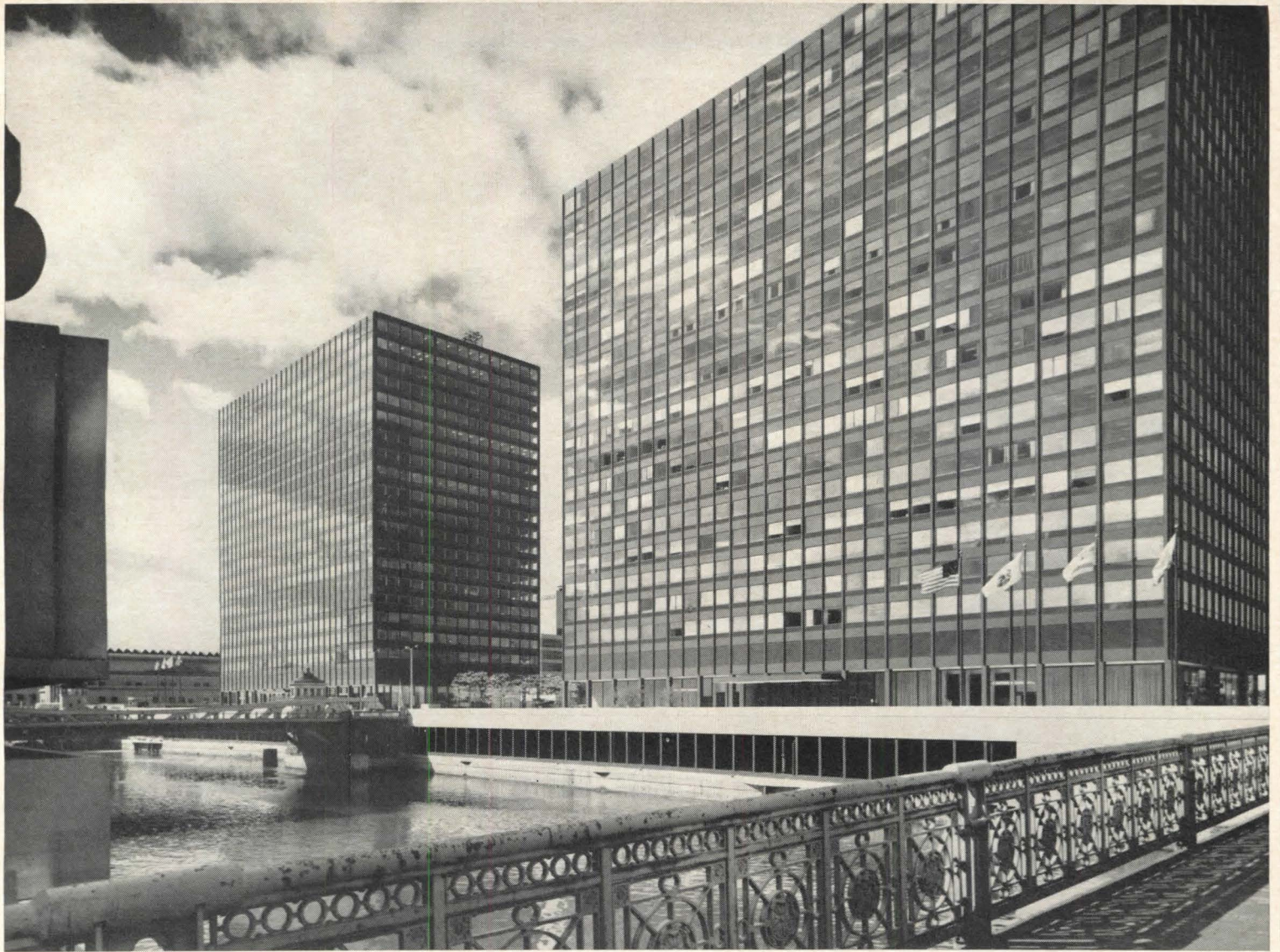
A ROOM WITH RHYTHM

The nondescript builder's house pictured at right, in Scarsdale, N.Y., has been given an elegant new back door. Designers Robert A. Mayers and John C. Schiff have added a room for the owners by building out over a former storeroom-terrace. Basically a box (below), the room is stepped down on a diagonal at the roof to permit natural light to enter through the "riser" of the step. On a second diagonal, in the outside wall, is another such light source; fluorescent tubing is recessed along both. This accomplishes several objectives: it blocks all general views but one—a client requirement—imparts



rhythm to the box, and produces pleasing night-lighting patterns, outside and in. Sliding glass doors serve as windows. The tubular steel and cane chairs (bottom) are by Mies van der Rohe, the tea wagon by Alvar Aalto.



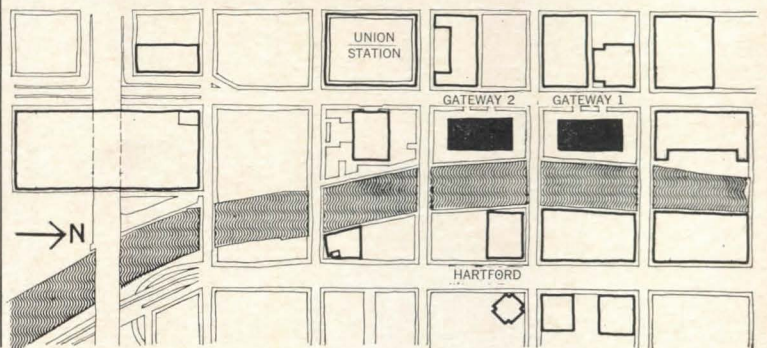


PHOTOGRAPHS: Page 68, John McCann. Page 69 (bottom), George Cserna. Page 70 (left), Max Dupain; (right), Ben Schnall. Page 71 (top), © Ezra Stoller (ESTO).

TRAIN-YARD TOWERS

The first two buildings of Gateway Center, twin office towers by the Chicago office of Skidmore, Owings & Merrill (above), are built on air rights over the tracks of the Windy City's Union Station. The black-painted steel and blue-green glass facades sheathe computer-analyzed structural steel frames, with bays 18 ft. by 45 ft. wide. Each 50,000-ton building is carried on 48 columns and caissons, the long bays span-

ning the tracks. Columns are separated from caissons below grade by lead asbestos pads to absorb train sounds and shocks. The twins face an SOM neighbor—the Hartford Insurance building—across the Chicago River (aerial and site plan), and are set back from the river to provide a pedestrian concourse. Two more Gateway Center projects will rise over train yards to the south (left foreground, aerial).





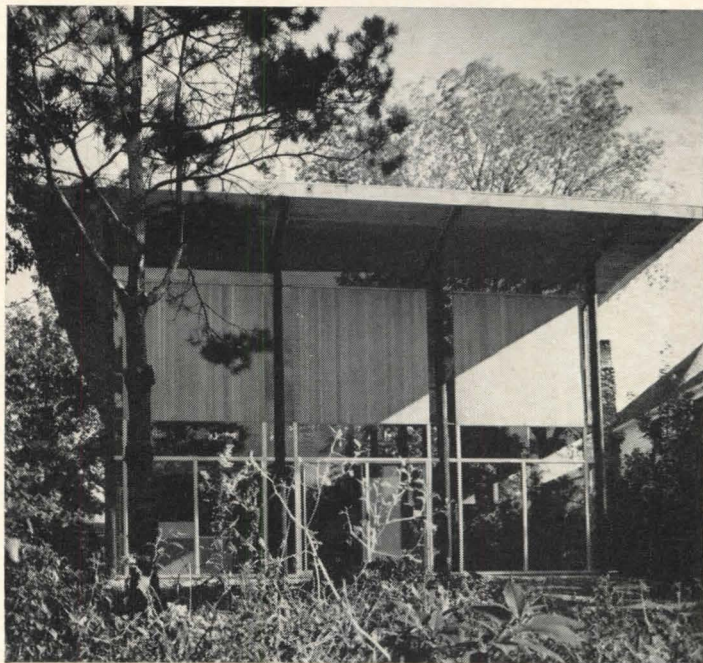
WOODEN POLES FRAME A HANDSOME SPACE

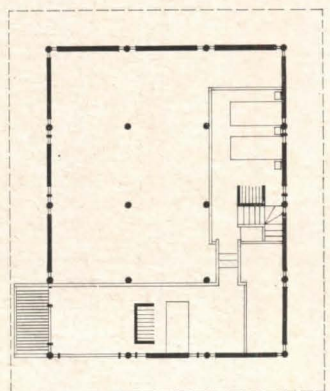
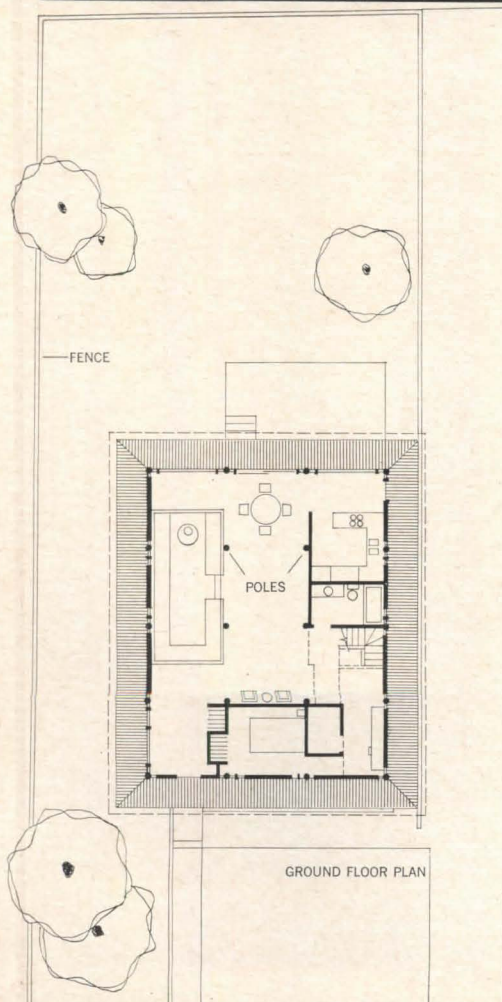
"My idea was to do a house that would have enough interior space so that the experience of this space would dominate," says Richard Owen Abbott, the young architect who designed this airy summer house in Connecticut, not far from Long Island Sound. He explains that the site was very small—a 60-ft.-wide lot between two existing, undistinguished houses. "The space would make up for the lack of site," he adds. "It would be a site itself, with different elevations, controlled views of sky and foliage, up and out."

To achieve this result, Abbott devised a simple but dramatic framework of 20 poles of southern yellow pine, each about 26 ft. long and 8 in. in diameter. These poles were set into 5-ft.-deep holes filled up with concrete. A system of doubled-up roof girders completed the basic framework (top right).

To enclose the space, Abbott filled in the exterior bays of his framework with sheets of glass, a sliding glass door, louvered vents, and panels of vertical siding on studs. The cost of the summer house—only about \$10 per sq. ft.—dictated the selection of inexpensive materials and finishes. However, the detailing is quite meticulous: for example, the poles have been routed out to receive the fixed glass, so that the elegant pole structure retained its identity even after the main space was enclosed (see photo at bottom right). "I am now doing another pole house in which the walls are on the outside of the poles," Abbott says. "But in this first house the integrity of the poles was an important issue with me, and I think it was worth the effort. The location of the panels allows for a sense of privacy—yet a feeling of openness."

This feeling of openness, created largely by having the structure outlined in glass, is a striking aspect of this house. The poles are spaced 10 ft. on centers, and Abbott feels that a 10 ft. "module" is really too small, and should not dictate the widths of rooms. "In this house we have 10 ft. by 10 ft. bays—but connected so that the space





0 10 20 30'

looks much larger than it is," he explains.

The sense of openness is created not only by the meticulous detailing of exterior walls and corners, but also by the division of the interior space. Although there are enclosed and semi-enclosed rooms in the traditional sense, Abbott has left most of the 24,000-cu.-ft. volume of the house in one piece—and achieved his major space divisions by changes in levels.

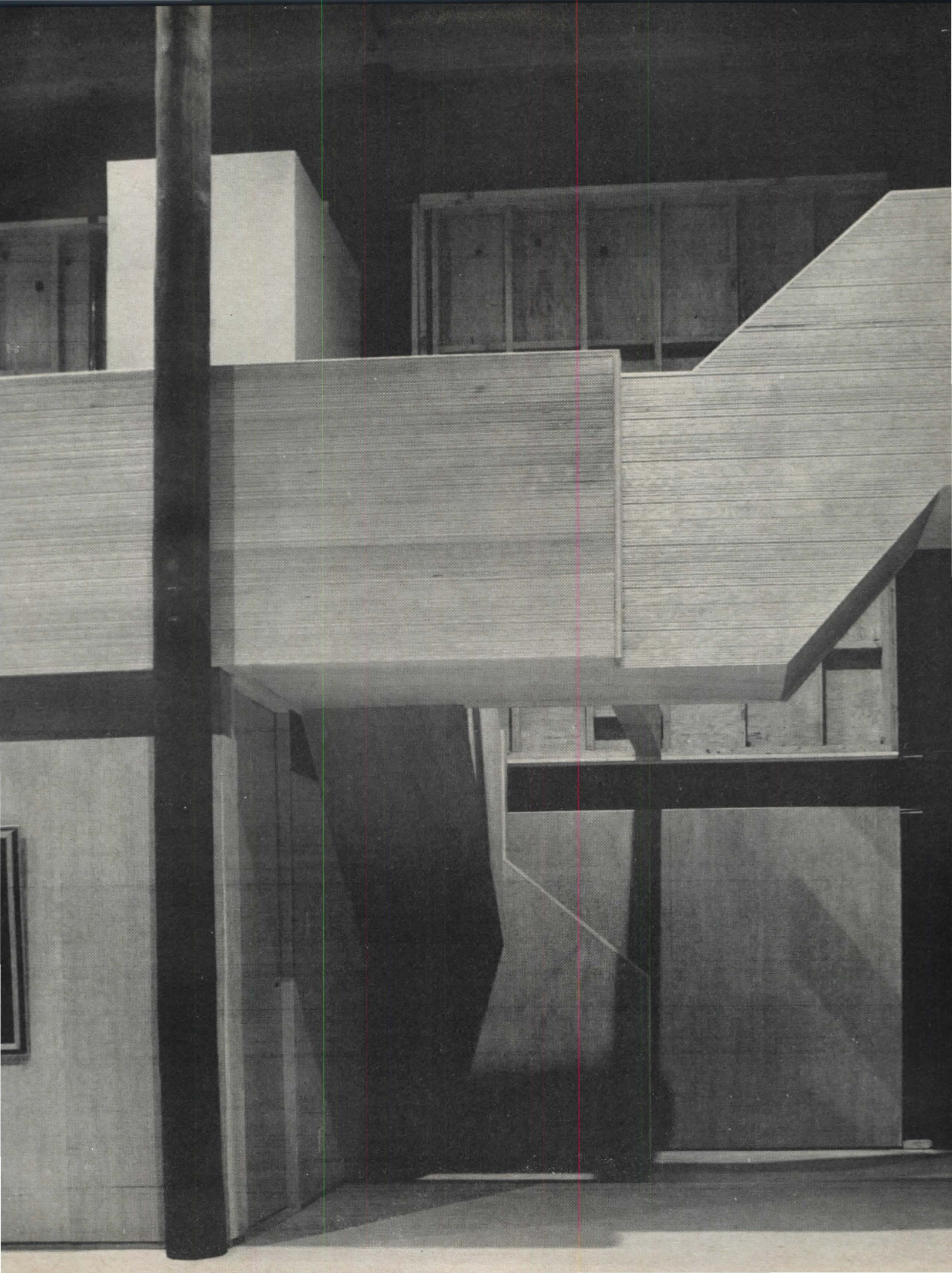
The intimate area of the living room, for example, is defined by a sunken pit (see page 74); one of the three bedrooms is located on a mezzanine about 8 ft. above the main floor of the house; and another (plus a studio) is located on still another level, 2 ft. higher up and above the main entrance door, visible in the photo at left. All these spaces are open to one another, but adequate privacy is assured by parapets and free-standing closets.

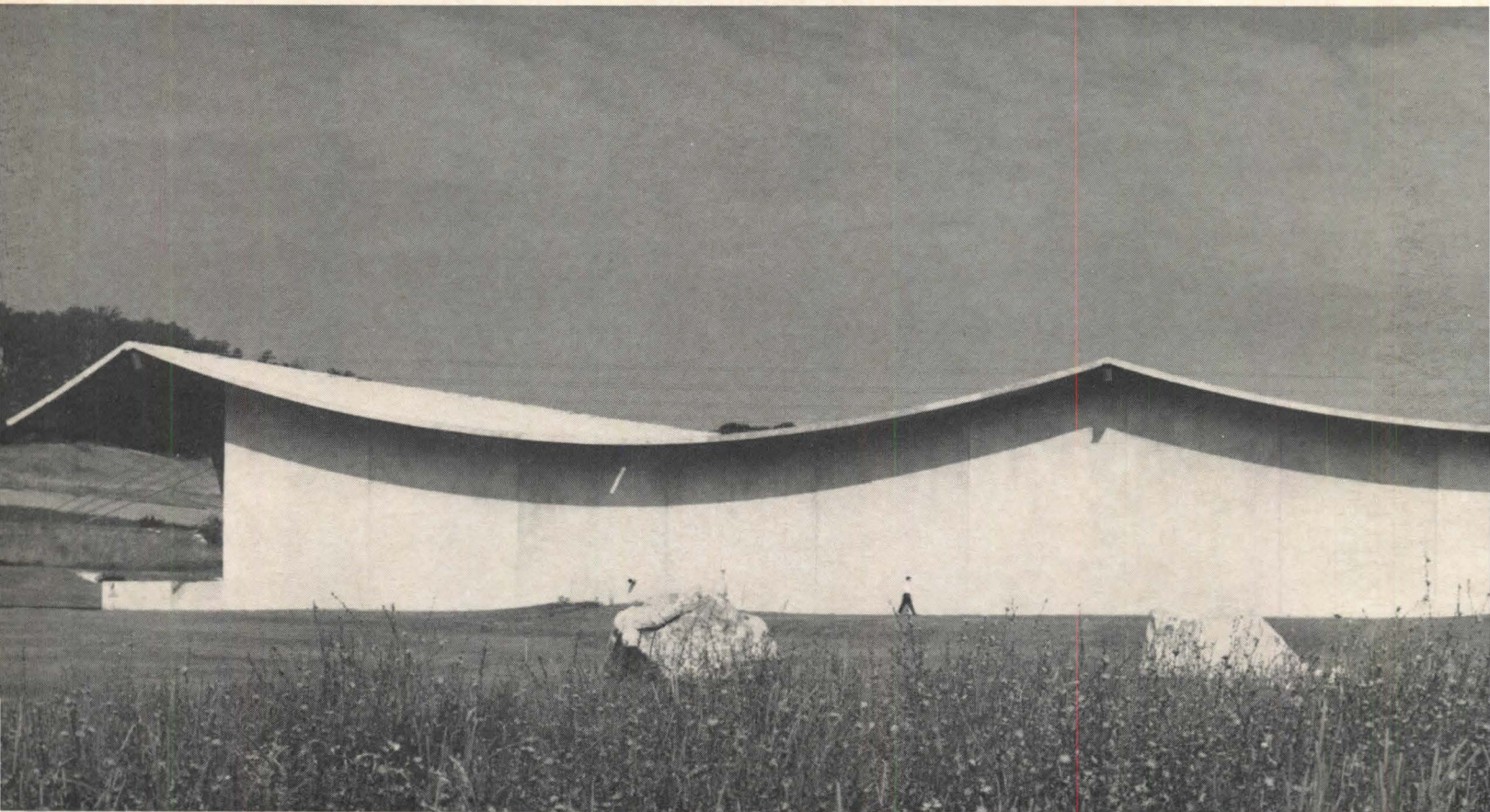
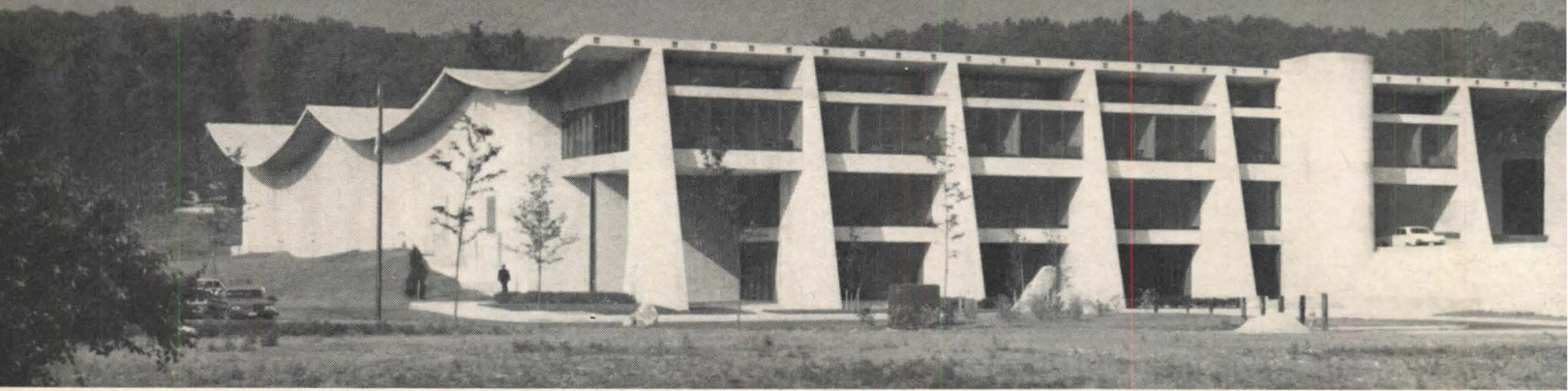
Privacy outdoors was achieved by the use of a simple 7-ft.-high fence around a good part of the small property. This fence, together with some existing trees and the solid wall panels "suspended" between the pole structure, is a further guarantee of indoor privacy as well: for even with wide expanses of glass toward the garden, the interior of the house is screened off from neighboring properties.

"I attempted to do a structure that had a strong sense of order and of proportion, without seeming dull or formal," Abbott says. "The mezzanines, therefore, were made to 'float' and to express great horizontal movement and thrust within the formal structure. The poles make the large space seem not quite empty, even when there are only a few people in it. These poles all have personalities, some being straighter than others . . ."

FACTS AND FIGURES

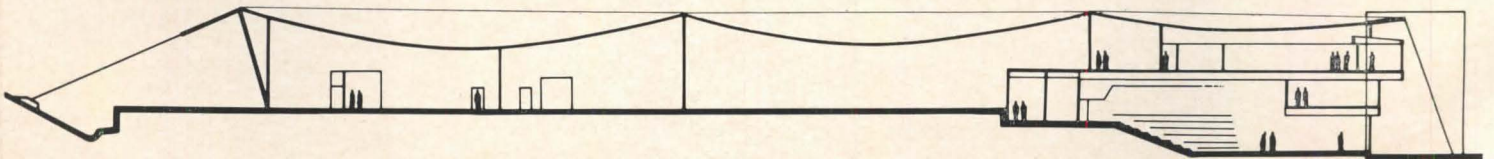
Summer residence for Miss Joan Traverso, Westbrook, Conn. Architect: Richard Owen Abbott. General contractor: George C. Field Co. Building area: 1,650 sq. ft. enclosed floor area. Cost: \$17,000 (exclusive of site work). PHOTOGRAPHS: Richard Owen Abbott

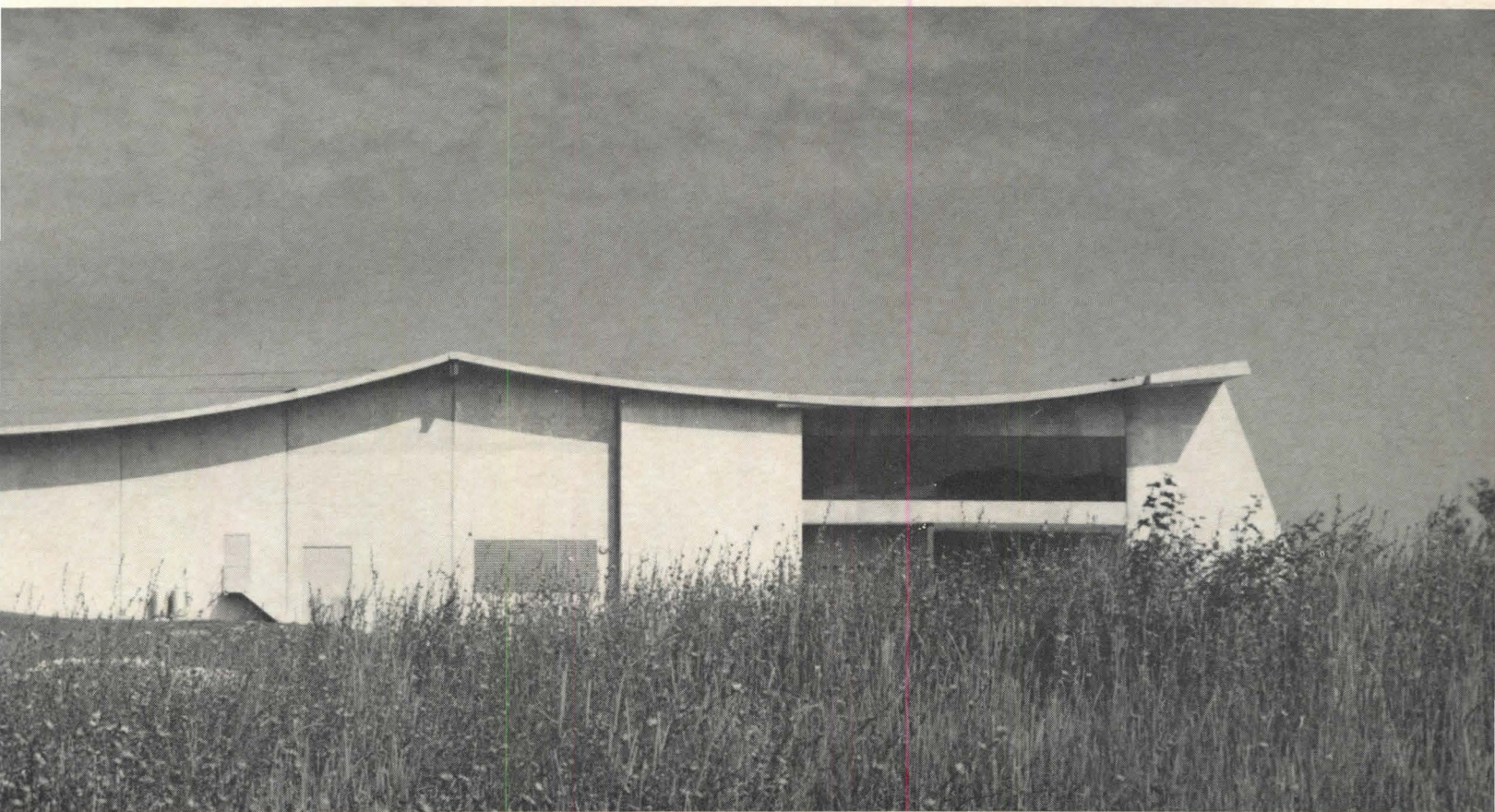
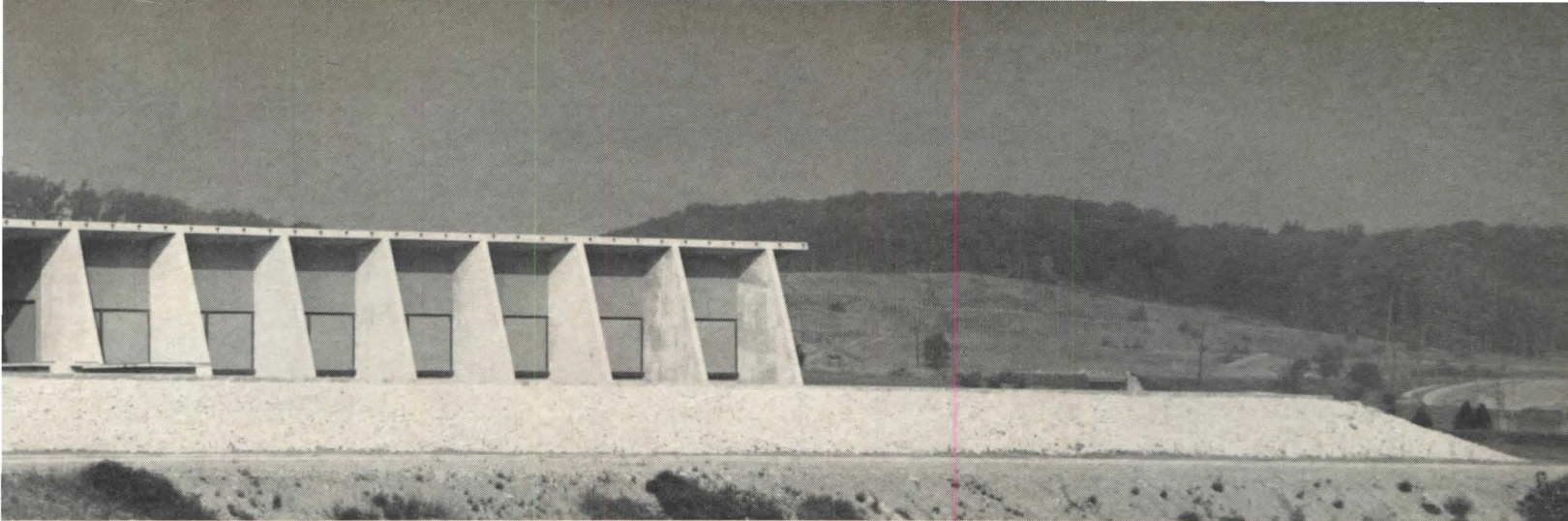




A TENT WRAPPED IN CONCRETE

BY D. B. ALEXANDER





The John Deere Company manufactures farm and industrial machinery. It is also interested in good architecture and good engineering, as it demonstrated when it got Eero Saarinen to design its beautiful headquarters building in Moline, Ill. (July '64 issue).

This building, designed by Rogers, Taliaferro, Kostritsky and Lamb, located just outside Baltimore, is primarily a warehouse—a large and not very com-

Mrs. Alexander is an architect who had her own office in San Francisco until recently. She is now working in New York City.

plex space. The total floor area of 197,000 sq. ft. comprises storage for machinery, whole and in parts, with provision for reception and distribution of the goods stored; related office areas; some display space; an area for training service personnel; and a cafeteria.

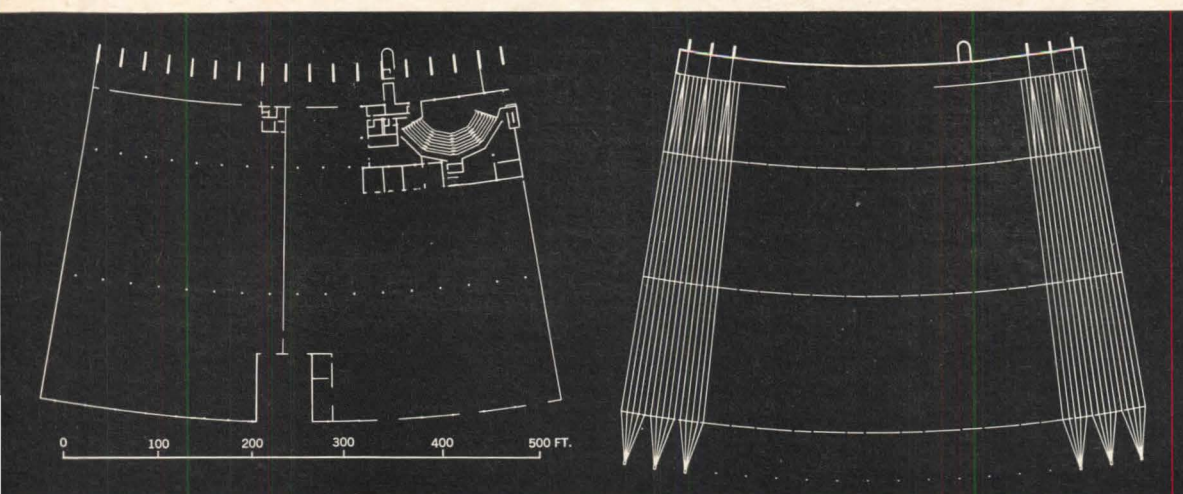
Clearly, the building serves its purpose. The site was graded to place the warehouse at an intermediate level between cafeteria and training classrooms, and auditorium-showroom space, so that personnel can pass easily between these areas. The offices,

which bear a more remote relationship to the rest of the operation, are on an upper floor, one level again removed from the cafeteria, and with the best view of the neighboring countryside (see section at left).

Just as clearly, the building goes beyond the conventional enclosure of space. The interior column spacing had to be wide enough to permit easy maneuvering of large earth-moving equipment; and so the architects selected a roof structure which they call a "big tent." (They did comparative cost studies of more

conventional framing systems, with which it compares favorably: cost of the building, including site work, is only about \$10 per sq. ft.). The tent-like building, with all of its functions gathered into the cavernous volume under the suspension roof, is a welcome departure from the usual warehouse, which hides its vast bulk behind a tiny administration building, embellished with architectural cosmetics.

The tent analogy is apt. The "ropes" of the tent are 1½ in. diameter steel cables which were manufactured by the firm found-



ed by J. A. Roebling. The Brooklyn Bridge, however, is not the only antecedent of the structure: a similar roof system was, of course, used for Dulles Airport.

In the Deere building there are two interior rows of columns and the cables span 131 ft. between rows. The column spacing in the rows varies from 26 to 32 ft., on center, in the long direction of the building. The cables are approximately 7 ft. on center; but they are not precisely parallel because of the "fan" shape of the structure (plans above), which reflects that of the

site. Since future expansion potential was part of the program, a rectangular building had to be ruled out: such a building's direct expansion would have crowded the edges of the site.

The size of the present building is deceptive: the end walls are 350 ft. long, while the long walls are respectively 400 and 512 ft. in length. At the high point over the columns the cables are about 30 ft. above the floor of the warehouse. And a typical "buttress" on the entrance side is 25 ft. deep at its base.

Because of the divergence of

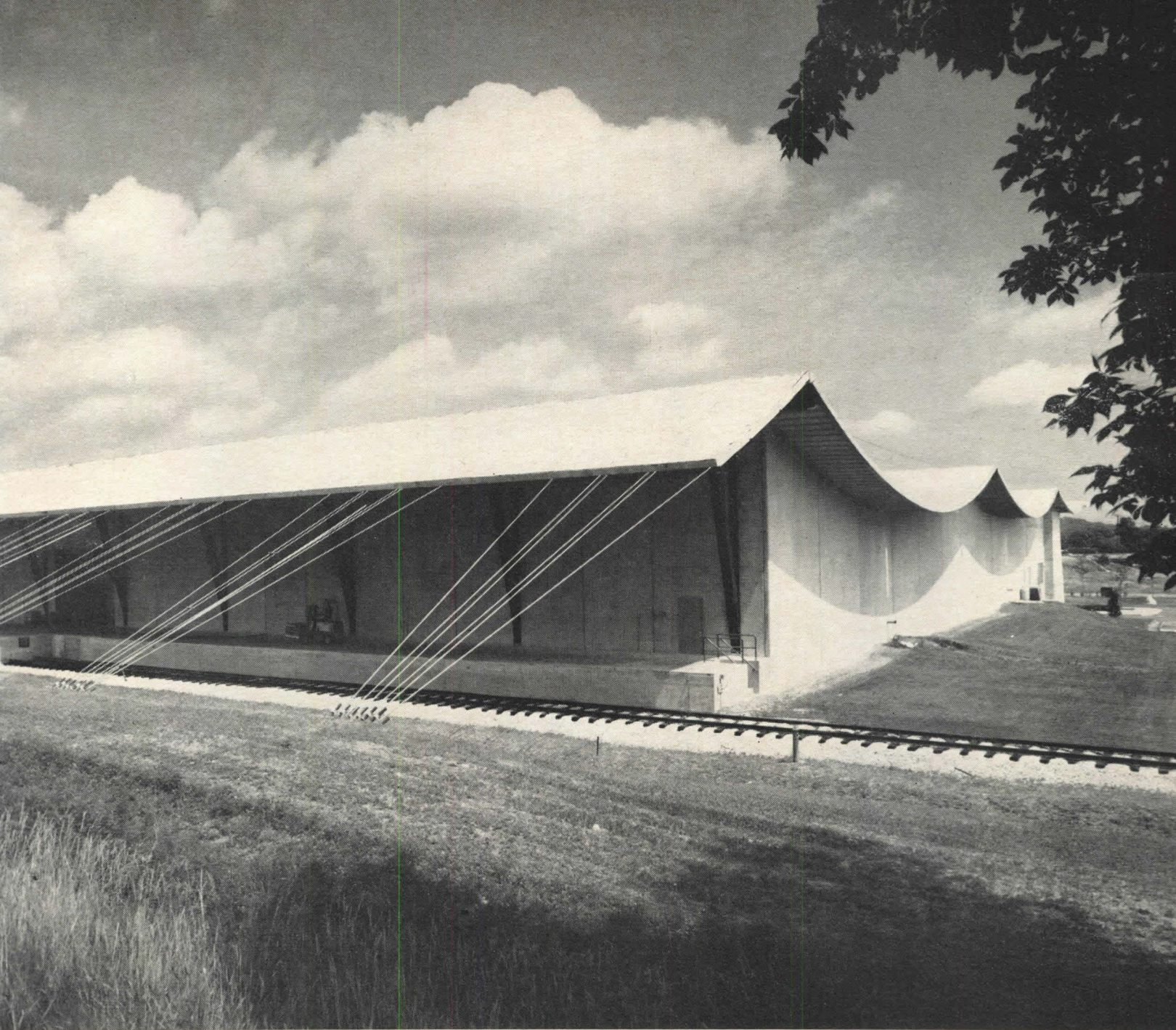
the cables in plan, the areas between cables are slightly wedge-shaped. These areas are roofed with concrete planks, precast with hooks at each end which fit over the cables. The planks increase almost imperceptibly in length as the building fans out. On a span of 131 ft. the cables, although prestressed, may expand to vary the low point of the catenary curve as much as 12 in. in height.

This obviously causes a problem in partitioning the building across its length, and so the partitions were built with slip joints;

steel plates attached to the underside of the roof slip down over the tops of the partition walls.

The curvature in the cables reflects very handsomely in the interior lighting of the parts department, where continuous rows of simple fluorescent fixtures, in almost festive fashion, follow the catenary of the roof (above).

In addition to the problem of expansion, there is a problem of eccentric loading in one span, which can affect the span adjoining. The cables are continuous across the width of the building. As a cable passes over one of the



ridge beams, it is secured in a precisely engineered cast-steel saddle to prevent what the architects call "the yo-yo syndrome"—i.e., bouncing of the cable back and forth between spans. Consequently, if a load is applied to the roof on one side of a ridge, there is a tendency for the cables on that side to sag, literally pulling over the columns supporting the ridge beam, and straightening the cables in the adjoining span. For this reason, auxiliary 1¼ in. diameter positioning cables, which are visible above the roof, were placed in advance of,

and parallel with the main cables to keep the columns upright. The roof planking was applied simultaneously on both sides of each ridge to avoid eccentric loading.

Even so, a problem arose when the roofing surface was applied: the areas finished with gravel reflected heat, while adjoining areas in the process of being tarred absorbed it, thus causing a temporary differential expansion.

"The building is not a pure structure," the architects admit. On the uphill side, sets of six cables (two of which are for po-

sitioning) are gathered and tied to enormous concrete anchors buried in the bank 25 ft. from the rear of the building (above). But on the lower front side of the building, each individual cable is tied directly into a flat beam that sits on a row of "buttresses." These "buttresses" are, in fact, partly in tension: instead of counteracting the thrust, as in a gothic cathedral, they counteract the pull of the suspension roof and are in tension, at least on the front face.

This hybrid form of anchorage leaves the loading space on

the front of the building free of cables. Moreover, the forms of the "buttresses," particularly when seen at an oblique angle (because they are thin in elevation—see page 78), impart an impressive monumental rhythm to the facade.

FACTS AND FIGURES

John Deere Branch House, Baltimore, Maryland. Owners: Deere and Company. Architects: Rogers, Taliaferro, Kostitsky, Lamb. Engineers: Severud, Perrone, Fischer, Sturm, Conlin, Bandel (structural). Cosentini Associates (mechanical). General contractor: Consolidated Engineering Company.

PHOTOGRAPHS: ©Ezra Stoller (ESTO)



dential properties, regardless of the individual condition of any one property. The obvious effect of this practice is further blight.

After the heat of last summer, it seemed likely that the insurance industry, watching out for its assets of \$41 billion, would further constrict its coverage of the inner city. In August, the President appointed a seven-man National Advisory Panel on Insurance in Riot-Affected Areas (as an offshoot of the National Advisory Commission on Civil Disorders). Headed by Gov. Richard J. Hughes of New Jersey, the panel has just published a five-point program, seeking to correct the existing situation and help the industry to survive the "remote possibility of widespread civil disorder."

1. The insurance industry should establish voluntary plans in all states to give all property owners fair access to insurance requirements (FAIR). Every property owner should receive inspection of his property, written notice of any measures needed to make the property insurable, and then broad insurance—fire, extended coverage (wind, hail, riot, etc.), vandalism, burglary and theft.

2. The states should supplement FAIR plans, when necessary, with insurance pools, either on a voluntary or mandatory basis, for property not yet insured. "Uninsurable properties" should be renewed.

3. The Federal Government should create a National Insurance Development Corporation to provide backup for the "remote contingency of very large riot losses." The NIDC would be able to borrow from the Federal treasury if its assets couldn't meet severe losses. "The borrowings would be repaid by subsequent accumulations of premiums or by Congressional appropriations."

4. The Federal Government should enact tax deferral measures to permit insurance companies participating in FAIR plans or state pools "to accumulate as quickly as possible more adequate reserves for 'catastrophe' losses. . . . That portion of the special reserve that would otherwise have been paid in taxes to the Federal Government would instead be invested in interest-free, nontransferable U.S. Treasury securities. Should there be

catastrophic losses, the securities could be turned into cash."

5. The industry should take various additional steps—training agents and brokers from core areas, eliminating discrimination in hiring, etc.

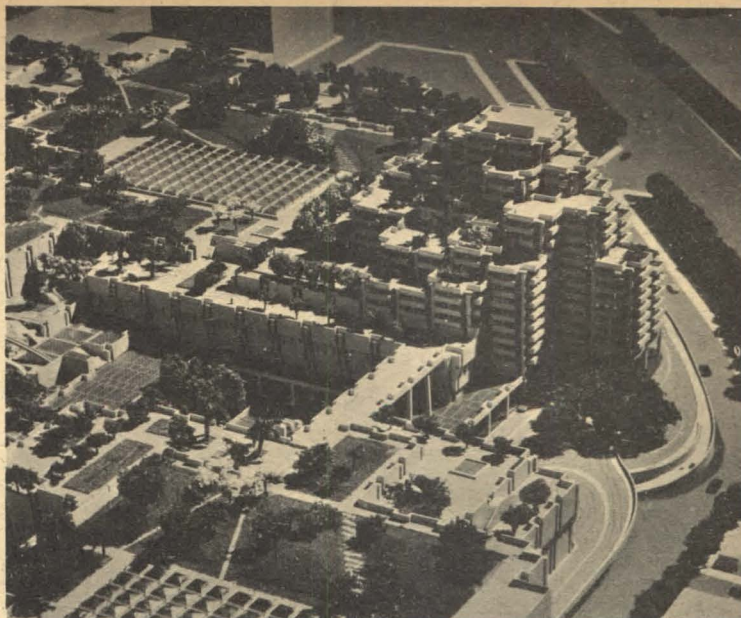
The insurance business is clearly worried, despite its talk about remote possibilities. This report's "cooperative approach" between private insurance companies and government seems to promise the policing of a lagging industry under the condition that no great risks are incurred by the industry. "The principal alternative to this approach is for government itself to provide insurance directly. We believe that so marked a departure from the free enterprise insurance system is unjustified at this time." It sounds, though, as if they've made a marked departure already.

PLANNING BIG

BABYLON BY THE BAY

The design for the proposed San Francisco International Market Center, unveiled last month by a group of local businessmen, looks for all the world like the hanging gardens of Babylon tucked into the rocky east face of famed Telegraph Hill. According to its co-designer, Landscape Architect Lawrence Halprin, that is how it's supposed to look.

Halprin and Architects Wurster, Bernardi & Emmons have used the greenery—11.5 acres of it all together—to camouflage a 3 million sq. ft. complex containing a 550-room hotel, a home-furnishings mart, a restaurant, and two



convention-exhibition halls (rendering and model photo above). Estimated cost is \$100 million.

In the eyes of some critics, the design is a desperate but unsuccessful attempt at making a molehill out of a mountain. But, explains Architect Donn Emmons, "our major concern is to complement the fabric of the city."

COMPLEX ON THE LAKE

Work on a 33-acre civic center complex just north of the central business district of Fairfield, Calif., will begin some time this spring. The design by Architect Robert Wayne Hawley, of San Francisco, was number one among 40 entries in a competition open to architects from Central and Northern California.

The competition program called for a master plan for the long-range development of the complex and a more detailed design solution for the city hall and the community building.

A man-made lake, shaped like an elongated figure 8, will dominate the site. With the city hall at one end of it, and a future theater at the other, it will create an axis around which the other

FOOTNOTE

Celestial rights—We are indebted to Mr. T. Merrill Prentice Jr., the architect and guitarist, for this rather unusual example of building on air rights. Unusual, we think, because the little old building is a Byzantine Church, and Someone Up There, in that new apartment building, obviously loved it well enough not to have it torn down. The location is Athens, Greece, PHOTO: N. J. Maltz.

INSIDE GOVERNMENT

Career employees of a big city like New York, those civil servants who really manage the city day to day, year in and year out, not just election to election, do not often come to work in pink shirts or shaggy haircuts. The career government men may by now have accepted side vents in their suits, but their mode of life is more sharkskin than tweed.

However, newly stitched to the 300,000 more conventional employees of New York City, is a bright tweed patch, a team of ten talented young architects. For somewhat less than a year, these ten—average age, about 32—have formed the new Urban Design Group of the New York City Planning Department, and they have been adding more than a little personal style to traffic in the slow elevators in one of the municipal buildings near City Hall. Two of the ten are young women, with long hair splashing down on their shoulders, and they sometimes smoke slender cigars—but not in the elevators.

It is already becoming apparent that the ten young architects have chosen a way to change the world which may be more effective, and more personal (if also more anonymous and more difficult) than those of their generation who are off struggling to execute exquisite architectural statements in the form of beach houses. Because these ten could possibly be indicating a kind of evolution for the profession, and because I too ride those municipal elevators a bit (single-vent suitcoat, baggy trousers, briefcase packed with memoranda and a peanut butter sandwich) to meetings of the Planning Commission, let me sketch briefly what the ten are about.

To name them alphabetically: Jonathan Barnett (right in photo 1), magna cum laude at Yale College, with an M.A. added from Cambridge, then a B. Arch. back at



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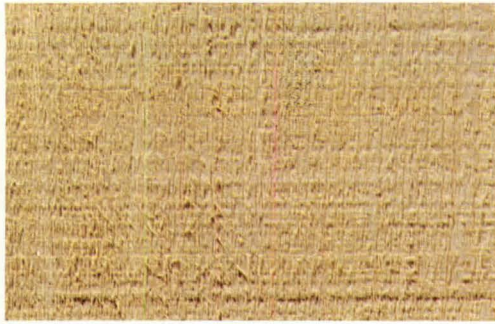
10

Yale, a contributor to *Architectural Record*; Alexander Cooper (1), also B.A. and B. Arch. from Yale, before working for Philip Johnson and Ed Barnes; Michael Dobbins (3), again B.A. and B. Arch. from that place in New Haven, plus jobs for Paul Rudolph and other firms, including one in Stockholm; Heide Konwlinka (4), with an architectural degree from Vienna, plus an M.A. in urban design from Columbia, plus job experience in England, Austria, Chile, and New York; Lauren Otis (5), a magna cum laude from Harvard, followed by an M.A. there, then the Navy and jobs with Minoru Yamasaki and I.M. Pei; Raquel Ramati (6), a B. Arch. from Pratt Institute, architectural jobs in Tel Aviv for the National Ministry of Building in Tel Aviv, where she was born (Miss Ramati is a sergeant in the Israeli Army too), and work experience in Switzerland as well as in New York; Jaquelin Robertson (7), Yale College, Rhodes scholar at Oxford (M.A. in politics, philosophy, and economics), then back to Yale for his B. Arch., job experience with Leslie Martin in England and Ed Barnes here; Frank Rogers (8) of Rensselaer Polytechnic Institute followed by the Swiss Federal Polytechnic Institute in Zurich, and architectural jobs in Germany, Finland, and The Netherlands; Richard Weinstein (9), a Brown graduate with an M.A. in psychology from Columbia and a B. Arch. from Penn, winner of the Prix de Rome in 1961, and work experience with I.M. Pei and Ed Barnes; Myles Weintraub (10), another B.A. and B. Arch. from Yale, then a hitch in the Peace Corps as a government architect in Tunisia, and work for Ed Barnes, among others.

In short, not narrow beginners but the kind of people many a leading office likes to bring in to maintain its momentum in design. Three of them—Robertson, Weinstein and Weintraub—also teach, the first two at Columbia, the third at Pratt. The world is their architectural oyster. Yet for New York City they are finding it more than interesting not to design buildings at all, but to become deeply involved in the task of doing what can be called prearchitectural enabling work, a kind of city planning more three dimensional in concept than most. Space is running out. Next month I'll tell you some of the things the ten are doing in New York.

Photographs: Page 25, New York Times. Page 26, Naltchayan (top); Cecil W. Stoughton (center); Lynn T. Spence (bottom). Page 27, Courtesy of Larwin Co. (top). Page 28, NASA. Page 34, Jeremiah O. Bragstad (top left); The Metropolitan Museum of Art (right). Page 35, Louis B. Schlivek (bottom). Page 36, Stanley Shabronsky.

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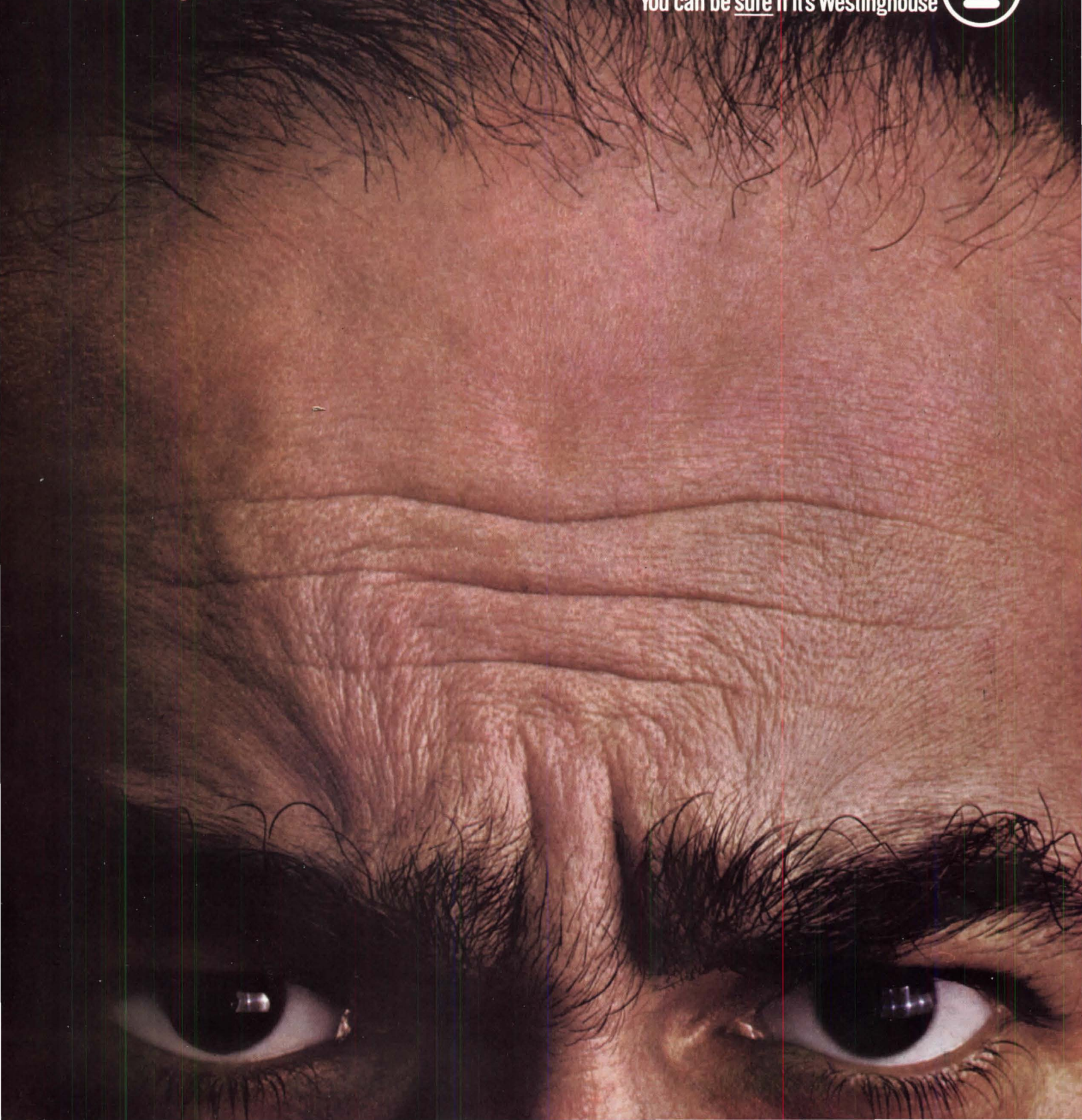
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LEARNING FROM LAS VEGAS

(continued from page 43)

sive Miesian light-box announces square, expensive entertainers like Jack Benny in 1930s-style marquis lettering appropriate for Benny, if not for the Roman architrave it almost ornaments, 14. The light box is not in the architrave; it is located off-center on the columns in order to deflect toward the highway.

The interior oasis

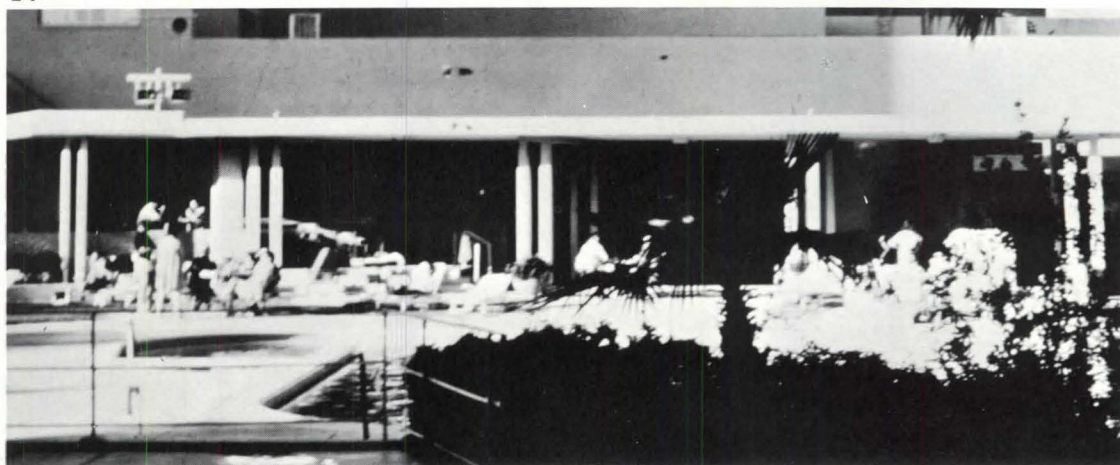
If the back of the casino is different from the front for the sake of visual impact in the auto-scape, the inside contrasts with the outside for other reasons. The interior sequence from the front door back, progresses from gambling areas to dining, entertainment and shopping areas to hotel. Those who park at the side and enter there can interrupt the sequence, but the circulation of the whole focuses on the gambling rooms. In a Las Vegas hotel the registration desk is invariably behind you when you enter the lobby; before you are the gambling tables and machines. The lobby is the gambling room. The interior space and the patio, in their exaggerated separation from the environment, have the quality of an oasis.

Las Vegas lighting

The gambling room is always very dark; the patio, always very bright. But both are enclosed: the former has no windows, the latter is open only to the sky. The combination of darkness and enclosure of the gambling room and its subspaces makes for privacy, protection, concentration, and control. The intricate maze under the low ceiling never connects with outside light or outside space. This disorients the occupant in space and time. He loses track of where he is and when it is. Time is limitless because the light of noon and midnight are exactly the same. Space is limitless because the artificial light obscures rather than defines its boundaries. Light is not used to define space. Walls and ceilings do not serve as reflective surfaces for light, but



14



15

are made absorbent and dark. Space is enclosed but limitless because its edges are dark. Light sources, chandeliers, and the glowing, juke-box-like gambling machines themselves, are independent of walls and ceilings. The lighting is antiarchitectural. Illuminated baldachini, more than in all Rome, hover over tables in the limitless shadowy restaurant at the Sahara Hotel.

The artificially lit, air conditioned interiors complement the glare and heat of the agoraphobic auto-scaled desert. But the interior of the motel patio behind the casino is literally the oasis in a hostile, environment, 15. Whether Organic Modern or neo-Classical Baroque, it contains the fundamental elements of the classic oasis: courts, water, greenery, intimate scale, and

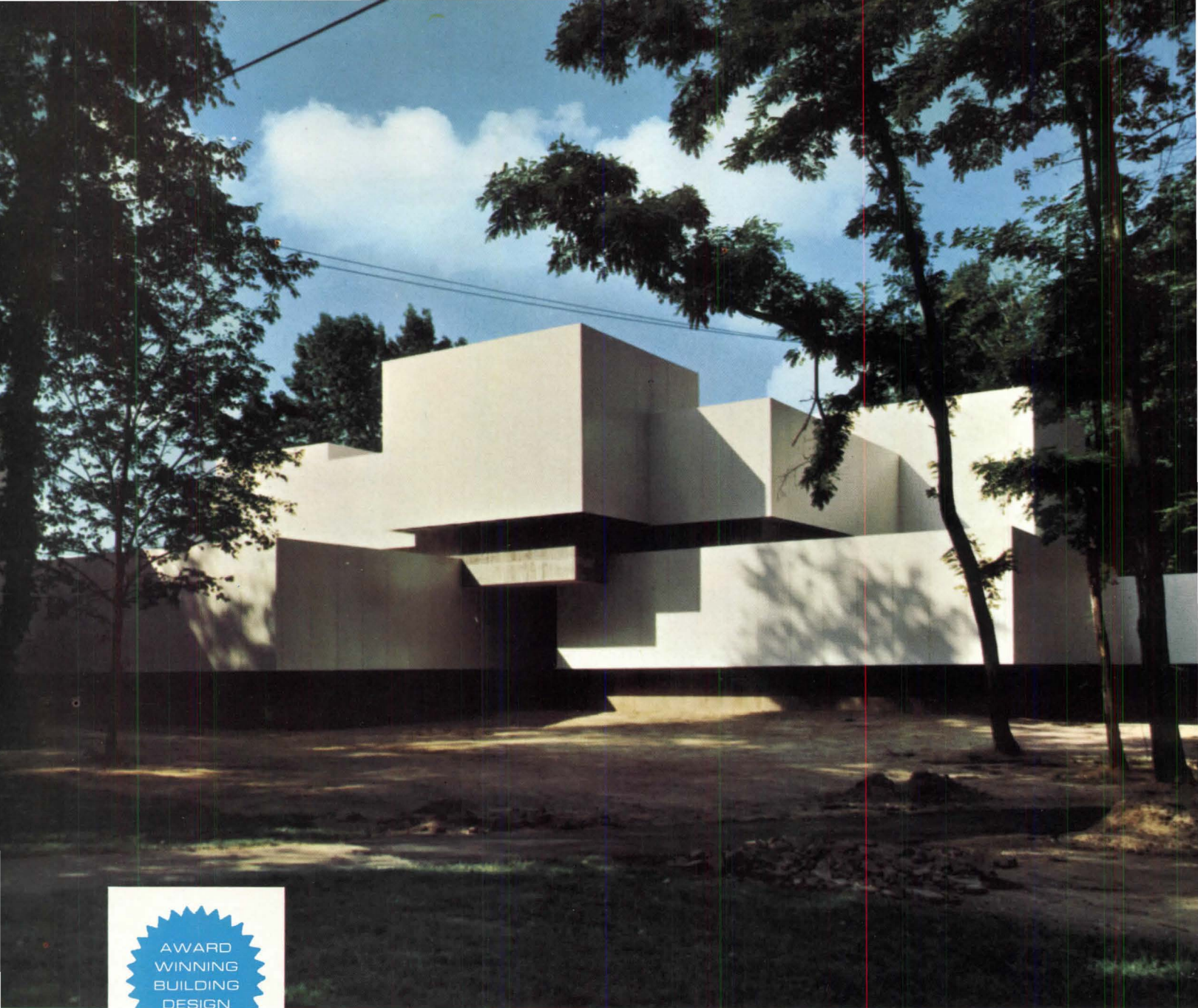
enclosed space. Here they are a swimming pool, palms, grass, and other horticultural importations set in a paved court surrounded by hotel suites balconied or terraced on the court side for privacy. What gives poignance to the beach umbrellas and chaises longues is the vivid, recent memory of the hostile cars poised in the asphalt desert beyond. The pedestrian oasis in the Las Vegas desert is the princely enclosure of the Alhambra, and it is the apotheosis of all the motel courts with swimming pools more symbolic than useful, the plain, low restaurants with exotic interiors, and the shopping malls of the American strip.

The big, low space

The casino in Las Vegas is big, low space. It is the archetype

for all public interior spaces whose heights are diminished for reasons of budget and air conditioning. (The low, one-way mirrored ceilings also permit outside observation of the gambling rooms.) In the past, volume was governed by structural spans: height was relatively easy to achieve. For us, span is easy to achieve, and volume is governed by mechanical and economic limitations on height. But railroad stations, restaurants, and shopping arcades only 10 ft. high reflect as well a changing attitude to monumentality in our environment. In the past, big spans with their concomitant heights were an ingredient of architectural monumentality. But our monuments are not the occasional tour de force of an Astro-

(continued on page 91)



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LEARNING FROM LAS VEGAS

(continued from page 89)

dome, a Lincoln Center, or a subsidized airport. These merely prove that big, high spaces do not automatically make architectural monumentality. We have replaced the monumental space of Pennsylvania Station by a subway aboveground, and that of Grand Central Terminal remains mainly through its magnificent conversion to an advertising vehicle. Thus, we rarely achieve architectural monumentality when we try; our money and skill do not go into the traditional monumentality which expressed cohesion of the community through big scale, unified, symbolic, architectural elements. Perhaps we should admit that our cathedrals are the chapels without the nave; that apart from theaters and ball parks the occasional communal space which is big is a space for crowds of anonymous individuals without explicit connection with each other. The big, low mazes of the dark restaurant with alcoves combine being together and yet separate as does the Las Vegas casino. The lighting in the casino achieves a new monumentality for the low space. The controlled sources of artificial and colored light within the dark enclosures, by obscuring its physical limits, expand and unify the space. You are no longer in the bounded piazza but in the twinkling lights of the city at night, 16.

Inclusion and the difficult order

Henri Bergson called disorder an order we cannot see. The emerging order of the Strip is a complex order. It is not the easy, rigid order of the Urban Renewal project or the fashionable megastructure — the medieval hilltown with technological trappings. It is, on the contrary, a manifestation of an opposite direction in architectural theory: Broadacre City—a travesty of Broadacre City perhaps, but a kind of vindication of Frank Lloyd Wright's predictions for the American landscape. The

commercial strip within the urban sprawl is, of course, Broadacre City with a difference. Broadacre City's easy, motival order identified and unified its vast spaces and separate buildings at the scale of the omnipotent automobile. Each building, without doubt, was to be designed by the Master or by his Taliesin Fellowship, with no room for honky-tonk improvisations. An easy control would be exercised over similar elements within the universal, Usonian vocabulary to the exclusion, certainly, of commercial vulgarities. But the order of the Strip includes: it includes at all levels, from the mixture of seemingly incongruous advertising media plus a system of neo-Organic or neo-Wrightian restaurant motifs in Walnut Formica. It is not an order dominated by the expert and made easy for the eye. The moving eye in the moving body must work to pick out and interpret a variety of changing, juxtaposed orders, like the shifting configurations of a Victor Vasarely painting, 17. It is the unity which "maintains, but only just maintains, a control over the clashing elements which compose it. Chaos is very near; its nearness, but its avoidance, gives... force."⁵

Las Vegas is analyzed here only as a phenomenon of architectural communication; its values are not questioned. Commercial advertising, gambling interests, and competitive instincts are another matter. The analysis of a drive-in church in this context would match that of a drive-in restaurant because this is a study of method not content. There is no reason, however, why the methods of commercial persuasion and the skyline of signs should not serve the purpose of civic and cultural enhancement. But this is not entirely up to the architect.

Art and the old cliché

Pop Art has shown the value of the old cliché used in a new context to achieve new meaning: to make the common uncommon.

⁵August Heckscher: *The Public Happiness*, Athenaeum Publishers, New York, 1962, p. 289.

Richard Poirier has referred to the "de-creative impulse" in literature: "Eliot and Joyce display an extraordinary vulnerability... to the idioms, rhythms, artifacts associated with certain urban environments or situations. The multitudinous styles of *Ulysses* are so dominated by them that there are only intermittent sounds of Joyce in the novel and no extended passage certifiably in his as distinguished from a mimicked style."⁶

Eliot himself speaks of Joyce's doing the best he can "with the material at hand." A fitting

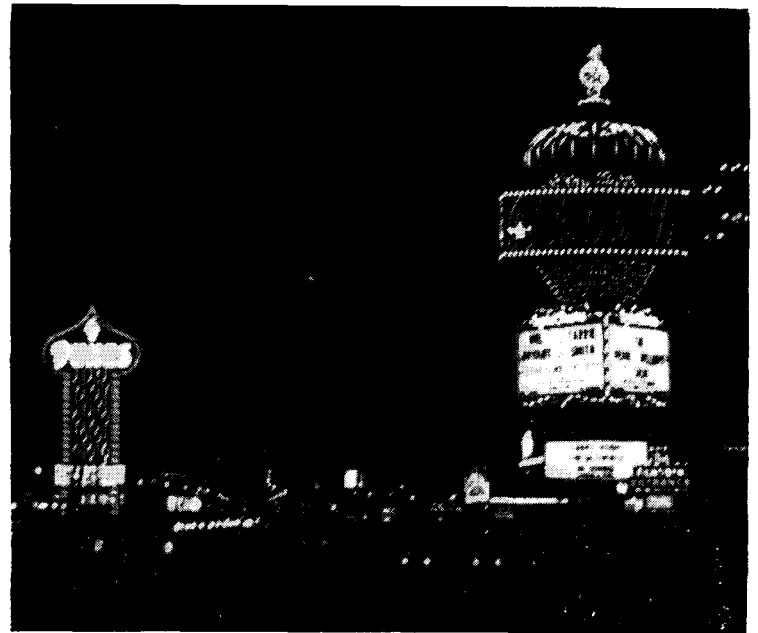
requiem for the irrelevant works of Art which are today's descendants of a once meaningful Modern architecture are Eliot's lines in *East Coker*:

"That was a way of putting it—
not very satisfactory:
A periphrastic study in a worn-out
poetical fashion,
Leaving one still with the
intolerable wrestle
With words and meanings.
The poetry does not matter."⁸

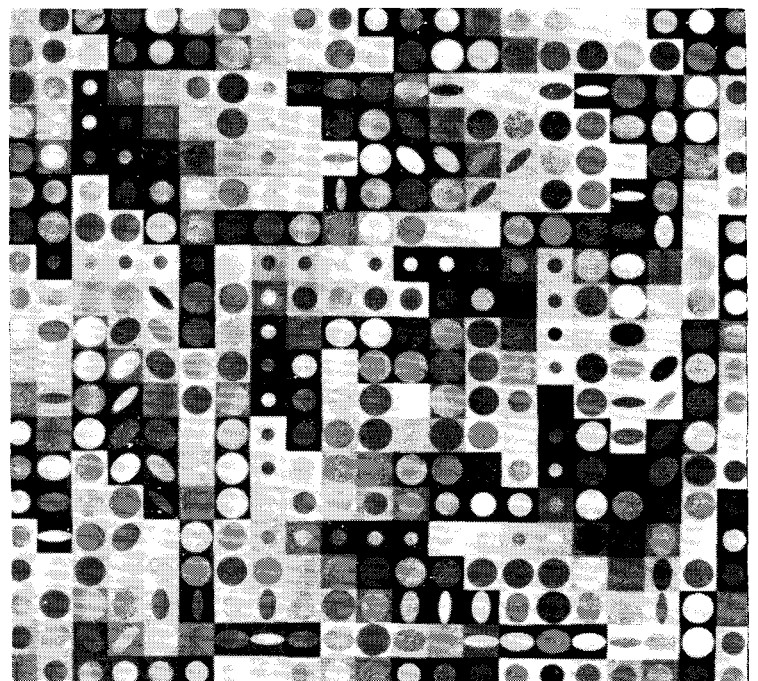
⁶Richard Poirier, *op. cit.*, p. 20.

⁷*Ibid.*, p. 21.

⁸T. S. Eliot, *Four Quartets*, Harcourt, Brace and Co., New York, 1943, p. 13.



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17





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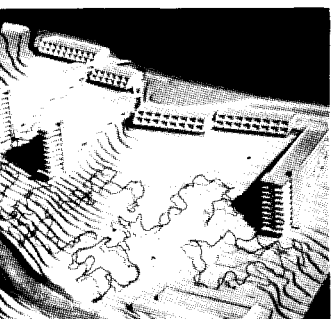
BOOKS

Continued from page 55)

...when necessary. Detailed plans are given, showing how old buildings can be restored, equipped with "modern conveniences" (turned into suitable urban dwellings).

Traffic is to be rerouted and extraneous traffic eliminated in what is surely a justifiably bold stroke, made possible by a referendum which Giancarlo organized in order to prove to the municipality that the summer tourists would rather visit Urbino on foot than to see Federico's palace knee deep in automobiles.

In the extension of the city, outside the walls, building is to be subjected to strict rules of argument and profile (see below). Giancarlo's decisions as to the form so determined could be considered not to be valid. In a situation as specific and critical as this one, however, I don't think that the decision to impose some kind of physical order can be eluded. There is no doubt in my mind that this is the only road to follow in this case and very little doubt that Giancarlo's

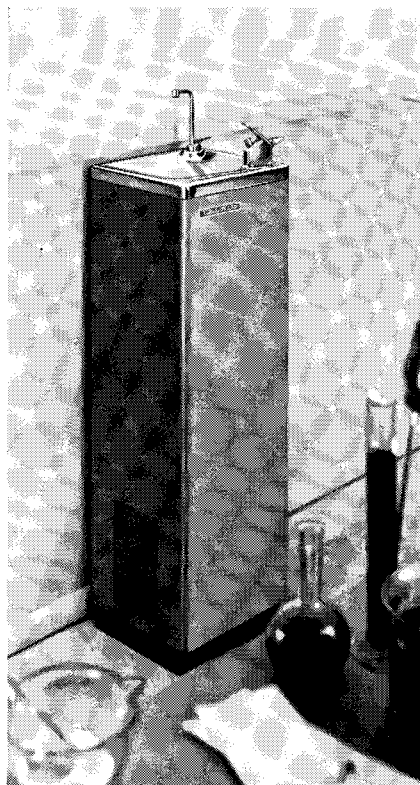


building envelope is as good a one as can be devised.

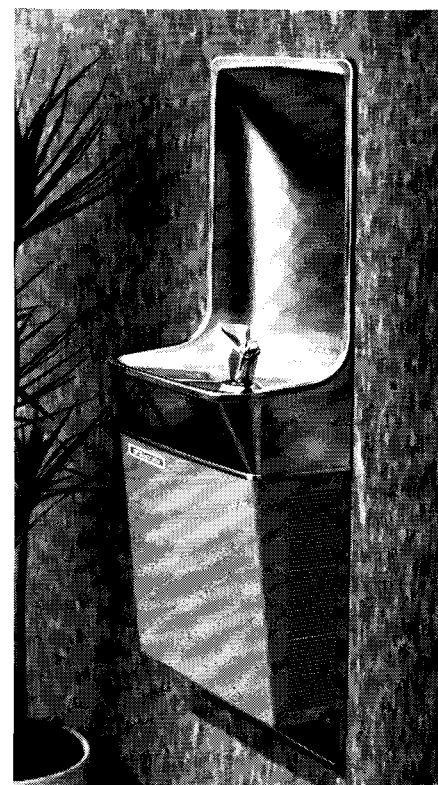
The book is as good as the plan (and the building). It is carefully made, with the same tough, knowledgeable modesty. The question which is raised by the making of the plan and the book unfortunately remains unanswered.

Urbino is an example, a case. And in this case the urbanist is powerless. He can only suggest what *should* be done, if and when it *can* be done. Urbino is suffering a depression, but the urbanist can only treat it for expansion. In fact, this Urbino, not Federico's and Francesco di Giorgio's, but FIAT's and Giancarlo De Carlo's, demonstrates the urbanist's dilemma all over the western European world. Urbanism and architecture are inseparable, each being a part of the other, but, if we except the case of some new towns, the urbanist-architect is rarely/never called into action at the right time and place. One hopes that this book will make waves at least in the Italian planning authority's complacent sea.

Urbino is at the same time a problem without a solution and a solution in search of a problem. The past of the city is closely linked to an agricultural economy; the assumption of the book, and the plan, is that its future lies in tourism and the university. However, the translation of small farmers into university or hotel staff seems, to say the least, an unlikely one. The population (except for civil servants and other tertiaries) must change entirely. The old order changeth . . . but where do they go, all those peasants? In this sense, FIAT's Urbino is a microcosm of the neocolonialist world we are making. The gap increases, the farmers are thrown on the urban labor market, the economy "expands." If Urbino is destined to survive as something more than a *musée farfelu*, if a national plan can reconvert it and its people to viable economic activity (and why else have national plans?), then it will be good to know that De Carlo's urbanism will be more than equal to the situation.



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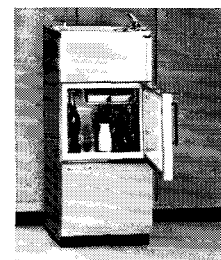
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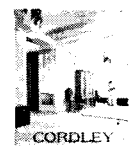


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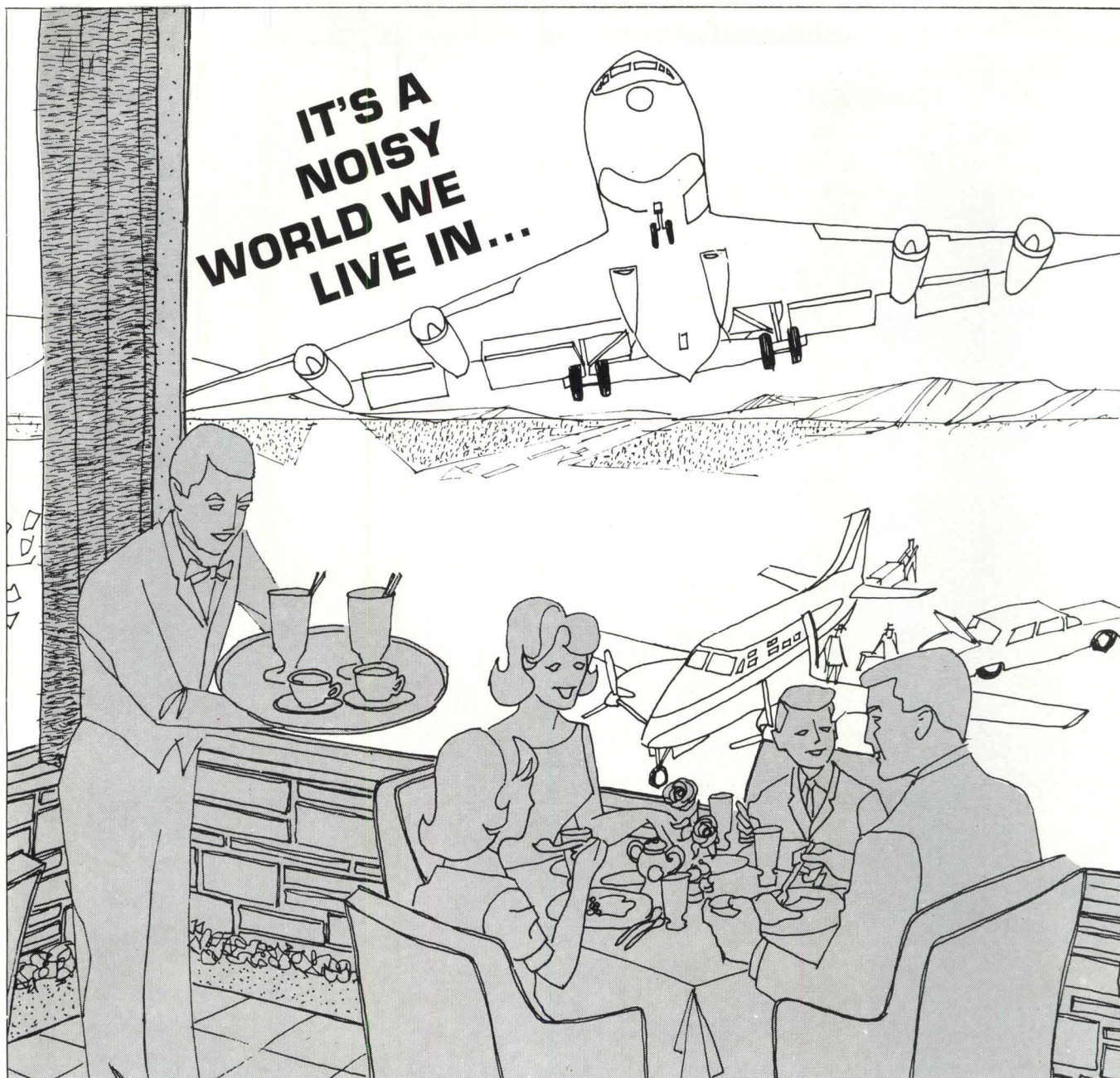
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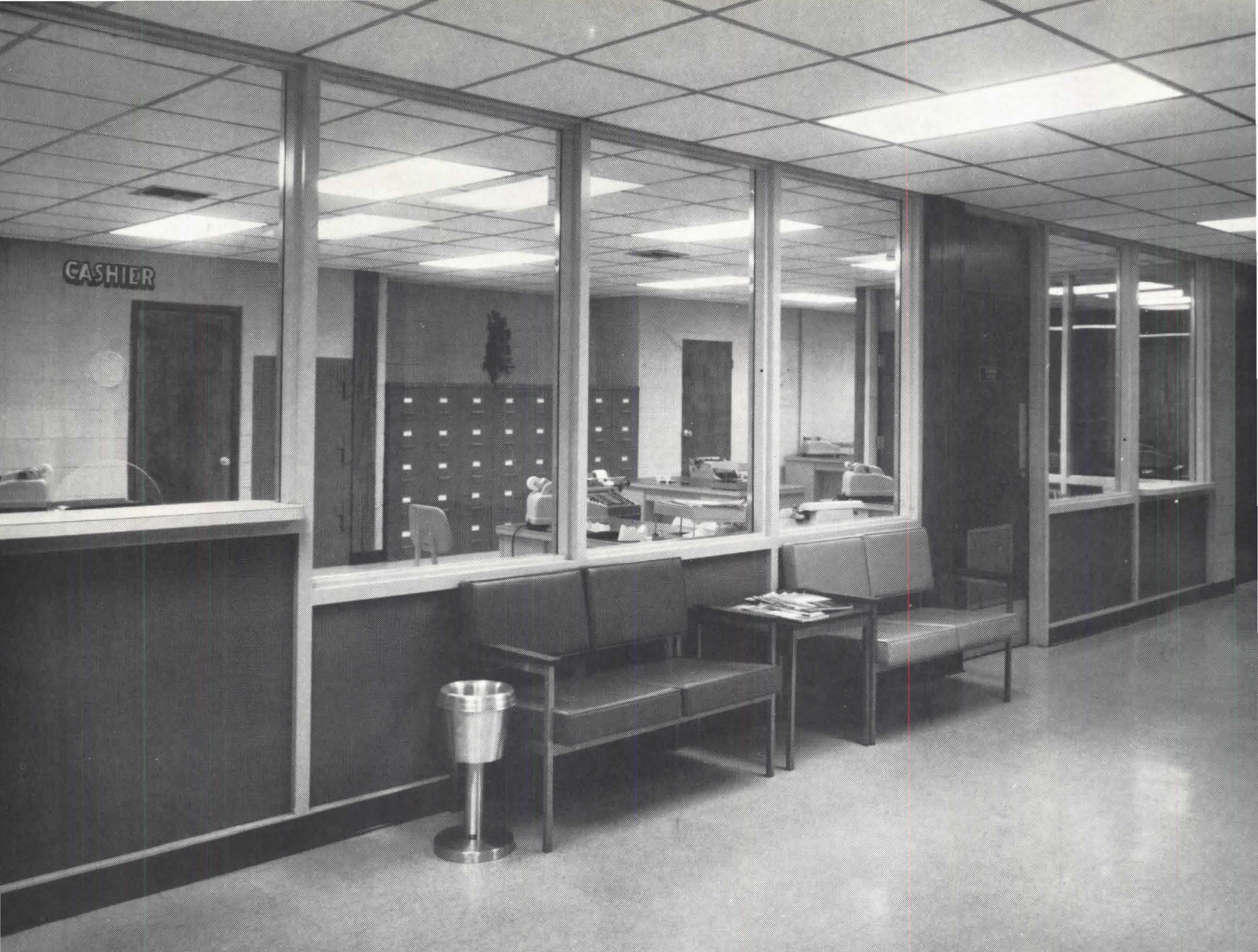
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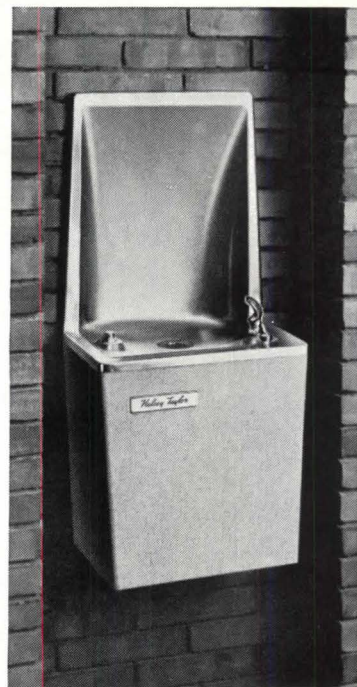
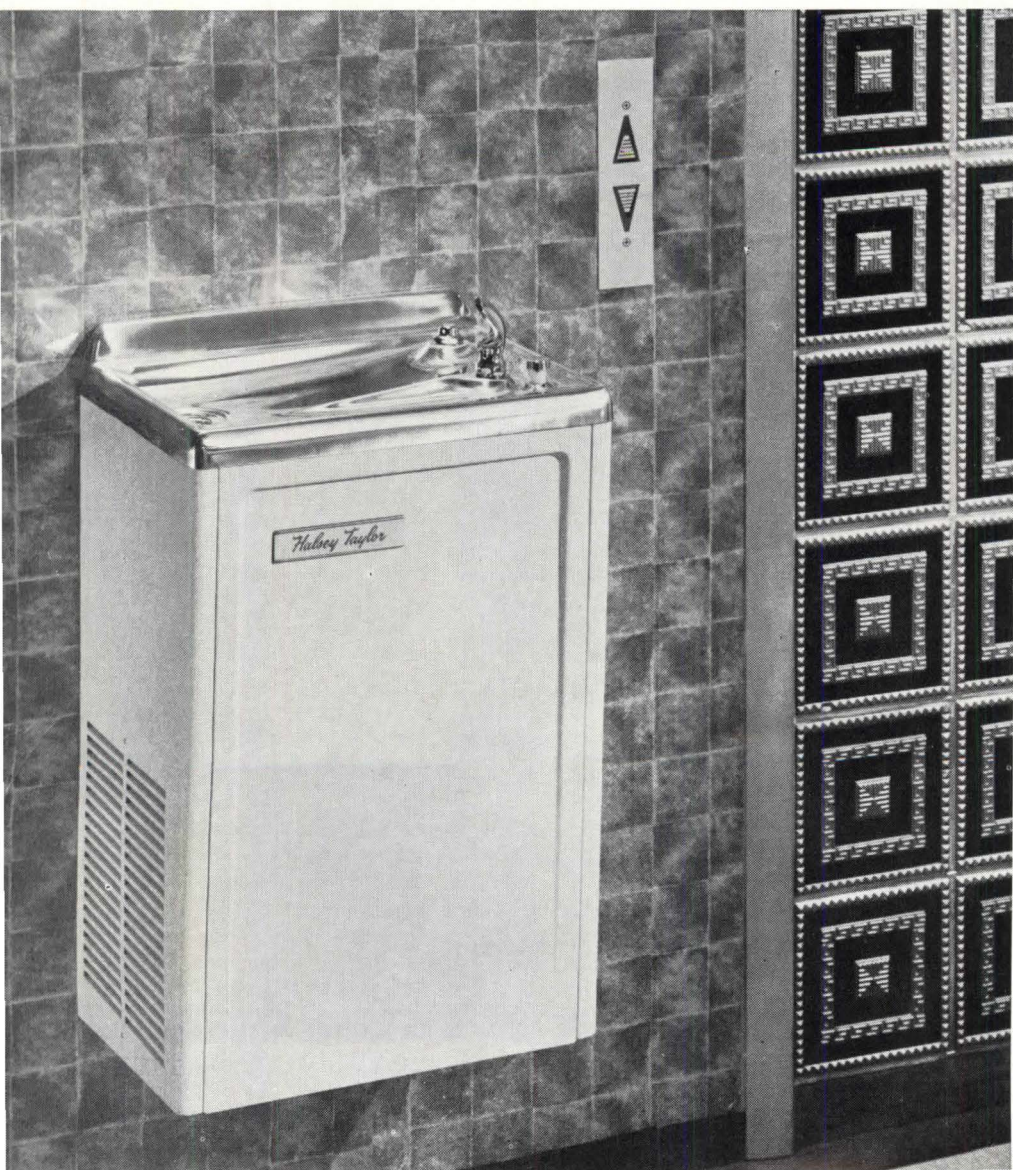
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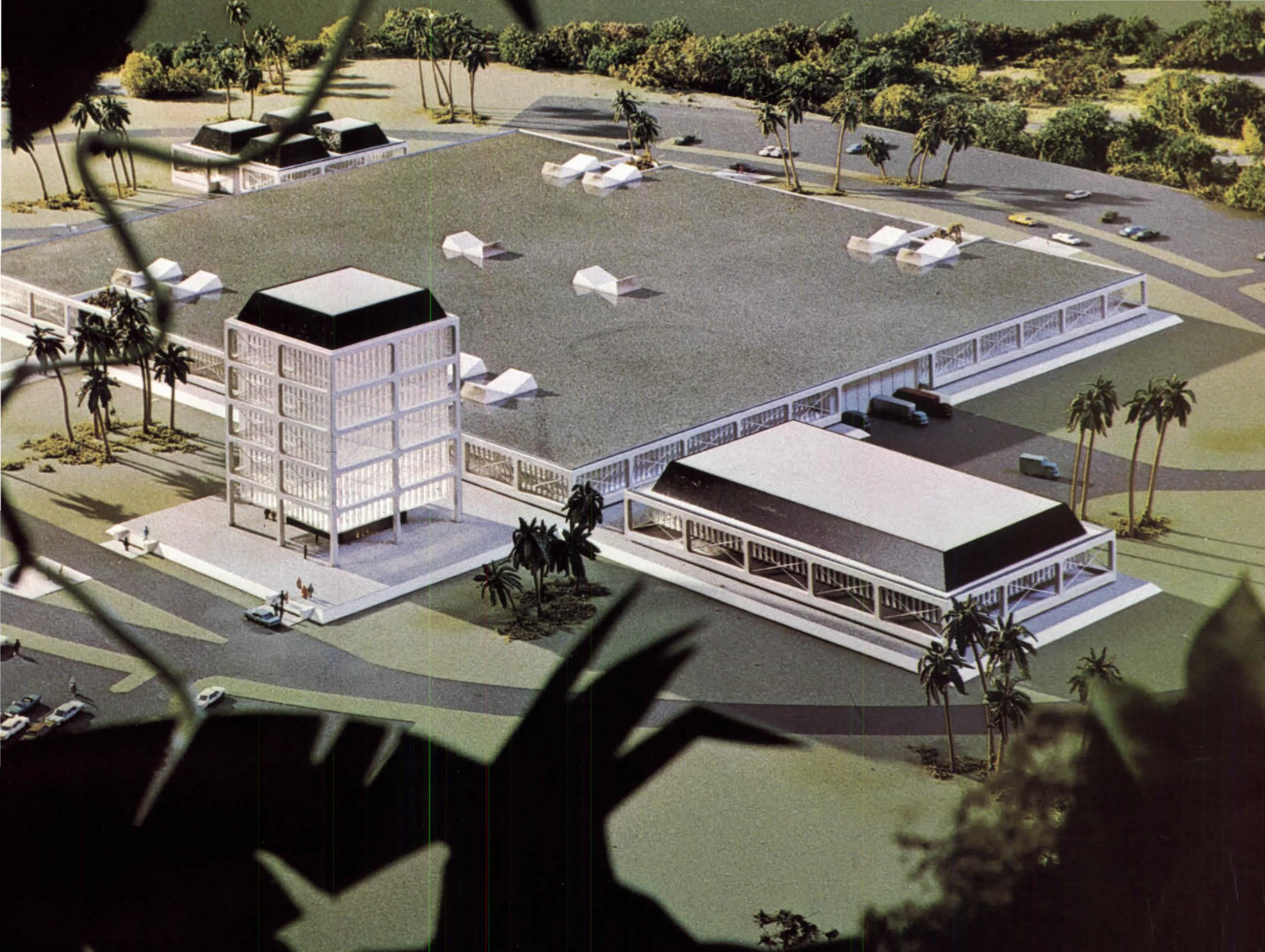
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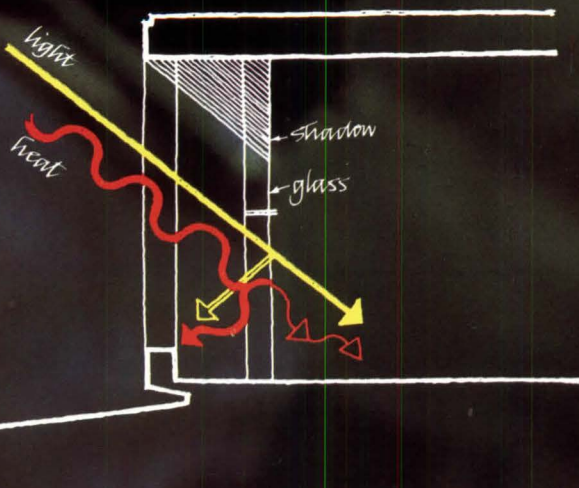
William Hamby, A.I.A., specifies "outer space" glass for plant in Florida

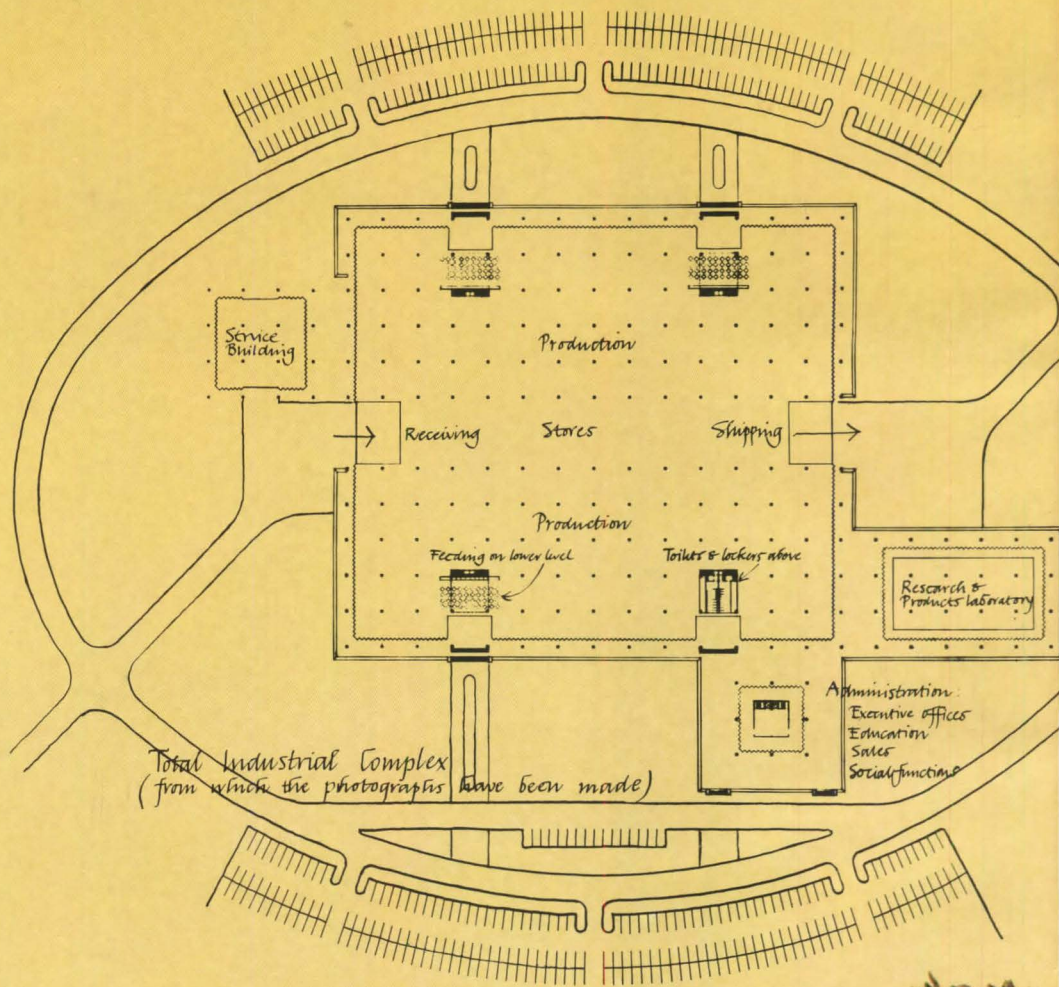
How do you design an industrial complex with lots of windows for a semi-tropical location yet help employees keep cool? You use a new special-performance glass fabricated by Libbey-Owens-

Ford. It's Thermopane® insulating glass with Vari-Tran™ chromium alloy coating on the inside surface of the outboard light. The unit controls the transmission of light and heat almost any way you want it to. It's available in sizes up to 50 sq. ft.

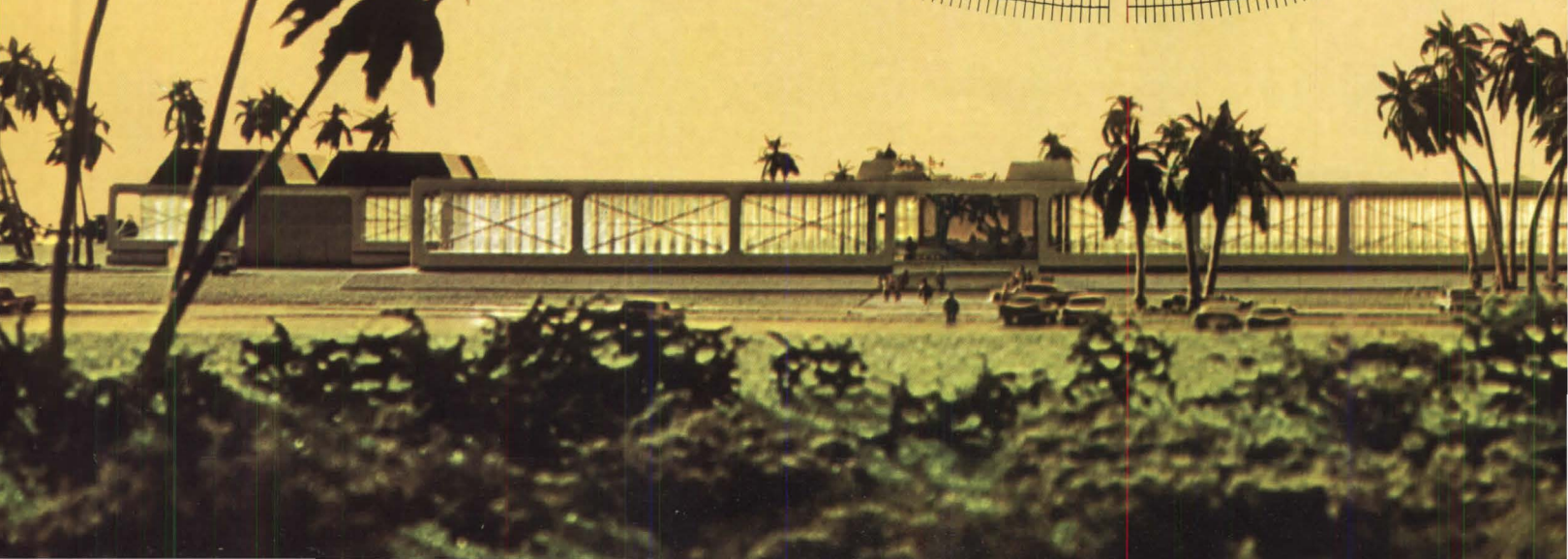
Vari-Tran is made by a *continuous* vacuum-coating process called *StratoVac*. Lines of glass are air-locked through a series of chambers to reach a vacuum like astronauts find 125 miles straight up.

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Total Industrial Complex
(from which the photographs have been made)



of our glass at will. To block ultraviolet rays. Block infrared rays. Make air conditioning even more efficient by reducing inflow of sun heat. Architect William Hamby Fordyce, Hamby & Kennerly, New York City, would use Thermopane made with Vari-Tran coated glass in his hypothetical structure in Florida. Floor-to-ceiling windows set back from the perimeter of the building with fixed fenestration are indicated.

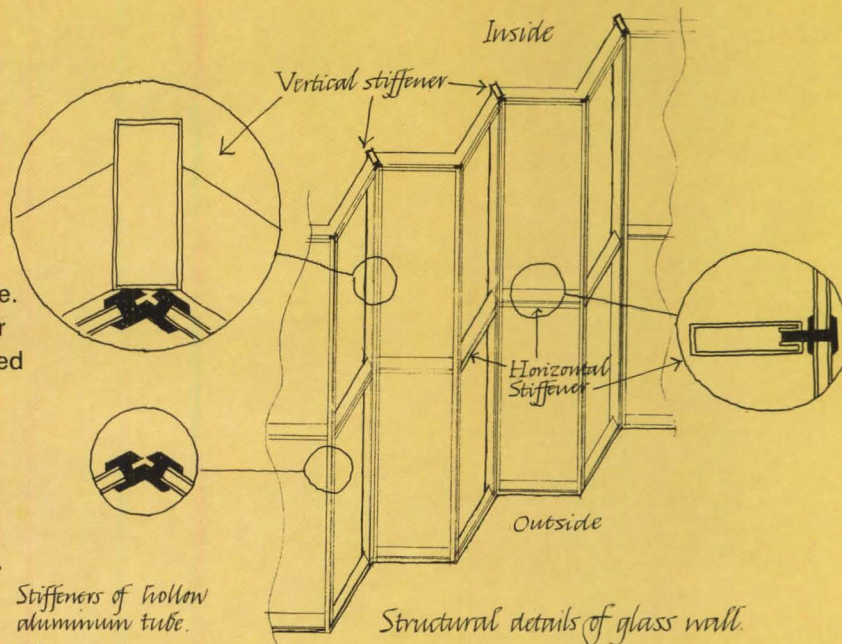
The building, itself, would be a frame of precast concrete, stressed for high-wind loadings. A white gravel roof with one inch of standing water helps heat control.

The basic design is a modular concept which could be the first element of a small plant, the units of an industrial park, or parts of a large industrial operation.

Each unit would have its own entry and eating area. Above eating areas would be mechanical equipment and rest rooms. This concept effectively divides large manufacturing or warehouse operation into smaller units and provides a smaller group to supervise.

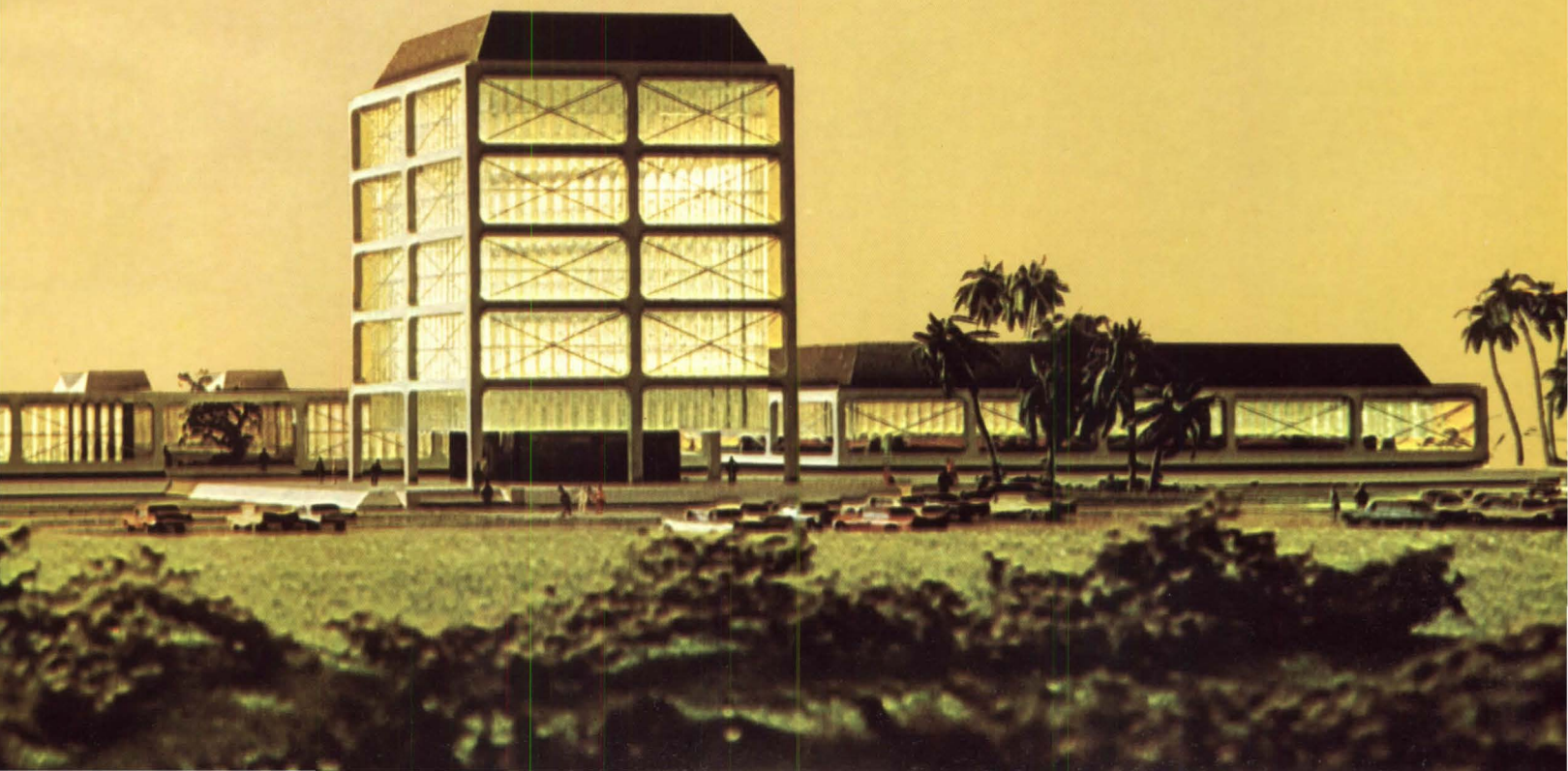
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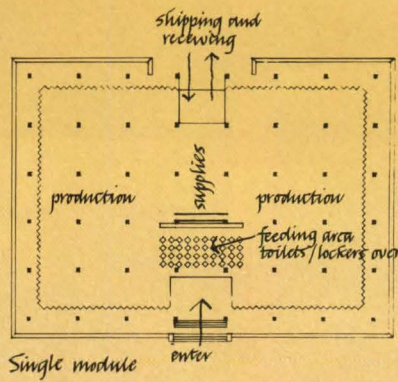
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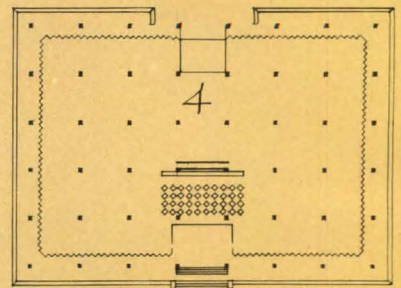
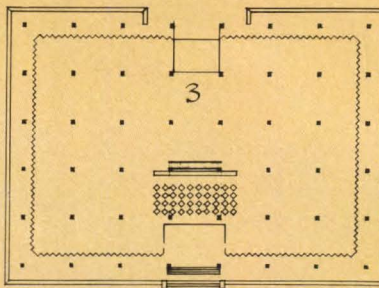
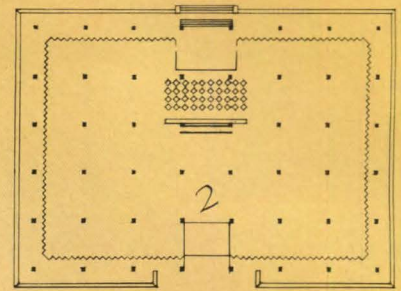
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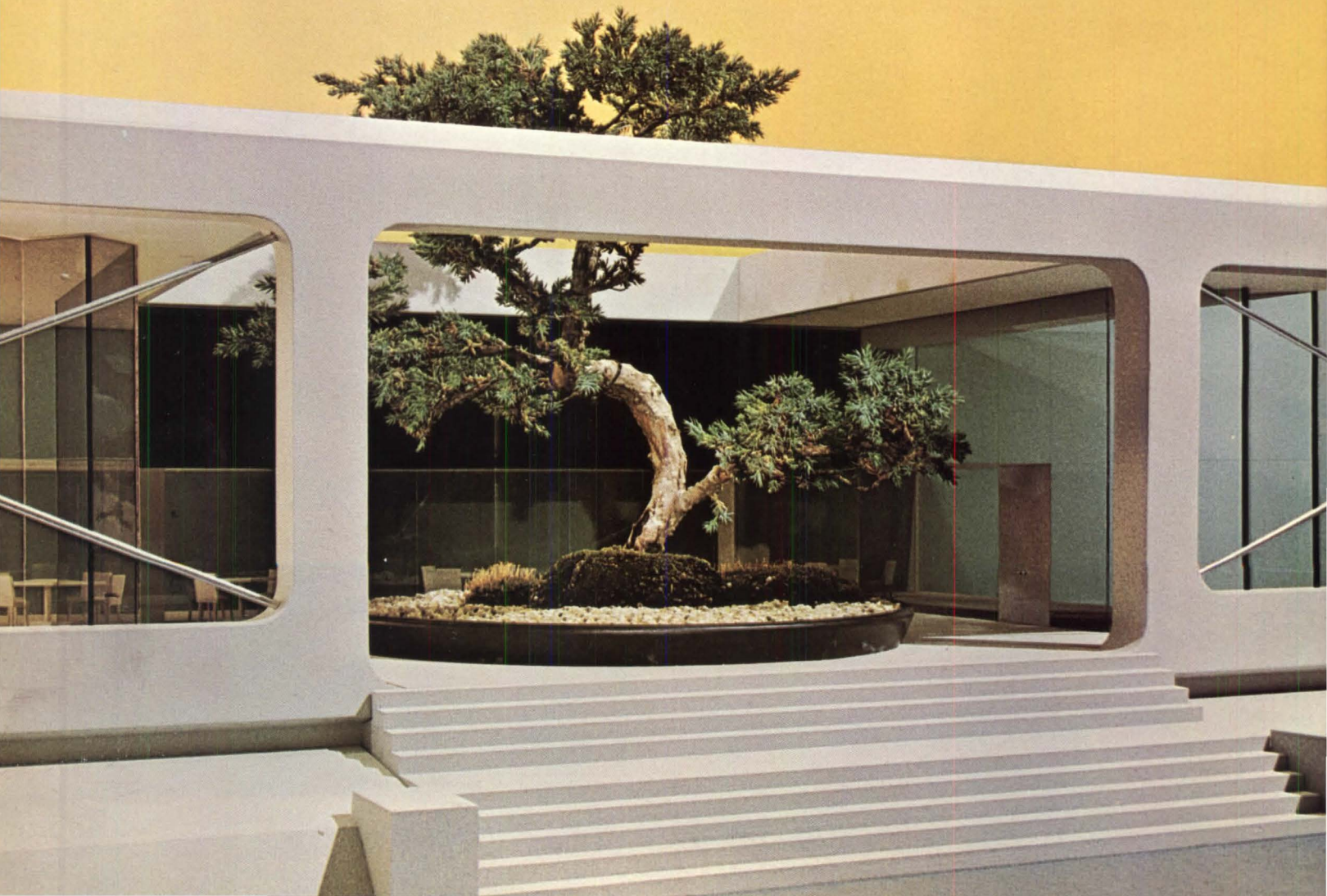
Single module



Four module industrial park. Spaces between buildings on modular grid.

Libbey-Owens-Ford Glass Co.

Toledo, Ohio





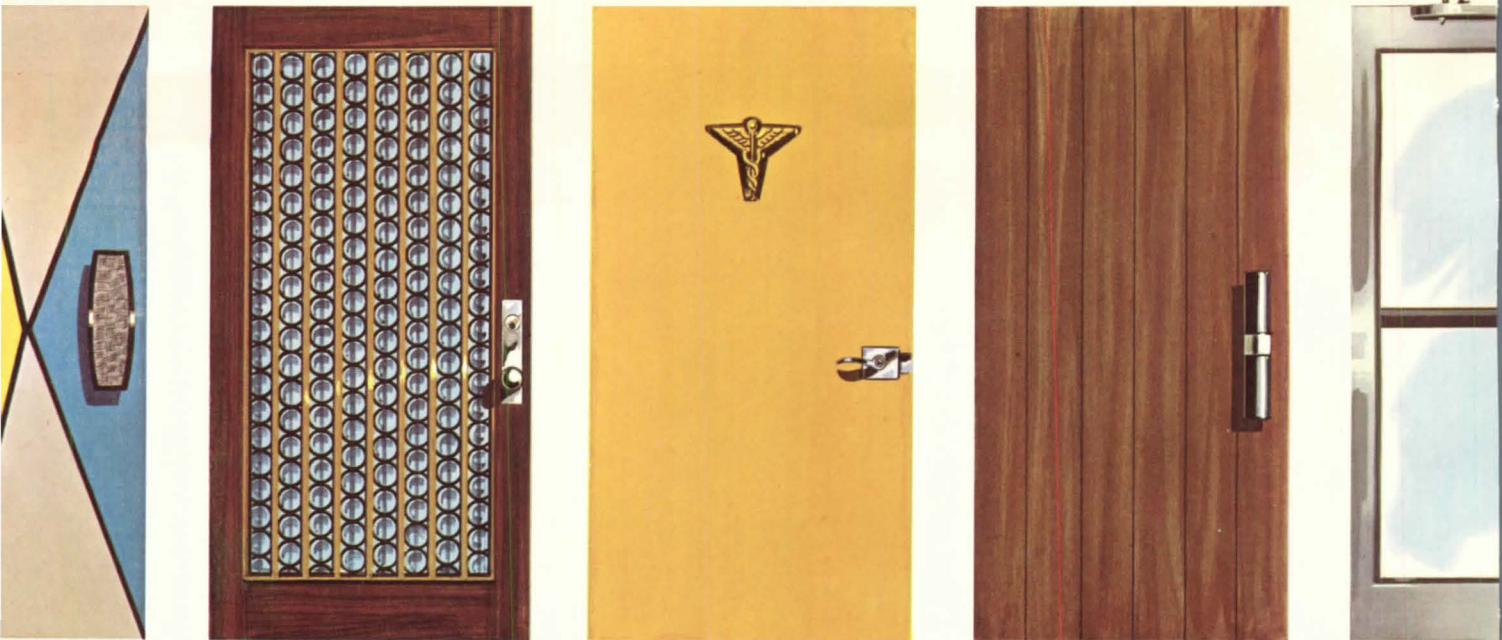
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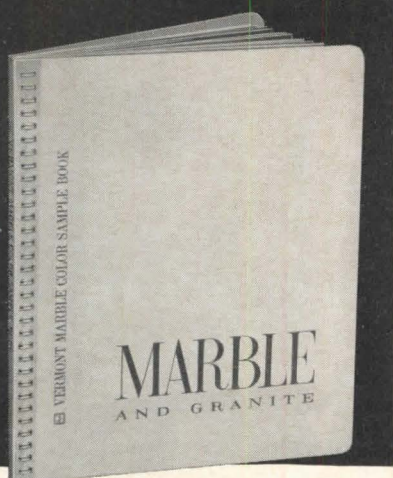
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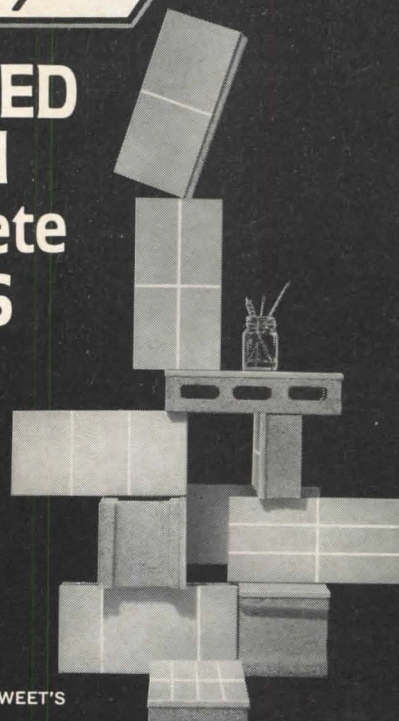
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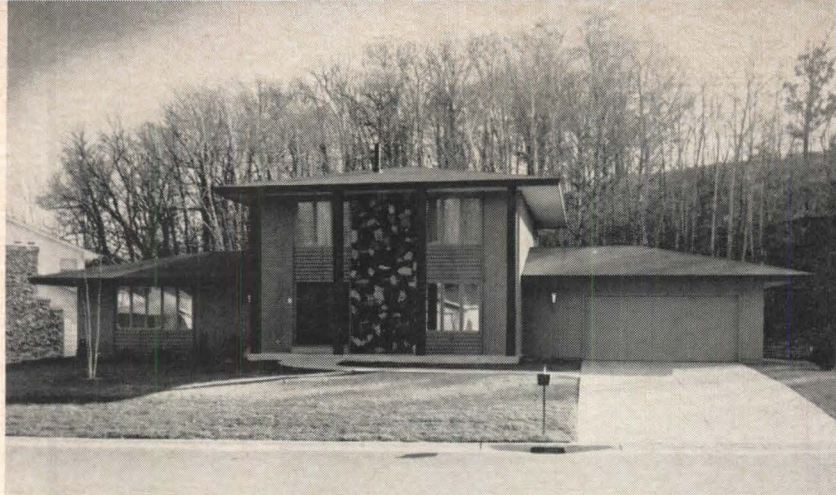
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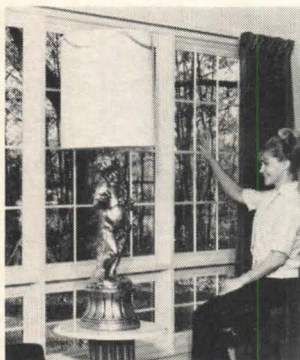
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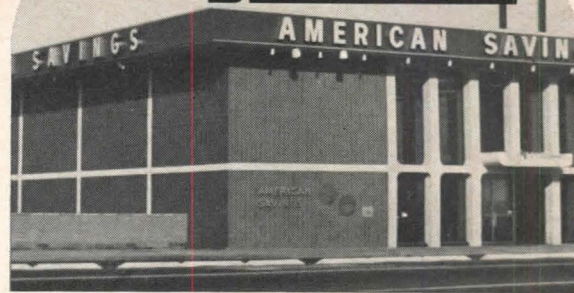
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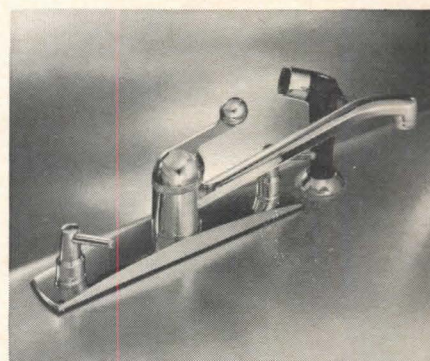
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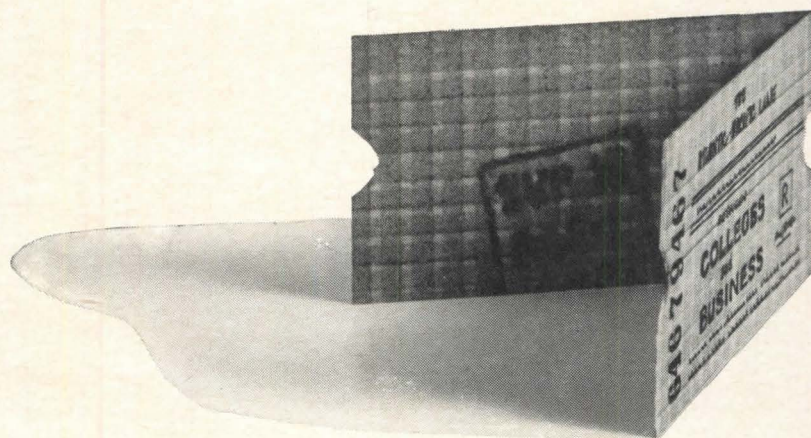
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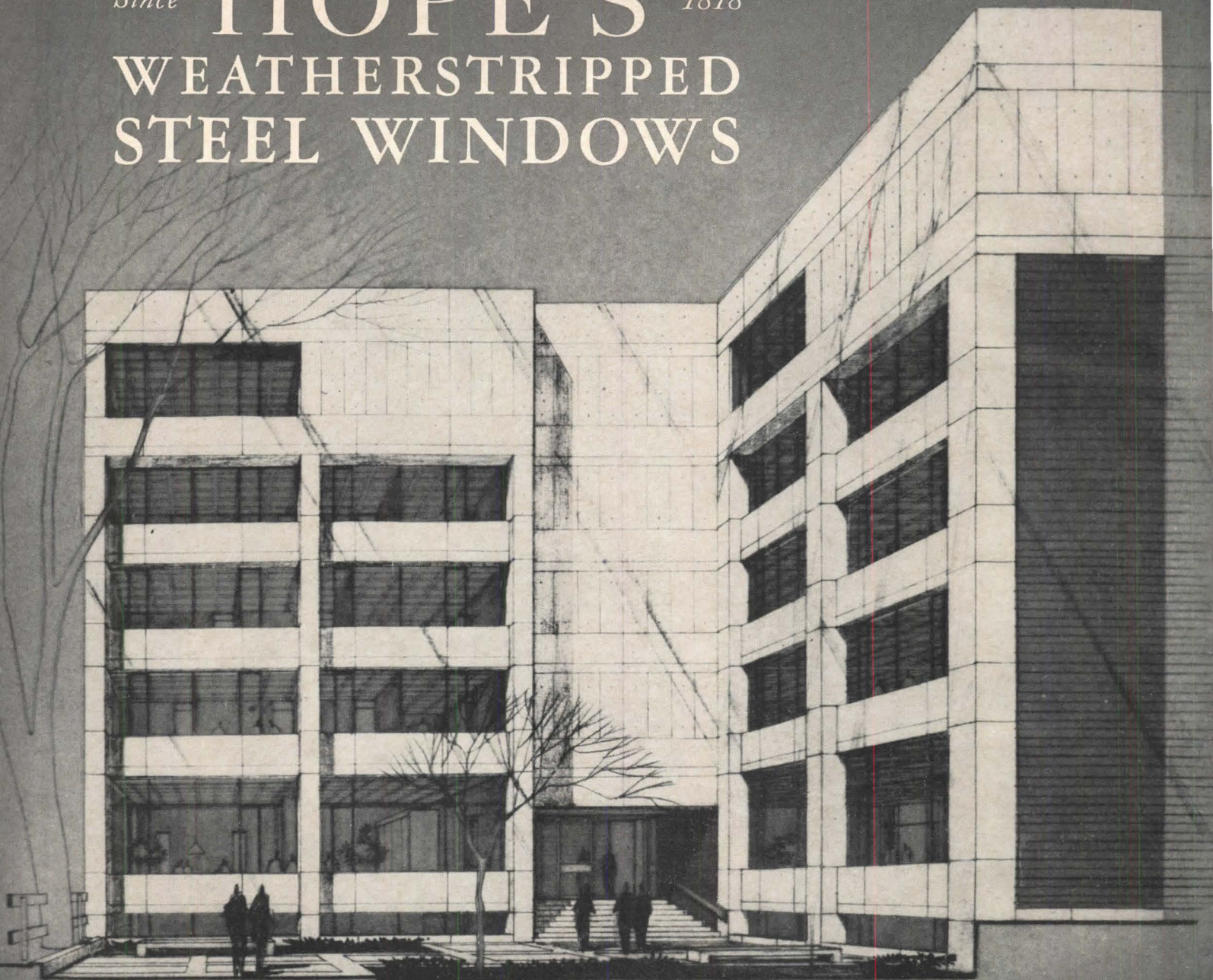


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SIN SINAWA, WISCONSIN

Architect: Siberz-Purcell-Cuthbert, Architects
Madison, Wisconsin

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Madison, Wisconsin



This beautiful convent was set into the hillside and blends naturally with its surroundings. Much of the stone used in the construction of the chapel was moved from the hillside to make room for this lovely building.

Construction of a new education center was to be complete with dining areas, living quarters, schoolrooms and a new chapel. The architecture had to tie in with existing buildings and blend into the hillside. The new Dominican Education Center at Sinsinawa, Wisconsin, meets all these requirements in a quiet, beautiful setting unique only to a religious community.

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