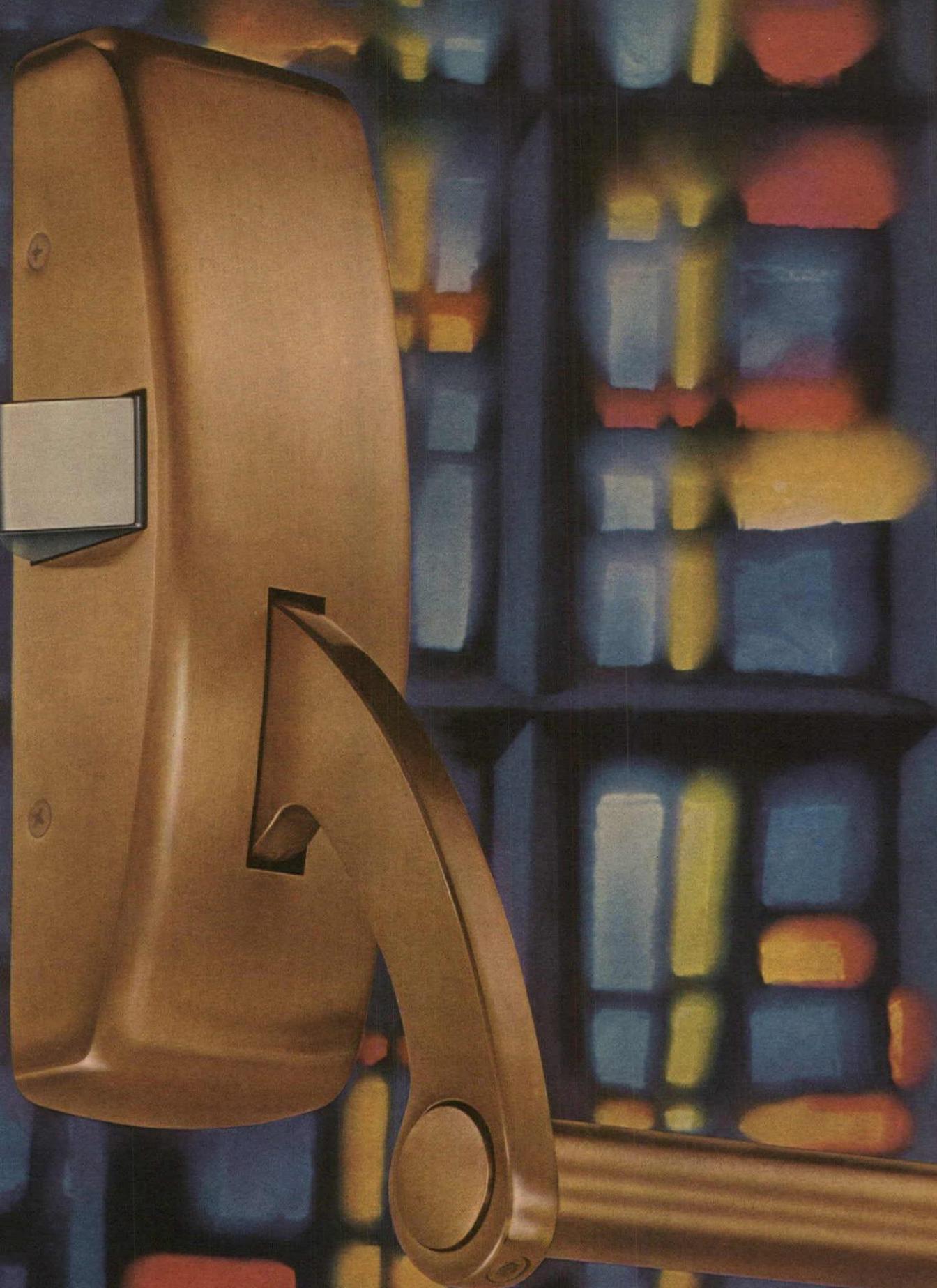


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## THE ARCHITECTURAL FORUM

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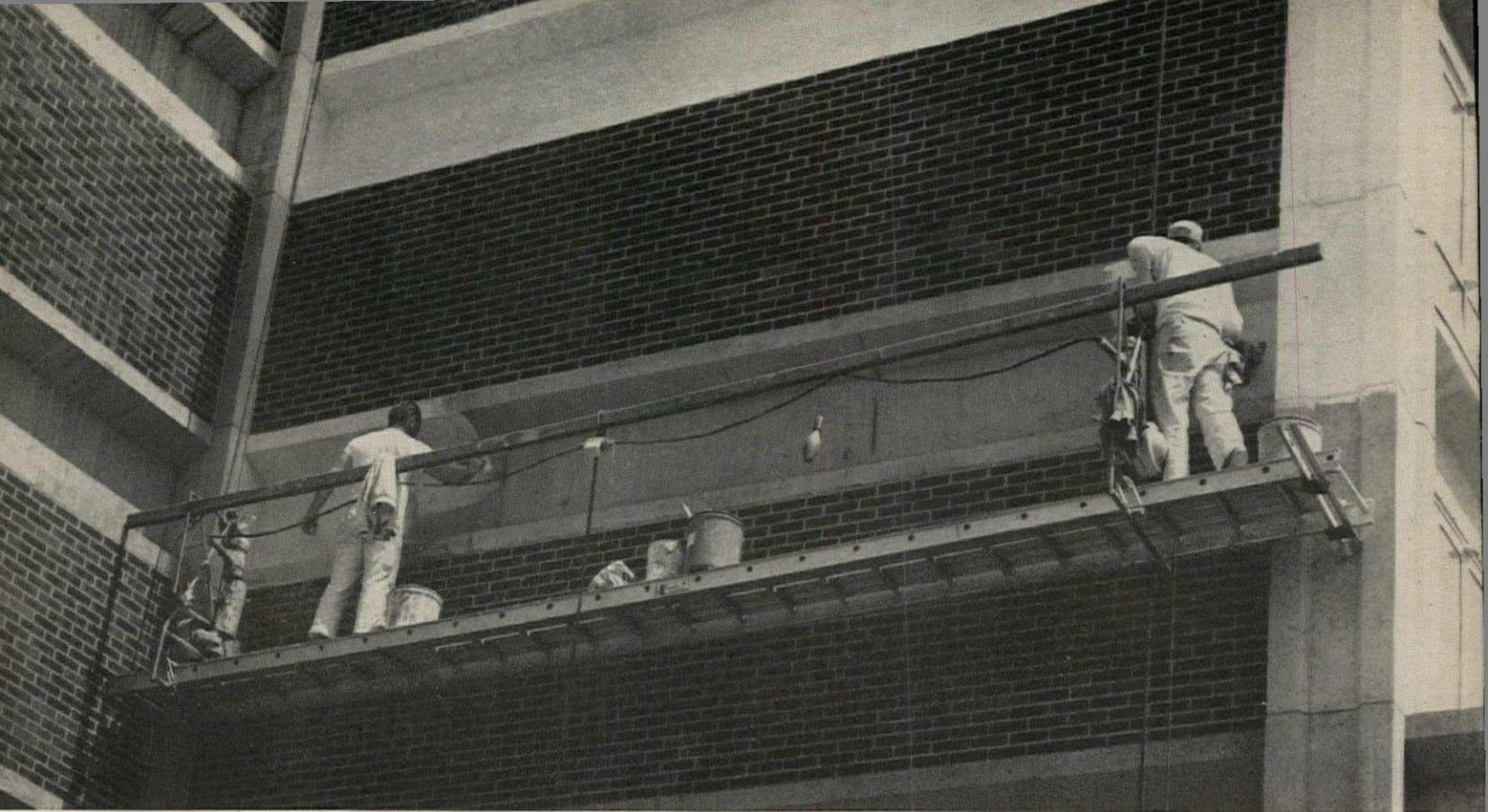
Last month some of us went to Portland to cover, each in his own way, the mainland portion of this year's AIA annual convention. (For one report see page 38.) As it turned out the convention itself was more busily engaged in covering us than we it.

For instance, Oregon Governor Tom McCall in his welcoming address set the stage for what was to come by quoting liberally from the book, *God's Own Junkyard* by FORUM Editor Peter Blake. The opening Theme Session, Man, was moderated by former managing editor Don Canty, now a member of FORUM's Board of Contributors. Whitney M. Young Jr., the first speaker, delivered a stirring address resulting later in a series of resolutions which, if pursued with the sincerity that supported their adoption, can change the very nature of the AIA. Mr. Young is a Trustee of Urban America.

At the Awards Luncheon on the same day, long time Art Director Paul Grotz, now our managing editor, received the association's Industrial Arts Medal. At the same luncheon, it was notable that seven jobs receiving honor awards had been published previously in the pages of *The FORUM*. Nor did that end it. Former senior editor Walter McQuade, now FORUM columnist, was honored as a new AIA Fellow that evening and Urban America Trustee John Gardner, formerly Secretary of HEW, now chairman of the Urban Coalition, an Urban America offspring, became an honorary AIA member.

The following morning Lawrence Halprin, another Urban America Trustee, chaired a working panel entitled, "Design for Preservation." The Purves Memorial Lecture was delivered this year by Lady Barbara Ward Jackson. She, too, is a member of FORUM's Board of Contributors. And, finally, when Gold Medalist Marcel Breuer (see *St. John's University*, May '68) received the AIA's top award, it was with a citation written by Peter Blake.

As we have been saying *The FORUM* is a magazine about architecture—today's architecture—for architects.—L.W.M.



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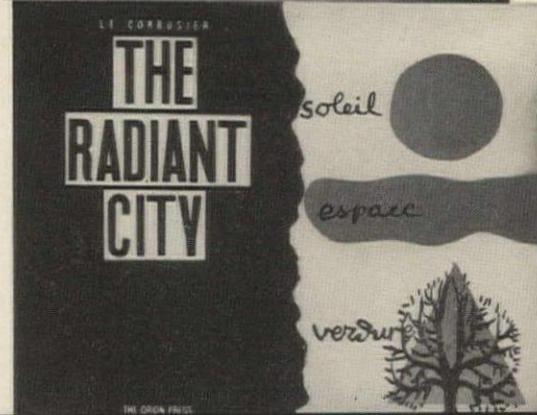
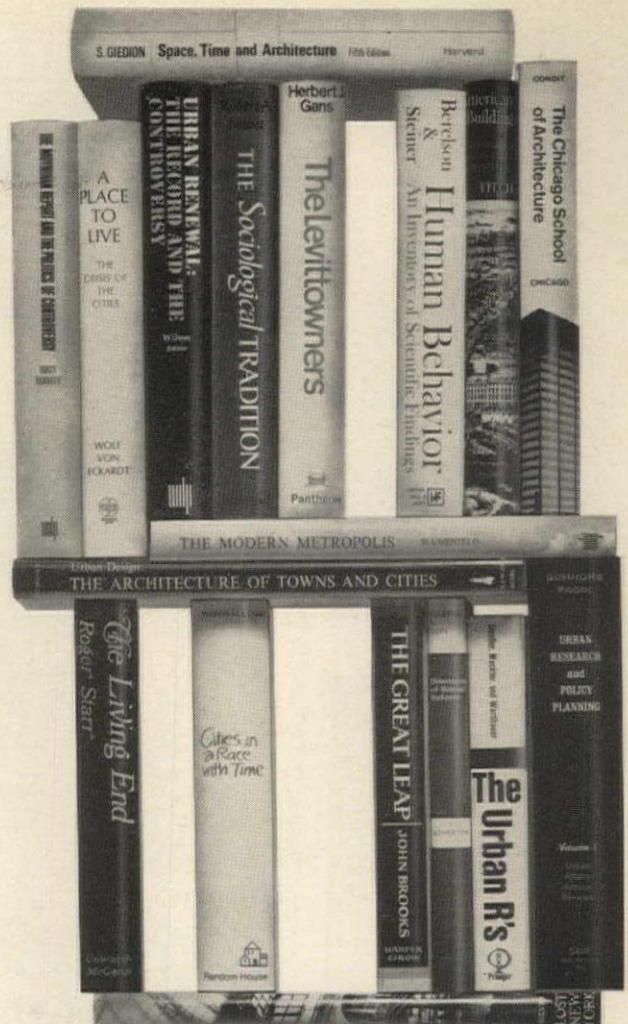
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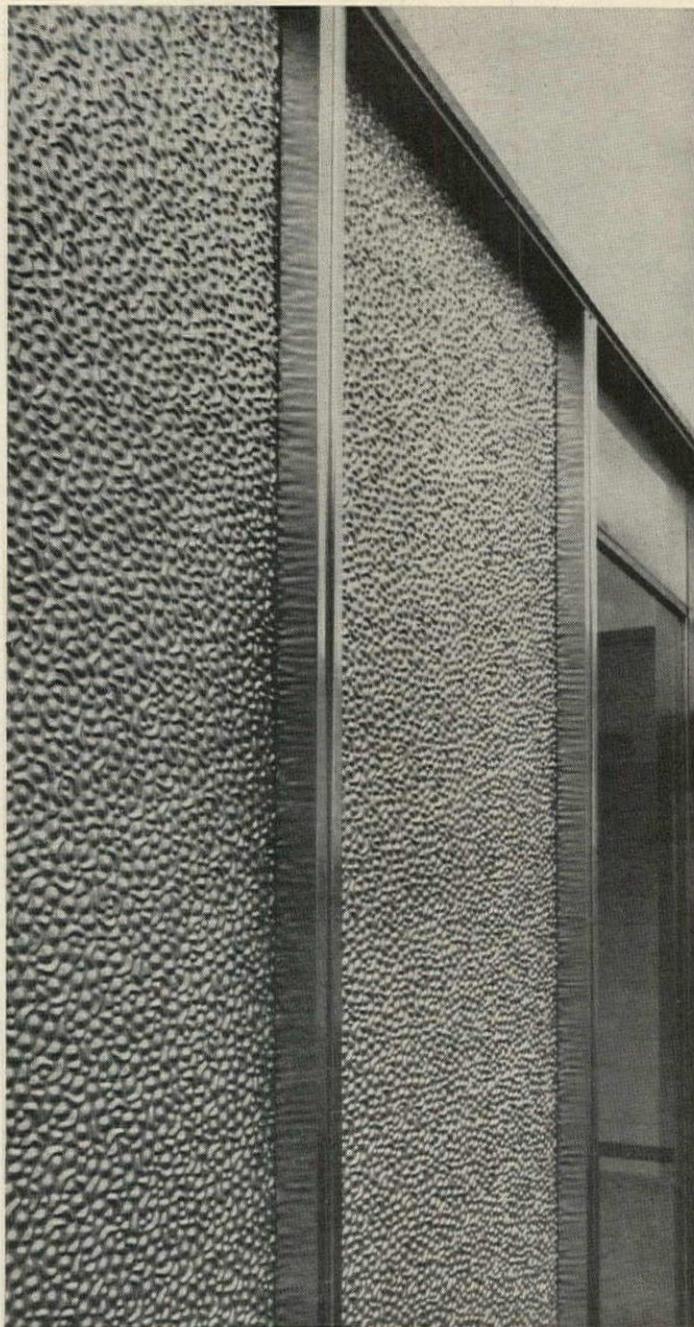
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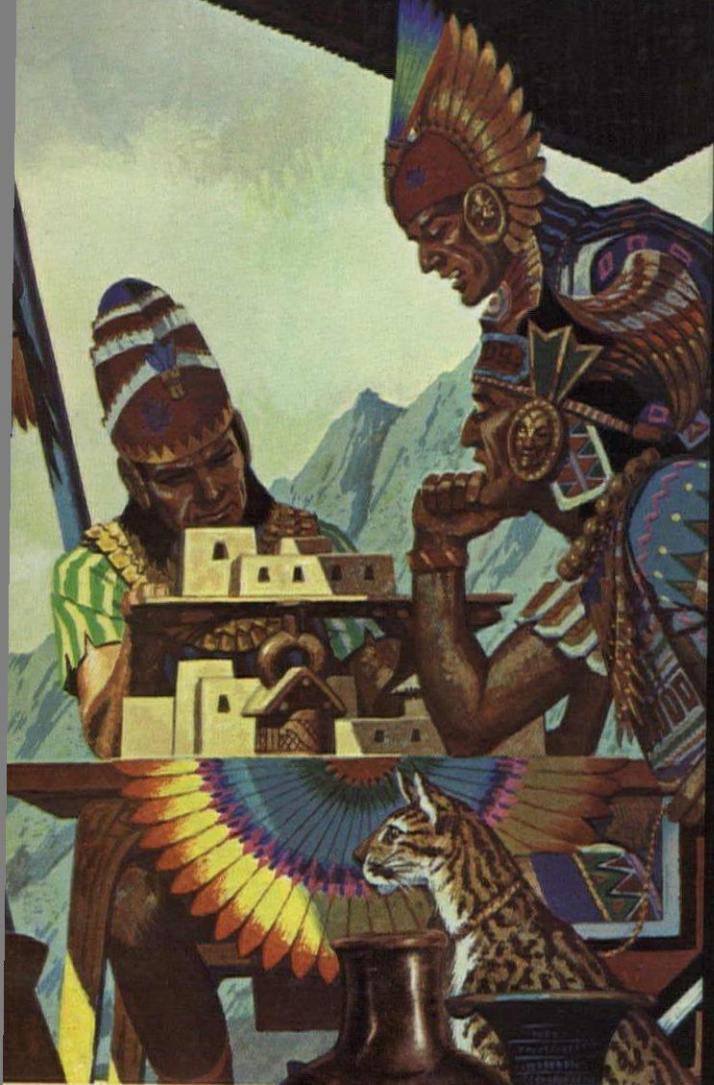
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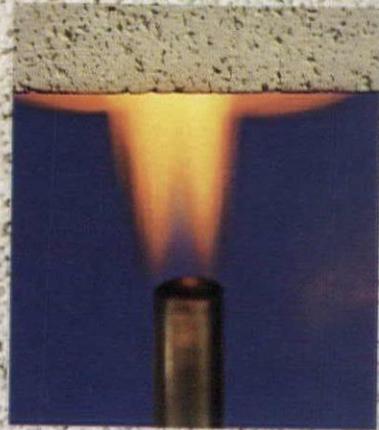
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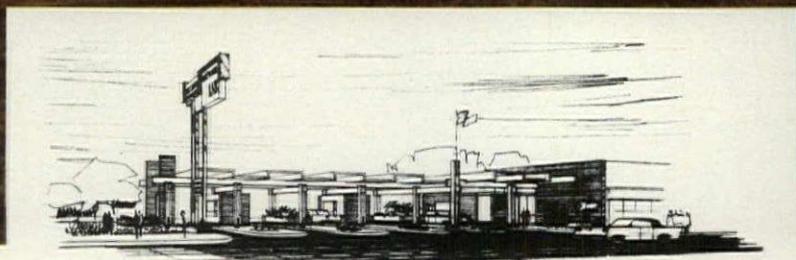
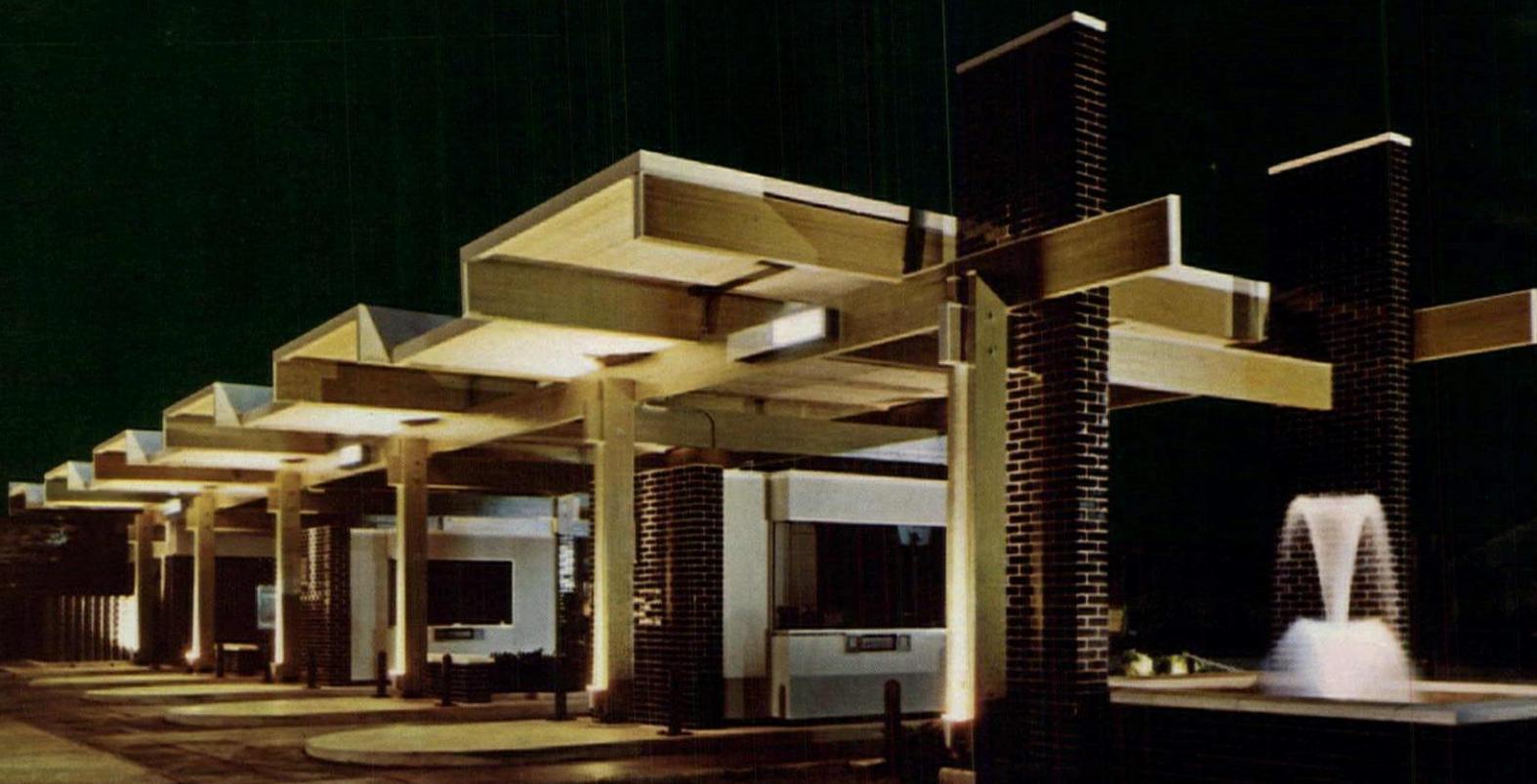
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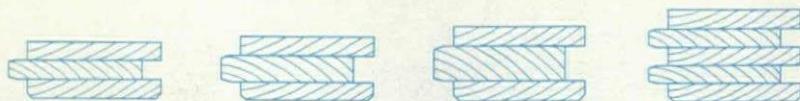
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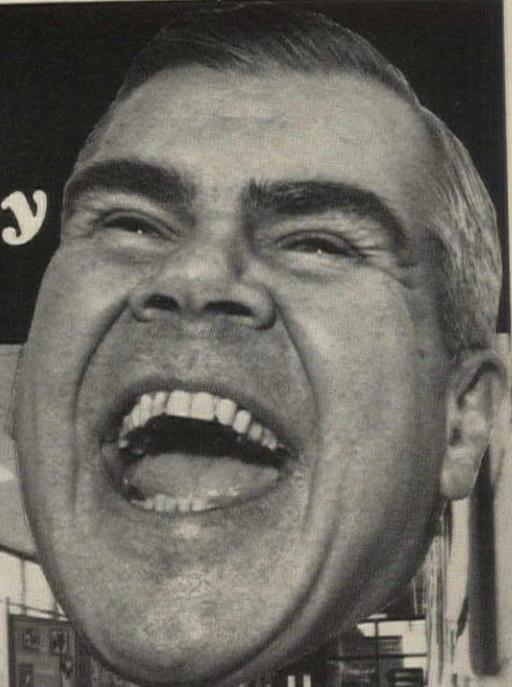
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## HANDSTAND OPERATION

Forum: Because so little of the discussion of Marcel Breuer's proposed tower over Grand Central Station has been real, I feel compelled to act as devil's advocate despite long admiration for a great deal of his architecture. I'll try to boil down a few points, which should really have had article-length exposition:

1. Isn't it a little absurd to do a highly expensive major structural handstand operation just to save (legalistically only) a nice facade which is *not* the top concern of everybody, when in the process major damage is done, architecturally, to major rooms which are architecturally unforgettable?

2. For it simply isn't true that the Big Concourse is going to be left alone: *the Big Concourse is to be very heavily tampered with.* The scheme deprives it of the southern side-aisle, which balances the northern side-aisle; between them they give the big room a great deal of its ample majesty. The southern one will be crowded out; the sky-open arched windows, which betimes let in fine light rays, are to be blocked; the whole effect is to be squeezed, lopsided. As for the 42nd-Street waiting room, that of course is to be gone, and one waits to see what kind of a meaning Breuer can soufflé together for its derelict shell of a big-windowed facade.

3. Of course what we said in 1963 about traffic complications caused by Pan Am will be doubled.

4. But basically the trouble lies far deeper. Since 1954 a whole collection of architects have thought and acted with admirable intelligence and effect on the real Grand Central problem, which is all now being sidetracked. In 1954 it was a list of 200 architects whose letter, through Forum, helped mightily to prevent the great terminal from being pulled down altogether for Pan Am; it was Richard Roth who proposed the viable alternate location; it was Fritz Woodbridge who, later, as president of the New York Chapter, kept the 42nd-Street waiting room from being denigrated into bowling alleys and fight arenas over a beetle-browed lobby; Lee Grossi whose Pratt students suggested under Victor Gruen's guidance how the big

space could accommodate concessions without being a mess of little hutments. And I myself, way back in the Nov. '63 Forum, laid down what is the big outlook:

New York's genius was always *concentrated building locked with swift transportation*; Grand Central City was the world's finest interlocked multilevel demonstration of the futurist city (it was I, not "somebody," who said Sant'Elia just copied it with the covers off); the job of Penn Central is transportation; Pan Am and other concrete butterfly structures don't help it. All the way we were working on the desperate main need, which is for Penn Central to go back into business instead of only getting rich on its billion-dollar-plus real estate in erstwhile Grand Central City.

5. I hope Breuer will soon submit his plans to the Landmark Commission, which has not yet been shown them, and that he listens carefully. What I would really love would be for the whole thing to be chucked, and for Breuer's great gifts to be devoted instead to helping Penn Central get dignity in a direct, workable connection, perhaps overhead, between Grand Central and Penn Station. (Let him float that one!)

The scandal of a disintegrating Atlantic Seacoast ground-level mass transportation system, which is desperately needed, being broken apart in New York, right in the middle, by just a few blocks of unplanned unconnection between stations, is a scandal of virtually boundless defeat, defeated through blindness on top of sabotage.

DOUGLAS HASKELL  
New York City

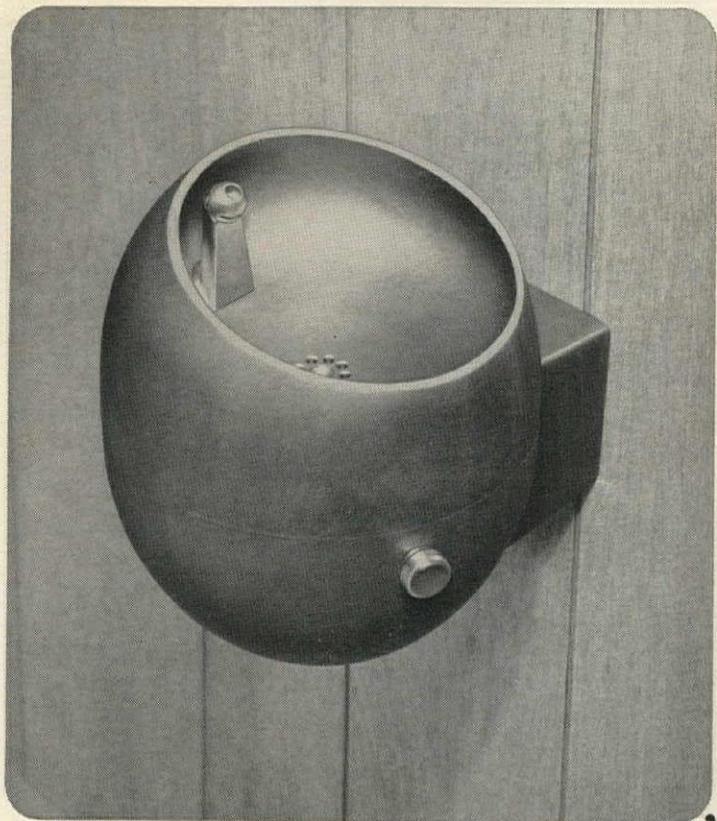
## PRATT'S HAPLESS HIPPIES

Forum: I notice with dismay the item in your May issue [page 98] on the near-anarchy at Pratt Institute.

Being a graduate of the "Shoe Factory," and of a day not too long ago when the likes of Grossi, Moholy-Nagy, Breger, and MacGuinness were gods unto their own, I cannot help but feel disgust for a day when a minority of hapless hippies can sit on their parent-pampered bottoms and selfishly yowl about nothing tangible while offering nothing constructive in return.

Quite possibly if the parents of these misguided teenagers cut off their abundance of funds, the sobering experience of having to

(continued on page 15)



## the quiet show off

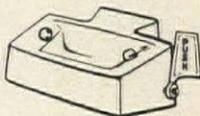
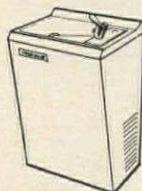
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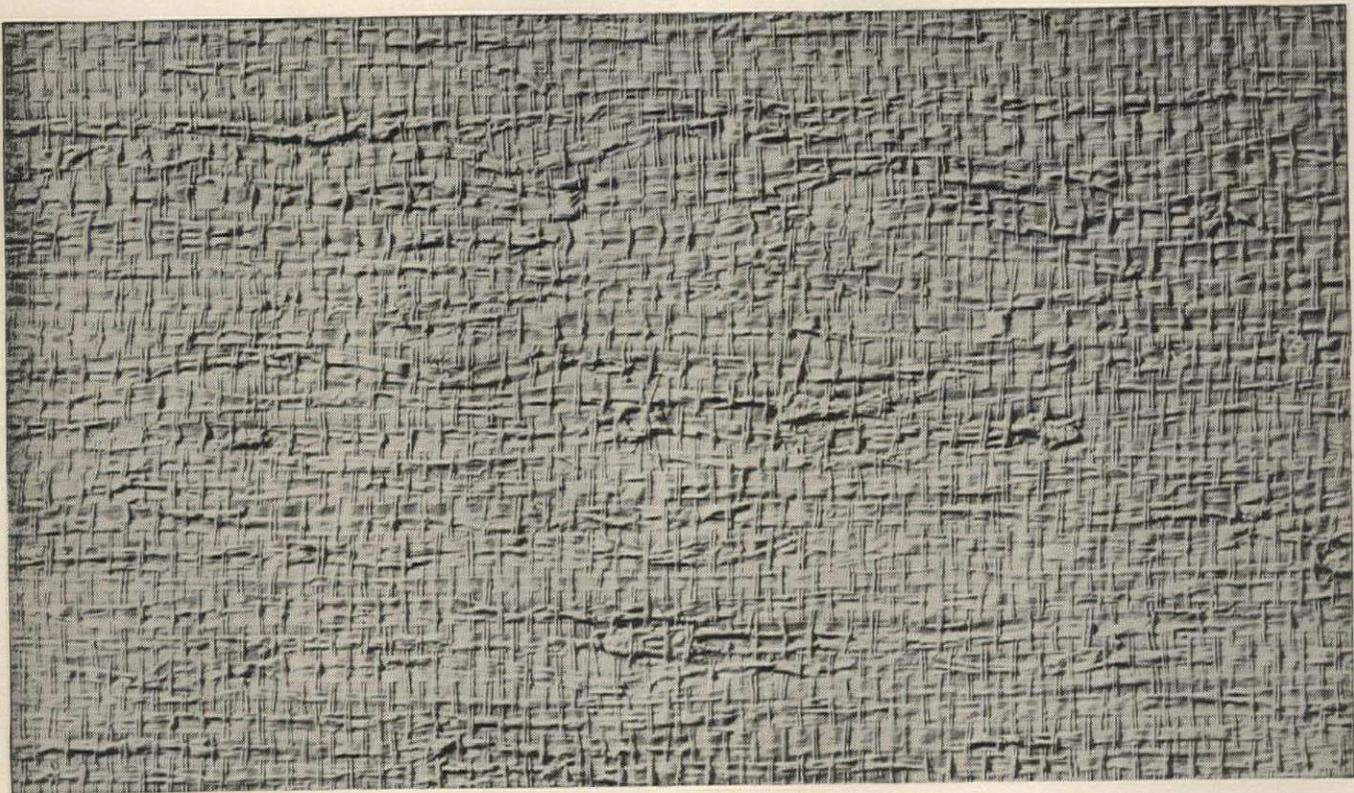
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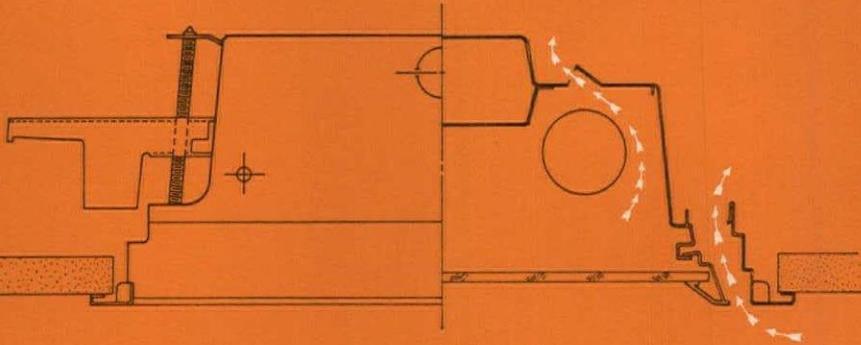
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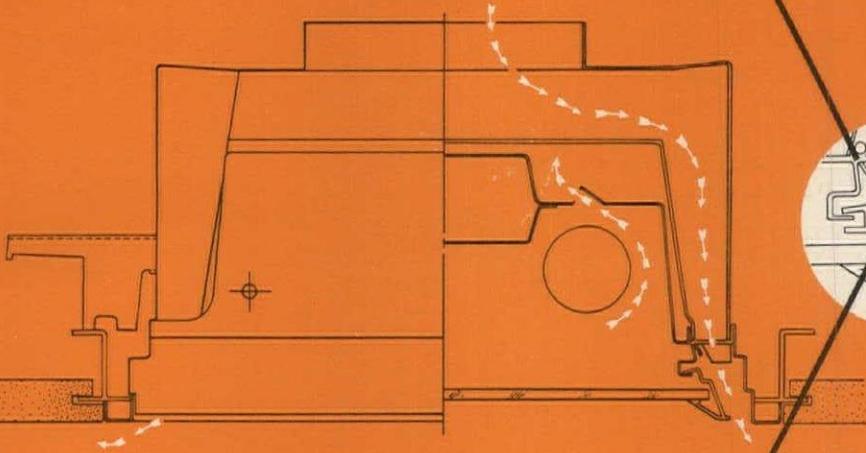
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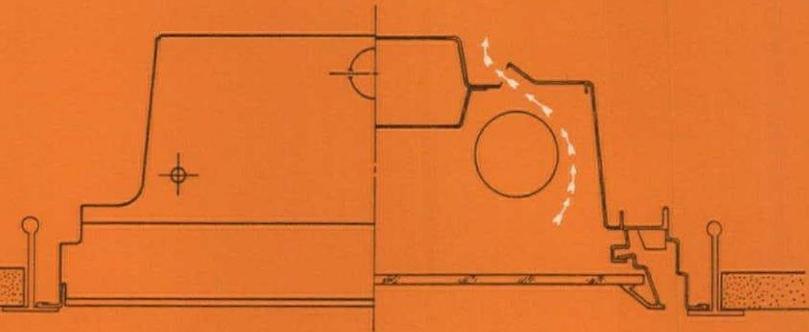




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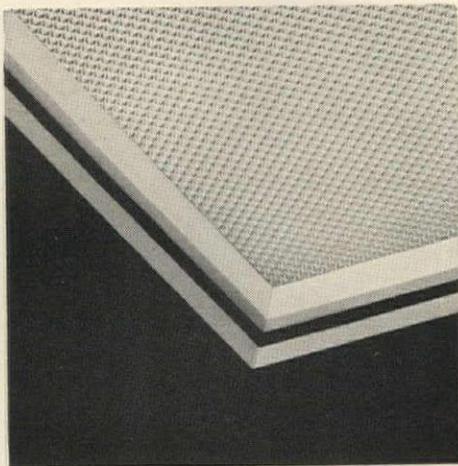


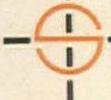
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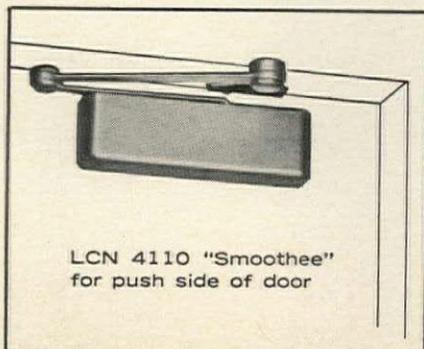
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Architects: The Perkins & Will Partnership, Chicago.



## LETTERS

(continued from page 10)

work their way through an education as most of us did in the "Old Days" might give them a better appreciation of an education, and this profession some noble candidates.

ROBERT EMERY HOPP  
Rego Park, N.Y. Architect

### SOURCE OF THE TRIANGLE

Forum: Those were indeed stunning photographs by Hans Namuth of the St. Louis Arch [June issue].

I wonder if it might be of interest to know that Eero once told me that it was Carl Milles who suggested the triangular cross section. In the original submission the cross section was rectangular.

This was one of the rare occasions that Eero acknowledged the sources from which he borrowed so discriminatingly!

EDWARD CHASE WEREN  
New York City Architect

### MANHATTAN CREDITS

Forum: "Landfill Compact" [June issue, page 29] contains several errors as to fact. Please correct them.

The New York City Planning Commission hired Wallace, McHarg, Roberts & Todd to undertake the plan for Lower Manhattan. They were required to recommend a transportation consultant and New York architects as associates. They selected Alan Voorhees and Whittlesey, Conklin & Rossant. The entire project was under the direction of David A. Wallace, Alan Voorhees, and William J. Conklin. The landfill conception was a contribution of this author.

The Lower Manhattan Plan may be, as you say, "much heralded" but it is even more often misrepresented.

IAN L. McHARG  
Wallace, McHarg, Roberts & Todd  
Philadelphia

### THE MAN OF THE HOUSE

Forum: Here is a new subject that many architects think very little about: the bachelor's apartment.

Out here in California a lot of divorced men would like a man's apartment or home. Most of the apartments are designed for women and are too feminine, including the mobile homes. Also furniture is designed for women. . . .

Also I have definite ideas on architecture and marriage. I think

that as America changes so fast, many people need privacy and the architects are not doing anything about this—especially for the husband. No place for him in the home. . . . So the only place he can go is to the local pub etc.

I would like to see the den made so it would become a part of the home, but a small building away from the home, so that the men could have some real privacy. So you could put it up on four piers and you could order one for any place.

JACK "L" MERRITT  
Redwood City, Calif.

### POINTED COMMENT

Forum:

June 18, 1968.

The photo of the

John Hancock Center

in Chicago (Architec-

tural Forum, Vol. 128,

No. 5, June 1968, page 46)

confirms what the architec-

tural sketches have been prom-

ising all along - - - Babel is

building a monument to that Great

Provider of Manna for our modern

industrial society: the oil derrick.

Very truly yours, Wolfgang S. Homburger

280 Columbia Avenue, Berkeley, Cal. 94708

### ARCHITECTURE OR ESCAPISM?

Forum: Does John Johansen really believe in all those fashionable—but to my taste distinctly flippant—statements he makes in the May Forum?

Does he really believe that any serious design approach—not just a preoccupation with design for its own sake—is "Beaux-Arts"? That poor academy is blamed for about every attempt at design except the slightly nebulous concepts that Mr. Johansen promotes in his article.

To take the most obvious example cited by Mr. Johansen, the work of SOM is certainly based on the (as he calls it) "architectural revolution of the '20s and '30s" and not on a vague Beaux-Arts concept (whatever that means in this context). That firm has in fact consistently developed the principles of the '20s and '30s and moulded them into a comprehensive and practical design approach in which the esthetic as-

(continued on page 18)

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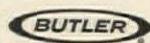
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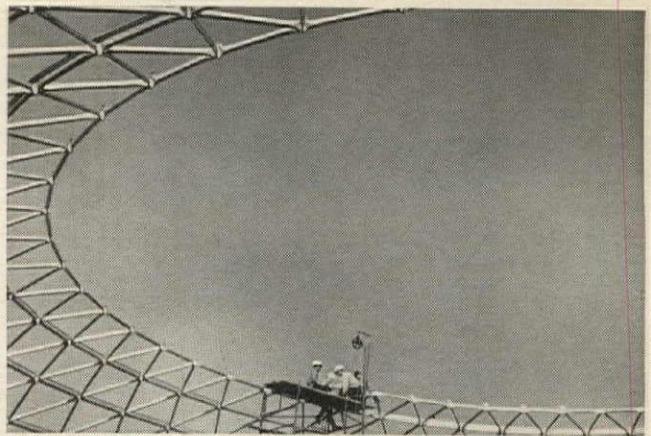
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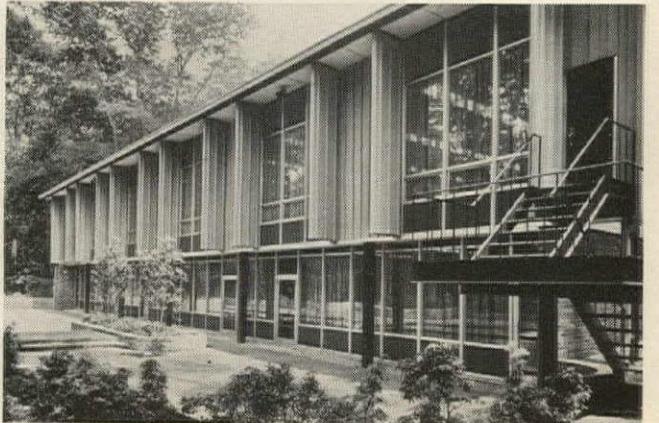


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# LETTERS

(continued from page 15)

pect is but one logical factor of a total solution. Recent visits to several SOM offices have convinced me that this factor is neither overstressed in the design process nor arbitrarily left out (the latest fad) . . .

Mr. Johansen states that he is impressed by electronics. Does he know that SOM for some time has been putting a computer to work for the solution of functional and technical aspects of design problems—to determine the most economical use of a given site, for example? SOM has also used "highly industrialized building techniques" (whatever that means) and contributed remarkably by developing their methods and patents, many of which have been adopted by industry in turn. For them, I guess, the "totally new formative position now being established" is the quiet evolution of their work.

After "a new architecture every Monday morning" has been propagated for so long, and the results have been so little convincing, to say the least, salvation is now obviously sought in "open systems," "no-design," or even "architectural happenings." Does Mr. Johansen really believe this escapism will contribute to good architecture and its development?

Not in my opinion. I think what is needed is much more hard and consistent design work just of the kind SOM tries to do.

OSWALD W. GRUBE  
Engineer and Architect  
Stuttgart, Germany

## ADAPTING A SYSTEM

Forum: We would like to take exception to the letter from Mr. Gorsline of Suspended Structures Inc. [June issue] stating that "the delineator for Frost Associates incorrectly expressed the patented concepts of Suspended Structures Inc."

We, as architects, were developing a conceptual method of solving a set of particular problems—namely the creation of new housing within an existing environment with a minimum of disruption to that environment.

We did not feel any obligation to follow the Suspended Structures patented system exactly, as it did not completely fulfill our needs. Our use of a major portion of their system was a matter of expediency and not of necessity. We

were not as concerned with the exacting requirements of the structural methodology as was Suspended Structures, nor did we feel that we should limit ourselves to any particular structural system but rather to a system applicable to our set of problems.

The fact that the Suspended Structures system was adaptable to our needs was a convenient bonus and not the *raison d'être* for the development of our solution. . . .

KENNETH SAILOR  
Frost Associates,  
New York City

## THE IMPERIAL

Forum: I want to compliment you on the fine article about the Imperial Hotel [May issue]. It gave an insight rarely achieved. . . . I am glad Forum gave the article prominent space, and the fine photos further aided in the documentation.

KARL KAMRATH  
Architect  
Houston

## VOLUNTEER

Forum: My congratulations to Mr. Venturi! He is extremely fortunate to have a professional journal such as Forum as a personal sounding board for his writing.

His florid description of his entry for the National Football Hall of Fame Competition [April issue] is too much. Can a "prize loser" be that significant to the profession to warrant as much space as was given it? If so, I too have a "prize loser" for the same competition which I would love to crow about.

FRANK VELLAKE  
Architect  
Coconut Grove, Fla.

Send it along, If we like it, or think it is significant, we might even publish it—ED.

## INDUCED WINDS

Forum: While your article by Michael O'Hare, "Designing With Wind Tunnels" [April issue] was interesting, it seems to revolve around the venturi principle basic to high-school physics.

It should be pointed out that inducing wind can be good as well as evil. A walk through any hot-dry tropical environment built in the vernacular style, as opposed to a walk through new settlements built up in the same climate which are more stylistically advanced, quickly points out the advantages of induced winds for creating a more pleasing microclimate. . . .

MICHAEL A. RUBENSTEIN  
Architect  
New York City

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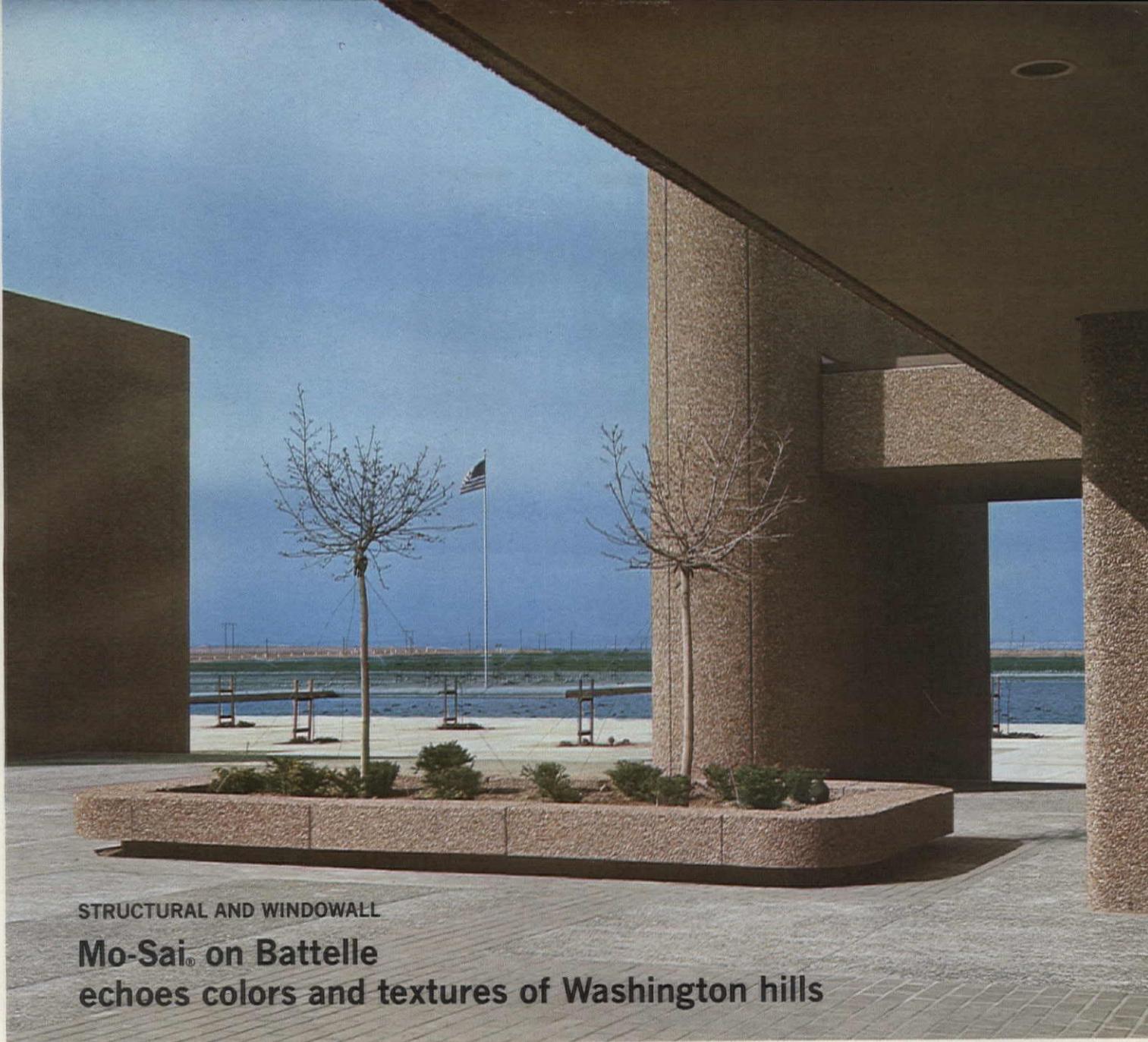
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# This highway oasis is "painting" itself



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The external steel members of the Abraham Lincoln Oasis Highway Restaurant on the Illinois Toll Road near Chicago are made of a bare steel that "paints" itself. The steel is **USS COR-TEN High-Strength Low-Alloy Steel**. As it weathers, **COR-TEN** steel forms a dense, tight, attractive oxide coating that retards further atmospheric corrosion. If the coating is scratched or marred, it heals itself.

Chicago architect David Haid selected bare **COR-TEN** steel because it blends beautifully with the landscape, and because maintenance is reduced to negligible proportions. The rigid-weld structure spans a six-lane divided highway. It is a plate girder and truss system supported by four massive columns that extend to the roof and carry

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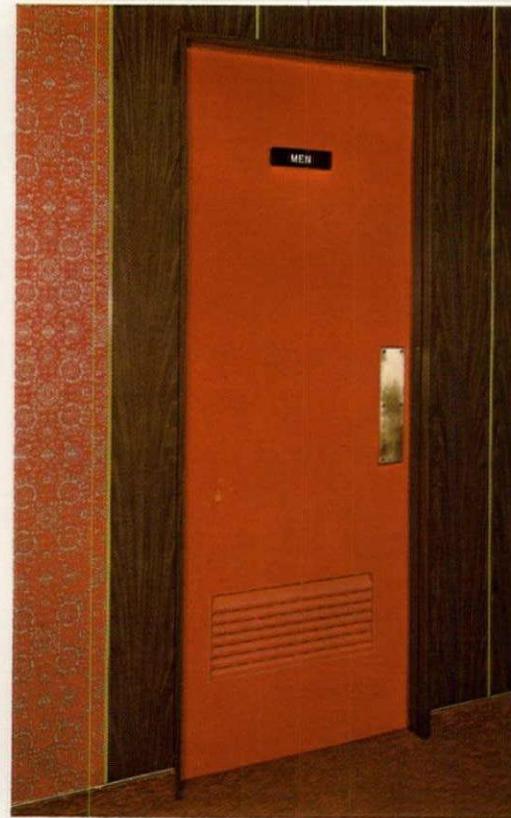
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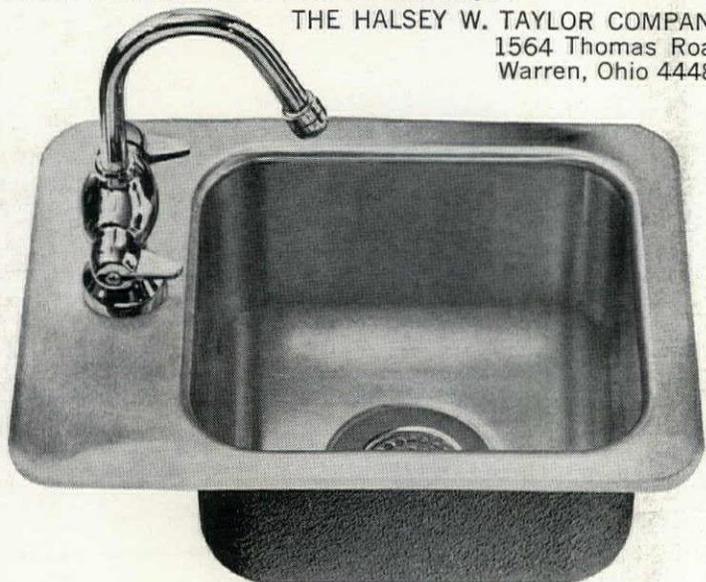
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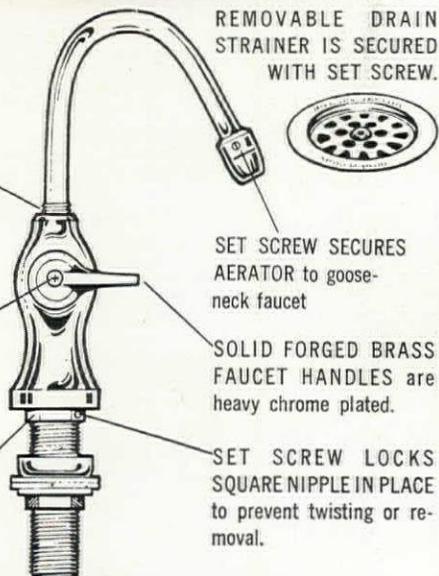
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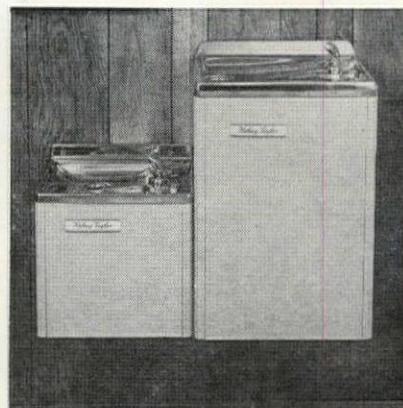
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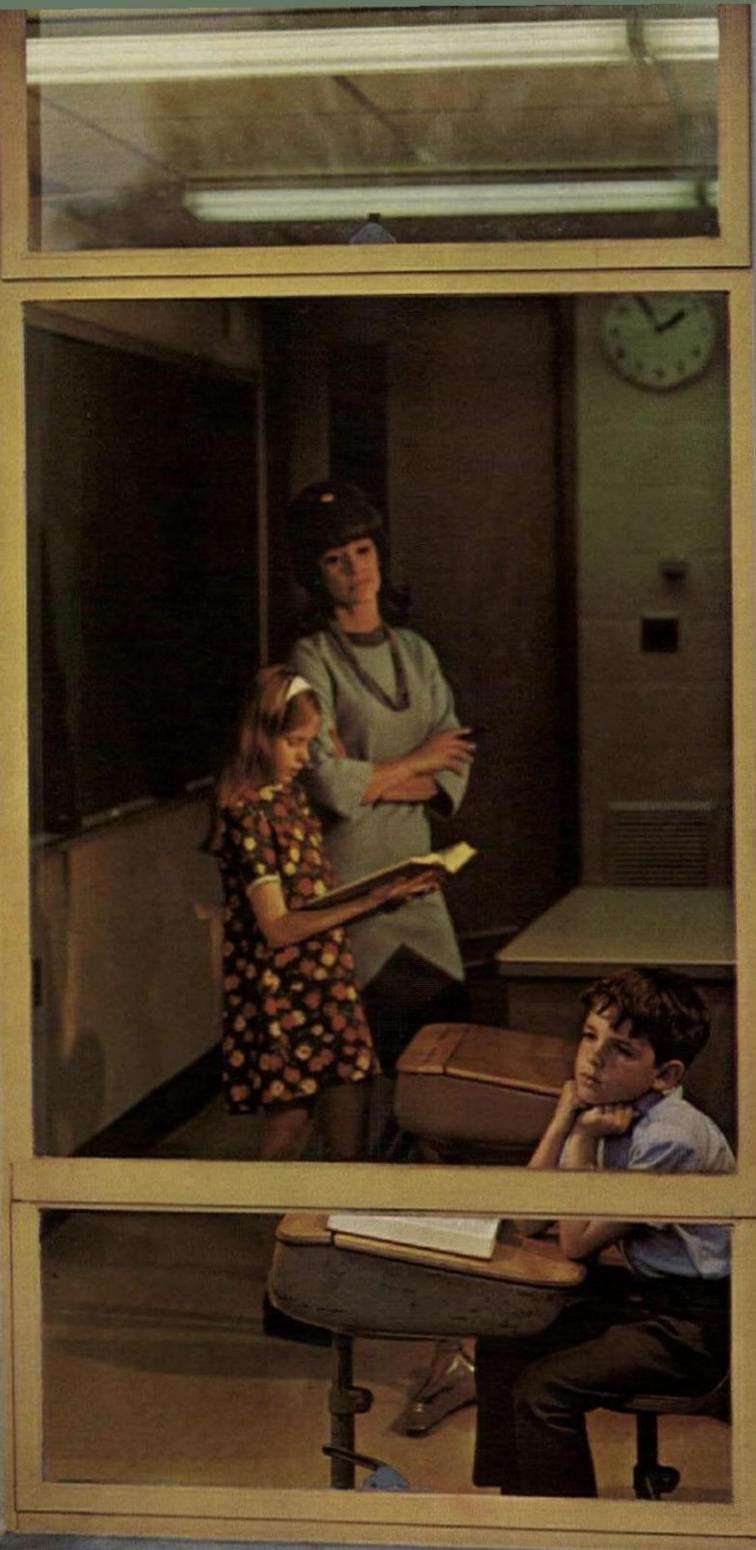
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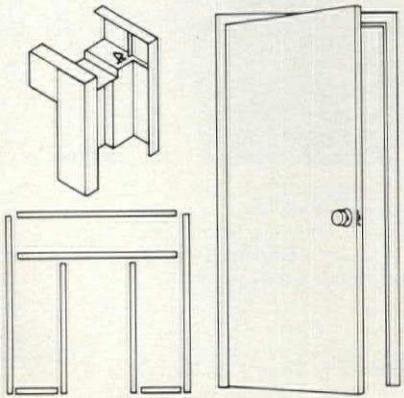
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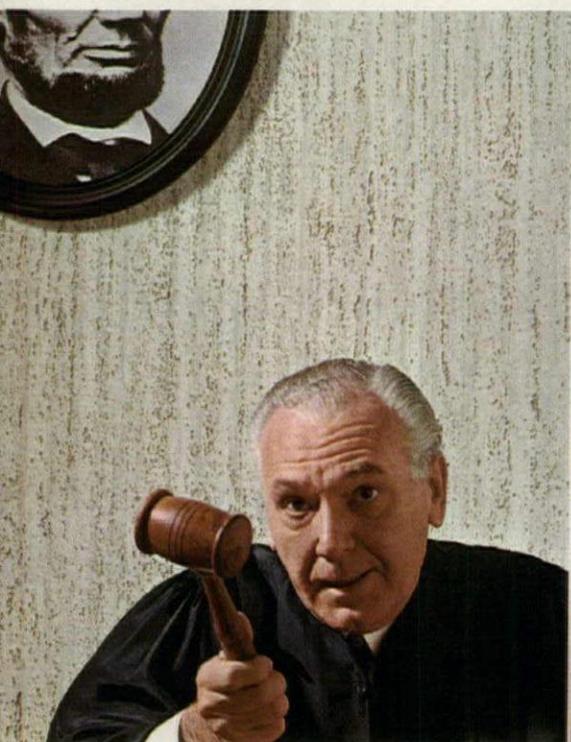
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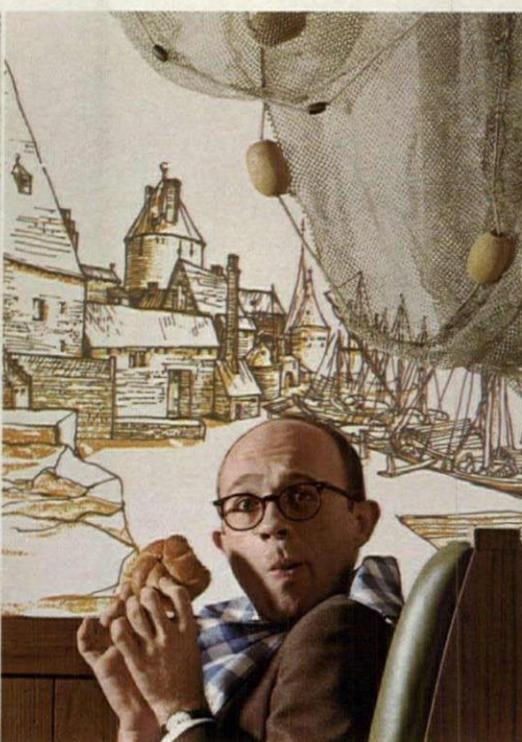
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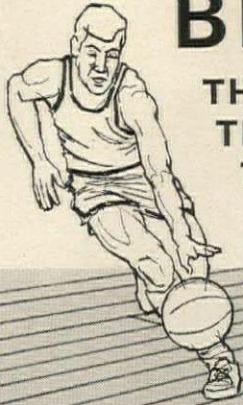
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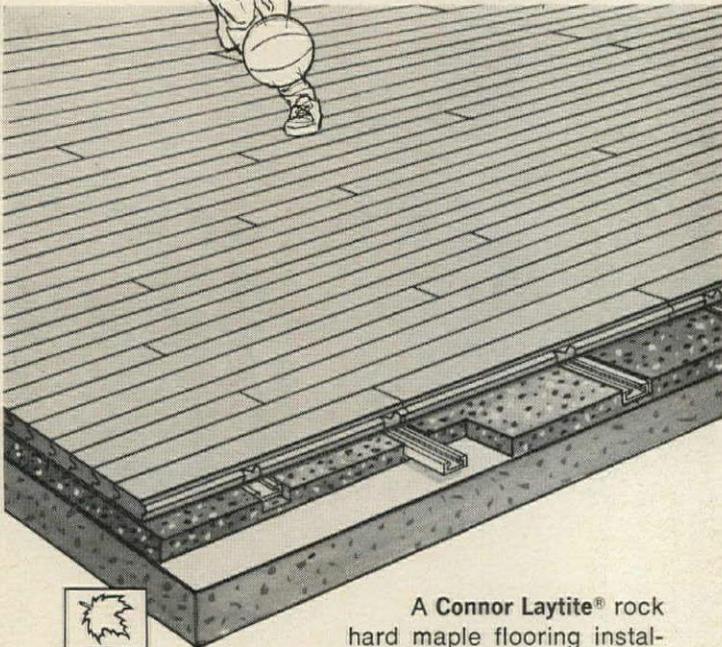
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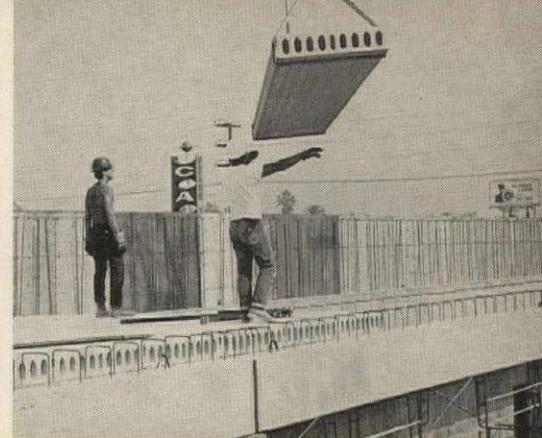
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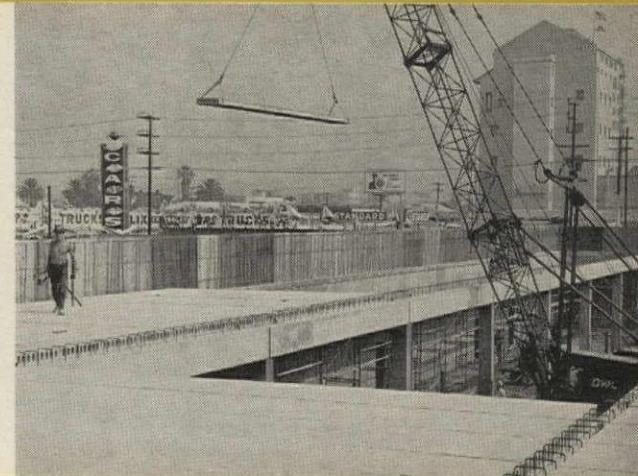
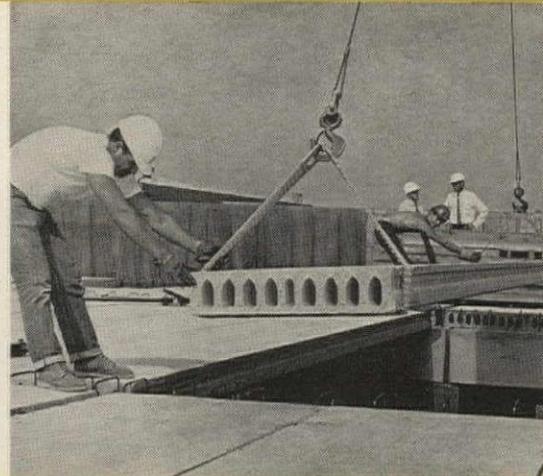
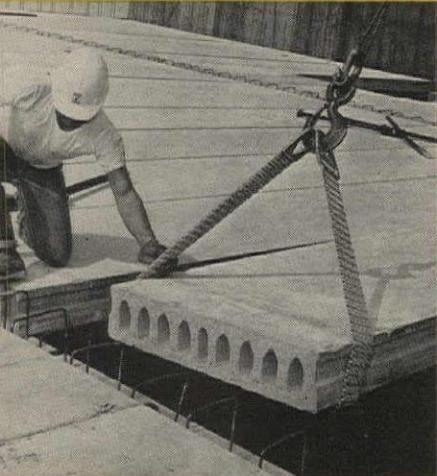
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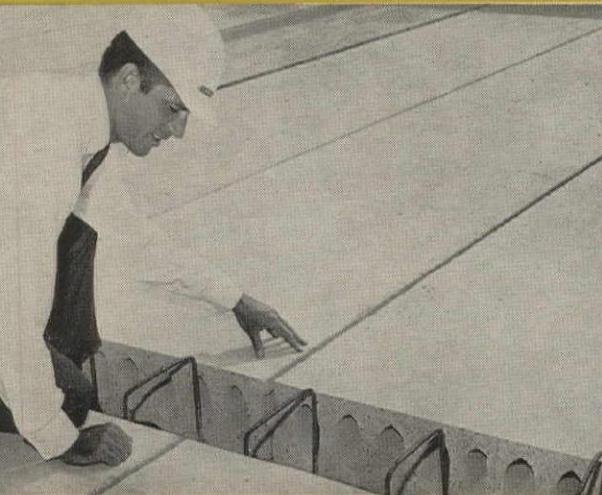
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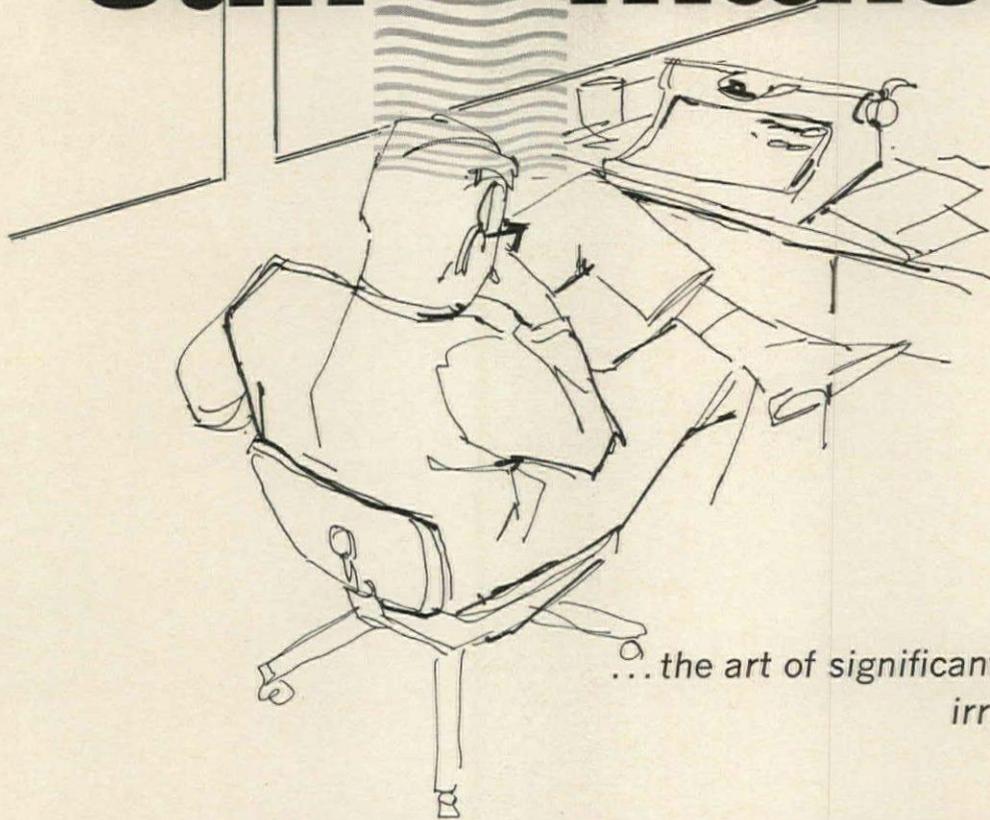
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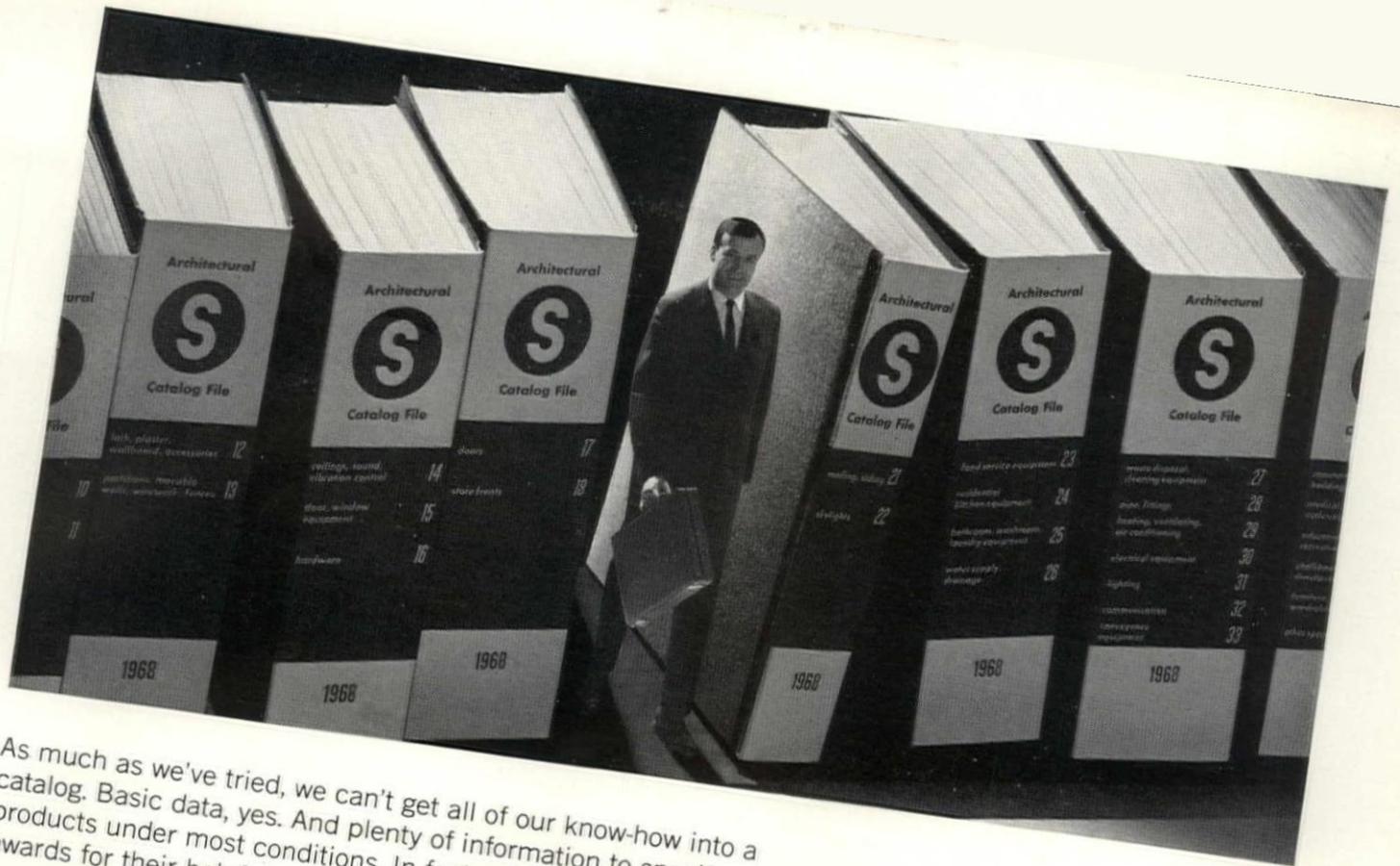
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# FORUM

"To speak of the urban condition is to speak of the condition of American life. . . .

"The city is not just housing and stores. It is not just education and employment, parks and theaters, banks and shops. It is a place where men should be able to live in dignity and security and harmony, where the great achievements of modern civilization and the ageless pleasures afforded by natural beauty should be available to all.

"If this is what we want—and this is what we must want if men are to be free for that 'pursuit of happiness' which was the earliest promise of the American nation—we will need more than poverty programs, housing programs, and employment programs. . . .

"We will need an outpouring of imagination, ingenuity, discipline, and hard work unmatched since the first adventurers set out to conquer the wilderness.

"For the problem is the largest we have ever known; and we confront an urban wilderness more formidable and resistant and, in some ways, more frightening than the wilderness faced by the pilgrims or the pioneers. . . .

"Long ago, de Tocqueville foresaw the fate of people without community: 'Each of them living apart is a stranger to the fate of all the rest . . . he may be said . . . to have lost his country.' To the extent this is happening it is the gravest ill of all. For loneliness breeds futility and separation—and thus it cripples the life of each man and menaces the life of all his fellows."—Senator Robert F. Kennedy, August 15, 1966.

LOST CITY OF THE POOR

On June 24, over 1,000 Washington D. C. policemen, wearing crash helmets, gas masks, flak vests, and armed with riot guns and pistols, cleared Resurrection City U.S.A. of a rear guard of singing demonstrators and occupied a ghost town.

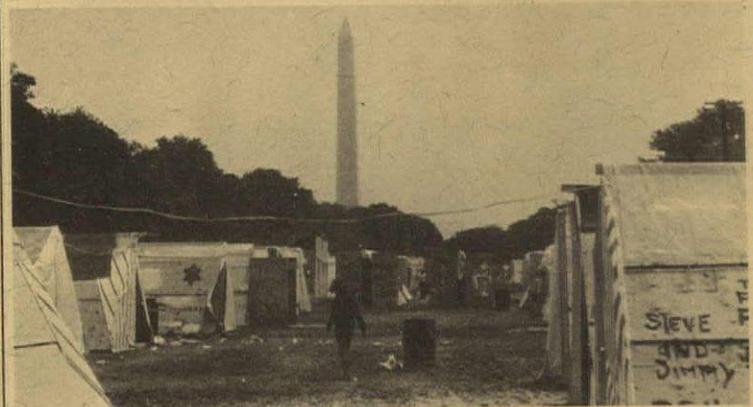
The Poor People's Campaigners, after six weeks of fruitless demonstrating, were dispersed, or jailed. Gone, indeed, was the enthusiasm of May, when their city of hope (below) was built.

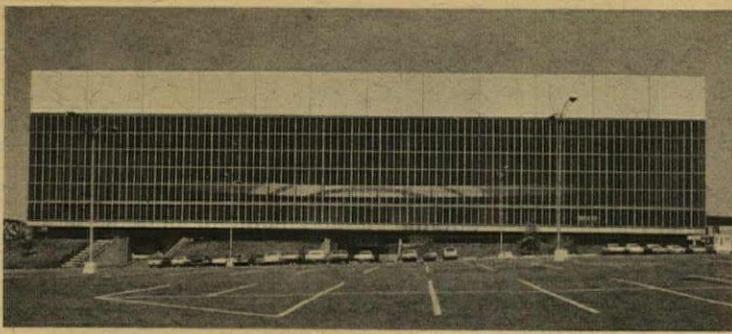
In the months before the first arrival of marchers, a committee of four—Chairman John Wiebenson from the University of Maryland; Ken Jadin, a professor at Howard University; James Goodell of Urban America Inc.; and Tunney Lee, a Washington architect—had drawn up generalized site plans and a scheme for constructing wooden shelters.

The two basic types of shelter—A-frame and lean-to—were built of 2 x 4s and plywood, preassembled into foundations, frames, and wall panels. This prefabrication was done on the campus of Xavier College, Md., by volunteers from the Washington area, many of them students.

On the campsite, between the Washington obelisk and the Lincoln Memorial, the A-frame dormitories could be assembled by a good crew in 15 minutes. End walls were either plywood or plastic sheets, and the sun, when it shone, was admitted through narrow skylights covered with plastic cloth. Altogether there were 540 dwellings, housing a peak population of 2,500.

But what gave the city its memorable vitality, and symbolized its self-determination, were the bold graffiti and structural "improvements" that made each man's hut his own thing. That was little enough, but for many it was better than what was waiting for them back home.





## DISCOURSE

### CENTENARY

The 100th convention of the American Institute of Architects opened last month in Portland, Ore., and closed in Honolulu a week later. It was hard to tell which of the two events was more enjoyable.

Admittedly, the opening promised some excitement: Whitney Young Jr., executive director of the National Urban League, challenged the assembled delegates to get deeply involved in the "gut issues" of the urban crisis, and to start doing so at home—"at home" being the AIA's near-lily-white image.

In his gentlest tones, Mr. Young managed to shake up the convention by chiding the AIA for "thunderous silence and irrelevance" on the nation's social and moral problems. To its credit, the AIA responded by passing several resolutions calling upon architects "as citizens and professionals and employers to contribute to the improvement of education, job training, and employment opportunities for the disadvantaged," and in other ways as well.

So far, so good. The fact is (to give credit where due) that several individual AIA chapters have had such programs for some time; and that one difficulty in recruiting black, or Puerto Rican, or Mexican youngsters to go into architecture is that so few of them consider the prospects promising—there being few potential clients in ghetto communities.

Still, the profession, like all other components of the Establishment, could do much more and Young did a fine job of making the architects feel uncomfortable.

After this promising start, things reverted to the usual routine:

- Some very fine people received medals and other awards (see Publisher's Note, page 1);

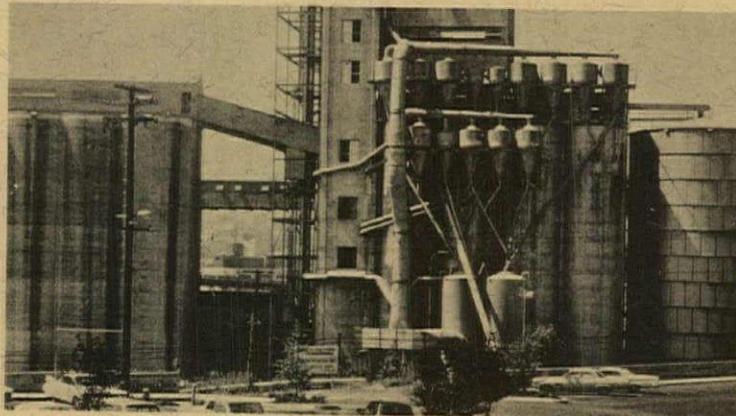
- One of our most distinguished contributors—Lady Barbara Ward

Jackson—delivered the 1968 Purves Memorial Lecture and said, in the course of an impassioned but closely reasoned appeal, that "the reality of 'cost' must be related to the real income of the country. America grows by \$50 billion a year. Should not half of that new wealth be devoted not to the increase in private affluence, but to reversing the trend to public squalor?"

- Also against public squalor was Mrs. Lyndon B. Johnson, who delivered the B. Y. Morrison Memorial Lecture, and was sweet. The delegates gave her several standing ovations. Agriculture Secretary Orville Freeman joined Mrs. Johnson in praise of beauty, and he was sweet, too. He left for Vietnam shortly thereafter.

- Then there was the usual number of new Fellows. As for this year's Gold Medal, that went to Marcel Breuer, who responded in a charming little speech in what appeared to be either phonetic Hungarian, or phonetic English, or both. Outside, a few students tried to picket the ceremonies with signs that read "Save the Pan Am Building," but failed.

- As for the new officers and such, there was considerable electioneering for the job of secretary (won by Preston Bolton of Houston); for three new vice presidencies (winners were Dan Schwartzman, N.Y.; David Yerkes, Washington D.C.; and Jules Gregory, N.J.); and for the first vice presidency (which means



elevation to the presidency next year) and that was won by Rex Allen of San Francisco.

- Finally, George Kassabaum, at 48 one of the youngest men ever elected to the position, became the AIA's new president. He started his term off encouragingly by reserving the right to change his mind.

There were also other resolutions, parties, picnics, movies, slide shows, and exhibits. Much of this went on in the very handsome, high-style, SOM-designed Memorial Coliseum (above, left), an elegant glass showcase containing a concrete-bowl arena with all the comforts of home.

But, right next to that very elegant job, there stood what—to a few of the architects in attendance—seemed to be the most exciting structure in Portland, a building of the "Third Phase" of modern architecture, as Robin Boyd would put it: the 2-million-bushel-capacity Globe Dock & Elevator Building (below), a fantastic "machine" consisting of slip-formed concrete silos at left, and "elevator legs and headhouse" to the right. The building belongs to the Louis Dreyfus Corp. and nobody seems to recall the names of its designers. Built 11 years ago, it hasn't won any Honor Awards yet, and may never win any; but to some of those who attended the Portland convention, discovering it was *the* event of the week.

About a third of the 3,000 delegates, wives, and students in attendance then adjourned to Honolulu, to consider their professional problems in a less abrasive environment. Next year: Chicago.

P.S.: Oh yes, this year's convention theme was M-A-N which, it was elaborately explained, stood for Man—Architecture—Nature. In view of current preoccupation with the subject, we suggest that next year's theme might be: Systems-Engineering-Xerography.

### SUMMIT '68

This year's International Design Conference in Aspen (IDCA) differed from its 17 predecessors in three respects. First, its speakers were few in number, outstanding in caliber, and capable of communicating whatever it was they had to say and/or show. Second, its program chairman—Dr. Reyner Banham—had selected a theme that was clear (dialogues between designers from Europe and America), and an approach that was down-to-earth (or, to use his—not our—term, nuts-and-bolts). And, third, its participants were rather more hirsute than ever before.

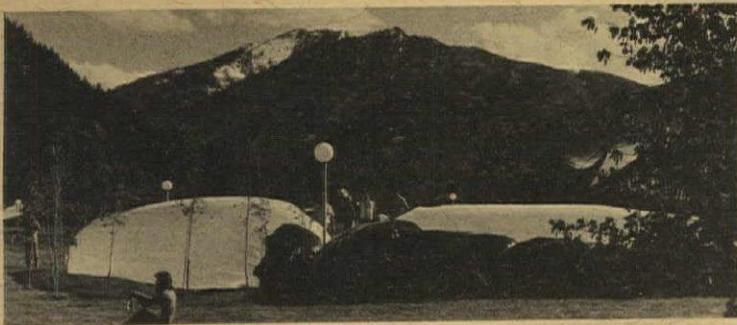
Better than 700 conferees, wives, students, and assorted guests assembled on the summit (Elev. 8,300 ft.) on June 16 to consider what Chairman Banham (afloat, below) had defined as the whole



range from "the most grubby involvement with gross materials to the most far-out speculation about the nature of man and the destiny of the universe." Unhappily, Chairman Banham's handsomely designed brief to the conferees, which was printed in 8-point Helvetica Medium, with 3 points of leading between lines, proved to be almost entirely illegible; nonetheless, most of the speakers responded nobly, and here are some of the highlights:

- Historian David Gebhard, of the University of California at Santa Barbara, did a devastating job of ridiculing the (largely European) notion that the design of such items as pencil sharpeners, say, involved cosmic questions of morality and ethics;

- British Designer and Architect Misha Black, while insisting upon ethical standards of practice, accepted that ours was, indeed, the best of all possible worlds for the



simple reason that there was no other. His American counterpart, Dick Latham, designer of such gadgets as the early Hallicrafter radio, defended that best of all possible worlds as being largely consumer-and-technology-dominated. Among his points: serious research will soon replace packaging when we begin to realize that the chief design problem in developing the SST is "how to unload the Queen Mary through a porthole";

- Canadian Architect and Urban Designer Irving Grossman felt that (a) there was not sufficient feedback from the consumers of architecture to the designers of same; and that (b) architects were not sufficiently concerned with, or appreciative of, the many other forces that shape the environment—and the manipulators of those forces. Barcelona Architect Federico Correa, pinch-hitting for France's Ionel Schein (who sent his regrets from the barricades), began by stating, calmly, that "my country is a fascist dictatorship," and then proceeded to demonstrate how men of integrity and dedication could function successfully under the direst of circumstances;

- Denmark's John Allpass, head of the Center for Planning in Lyngby, demonstrated that a combination of idealism and dedication to humanity and facts-of-life—when disciplined by true professional expertise—could perhaps solve the problems of our cities;
- And, finally, there was the Lebanon-born political scientist, Jivan Tabibian, currently lecturing at UCLA on political science and urban systems planning. He summed it all up, brilliantly, by dividing the men from the boys, the pragmatists from the dialecticians (or vice versa). In other words, those who were willing to cope with the best of all possible worlds, and those who wanted to approach that world from an idealist position.

During the evenings that punctuated this year's IDCA there

were some astonishing performances: François Dalleget, the Montreal-based Frenchman whose work has frequently enhanced our pages in the past, displayed some of his most intriguing designs, including Flying Saucers, Electric Clothes, Immobile Automobiles, and Adult Toys. He was a smash. Hans Hollein, the "Visionary Architect" from Vienna (whose work has also embellished our pages in recent years), displayed some of his visions, looking a bit like Savonarola m-c'ing from the stake. Morley Markson, the one-time geodesicist, now turned filmmaker, bombarded the conferees with subliminal messages seemingly intended to render everybody sterile. And then there was Dennis Crompton, one of the Archigram gents, who made the Future look like our Science Fiction Past by means of the most persuasive hot-shot high-speed projections ever seen anywhere above sea level.

The conference ended as it began: Chairman Banham, John Allpass, and Jivan Tabibian, all brilliantly conclusive, all redefining the theme—not America vs. Europe, but Pragmaticism vs. Dialecticism (cutting across political boundaries). The standard rebellious students calmed down; the standard inflated sculptures (above, from the University of Illinois) exhaled; and the three finalists, all impressively bearded, all looking very much like *three* Brothers Smith, adjourned.

## DISASTERS

### AFTERMATH OF A FAILURE

The freak collapse on May 16 of a corner bay of the 22-story Ronan Point flats in London (above, right), took four lives and may have far-reaching effects on the future of prefabricated systems building in Great Britain.

Neighbors complained of a smell of gas 36 hours prior to that morning when the occupant of apartment 90, Miss Ivy Hodge,



got up to prepare a cup of tea. An explosion, believed to have originated in her 18th-floor flat, either ripped out her living room wall or buckled it sufficiently to remove support from the floors above, causing them to fall, shearing off everything in their path.

The prefabricated concrete system used at Ronan Point is one of several introduced into Britain only eight years ago. Called the Larsen-Nielsen system after its Danish developers, it consists of factory-made concrete sections assembled on the site like a house of cards: bearing walls support the floor and walls above.

Taylor-Woodrow-Anglian, Brit-

ish licensees for this system used throughout Europe, have employed it in 3,000 dwellings. They know of no previous failures.

Did the industrialized system contribute to the extent of the damage? Would modifying the system to resist explosions be practical in terms of cost? Should the use of gas in highrise buildings be outlawed? Should government planners bring their thinking down out of the skies where, say the sociologists, Londoners are not happy anyway? A public inquiry into the disaster is now under way and will deal with these questions.

Whatever the findings, the government's effort to promote skyscraper systems as the speedy, economical solution to housing needs, has suffered a severe setback.

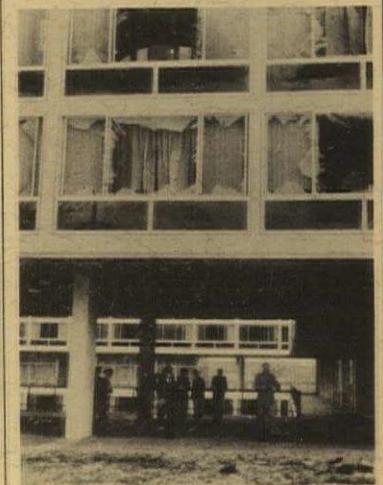
### BOOMERANG

The sonic boom which struck the Air Force Academy in Colorado, causing 15 minor injuries, blasting out 300 windows and falling plaster, was slapstick so heavy-handed that no writer could have penned it but in jest.

It came during outdoor ceremonies marking the presentation to the academy of an F-105 Thunderchief jet fighter, constructed of parts salvaged from planes destroyed in Vietnam. An overhead formation of F-105s peeled off in single file to make a return pass. Flying under 300 ft. (lower than the spires of the chapel), the lead plane broke the sound barrier, the boom followed, and glass rained down on spectators.

Four buildings (but not the chapel) were affected (sample below), and one window wall of the dining hall—266 ft. long—was left with only two of its 124 panes of glass intact.

Previously, Air Force publicity releases had declared that "sonic boom pressures cannot directly injure a person or cause damage to



a structurally sound building" (see Nov. '67, page 90). The estimated \$50,000 in repairs and 15 superficially injured bystanders may—or may not—cause the Air Force to reappraise its position.

The National Academy of Sciences' committee on sonic boom, in a report published in October, 1967, said that "work is urgently needed on sonic boom psycho-acoustical and structural response problems. . . . Future prospects for dramatic reductions in the intensities of sonic boom . . . are not readily apparent." Some aerospace engineers have suggested that booms might be made tolerable by methods ranging from changes in engine and wing design to enveloping the aircraft in an electrostatic charge to reduce the shock waves that cause sonic boom.

Unless the government's efforts to launch the Boeing SST—now projected for prototype construction in 1969 at a requested budget of \$223 million—are matched by equally thorough research into sonic boom, the effects could be devastating to the environment as well as to the ear.

## REVOLTS

### LATEST FROM COLUMBIA

The Morningside Park Preservation Committee has filed suit against Columbia and the City of New York over the stalled gym (June '68, page 31), calling the lease "a public scandal of the first order."

"Under this deal," says the group's president, Victor Crichton, an alumnus and former student leader, "Columbia has exclusive use of eight acres of parkland from 8 a.m. to 6 p.m. and from October 1 to May 30. When the land is not in use by Columbia, Columbia 'opens' it to organized play by male teenagers, only under Columbia supervision. Moreover, Article 6 of the lease states that Columbia may use the gymnasium building as a Naval Reserve Officers' drill hall, as classroom space, and for offices. These conditions make the leasing into a farce. This business is nothing less than the giveaway of millions of dollars in public land."

• The students who were arrested, many of them charging police brutality, are coming up for "justice." The first two to be sentenced, and fined \$50, are an architecture student and his wife. Given the choice of refraining from simi-

lar activity for a year, or going to jail for 15 days, the couple chose the former, as they were planning to leave for the Peace Corps.

• And some 30 ex-architecture students have formed a group called "Urban Deadline." Some of them are new graduates, with or without diploma (if arrested, without), and some are dropouts. All are profoundly distrustful of the profession as they see it, and the events of the spring have energized them to action. "The profession has lied to people," says one member of the group, "claiming it can fix up everything in a grandiose way; these promises can't be fulfilled. We want to see people do what *they* feel is important, not what the professional *tells* them is important."

The first project of Urban Deadline is fixing up a storefront on East 121st Street; it will become one of the "street academies" of a civil rights group, and women will do sewing here. One result, it is hoped, will be "the end of the mythology that the professional is needed; we hope to phase ourselves out in favor of local people," as one member expresses it. "We hope to suggest that *anyone* can do things with backyards and storefronts. The city belongs to the people." Further activities may include helping communities formulate counter-plans to official proposals; also undertaking "research action projects"—perhaps asking people what they find good about the city as a way of getting them to think about the environment.

To support itself, the Urban Deadline is looking into the purchase of a barge (many are available, apparently, at \$1,000 or so) and setting up a restaurant and office—"a place to talk out our hang-ups so we don't have to go out and build them." City departments seem to be raising more than the usual difficulties (wanting the barge fully sprinklered, and the kitchen located on shore). The group will also be earning money by providing its own deadline services to architects—design, drafting, graphics, model-building.

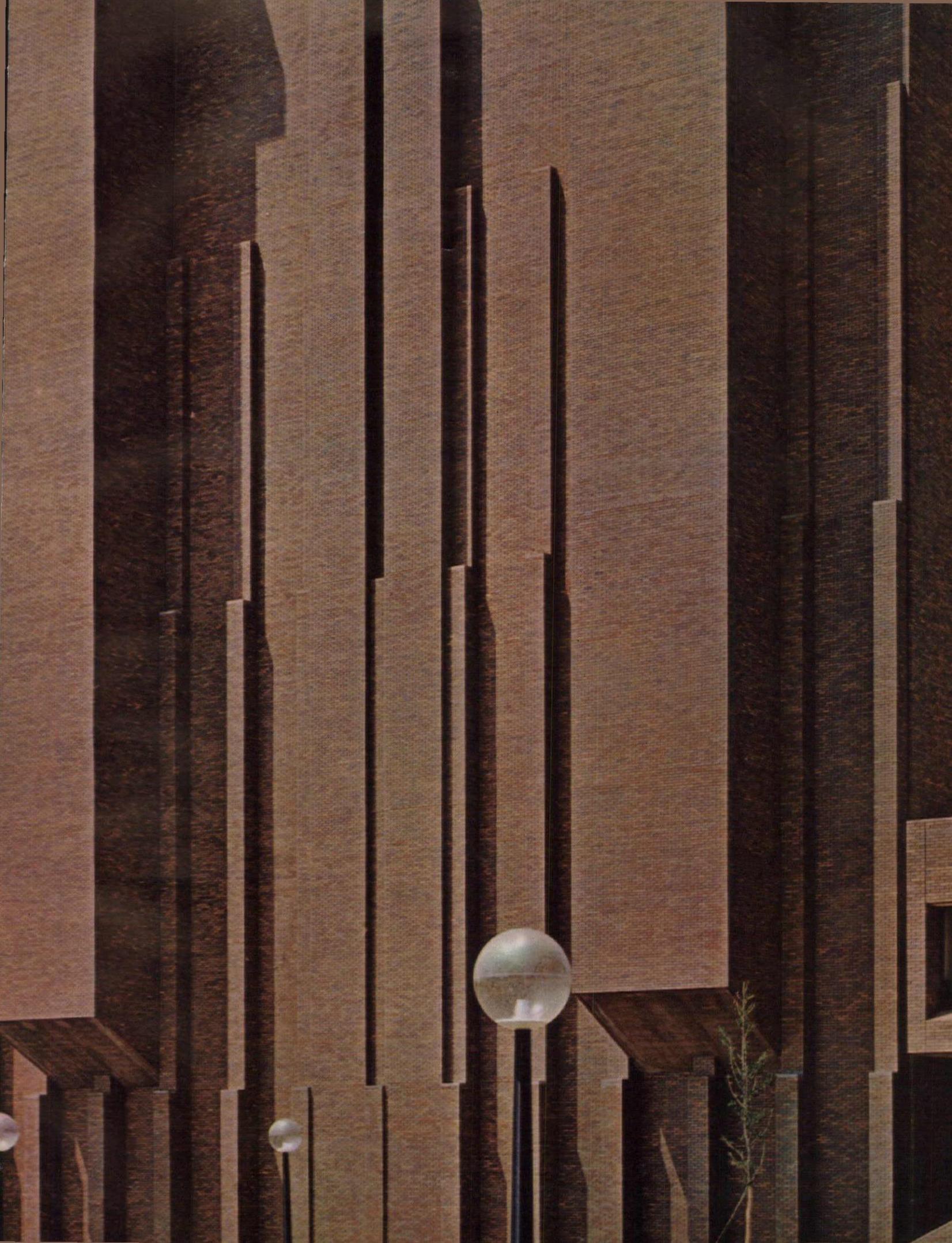
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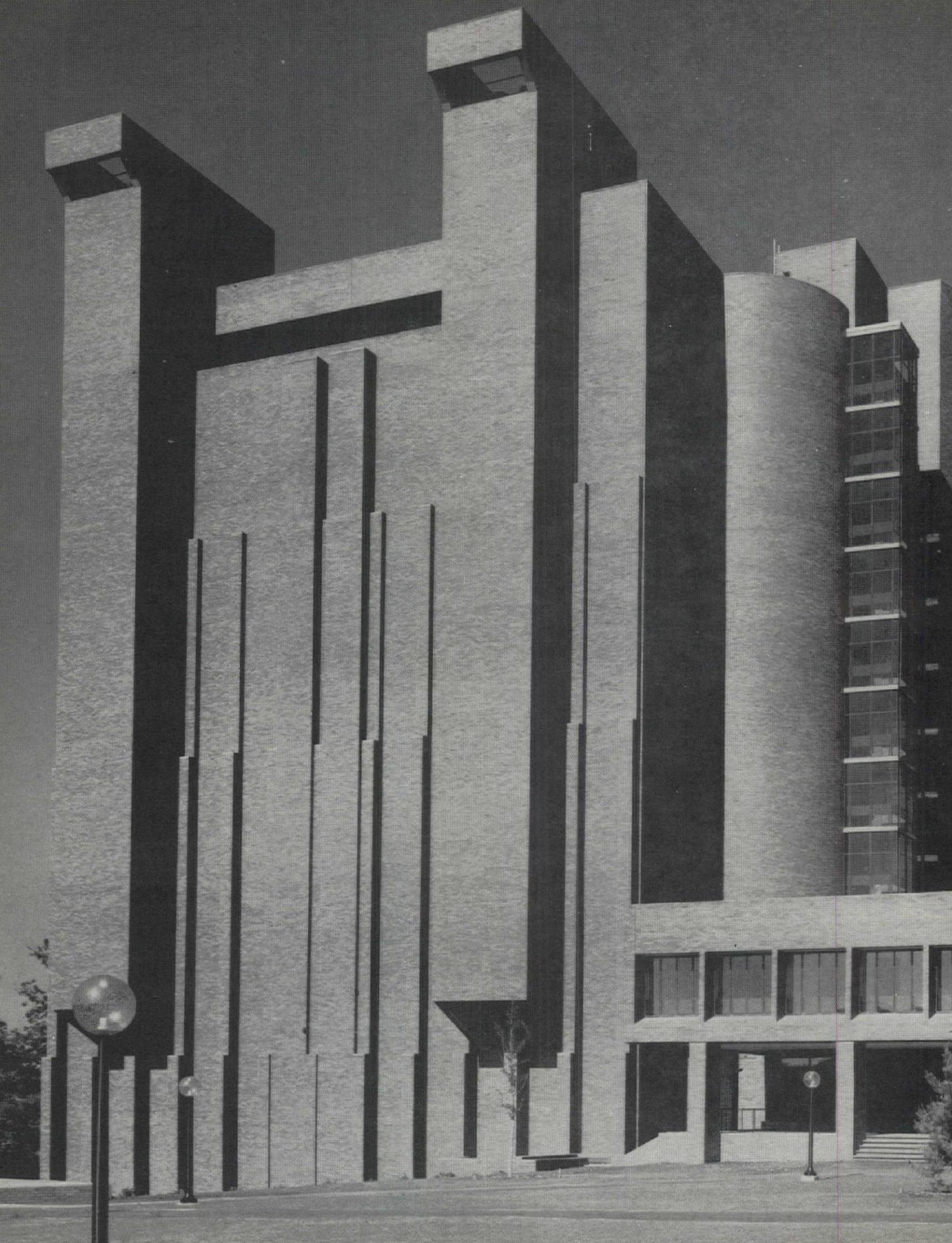
The 14th Triennale of Milan opened at six o'clock on May 30. It closed one hour later when—chanting "Mao Tse Tung," carrying placards, red banners, and the Cuban flag—artists and students invaded the Palazzo dell'arte.

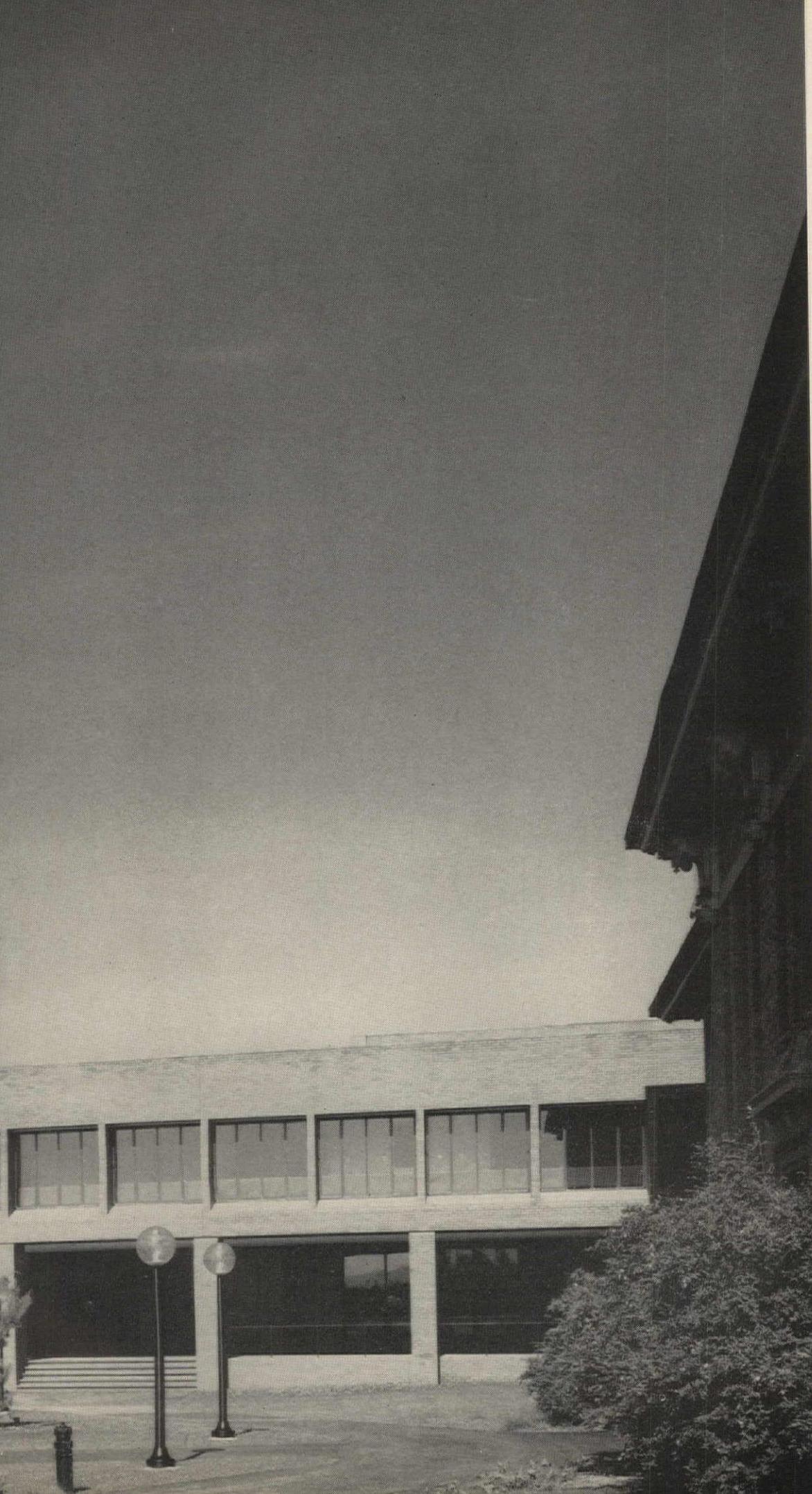
(continued on page 109)

## BRICK MACHINE

Architect Ulrich Franzen's laboratory tower at Cornell declares its complex functions with dramatic force







Some students used to graduate from Cornell University in years past without ever having set foot on the "Ag Quad" of the State University College next door. Not so as of this year, for now the new Agronomy tower—a 13-story-high shaft of laboratories, located on one of the highest points in the landscape—dominates the Cornell skyline from almost any vantage point; and the State University College has become very difficult to ignore.

It has also become very difficult to sneer at: in a university enclave distinguished until now by its rash of undistinguished architecture, the Agronomy tower (with its lower wings) by Architect Ulrich Franzen, is a stunningly successful building, and proof that there really is no inherent reason why Cornell architecture needs to be a bore.

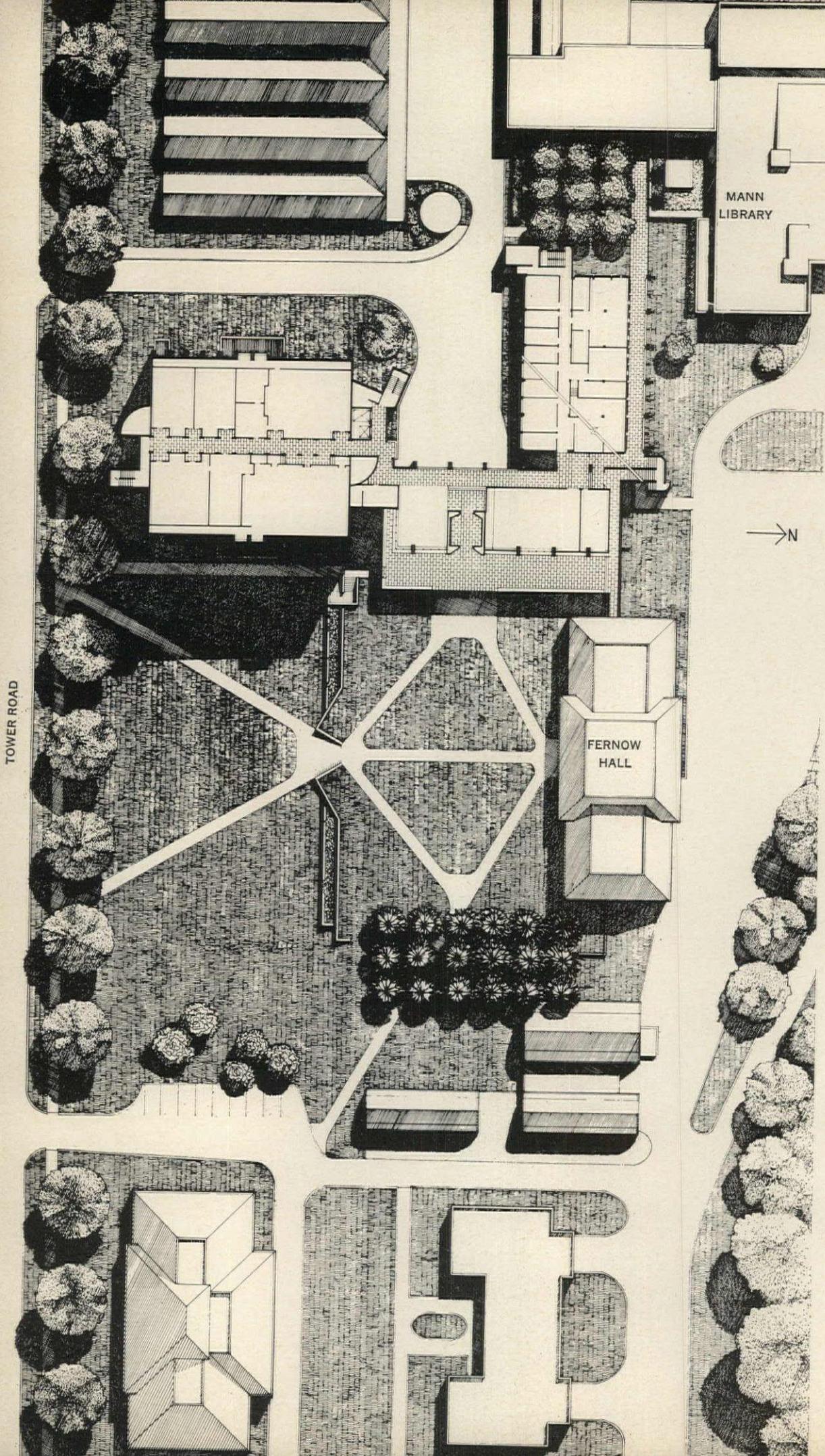
Franzen's laboratory tower would be a standout in *any* setting, for it is, probably, the best building completed to date for the billion-dollar N.Y. State University Construction Fund (see pages 74-85).

It is an outstanding building for several reasons: first, it is a very handsome piece of architectural sculpture in rust-colored, hard-surfaced brick; second, its forms, spaces, and details are all part of a consistent and very neat vocabulary—designed to relate closely to existing buildings nearby; and, third—and most importantly — the Agronomy lab-tower is a demonstration of what can happen when a creative architect seeks to coordinate all the structural and mechanical requirements in a really complex modern building.

For the Agronomy tower is an example of complete and highly efficient integration of plan, of structure, and of innumerable ventilating, plumbing, and wiring systems into a single, giant "machine"—with all the different parts sorted out and then meshed to function together smoothly.

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View of the Agronomy tower from the east. Two-story wing at right houses administrative offices. Arcade is main entrance to new complex.



The new Agronomy building is, actually, a complex of three structures related to two or three existing buildings nearby.

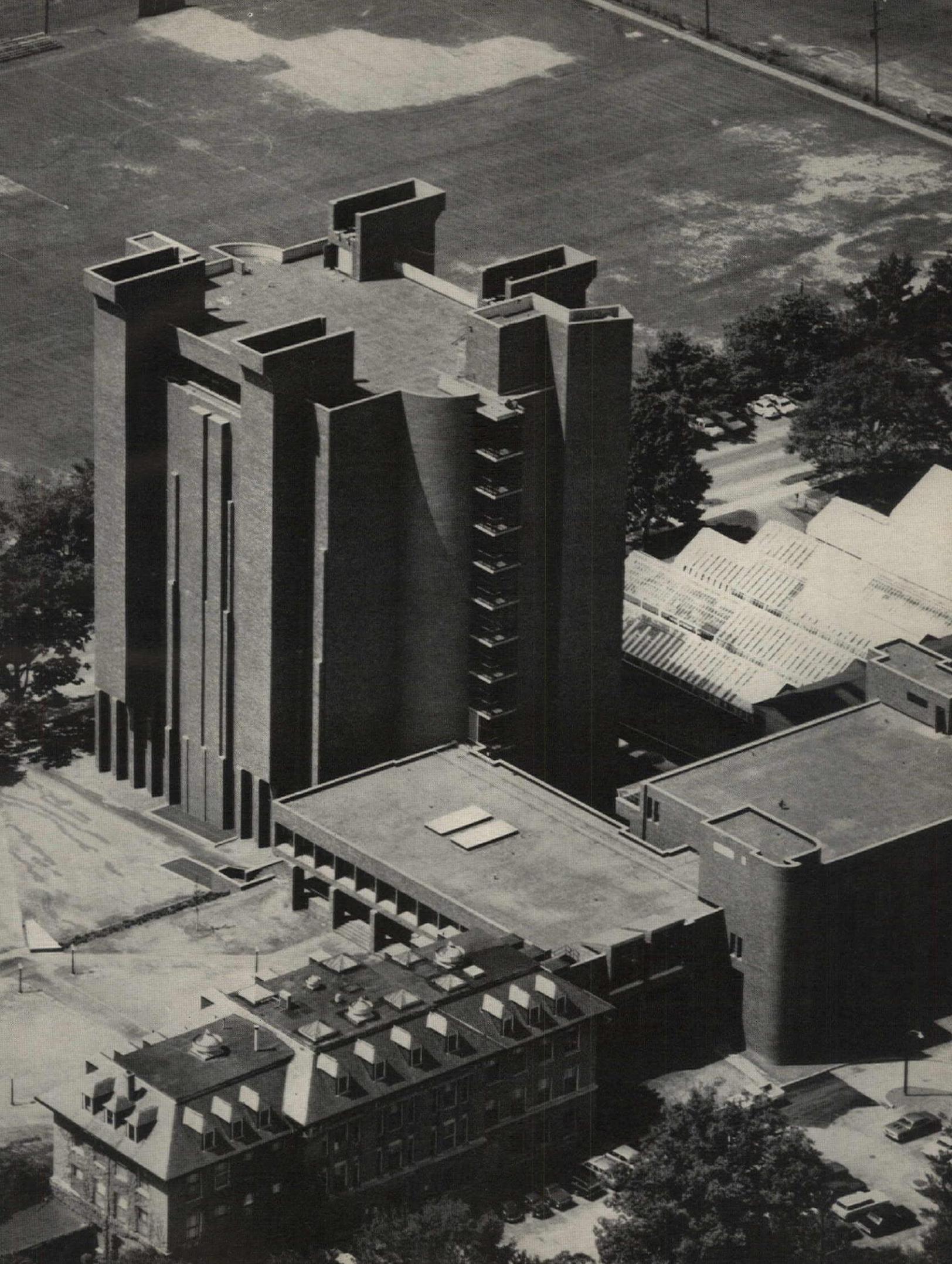
The tower is the center of this new complex—a 13-story-high block of laboratories for research and graduate teaching in soil-related biology. To the north of it is a two-story-high administration wing that ties into an existing, traditional laboratory and office building of similar height. And to the west of the new administration wing is the new four-story undergraduate teaching lab, which relates to existing structures as well.

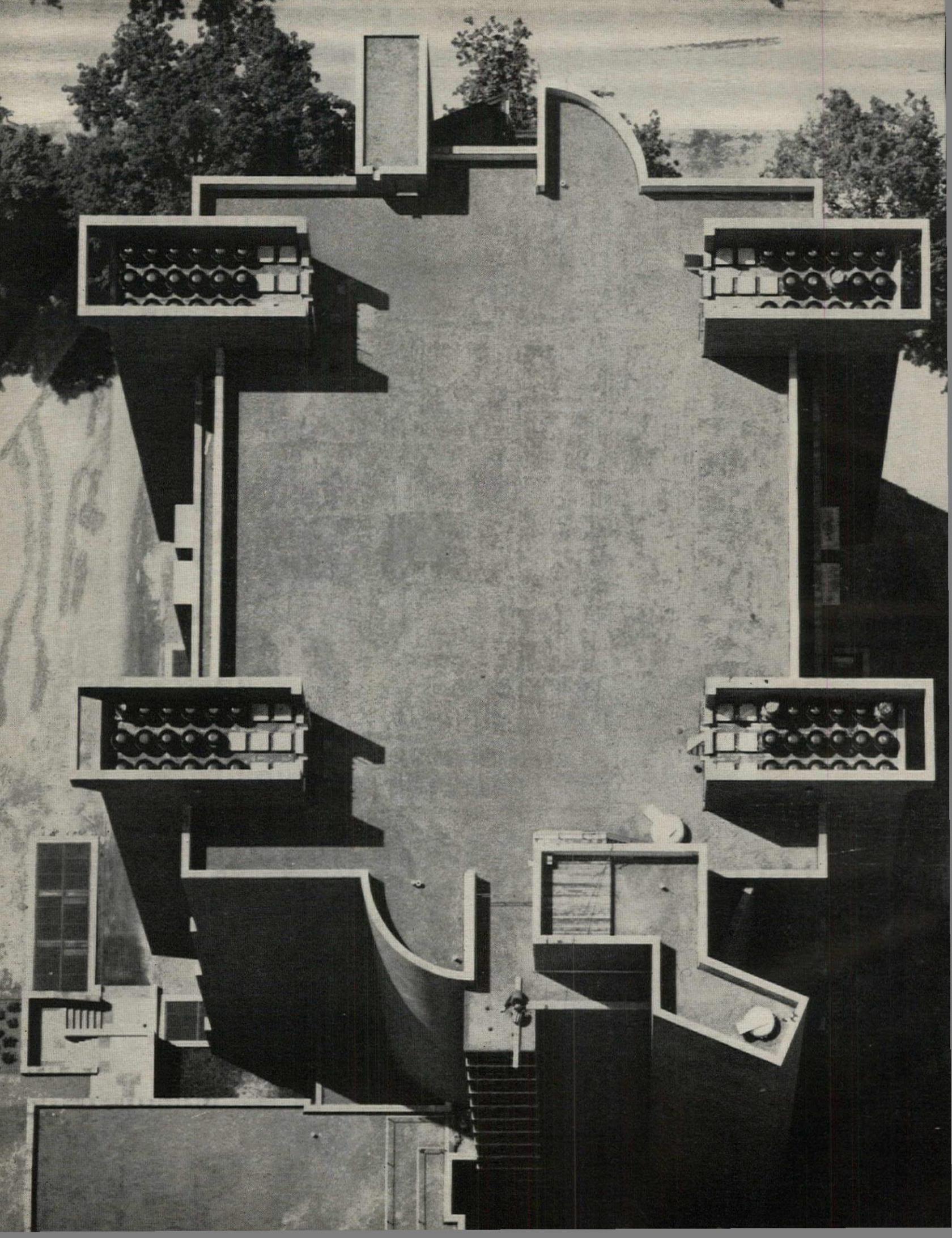
Although the tower is the biggest element in this complex, Franzen has not permitted it to overwhelm its surroundings. The main approach to the complex, for example, is on axis with an old lab and office building and one turns away from this axial approach to reach the new, two-story administration wing. This deference to established buildings on the campus is carried through into other details as well: cornice lines of the lower buildings align with those of older labs, libraries, and classroom buildings; and arcades align with existing walks and passages on the site. Indeed, the new complex unifies this part of the campus.

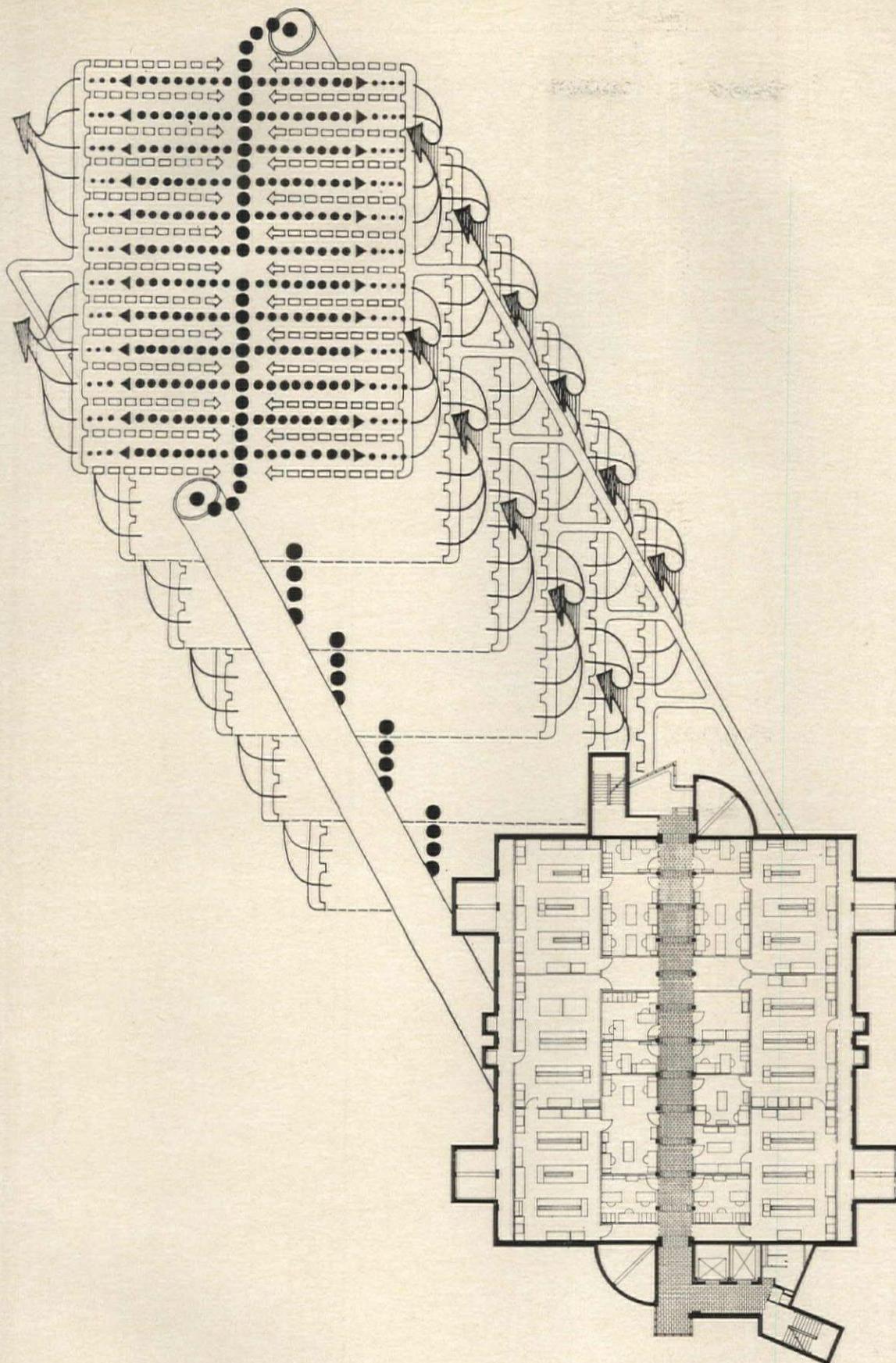
Still, the tower dominates the entire Cornell enclave. It does so not only because the program called for a great deal of laboratory space (about 150,000 sq. ft. in the tower alone), but also because, symbolically, on a campus best known for its School of Agriculture, a building devoted to research into biology deserves a special place of importance.

What has been done so successfully here is the establishment of two scales: the close-up, pedestrian scale, at which old and new buildings are meshed by walks, arcades, ramps, and vistas, and given equal importance; and the farther-off scale, at which the tower has become the symbolic landmark of a research-oriented institution.

Site plan and aerial view show how new Agronomy complex ties together various older buildings on the perimeter of the site.







However underplayed the tower may be in deference to existing structures, it is still the star of the Agronomy complex. It is also one of the most efficient laboratories of its kind.

"People assume that all lab facilities should be more or less alike," Franzen said recently. "Actually, the exact opposite is true. The specific mission of these labs was to serve research in biology, chemistry, biochemistry, plant breeding, and genetics. So they had to accommodate a great variety of equipment and of lab arrangements."

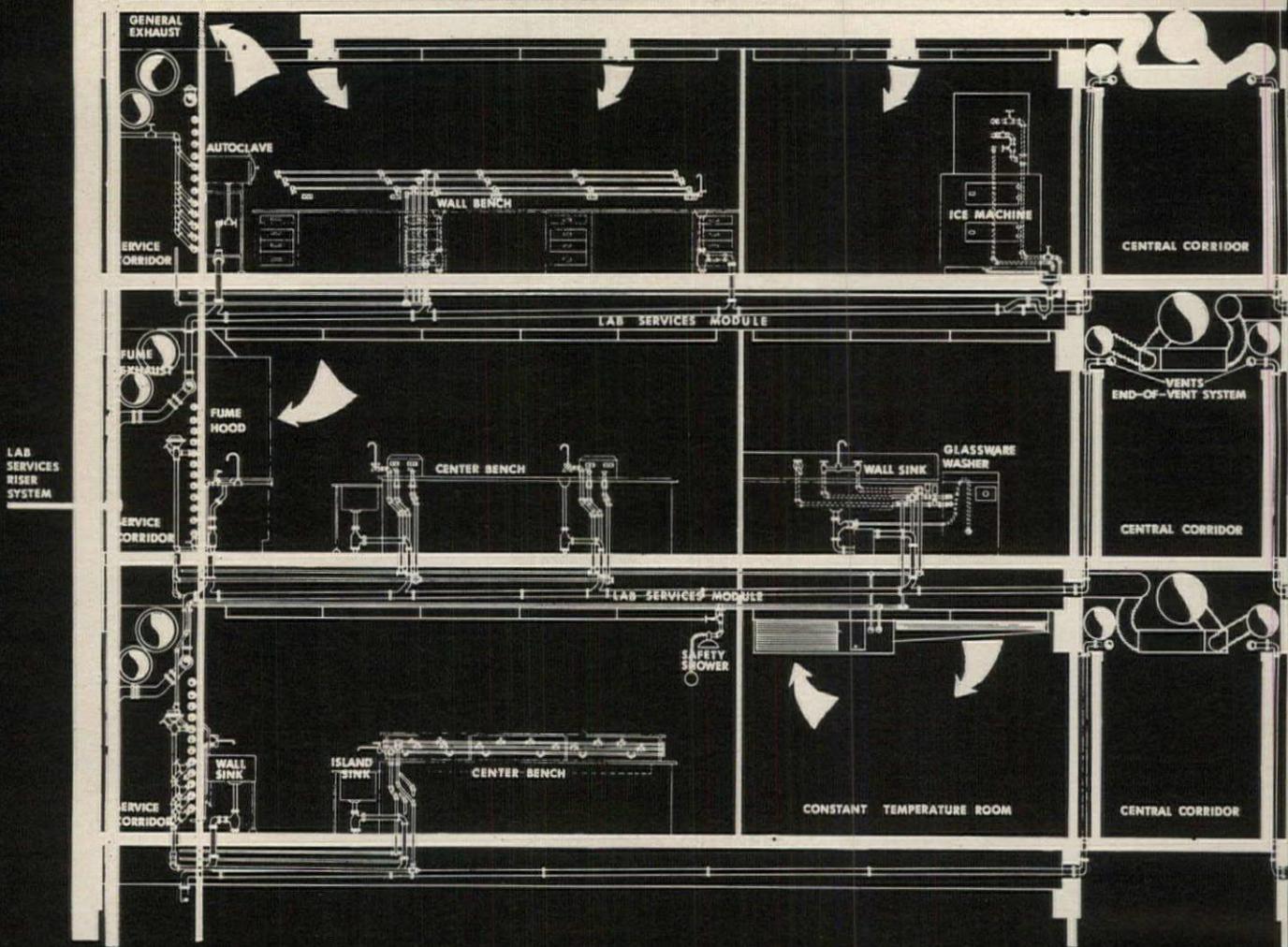
Experiments in biology and biochemistry are conducted over long periods of time, and require very precise climate control, as well as immunity from all contamination. And multi-discipline labs must offer the utmost in flexibility.

To solve these and other problems, Franzen planned the tower as a stack of loft spaces air conditioned from a central spine, and further served by externally applied "risers" that contain pipes, wires, and more ducts.

Specifically, there is a double-loaded corridor, running north-south down the center of each floor. At each end a vertical shaft supplies cold and warm air. The air is then distributed at each floor level by means of exposed ceiling ducts in the corridor; and the ducts feed into mixing boxes whence the air is distributed laterally to the lab spaces. (The mixing boxes permit very precise control in each lab "module.")

Meanwhile, on the east and west sides of the tower, Franzen has applied "risers" containing additional services. These risers supply (or extract from) a 4-ft.-deep "cavity wall" that runs north-south, and makes maintenance of these services easy (see next page).

Roof of Agronomy tower explains basic organization of services (see also diagram and typical floor plan at left): quarter-circles are tops of vertical air supply shafts; four rectangular towers (topped by fans) are fume exhausts (fans expel noxious and radioactive fumes some 300 ft. into the air); and other shafts contain stair and elevator towers.



The east and west "cavity walls" of the Agronomy tower carry, on their outsides, brick-enclosed risers containing pipes, wires, and fume exhaust vents. At each floor, these risers feed into a narrow gallery that offers easy access to the various service lines for purposes of maintenance. From this exterior service corridor, the pipes, wires, and ducts then feed into the ceilings of the laboratory lofts and, from there, to various kinds of equipment used for research.

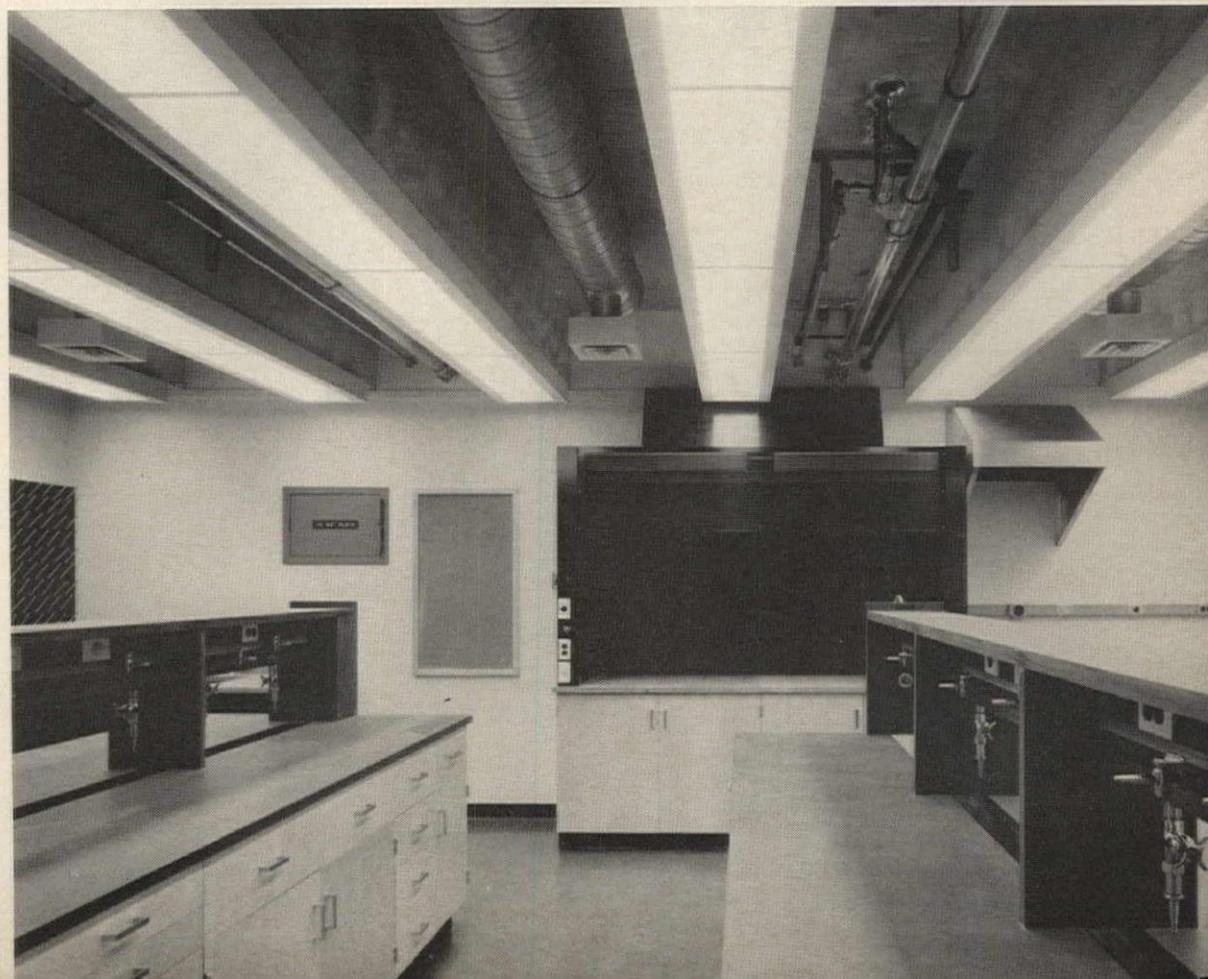
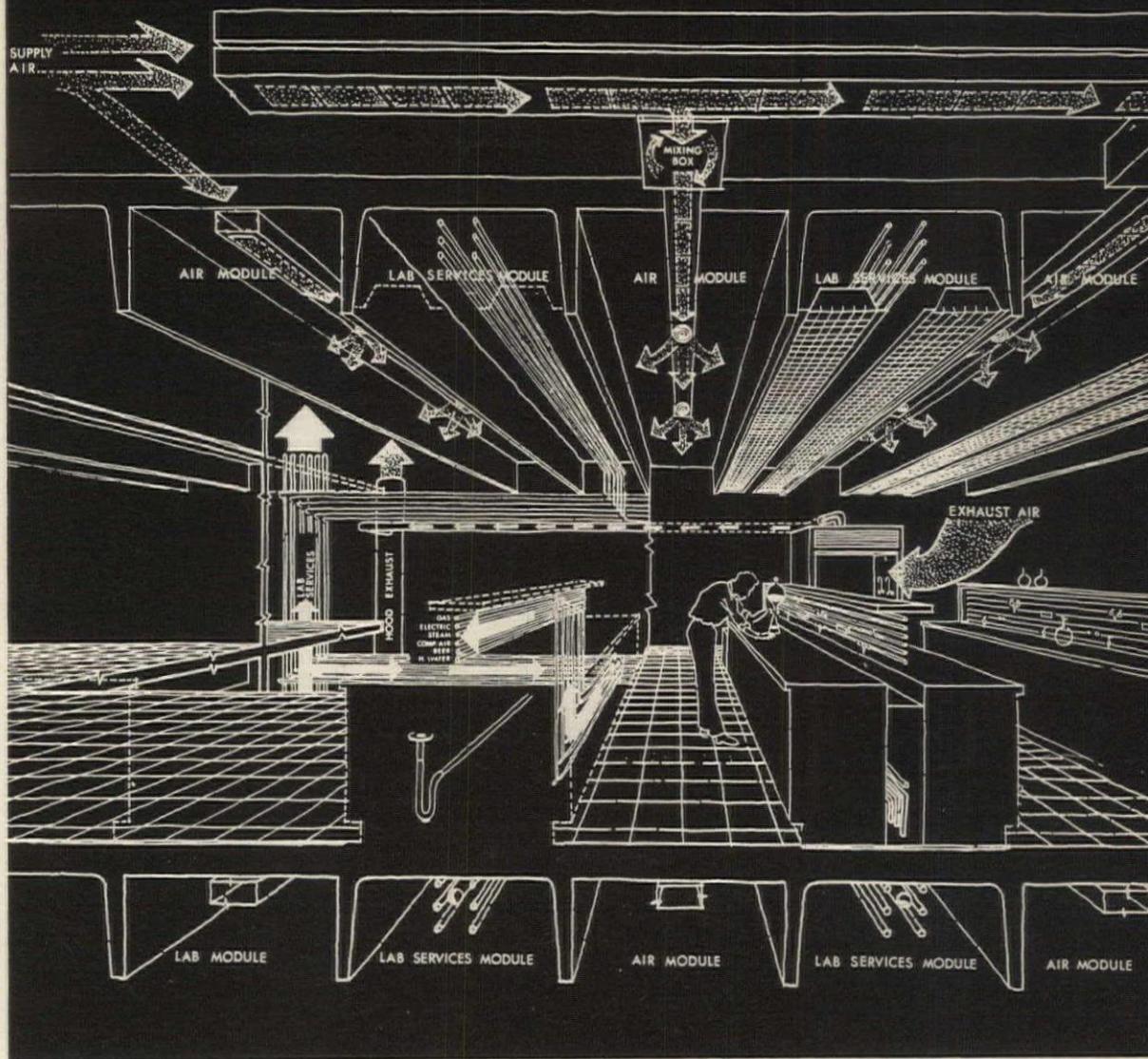
The key to the system is to be found in the structural design of the tower: by spanning each floor in the east-west direction with T-shaped concrete planks, 18 in. deep, Franzen got a system of horizontal "chases" that alternate in function: one will carry a duct feeding properly mixed air from the central corridor into the lab-loft; the next will carry pipes and wires from the exterior service corridors into the same lab space; the next carries another duct—etc.

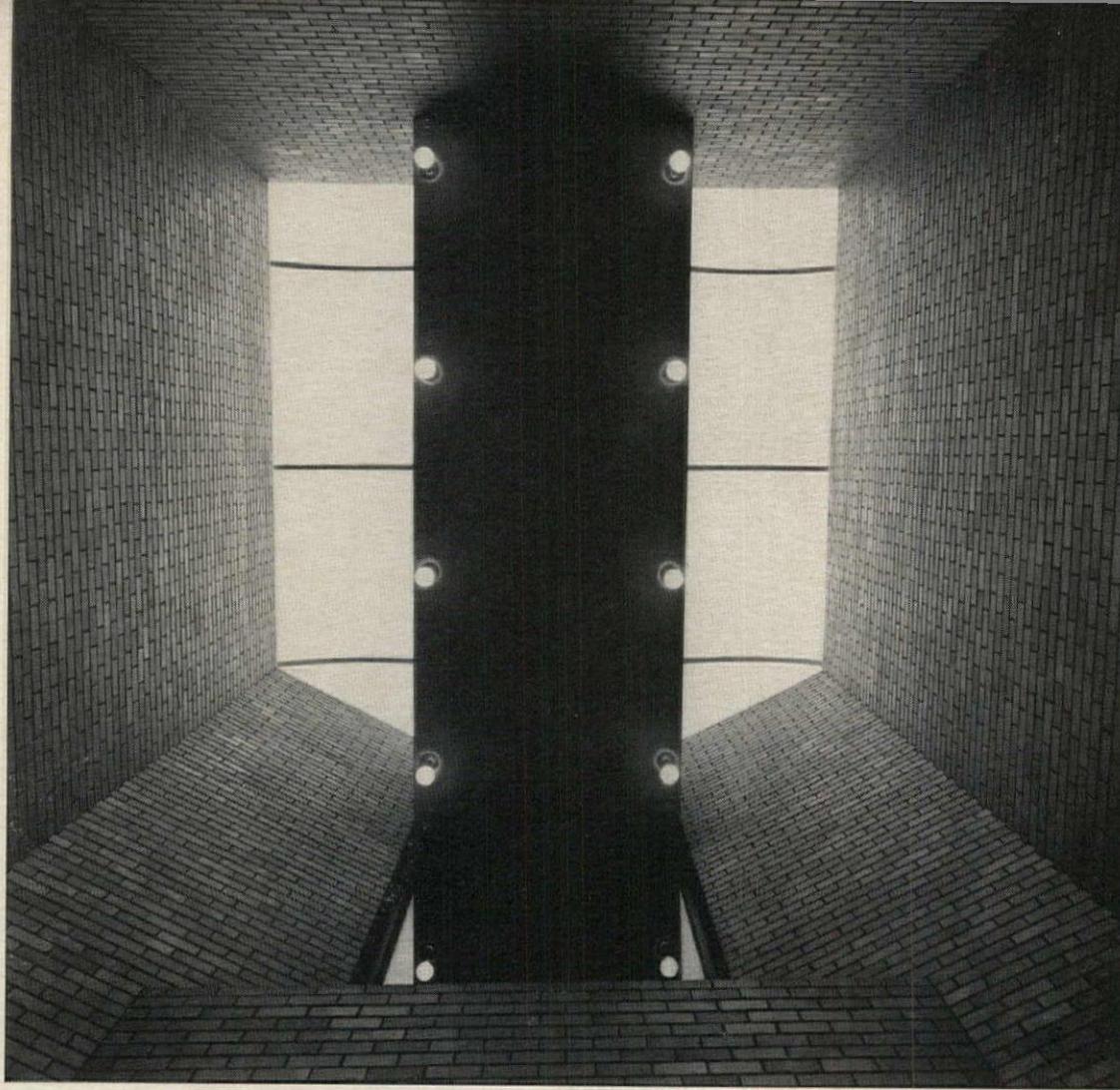
The piping and wiring feed upwards, through the ceiling into the lab on the floor above; the air conditioning ducts supply lab spaces on their own floors. The fume exhausts withdraw noxious and radioactive gases from fume-hoods mounted on the lab side of the service-corridor walls; and the great dog-eared turrets on top of this building are the actual exhausts for the fume-removal system.

Of course, all of this could have been handled within a sleek package—in which case it would have had no scale or interest.

By making each of his service "ducts" count as elements of architecture, Franzen orchestrated his building, instead of packaging it. He could have enclosed his lab-loft tower in a plain wrapper; but by displaying its mechanics on all sides, Franzen produced a rather wonderful piece of architecture, rather than a piece of merchandise.

Left: section through left half of three typical lab floors, with views of exterior service gallery, and central corridor-spine below. Right: section through typical lab, showing alternating horizontal chases for ducts, pipes, and wires.





The mechanical systems are not the only distinctive features of this complex of buildings.

Just as distinctive, perhaps, is the use throughout of a very hard-surfaced, rust-colored brick. This brick has an iron ingredient that gives it its color as well as its hardness: its surface is hard enough to prevent efflorescence.

The brick covers everything, like a kind of sauce; the joints in the brickwork have been raked back  $\frac{1}{4}$ -in.; and the mortar has an admixture of black. Some might prefer a "structural expression," possibly involving concrete. But this is a building that underplays structure and, instead, dramatizes its massive mechanical equipment.

Moreover, Franzen found that it was really cheaper to construct the building in rough concrete, and then to cover up the imperfections in the structure with his "brick sauce."

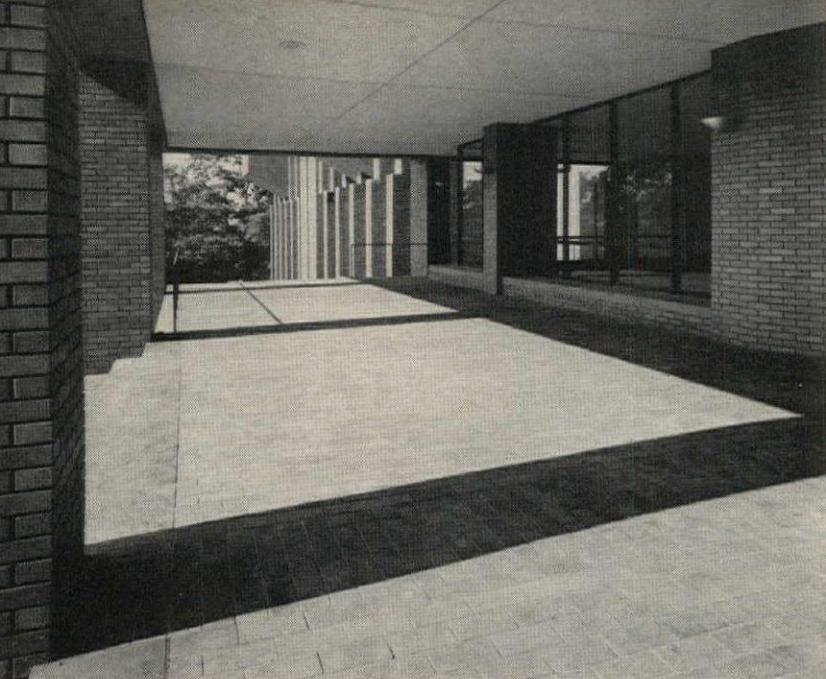
Finally, he found that a brick exterior, unlike an exposed concrete surface, tended to look especially well in inclement weather. "Exposed concrete looks fine when the sun is out and you get dramatic contrasts," Franzen says. "But on a dull day, the light color of concrete tends to flatten out. This dark brick always gives you contrasts between surfaces."

The one question most frequently asked both before and after the building went up was: "How about labs without windows?"

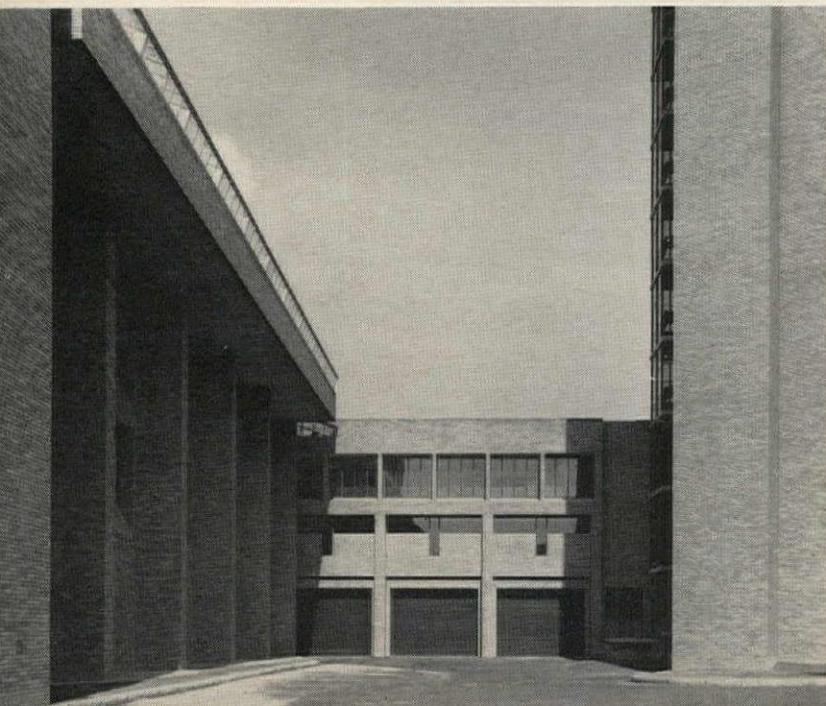
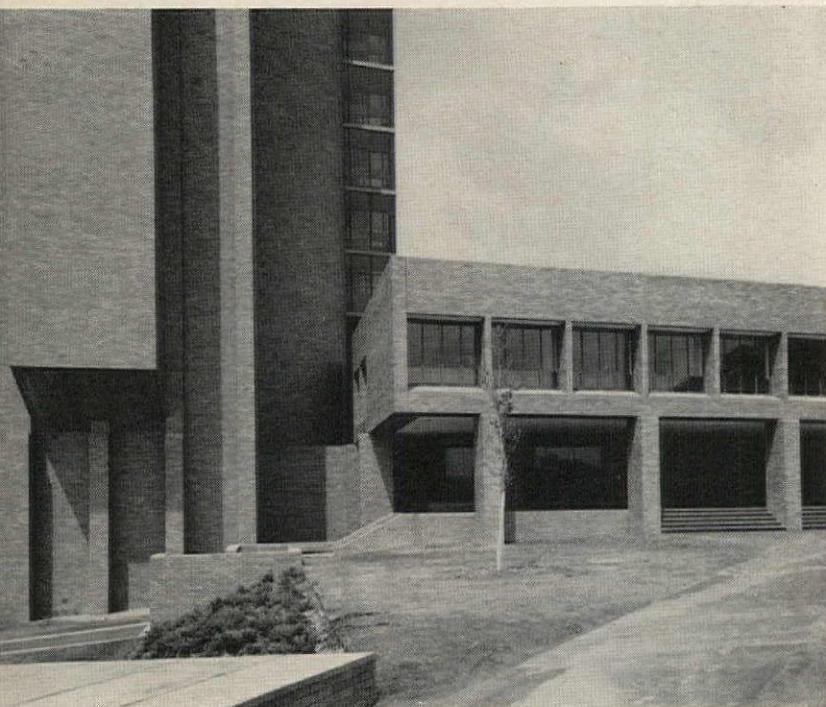
The answers are: first, most research scientists prefer wall space (on which to mount equipment) to windows with a view; second, natural light could seriously interfere with experiments in soil-related biology; and, third, the building compensates for the absence of windows in the labs with comfortable lounges at one end of each central corridor. These are used by researchers during breaks in their work.

Left: entrance lobby in two-story administration wing. Top picture shows skylight above two-story entrance hall. Right: top picture shows typical lounge at end of central corridor on lab floors. Floor and seats are carpeted. Bottom picture is view of ramped arcade in undergraduate teaching lab building wing, looking west toward an existing arcade.





Left: entrance arcade outside administration wing; detail of juncture of that wing and the lab tower; and view of service entrance at west end of administration wing. Four-story undergraduate lab is at left; it has a greenhouse on its top floor. Right: view of Agronomy complex from the west, showing undergraduate labs in foreground, Agronomy tower in rear.



Some of the best known buildings of the past 25 years have been research labs; and so it is only natural for the Agronomy complex to be compared to its illustrious contemporaries.

In such comparisons, Ulrich Franzen's building stands up very well indeed.

There are, basically, only two kinds of multistory labs that have been built during the past quarter-century and that are of any real quality. One has *vertical* shafts serving it throughout; the other has *horizontal* service floors between lab floors, feeding pipes, ducts, and wires up and down as required.

The trouble with the first sort of building is that the vertical shafts tend to inhibit flexibility in planning; and the trouble with the second sort of scheme is that the intermediate service floors cost much more than they are really worth.

Franzen's Agronomy tower is a combination and refinement of both schemes: the vertical shafts are on the *perimeter* of the building and don't interfere with interior flexibility; and the horizontal distributors are so tightly meshed with the structural system that they occupy a mere 18 in. in depth—as compared with 7-ft.-high intermediate service floors in some of today's better known laboratory buildings.

This sort of "miniaturization" of services can be achieved only when the architect takes a decisive hand in coordinating the work of the structural and mechanical engineers. Because the architect assumed direction of the team, this building turned out to be a beautiful as well as efficient machine.—PETER BLAKE.

#### FACTS & FIGURES

Agronomy Building, State University College, Cornell University, Ithaca, New York. Architect: Ulrich Franzen (Robert Thorson, project manager; Edward Rosen, project architect). Consulting landscape architect: George Swanson. Engineers: Weiskopf & Pickworth (structural); Cosentini Associates (mechanical). General contractor: Irwin & Leighton, Inc. Building area: 206,000 sq. ft. (gross). Cost: \$6.5 million (including equipment and site development).

PHOTOGRAPHS: George Cserna, except pp. 45 and 46, C. Hadley Smith.



# WHAT'S WRONG WITH ARCHITECTURAL EDUCATION?

Three comments prompted by eight questions raised by Professor Sibyl Moholy-Nagy, of Pratt Institute. The questions were:

1. Are student strikes the appropriate procedure for bringing about changes in architectural education?
2. Can a substantial improvement of college training be effected by student participation in: the structuring of the overall curriculum? the writing of term projects? faculty and deanship appointments? the evaluation of student performance? and the determination of disciplinary and administrative procedures?
3. Is the present five-year undergraduate plus two-year master's degree period of architectural education adequate for the material to be absorbed?
4. Should history of architecture be retained as a valid part of undergraduate training and what should be its importance relative to other undergraduate courses?
5. Should the stacked class structure from freshmen to seniors be replaced by an integrated vertical studio organization?
6. Are the following activities desirable and feasible: student involvement in community affairs? internship office practice during undergraduate years? diffusion of the architectural programs into schools of art, engineering, and social sciences?
7. Is the current practice of short-

term visits by critics and lecturers of any real value?

8. The AIA commissioned a *Study of Education for Environmental Design* from Princeton University, and this study is now circulating on campuses. Does this report reflect the current grievances of the architectural student and instructor body and will implementation of its recommendations create better architects?

The responses to these (and other, related) questions came from the following:

**ROBERT YELTON**, a student at the Graduate School of Design, Harvard, where he is also the editor of *Connection* magazine. He spent two years in the Peace Corps.

**DOUG MICHELS & ROBERT FEILD**, recent graduates of the School of Architecture, Yale University, and now practicing as urban planners in Washington, D.C.

**GEORGE ANSELEVICIUS**, dean, School of Architecture, Washington University, St. Louis, Mo.

Additional comments and a conclusion were supplied by

**SIBYL MOHOLY-NAGY**, Professor of Architecture, Pratt Institute, Brooklyn, N.Y.

Although some of the comments submitted to the FORUM had to be shortened to fit the available space, it was decided not to edit any of the remaining text since the form of some of the responses seemed, in itself, revealing and pertinent.—ED.

## ROBERT YELTON

These are some of the basic realizations that have caused the current unrest in our schools of environmental design:

1. Our physical environment is a by-product of other-directed activities.
2. "Architecture" is the business of communicating instructions to the building industry; and the art of designing conspicuous gems to be scattered throughout the environment.
3. Some schools are incompetent to teach "Architecture."
4. Some architectural students don't want to be architect-designers.
5. Environment-making is completely under the control of the "client" and as such is taught in the schools of business and public administration, not in schools of design.
6. "Environmental Design" is as yet only an artistic dream without a body of conceptual or working know-how.

Inspection of this list reveals two independent components of the problems that are afflicting our schools at present. The first one is the relatively straightforward problem of the competency of our schools to teach the skills necessary to enter the profession of architecture and succeed. I imagine that this is the problem which is of concern to the majority of students in the "undergraduate" architectural programs. He is content with the scale and scope of traditional activities and is concerned that he will have the tools to design "great buildings." Most probably this student is very serious about his future profession and considers much of the teaching and criticism to be arbitrary, redundant and boring, and the instructors to be either incompetent or uninterested in teaching.

The chances are that he is correct in his complaints. Architectural schools are in great part staffed by part-time instructors whose own practice (or, rarely, research) always seems to have first priority on time and energy. For these people, teaching positions are often taken for reasons

of security or prestige. In addition, because these men are principally practitioners, they possess only the most fundamental conceptions of pedagogical techniques. This situation seems to be only marginally better with the full-time instructors (as in any professional school). As I see it, the problem is that the design professions are, today, irrelevant. The profession—both as it is taught and as it is practiced—is incapable of determining any but the smallest and most self-contained of environments.

It is for the sake of ART that the architect designer is hired today. He is most often circumvented when the businessman or public administrator needs help in solving environmental problems involving more complex and more rational technical or planning systems. Thus the architect-designer has had relatively few opportunities recently to exhibit the full range of his skills. When he has had the opportunity the results have often responded to personal-individualistic concerns and have neglected broad areas of societal concerns or limitations. This neglect has tended to reinforce the image of the architect as artist. There have been many important and exciting exceptions to this trend, but they have been too few to make any appreciable impact on this image.

Many young architects and students are no longer content with this image, because they realize that it imposes limitations on the scale and scope of their professional lives and does not allow the inclusion of their personal concerns. The unrest that we see in design schools exists over a broad spectrum of young people. I think this unrest is based on the timeless desire to match one's internal concerns with one's external world.

Practitioners and educators live in a small introverted world that makes no attempt to respond to those who are not part of that small circle of the "tasteful" who appreciate good design and "great buildings."

To activist, idealistic, rebellious young designers, the mes-

sage that this carries is that the profession is hypocritical and smug. It pays lip service to self-improvement and social responsibility, and at the same time, it is praising design of complete irrelevance.

This dichotomy between objectives and practice cannot be blamed on the publications; it is the reflection of the true situation. The blame must, at least in part, be attributed to the architect's education.

The present training does not in the least prepare architects for the task of determining our physical environment. Perhaps the architect is capable of *designing* it, but his design will remain a utopian dream because he isn't capable of dealing with the generative and limiting forces in our society. The business of architecture doesn't interest us but its potentials do.

It is obviously very difficult to say what specific changes are needed, but there is a general feeling that the hardware techniques are being overemphasized, and that the software is being neglected.

The relationships between the physical environment and the social, psychological, economic, and political environments are felt to be of great importance and interest. Designers have not been, and are not now being trained in these fields except on a very general level. Indeed, I doubt whether we can now be so educated in any comprehensive way because the specific body of knowledge in each of these fields, about their relationship to the physical environment, either does not exist or is in a very embryonic state. This is further necessary because the environmental designer, more and more, will find it necessary to work on an interdisciplinary team whose problem orientation is some element or aspect of the environment. The profession may reject this concept, but if it does, it is rejecting the future.

Charles Moore has noted recently the development of two religions in environmental design. The first, an Apollonian faith, suggests that technology and the computer are the an-

swers; while the second, a Dionysian faith, holds that interaction and interdisciplinary teamwork is the secret. I think these two are more complementary than they are antipodal. An interdisciplinary team attacking a particular problem will bring much more information to be considered in the decision-making process than the single practitioner could hope to assimilate and synthesize.

But what is the matter with the intuitive way? Two things, first of all, there are fewer and fewer environmental problems which can be effectively solved by this method. The large part of today's practitioners do operate in a more-or-less intuitive manner and have achieved some modicum of success. This intuitive success, though, is only possible when one operates with relatively few variables or a pre-defined problem structure. An example of a pre-defined problem structure would be the construction of a commercial office building for investment purposes. In effect, the solution exists already and the practitioner is merely modifying and adapting it to fit a slightly altered situation. In less defined problems with more variables, such as hospital design, the more rational procedures and tools are already being utilized.

The change is analogous to the federal change in emphasis from renewal legislation to Model Cities legislation. In the renewal concept, the physical environment was considered independently of its users. It was designed as an efficient and (sometimes) esthetic area and then was imposed on its users. As a result, our cities' renewal agencies are the objects of bitterness and fear.

The Model Cities legislation recognized that the process of creating the physical environment is more important than the product of the environment itself. This is the antithesis of "Architecture." The traditional image of the architect-designer is one who overcomes all obstacles—including the desires of the users—to build Noble physical forms. I feel that in

both the short run and the long run, the more important consideration is the development of ability and confidence in the users (especially in minority and low-income populations) of their ability to determine the form of their environment. It is beyond the realm of the feasible to make the designer also enough of an economist, social anthropologist, and environmental psychologist to deal with these problems, but we can and must make him aware of and capable of communicating with these disciplines.

If the architect is to have any say in the form of our total physical environment, he must become one of the actors in the game of environment-making. He must be willing and able to deal with the client decision-makers on their terms and he must be the advocate of the user—nonclients. In addition, and possibly most importantly, he must abandon the self-deluding image of himself as the leader and coordinator of the team. The architect must recognize that he represents just one of many competencies working for a better environment, and he must find a way to integrate into the physical form the requirements of the social anthropologist just as he integrates the requirements of the structural engineer.

Obviously, this all must be initiated in the educational system. The AIA study by Geddes and Spring brought out the principal problems in the education of environmental designers. Of these problems, perhaps the one that is the cause of most unrest is the rigidity of the system. Students feel that a flexible system is needed that can respond to both the changing individual and our changing societal concerns. This is not the case in most of our schools of design.

If students must resort to strikes to force change, then the question becomes what changes do students want to make. The basic change we want is a change to a form of administration that will have a built-in check against incompetency and irrelevance—*like some kind of democracy, maybe.*

ROBERT YELTON

To discuss the present state of architectural education necessitates stating some general notions about the learning process and the current situation in this country.

Some very basic cultural, environmental transformations are taking place. The personal perception of time, event, growth, and change is becoming a much more consciously manipulated perception which brackets much of the earlier thinking about statically bounded problems, specific solutions, and static organization of physical elements. As we grapple with the inner city environment, its people, and the educational system, we begin to realize that basic to a more viable situation is triggering personal growth, creating some sort of response framework for people's motivations. There is a very delicate relationship between personal experience, motivation, learning, performance, and access to institutions. Innovative task performance and role playing is essential in a society such as ours with its unprecedented rate of change. People today must be learning in a way that gives them the ability to state and work with tasks and problems now undefined or nonexistent.

In visiting and talking at 20 architectural schools, it has become clear that those really involved, both students and faculty, are most concerned with redefining the growth process that they are taking part in. The process of learning seems of more importance than the content of learning. And this process depends on our notions of the significance of the individual, groups, and institutions.

Our present educational system responds to people in a highly abstract way necessitated by the lack of continuity in the formal learning process. To pass from one part of the process to another it is necessary to have a certification that one has completed a program. To complete a program means being registered in a certain number of approved courses and attaining a certain grade level on a one-dimensional quantitative scale. These grades are arrived at com-

petitively through a process of testing and judging.

For someone participating in such a system, mental health depends on one's ability to cope with a testing and judging situation. The abilities basic to coping with such a situation are short term retention of information and anticipation of what is desired by the judges and/or testers. These are not directly related to the abilities that come from the growth process mentioned above and might, in fact, be detrimental to one's ability to function in a responsible, trusting way with other people.

Generally, this student/teacher distinction should give way to a situation where groups are working, operating, playing, producing with a sense of trust in each other and the fruitfulness of the joint effort.

Let's assume for a moment that a state architectural school was given the responsibility for the university's present form and future growth. This responsibility would be exercised in conjunction with the other faculty-student groups. Instantly the former architectural school would be involved in the basic issues of the coming generations. Students would be working with other students, their demands and their problems across the board. Universities are on the verge of a significant reorientation growing out of the pace of cultural change and flow of information. Rather than dispensing relatively standardized, static information packages, they are developing the capability to respond with concern to the continually changing context at many different levels. At present, the architectural student moves further and further from his contemporaries in other fields as he progresses. This direction should be reversed.

**Not only are the images that students and teachers have of their roles important, but the image that administration has of their responsibility.**

At present, schools feel that they have a reciprocal responsibility—to be accredited and to train students to qualify for reg-

istration. Somehow, it is necessary to organize a school so that it can respond to the personal development of its members, so that it can trigger personal growth without the threat of failure. As Sister Mary Corita says, there's no win and no fail, there's only make. Schools should respond to learning as a continuous life process in which an involvement in doing is the organizing force. People of different ages, different background might well be operating in the same, changing group.

The experience that has come with getting out of school demonstrates that it is vital as a creative person to be able to be totally involved and at the same time understand how one can and does relate to the whole thing. This has something to do with a sense of responsibility and at the same time a sense of trust, and they are fundamental to getting anything significant done, yet both are discouraged in the present system of reductive criticism and grades in exchange for work.

**A fundamental question is: who should be paid to take part in this learning experience (as the teacher now is)?**

Thinking some about personal possibilities in 20, 30, 40 years, the present work-play orientation may well give way to a fluid learning-doing cycle in which people move between groups oriented to various concerns in a spectrum ranging from personal growth to specific projects. For the architect each project means working with a unique group of people and the groups change with the project. This method of working could extend to many of the functions now performed by the architect's staff. Doing a project could be more akin to a film crew doing a film—a group of people assembled to create a product that is a unique blend of their abilities.

This setup seems possible to begin operating with in the schools. To transform the present school situation, it is necessary for the schools to have real power to initiate and carry out

# GEORGE ANSELEVICIUS

projects. The people who take responsibility for such action should be paid with varying numbers of unpaid volunteers working with them and begin generating and working with their own groups. If there is to be any sense of responsibility and trust in the schools there will have to be real involvements and real people to work with.

Many schools present the student with a physical environment to work in that is negative, neutral, and dull. This is only acceptable if the students can transform, change, and manipulate the place around them. Several schools have found that this relative freedom of manipulation that existed in an old building vanishes when the administration presents them with their new Environmental Studies and Related Disciplines Center. But the chance, the opportunity to learn from changing the environment around you is basic for the students' growth. Carrying this notion further, it would be fruitful for schools to be in several places in the city or whatever environment the school was in, and these places would change when students felt that they had explored the possibilities of them to their satisfaction. The school itself would be a telephone bill, an electric bill, and rent.

Another possibility easily implemented would be a joint effort of architectural schools to allow students to move freely from one to another. An architectural student in this country has the unique possibility of working in deserts, plains, mountains, cities with a wide range of communities all speaking a common language. For a kid who grew up in Florida, studying for six months in Oregon, two months in Texas, and a summer in Boston—that experience in itself would be significant to his understanding of the environment.

**In all of these thoughts, a basic premise is that the school organization may become an essentially anonymous framework whose function is to encourage and respond to the motivations of those involved in it.**

DOUG MICHELS & ROBERT FIELD

I have been asked to respond to a series of eight miscellaneous questions dealing with architectural education, posed by Professor Sibyl Moholy-Nagy, but above all to discuss those issues which are of interest to me.

Three major elements, when combined in place and time, make a school of architecture: faculty, students, and curriculum. For convenience sake, let us look at each of these in turn although I am the first to admit that it is the meshing of these three which is likely to produce many of our problems. I also ask for a sense of humor from the reader. This may not be in line with his image of his profession and his involvement: godlike, omnicapable, and involved in the task in saving society, when in reality we are floundering like the rest of society. But it is this sense of humor which may make it possible to look at ourselves honestly and without conceit.

**The Faculty—or, can the teachers of a school of architecture find happiness in academe or must they get their kicks from being published in the Forum?**

Traditionally, schools of architecture have been staffed almost exclusively with faculty whose status was increased by having their buildings published in the professional press. Thus manhood was achieved by a professor when his buildings were noticed and hopefully acclaimed by his peers, especially by the esthetic in-groups of the moment. In other words, most architect-educators looked and still look for their payoff in the elite professional world. Why not? Is there anything wrong with this? After all, architects are supposed to build interesting buildings? Well, at least it makes it difficult to be part of the value system of the university, which is more likely to honor the extension of theoretical knowledge in all disciplines.

We must clearly understand that one of the most important tasks of schools of architecture is to extend theoretical knowledge in our discipline, and not only produce cannon fodder for

the offices. Therefore, the challenge to schools of architecture is to balance their faculties in terms of their capability and involvement. Group A will continue to get its kicks from its professional activity. Some moves are actually underway to formalize this by the establishment of group practices operating directly from the university, an exceedingly good idea, which could run into some trouble from the profession. Group B, however, would be committed to research and development work at the university in the emerging, important world of grantsmanship.

I have been asked to comment on another group of teachers, whose appearance I believe to be a comparatively recent development: the itinerant critics and lecturers. I am in favor of this development, and we at Washington University have a fine tradition of visiting architects! Like all good things it can be overdone and the dependence by schools on such visitors as well as on a high percentage of local professionals with part-time interest in the school will weaken the establishment of a permanent faculty with continuing responsibility. It is simply a matter of a balanced diet.

**The Students—or, how can a young man committed to save society find happiness in an Establishment profession?**

There is some deeper dissatisfaction among a group of socially oriented students. The questionable goals of our recent national policy which puts a premium on senseless destruction rather than construction, and the impinging realities of the draft have produced deep frustration in many. Since the Bauhaus, architect-educators have preached about social change and technological and esthetic nirvana in ideological and simplistic manifestos, which made students believe that they were being trained to have a deep impact upon society. At the same time, great heroes of architecture dominated the scene. Slowly it became apparent that the pro-

fession, being linked by financial necessity to the Establishment, had to be conservative. There is also a feeling in the air that the manifestos and insights provided by the heroes were as formal as the despised Beaux-Arts Images. This has made the students question the wisdom of their elders and thus the "generation gap." Many of them seek a broader role for the architect, and their dissatisfaction links professional and political-sociological factors.

There are two interesting tendencies to help face and counteract this frustration and to show the wish of students for more close involvement with populist values and social change. The common element of both trends has been an attack on the elitist role of the architect: one in terms of esthetic taste and form-making, the other in terms of social responsibility. On the one hand, POP, with its silver tinsel, plug-in capsules, neon signs, and super-graphics and, on the other hand, advocacy planning with its antiauthoritarianism, support of minority groups, and activism. Both attitudes are popular with a group of students and a small group of professionals.

The elitist esthetic world of the architect is in trouble. The environment hoped for and predicted by the older generation has not come to pass. In a sense, the POP world has tried to bridge this gap by its humor. If it is true that most buildings in the United States are built primarily for profit and not to fulfill social needs, then surely market-oriented research will tell us to style it up and doing it the POP way is at least great fun. On the long run this may be merely another mannerism.

"Advocacy planning" is another matter. It is an attempt by students and young professionals to help the underprivileged. "Planning from below rather than above." In many cases this experience benefits the person who wants to serve more than those being served. In the long run, however, it is clear that advocacy will not help in solving our vast problems. It is a shotgun approach, where

heavy artillery is needed.

Another question: are strikes an appropriate procedure to effect change. This is an Establishment question. Students don't strike for fun, and history has shown that strikes have gotten results. But naturally strikes are a threat to authority.

### **The Curriculum—or, can we find the magic combination which will bring happiness to students, faculty and administrators?**

One of the eight questions discusses curricula and asks if the present five-year undergraduate, two-year master's degree period of architectural education is appropriate to the material to be absorbed.

First of all, it seems to me that the five-year schools, structured as we have known them, are on their way out, and for good reasons. If schools of architecture are part of universities in terms of a cultural base, then only the graduate schools or the six-year schools (which demand two years of liberal arts studies and a Bachelor of Arts degree before the first professional degree) seem to make sense.

Are we just playing a numbers game? I do not think so. The six-year curricula simply means better educated professionals. Medical schools and law schools have long recognized the importance of culturally well-prepared students but many architecture schools have been slightly suspicious of such requirements.

Escalation and confusion about degrees is the order of the day. The master's degree is becoming the first professional degree despite some holdouts. So one really should now talk about PRE-F.P.D. (first professional degree) or POST-F.P.D., to avoid misunderstandings. Post-F.P.D. studies would last approximately another two years, and they would be concerned with urban design, technological investigations, regional planning, or specialization in specific architectural areas such as housing, hospital design, etc.

It is too easy to keep increas-

ing the time required for architectural education. What is needed is more efficient use of time, and more efficient teaching methods, but more time should be spent by professionals returning to school for continuing education. Other disciplines have taken this for granted. Unfortunately, schools of architecture have not tackled this task. It shows that either the theoretical body of knowledge that can be transmitted to professionals is rather thin, or that schools of architecture do not have the faculty or energy to transmit such information. I leave the answer to you.

There has been extremely little evaluation of teaching techniques and curricula, thus making endless tinkering with new curricula often meaningless. Thus the only answer to Professor Moholy-Nagy who asks whether a stacked class structure from freshmen to seniors should be replaced by an integrated vertical studio organization is "yes and no," it is not an "either/or" situation.

There are many questions that can be asked which must deeply concern all architect-educators. Below, a few important ones:

Why is the establishment and evaluation of criteria not very advanced in our profession and in our schools?

Why the continuous insistence by many architects and students to search for unique forms rather than principles?

Why the great concern for the finished package, the shadowed elevation, rather than the problems of process and implementation?

I, therefore, see the school of architecture play the important role of catalyst at the university, because finally the result of all social programs, economic progress, political concerns, technical studies with which other disciplines are deeply concerned, must be the establishment of a humane physical environment, a place worth living in.

GEORGE ANSELVICIUS

"Rabbi," asked the student, "does man live from the inside out or the outside in?" "If that's the way you put it—yes!"

This about sums up the relevance of the questionnaire approach to current problems of architectural education. It was inexcusably anachronistic on my part to expect structured responses in a situation whose most characteristic aspect is stream-of-half-consciousness.

Since only one of the essays adhered to problem tabulation, the questions have been disregarded in this summing up. What remains as the common denominator of the three responses is a professional death wish based on a total disregard for architectural reality outside the schools, and—among the students—a schizophrenic split between excesses of self-assertion and group identification.

There are variations, of course. The Midwestern approach of Dean Anselevicius is mature, pragmatic, and open-ended. He won't commit himself to anything. The rejections of Harvard man Robert Yelton stem from the historical burden of The Yard and the contemporary confusion of seeing the father of anonymous teamwork declared a national historic monument. The Yale children, Michels and Feild, yearn to exchange their dewey "work-play" Kindergarten for some "learning-doing" Montessori.

But these are interpretational differences. What they are all after is to demolish the profession they have chosen. To Peace Corps emissary Yelton, "Architecture" (contemptuously apostrophied throughout) "is the business of communicating instructions to the building industry." "Physical environment [is] a by-product of other-directed activities." "The design professions are today irrelevant"—which makes his prolonged presence at a Graduate School of Design somewhat ridiculous.

Dean Anselevicius reserves his scorn for practicing faculty members who fancy themselves "godlike, omniscient... [their] status and manhood increased by having their buildings published

in the professional press... and hopefully acclaimed by his peers, especially the esthetic in-groups of the moment." His damning question why architects insist on "a search for unique forms rather than principle" betrays the historical amputee who does not know that new principles materialize in new forms—Picasso's *Guernica*, Stravinsky's *Rites of Spring*, Roche's Ford Foundation Building.

In lieu of "the architect as artist" which has become the most overworked invective handed from teachers to students, "incapable of dealing with the generative and limiting forces of our society," the students and the St. Louis dean are dreaming of "group practice operating directly from the campus [as] an exceedingly good idea." This of course would in the long run kill the despised "prima donna architect" and prevent the student-practitioners from becoming what Anselevicius calls "cannon fodder for the offices."

It would also bring about the millenium when the behavioral sciences—"sociology, psychology, and physical anthropology"—would become the determining influences on environment-making. The cry for "interdisciplinary training" goes like an invocation through the essays, begging to be delivered from the historical burden of decision-making responsibility carried by the architect and by no one else. This obsession with pseudo-scientific classification systems (so absurdly evident in the Princeton Report on Architectural Education) is a hand-me-down from the functionalist revolution of the 1920s and its summation in the various CIAM charters.

The second syndrome apparent in the response of the students is the split between self-assertion and group identification. It is a typical American dilemma. Ever since Emerson and Whitman tried to balance SELF-RELIANCE against REPRESENTATIONAL MAN have young men been torn between Emersons demand that "whoso would be a man must be a non-

conformist," and the idealization of community service. The Yale graduates seem undisturbed by the clash between "the power of schools to initiate and carry out group projects outside the school" and a frantic insistence on individual growth, self-development, the growth process, and absolute freedom from "standardized static information packages" and "testing and judging" procedures. They suggest a State architectural school which, however, must merely be "a telephone bill, an electric bill and rent" where "personal development" is achieved by "working, operating, playing, producing" without distinction of professional specialization among students.

Robert Yelton lists among his "realizations" the revelation that "environment-making is taught in the schools of Business and Public Administration, not in Schools of Design." In the same breath architecture as art is accused of responding "to personal-individualistic concerns" while inhibiting the student from "the inclusion of their individual concerns." Only Dean Anselevicius sees the new cliché of "advocacy planning" (called urban rehabilitation in simpler terms) as a game of the saviors rather than a benefit for those to be saved.

The amorphous gropings for an emotional compensation that transfers the uncertainties and injuries of the larger political and social breakdowns to the closer authorities of the college, betray a catastrophic ignorance of architectural reality. While railing against "the elitist" self-image of the profession, Dean Anselevicius advocates an 8-year training period as if he did not know that in contrast to law and medicine which he quotes, architecture is a pragmatic profession in which "the thing done" can only be learnt from project to project. Eight years of university are a life sentence to "elitism." Social activist Yelton makes the interrelationship of "psychological environments" the core of training while acknowledging that a transmissible body of knowledge in these fields is

nonexisting. The current catch phrases of educational hardware and software lead him to the astounding conclusion that "a conventional office building for investment" can be designed "intuitively" but a hospital, for instance, cannot because its "variables" have to be solved by rational procedures and tools.

On the larger scale of Model Cities he concludes that "the process of creating the physical environment is more important than the product. This is the antithesis of 'Architecture'"—a conclusion which not only would leave his user as principal decision-maker of "advocacy planning" speechless or rioting, but is a fitting conclusion to this summation of a revolt without aim, and a profession without progeny.

The denounced "static results" of the architectural process are all around us—churches, campuses, government centers, theaters, museums, homes, even here and there a Model Sector that has escaped the design-extermination policy of public administrators. The clients of these "solitary monuments" hired architects as "leaders and coordinators of the team" whether the self-castrated generation calls this "a self-deluding image" or anything else. The method by which these designed images of a society came about—the know-how of achieving a viable and lasting result—comes from practitioners and not from psychologists, sociologists, or anthropologists. An architect can only make architecture, he can make nothing else. And buildings are architecture, whether apostrophied or "environmentalized." Society will demand them as it has since the beginning of history. If the severe discipline of design is killed by the cheap satisfactions of dogooderism and the cult of ignorance, the guilt for a brutalized environment will lie with the schools of architecture which permitted the destruction of professional uniqueness.

Let those who DO teach, and those who dare to claim the future, LEARN. THIS is the community service of the architect.

SIBYL MOHOLY-NAGY

# COOL BUT NOT COSTLY

On a knoll at the foot of a stately mountain that rises from the picturesque harbor of St. Thomas there now stand Kramer, Kramer & Gordon's Bluebeard Hill Apartments, the first FHA-financed middle-income housing project in the Virgin Islands.

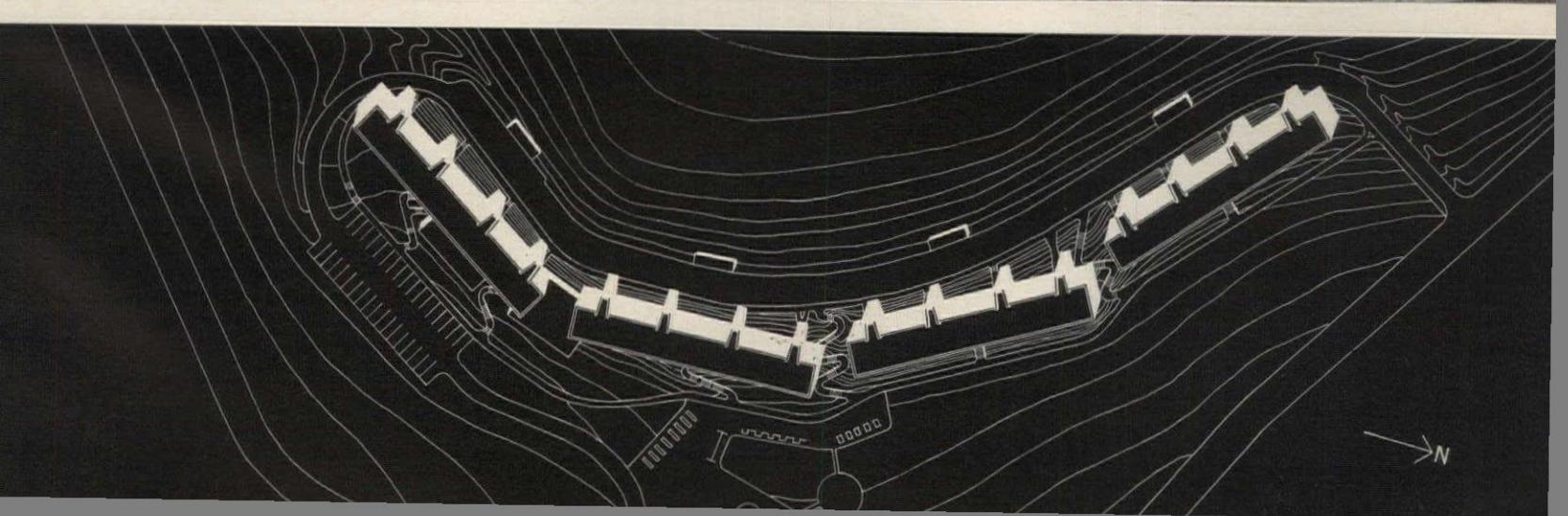
The long, narrow, rocky, and sharply rising site (plan, right) is part of a former rain-catchment slope, one of a number of concrete-paved eyesores freed for development when the island's major water supply was converted to a desalination process. The buildings are arranged to conform to the contour of the terrain, but they are juggled in such a way as to expose the ends, as well as the long sides, of each unit to the view and breeze. To take advantage of these two factors—the panoramic scenery and the trade winds—was consistently uppermost in the architects' minds throughout the planning of the four identical four-story buildings which comprise a total of 129 apartments.

Thus, each of the apartments possesses a terrace, deeply recessed from the Caribbean sun (the strongly expressed voids in the picture at right), all of which face generally eastward in the direction of the best views. This is also the public road and access side of the site, but due to the steep grade every terrace has a measure of privacy and an unobstructed view. In addition, each unit is raised still further by being built off the ground on widely spaced concrete piers. There is no heavy earthmoving equipment on the island, and it was therefore necessary to keep site work to a minimum.

The four-story height was prescribed by the local govern-



The four buildings, while arranged generally in an arc to conform to contour of the terrain, are individually oriented to prevailing trade winds and panoramic views. Steep grade and use of pilotis raise sightlines from terraces well above public and access roads, and populated area below. Entrance side of buildings is toward slope (plan, right).



ment, who leased the land to the project's developers. As many apartments as possible were desired, but local scale was also a consideration.

Because of the extremely tight budget, elevators were out of the question. But with entrances on the uphill side of the site, one enters the buildings between the second and third floors. Thus, no tenant has to climb more than two flights of stairs.

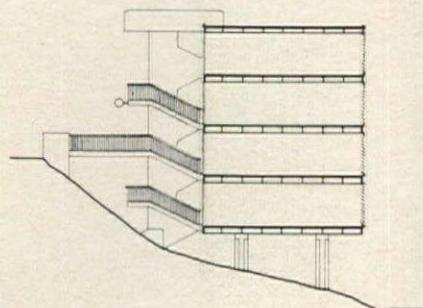
The number of stair-towers (bottom left), one between each two stacks of apartments, limits the number of apartment entrances to two per landing and eliminates long exterior corridors.

The cantilevered roof at the top of each stairway shelters the uppermost landing, as well as emphasizes and provides shade for the entire entrance area. Because it houses the ventilating equipment for kitchens and baths, a long, low, uninterrupted roofline is achieved. Regrettably, its bulk, dictated by its contents, is a bit too massive for the buildings' scale. As strong sculptural accents, however, the stair-towers contrast well with the machine-like precision of the louvered surfaces.

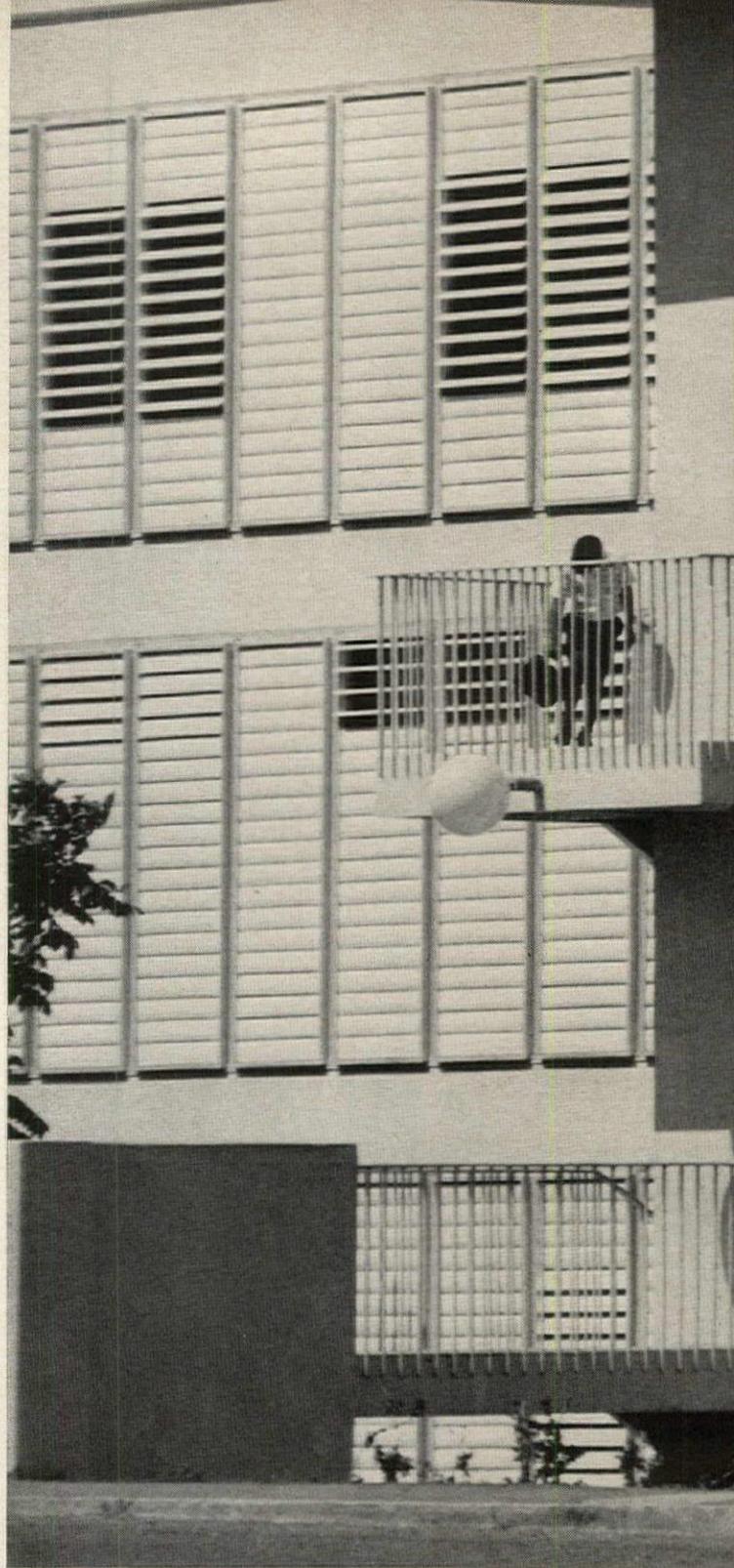
It is with the extensive use of louvers that one comes to admire most the architects' thinking on the intricate, interrelated problems of climate, budget, and attractiveness.

The prohibitive cost of mechanical air conditioning dictated a scheme that would make maximum use of more natural means—control of the trade winds and protection from the sun—to provide extensive, essential climate control. The louvers let in the breeze, but not the sun, or rain; their white metal surfaces reflect, rather than absorb, the solar heat. Paradoxically, they represent, with the floor-through apartment layouts of all the units (plan, bottom right), a combination of traditional means of keeping cool in a tropical climate, with modern materials and methods.

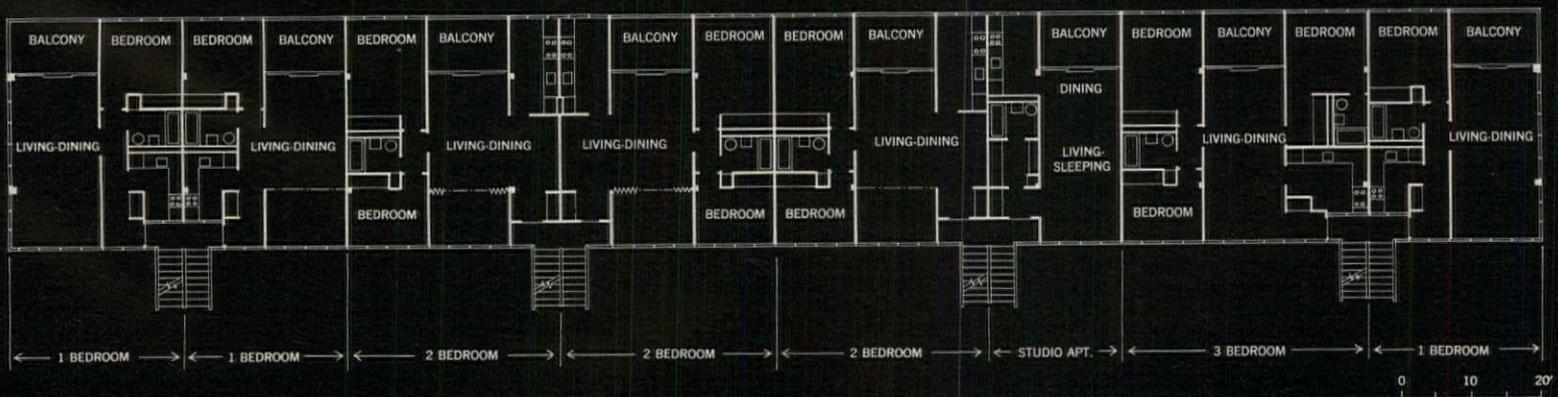
For the architects, the louvers meant not only coolness with economy, but also the opportunity to circumvent the shortage of materials, manpower, and building skills on the island. Light-



Because all entrances are on uphill side of buildings, approach to stairs lies between second and third floors (cross-section, above). Thus, no tenant must climb more than two flights of stairs. As tropical planting rapidly matures, repetition of entrances will be de-emphasized. Entrances (above right) and floor-to-ceiling glass doors are deeply recessed, providing sun and rain protection. Within, each of the 129 apartments (ranging in size from studios to three-bedroom, two-bath units) has a floor-through cross-ventilated plan.







weight, and therefore economically shipped from the States, they were easily clipped into place on the site. An additional benefit of prefabrication—savings in construction hours—was also gained.

Although the effect may not come across completely in still photography, the long, louvered facades of Bluebeard Hill are not unrelated to Op Art. The countless, finely articulated, black and white linear patterns, constantly changing as tenants adjust the louvers from within (each louver is operable in three independent sections) give the buildings an added zest. This articulation is particularly effective because of the overall clean, crisp, minimal design.

The lightness—both in appearance and actuality—that the louvers give is added to by the use of pilotis. The free-standing piers also provide improved ventilation around the buildings, and allow for full floor-to-ceiling louvers on the uphill side of the bottom-story apartments.

Because the buildings are raised above the ground, two pre-existing cisterns could be retained at the south side of the site. They are now used for storing rain water from the roofs, a second source of water supply stipulated by local law. Renovated, the concrete containers now offer an attractive fortress-like appearance, a solid counterpoint to the airy buildings rising above them.

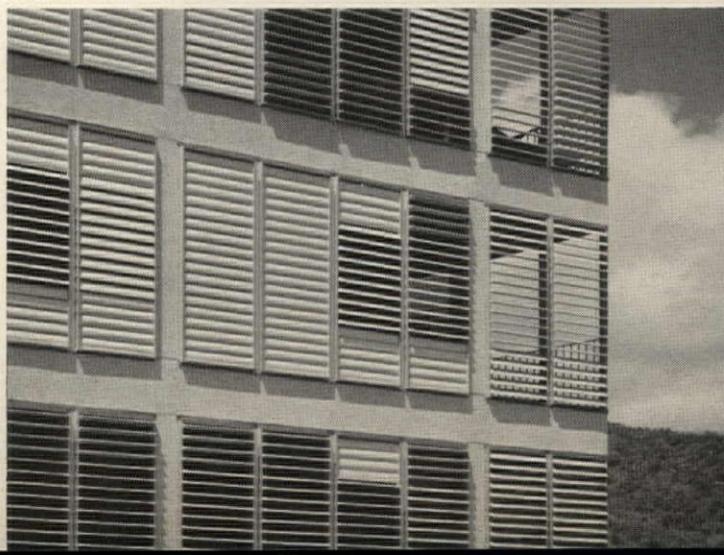
For the slope above the completed project, additional units of a different, but complementary design are now in the planning stage. For inspiration the architects have only to look at what they have already accomplished: an attractive design with built-in climate control, an especially impressive achievement in light of the low budget.

—DONALD-DAVID LOGAN

#### FACTS & FIGURES

Bluebeard Hill Apartments, Charlotte Amalie, St. Thomas, U. S. Virgin Islands. Architects: Kramer, Kramer & Gordon. Engineers: Lev Zetlin & Associates (structural); Herbert Klein & Associates (mechanical). General contractor: Thompson-Starrett. Building area: 127,000 sq. ft. (gross). Construction cost: \$1,950,000 (excluding land cost, furnishings & fees). PHOTOGRAPHS: George Cserna

Light and airy quality of project is due to extensive use of louvers (there are no windows) and pilotis, recessed terraces, interpenetration of interior and exterior spaces. Above: renovated concrete rain cisterns were incorporated into site plan. Bottom: louvers, open most of the time, encompass views of sky, landscape, St. Thomas harbor (center).





# MASS HOUSING: SOCIAL RESEARCH AND DESIGN

BY BRENT C. BROLIN  
AND JOHN ZEISEL

A prototype study in which observations on social behavior are translated into requirements for appropriate architecture

Technically adequate mass housing is often socially inadequate. An important reason for many failures in large-scale modern design is that it does not fit the way people live. The designer, unable to intuit the needs of a group with which he is unfamiliar, often imposes his own values and needs on those for whom he builds. To prevent this, he must be able to identify social patterns necessary to the group and incorporate them into his plans. This paper, with its design solutions based on observations of behavior, will attempt to show one way in which social research can be used to help the architect.

Since the beginning of the Industrial Revolution, mass housing has been designed *for* the worker, not *by* the worker, and has had a dehumanizing and degrading effect in imposing new ways of life on its tenants. This is in sharp contrast to unplanned housing—built by the inhabitants themselves, changing over a long period of time, and serving social functions not apparent to architects who are not of that culture. Urban redevelopment and new town programs are often based on what the designer considers adequate for himself. Often when he consciously tries to build for those different from himself, he unconsciously imposes his own values.

Modern architecture asserted the principle of functional design, but the architect's concept of function has usually been limited to *manifest* functions: kitchens for cooking, stores for buying, streets for driving. He does not usually take into account the *latent* functions of behavior required for social and psychological stability in cultures or subcultures other than his own: for example, driving a car as a means of demon-

strating a certain status as well as a means of transportation.

In building for different cultures or subcultures, architects have introduced — along with modern sanitary standards—middle-class assumptions of privacy, comfort, forms of sociability, and community living. Western middle-class norms, as we can see, have often proved inappropriate.

- The Brazilian government built apartment buildings in Pedregulhos for the inhabitants of the shantytown around Rio de Janeiro and then destroyed their primitive shacks. Several months later, the tenants of the project rebuilt their shacks and moved back.

- A modern low-income community was built by the Hungarian government in Budapest for families from a physically deteriorated district in the city. Many of these people sold their new apartments to middle-class families from the old district and, exchanging apartments, moved back to their old but familiar physical slum.

- Riots in Kingston, Jamaica, in the summer of 1966 reportedly "were partly prompted by resistance to public housing proposed to replace familiar 'slums.'"

Although the cause of these violent reactions is complex and demands investigation, the situation is partly encouraged by socially inadequate, though technically adequate, mass housing.

## Unfamiliar cultures

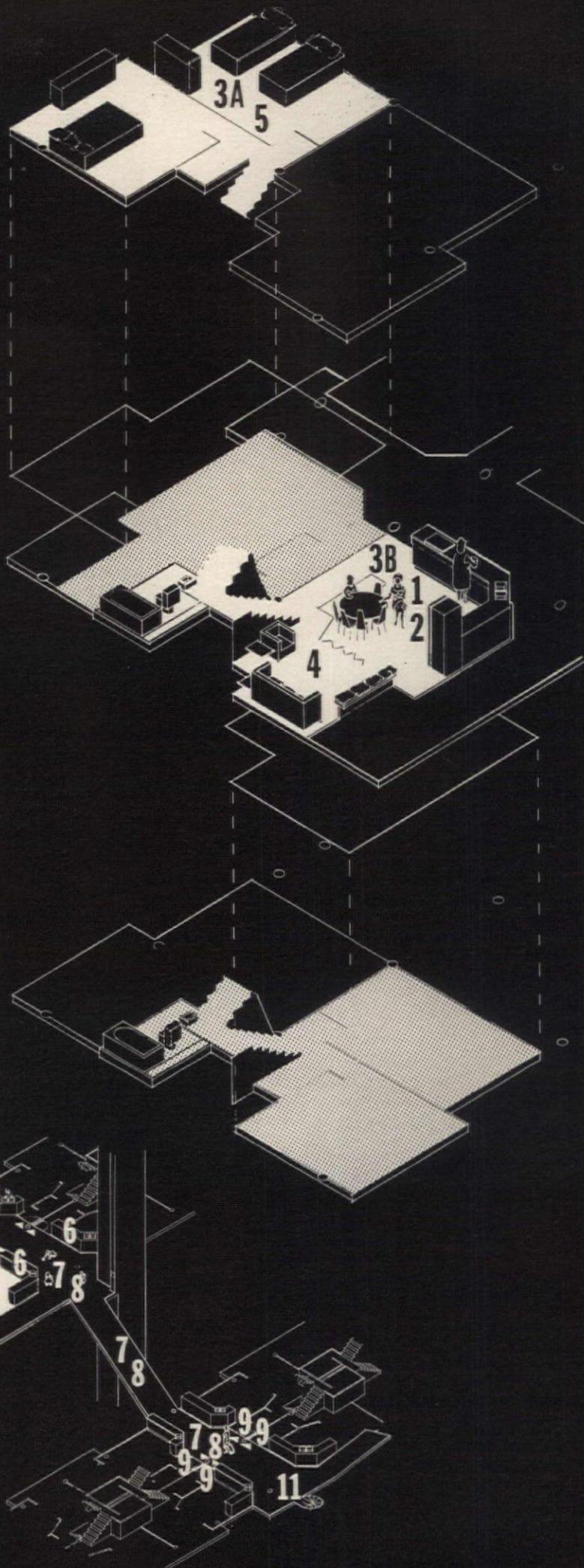
When a person moves from the country or from a small urban neighborhood into urban mass housing, one way of life is cut off for him and another begins. His new environment is often incompatible or hostile to his way of life. When traditional living patterns are denied him, it is always with the implication that they are wrong or inappropriate, and that he must now imitate the new way of life around him. But if left to his own choice, the urban migrant often seeks to retain his cultural identity.

It is easy to document the many socially exclusive towns

Mr. Brolin received his B.A. and M. Arch. from Yale. He has had several years of professional experience, and has been a visiting critic in city planning at Yale. Mr. Zeisel received his B.A. from Columbia, and is now completing his Ph.D. in sociology there. He has worked at Columbia's Bureau of Applied Social Research, and has been a visiting critic at Columbia's School of Architecture. This fall they will be visiting lecturers at Yale University, giving a joint seminar in city planning and sociology.

OBSERVATIONS AND REQUIREMENTS

- 1 OBS: Cooking is a way for a woman to demonstrate her skill as a mother and housewife, especially to relatives and other women who visit.  
REQ: Area for cooking visible to where women gather.
- 2 OBS: Owning many modern kitchen appliances is important for the standing of the family.  
REQ: Area for using kitchen appliances visible from where women gather socially.
- 3 OBS: The adolescent is away from home a lot. When he is home, he often fights with his parents.  
REQ: (A) Separation of adolescents' area from adult area.  
(B) Direct access to exit from adolescent area.
- 4 OBS: When there are guests, the men separate from the women by going into the living room. Men and women often stay apart the entire evening. Even at the kitchen table, men will stay at one end and women at the other.  
REQ: Privacy between men's and women's social gathering areas.
- 5 OBS: West End working-class men expect to have little to do with child-rearing.  
REQ: Children's areas separate from men's gathering areas.
- 6 OBS: West Enders have a different sense of privacy than middle-class families. They do not mind the crowded tenements if they do not have to climb many stairs.  
REQ: Maximum connection between apartments.
- 7 OBS: West Enders enjoy staying up late and socializing loudly.  
REQ: Connection between apartments.
- 8 OBS: Visual contact between apartments is often the basis for "neighboring."  
REQ: Visual contact between apartments.
- 9 OBS: Neighbors help each other in emergencies.  
REQ: Ready access from apartment to apartment.
- 10 OBS: Unmarried men make frequent visits to relatives' apartments. These visits allow them the small amount of contact with children that is required of them.  
REQ: Apartments for single people not isolated from other apartments.
- 11 OBS: Friendships between different peer-groups are often based on living together and sharing facilities.  
REQ: Common facilities for groups of apartments.



NOTE: Typical floor is either all bedrooms or all living-kitchen areas. Any bedroom area is thus either above or below another apartment's living-kitchen area.

which grew up across the country in the 19th century; it is more difficult to find examples of the successful integration of different cultures within a single city. The assimilation of ethnic groups was a challenge that the American city met with neither grace nor efficiency. In addition, cultural integration may not be felt possible, or desirable, by all minority groups. Instead of asking if America has lost its power of integration, we should ask whether America ever had that power.

For moral as well as for practical reasons, it is vitally important to respect the different customs of groups within our own society, and within urbanizing societies throughout the world. The social parameters of housing are as important as the legal, economic, and physical. The architect and planner need detailed information about the living patterns of people who are of different cultures or subcultures. This information about the functional requirements of urban subcultures, or rural cultures in transition to urban life, can be provided by analyzing the *latent social structure* and living patterns as they relate to the architectural environment. The architect must then be able to translate this information into a form useful in three-dimensional planning.

### Observations

To determine what information about social behavior is useful to the designer we have drawn freely from Herbert Gans's *The Urban Villagers*, an insightful description of working-class Italian life in the West End of Boston. This group was chosen for our study because of the availability of substantial information. Our method could be applied to any group—ethnic, class, age, institutional. Although it was not originally intended to be used by planners, we have put part of Gans's material into guidelines for the designer. From these guidelines we have designed housing which might have replaced the physically substandard housing in the neighborhood Gans studied without destroying

the healthy, low-income community.

The West End has since been torn down by urban renewal. Thus, although we had considerable information about people's behavior, we had little knowledge of their surroundings. To demonstrate the method of using specific research for design, and to place our study in a relevant physical context, we chose an existing site in the North End of Boston. This area is physically, ethnically, and demographically similar to the old West End.

From Gans's report, which followed his living in the West End and studying it over a period of months, we chose statements about the social behavior of the inhabitants. Since these observations were not intended to indicate how the architect should adapt his designs, we translated them into specific requirements for the architect to meet. Some samples of the original observations, and their translation into architectural requirements, follow:

• *Observation*: "Food preparation serves as an example of the woman's skill as a housewife and mother. When company is present, it enables her to display her skills to relatives and peers." *Requirement*: Area for cooking visible to where women visitors gather.

• *Observation*: ". . . the normal tendency is for men and women to split up, the men in one room and the women in another." *Requirement*: Privacy between men's and women's social gathering areas.

• *Observation*: "While the teenage groups were sexually segregated, girls' groups in the West End met near the corners where the boys hung out." *Requirement*: Adolescent girls' areas visible to boys' areas.

We then grouped together the requirements that referred to behavior taking place in the same physical area: apartments, groups of apartments, areas of informal social activity, and commercial areas. The architectural design followed from this. Therefore, on each of the drawings, there is a set of observa-

tions as well as the requirements met by the drawing.

### Relevance of observations

Since Gans did not aim at a specifically architectural orientation, this pilot study and the resulting drawings are not able to cover all aspects of design-related living patterns. Furthermore, it is not quite clear what an "architectural orientation" is. At first we picked those comments we felt could help the architect to meet the social needs of that community. We began with over 200 observations of behavior, most of which described an activity taking place in a physical setting. Many of these, although telling us how the West Enders behaved, were not necessarily helpful to the architect: "Girls from about age ten are expected to help with the household tasks . . . Adolescents and young adults are frequent movie-goers."

Whether or not young girls help around the house does not tell us about the preferred apartment layout or the size of rooms. Nor does the second observation, as it stands, guide the architect's work; he knows no better whether the movie theater should be in the center of the area or its outskirts, or whether the movies downtown are just as good. He must know who else is involved in movie-going. If he knew, for instance, that when going to the movies, teenagers were seen by other young people from the neighborhood—and avoided adults—he would know that the social significance of this activity is related to its physical location in the area. The theater should be visible to teenagers doing other things and not be easily visible from areas of adult activity.

Another type of observation tells us more about physical location: "The peer group meets regularly in the kitchens and living rooms of innumerable West End apartments." But here, too, we do not know what factors, physical or otherwise, make these rooms more desirable than others. Further, we do not know which peer groups meet regularly in the

kitchens and living rooms.

In sum, the observations we found to be useful to the architect possessed the following attributes: 1. *a primary actor and his activity*; 2. *the significant others in the situation*; and 3. *the relationship between the primary actor and the significant others*. This relationship is the means of including or excluding the significant others from the realm of the primary actor.

In the example above, the movie-going teenagers are the actors, the significant others are nonmovie-going teenagers and adults. The relationship in the teenagers' case is visual and auditory connection, and in the adults' case, visual and auditory separation. The field observer, by asking: "Who is doing what, including or excluding whom?" will most likely encompass all of the necessary sociological components in his observations.

Furthermore, in spelling out the relationship—the means of inclusion or exclusion—we get the "requirement" to be fulfilled by the new physical form. This is the link between social behavior and physical form, by which we can specify how an area in which a given activity takes place should be connected to or separated from another area. From the sample list of observations and requirements:

- Area for cooking *visible* to where women visitors gather.
- *Privacy* between men's and women's social gathering areas.
- Adolescent girls' areas *visible* to boys' areas.

These requirements indicate the social connection that the designer can either break or allow to exist. If we see the design process in large part as putting up or leaving out different kinds of barriers, by defining where these walls are socially desirable, we can help the designer meet people's needs.

### The existing environment

The requirements are the design implications of social behavior. We must also see the social implications of the existing physical environment that is to be replaced. Although a simple

2 OBS: After they are ten years old, boys are generally unsupervised while outside, and enjoy the freedom to roam the neighborhood.

REQ: Many places for pedestrian movement.

3 OBS: Groups of teen-agers of different sexes spend a lot of time "hanging around" or looking for something to do. Often they do this with adults or teen-agers of the opposite sex.

REQ: (A) Connection between boys' group and peer groups of other statuses. (B) Connection between boys' and girls' outside areas and apartments.

4 OBS: Teen-agers gather on corners near small stores.

REQ: Areas for informal congregating outside and around commercial areas.

5 OBS: Although boys meet with boys, and girls with girls, the girls meet near the corners where the boys hang out.

REQ: Adolescent girls' areas visible to boys' areas.

6 OBS: Young teen-age girls take care of younger children on the streets.

REQ: Adolescent girls' areas near children's play areas.

7 OBS: Both men and women use dress as a means of self-expression, spending much money on clothes.

REQ: General visibility among pedestrian, apartment, commercial, and recreational areas.

8 OBS: Men wash their cars on the streets as often as once a week. For men, the car is important as a means of expressing their identity.

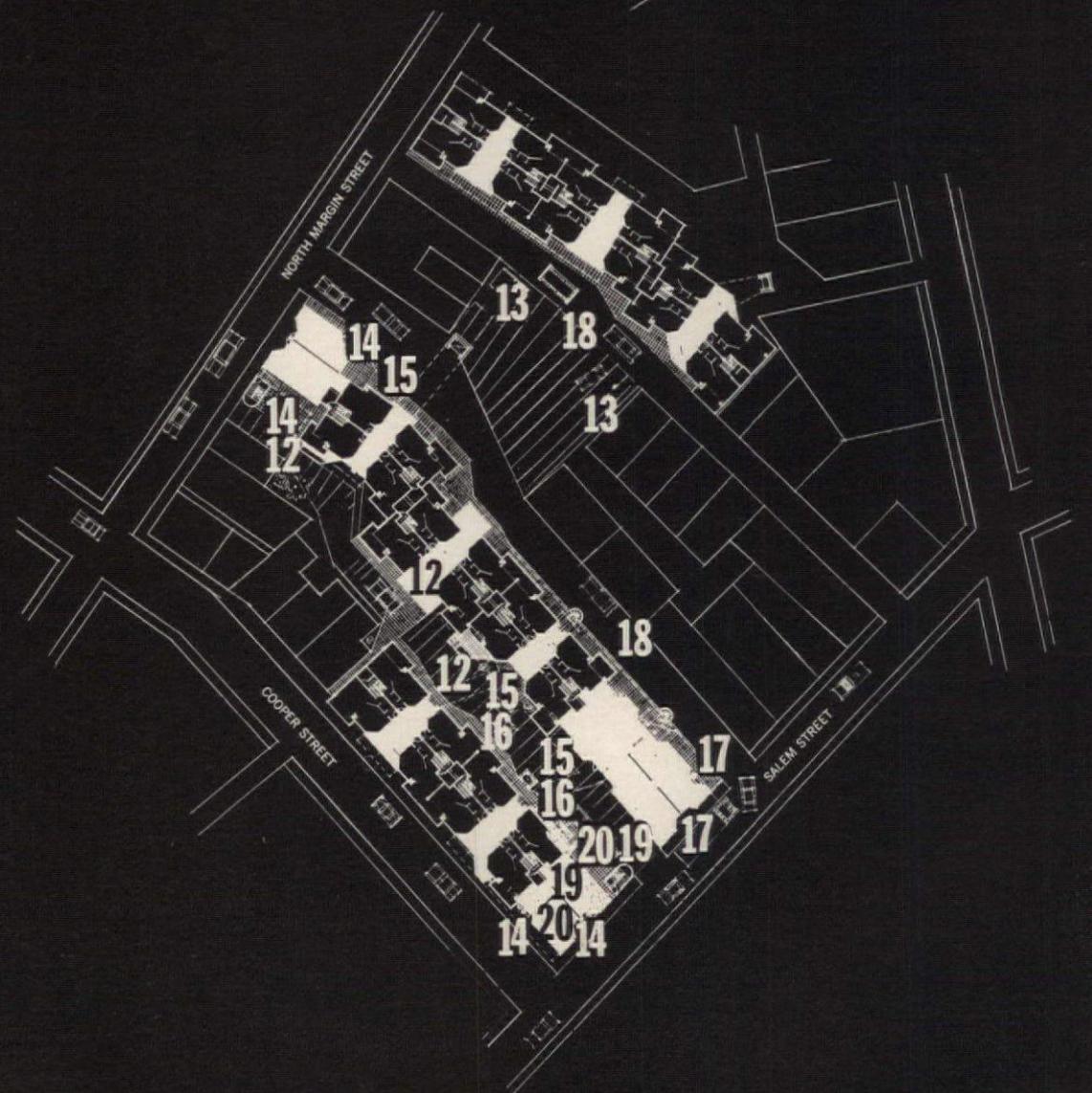
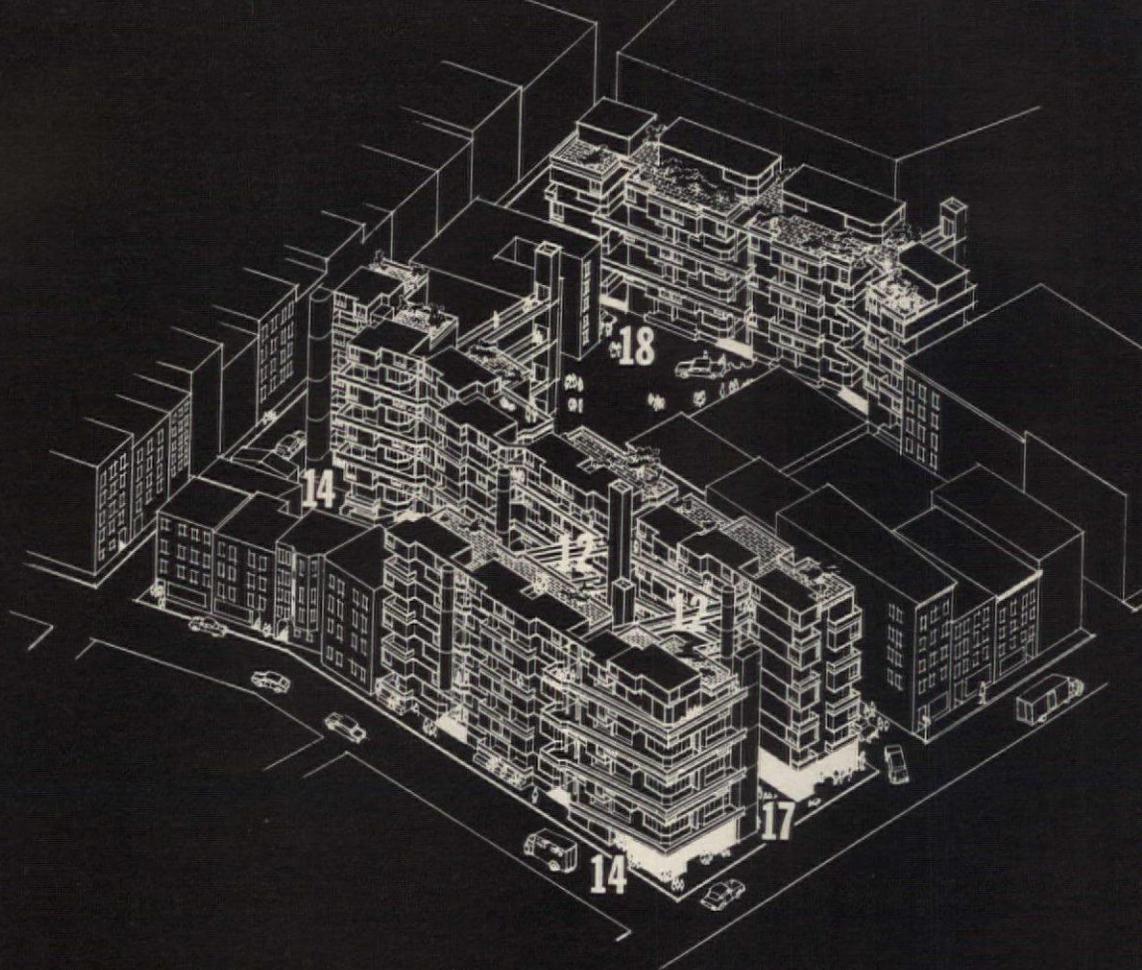
REQ: Visibility for areas related to automobiles.

9 OBS: Bars and luncheonettes are places to exchange news and gossip, as well as message centers for regular customers.

REQ: (A) Commercial area connected to living areas. (B) Commercial area visible from street and other commercial areas.

20 OBS: Women socialize while shopping.

REQ: Commercial areas visible to and from streets.



description is necessary—apartment layouts, relationship among spaces, size of rooms, where the stores are, where the playground is—this is not sufficient. Two things must be established: 1. Is the existing physical form compatible with the prevalent social patterns? and 2. What patterns does the physical form make difficult or easy?

Some indicators of *incompatibility* between the existing physical form and social needs are: changes made in the original form—windows painted black, doors nailed shut, ramps built over stairs; aspects of the environment totally unused—playgrounds, balconies, park benches; and aspects falsely used—children playing in the street instead of a nearby park, dinner cooked on the fire escape, the car parked in the living room.

Indicators of *compatibility*, on the other hand, will be the absence of these changes in form or use, as well as little destruction, much use, relatively low turnover, and conscious efforts at beautification by the inhabitants.

### Avoiding mistakes

To find out what patterns the physical form allows, we translate an observation of the existing physical environment into the requirement it seems to fulfill. If that aspect is compatible, the requirement is one to be fulfilled by new designs, while the requirements reflected in incompatible form are clearly to be avoided. By taking into account both the social implications of the environment and the indicators of conflict, we can avoid present mistakes.

The field observer could apply the method we have described in the following ways: 1. *Looking at behavior*. He notices repeatedly that boys play ball in the street. Looking for the significant others in the situation, he finds that girls of the same age often sit around watching the boys, while adults stop to look and comment. The primary actors—the boys—are related visually to two groups of significant others—the girls and the adults.

This complete observation is translated into the requirement: boys' play areas should be visibly connected to where the girls hang out and to where adults are. If other observations indicate a similar requirement, the designer might build a playground near the shopping area or subway station, as well as near the stoops where young girls get together. 2. *Looking at the environment*. A playground with basketball courts is far from both the busy life of the street and from the door stoops and shops where the teenage girls hang out. By asking, "Who can play in the playground, including or excluding whom?" we translate this simple observation into the social pattern it allows: teenagers, mostly male, can play basketball there. While other boys, both younger and older, may be included, both adults and girls of the same age are excluded. Since this playground is rarely used by anyone, it is evident that we should avoid the separation of the boys' play area from that of the girls' and from "where the [adult] action is." More simply, we come up with the previous requirement: The boys' play area should be visibly connected to these other places.

This observation alone would, of course, not be enough to make a final judgment. Both repeated observations and the use of other techniques—surveying attitudes, informal interviewing, counting how often people do things—are necessary to validate findings.

### Appropriateness of the method

Although it should be augmented with survey techniques, this observational method is very different in content. Most people will answer questions about a proposed plan in terms of what they have experienced or what they want. When the respondent is a potential buyer in a housing market, it is important to know his preferences. But this often has little to do with the latent functions of behavior that are integral to the social stability of a group. We therefore distinguish these conscious wants from unconscious needs.

This approach and method is appropriate for both new and redeveloped urban areas. It may be applied to people already living in cities and to rural immigrants. Its value in the last case should be clear. When people move from the country to the city or from primitive to more modern housing, their patterns of living undergo strain. Taking these patterns into account when planning new housing will not limit behavior, but, by accommodating familiar life styles and providing alternatives, it will make the transition easier for them.

In urban redevelopment it has been argued that, when the architect tries to reinforce the social structure, he reinforces the pathology of the slum. The distinction between a physical and a social slum must be clarified. A physical slum refers to an area with a large percentage of substandard housing. A social slum, on the other hand, might be characterized by a loosely connected social structure, anomie inhabitants and a social pathology reflected in violent crime, suicide, drug addiction, and other deviant behavior. Often these two go together, but often they do not. City planners, as they did in the West End, often tear down a physical slum and at the same time tear apart a healthy social climate in which social pathologies are relatively low and people take an active part and interest in the community. Applying the approach of this paper may not enable the architect to revive this healthy social atmosphere, but it may help him to avoid contributing to its decline and to the eventual development of social as well as physical slums.

We must be aware that the designer has only limited control over the social lives of the people in his buildings. He can neither limit people's social behavior nor force them to change by building a socially inhibiting environment. Their living patterns will stay the same or change regardless of the physical environment in which they live. If the designer does try to limit behavior when change is imminent, or to force change when the inhabitants neither

want it or are ready for it, he can cause potentially harmful conflict. This conflict can have several consequences: the physical environment may be altered, misused, or not used at all, and the people may suffer social and psychological stress. To stop this we would have the designer understand the social behavior of those who are to live in his buildings, and try to avoid putting up barriers to their way of life in the physical environment.

### Design freedom

The results of this type of research define a minimum set of social behavior patterns which the physical structure should not prohibit. The means that one designer uses to achieve this end as well as the number of non-conflicting alternatives he offers is in no way limited. For example, to separate the cooking area from the social area we use a folding partition. This allows the alternative of connecting these areas. Many different walls, both more stationary and more adaptable, could meet the same requirement.

The social parameters specified by these requirements are ideals; it is difficult to meet them all equally well. One essential next step is to determine the hierarchy of requirements, so that there is a basis for making choices when conflict occurs among the requirements. We must, therefore, determine the relative importance of the behavior's latent function to the social stability of the group. We might also define the architectural means for separating or connecting the activities related in the requirements.

In applying this research-design method we must consider that the living patterns of those for whom we design will eventually change. But any change will have its starting point in existing social patterns. If the Italian community of Gans's research becomes more middle-class it will still retain many of its present social customs. In any case, to design now in a way that we know will not fit existing life styles is to make the hypothetical misfit of the future a reality of the present.

12 OBS: After they are ten years old, boys are generally unsupervised while outside, and enjoy the freedom to roam the neighborhood.  
REQ: Many places for pedestrian movement.

13 OBS: Groups of teen-agers of different sexes spend a lot of time "hanging around" or looking for something to do. Often they do this with adults or teen-agers of the opposite sex.  
REQ: (A) Connection between boys' group and peer groups of other statuses. (B) Connection between boys' and girls' outside areas and apartments.

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REQ: Areas for informal congregating outside and around commercial areas.

15 OBS: Although boys meet with boys, and girls with girls, the girls meet near the corners where the boys hang out.  
REQ: Adolescent girls' areas visible to boys' areas.

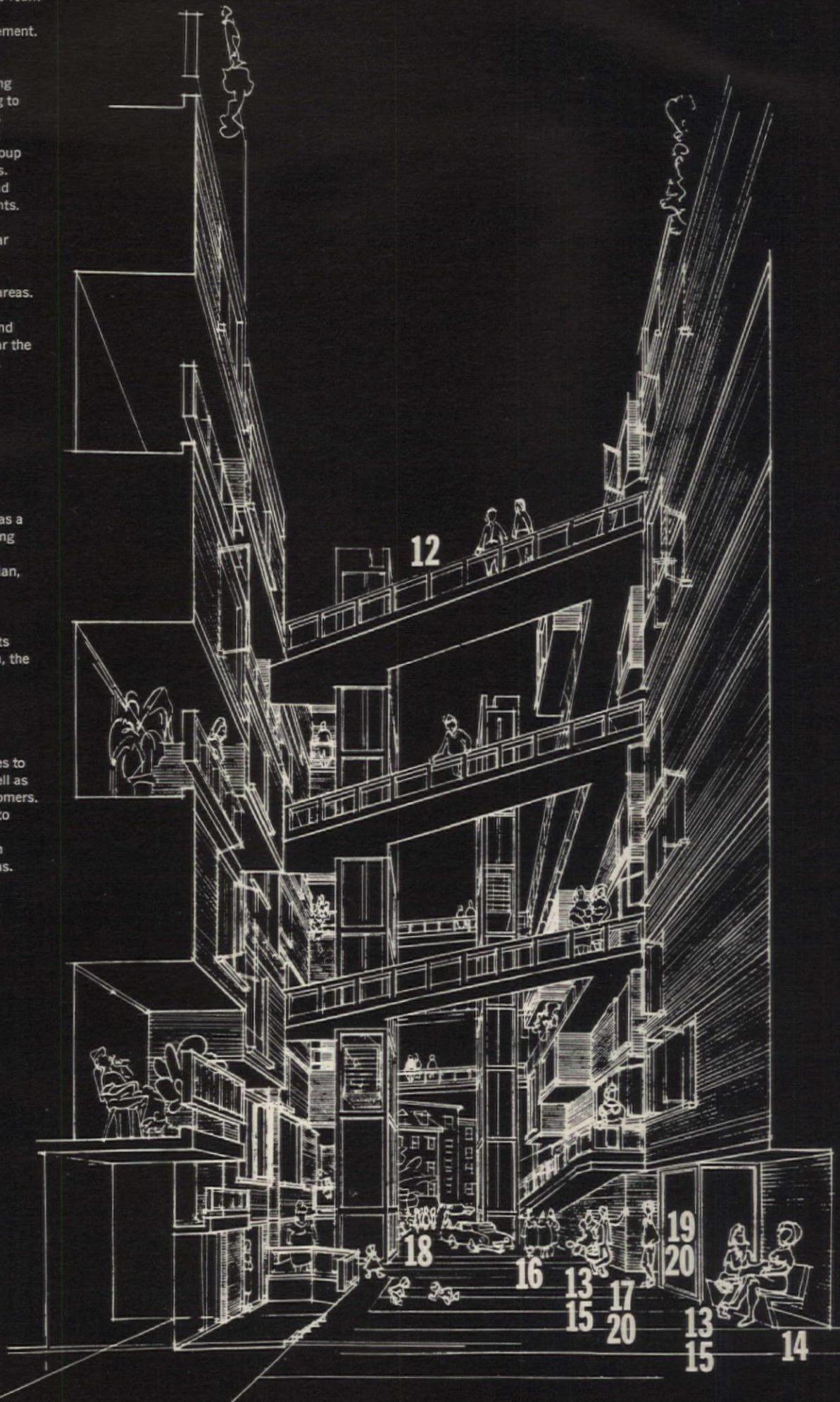
16 OBS: Young teen-age girls take care of younger children on the streets.  
REQ: Adolescent girls' areas near children's play areas.

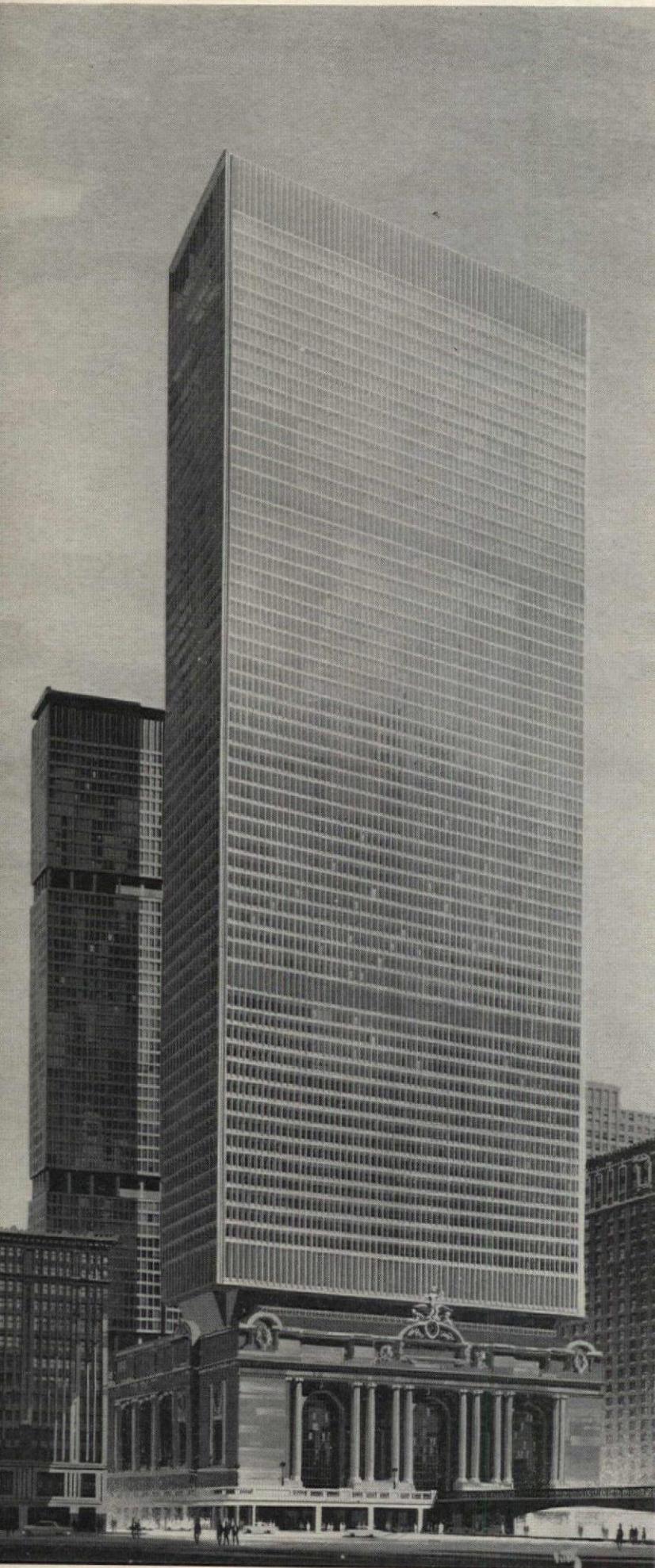
17 OBS: Both men and women use dress as a means of self-expression, spending much money on clothes.  
REQ: General visibility among pedestrian, apartment, commercial, and recreational areas.

18 OBS: Men wash their cars on the streets as often as once a week. For men, the car is important as a means of expressing their identity.  
REQ: Visibility for areas related to automobiles.

19 OBS: Bars and luncheonettes are places to exchange news and gossip, as well as message centers for regular customers.  
REQ: (A) Commercial area connected to living areas. (B) Commercial area visible from street and other commercial areas.

20 OBS: Women socialize while shopping.  
REQ: Commercial areas visible to and from streets.





# GRAND CENTRAL CITY

The 800-ft.-tall, 310-ft.-wide, and 125-ft.-deep glass and concrete box seen "floating" above Warren & Wetmore's Grand Central Station in midtown Manhattan is the office tower proposed for the air rights over that site. The developer is Morris Saady, President of the British-owned UGP Properties Inc.; architects are Marcel Breuer & Associates.

The controversies stirred up by the project have been discussed elsewhere (April '68 issue); and in the ensuing *melée* the proposal's merits—in terms of engineering, planning, and accommodation to an important landmark—have become obscured.

The proposed office tower will be supported from its vertical core, which will contain 52 elevators. This core will rise out of a portion of the existing Grand Central Building that is currently occupied almost exclusively by ticket booths. This vertical core, or trunk, will rise to a height of some 160 ft. above sidewalk level, at which point it will, literally, branch out to carry 55 office floors (plus four mechanical floors) that cantilever some 30 ft. toward the north and south, and about 20 ft. to the east and west.

This arrangement results in a minimum of interference with existing subway tracks and concourses below; and in a minimum of demolition of the present station interior. Indeed, the only parts of the interior that will be affected are the cluttered south mezzanine overlooking the main concourse; the little windows above that mezzanine that *used* to let in shafts of light, but have been too dirty to do so in recent years; and the present, rather dingy waiting rooms to the south. The latter will be replaced by a huge new lobby—approximately 260 ft. wide, 45 ft. deep, and 60 ft. tall. The lobby will be lit through the present Grand Central windows that face south (see section, far right).

In terms of planning, the proposed office tower is equally ingenious: the roots of the central trunk, as it were, spread out below ground in all directions—there are to be greatly enlarged and simplified connections to suburban subway trains, and subway access from 42nd Street will be vastly improved as well (see cutaway diagram at right). The estimated 10,000 additional office workers that will inhabit the area once the tower is built will, of course, add to the local traffic load; but chances are that the new building, with its proposed improvements in access to existing transport facilities, may, in the balance, lighten congestion in the area, rather than increase it. Furthermore, the provision of a 50-ft.-deep setback from 42nd Street, with a *porte cochère* for taxis etc., will help decongest that street.

What of the proposed tower in terms of its accommodation to a major landmark?

First, it should be pointed out that only the exterior of the station, and not its great concourse, is protected under present N.Y.C. landmarks legislation. (And "protected" is hardly the word, since the law, generally speaking, allows only for a delaying action.) In short, the developers *could* have left the outside walls of the station and filled the great concourse with office floors; or they *could* have, with a little more difficulty, torn down the entire station and started from scratch.

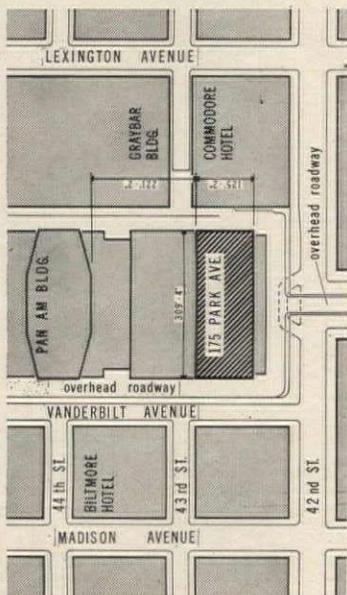
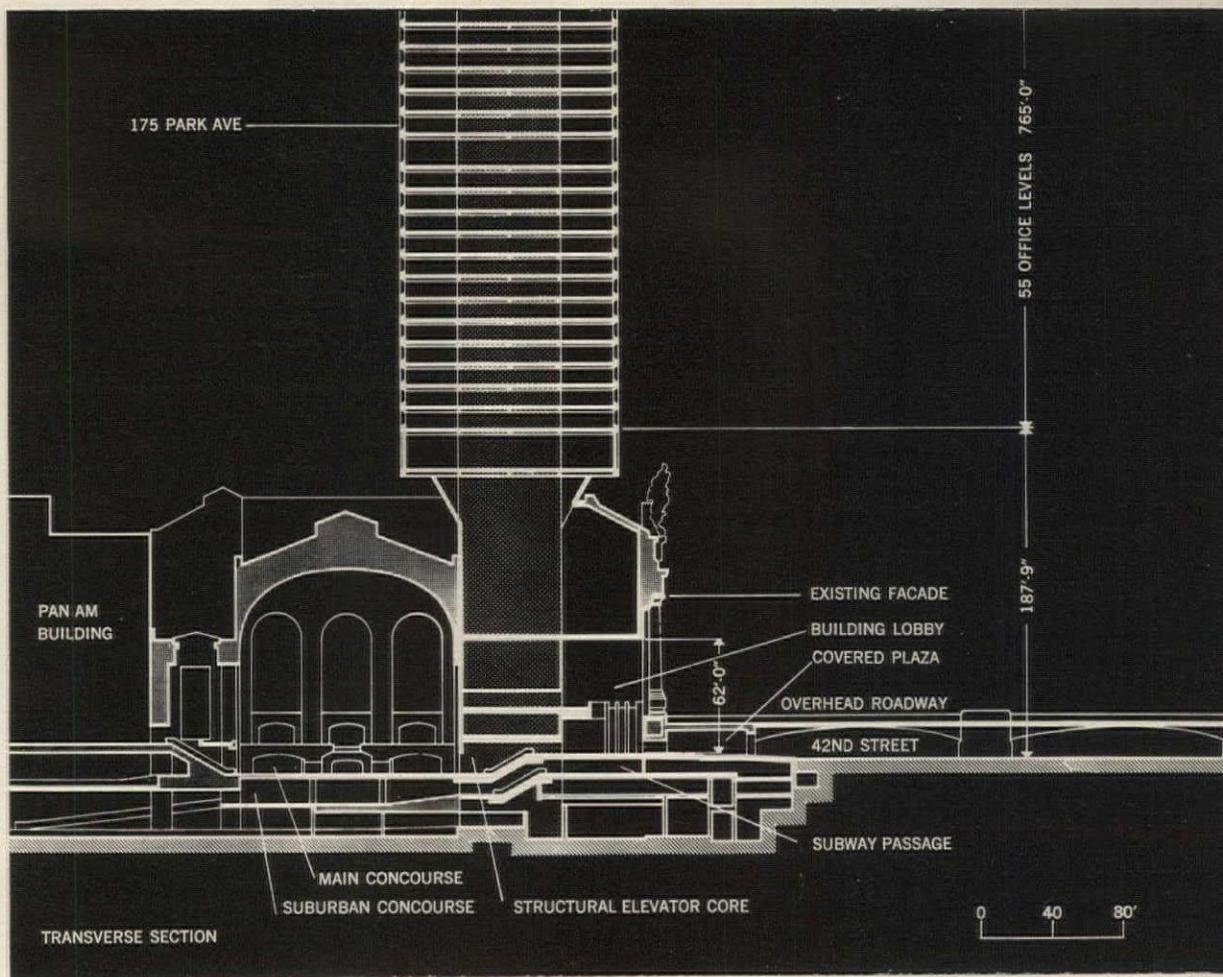
Instead, they will preserve the exterior of the building; and they will, also, preserve most of the interior, and are trying to persuade the Penn Central Railroad to clean up its presently defaced concourse as well.

As for the relationship of the tower to its base, this has been handled with greater subtlety than some critics have suggested. The deep cantilever-recess under the slab of the tower will divorce the latter from the Beaux-Arts palace below it; and the studied restraint and neutrality of the new tower's exteriors will further set these back, visually, from the ornate facades of the present terminal—rather more

so than is the case in the relationship between the assertive Pan Am tower and the terminal to its south.

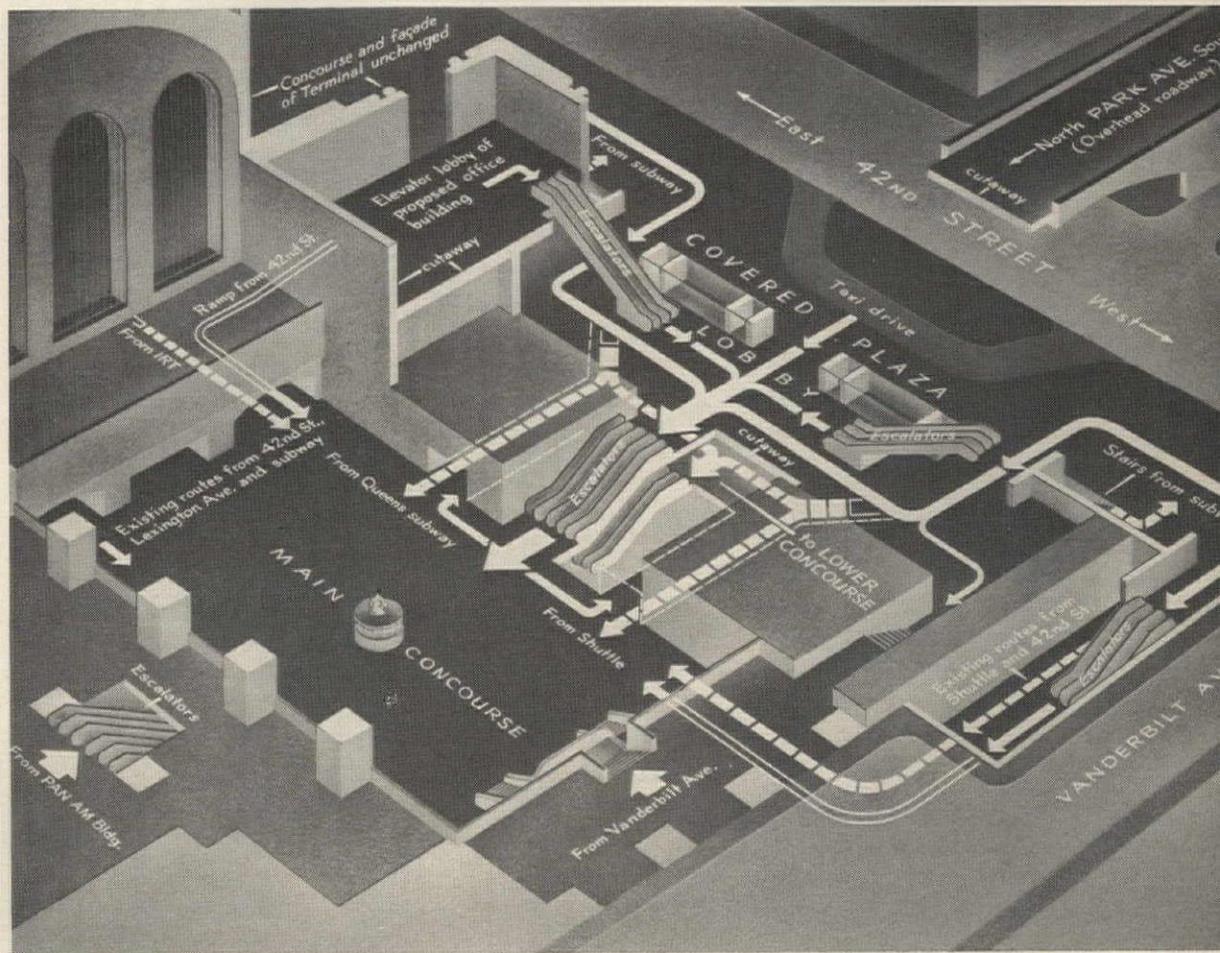
Whether cities, through their laws and practices, should force the creation of such air-rights developments is another question. New York City, which has no master plan and no effective landmarks protection, is of course the real "villain" of this piece—if there is a demand for one. It is significant that the Saady-Breuer proposal is entirely within existing N.Y.C. laws—indeed well below the limits presently permitted by the city in several respects.

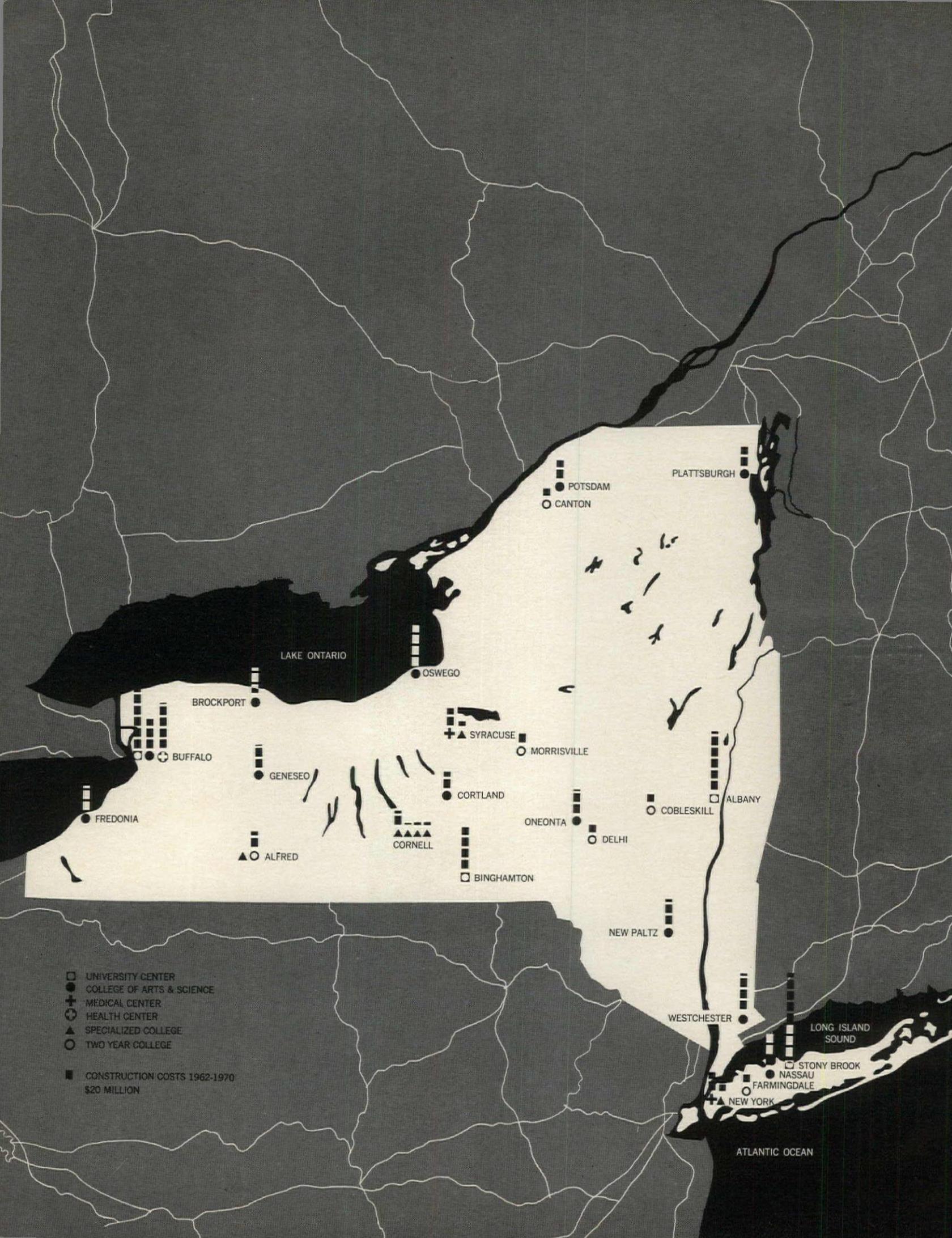
In a very belated effort to repair the damage (some nine months after the new tower project was first announced) the N.Y.C. Planning Commission this month attempted to amend the present zoning resolution so as to limit vertical growth over rail centers. Whether this afterthought will stop the new Grand Central tower remains to be seen. However, the exercise may help arouse the commission to its responsibilities in the future.



#### FACTS & FIGURES

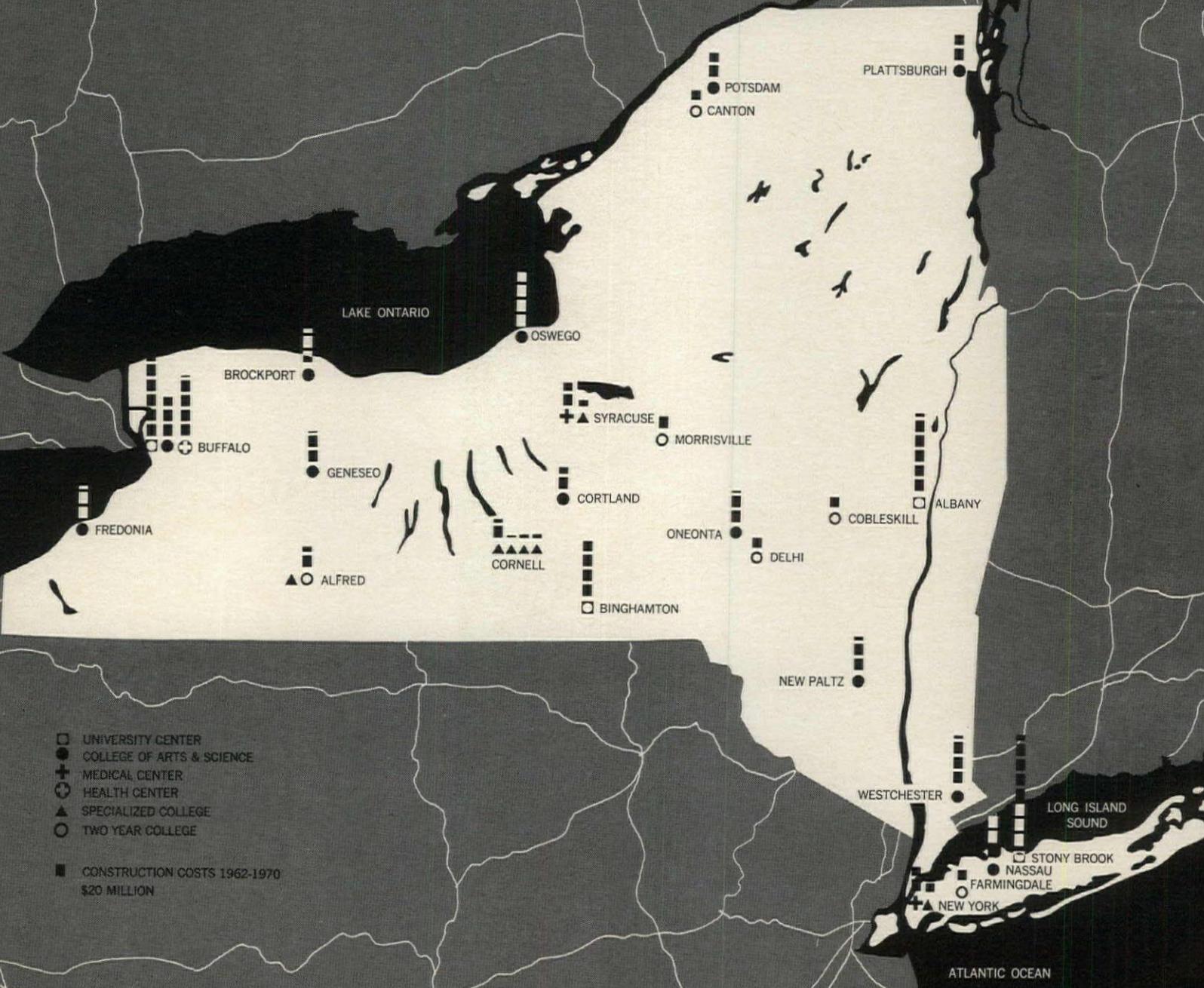
Owner: UGP Properties, Inc. 175 Park Avenue, New York City.  
 Architect: Marcel Breuer and Associates. Engineers: Jaros, Baum & Bolles, Inc. (mechanical); Office of James Ruderman (structural). General contractor: Diesel Construction Co. Building area: 2.4 million sq. ft. gross area—including lower station levels; 1.9 million sq. ft. of office space. Estimated cost: \$100 million.





- UNIVERSITY CENTER
- COLLEGE OF ARTS & SCIENCE
- ⊕ MEDICAL CENTER
- ⊕ HEALTH CENTER
- ▲ SPECIALIZED COLLEGE
- TWO YEAR COLLEGE

■ CONSTRUCTION COSTS 1962-1970  
\$20 MILLION



# BILLION DOLLAR CLIENT

A progress report on  
New York's unique  
State University  
Construction Fund

BY GEORGE A. DUDLEY

It is not often that a completely new organization sets out to manage the design, construction, and finances of a program involving several billion dollars worth of new facilities at 26 widely separated locations. Such an organization, the State University Construction Fund, was established in 1962 by Governor Nelson Rockefeller and the State Legislature.

Starting with a small staff, the Fund took on the responsibility of expanding the facilities of the State University of New York to meet the seemingly incredible enrollments projected for the year 1970. Three clear-cut stipulations were imposed on the undertaking: to meet a very tight schedule; to keep cost under control; and to produce architecture and planning of excellence.

Now six years later, the Fund has become an organization of 56 professionals, supported by an additional staff of 78 people; it is handling more than \$150 million worth of construction annually. In its first five years, the Fund completed 430 separate projects at a cost of \$532 million. At present it has 173 projects in design and 163 others under construction, valued at \$645 million.

Under the direction of Dr. Anthony G. Adinolfi (who was recently appointed general manager), the Fund's staff is now being strengthened for the task of continuing expansion through the year 1975. Additional expenditures of \$2.5 billion are anticipated.

This is an appropriate time to consider how the Fund has been able to carry out successfully such a massive program—how it has overcome the difficulties of bureaucracy, and how well it has met its objectives of time, cost, and quality.

Let us first look at the circumstances that brought the Fund into being. It was established to meet needs of a relatively new, rapidly expanding State University, which had been formed in 1948 as an assemblage of existing institutions. By 1962, the university had 48,000 students in its four university centers, ten four-year colleges, two medical col-

leges, six agricultural and technical institutes, and six specialized colleges. Its academic master plan projected a doubling of enrollments by 1970. An early estimate by the university staff set the cost of construction required at approximately \$700 million.

Construction of university facilities was, at that time, the responsibility of the division of architecture of the State Department of Public Works, which had to sandwich the university's requirements between projects being carried out for many other state agencies. It was evident that the university needed greater autonomy if it was to meet the enrollment and program goals established.

The mechanism for meeting these goals was created through a fantastically fortuitous interaction of massive forces: the need to provide higher education for the "war-baby" wave of population increase; the opportunity to consolidate the academic fragments which had been put together to form the statewide university; the presence of a governor and a legislature willing to act courageously and knowledgeably; conditions in the bond market favorable to the required financing; communities finally ready to accept comprehensive regional planning; academic administrators ready to appreciate excellence in contemporary architecture; and—not least—architects and planners ready to fulfill their full professional roles with real distinction, given the opportunity.

The governor and the legislature established the State University Construction Fund as a public benefit corporation, financed by bonds issued through the state Housing Finance Agency. These bonds are amortized through tuition and fees. (Student housing is financed by bonds

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**Mr. Dudley**, a member of the Forum's Board of Contributors, was one of the original trustees of the State University Construction Fund. He gave up that post in 1965 to become the first dean of the School of Architecture and Urban Planning, University of California at Los Angeles. He has recently returned to New York to accept appointments as chairman of the State Council on Architecture and the State Pure Waters Authority.

issued by the State Dormitory Authority.)

Governor Rockefeller's appointments to the Fund's three-man Board of Trustees reflected his concern with meeting the Fund's schedule, budget, and quality objectives. As chairman, he appointed Clifton Phalen, president of the New York Telephone Co. and a member of the State University's Board of Trustees. Phalen's primary concern was the timing of the Fund's operations. To provide financial guidance, he appointed James W. Gaynor, commissioner of housing for the State of New York and head of the state's largest financing agency, the Housing Finance Agency.

I was serving as director of the State Office of Regional Development at the time, and the governor asked me to serve as the third trustee, concentrating on the quality of environment. His interest was not only in the architecture of the facilities to be constructed on campus but also in the relation of these campuses to the communities where they were located and the regional effect of their rapid growth.

The organization of a program of this magnitude presents a multitude of problems. Fortunately, we were able to find people to staff the Fund who had the foresight and ability to manage such an undertaking and who believed in "government by contract," i.e., the full use of independent professionals and of the building industry. A strong advocate of this approach was Tony Adinolfi, who had been directing the planning of a \$200-million public school expansion program in Detroit. As the Fund's manager of planning, Adinolfi organized the planning division of the Fund into four operating sections, each headed by a planning supervisor, who oversaw the work of four to six planning coordinators. These coordinators worked directly with the architects engaged by the Fund, each one handling one to four campuses, depending on the complexity of the assignment. Adinolfi chose Frank J. Matzke (former associate architect for the State University) as his dep-

uty and as one of the four planning supervisors; he appointed Grover Tarbox as the supervisor of a program coordination group, which would establish budgets, initiate planning, and monitor the work being coordinated by the four operating sections. (For a more complete list of appointees, see page 77.)

#### Principles of operation

The system of operation was set up to promote full utilization of the capabilities of the design professions and building industry. The following are the essential principles:

- The relationship between the professionals, the Fund's staff, the State University, and the building industry is clearly defined and carefully maintained.
- Architects are given the opportunity to render full professional service. The Fund does not ask architects to do half a job, with its internal production staff doing the rest. The Fund's staff serves only to assist the professionals by establishing the most appropriate contractual conditions, by expediting the decision-making process, and by clearing away obstacles to progress. (These are, in themselves, major tasks.)
- An atmosphere of creative tension is generated by the time, cost, and quality objectives of the Fund. This constructive tension is maintained through constant contact between the staff and the professions.
- The creative energies which are often latent in the professions and the building industry are brought into play. The Fund tries only to direct these creative forces, without inhibiting them.
- The client is stimulated to state his needs and preferences concisely, yet in language sufficiently flexible to permit creative freedom. His needs for function, environment, schedule, and budget must be articulated even before the most basic planning process can start.
- Critical decisions are made in an orderly and timely sequence in each phase of planning, design, and construction.

The system calls for constant self-evaluation by the Fund. The

resulting working environment has encouraged almost all of the professionals associated with the Fund to supply effective and imaginative professional service.

#### Comprehensive campus planning

Effective long-range planning is essential to orderly campus expansion. As a result of its experience in planning for 29 campuses, the Fund has been able to refine the process of physical planning. A sequence of meetings has been established which allows for the orderly presentation of findings and recommendations to the State University and the Construction Fund. Each of these exchanges has three major objectives: 1. to clarify and interpret academic, building, and site programs; 2. to jointly evaluate the significance of research conclusions and alternative plan proposals; 3. to arrive at a firm basis for long-range campus development.

Preparation of the Comprehensive Campus Plan takes place in two phases: the program phase and the design development phase. In the program phase, the requirements for the campus are identified and analyzed; the academic program is firmly established by the university and the community; regional studies are undertaken to establish relationships of the campus to transportation, community facilities, etc. This phase of analysis includes the study of land use, utilities, tax structure, and related community services, as well as climate, topography, vistas, drainage, soils, etc. Extensive research is also conducted into economic conditions—including market evaluation, probable building costs, and techniques of building suitable to the campus. Finally, a preliminary action program is drawn up, specifying the time sequence for building, site work, land acquisition, and planning.

The design development phase starts with the establishment of a basic "design vocabulary," site-related functional diagrams, and a conceptual plan. As the plan is worked out in greater detail, economic studies ensure it will be consistent with the budget;

schedules for planning and construction are further refined.

The end product of this phase is the Comprehensive Campus Plan, which delineates spatial and architectural form, circulation, parking, utilities, grading, and planting. Accompanying this are detailed feasibility studies covering market conditions and construction costs and a final action program indicating phasing for building construction, site work, and land acquisition.

This plan, when approved by the Fund and the university, becomes the framework within which all decisions about long-range physical planning will take place. Although changes to the basic plan are necessary and inevitable as the campuses develop, the plan provides a basis on which these decisions may be made objectively and wisely. The Fund has recently updated all of the Comprehensive Campus Plans completed in 1963 to accommodate the university's program through 1974.

#### Facilities planning

At the outset of the Fund program, design and construction of new facilities had to proceed at the same time as long-range planning. Obviously, these facilities had to be consistent with overall campus development goals.

To meet this need, the Fund developed a guide for facilities planning, outlining a logical sequence of concept-development and decision-making phases to be followed. Throughout the process a constant set of design elements is treated in greater depth in each succeeding phase. This rational procedure avoids incidents of trial and error, during which valuable time is lost. Delays in decision-making by the Fund, or the State University, or others involved are minimized.

In university construction before the Fund's establishment, the complexity of procedure and the numerous approvals had produced long delays, during which architects had to assign their personnel to other projects. These disruptions upset the efficiency and morale of the architects' offices and discouraged outstanding firms from accepting

State University commissions.

Under the Fund, the design of a facility begins with a "program package," which gives the architect a deep grasp of the nature of the project. Included in this package are the State University's program for the facilities, the Comprehensive Campus Plan, State University construction standards, building codes, and Construction Fund performance criteria. These materials, together with budget and time schedules, effectively define the objectives of the project.

During the design of each project, formal reports are required at the end of each phase:

1. The Program Report summarizes the architect's understanding of program, site conditions, budget, and schedule.

2. The Schematic Approach is presented by the architect for the university's approval after the Fund has accepted his basic concept.

3. The Schematic Design Report sets forth the esthetic and design concepts, budget, and schedules for review and approval.

4. The Design Manual Report represents all major design decisions and includes drawings at working-drawing scale. Earlier estimates are revised to reflect changes due to major design decisions.

The Construction Document Phase includes the Fund coordinator's review of the progress of the documents at the architect's office, which requires no formal report. One month before bidding, when the documents are usually 90 per cent completed, the architect submits the plans and specifications to the Fund for review. Finally, the Bid Report is submitted, consisting of a set of final working drawings, specifications, and similar documents ready to go to contractors for bid. This report is approved only if schedule and budget limitations have been met.

#### The Fund's role

**Selection of Architect-Planners:** In the initial selection of architect-planners, we followed a policy of awarding campus planning contracts to firms (or com-

binations of firms) which could carry out the regional and campus studies and also produce architecture of high quality. We wanted unified responsibility; we did not want architects to say they could not work within a planning framework established by others, nor did we want planners to say the architects could not execute their plans properly. This meant that most of the initial building commissions were awarded to the same architects who were commissioned to prepare campus plans. Other architects were given individual commissions once the overall pattern for each campus had been established. This policy called for considerable understanding and patience among members of the profession throughout the state, which we were gratified to receive.

**Project Cost Control:** Fund cost control objectives require that project budgets be determined before planning is actually started. Once these budgets are established, it is critical to the overall program of expenditures that they be carefully monitored and controlled. In collaboration with an advisory group of professionals, the Fund has worked out a cost control system by which an architect may be reasonably satisfied, at all stages of design, that a project is within the established budget.

**Performance Criteria:** The Fund is now developing performance criteria for a prototype campus, expressed in clearly stated requirements for function and environment. Because they involve *performance*, rather than specific features, these criteria allow architects and their consultants considerable flexibility in the use of new materials, products, and construction techniques.

**Research:** The Fund's research program developed as a result of practical program needs. It was soon found that planning and program coordinators could also become research project coordinators, thus broadening their activities and gaining expertise in particular areas. The scope of the Fund's research has grown, so that now many facets of planning, design, and construction

are covered. The construction industry and the design professions have become integral parts of this program, participating in seminars held by the Fund and serving as consultants to the Fund in their special fields. The publications that have resulted from these research projects have been in worldwide demand and, in some cases, have been accepted as standards for other governmental agencies.

#### Assessing accomplishments

In the course of its development the Fund has established a system that accomplishes what it is meant to do effectively and guards against the growth of a heavy-handed bureaucracy that would stifle the initiative of the Fund staff and that of the architects and builders involved, as well.

In the few years it has taken to meet the Fund's initial challenges, scores of individuals and groups have had to expand their thinking to encompass the idea of total professional and building services. The Fund itself has had to re-examine the role of a government agency in a public building program. In my opinion, these readjustments have been successful.

The products of the Fund system are the campuses and facilities themselves. Some major projects are shown on the following pages. Although they do not represent the program's total accomplishment, there is a clear indication, I believe, that the Fund's objectives are being substantially achieved.

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**STATE UNIVERSITY CONSTRUCTION FUND STAFF** (partial list): General manager: Lt. Gen. David W. Traub (1962-1968); Dr. Anthony G. Adinolfi (1968-). Controller: Anthony Keller. Counsel: Jay Handwerker. Assistant to the general manager: John Flandreau (1962-1967).

Manager of planning: Dr. Anthony G. Adinolfi (1962-1968). Deputy manager of planning: Frank J. Matzke. Planning supervisors: Morgan Chu, Melvin Carey, John Sayers, Charles Shattenkirk (1962-1969). Supervisor of program coordination: Grover Tarbox.

Manager of construction: H. Pierce Reed. Deputy manager of construction: Morrison Cain. Construction supervisors: Peter McIntosh, Joseph Finn, Francis Sullivan.

## TIME

The Fund was established to meet the needs of the "war baby" population of students about to complete high school. Their massive demand for public higher education was treated as an opportunity to build a great university system.

Facilities had to be provided almost instantaneously to meet projected growth. A system was needed that would yield prompt decisions in proper sequence to avoid interruption in the planning process.

Essential to this system is a full and comprehensive initial program. Then, as the campus planning phase progresses, an action program is developed, indicating the order in which individual projects proceed and the schedules for each of them. The project schedules show the specific steps in the design development, in the proper relationship, so planning can progress while approvals of each phase are being sought.

The Fund's planning coordinator has the responsibility to see that the architect's work meets all requirements, including the schedule. Reports for each phase are used to record understandings and approvals, but are not used as vehicles for seeking approval; architects can proceed with subsequent design phases while these reports are being reviewed. If changes are found necessary, the architect is assured of additional fees for any extra work involved.

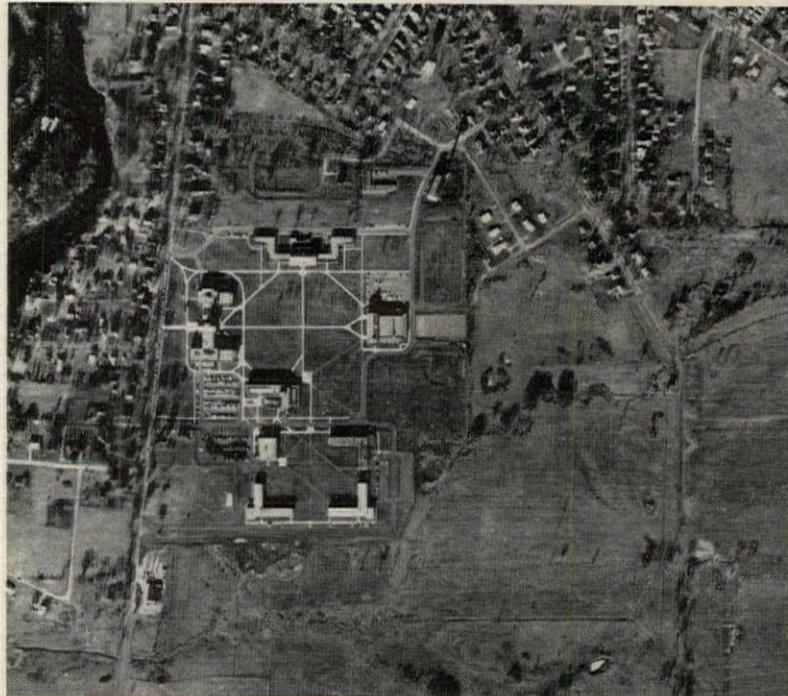
Whenever possible, joint meetings are scheduled so that decisions can be made concurrently rather than in a time-consuming sequence. Continual cost-control review at each phase of the design eliminates the inefficient process of redesign that must take place if final estimates or actual bids exceed the budget.

A measure of the Fund's accomplishment in the first five years of operation is the volume of work that has been completed, which exceeds \$532 million in value. Established schedules have been met, and students seeking admission have been accommodated.

An entirely new \$17-million campus is now being completed for the State University Agricultural and Technical College at Canton on a wooded site along the Grasse River. Architects for the master plan and for buildings to date are Carson, Lundin & Shaw. Left to right: site in 1962; master plan for 1970; construction in progress, 1966.

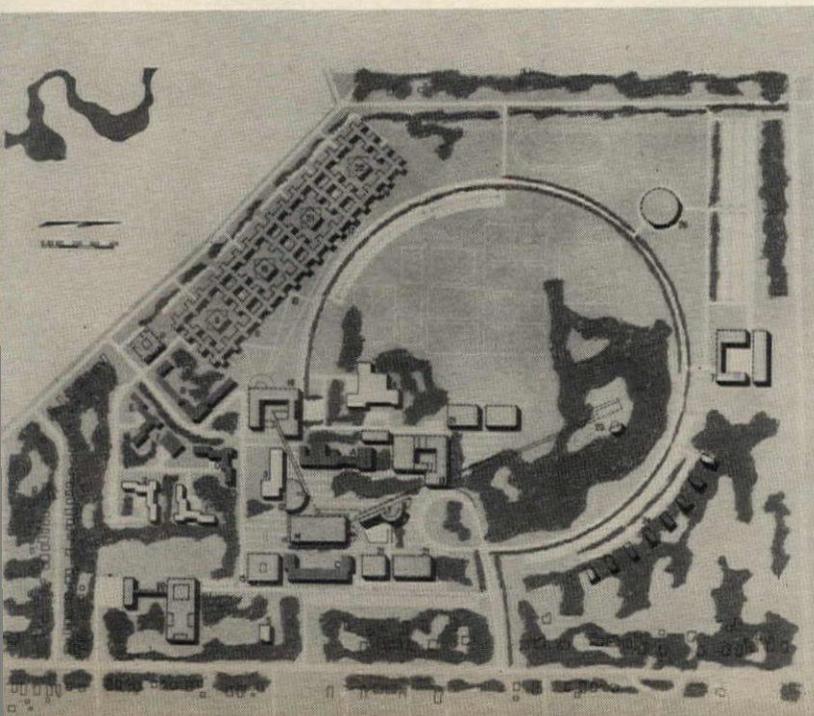
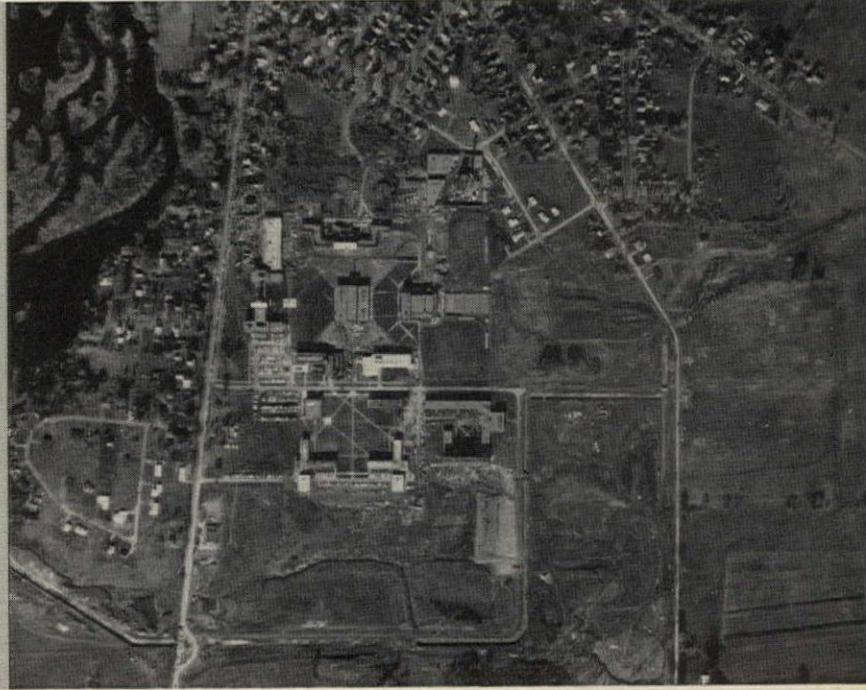
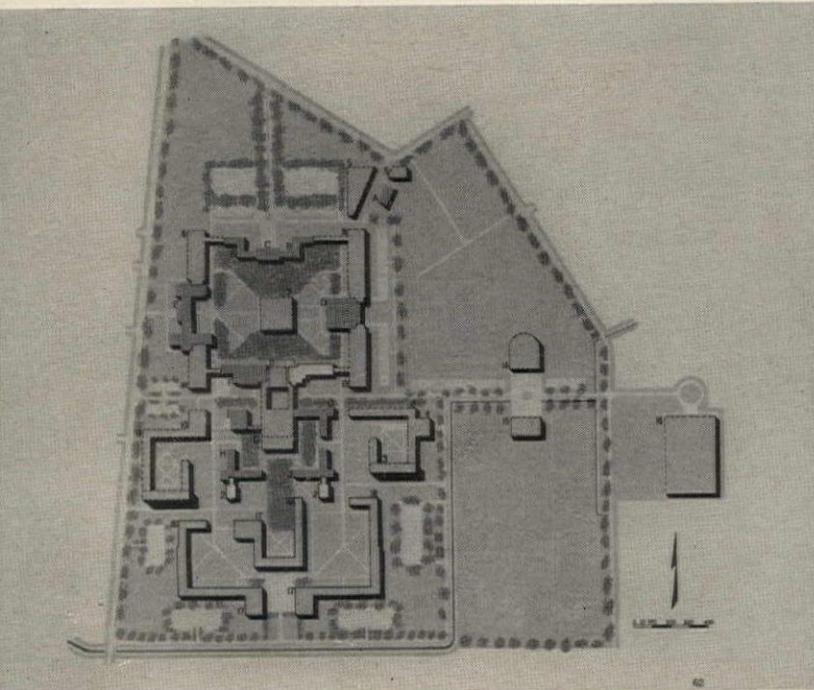
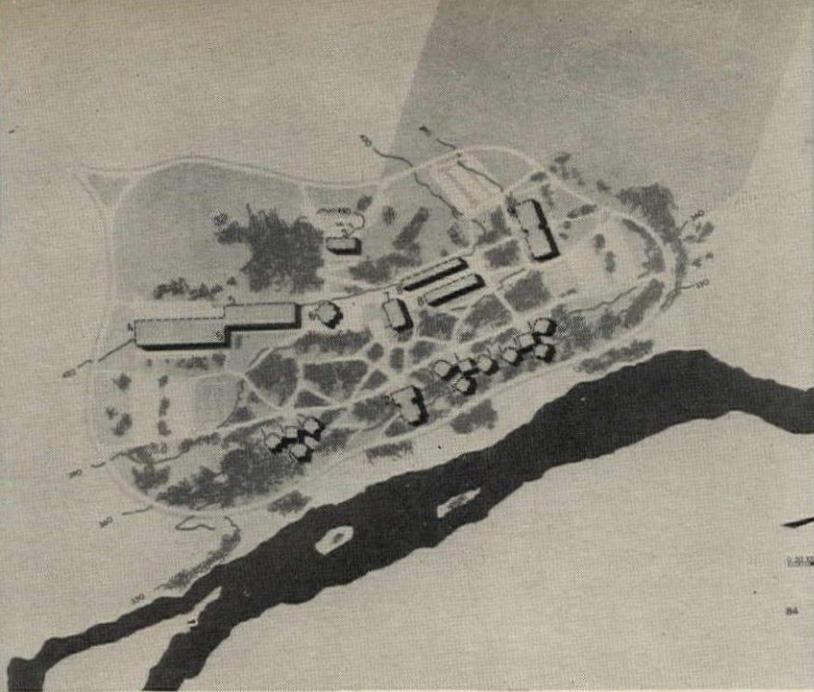


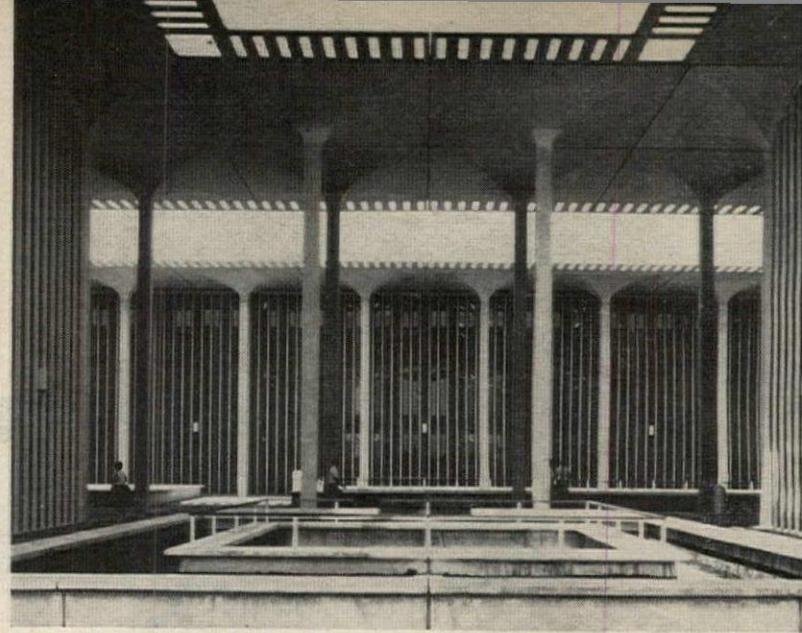
The formal layout of older construction at the State University College at Potsdam is the basis for the master plan by Edward Larrabee Barnes. Buildings designed by Barnes, Merz & Pasanella, and Richard Moger will form linked groups around smaller open spaces, offering some protection from the severe winter weather. Left to right: campus in 1962; master plan for 1970; campus in 1966.



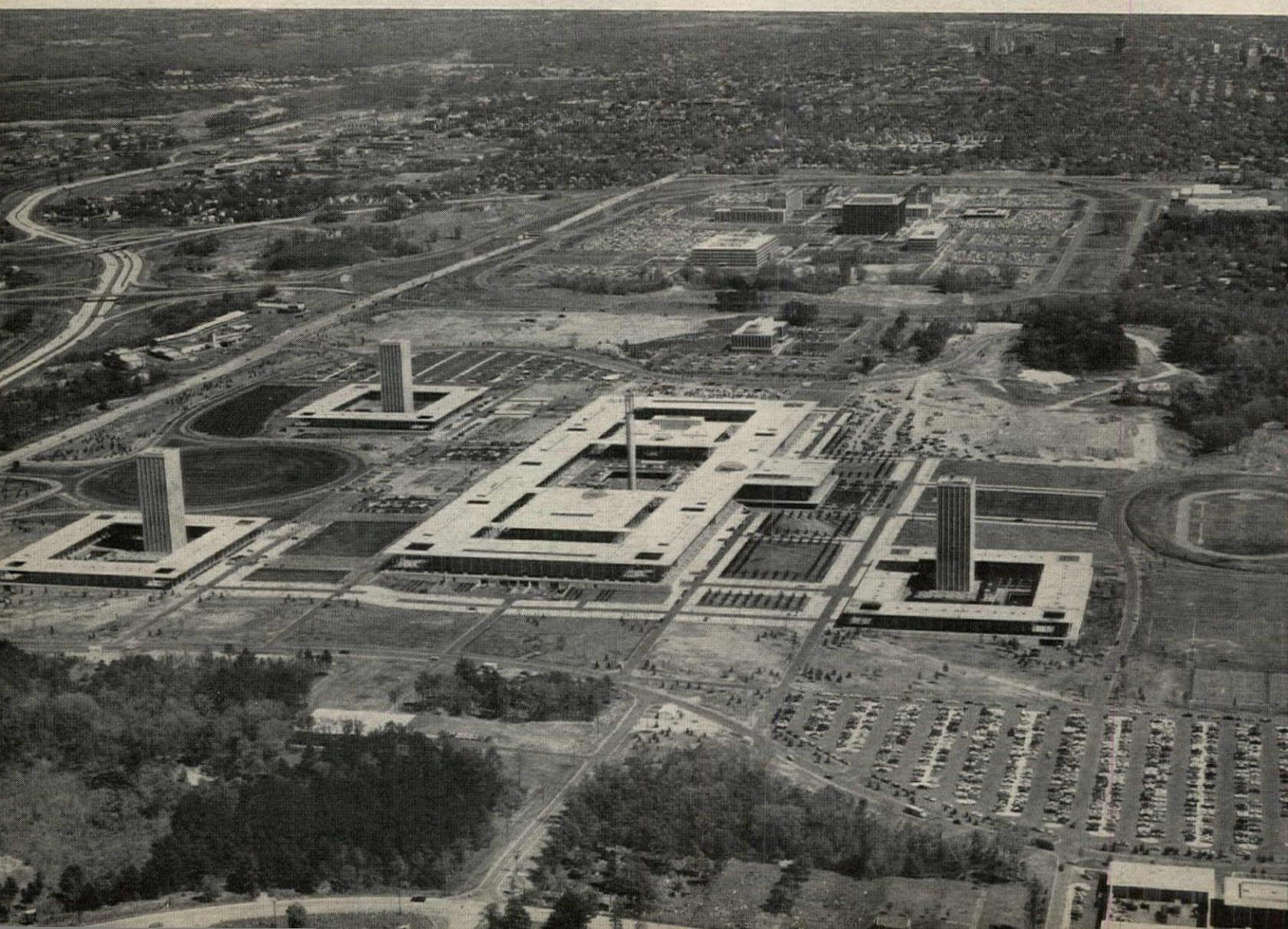
The existing buildings of the State University College at Fredonia form part of a dense cluster of buildings at the southeast corner of the master plan by I. M. Pei & Partners (Henry N. Cobb, partner-in-charge of design). A circular road linking all parts of the campus will be the most conspicuous feature from the air. Left to right: campus in 1966; master plan for 1970; construction in progress, 1966.







The all new, \$104-million campus of the State University of New York at Albany is almost completed after about five years of construction. Three-story colonnaded structures and 22-story towers (above) have been laid out symmetrically on the site (below). Edward D. Stone, Architect.



## COST

The Construction Fund's basic attitude on cost is reflected by the statement: "Within reasonable predetermined cost limitations, the quality of design achieved on a specific project depends more upon the creative ability of the designer than the monies available."

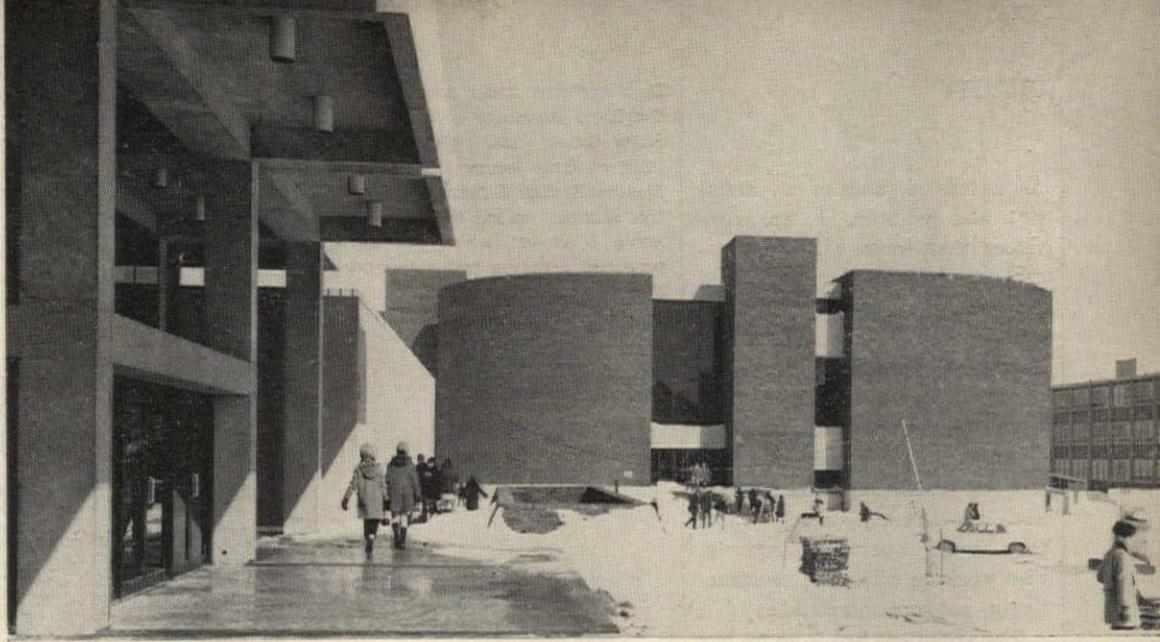
Budgets for individual projects are based on a thorough analysis of the proposed program, in the light of past and current experience with similar programs. At first, budgets set by the Fund were based on the same unit cost allowances as those of the previous system, (which took much more time to produce work of much lower quality). Since then budget allowances have been adjusted to allow for increased costs.

To keep costs within budget limitations, definite procedures are followed:

- The university's budget is accepted and respected as an essential program requirement.
- Economic surveys of the region in which a project is located are made to determine local trends in construction cost.
- Continuous economic evaluations are made as design development progresses.
- Estimates prepared during each phase of development include allowances for all foreseeable factors affecting final cost.
- Bidding documents provide for flexibility in the award of construction contracts.
- Whenever precise information is not available on certain aspects of the project, definite assumptions are made about the quality and quantity expected.

These procedures call for scrupulous attention to the economic effect of design decisions and market conditions. The budget for the Lecture Hall Center at the College at Buffalo by the Perkins & Will Partnership (right) illustrates this process.

The Fund's total contract costs have been 1.8 per cent below budgets on work bid to date (see table, bottom right). This record disproves the shibboleth that "good work costs more."



### LECTURE HALL CENTER, COLLEGE AT BUFFALO

#### RECORD OF BUDGET DEVELOPMENT

<b>PROGRAM BUDGET 3/18/64</b>	
48,910 net sq. ft. x 1.80 (factor of increase) = 88,038 gross sq. ft.	
88,038 x \$24.50 (unit cost) x 1.00 (index) = building budget	\$2,157,000
	site budget
	<u>79,000</u>
	Project Budget
	2,236,000
<b>REVISED BUDGET 1/25/65</b>	
building budget—no change	2,157,000
	site budget
	<u>79,000</u>
increase for pile foundations	<u>84,000</u>
	Revised Project Budget
	2,320,000
<b>FINAL BUDGET 3/4/65</b>	
building budget—no change	2,157,000
site budget—increase in scope	<u>89,000</u>
	pile foundations
	<u>84,000</u>
	Final Project Budget
	2,330,000

#### RECORD OF COST ESTIMATE

<b>SCHEMATIC ESTIMATE 5/1/64</b>	
building estimate	2,055,942
	site estimate
	<u>79,000</u>
	Total Estimate*
	2,134,942
<small>*includes 10% design development contingency and 5% bidding contingency</small>	
<b>DESIGN MANUAL ESTIMATE 8/3/64</b>	
building estimate	2,157,000
	site estimate
	<u>79,000</u>
	Total Estimate*
	2,236,000
<small>*includes 5% design development contingency and 5% bidding contingency</small>	
<b>FINAL ESTIMATE 3/5/65</b>	
building estimate	2,157,000
	site estimate
	<u>89,000</u>
	pile estimate
	<u>84,000</u>
	Total Estimate*
	2,330,000
<small>*includes 5.3% bidding contingency</small>	
<b>NET BID 3/24/65 JOHN W. COWPER CO.</b>	
	Total Project
	\$2,326,000

#### SUCF OVERALL BUDGET vs BIDDING RECORD

from 8/62 to 4/68

number of projects bid	379
number of projects under budget	302
number of projects over budget	77
Total budget 379 projects	\$433,599,761
Total bids 379 projects	\$425,849,518
Differential	1.8%

## QUALITY

As a trustee, and as an architect and planner, I was convinced that—even with the pressures that were on us—we could get quality, on time and for reasonable costs, if the selected architects would commit themselves to the program, and if we permitted them to produce their best architecture. This required setting up conditions (contractual and procedural) under which they could operate effectively, then working with them constructively, not bureaucratically.

The architects had to share our conviction that the quality of the environment produced has a distinct effect on the values of the students passing through these institutions, yielding psychological and social benefits—and even economic benefits—to the state. They had to be convinced—as I am—that an architect, given the right working relations with the client, can produce excellence in architecture on the same budget and schedule that might otherwise produce mediocre work.

Virtually all of the architects selected responded positively, and the Fund can be proud indeed of its role in helping them to design outstanding campuses and buildings.

The objective of quality has been achieved through several means. Foremost among these has been the development of a comprehensive plan for each unit of the university. These plans were based on studies of the region and the community, as well as the campus itself, so that a constructive relationship could be established and maintained. In many instances, this planning served as an impetus for upgrading the community itself.

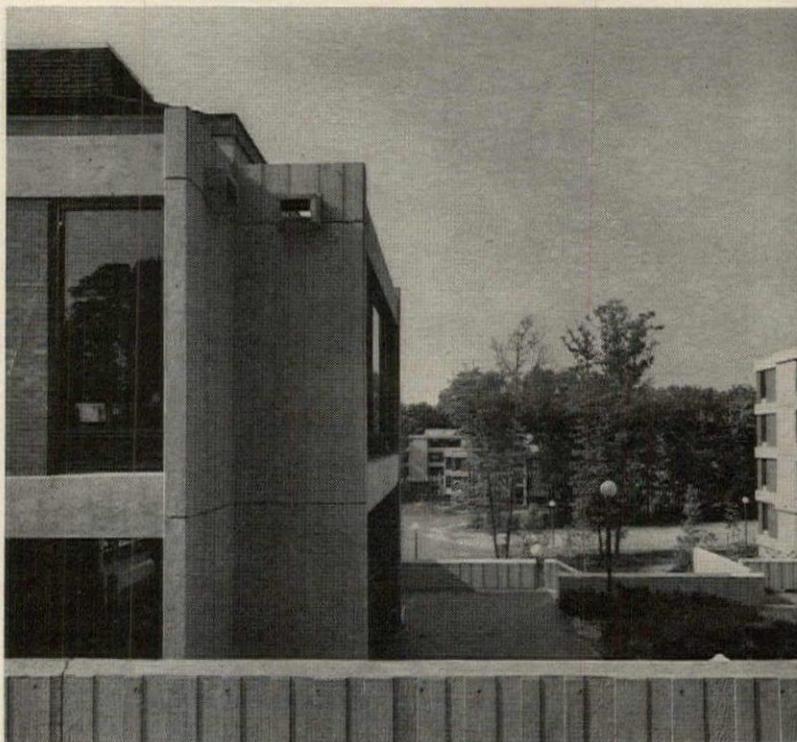
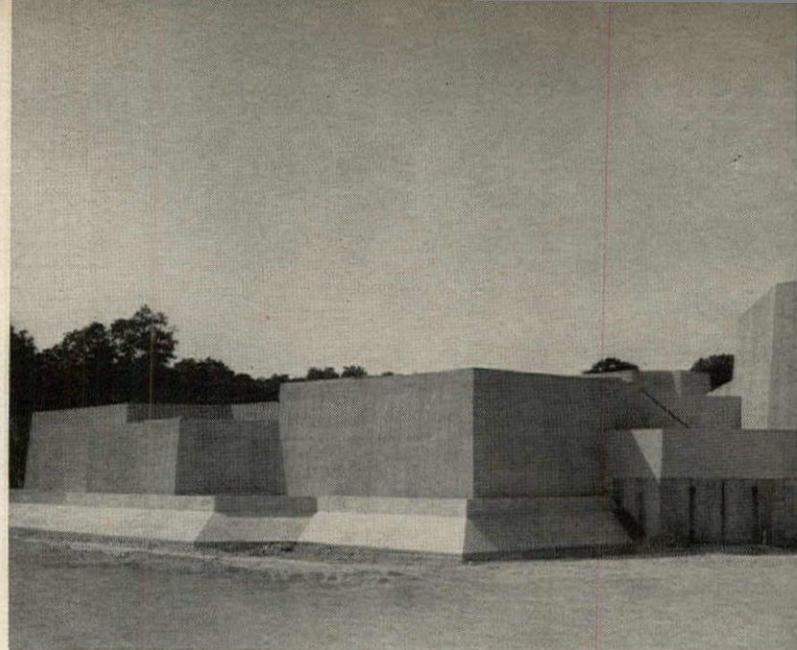
As a public corporation undertaking a massive building program, the Fund recognized the inherent danger of imposing bureaucratic taste upon the designer. It was not interested in having one facility on one campus look like another facility on another campus; further, it believed that each campus should have its own identity.

Toward this end, the Fund

Buildings now under construction at the State University of New York at Stony Brook: (near right) the monolithic concrete lecture hall center, by Meathe, Kessler & Assocs.; (far right) the student union, by Damaz, Pokorny & Weigel, which will be approached across a pedestrian bridge at the second-floor level.

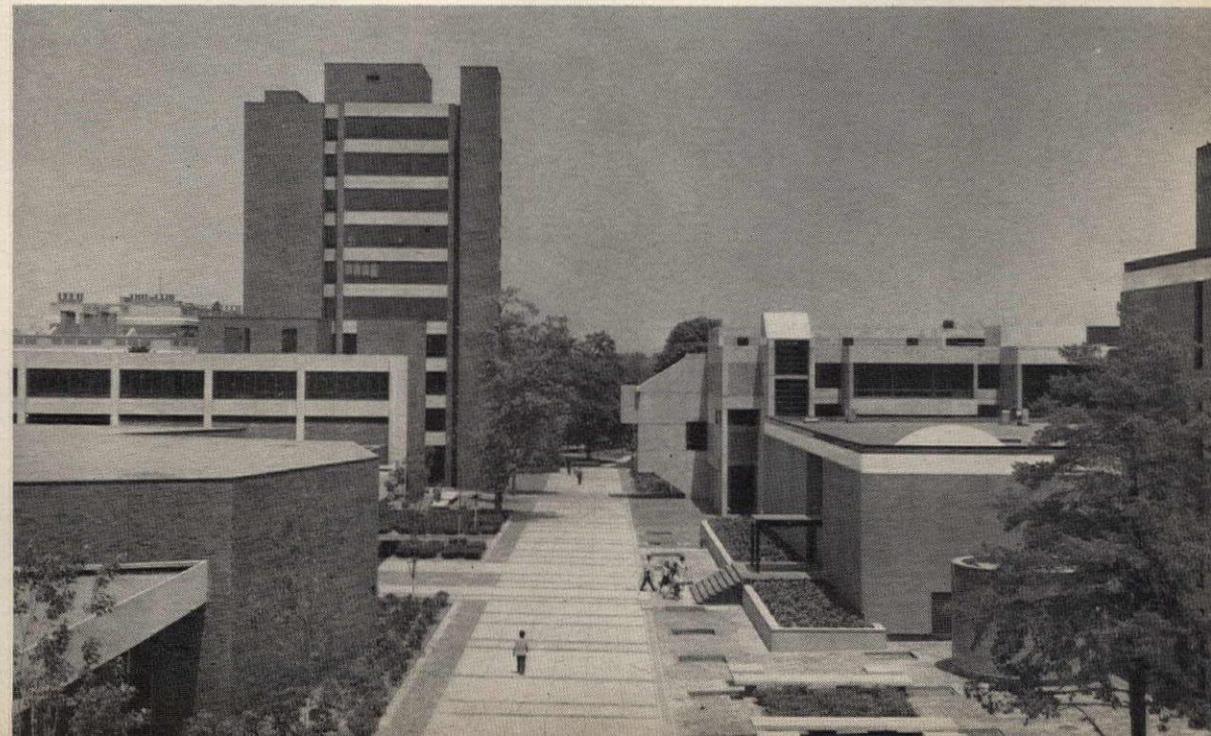
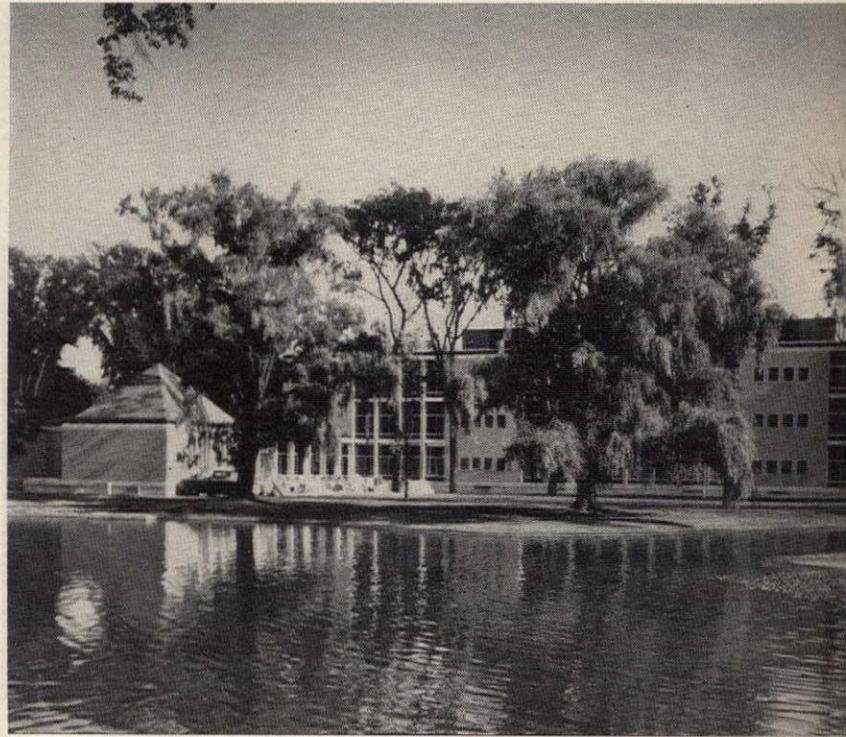
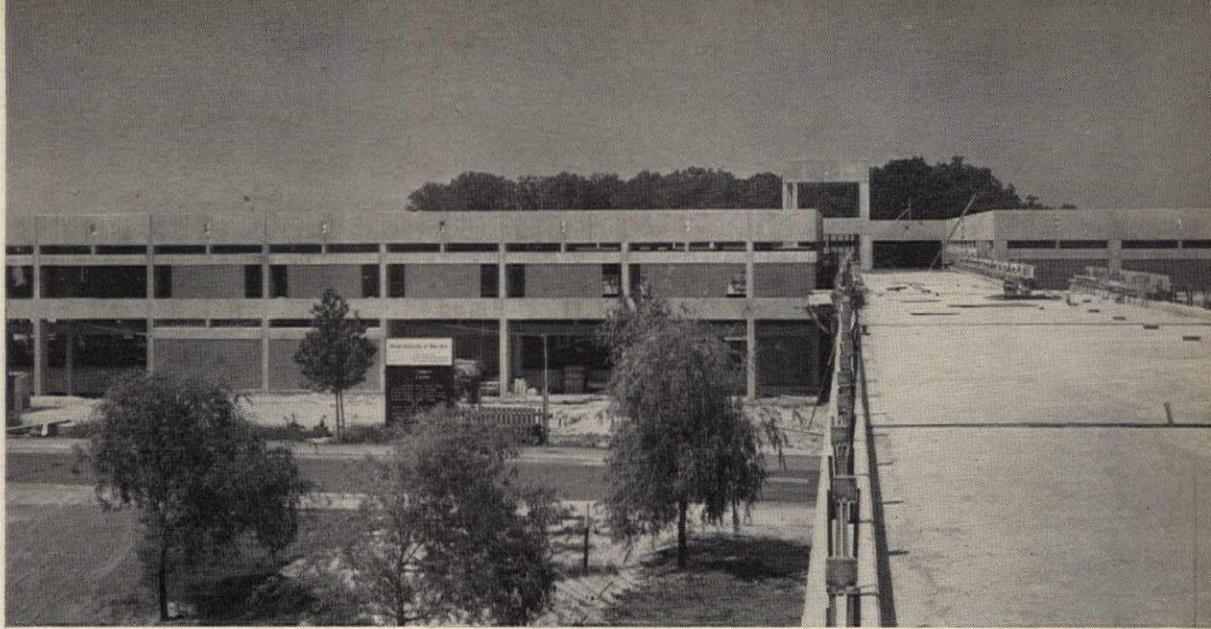
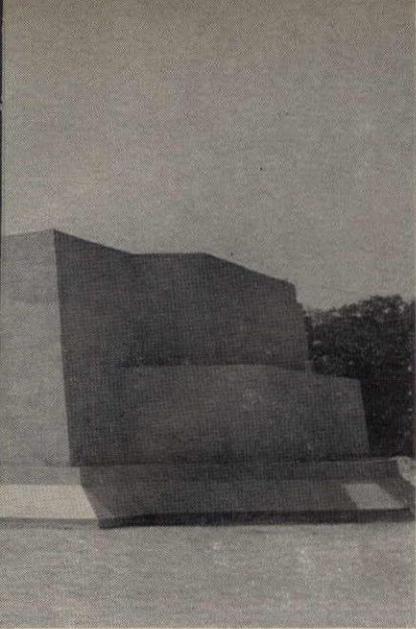


Dormitories at Stony Brook built before the Fund was established (above) contrast sharply with new dormitories on the same campus (near right) by Emery Roth & Sons. Sitework is now under way around the old dorms (Zion & Breen, landscape architects) in an effort to narrow the gap. Dairy farm facilities at the Agricultural and Technical College at Cobleskill (middle), by Cadman & Droste, have a rural look. A science-mathematics building (far right) at the College at Plattsburgh was designed by Fordyce & Hamby Assocs.



Dormitories at the Agricultural and Technical College at Canton (near right), by Carson, Lundin & Shaw, run along a wooded slope. The new "academic concourse" of the College at New Paltz (far right) is flanked by a lecture hall center and a humanities-social science building (with tower), both by David Todd & Assocs., facing a science building (with cantilevered stair tower) by Davis, Brody Assocs. and an earlier science building by Fordyce & Hamby Assocs.





established a "design vocabulary" for each campus. This took the form of a document describing in words and pictures the spatial organization and visual intent of the campus plan, for the guidance of both architects and administrators.

All decisions relating to campus development were made in reference to the design vocabulary, not in terms of isolated projects. Thus, the environmental quality of the campus as a whole was recognized as the paramount objective in the design of its parts.

An important part of the design vocabulary was the establishment of specific projects for sitework, with realistic budgets. Typical site work budgets were established by surveying existing campuses outside of the State University, determining from them the level of quality desired, then estimating its cost. Studies of the State University's existing campuses generated proposals to bring older areas up to the quality standards of new development.

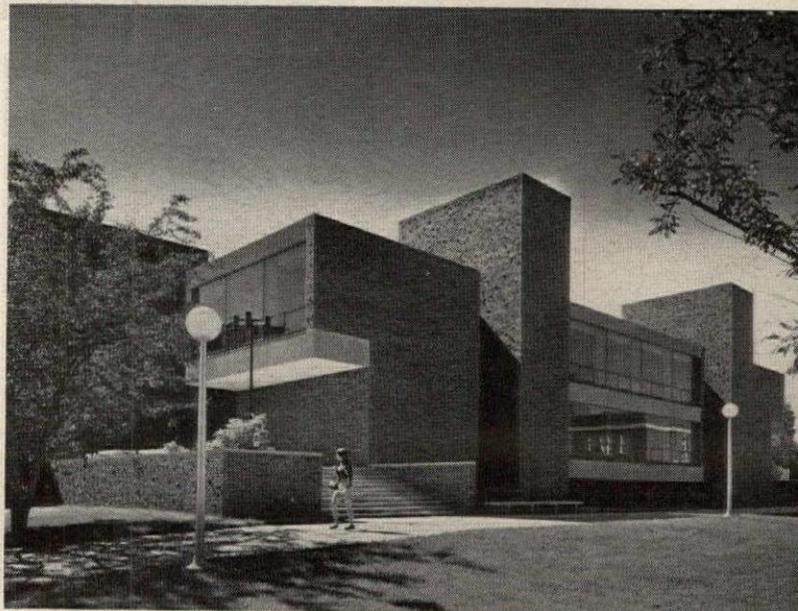
The design vocabulary was also concerned with the appropriate building materials for each situation and their relationships throughout the campus.

Environmental quality was sought by commissioning architects of demonstrated ability, then dealing with them in a way that encouraged the full utilization of their resources. The Fund's own research program has provided guidance in the form of performance criteria. Of the greatest importance, however, was the influence of the governor and the Fund trustees in establishing quality as one of the prime objectives of the State University Construction Fund's vast undertaking.

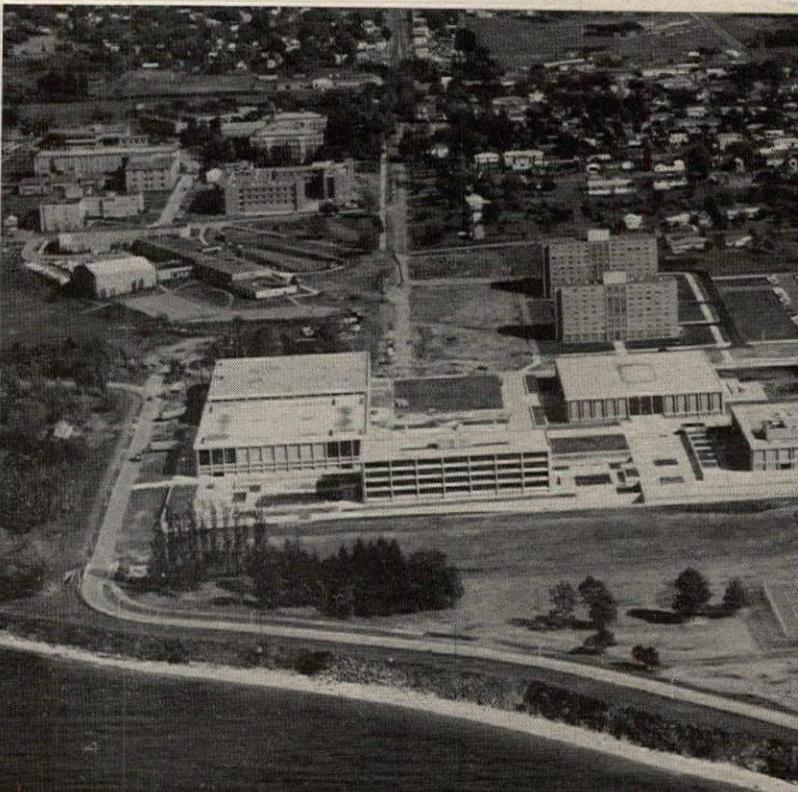
Buildings by I. M. Pei & Partners on the campus of the College at Fredonia: (near right) the central court of a dormitory quadrangle; (far right) buildings in the academic core area, which are linked together by a second-level walkway system, including—left to right—the fine arts building, the administration tower, the library, and the lecture hall center.



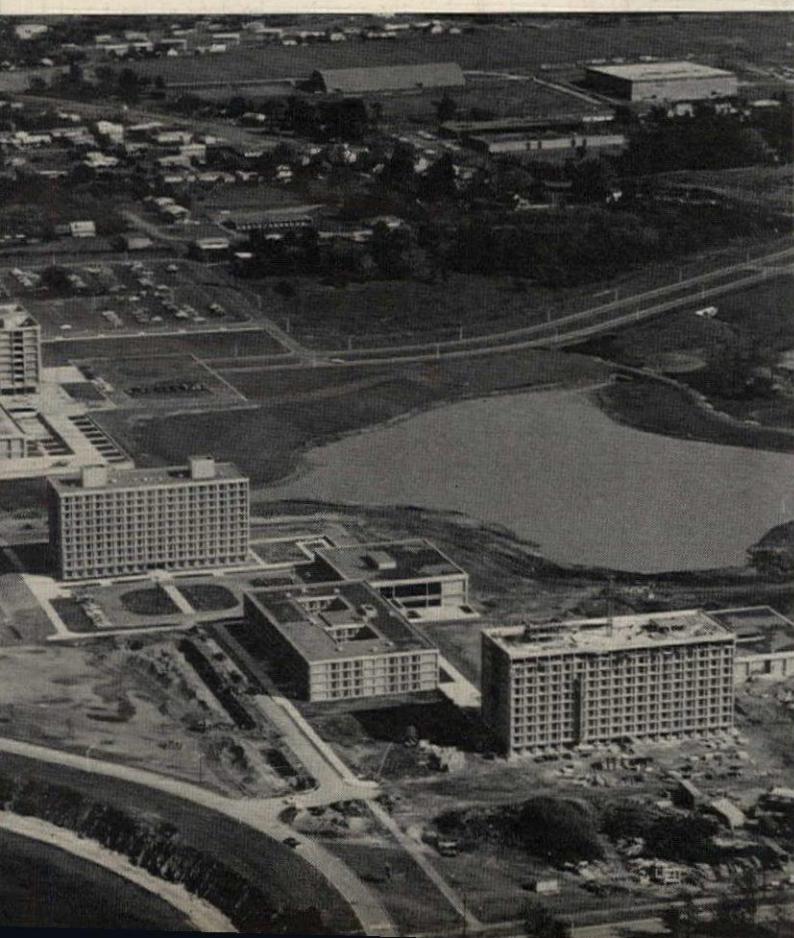
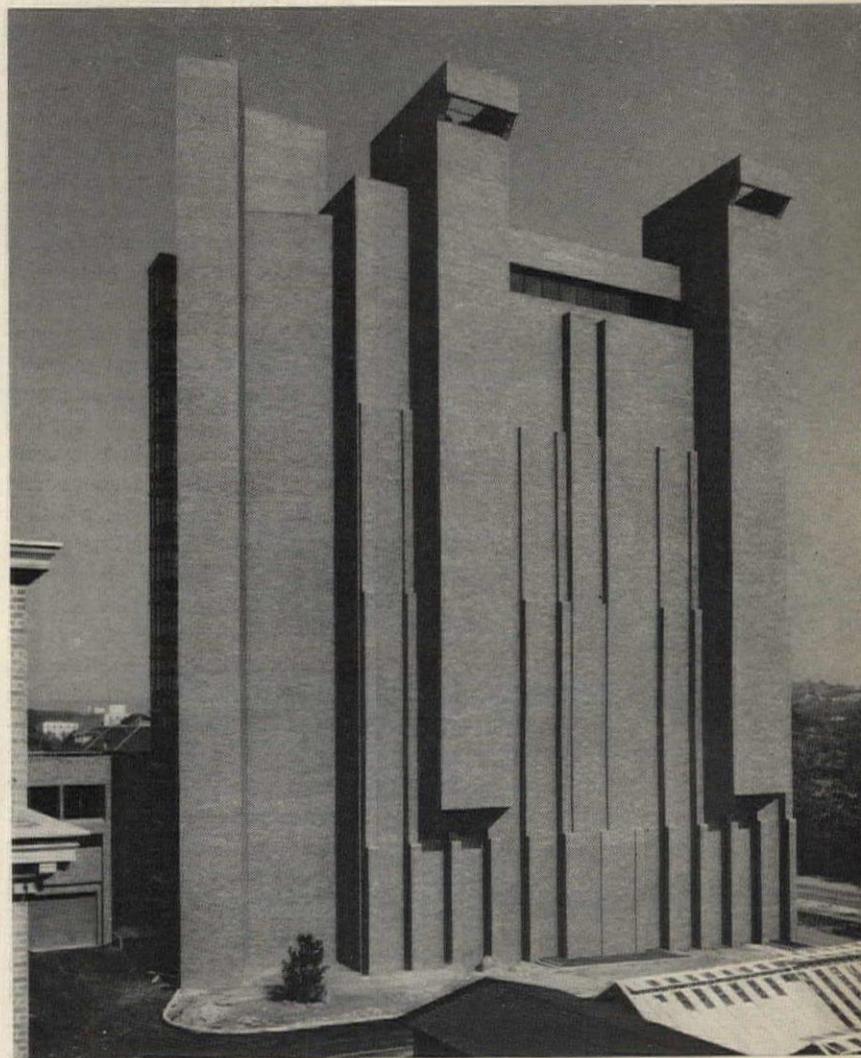
A portion of the fine arts building at the College at Cortland (near right), by Sargent, Webster, Crenshaw & Folley. The theater section of the fine arts building at the College at Geneseo (middle), by Myller, Snibbe & Tafel. The Agronomy building of the College of Agriculture at Cornell (far right), by Ulrich Franzen & Assocs. (see page 41).



An extension of the College at Oswego along the shore of Lake Ontario (near right) includes a new academic core in the left foreground and dormitory group in the right foreground, which were planned and designed by Skidmore, Owings & Merrill. A student activities center (far right) by Conklin & Rossant is under construction on the campus of the Upstate Medical Center at Syracuse.



PHOTOGRAPHS: Pages 78 and 79, Lewis-Dickerson Assocs. Page 80 (top), George Cserna; (bottom), Burns Photography, Inc. Page 81, Bethlehem Steel Corp. Page 82 (top right, middle, and middle right), Norman McGrath; (bottom), ©ESTO. Page 83 (top and bottom), Norman McGrath; (middle, left and right), Burns Photography, Inc. Page 84 (top), George Cserna; (middle), Joseph W. Molitor; (bottom), Gentile Studio. Page 85 (middle left), Luedeke Studio; (middle right), George Cserna; (bottom), Sherman Sable Studio.



# BOOKS

**ARCHITEKTUR UND KOMFORT.** By Enzo Fratelli. (Werk-buch 2). Published by Werk Verlag, Winterthur, Switzerland. Illustrated. 4 in. by 9½ in. Available through Wittenborn & Co., New York, N.Y. \$4 (paper).

REVIEWED BY REYNER BANHAM

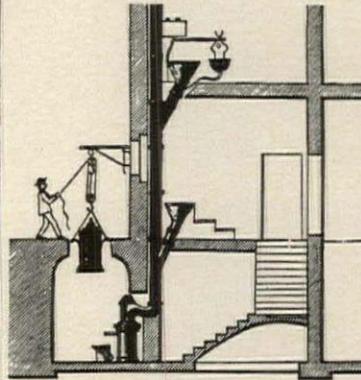
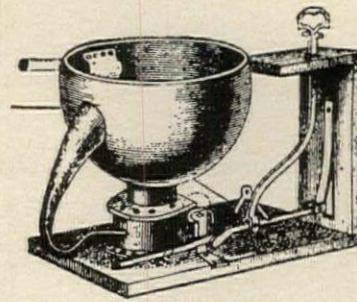
Since its original publication in Italian in the early 1960s, Fratelli's study of the *Evoluzione degli Impianti Domestici* has been something of an underground legend among the literature of modern architecture. I first got wind of it myself at the Hochschule für Gestaltung at Ulm early in 1965, but couldn't get my hands on a copy of my own until a year later, and then only as a gift from the author, libraries and the book trade having denied all knowledge of it.

That version was a suitably underground-looking lash-up, consisting of an offprint from a magazine article, complete with ads but short of some illustrations, bound up with some hundred single-sided pages of mud-dily blueprinted supplementary pictures. No visual knockout like *Archigram*, no political squib like *MELP*, but still underground literature because it dealt with a topic that students and the young wanted to know about but couldn't find in the standard literature—the impact of environmental machinery or architecture.

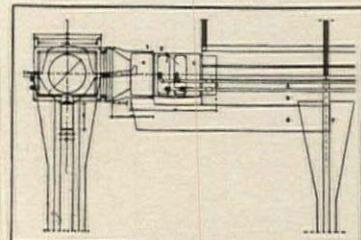
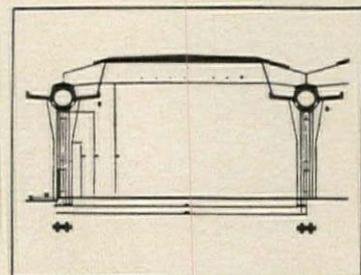
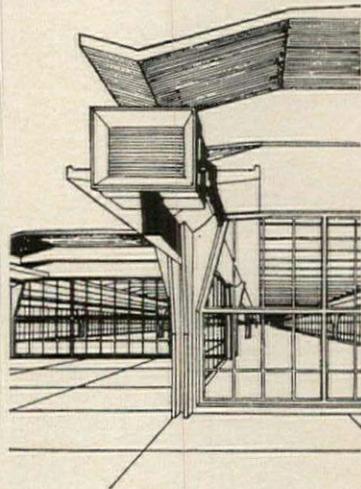
Will *Werk's* cool, tall-format reissue in German de-mythologize it? For a start, the new format reveals physically how slight was the original essay—it weighs in at a fraction under four ounces as against the original's 26, without cutting the text or reducing the number or legibility of illustrations. If so slight, it must have enjoyed great intrinsic virtues or powerful extrinsic circumstances to have achieved its reputation.

To take its virtues first: the text is a thoughtful essay—essay in the strict and technical literary sense that one was taught

Dr. Banham, a former editor of England's *Architectural Review*, is a frequent lecturer, outspoken critic, and prolific author. His book, *Architecture of the Well-Tempered Environment*, will be published this fall by the University of Chicago Press.



Top: toilet, circa 1778. Above: early sewerless waste disposal system, Heidelberg. Below: Marco Zanuso's Olivetti-Argentina factory. The trusses are hollow concrete pipes which also serve as air-conditioning ducts.



to write at school—on the rise and development of the mechanical aids that men have installed in their buildings to improve their comfort and performance, plus some animadversions on the effect of all that gismology on architecture. The illustrations—legible in the *Werk* version, unlike many in the original—are an incredible zoo of mechanical monsters and masterpieces, from prehistoric primitives to snub-cornered plastic gadgets of yesterday. These probably are what will sell the book, but what seem to me to be the crucial illustrations are on the text pages and show a detail from Kahn's Philadelphia labs, a section of the eternal wall of the Renaissance store in Rome by Albini and Helg, and some drawings (but not photos for some reason) of Zanuso's Olivetti-Argentina factory—surely the most disgracefully neglected major building of the last decade.

These, obviously, are the illustrations which address themselves, like the last few paragraphs of the text which they accompany, to the problem of the effect of mechanical services on the forms of buildings. If the restrictions of length and structure inherent in the essay format leave Fratelli room to only put the problem, he does at least put it, and clearly—unlike Sigfried Giedion who almost completely missed the point in *Mechanization Takes Command*.

The comparison with Giedion needs to be made, if only to compliment Fratelli on avoiding the sensationalism and fashionable gloom of Sigfried's big bad book. But chiefly because it was the way in which *Evoluzione degli Impianti* plugged the gap left by Giedion that gave it legendary status. A generation that was beginning to suspect that innovations in structure were far less consequential in the rise of modern architecture than had been made out by the first generation of historians of modern (Hitchcock, Pevsner, Giedion, Behrendt), was beginning to suspect that mechanisms, and environmental mechanisms above all, might be more to the point. And the only things to read were

a few essays by James Marston Fitch (almost unknown in continental Europe) and Frateili's *Impianti*.

But now that those external circumstances have changed to the point where this former underground text is found worthy of reissue by such a pillar of the Establishment as *Werk* (it's the organ of the Schweizer Werkbund—how Establishment do you need?), has it survived its promotion to a kind of standard work? Regretfully, I have to say that it doesn't come through too well (regretfully because Frateili is one of the good guys, and well loved by his students). The failure to develop the question of the impact on the form of buildings now seems a less excusable fault; the essay looks too slender; the organization of the illustrations too much like serendipity or philately. The pictures are classified, for instance, under headings as miscellaneous as "The Baroque Period—prelude to mechanization" or "Long-distance communication and sound-reproduction" and the final section is entitled "The Influence of Installations on Architecture."

It consists, alas, of three (count them: Three!) pictures showing: vernacular Venetian architecture with vernacular Venetian chimneys, the drainpipe down the corner of a glass house at the Jardin des Plantes, and one of the drawings by Sant'Elia for his Futurist *Città Nuova*. That is the measure of what I mean by the question being put but not developed; even if you bring forward the Kahn, Albin, and Zanuso illustrations from the text, the question still isn't developed. And it could have been, painfully, crucially, and suggestively, with one more picture, showing a building that already existed when the first version was published—Victor Lundy and Walter Bird's inflatable theatre for the Atomic Energy Commission.

Why? Well, thus-wise: Frateili observes that mechanical installations (like those venetian chimneys) were an integral part of structure, whereas most of the early mechanical devices (Franklin stoves, gas cookers,

etc.) were more like free-standing furniture. Then the phase represented by Kahn and Zanuso shows the machinery beginning to invade the construction and rumple the exterior skin of rigid structures. But the AEC theatre is a structure that literally won't stand up unless the *Luftkonditionierung* is switched on.

Instead of having to build massive structures in which to cower from a hostile environment, we can now manufacture a friendly atmospheric environment by mechanical means, and instead of a massive structure all we need is a plastic bag to keep the atmosphere from blowing away. So, it's an extreme case, I agree, but it puts all previous rigid architecture in question, invites us to ask whether an air conditioned structure that still stands up after the power is switched off isn't too rigid, massive, monumental and so forth.

In the light of this development, Frateili's elegant essay looks a shade undernourished, the kind of lightweight literary exercise that could safely shelter in the massive architecture of what used to be humorously called yore, but not strong enough to stand up in a living, breathing, inflatable environment.

**HYDRA: A GREEK ISLAND TOWN: ITS GROWTH AND FORM.** By Constantine Michaelides. Published by University of Chicago Press, Chicago and London. 93 pp. Illustrated. 11 x 8½ in. \$10.50.

REVIEWED BY ROGER MONTGOMERY

This slender book about Hydra gives an instructive account of one of those sparkling white Greek island towns architects find so sensually satisfying. In its own right it makes a perfectly valid claim for attention. Beyond its intrinsic value, it represents a genre very much with us in recent architectural writing. It makes us ask why we have been seeing so much, not only of Greek island towns, but of Tunisian strongholds, American Indian

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



pueblos, African villages, and related vernacular building.

Today when architects travel they make their pilgrimages to Mykonos and Hydra, not to the Athenian acropolis. This fascination with primitive and vernacular townscapes, widely celebrated in this journal as well as in the other mags and in hardcover architectural books, not only generates our interest in Professor Michaelides' book; it doubtless powered his interest in studying Hydra in the first place. Art historians still publish monographs on monuments including the temples of Greece. But, among architects, a change has occurred. Why? Why, when they come home from their travels, do architects and urban designers show us slides of artless and anonymous streetscapes, not Chartres, the Campidoglio, and the Hephaesteum.

A clue to the answer may be in contrasting the problems of architectural composition for significant focal buildings on one hand, and for the background urban fabric on the other hand. The modern movement has evolved an extensive set of stylistic or design standards for monumental buildings. By and large, the profession has mastered their application. A different situation exists with non-monumental background structures. A profound dissociation appears between today's vernacular building and the profession's norms.

In this perhaps lies the key to our fascination with Hydra and its kind. Having gained a hold on monumentality, architects sense their inability to come to grips with the great mass of housing and service structures which give the metropolis its grain. By careful examination of those past works which seem to our eyes to have convincing architectural merit we may learn the secret of a new, valid, but professionally created vernacular. At least this seems to be the theory underlying both the Michaelides book and the general phenomenon of widespread interest in the subject.

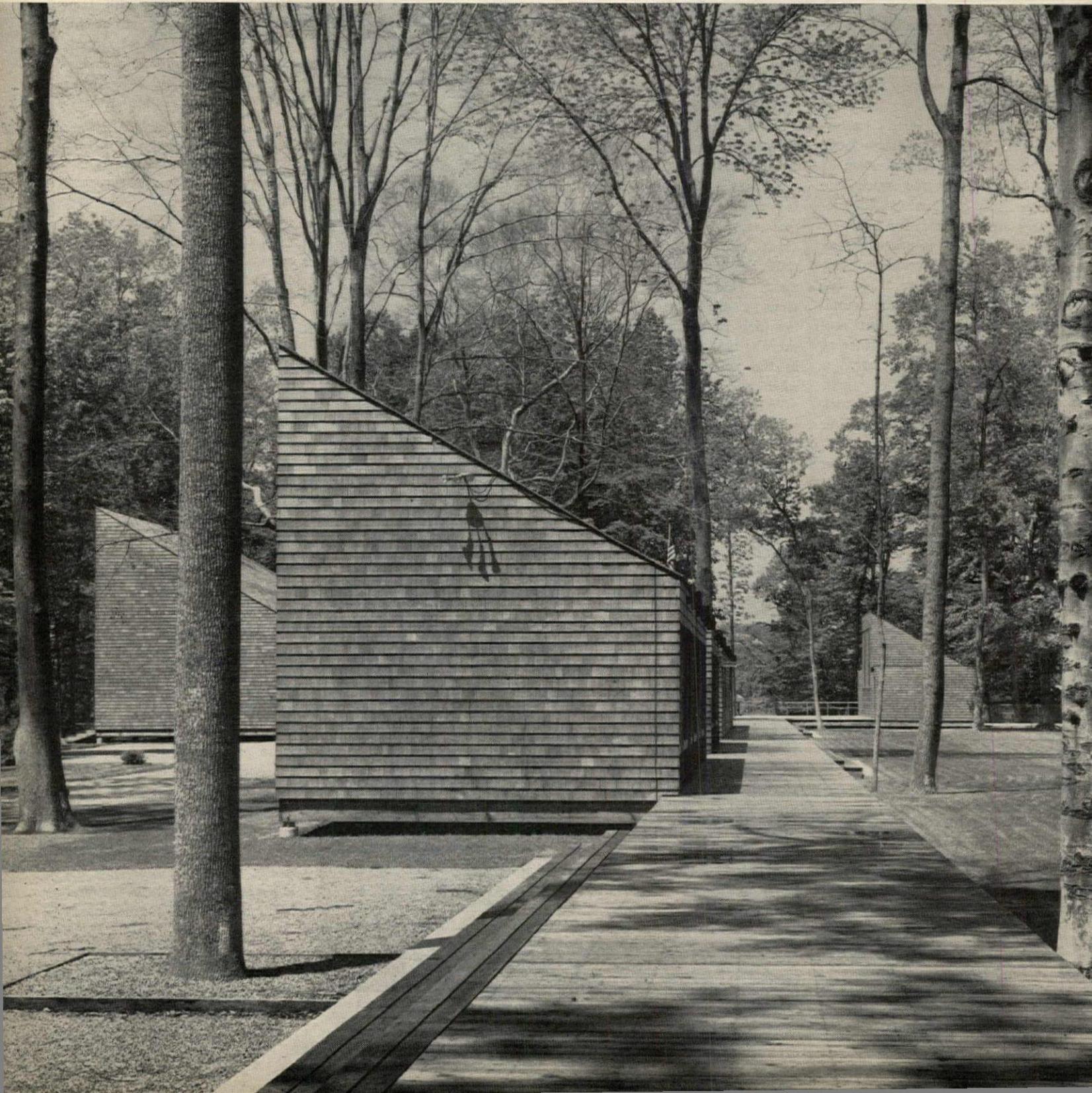
Here lies a curious irony:

(Continued on page 140)

# DOWNTOWN CORE FOR A CAMP

Amid the massive oaks and beeches along the Wye River in Maryland is a summer camp with a tightly structured core designed to fit its unusual mission. The Wye Institute Summer Camp is not a place where city kids are exposed to the wonders of nature; it is a place where boys from farms and small towns are introduced to the world beyond Maryland's Eastern Shore.

Architect Edward Larrabee Barnes has responded to this program by giving the camp's central cluster of common facilities an ordered, almost urban physical form. The clear-cut arrangement of buildings along a central walkway is obvious to the visitor as soon as he enters from the parking area (below left). It is important for visitors to get their bearings quickly, since the educa-



tional program relies largely on the scholars, artists, athletes, etc. who come to the camp almost every day.

For the campers, who spend only four weeks here, the layout speeds orientation and encourages social contact. There is little threat that the boys will feel too regimented, since hardly any part of the daily program is mandatory. They are free to spend their

days in the woods or in their quarters (at two separate locations on the 780-acre Wye Institute tract). Most of them find the educational program too interesting to miss.

The architectural form of the camp center is consistent, but not rigid. The entire complex, including the elevated circulation areas, is laid out on an 18-ft. grid; all of the buildings are

shingle-covered and—except for some wings—shed-roofed.

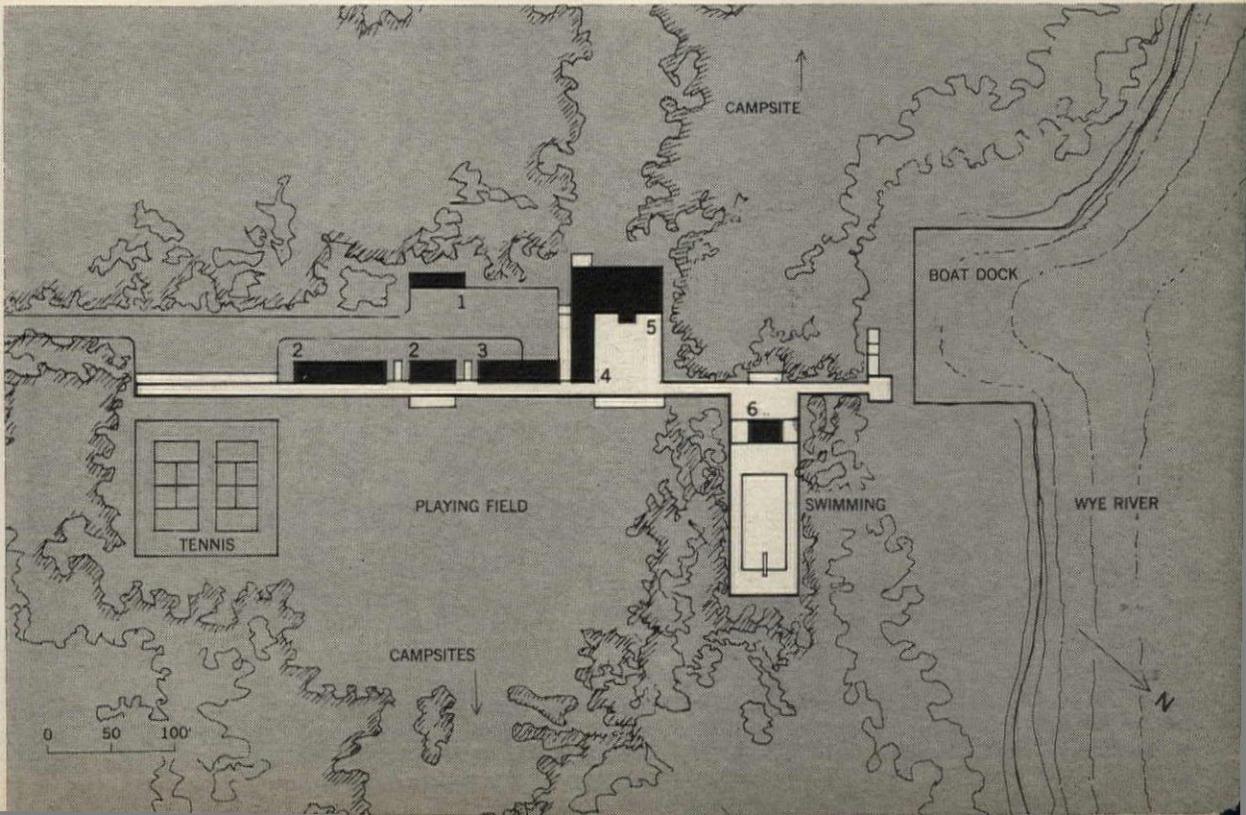
Windows in the tall south walls are composed of panels of fixed glass flanked by aluminum louvers. Much of the lower wall area is enclosed only with insect screen, which is covered on the interior in bad weather by roll-down canvas curtains. (Since rain bouncing off the wood decking penetrated the screen and

canvas barriers, the lower panels of screen along the walkways have been replaced with black-painted plywood, which is hardly visible from outside.)

The broad flights of steps leading from the ground to the wood walkways are not there merely to make circulation easier (although they do). Those facing the athletic fields serve as rudimentary grandstands, and all of them are

The boardwalk that forms the main street of the camp begins at the parking area (left), to which it is joined by a 108-ft.-wide flight of steps. From there, it extends 576 ft. to the riverfront, linking all of the buildings in the camp core together (photo and plan, right). Indoor activities are on the south side of the walk, athletics on the north. Sleeping quarters are at other locations on the camp property. Broad cuts through the woods to the north and south, which would have ended at the meandering riverbank, have not been opened up as planned.

Key to plan: 1. service building. 2. studio-seminar buildings. 3. director's suite. 4. service wing. 5. dining hall. 6. bath house.



used as seating for outdoor lectures and demonstrations.

Most of the interior spaces can serve a variety of purposes. One 18-ft.-square portion of the director's building is fitted out as a library. The similarly designed studio-seminar buildings are divided as needed to accommodate arts and crafts, formal classes, individual study, and discussion groups. The dining hall serves as

a lecture hall and even as a theater, with an acting area around the hearth (below, far right).

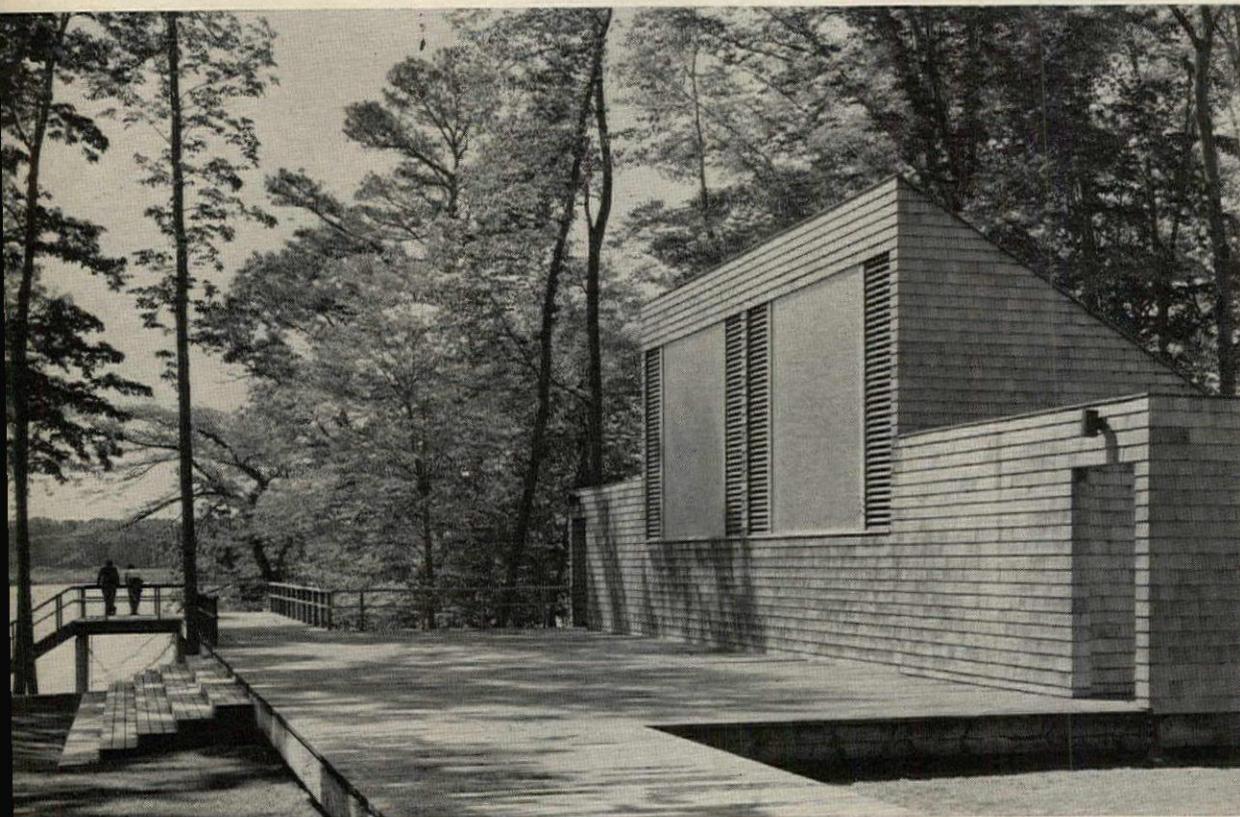
The summer camp is one of many activities carried on by the Wye Institute, a nonprofit organization established in 1963 to improve educational, cultural, and economic opportunities on Maryland's Eastern Shore. To a casual visitor, the area looks idyllic. There are good farm lands, dense

forests, innumerable tidal inlets famous for their fish and game; many old houses have been tastefully renovated by summer residents. But all-year residents find their outlook limited. Farming and fishing methods are inefficient; the old towns have lost their economic bases, and some have become nationally known as centers of racial friction.

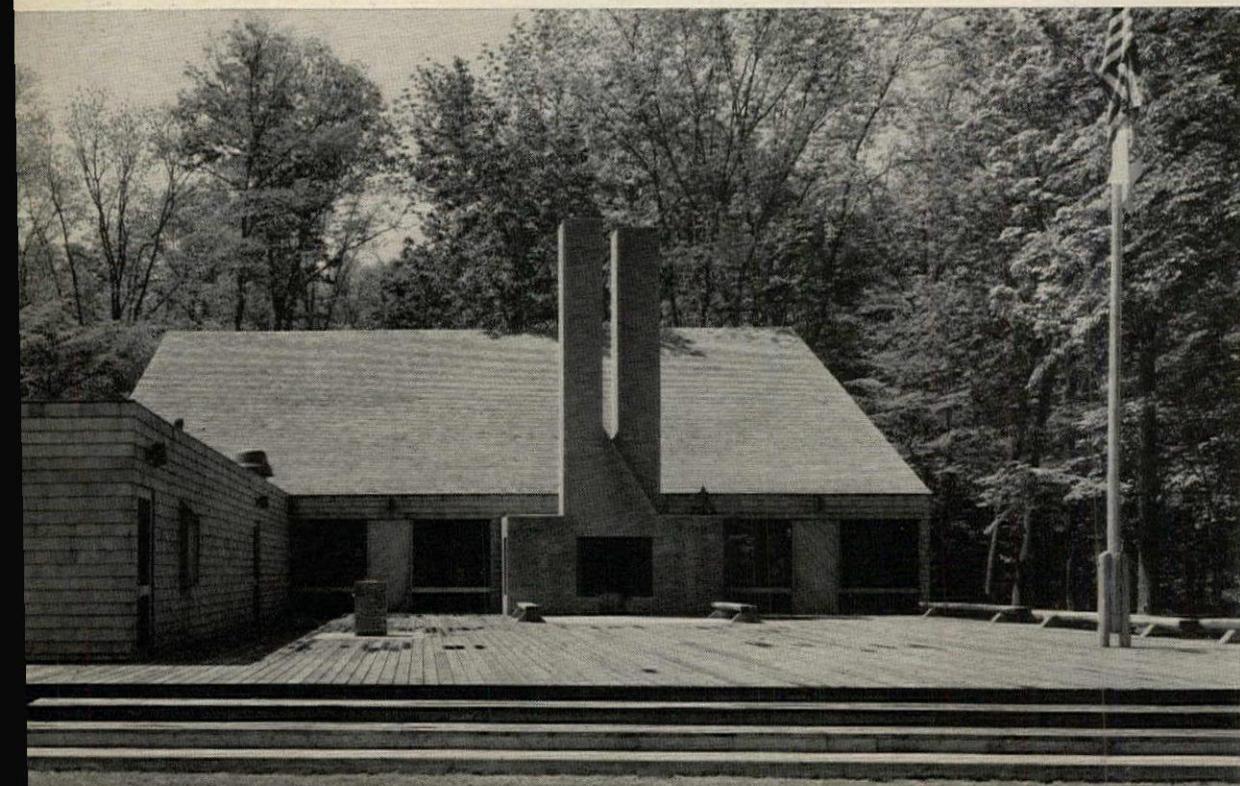
The institute conducts studies

of agricultural and fishing techniques, aids public libraries, offers supplementary educational programs for school teachers and students, and—at this camp—tries to raise the sights of youth.

All of the campers are boys who have just completed the eighth grade of public school. They are selected from among nominees named by the superintendents of school districts in



The main walkway ends at a platform (left) overlooking the boat dock. The bath house, to the right of the walk, has roofless dressing areas flanking enclosed shower rooms. In front of the dining hall, the walk broadens out to form a wood-floored plaza (below left) where campers gather at meal times and on special occasions. Back-to-back indoor and outdoor fireplaces are playfully articulated with twin chimneys. The dining hall (right) is similar, except for its size, to the other shed-roofed spaces. High on the south wall are panels of fixed glass and louvers; the lower wall is merely insect screen, with roll-down canvas curtains for protection in bad weather.



the area. Each summer 88 of them attend the camp, 44 in each four-week session. At each session, four boys of the same educational level from the families of foreign diplomatic personnel are also accepted. The intention is to broaden the outlook of both the local and the foreign boys. Even more significant, in this respect, is the opportunity for black and white boys from the

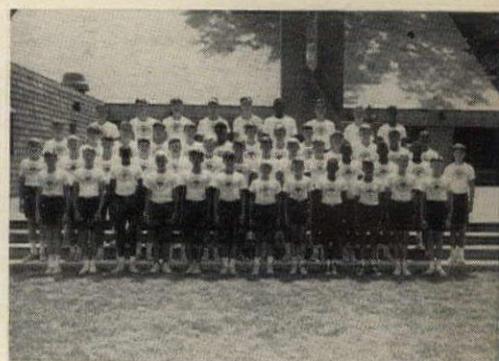
same area to live together.

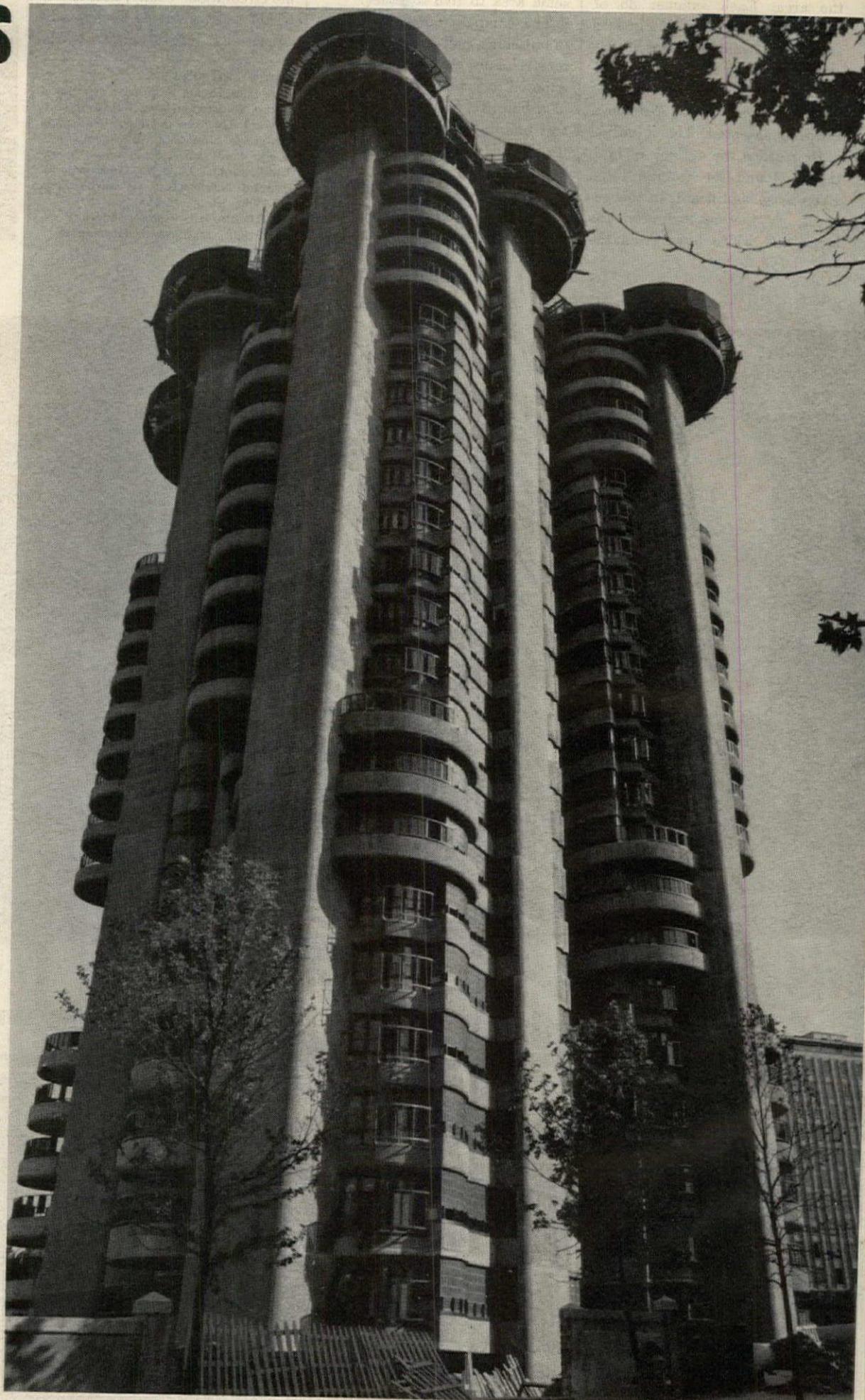
The campers make field trips to museums, ball games, concerts, research labs, etc., where they are exposed to some of the diversities of urban life. Hopefully, the central building group of the camp itself will show them how communities can be clearly organized physically—with a consistent texture, properly emphasized major spaces, and comprehensi-

ble circulation. Today, that is one of the most valuable lessons any educational institution can teach.

#### FACTS AND FIGURES

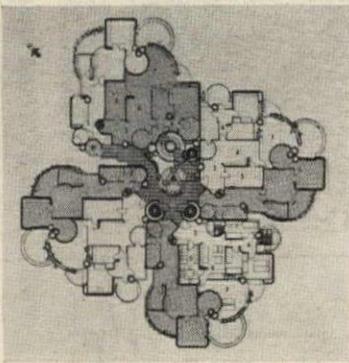
Wye Institutional Summer Educational Camp, Cheston-on-Wye, Md. Architect: Edward Larrabee Barnes. Landscape architects: Innocenti & Weber. Engineers: LeMessurier Associates (structural); John J. Baffa (mechanical). General contractor: Howard Eley. Building area: 11,853 sq. ft. PHOTOGRAPHS: George Cserna; except right, Matthew J. Hormanski.





**A TREE GROWS IN MADRID**

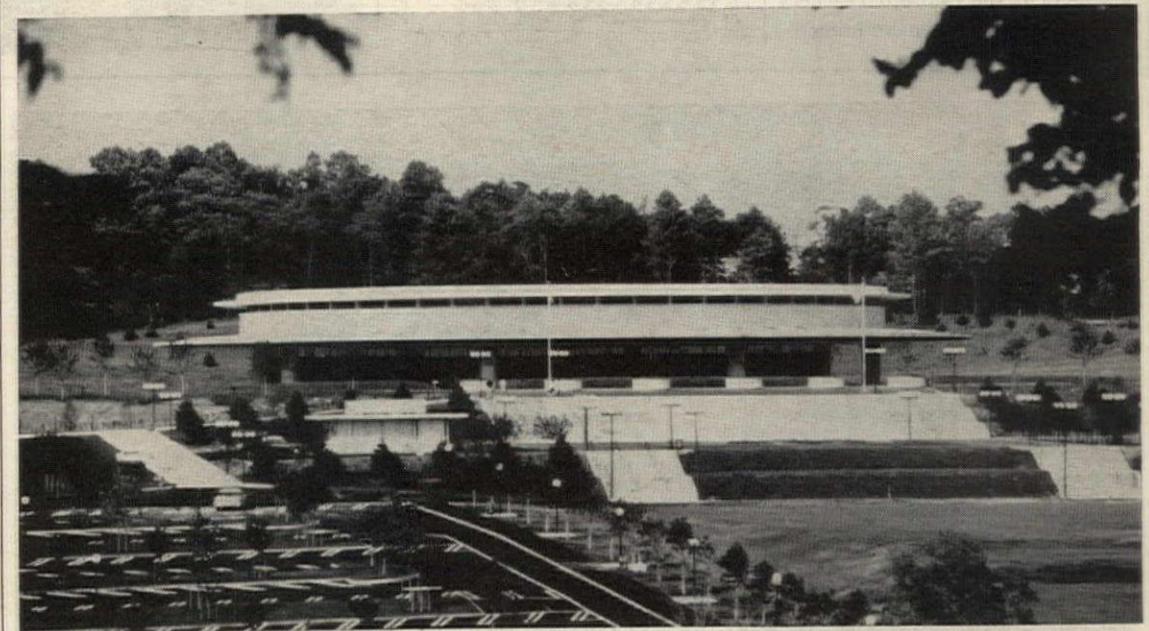
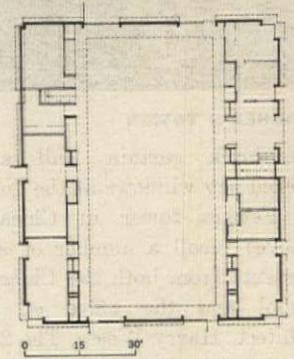
The Torres Blancas (white towers) apartment cooperative in Madrid (left) was conceived by its architect, Javier Saenz de Oiza, as a verticle garden city—a tree, metaphorically, that will one day be draped with greenery. The garden-terrace is the largest single area of each apartment, and the powerful aspect of their concrete parapets was retained by keeping glass surfaces well out of view from the street. This “city” of apartments, from studio-size to eight rooms, is a stack of scalloped planes cantilevered from huge bearing columns. Each plane, as seen in the floor plan below, is in a roughly pinwheel shape, with an interior organization that shatters the traditional concept of the four-walled room. The tambourine-shaped cantilevers at the summit include an exhibition gallery and a 120-seat conference hall.



**PILGRIM'S PROGRESS**

The old Town Square in Plymouth, Mass., dates from 1621. Facing the square is the Church of the Pilgrimage whose congregation is one of the oldest in the country. Architect Richard Owen Abbott, in designing a Sunday school and social hall for the church (above), was not unaware of the pervading sense of history. Those aspects that

relate to its parent across the square—white clapboard facade, direction and angle of its pitched roof—are quietly effective. But most striking, and least successful, are the Op-Art wall sections of sculptured concrete that surround the building and bring it abruptly into vogue. The central section is a single, all-purpose space (plan, right) flanked by two-level classroom wings.

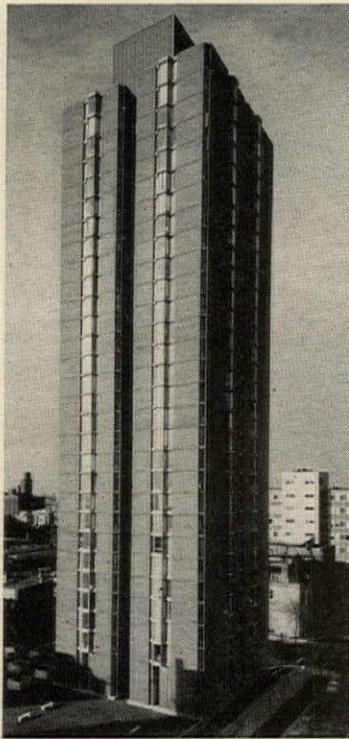


**TOLLWAY THEATER**

Just off the Garden State Parkway, a toll road in New Jersey, stands a \$7-million open-air summer theater for the performing arts built by (of all things) the state Highway Authority. Described by Structural Engineers T. Y. Lin & Associates as “modi-

fied Greek with Roman-flavored columns,” the Garden State Arts Center was designed by Edward Durell Stone. The structure consists of a two-tiered circular roof and an independent stage house. The lower roof is doughnut-shaped, cast-in-place, and cantilevered from a box girder that is

carried by eight columns set in a circle. The upper, saucer-shaped roof is cable-suspended from a compression ring atop the girder, and is formed of precast wedge-shaped sections. The bowl beneath seats 5,000 under the roof and an equal number on the grassy slopes outside.

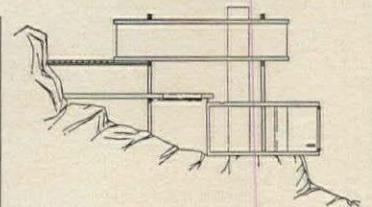
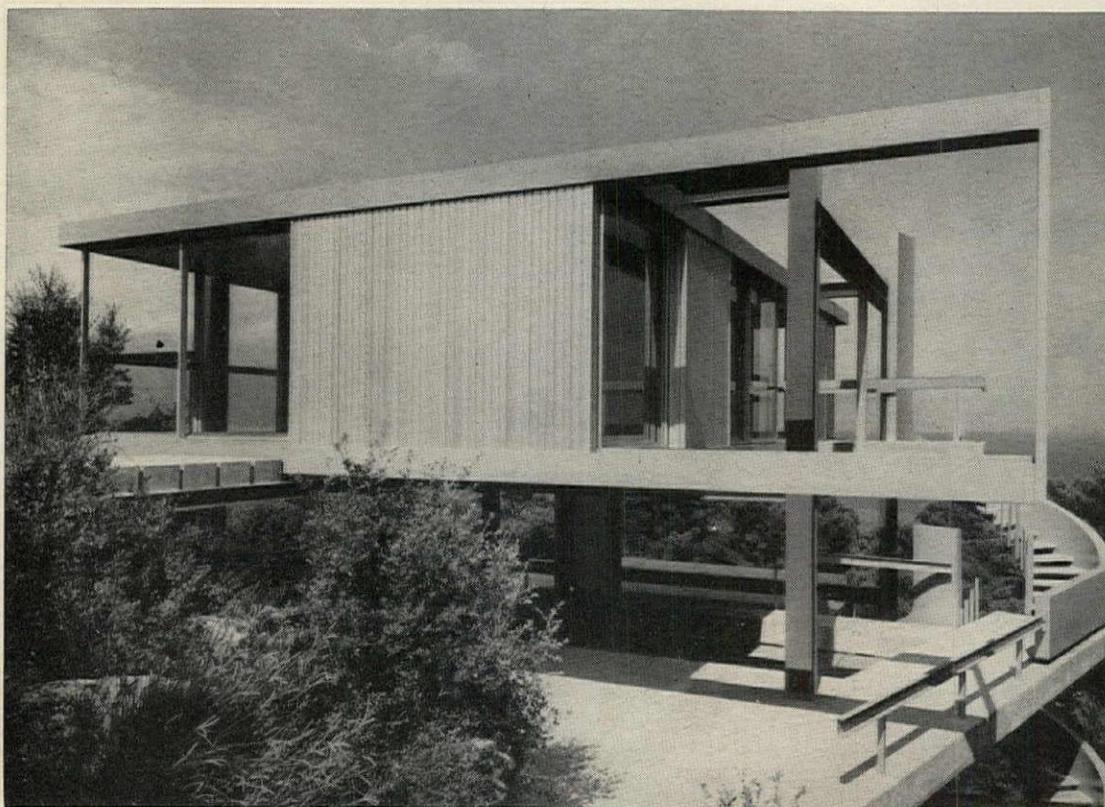
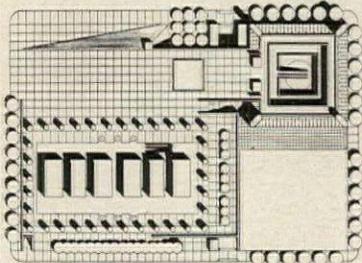


**TEACHER'S TOWER**

The brick curtain wall and stacked bay windows of the John M. Fewkes tower in Chicago (above) recall a number of antecedents from both the Chicago School and the office of its architect, Harry Weese. The 224 apartments will rent to retired members of the Chicago Teachers Union, owner of the building.

**BANKS OF BAYS**

The Bank of America's world headquarters building in San Francisco was topped out June 3. The 52-story building is the tallest—770 ft.—in the West. Architects Wurster, Bernardi & Emmons and Skidmore, Owings & Merrill (with Pietro Belluschi as consultant) have adapted an old San Francisco tradition: the bay window. Continuous saw-tooth bays of polished red granite and bronze-tinted glass (see lower stories, right) make the most of the buildings unobstructed view of San Francisco Bay. A plaza (site plan, below) will occupy 50 per cent of the site. Designed by Landscape Architect Lawrence Halprin, it will include a fountain, plantings, and a 200-ton abstract sculpture by Masayuki Nagare. At one corner of the plaza (top right in plan), a two-story glass pavilion will house the bank's main office branch.

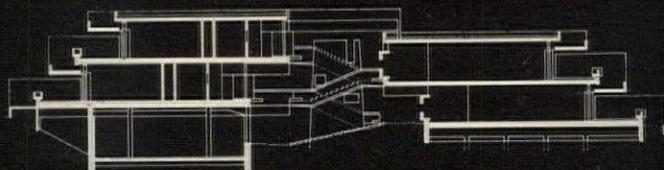
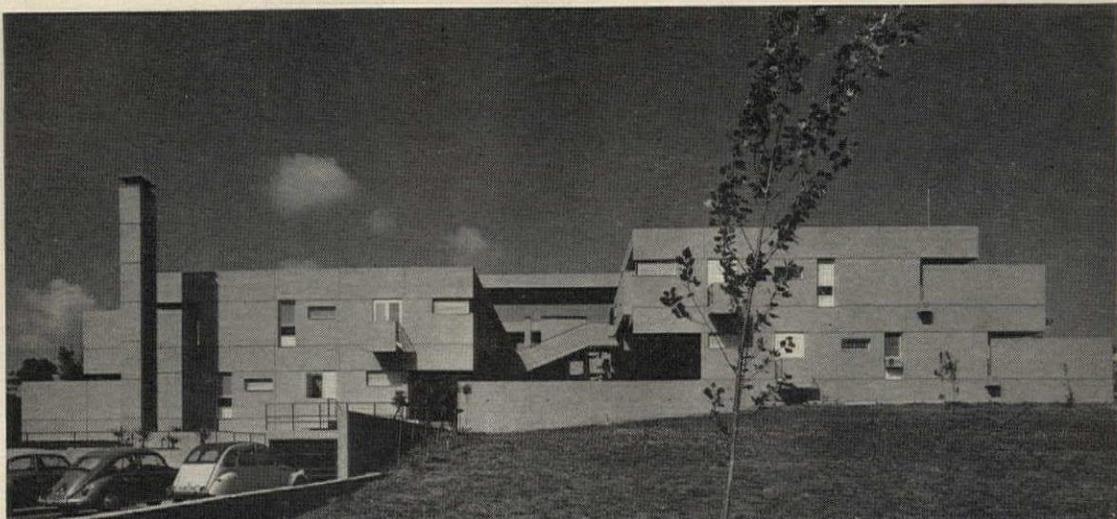


**CLIFFHANGER**

When the electrically powered shutters of the house at left open horizontally, they admit a panoramic view of Cap d'Antibes on the French Riviera. The top-level living area (see section) is a rectangular glass box slotted between steel columns and cross-beams. A middle level, simply a concrete floor slab, is open on all sides. At the bottom is a studio set into a shelf of the cliff and linked to the upper levels by an exterior spiral stair. The house is the work of Architect Claude Parent and the late André Bloc, engineer, sculptor, and founder of *L'Architecture d'aujourd'hui*.

#### THE SCIENCE OF LIVING

An apartment building at the Weizmann Institute for Science in Rehovot, Israel, by Architects Rechter & Zarhy, combines maximum privacy with a strong sense of community. These divergent objectives were made possible by the climate, which permits outdoor living eight months out of the year. Occupied by visiting scientists who are in residence for one to two years, the building is made up of two parallel blocks facing one another—in mirror image—across a central courtyard. The north wing, which includes a full basement, sits one-half story higher than the south wing on the sloping site (see section). Each consists of two equal stories offset horizontally, forming large private terraces at the outside of the site and, on the inside, overhangs that shade the entrance passageway and much of the central court (bottom right). Three central stair structures interconnect both blocks and encourage socializing.



PHOTOGRAPHS: Page 92, Barbara Hadley. Page 94 (top left), Orlando R. Cabanban; (bottom), Gilles Ehrmann. Page 95, Keren-Or.

# INQUIRY INTO OPEN SPACE

Although its context is New York City, the study by Lawrence Halprin is pertinent to all cities

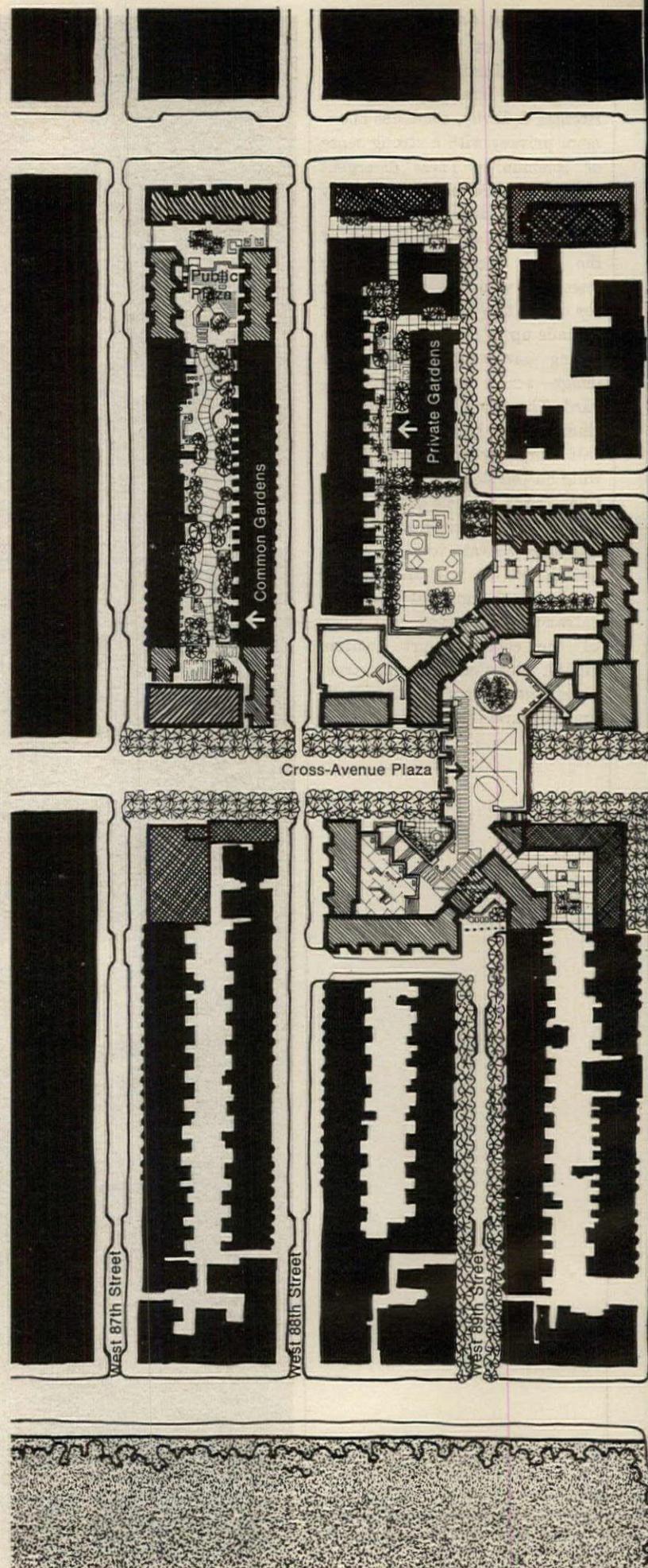
"New York is worth renewing." This is the explicit message of the report, *New York New York*, by Lawrence Halprin & Associates. Implicitly, with the subtitle "A study of the quality, character, and meaning of open space in urban design," the report is a message of faith in all cities, and a kind of briefcase bible for their renewal.

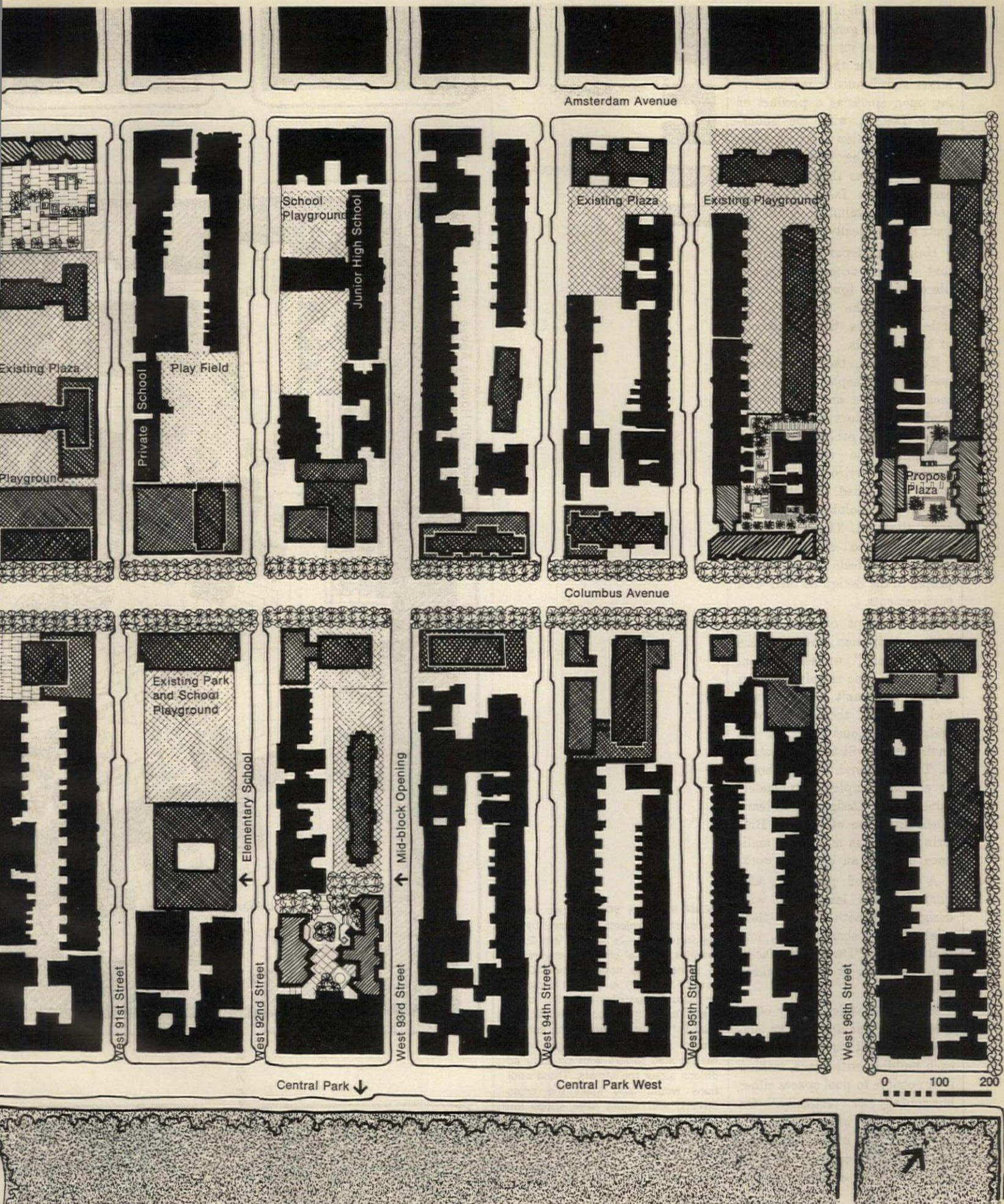
It is not surprising that Halprin, an urbanophile from way back, should glory in the city's excitement and intricacy (he calls for "complexification" as the way of the future). But what is surprising is the complexity of his investigation, which explores subjects usually beyond the consideration of the designer. Halprin may be out of his depth in some areas—the animal instinct for territoriality, for instance, is mentioned only briefly (as, indeed, are many of the factors affecting open space). But to have ventured into the area at all is courageous.

And if the conclusion of the report—that all aspects of the investigation (ecological, sociological, psychological, biological, esthetic, and climatological) mesh in their support of complexity—seems visually and rationally acceptable, Halprin's conviction in any case is so passionate that we are tempted to take it on faith. Belief in the sanctity of the city, after all, is already something of a religion—you either have it or you don't. The skeptic has already moved out to the suburbs—or given up on the city in a multitude of other ways.

The 119-page report, prepared for the City of New York, is actually a two-part presentation—the first, a series of proposals for reclaiming six urban renewal projects in New York City; the second, a discussion of the many factors important in rethinking any open space. The six proposals are not intended to be plans for immediate action, and in fact they would require various changes—in zoning and other procedures—to be achieved at all, but they are broadly applicable to the many similar renewal projects (and there are unfortunately many of them) throughout the country.

THE WEST SIDE RENEWAL AREA is one of six New York City projects studied by Halprin. The city's plan seeks to preserve the existing neighborhood, which consists largely of brownstones on the east-west streets, and to replace avenue tenements with tall apartments. Halprin's major addition is a "cross-avenue plaza" to create a focus and sense of place for the whole community. The plaza and its surrounding structures would contain many kinds of facilities with open space on many levels. Halprin would like to see a double row of trees on both sides of Columbus Avenue, making a continuity of facade where the zoning ordinance has tended to destroy it, and making for lively use of these broad sidewalks.





The report's significance is only partly in its general principles of design and its specific recommendations for the six sites. Its larger significance is in considering open space as a product of many factors, with the underlying assumption that if open space is to be meaningful to city-dwellers as they really are, each of these factors must be realistically evaluated for its effects as *they* really are.

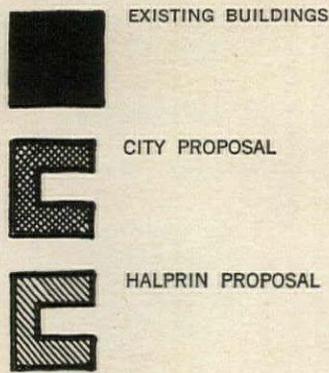
Halprin's departure point is that urban renewal's typical placement of towers in a vast open area—the Le Corbusier esthetic—denies the complexity of human needs.

To Halprin, the "overriding" need is for people to achieve a sense of pride and self-esteem. And while factors other than environment are probably more determining, the influence and demands of environment are not to be minimized. If these demands are insoluble, people become alienated. The most significant way to effect "soluble stresses," he feels, is to involve people in the design of their own environments.

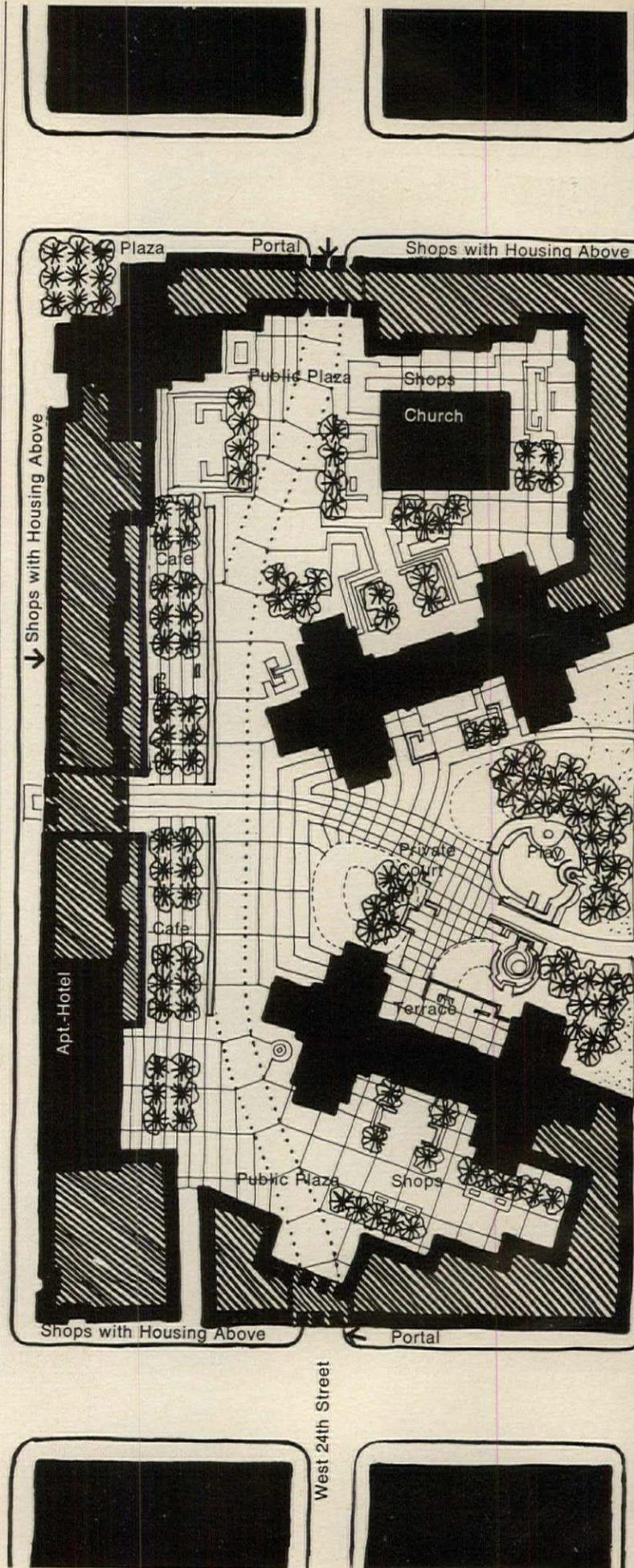
"The concept of involvement and participation underlies this whole report," writes Halprin. The person who simply occupies a place and can't add to it will feel rootless; the person who feels no responsibility for his environment will tend to destroy it. Thus the environment should never be completely predetermined, fixed. Designers can learn much from the other arts, Halprin believes, in making an audience part of an evolving work.

A "sense of place" is also vital, but has less to do with design than with people—their relationships, shared goals, mutual support. "Design can facilitate this but it alone cannot achieve it."

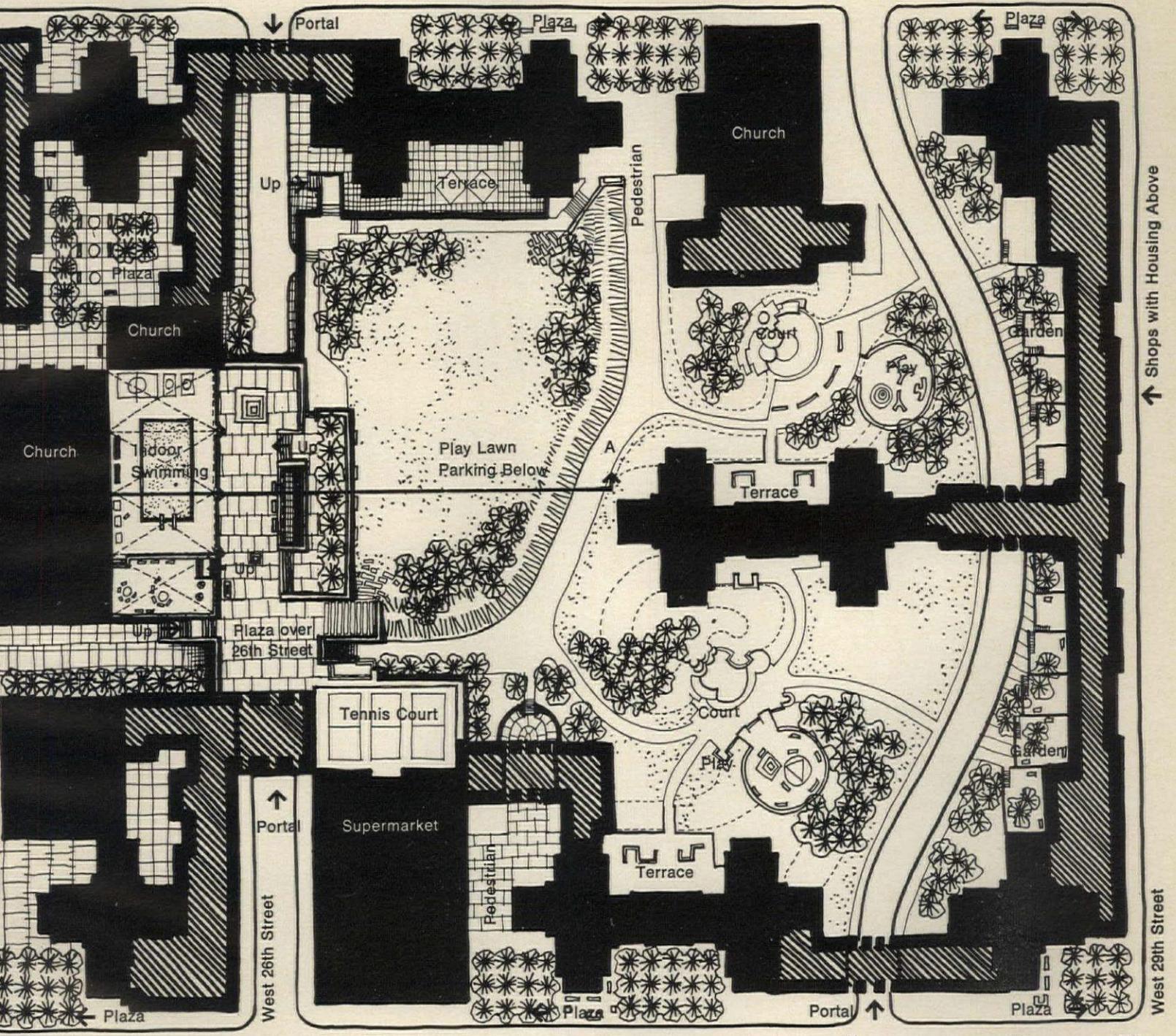
Halprin considers many other factors. On *zoning*: "The immediate result is to surround each building with space, making it impossible to pool spaces either horizontally or vertically." On *density*: "The issue is less one of density than of land coverage, less of land coverage than of what facilities are provided in open space."



**PENN STATION SOUTH**—one of the six existing projects examined by the Halprin report—is a coop with 2,820 families. Typical of center-city renewal projects, its open space (50 per cent of the site) is without enclosure or focus; typically, too, the street scene lacks "intimacy, interest, humanity." Halprin proposes to knit the project into its surroundings, linking the isolated towers with six-story additions along the streets. These additions would also span the cross-streets, and would have shops and community facilities in their lower levels, housing above. Among the results: increased diversity and vitality in the project, new interest along the street, reduced wind speeds and wind funnel effects.



h Avenue

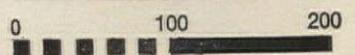


↑ Shops with Housing Above

th Avenue

West 28th Street

West 29th Street



Halprin makes many excellent suggestions for the design of familiar elements—playgrounds, waterfronts, entrances, malls, roofs, plazas, vest pocket parks, barriers. But central to the report is his proposal of a new “multidimensional system of design” that draws together all his general conclusions. The multidimensional system is based on the need for flexibility; it grows out of the need for complexity (as a sociological, psychological, and biological need, reinforced by the effects of microclimate).

“What we propose is not high-rise buildings within an open space system as is now done but an open space system as part of integrated building complexes.” The multidimensional system permits vertical expansion of open space, and allows existing row houses to be integrated into developing new forms. It answers simultaneously the New Yorker’s wishes, as defined by Halprin, for keeping the city urban, not making it suburban, and for seeking social and physical interaction, not isolation—the city-dweller’s wishes, in short, for “liveliness, color, excitement, complexity, and variety . . . not simplicity, sterility, similarity.”

Halprin raises some problems. “The linked systems will require new concepts of property lines, of ownership patterns, of the breakdown of the present horizontal and vertical hierarchy of open spaces, of zoning restrictions, and of the implicit difference between private and public responsibilities for action.”

And, as the major problem: “. . . renewing the city as an entity cannot be achieved by aggregations of discrete pieces no matter how beautiful each one is. There are intra-city needs which must be solved by overall coordination, design, and construction.”

There is another problem. Halprin opens by asking whether the medieval traditions of open space, now in vogue, are more “right” than the visions of Ebenezer Howard or LeCorbusier, and he concludes that they are.

But his decision is made up of such statements as: “New Yorkers tend to be much more in tune with the qualities of their lives

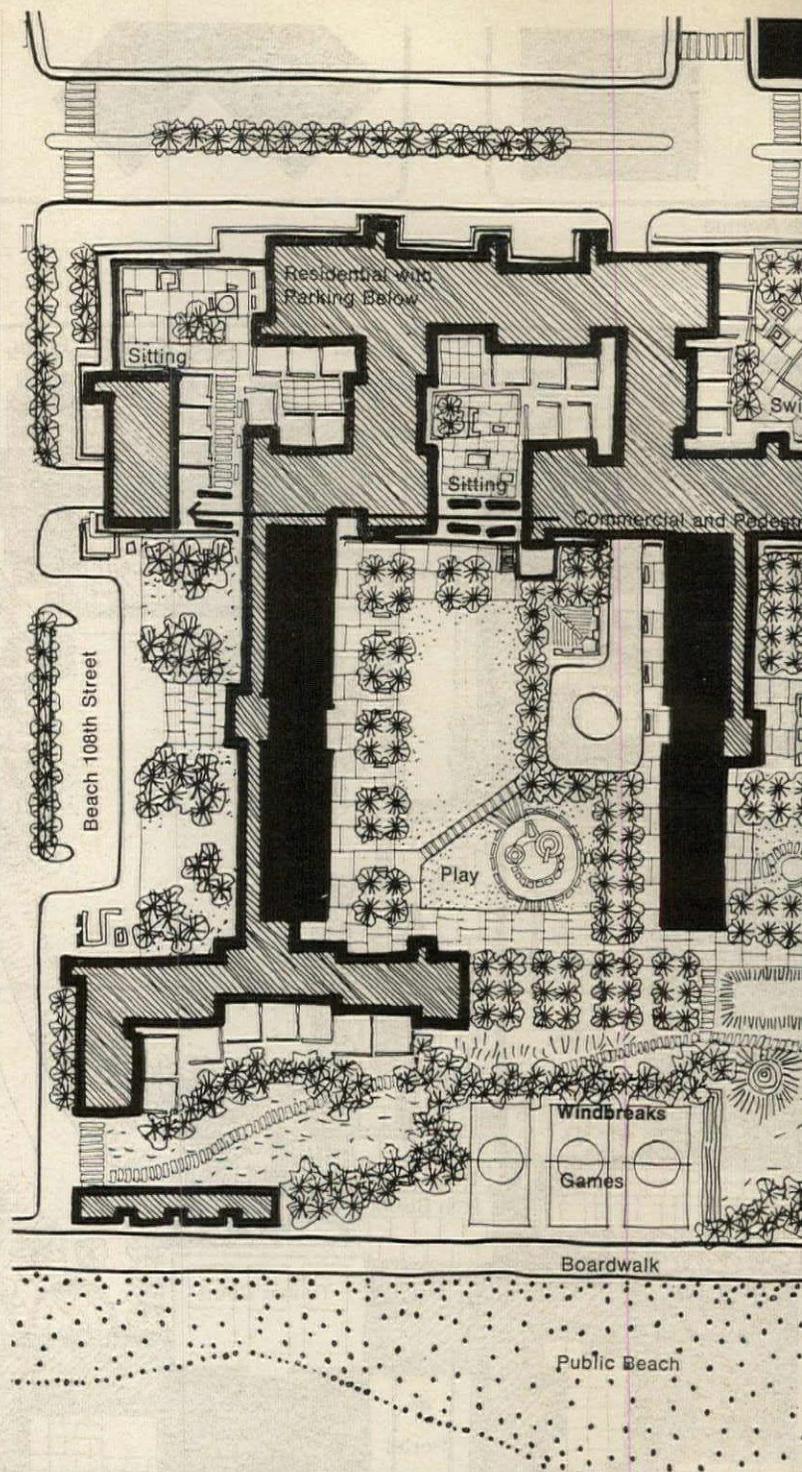
including their environment than are most suburban dwellers who are far less crowded.” Is this true? And if so, is crowding the significant factor? Again: “Crowding as a function of large groups of people interacting and living close to each other is one of the pleasant and desired qualities of living in New York.” Is it?

These appear to be assumptions—or wishful thinking—not different in kind from those that led to the environmental disasters of past urban renewal. Halprin concedes that the Corbusian ideas were adopted with the best intentions—light, air, space. Will we discover in another 20 years that “complexification” has led to another kind of environmental disaster? We need to know more than Halprin’s beginning study is able to tell us—what *are* the effects of the upper reaches of density? what *does* territoriality mean for the human animal? what *do* people want? It is sobering to recall that many an advocate of highrise living has chosen a converted brownstone for himself; and Halprin, for all his romantic fervor about the city, lives in the hills across the bay from San Francisco.

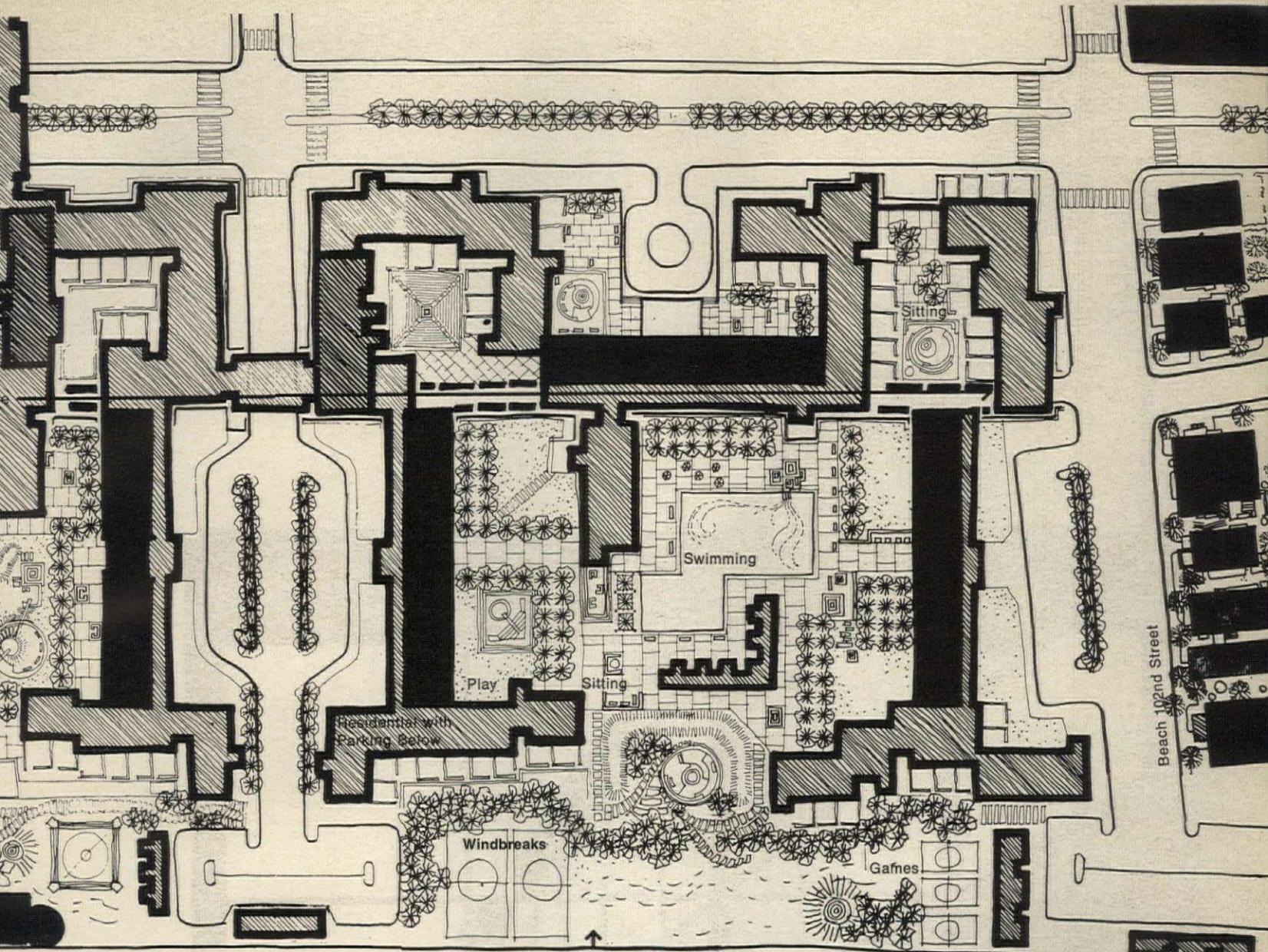
—ELLEN PERRY BERKELEY

#### FACTS AND FIGURES

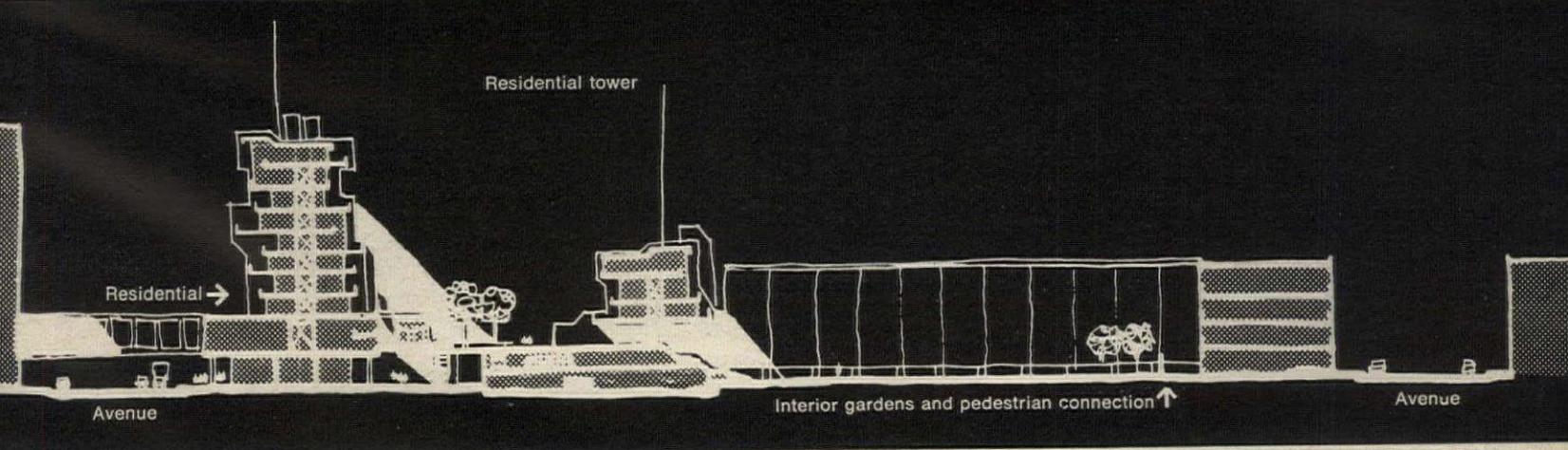
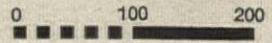
NEW YORK, NEW YORK, A study of the quality, character, and meaning of open space in urban design. Prepared for the Housing and Development Administration, City of New York, by Lawrence Halprin & Associates. Project director, James Coleman; consultants: Robert Alpern, Dr. Paul Baum, Lester Eisner, Dr. E. T. Hall, Jane Jacobs, Dr. A. E. Parr, Dr. George Rand. Financed by the Department of Housing and Urban Development, and the New York Foundation. Issued in limited edition of 500 copies, with a new edition now being contemplated. Requests may be made (in writing only) to Sam Ratensky, assistant administrator for planning, design, and research, Housing and Development Administration, 110 Church St., New York, N.Y. 10007.



Dayton Towers, on the ocean at Rockaway Beach, was also studied by Halprin. In this relatively low-density project (above), Halprin proposes adding new facilities and new housing in a linear structure that links the existing slabs. This “multidimensional urban system” that Halprin proposes as the new structuring device for urban facilities also includes shops, plazas, covered parking, transit systems. Right: a midblock section through the multidimensional system as applied to a typical block of tall towers and row houses.



Location of Shore Front Drive to be removed.





# PLANNED FOR CHANGE

BY ESTHER McCOY

The manufacturing and research facility for Teledyne Systems Co. is tough city architecture for a city that has flowed into the field—more properly a citrus grove on a main highway in San Fernando Valley. The building is constructed entirely of standardized elements off the shelf, and during design it was stripped three times to reduce cost from \$17.50 to \$14.60 per sq. ft. Moreover, most of the 165,000 sq. ft. is in offices or “clean” space for the assembly of microelectronic elements.

A hard-boiled building succeeds as architecture when there is a strong controlling hand; in the case of the Teledyne Systems building the hand was that of Cesar Pelli, director of design for Daniel, Mann, Johnson & Mendenhall. Pelli's theory of planning which allows for growth in unexpected directions (a major consideration in the rapidly changing electronics industry) accounts for a plan that cost trimming could not defeat. A circulation spine is the permanent element, and growing out of the spine are the elements capable of change.

## Corridor in an orchard

The idea of the plan was already in Pelli's mind when Teledyne asked DMJM to help in the selection of a site, and when Pelli saw the 36-acre citrus grove he had found his “view” for the corridor. Nor did Teledyne oppose Pelli's suggestion that as much of the orchard be preserved as possible. As well as serving as view and as landscaping, the orange and grapefruit trees shade the corridor, act as a sound barrier between street and building, screen the parking lot from the street and from the building, and the trees are maintained as a working orchard.

The corridor was designed first rather than being adapted, as is customary, to the residual spaces; it was proportioned

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Mrs. McCoy is a well-known architecture critic and the author of numerous books on architecture, including several on pioneer architects in California, where she lives. She has frequently contributed to the Forum.

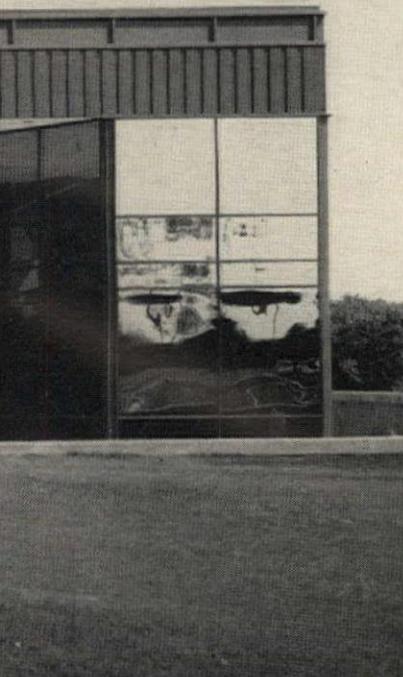
generously, glazed on one side, and assigned the double function of meeting place for employees and spine to which office and manufacturing space were attached.

Pelli has developed further the theory of the nodes along the spine in DMJM's Comsat Laboratories in Clarksburg, Va., now under construction. In his second version the corridor is a street with growth on two sides, and it leads through courts and ends in a lobby, which is treated as part of the street rather than the usual walled-in sanctuary. Comsat is an ambitious “high tech” complex while Teledyne is a sensitive treatment of the most readily available materials.

## A new modern tool

Pelli is concerned with the development of tools for flexible solutions for the present, and in this connection mentions the legacy from pre-Bauhaus and Bauhaus designers of a flexibility based on structures independent of skin, the curtain wall, standardized components, etc., all tools of the early modern movement. The tools were valuable in adapting a space for a similar function but not for adapting office space to mechanical space—different ceiling heights and electrical power requirements alone make universal space universal only in one direction. Pelli looks upon space attached to a spine as a new modern tool.

“One of the characteristics of growth or planning for growth,” he says, “is that it is different from what we thought it would be five years ago. To assume that you can add increments of the same thing five years later is unrealistic. It is seldom possible to predetermine growth, and the problem is how to plan for undetermined growth without throwing the architecture away. Architects haven't thought much about it. They prefer to think of something ‘finished.’ When they think of changes it is the changes inside a building. When they plan a building to be finished in stages all they do is delay the time when eternal architecture is completed. By and



Exterior of complex is mainly brown glass that reflects surrounding area, while providing views and privacy for workers within; anodized mullions and corrugated metal panels are brown-black. All materials are standardized industrial products, selected to provide for expected, but as yet undetermined, growth, without violating harmony of design.



large, architects are still designing temples. This is a static view of life, but today we recognize and welcome that life is change. Teledyne is not a building but a complex. Complexes are not homogeneous; they are structures faced with problems of growth."

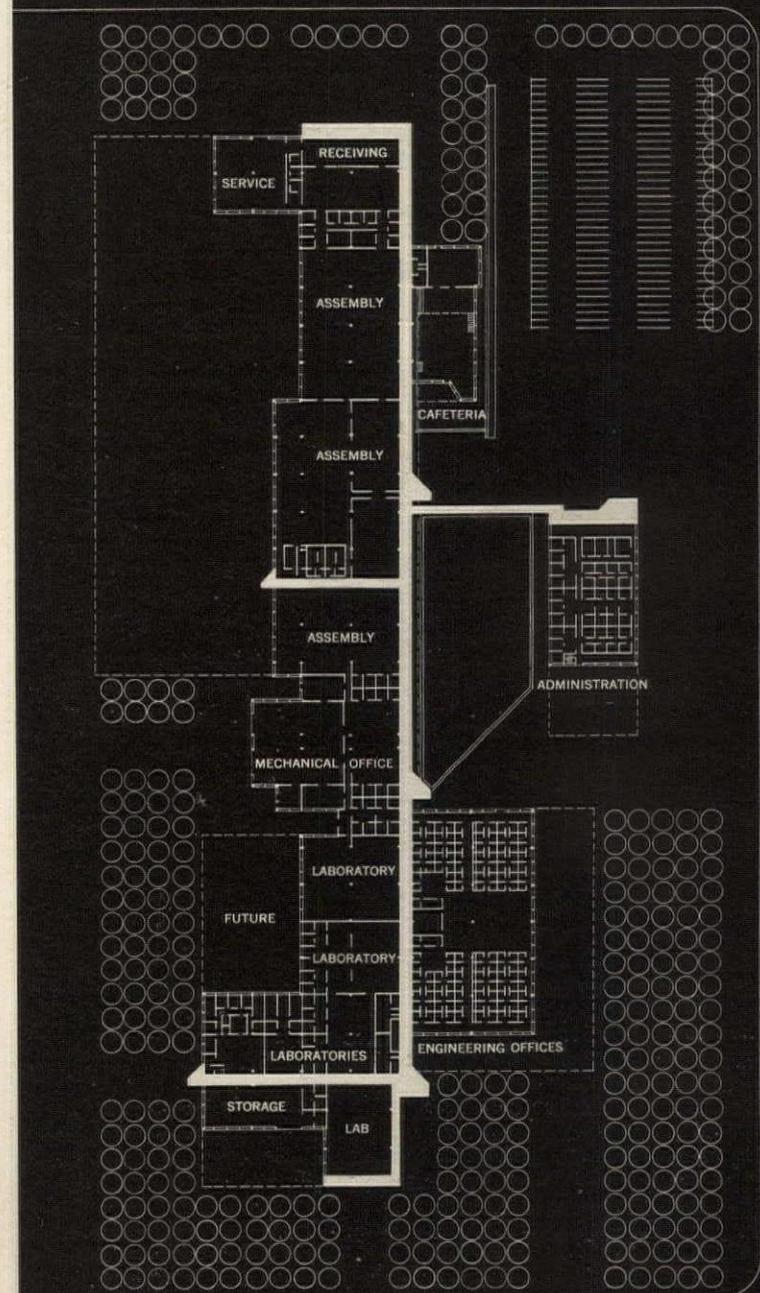
Given the new tool, there is still the matter of putting together the static spaces and the spaces of flow for an environmental whole. From the exterior of the Teledyne building is a view through brown glass of a flow of people in the corridor; sometimes they knot into a group to talk. The reflective glass distorts the figures, which Pelli welcomes because it is in character with the straightforward building. Both sides of the corridor are glazed, the interior wall from wainscot height to the ceiling, which allows employees working in rooms off the corridor a view through two glass walls to the gardens and orchards. Much of Teledyne's research and production is classified, which demands workrooms with no outside windows on the ground level. The small electronic components are assembled in rooms similar to those in modern office buildings; there is no production line.

#### Future connections

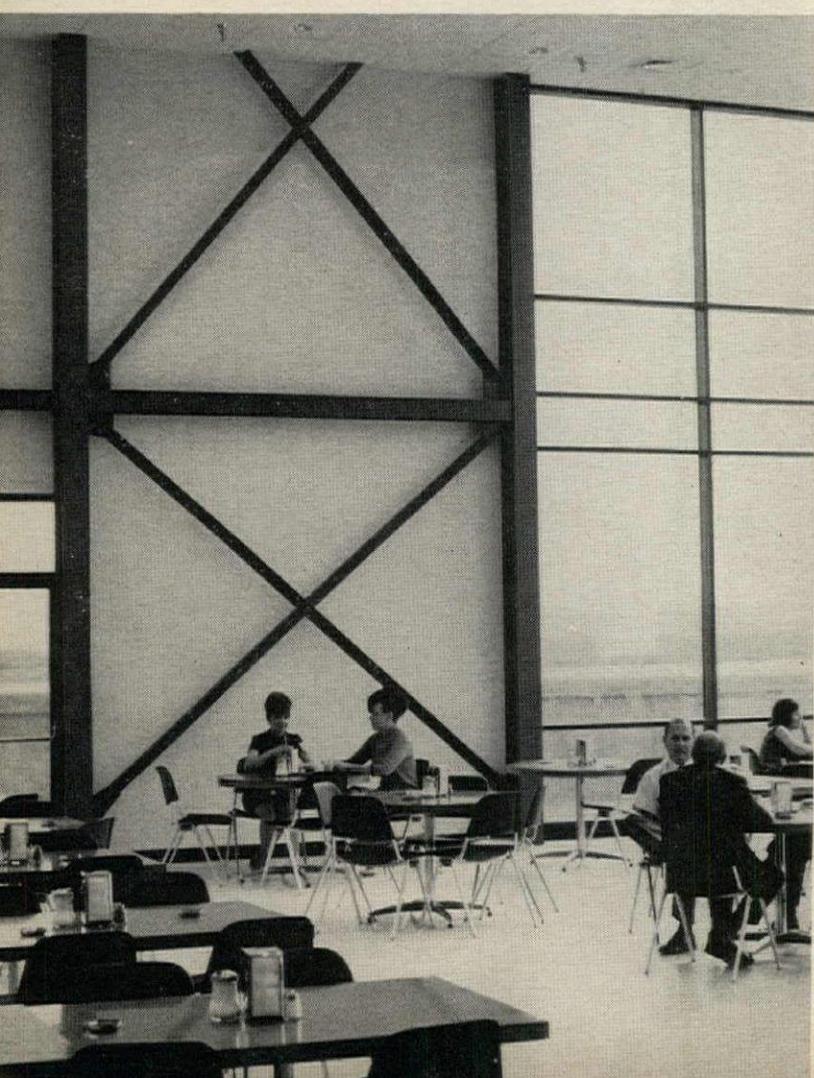
The balcony of the two-level corridor is a visitor's walk from which work in the offices can be viewed, and it provides access to the executive dining room on the balcony of the cafeteria. The administration building, to be started this year, will be connected to the present building by a bridge leading to the upper level of the corridor. In design stage is the engineering wing, to be attached to the west end of the corridor; it will enclose the administration court. Expansion of the existing building, as required, plus the engineering wing and administration building, will double the size of the present facility.

The building was designed as a steel frame structure on friction pile foundations: structural steel columns and girders on bays of 36 ft. by 48 ft. and 36

...the building was designed as a steel frame structure on friction pile foundations: structural steel columns and girders on bays of 36 ft. by 48 ft. and 36



In contrast to formal exterior (top left), there is a great deal of concentrated activity within. Generous main corridor (bottom left) fulfills function of city street: circulation of people and materials, and recreational contact between inhabitants. Off of it are work spaces, such as laboratories (top right), each of which is capable of independent expansion. Interior window wall permits observation by visitors, and views in two directions for employees. Plan shows how corridor-spine links various elements and allows for addition of completely new ones.



ft. by 60 ft. The girders support open web steel joists that carry a metal roof decking. The exterior walls are black-brown corrugated metal panels, and the anodized mullions of the brown glass are black-brown.

Cesar Pelli came to Los Angeles four years ago, after ten years in the Saarinen and Roche and Dinkeloo office, and now that his designs for DMJM are beginning to materialize, his effect on the city is beginning to be apparent. His Worldwide Postal Center at Los Angeles International Airport is nearing completion, the 22-story Medical Plaza is under construction, the tunnel extension and central plan for Bunker Hill attest a concern for how engineered structures affect the cityscape. His appreciation for land use was clear in the urban nucleus, a contour-rise project designed for the Santa Monica Mountains—a project at a standstill, unfortunately.

The disciplines of the business-oriented office have fed rather than restricted his talents. The big office, with its relentless flow of large-scale building, is often an agent through which change comes, even though the design comes out of the drawer. When the big offices pause to produce "art" it is too often an essay into temple making, and the solution in the drawer might have been better for the city.

With a man like Pelli in charge of design, there is the impact of a tough mind, a sensitivity to the tensions of the city, and the compulsion to rethink design in terms of post-drawer needs. Commonsense architecture is lifted above dullness and it becomes the means through which the city is refreshed.

#### FACTS AND FIGURES

Teledyne Systems Co., Northridge, California. Owner: Teledyne Systems Co. Architects & engineers: Daniel, Mann, Johnson, & Mendenhall; Cesar Pelli, director of design; Paul Rogers, chief structural engineer. Landscape architects: Armstrong & Sharfman. General contractor: Oltmans Construction Co. Building area: 165,000 sq. ft. (gross). Cost: \$2,850,000 (including landscaping, site work, and some furnishings; excluding land, fees, and financing).

PHOTOGRAPHS: Julius Shulman, except bottom, page 106. Page 102, Robert C. Cleveland.

Visitors' gallery, out of the way of employee circulation, is reached by stairs in separately defined bay (top left). It leads to executive-visitor dining mezzanine overlooking two-story employees' cafeteria (bottom left). Views from all parts of building are extensive, but from without (right) building's mirrored facades are a constantly changing panorama of colors and fantastic forms enriching the landscape.





# FORUM CONT'D

The demonstration came as no surprise. It had been announced some time ago, and attempts to negotiate, made by the organizing committee, had been turned down by the protestors. Among the organizers of the protest were sculptors Giò and Arnaldo Pomodoro.

Several factors motivated the protest, not the least being the example of the French student revolt: dissatisfaction with national art and culture institutions in general and with the Triennale's structure and its policies in particular. The protestors maintained that since the Triennale is sponsored by public funds, both the program and appointment to the organizing committee should be publicly discussed.

But once the initial acts of protest had been accomplished—turning off the electric power, painting signs on the entrance walls—solidarity among the different factions deteriorated. Demonstrators squatted among the exhibits, squabbling among themselves about whether or not to stay and waving their placards: "Violence, not decoration to change society," and "Enough Fascist Triennales."

The demonstrators were removed by the police a week later—despite the intervention of exhibition President Dino Gentili. The administrative board then resigned and most of the exhibitors went home. The truncated Triennale reopened on June 23; official closing date: July 31.

(It should be noted that architecture students neither participated in, nor endorsed the protest. Although sympathizing with many of its grievances, they disagreed with both method and timing of the protest.)

The Triennale was interesting for at least one other reason: it proved to be more than just another trade show. Using as theme, "The Greater Number," Program Director Giancarlo de Carlo had suggested an open-ended treatment of certain phenomena of contemporary life: exploding population and mass mobility, increasing city scale, technical obsolescence, changes in social behavior, and the new means of per-



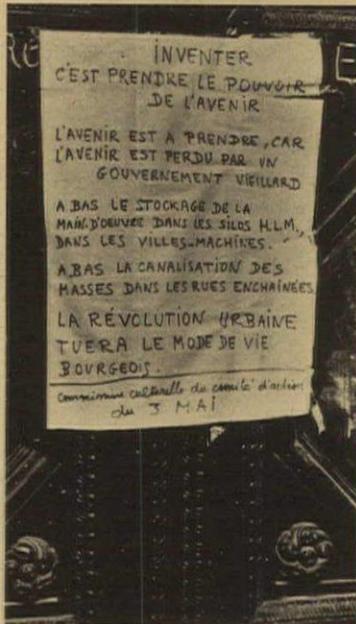
interesting illustrations. Hans Hollein (Austria) presented a maze of corridors and doors; the Smithsons (U.K.) presented Pop images of the city; and Romaldo Giurgola and Donlyn Lyndon (U.S.) tried to project slide images on ceiling-mounted balloons which, it appears, burst. Perhaps the best illustration of the theme was presented by the demonstrators themselves—at a sit-in (above) in one of the four privately sponsored U.S. exhibits, by Architects Hardy, Holzman & Pfeiffer.



THE ANGRY ARTS

Because public information media were inaccessible to them, Paris student demonstrators during the past two months voiced their protests by way of hand-made posters. Most of them lashed out at the government, its policies, and de Gaulle. Others

eral hundred art and architecture students of the Ecole des Beaux-Arts, traditionally the bastion of conservative teaching of art and architecture. Open design competitions for the posters were held in the school's ateliers. Juries composed of anyone around selected the winning designs, which were then turned out with whatever paper and ink was available, and distributed throughout the student quarter and its vicinity.



URBAN MALAISE

Although dissatisfaction with urban conditions per se was not an issue in the recent French student uprising, the handbill (above), nailed to the door of the Sorbonne's chapel, indicates that such dissatisfaction exists.

The bill declaimed—in part: "Down with the stacking of workers in the public housing silos of machine-cities.

"Down with the channeling of the masses in shackled streets.

"The urban revolution will kill the bourgeois way of life."

Beyond this, concern over urban ills has been echoed increasingly by all the news media, at seminars and public meetings. One example was the June 18 meeting at the Paris Mutualité, organized by architects and students of the Ecole des Beaux-Arts. A number of topics were discussed and attacked, among them slums, generally poor living conditions, bad planning, and land speculation. And although the speeches were generally disappointing, it was significant that the assembly was held

## FOOTNOTE

**TRANSMOGRIFICATION** — "Pausing, one is taken back in history to the Hanging Gardens of Babylon. . . . Recently, an authority was heard to remark 'These are indeed gardens of the 21st century.'" This is part of a communique from the press service of the City of Montreal, and it describes what happened when the former U.S. Pavilion at Expo 67 was donated to that city and transformed into a "Biosphere—an indoor parkland and aviary." We don't know about that "authority" quoted above; or about those 21st-century Hanging Gardens of Babylon. But we would like to share with our readers some additional quotes from Montreal's press service release: "The structure, designed by Buckminster Fuller, lends itself well to its present role. . . . Visitors are often heard to remark 'How interesting to be able to get a close-up view of a living wild duck. They are so difficult to observe in nature!' . . . This garden is of a



#### NON-HAPPENINGS

Christo, master of the package art form, may have found the perfect solution for frustrating student demonstrators, who will have several more opportunities this summer to close down and occupy large-scale exhibitions (having already disrupted the Milan Triennale and the Venice Biennale). Having in the past wrapped up such items as chairs, cars, and girls, Christo has now taken to wrapping up entire buildings. For the Spoleto arts festival, he has enshrined the town's opera house (composite photo, above).

The experiment was also planned for—and approved by—the Museum of Modern Art in New York, but fire and police departments vetoed the project.

## HEAD ON

#### YOUTH SPEAKS OUT

The communication gaps that exist in urban America—between young and old, rebel and Establishment, black and white—were a little less gaping at Urban America's annual meeting in Detroit, June 5-7. Delegates from 14 ghetto youth groups joined the business, professional, and religious leaders who make up Urban America's membership, for a direct confrontation on the critical urban issues.

Some of the youth groups are new, some are former street gangs; all are intensely committed to improving their communities—in their own ways and through their own efforts. They come from across the country: Sons of Watts, and the Watts Urban Workshop (Los Angeles); Mission Rebels in Action (San Francisco); Thugs United

(New Orleans); Pride, Inc., and The New Thing (Washington, D.C.)—to name a few.

With minimal funds, these youth groups have already begun programs in housing rehabilitation, urban planning, education, and the arts, and have set up successful small businesses. Their appearance at the Urban America meeting was partly to explain their programs, partly to seek funds (or the promise of funds), partly to enlist the ideas and moral support of the Urban America membership. At the bottom of all their programs, however, is the belief expressed in one group's motto: "Please, we'd rather do it ourselves. All we need is the opportunity." In plain language and in direct manner, they may have gotten the point across.

The three-day event included the usual conference round tables and presentations, plus late-night meetings and strategy sessions. There were films made by two of the youth groups, and an evening, in the Pontchartrain ballroom, of soul music and variety acts performed by local talent from downtown Detroit.

At the close of the conference, the youths were somewhat disgruntled to be leaving with little money in hand. However, it had been an important exchange, providing real hope—to some, the first hope—that they could talk with the Establishment. Urban America members were encouraged, too. Outgoing President James W. Rouse said, "These youth groups were not born of any social welfare system. They've converted human erosion to growth. This is the highest kind of hope we can have in the American city. The business establishment needs them more than we need us." He proposed

"sticking with these groups," being a kind of broker in getting them the help they need, and continuing the "most important" job of educating the Establishment.

## UPS & DOWNS

#### RICHARDSON RELIQUARY

The cowed head of Henry Hobson Richardson adorned a multitude of sweat shirts and buttons (below) at the University of Cincinnati this spring. It was all part of "Operation Resurrection," a design competition initiated by a



group of architecture students and faculty. They want to re-erect some of the richly carved and strongly modeled stonework from Richardson's Cincinnati Chamber of Commerce Building, fragments of which now lie scattered and neglected on a hillside overlooking the Ohio River.

The structure (below), one of the architect's significant works, was gutted by fire in 1911, 25 years after it was built. The shell was dismantled and much of the

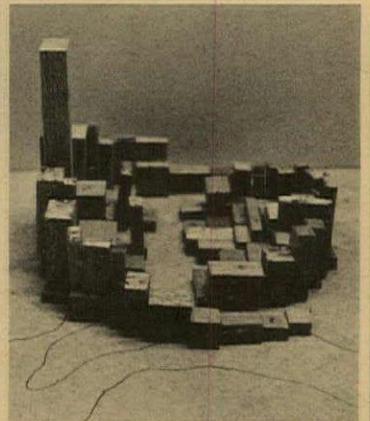


stone stockpiled outside of town. In 1927 the Cincinnati Astronomical Society acquired the stones for use in a proposed observatory. That building, however, was never completed, and the society has given its permission for the stones to be used in some other way.

From the sale of shirts and



buttons enough cash was raised to hold a competition, with a top prize of \$200 for a design which would utilize approximately 125 of the expertly carved capitals (above), columns, and arches. The Park Board gave tentative approval for use of a quarter-acre site atop a knoll in Burnet Woods near the campus. The winning scheme (below), by pre-senior Stephen Carter, consists of a near-

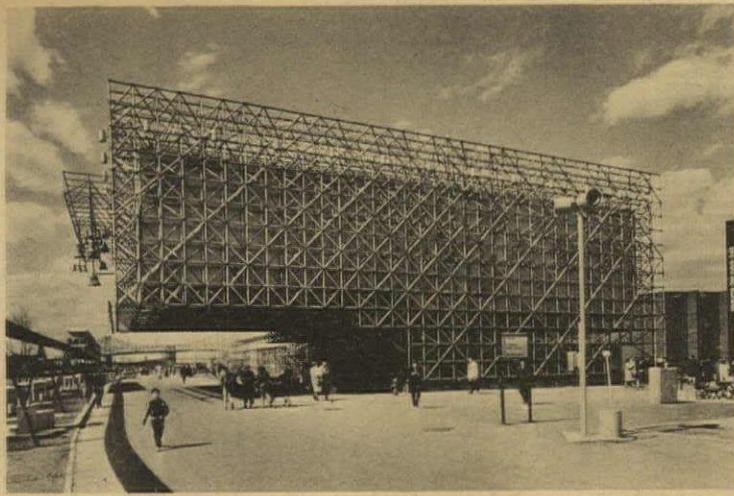


ly closed circle with various levels and wall heights, and lends itself to both contemplation and group activities. With suggestions for further refinements, the jury (which included Richardson's grandson, Joseph) recommended its construction.

Students have volunteered their help, but it will cost \$4,500 just to move the stones (some 200 tons) to the new site. The success of Operation Resurrection now depends on the financial support of those whom it will benefit.

#### PRIZE PAVILION

The 1968 Reynolds Award for a building in which aluminum plays a significant role went to the Netherlands Pavilion at Montreal's Expo 67. It is a hall without interior supports, suspended within a space-frame of 57,000 pieces of aluminum tubing. The architects are Walter Eijkelenboom and Abraham Middelhoek of Rotterdam, and their Montreal associate, George F. Eber. Besides the \$25,000 prize, they were presented with



an Alexander Liberman sculpture in aluminum.

The AIA jury, which made the selection from 63 entries, stressed the self-generating quality of the dramatic design (above), as well as its structural characteristics—modularity, flexibility (changes can be affected on the spot or the entire structure reassembled elsewhere), and lightness. The building has been retained as part of the permanent exhibit, "Man and His World."

#### HOW TO SEW A HOUSE

Hardened polyurethane foam produced the odd-shaped house below, one of three designed and constructed by the second-year students of the Yale School of Art and Architecture.

The structures were made by sewing together large pieces of plastic-backed burlap in the desired shape of the building, inflating them, and then spraying them with several inches of polyurethane foam. The foam hardens in a matter of seconds when it is exposed to the air. For permanence, the houses are coated with a weather-resistant cement-based paint. Conventional doors and win-

dows are hung in openings sawed through the walls.

The houses can be built in a few days and altered if additional space, windows, doors, etc., are required. They are waterproof and provide extremely good insulation. But thoughts of applying the technique on a mass scale are still premature. One reason is the excessive cost of the material (both polyurethane and burlap were donated for the experiment by Union Carbide and Bemis Company, respectively); another reason: nobody knows yet how long the structures will stand up.

## CITIES

### WHOSE BROTHER'S KEEPER?

Cities that are overburdened by the cost of public services to the poor should stop beseeching Congress for piecemeal grants and demand that all programs for the poor be accepted as a national responsibility. That is the sweeping conclusion of a new report, with the unassuming title "Public Services in Older Cities," by New York's Regional Plan Association.

The report analyzes the dire

predicaments of several densely settled cities in the region—places such as Bridgeport, Mount Vernon, Elizabeth, and Trenton, as well as New York itself. It shows how they are pressed to meet steeply climbing poverty budgets while improving other municipal services—all without raising already repressive tax rates. Without massive help, they cannot fulfill all of the demands at once, and can only deteriorate further in the attempt.

Relieved of their poverty burdens, local governments could, according to RPA, "make these cities as attractive to live in as the suburbs for many residents of the region."

## PEOPLE

### NEW DEANS

Oswald Matthias Ungers, practicing architect and professor at the Technical University of Berlin, has been appointed chairman of the Department of Architecture at Cornell. Ungers, a member of Team Ten and author of five books on architecture and planning, hopes to expand Cornell's N.Y.C. field program, a first-hand study of urban problems by the architecture students.

At Yale, acting dean Howard S. Weaver was appointed dean of the School of Art and Architecture. Another appointment from within, at St. Louis' Washington University, raises George Anselevicius (see page 57) from professor to dean of the School of Architecture, replacing Joseph R. Passonneau, who is directing the design of Chicago's Crosstown Expressway. The first dean of the University of Wisconsin's new School of Architecture at Milwaukee (the state's first) is John W. Wade, formerly head of the architecture division at Tuskegee Institute.

### CHANGE

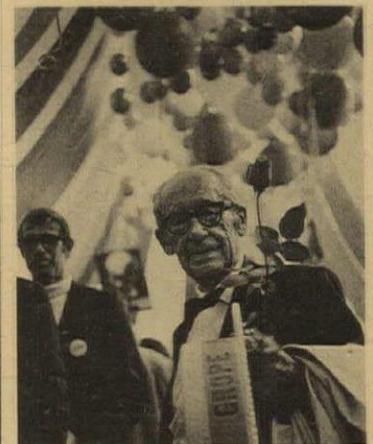
A few days after he announced he would leave his post as Secretary of Housing and Urban Development toward the end of the year, Robert C. Weaver, 60, the first Negro cabinet member, accepted the presidency of New York City's Bernard M. Baruch College, recently reorganized as a four-year school. The appointment becomes effective in January. Until the new campus is built, in Brooklyn's Atlantic Terminal renewal area, planning its organization will give Weaver the opportunity he has wanted—to develop "an institution which will become

the prototype of the urban university." Politics had nothing to do with his decision, Weaver said; he wanted to return to New York, and was interested in an academic position.

### ELECTED

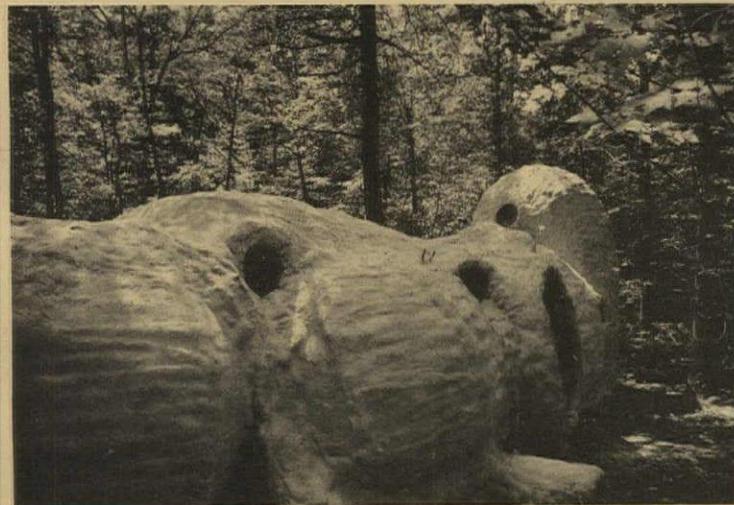
Terry Sanford, lawyer, author (*Storm Over the States*), and former governor of North Carolina, has been elected president of Urban America Inc. He succeeds Mortgage Banker-Developer James W. Rouse, who held the post from April of 1967, following the death of Urban America's founder and first president, Stephen R. Currier.

A leading advocate of broader state participation in urban programs, Sanford initiated the first statewide antipoverty program during his governorship (1961-65). More recently, he has directed "A Study of American States" at Duke University, dealing with ways in which state government can become more effective and more responsive to human needs.



### GROPIUSFEST

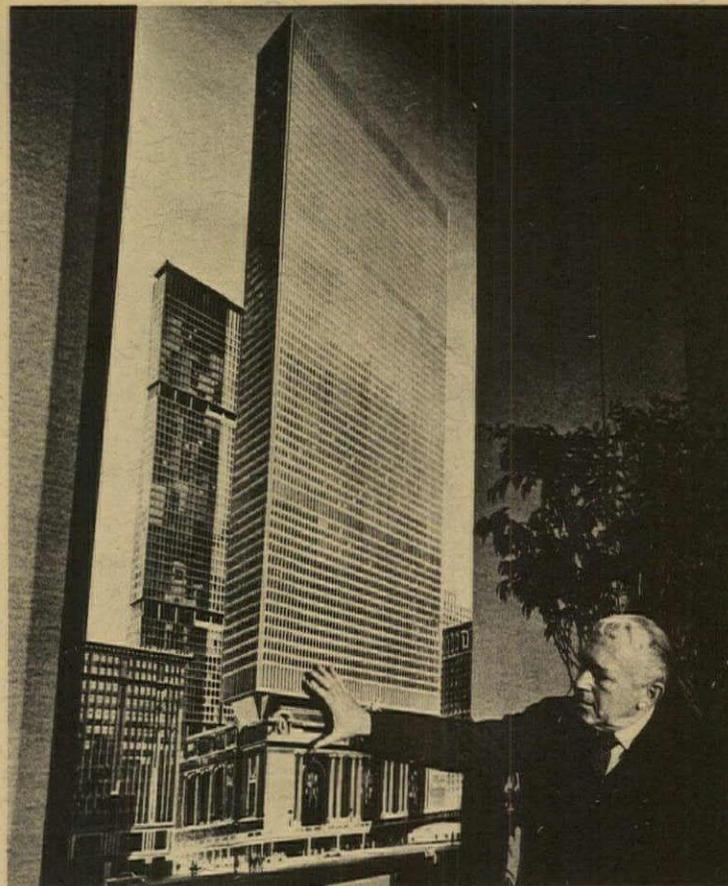
The Harvard community, representing well-wishers across the country, celebrated the 85th birthday on May 17 of Walter Gropius (above), master-architect, -teacher, -designer. There were banners, buttons ("Total Scope with Grope"), and balloons, and many mentions of the Bauhaus: Grope had just returned from Germany and its first official Bauhaus exhibition, which is also to make a New York City appearance. There were toasts (from, among others, present Graduate School of Design Dean José Luis Sert, and Jack C. Pritchard, who helped Gropius and his wife, Ise, flee from Germany in 1934) and some advice from the guest of honor: "Live longer—through endurance you may become somebody." But far more than longevity has gone into what the name Gropius means today.



### A DISSENTING OPINION ON GRAND CENTRAL

The general argument in favor of the design for the proposed skyscraper sprouting out of the old Grand Central station waiting room in New York is that it could be much worse, with a worse architect. Even my colleagues, the editors of *THE ARCHITECTURAL FORUM*, it seems to me, have put it that way—that while the whole real-estate undertaking may be a very debatable one, it is fortunate that the promoter secured the services of as skilled and tasteful a designer as Marcel Breuer.

But haven't we been all through this argument before, just 200 ft. to the north on Manhattan, when the Pan Am Building was built? There were famous and good architects involved with that one too, you will remember. Yet most of the New Yorkers I've talked with still vehemently regret the result. Pan Am is one of the very few structures that men in the street—including taxi drivers—really do continue to resent, overbearing as it is. At that, the promoters of Pan Am did not build all the bulk into their building that the zoning would have permitted; but the Penn Central tower will push to the limit, the



equivalent of 15 stories taller than Pan Am.

In quality of design, as shown in sketches, the proposed tower itself will be, as one would expect, trimly tailored. It will be more anonymous, less personable than Pan Am. But the treatment down nearer to the street has to be called cynical. That old French palace of a RR waiting room, a certified landmark, is to be drilled out like a bad tooth, with only its exterior retained as the quaintly phony base for an immensely heavy skyscraper. There will be 52 elevators inside those old walls.

It is told that when Harry K. Thaw, some years after he had killed Stanford White, was being taken through St. Louis, he glanced across the street at the Civil Courts building (right), a relatively plain structure with a Greek temple placed on its top, and staggered back and said, "My God, I shot the wrong architect." The new Penn-Central tower will be more noticeably ludicrous.

The only reason within architecture for condoning a piece of commerce such as this is basically stoical; this may indicate that the profession is embarrassingly out of touch with the mood of the cities, which is not stoical. This architectural event comes at a time when the public at large is becoming sensitive to the brutalizing of its

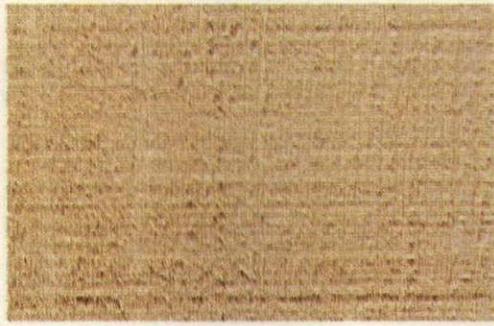
cities, and knows a lot more about architecture than it used to. This is partly because the profession has wooed the public's interest so assiduously in recent years, inviting them into the act. This new building won't help. Inside a profession, of course, there can usually be found reasons, or rationalizations, for any situation as complicated as the use of air rights. In the end, you may even fool yourself.

But do you fool the public?



Photographs: Page 27, John R. George. Page 29, Bill Noonan (top left); The Guardian (center); Wide World Photos Inc. (bottom). Page 109, courtesy of Hardy, Holzman & Pfeiffer (top); Peter M. Wolf (bottom and right). Page 110, courtesy of John Gibson (top left); David Woodman (top center and top right). Page 111, Bill Grover (bottom); Steven A. Hansen (right). Page 112, New York Times (top); George McCue (bottom).

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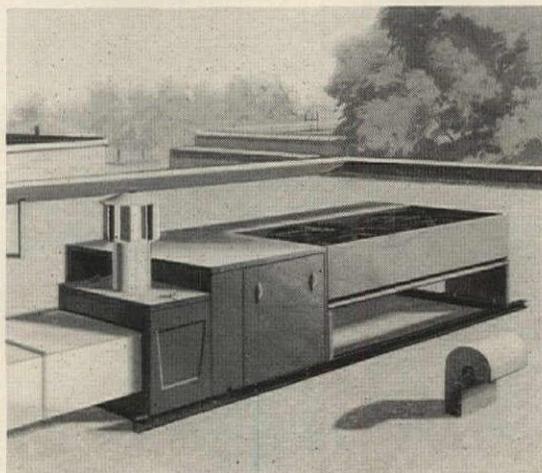
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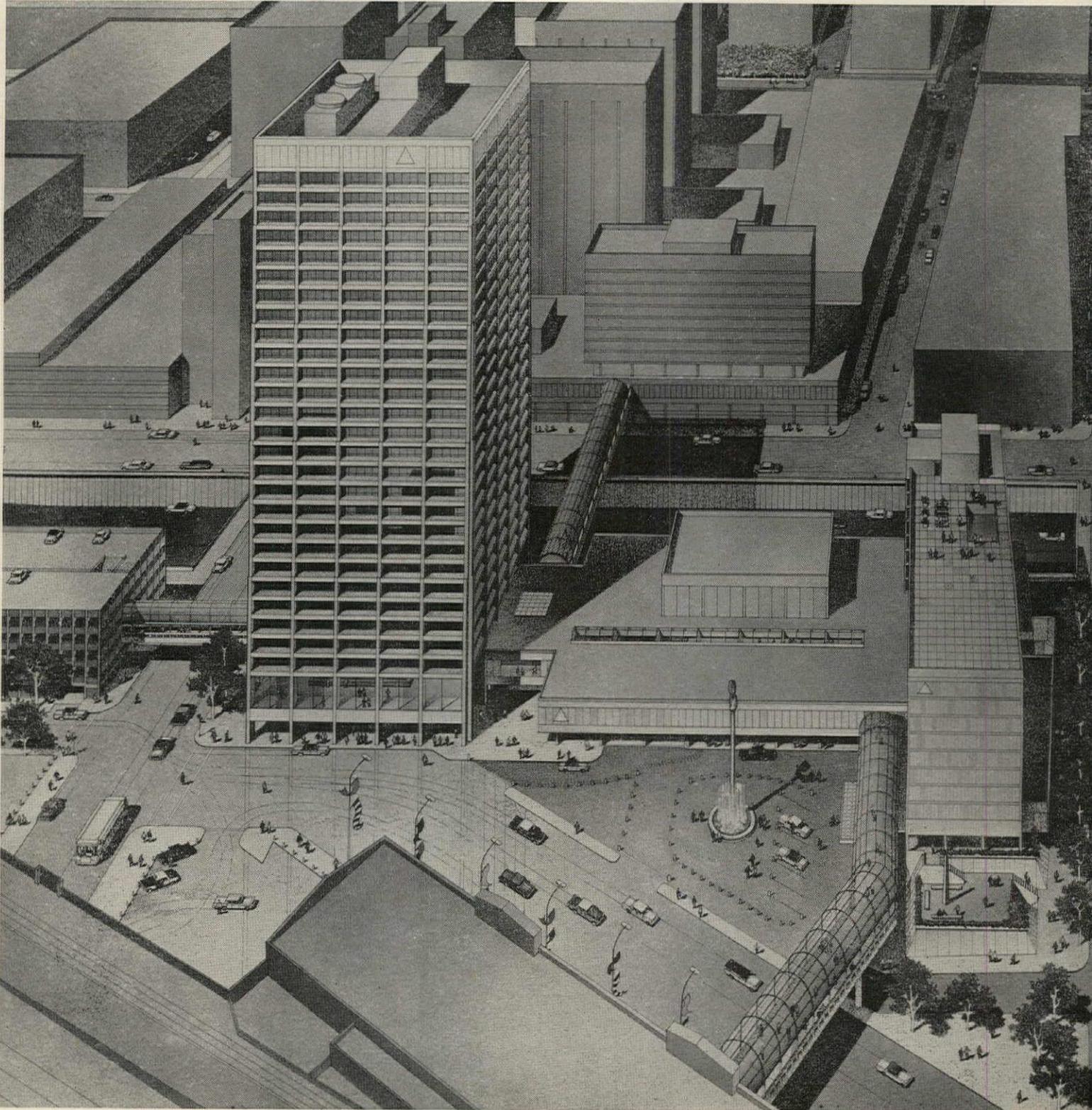


# PREVIEW

The unification of the northeastern megalopolis moves another step forward with the Gateway Urban Renewal Project in Newark, N. J., by Victor Gruen Associates. Designed to rejuvenate downtown Newark, the project will also strengthen the connections between Newark and Manhattan, nine miles to the east.

The first stage, now under way, covers two city blocks and consists of a 30-story office tower and

NEWARK'S NEW GATEWAY



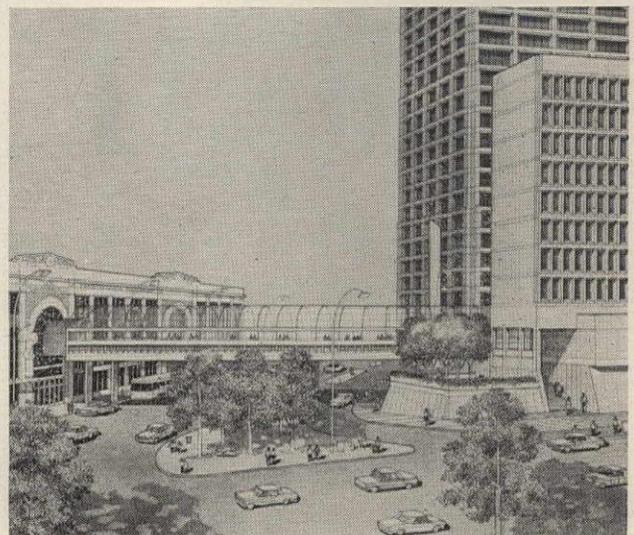
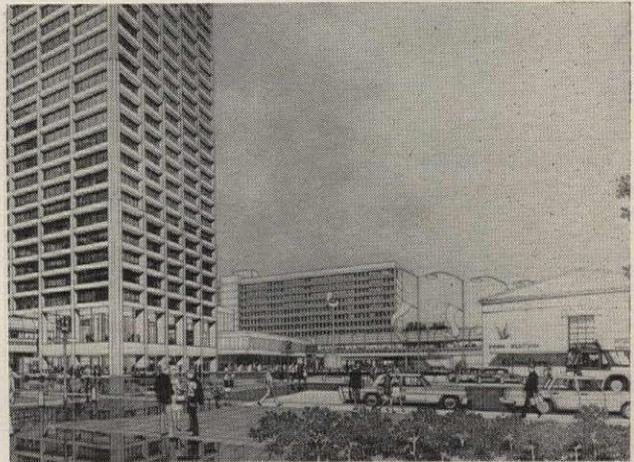
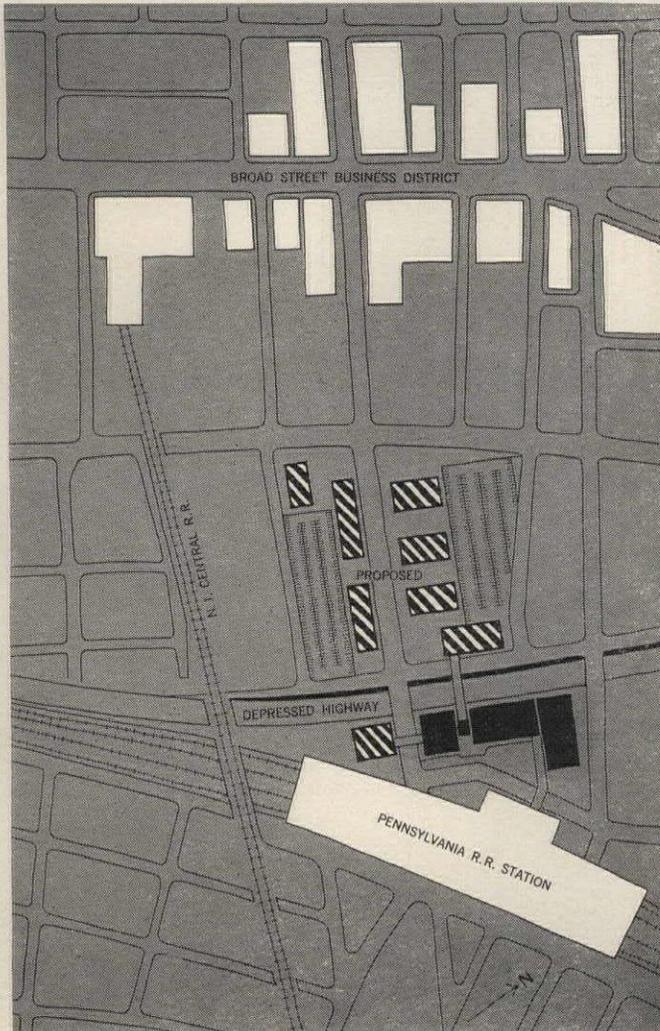
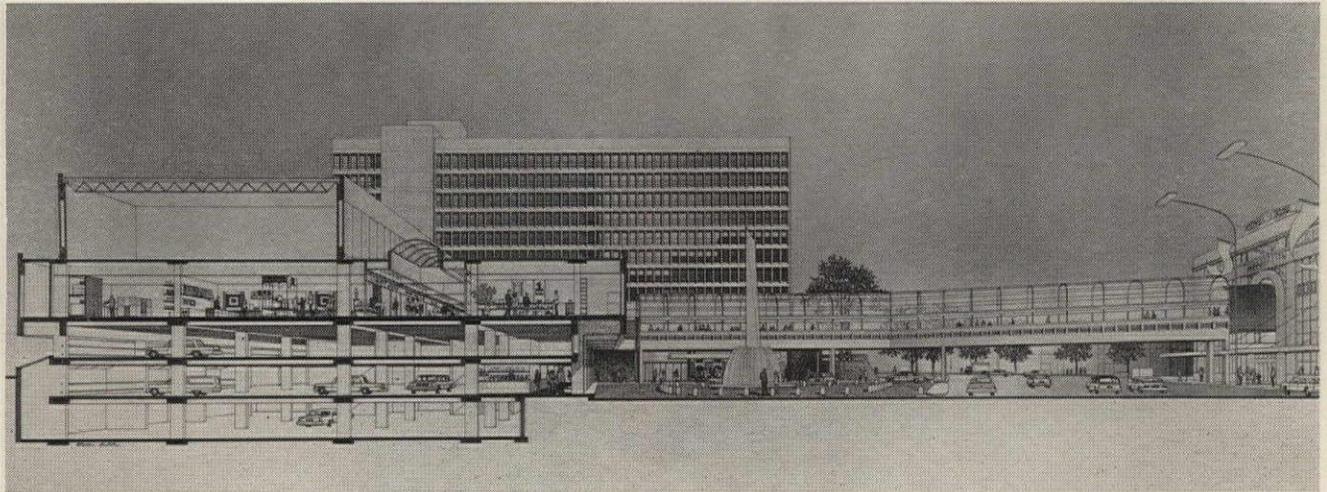
a ten-story motor hotel. The mezzanine-level lobbies of both buildings are linked by an enclosed shopping mall elevated over a pedestrian plaza. A three-level parking garage is also included. A glass-enclosed bridge across the newly created Raymond Plaza West will lead from the complex to the nearby Penn Central and PATH (Port Authority Trans-Hudson) station. Lobbies, shopping mall, bridge, and

most of the train platforms are on the same level. It will be possible, as the developers point out, to enter a subway station anywhere in the New York City system and, by rail connections, travel to a business appointment in Newark and return, without ever encountering vehicular traffic; in fact, without going out-of-doors at all.

Seen as a city improvement, the Newark project is the first link

in a line of projected new buildings and public spaces that will unite the main commercial center with the station. In keeping with the Gruen firm's well-known belief in the separation of vehicular and pedestrian traffic in congested areas, a proposed highway through the project will be depressed. Gruen's office considers the re-routing and depression of the proposed highway one of their major achievements. Formerly the road-

way was planned to run at street level immediately adjacent to the station, separating the much-used terminal from the city which it serves. In the present scheme, the first stage together with its projected extensions (three lower office towers, stores, and theaters; connected by public spaces and, where necessary, additional enclosed bridges) will be, in a sense, a giant bridge itself, from Broad Street to the station area.



# PREVIEW

If in the years ahead architecture schools are deluged with applications from Columbus, Ind., it will be understandable. The newest addition to the town's list of buildings by major architects is the 1,200-student Southside Junior High School by Eliot Noyes & Associates.

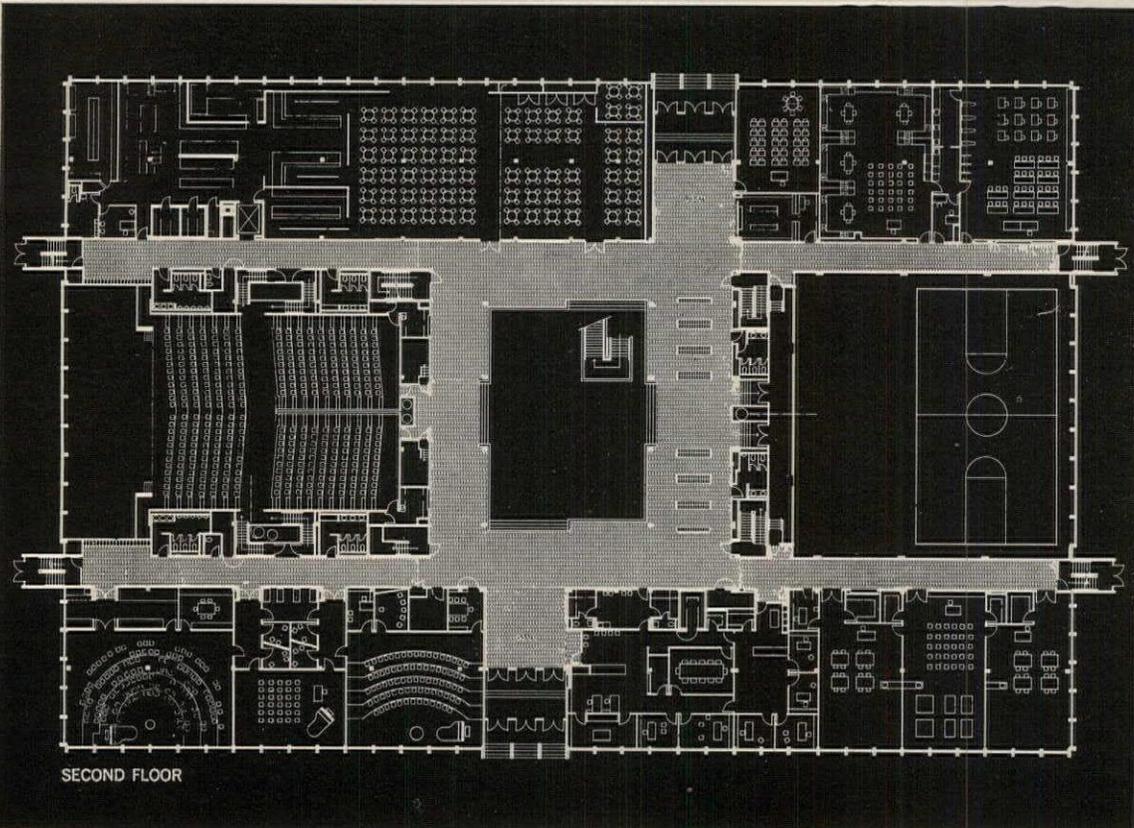
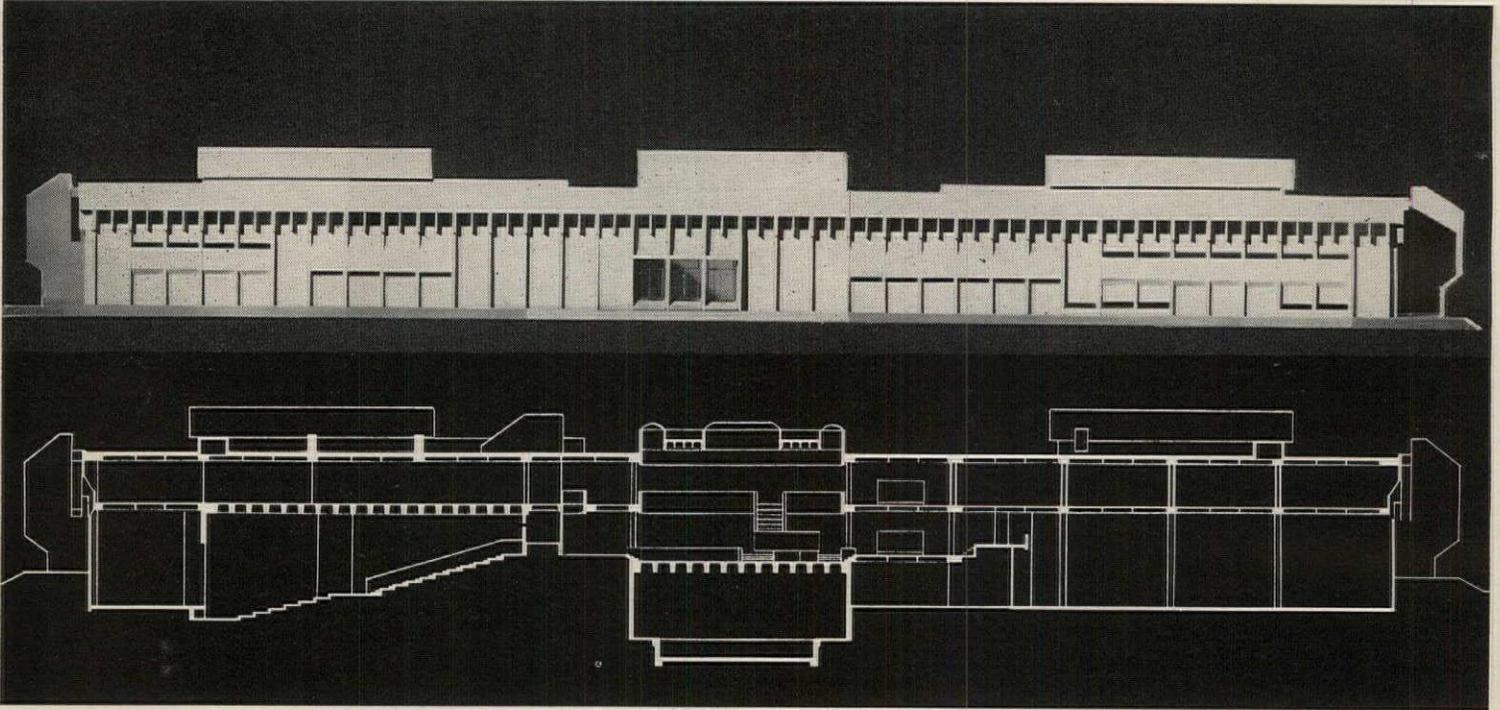
The building's main feature is an enclosed, two-story-high commons, entered at the intermediate level (plan, below). It serves as

the heart of the building's traffic system. Off of it open all the major special purpose areas and classroom corridors. It is also the social gathering place of faculty and students, a "noise-center" that allows for greater quiet elsewhere. Immediately beneath lies a swimming pool at the below grade level which also contains athletic facilities and workshops. Major work planned for the 33-acre, perfectly flat site includes al-

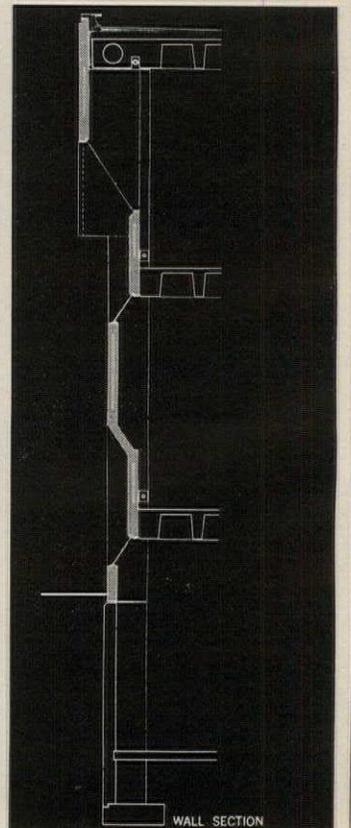
leviating monotony by placing the building on a 4-ft.-high podium of earth. Other berms and trees will shield parking areas and a "total energy" power plant.

In aiming at a strong, direct design with many expressed, simple, structural features, the architects sought to make the students more aware of exactly how the building is put together. Columbus, Ind. is becoming a school of architecture in itself.

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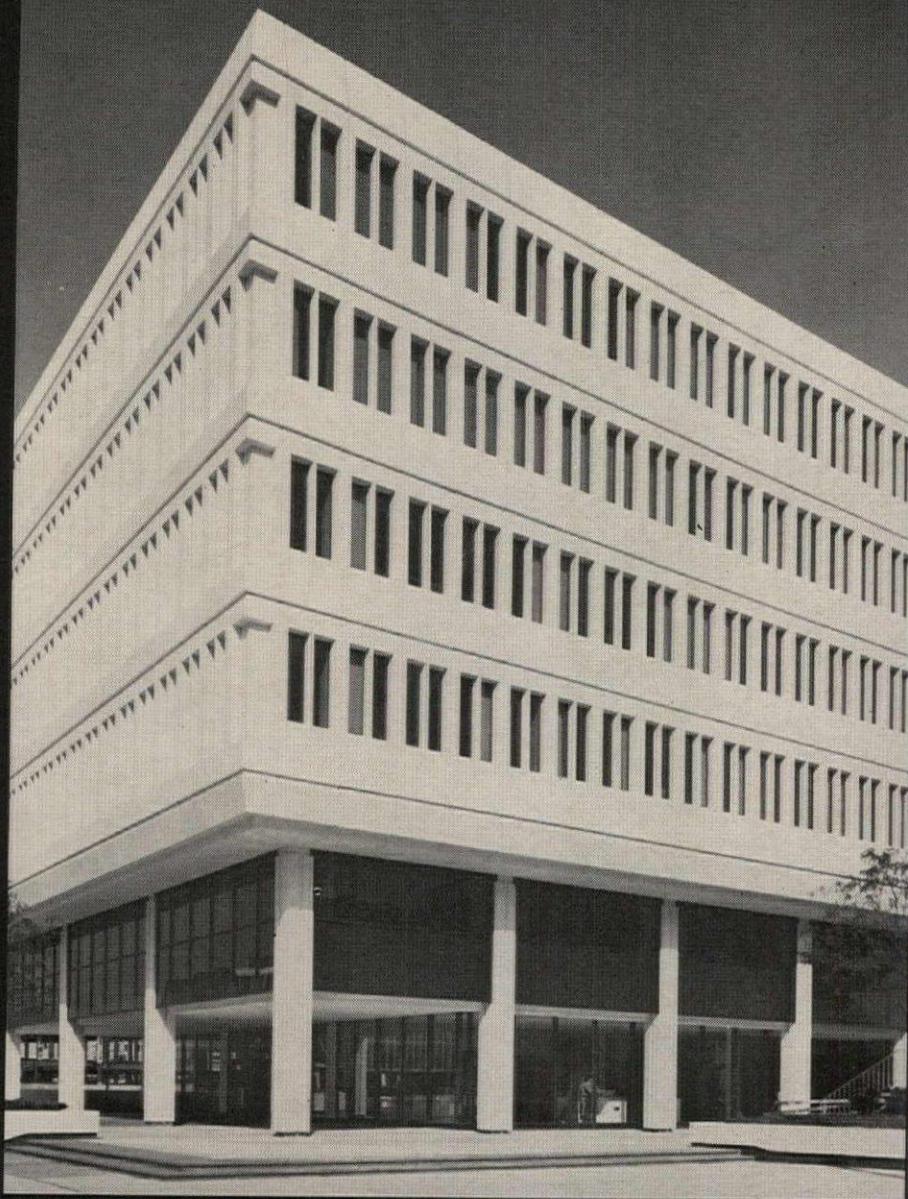
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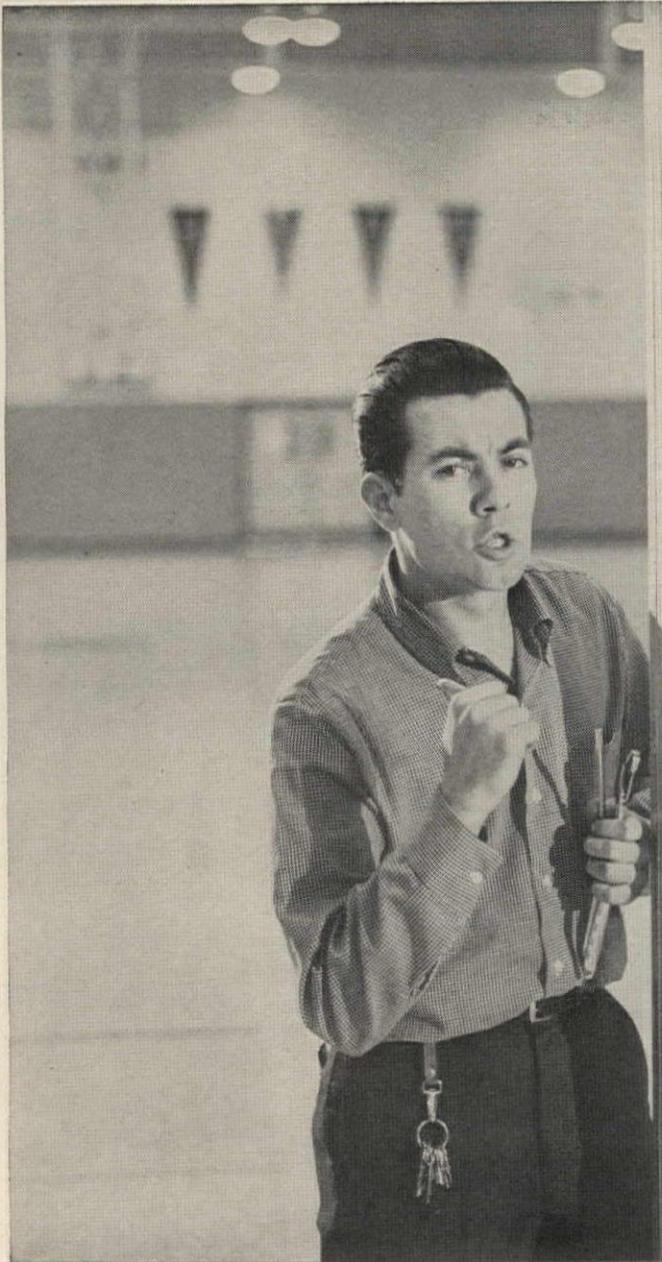
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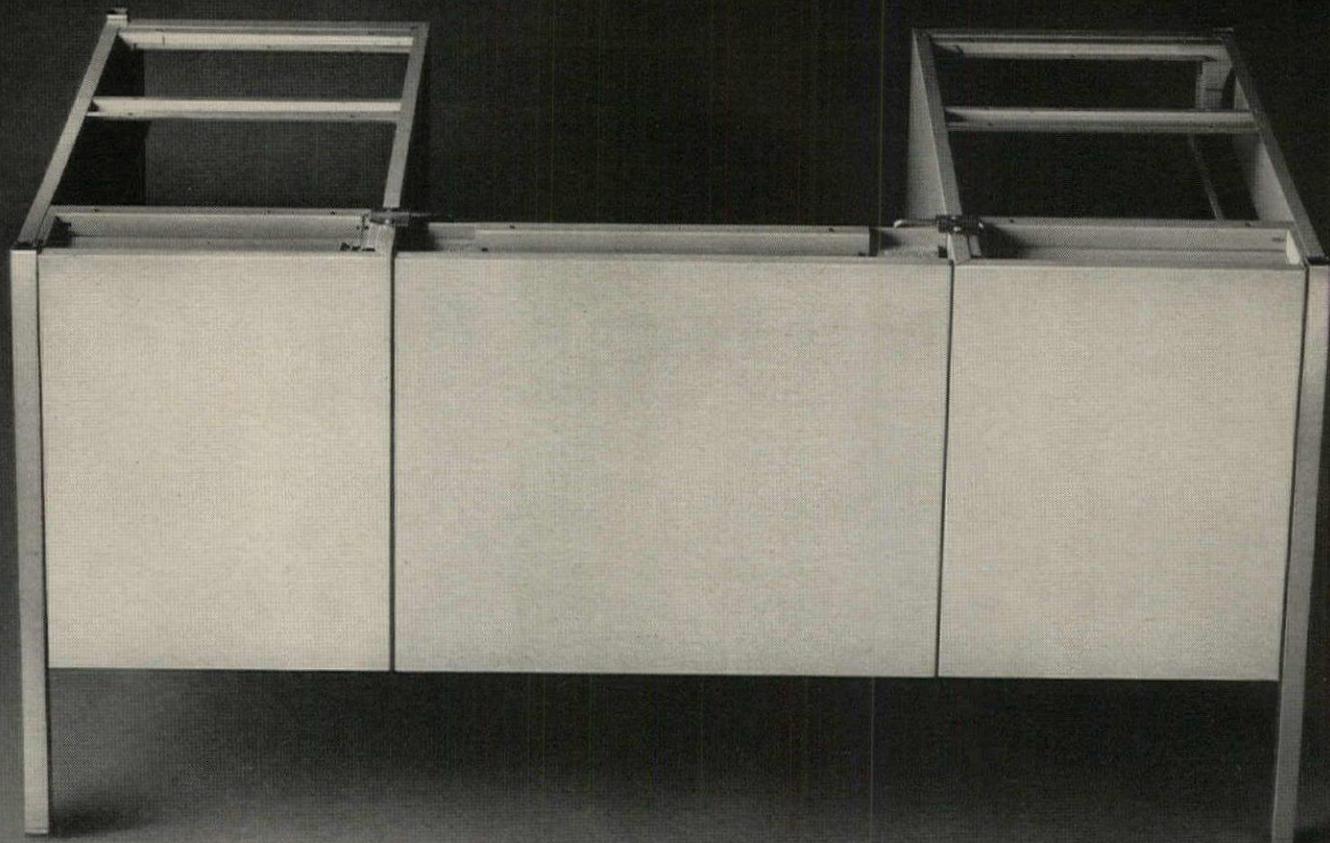
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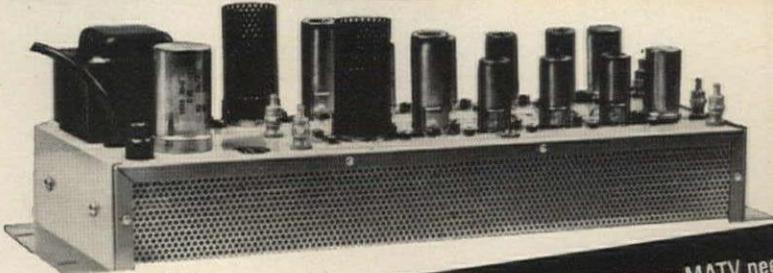
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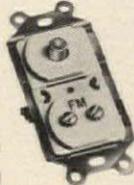


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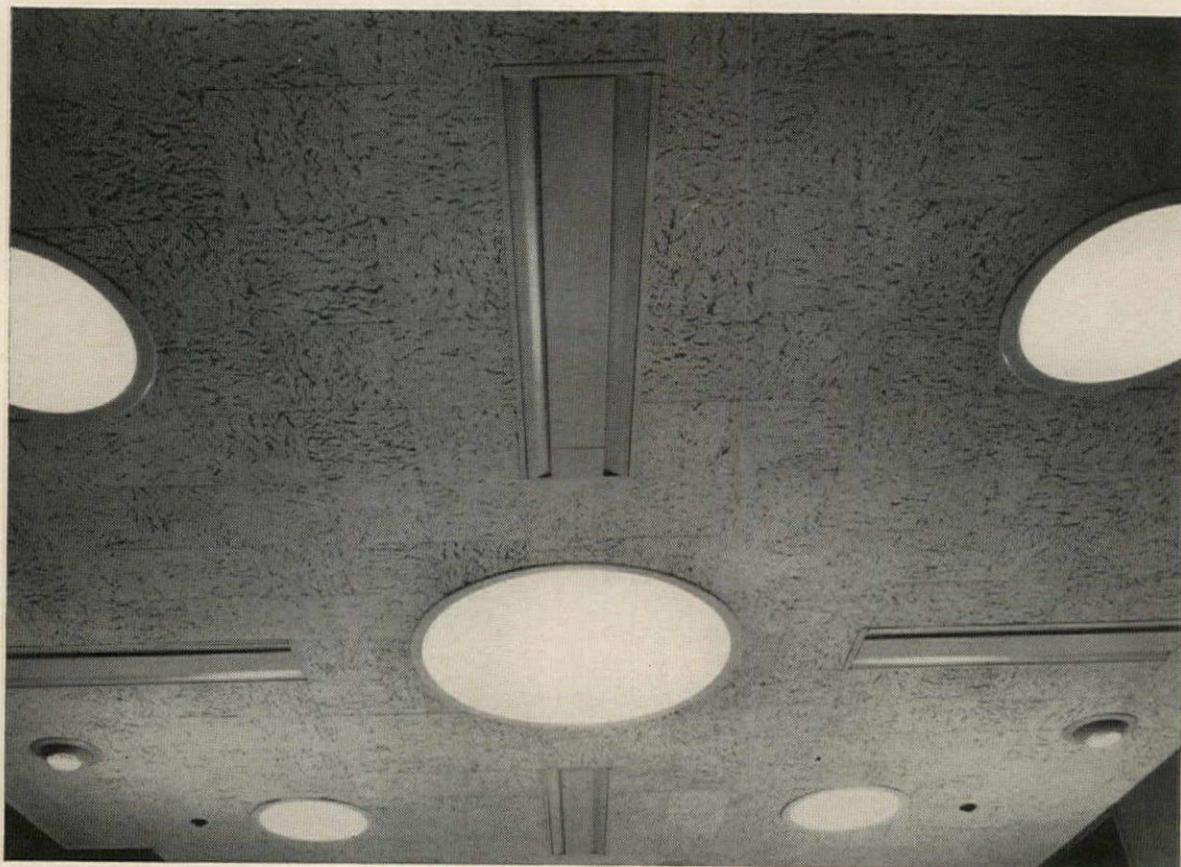
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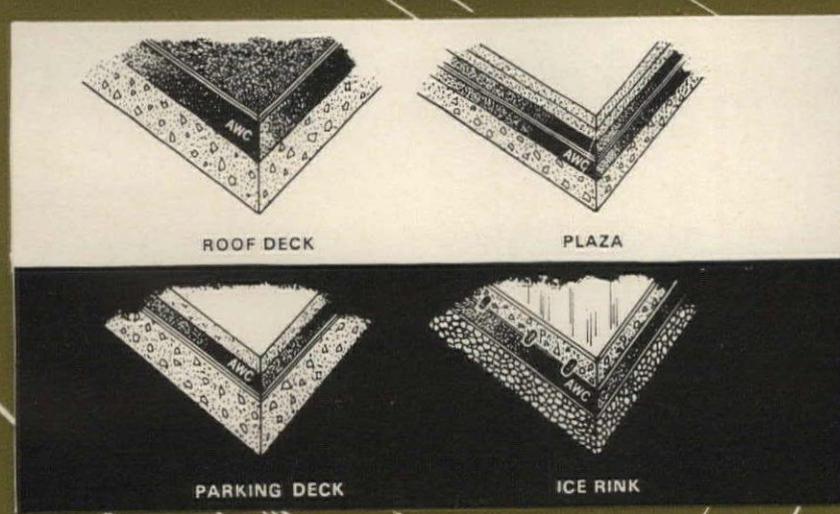




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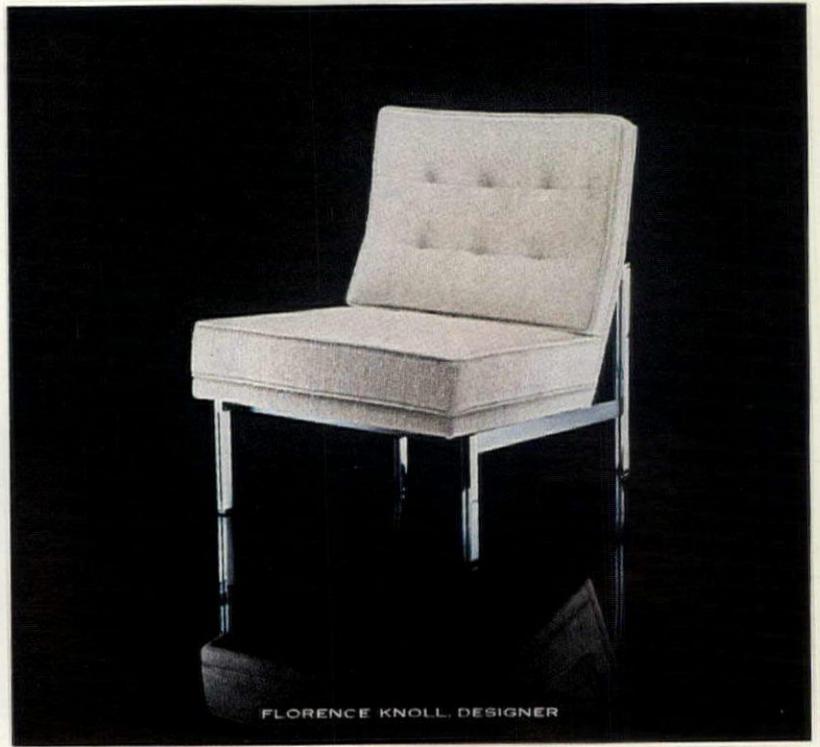
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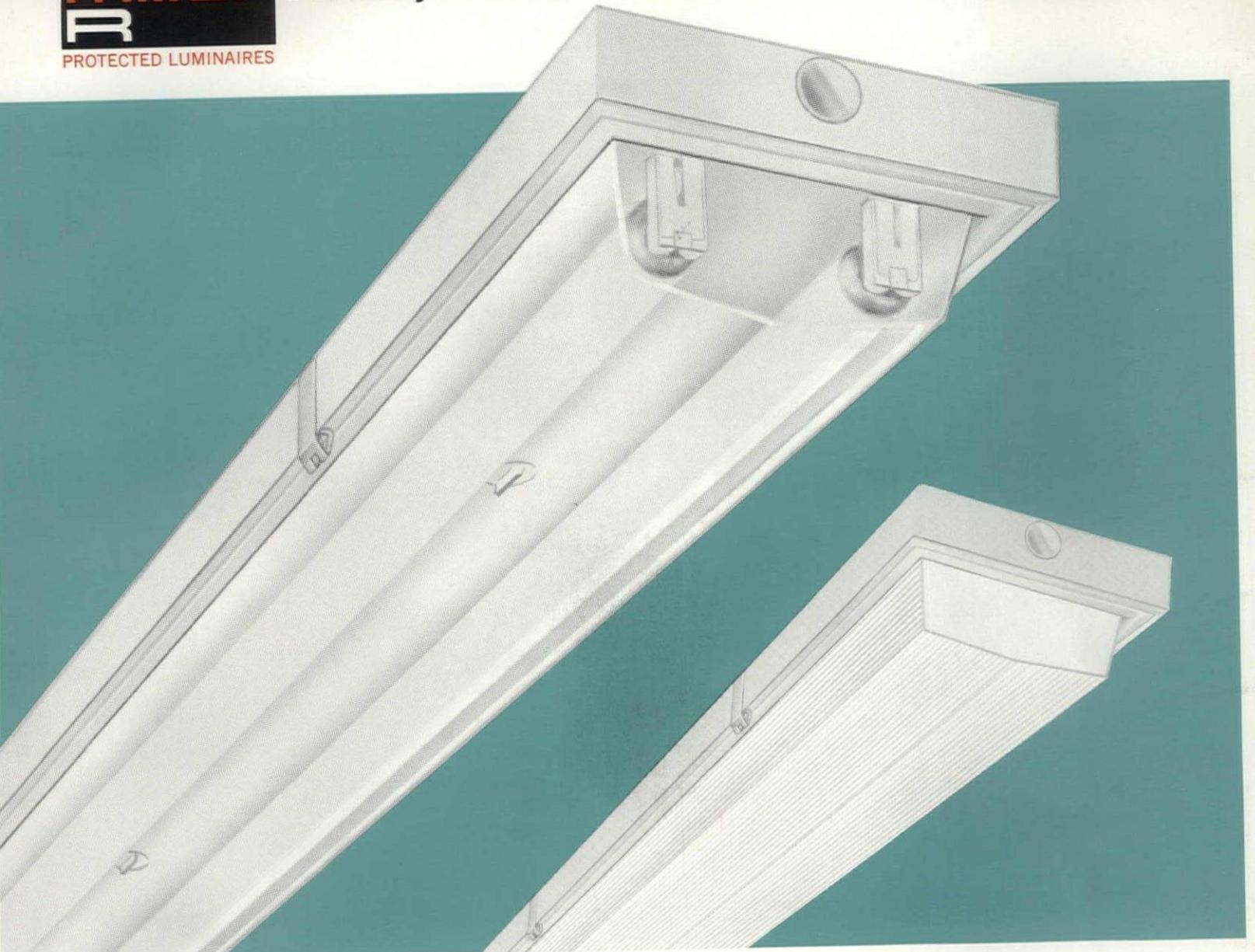
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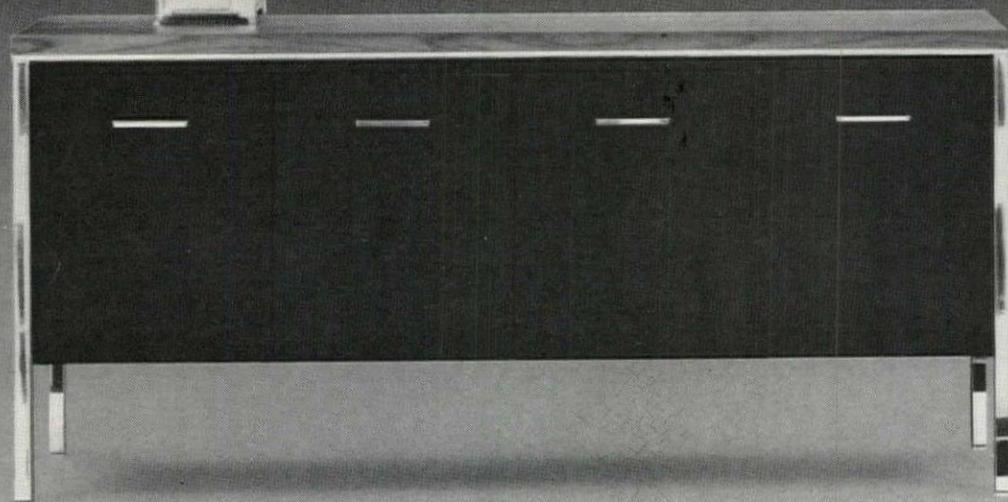
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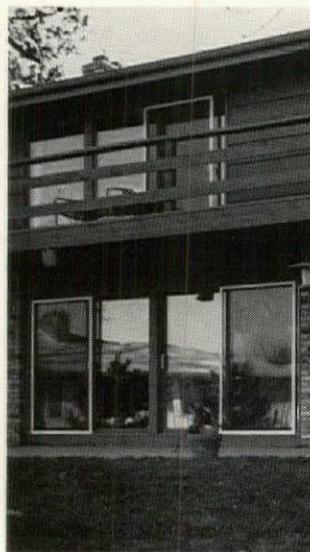


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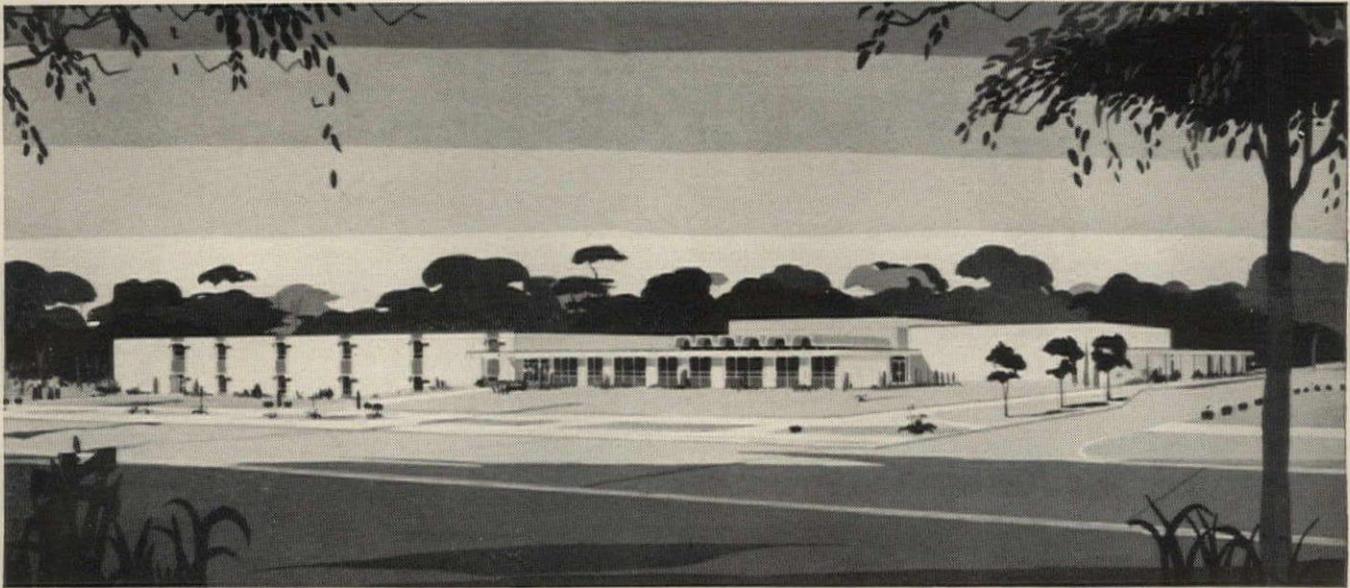


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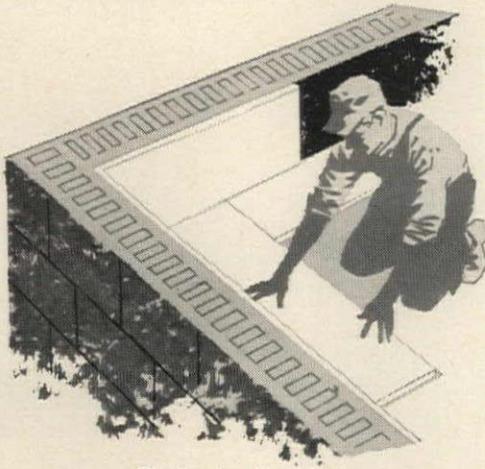
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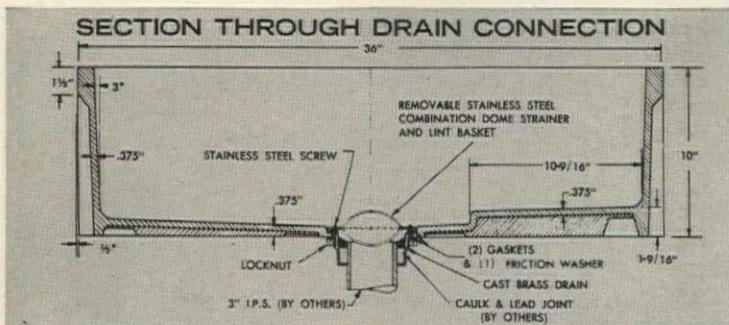
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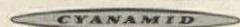
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## BOOKS

(Continued from page 87)

early modern architecture—what mod London calls the “heroic era of the modern movement”—seems in memory bound up with social housing and design of the urban context. In the same memory’s eye, focal works of civic art and the problem of monumentality seem hardly to have existed as subjects of architectural concern. The late Sigfried Giedeon called this view “social imagination” and made it one of the constituent elements in the work of the CIAM pioneers.

They tried. Gropius built at Siemstadt and Dessau, Corb formulated a lifelong series of polemic statements beginning with the Dom-ino, Monol and Citrohan houses. Even in the U.S., Wright spun out a theory of Broadacre City and built Usonian houses as a model for a new American vernacular. Yet, overall, social imagination in this country produced little except the horrors of highrise public housing.

The pioneering accomplishments which have informed practice and been assimilated into it have been of quite a different order. They were the monumental buildings: the Bauhaus itself, the Swiss pavilion and the Chandigarh government complex, Mies’s towers, and the rest.

Current fascination with historic vernacular building may lie in the unfulfilled promise of the modern movement to provide more than a new style for those buildings and spaces having central social functions, to provide instead a basis for remaking the whole texture of the city. Since that task has largely eluded designers, they have now become enthralled, perhaps enviously, by the work of anonymous men in a shadowy past when, somehow, a shared genius informed vernacular design and made civic art of whole settlements.

The failure to realize the social imagination of the modern movement combines with its esthetic precepts to generate a profound

discontent with present city building and an equally profound enthusiasm for the Hydras of the world. Taken as artifacts these old towns express a convincing unity between form and purpose; and this unity is the quality that forms the foundation of modern esthetics. Somehow a complex, overgrown, and affluent society cannot achieve it.

At Hydra contour lines, solar orientation, defense, the hard realities of getting a day’s work done, limited building technology, and the structure of the family appear to have shaped the town completely. This longed-for clarity of the relationship between form and function makes the Michaelides book worthwhile because the subject so eloquently demonstrates the principle. And it makes the book worth reviewing because it so effectively expresses a characteristic problem in contemporary architecture and urban design.

If it were not for this overriding problem, interest in the book might be somewhat limited. To begin with, \$10.50 looks like rather a lot to pay for 93 pages of big type and small pictures. *Hydra* stands somewhere between the lavish picture book, or alternatively, the exhausting monograph that one might expect at the publisher’s price. For instance, the question of building technology gets practically no attention. Yet any architect senses immediately that the materials and methods available on a remote island during Napoleonic times played a significant role in shaping the settlement. Similarly, a city built up of family homes, shops, churches, and workplaces must have been strongly molded by the organizational patterns of these social units. Michaelides gives scant attention to social factors. *Hydra* is no exhaustive monograph.

Nor is it a picture book in the tradition of those lavish volumes we have come to expect from authors like Kidder-Smith or Huerlimann and their publishers. True, the book has many pictures: 103 of the author’s photographs are reproduced along with 50 of his measured drawings

(Continued on page 143)



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# BOOKS

(Continued from page 140)

and diagrams and reproductions of a dozen or so old paintings and prints. But the photographs are small and not up to the crisp standards we expect from modern book manufacturing. One longs for a few full-page bleed shots of Hydra glistening in the Aegean sun.

The measured drawings represent a heroic effort. They were measured on the ground at Hydra, not traced off secondary source material in an architectural library. But they too have annoying faults. North arrows flip 'round capriciously from page to page making it a puzzle to relate some of the detailed plans to the overall site plan of the town. Painstakingly drawn sections so necessary to understand this strongly modeled landscape float unkeyed to their plans.

Taken altogether, both in the context of an overriding architectural concern with historic

vernacular urban design, and intrinsically as a publishing effort, *Hydra* presents a dilemma. It neither addresses itself to the questions raised by our interest nor does it come to grips with the peculiarities of the case studied in sufficient depth to reveal the secrets of this island town form.

Yet, what more can we really expect? Michaelides has added one more chink to the exploratory argument carried on by so many architects since Le Corbusier first visited the Greek islands. These have ranged from poetic surveys like Aldo van Eyck's report on the Dogon settlements in Africa to such ambitious undercover efforts as the monumental unpublished study of the Rio Grande pueblos by MIT's Chester Sprague. It is good to have this new evidence about the nature of vernacular building, but what we need at this juncture is the conceptual breakthrough connecting Hydra to Habitat in a way responsive to the realities of city building in the second half of the 20th century.



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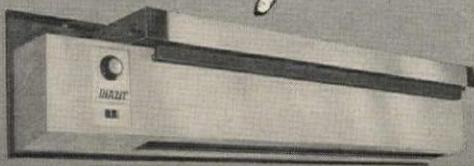
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### A. DOORS AND WINDOWS

1. Glas-Wich Architectural Laminated Glass", 12-pg. catalog gives technical data on condition control properties of glass. Dearborn Glass Co. Request A-1.
2. 4-pg. 4-color brochure on "The Executive", a premium all-steel door. UL fire door test for 3-hour "A" classification. Fenestra, Inc. Request A-2.
3. Catalog including technical information on LOF glass. New products — Vari-Tran (TM) and Vigilpane (TM) included. SA 68. Libbey-Owens-Ford Glass Co. Request A-3.
4. 32-pg. catalog "Malta Wood Windows". Casement, vent, double hung, glide, basement types. Wood Patio Door with insulating glass. Malta Mfg. Co. Request A-4.
5. Catalog 170/OV covers typical installations, specs, test performance data, ASTM acoustical testing and rating procedure. Door, frame and acoustical seal details. Overly Mfg. Co. Request A-5.
6. 4-pg. 2-color folder on "Weather Chamber Windows" weatherproofing system combining Neoprene weatherstripping with pressure equalization. Republic Steel Corp. Mfg. Div. Request A-6.
7. Plexiglas solar control series. 20-pg. brochure shows applications, data for computing solar heat gain: glazing, sunscreens, domes. Rohm & Haas Co. Request A-7.

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3. "Door Closers & Controls", 16-pg. brochure, illustrated, door control products. Norton Door Closer Div., Eaton Yale & Towne, Inc. Request F-3.
4. 1968 condensed 16-pg. catalog of architectural hardware, specs, function charts. Sargent & Co. Request F-4.

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3. "Schokbeton Precast Concrete" 4-pg. catalog includes Likon new lightweight curtain wall panel, S.E.C.T.R.A. industrialized system for multi-story housing. Schokbeton Products Corp. Request M-3.

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1. Textbook on history, manufacturing specs and installation of cast iron soil pipe fittings. Cast Iron Soil Pipe Institute. Request S-1.
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3. 32-pg. color booklet. Electric water coolers and drinking fountains. Specs and application chart for wall-mounted coolers, semi-recessed floor standings, cafeteria, remote package units. The Halsey W. Taylor Co. Request S-3.
4. Form C 150. 12-pg. color catalog of water coolers. Architect illustrations. Temprite Products Corp. Request S-4.

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1. "DIAZIT WHITEPRINTERS & DEVELOPERS", 8-pg. color catalog, equipment & accessories, specs, prices. Diazit Company, Inc. Request W-1.
2. Books on architecture and urban affairs at membership discount. Brochure. The Library of Urban Affairs. Request W-2.

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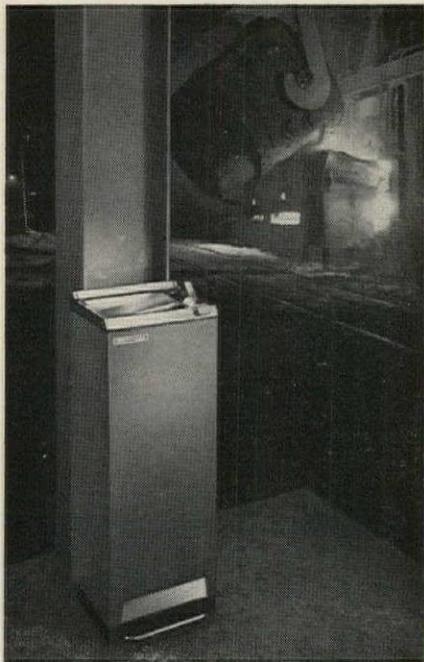
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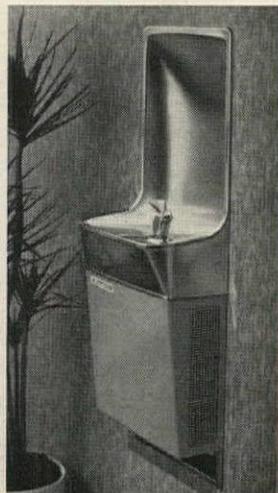
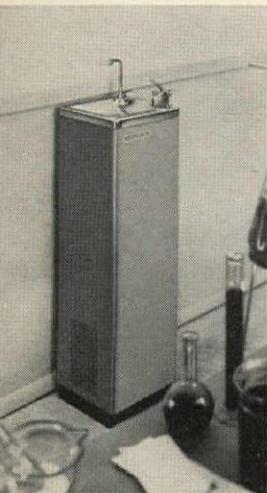
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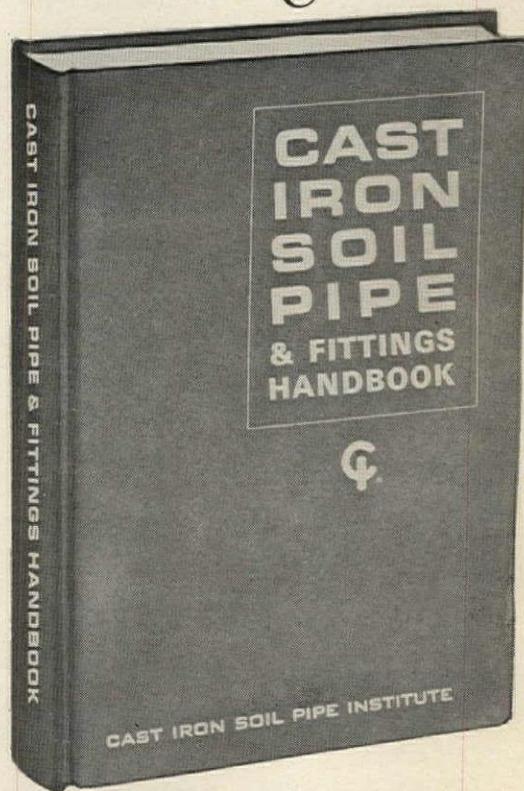
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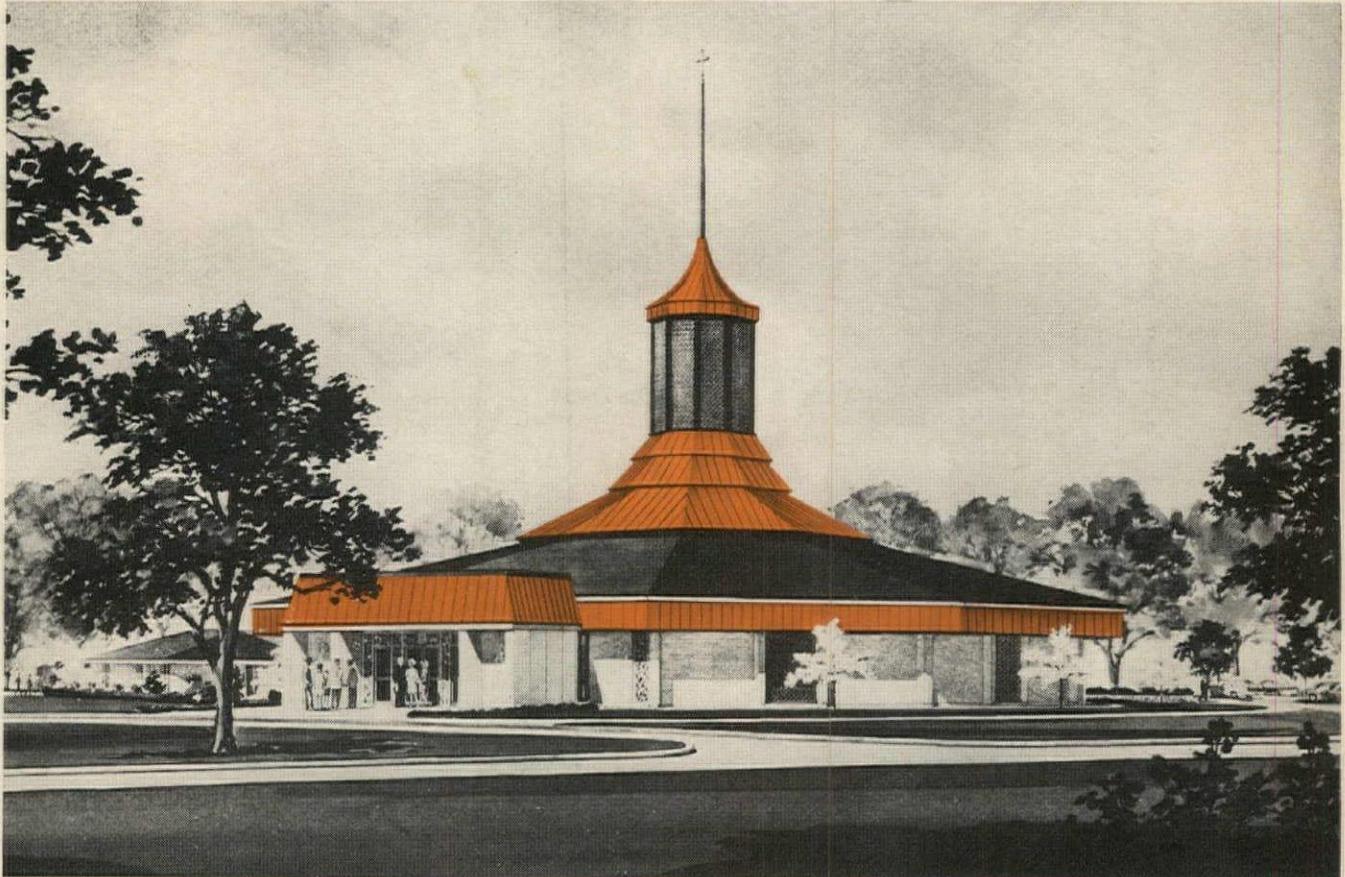
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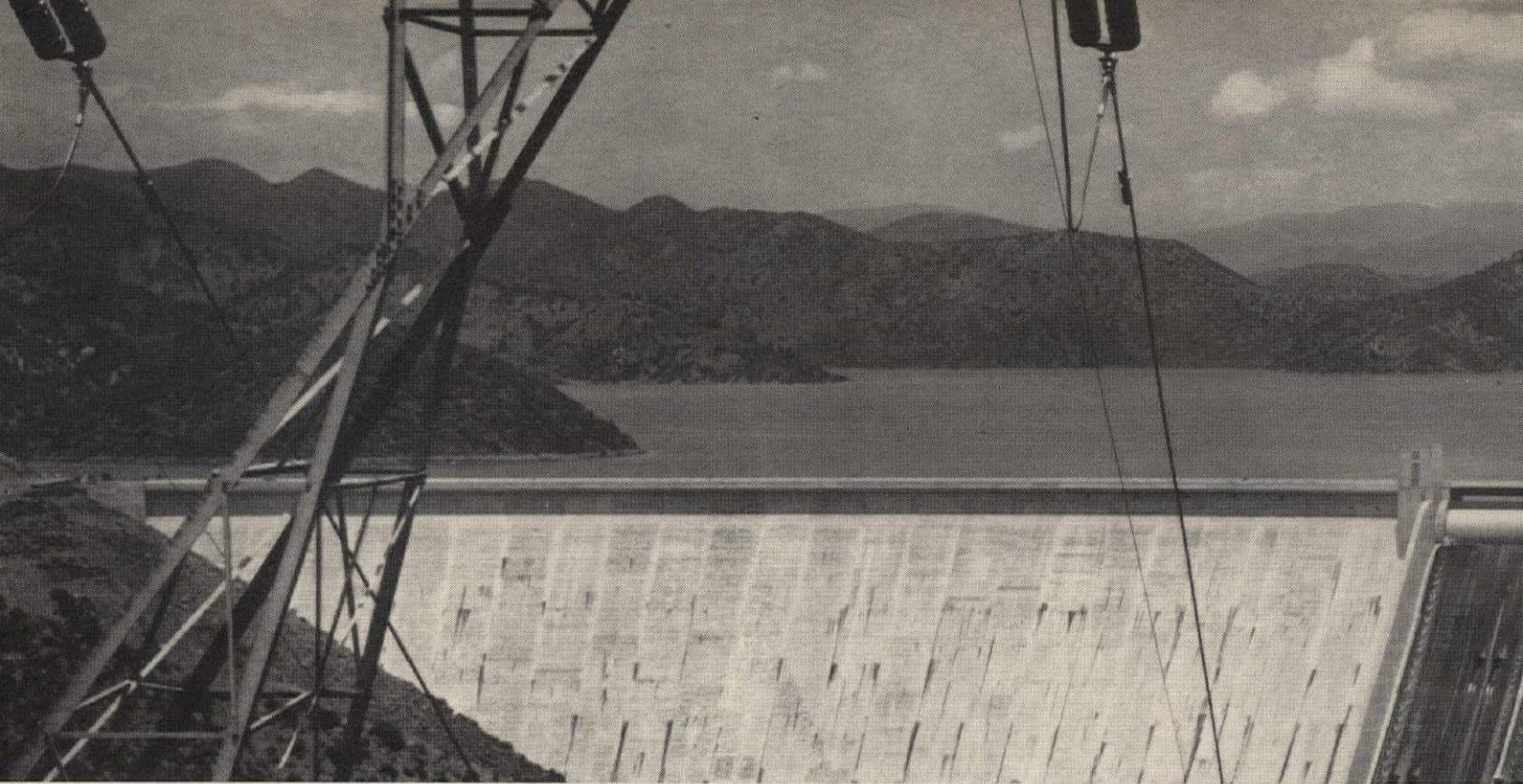
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## THE MOST THOROUGHLY DAMMED NATION ON EARTH

BY MICHAEL FROME

This Nation is now passing through a strange and lurid era of building dams, dams, and more dams with reckless abandon. The entire country appears to be in the grip of an almost psychotic fixation on dams as the magic key to profits, politics, and progress. We may survive, but one must wonder.

"These Temple Destroyers, devotees of ravaging commercialism, seem to have a perfect contempt for Nature, and, instead of lifting their eyes to the God of the Mountains, lift them to the Almighty Dollar," wrote John Muir in 1913. He may have been right, but he was fighting only one dam, Hetch Hetchy, in Yosemite National Park. Since then over 160 more major dams, each measuring over 220 ft. in height, and several hundred others of lesser dimensions, have made the United States the most thoroughly dammed nation on earth. The major and minor reservoirs of the Army Corps of

Engineers alone have created a shoreline longer than that of the country's mainland.

"It seems that we can afford from \$1 to \$2 billion worth of water development projects almost every year, with only perfunctory public hearings and almost no prescribed limits as to financing," observed Thomas L. Kimball, executive director of the National Wildlife Federation, in a recent commentary, "yet we must be bound by less than \$120 million per year to finance the bulk of the park and recreation program of the U.S."

In many cases the damming of a river is a worthwhile effort in the public interest. Dams have helped to prevent floods, produce power, store water, and open rivers to navigation. Man-made lakes have created a new world of fishing, boating, water skiing, swimming, and camping. These large bodies of water have not only proven a recreational boon, but an economic asset too for land speculators on the ground floor.

The prevalent theory of the hour is that because a dam is valid in one circumstance it must

be valid in all circumstances. Self-propelled federal agencies are energetically scouting virtually every river and creek bottom from Alaska to the Gulf of Mexico for appropriate sites, without real regard for basin-wide regional planning or natural values placed in jeopardy. For example, in northwestern Montana the Bureau of Reclamation is promoting a dam across the Lower Sun Butte River, although it would wipe out trout streams and eliminate migration routes of elk herds that are part of the native fabric of the state. The Soil Conservation Service quite generously has offered to construct reservoirs in Shenandoah National Park, Virginia, for the benefit of the power structure in a nearby rural community, despite efforts by a "sister agency," the National Park Service, to protect the area as wilderness.

Even where the dam builders see poor prospects and prefer to back away, undeveloped states and localities beat the drums for water-storage projects on the wholly correct theory that they can receive something for nothing from federal taxpayers in more

prosperous sections. This explains why dams are a special hallmark of the South, a region noted for its Congressional bloc with long seniority and power enough to bring home the bacon—or, in this case, the pork.

Dams don't come cheaply, but they do come easily. Congress may talk loudly about the lack of funds for poverty programs, parks, and saving the cities, but the truth is there is something at the pork barrel for everybody who plays the game. As the *Washington Post* reported last October of a Senate Appropriations Committee report: "The fiscal 1968 funds bill proposes 50 new construction starts on Army Engineers water projects, although the President requested that only nine new projects be started."

One of the worst examples of wastefulness, of a dam that should never be built, is the Tellico project on the Little Tennessee River in East Tennessee, for which Congress appropriated an initial \$10 million in

Mr. Frome is one of the most active conservationists in the U.S. and has written extensively on the subject. He is vice-president of Defenders of Wildlife and lives in Alexandria, Va.



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23

# THE EXPRESSIVE ENVIRONMENT

*It should be designed not just to permit,  
but to encourage change.*      **BY SIDNEY BROWER**

Mr. Brower is principal planner (design) for the Baltimore Urban Renewal and Housing Agency. He received his bachelor's degree in architecture

from the University of Cape Town, South Africa, and a master's degree in city planning from Massachusetts Institute of Technology.

**W**E are all constantly engaged in changing the appearance of the environment in which we live. Acting as individuals and in communities, we continually rearrange our countryside, rebuild our cities, regroup our neighborhoods; and periodically we renovate our homes, redecorate our rooms, renew our furniture, revise our wardrobe and replenish our vases.

The purpose behind many of these changes is, of course, a functional rather than an esthetic one, being directed toward increasing the suitability of the environment for performing specific tasks such as raising crops, carrying traffic or providing shelter. In such cases, changes in the appearance of the environment come about almost as a by-product, often neither intended, desired nor appreciated. Other changes have a direct esthetic purpose: they consist of a conscious and intentional effort at *improving the appearance* of the environment by ordering the visual elements into a clear and harmonious composition.

But there is another esthetic purpose of change, one which cannot be explained as a search for formal perfection. It may be typified by the almost irresistible urge we all feel to impress our footprints in the clean white surface of a drift of snow, even though we would be consciously spoiling its formal harmony. Actions such as this do not aim to improve the environment; they aim simply to change it, to alter it, to make it *look different to ourselves and others*.

## SELF-ASSERTION

It is my thesis that there exists a need on the part of individuals and groups to assert their presence by changing in some way or other the established visual order of the environment, and that this has significant implications for environmental designers. Not only should an environment be able to facilitate these changes, but it should be recognized that, except under special and limited circumstances, we are unlikely to achieve an environment which will be so pleasing that we will

not feel a need to change it for esthetic reasons.

The link between environmental changes and various kinds of personal satisfaction can be traced to the communication process, in which the observer acts as a receiver of certain visual messages which are implicit in the nature, degree and quality of the changes initiated by the sender. Just as everyone is aware of a distinctive meaning associated with each facial expression, we have learned to identify certain types of changes in the environment with meanings such as authority, power, wealth, status, identity, affiliation. We initiate changes with the express purpose of inducing responses such as attention, respect, admiration, fear, understanding, or professions of affinity.

## CULTURAL CONSENSUS

While there is no universal visual language, there is considerable agreement between one culture and another and wide consensus within each culture. Evaluation by receivers as to the visual effect of any particular change is based, not simply upon its formal harmony, but also upon the value attached to the message it conveys.

Looked at in this way it becomes clear that it is possible for an environment to be changed and apparently improved, without improving its formal quality, if this change carries a message which is pleasing to the receiver. Conversely, a change with unpleasant implications will, regardless of its beauty, tend to spoil the appearance of an environment.

For example, a newly painted fence would generally be considered to be an improvement if it signified neatness, cleanliness and care of one's possessions, all admirable qualities. But it would look terrible if we knew it had been painted in human blood, and would look disgraceful if we knew that the new coat of paint had obliterated a rare and valuable mural. In every case the actual visual change to the fence would have been identical although the fence will have "looked" different. It is not the

## EVALUATION AND SUMMATION

want: its light, concrete columns are clearly expressed, and plainly exposed. They taper upward and diminish in cross-section as the loads diminish. They rest on a sensible girder—sensible, because it helps solve a subsoil condition. And the girder, in turn, sits on equally sensible columns that open up the lobby. The only detail that suggests a primarily esthetic (rather than primarily functional) decision is the curved profile of the columns, clearly influenced by the Monadnock Building a few blocks to the south (below).

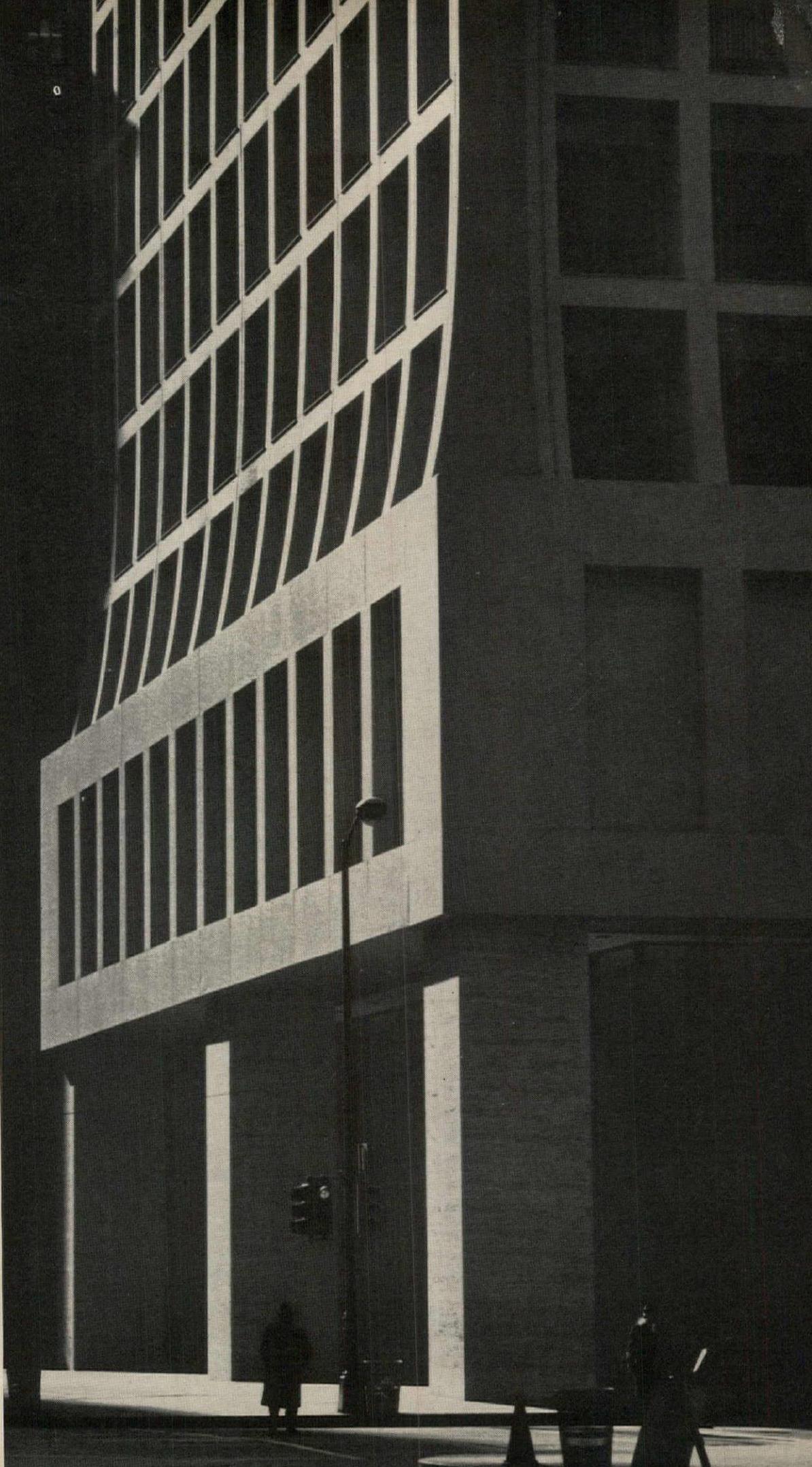
Yet it seems obvious that CBS possesses qualities that Brunswick lacks. It has enormous unity; it has strength; the proportions of its windows are elegant; it has great dignity; and it even has color: for the near-black granite is a wonderful antidote to the tinsel colors of most of the buildings nearby.

Brunswick is a fine job, but CBS is a great one.

### FACTS AND FIGURES

Brunswick Building, 39 West Washington, Chicago, Illinois. Owner: Washington Dearborn Associates. Architects and Engineers: Skidmore, Owings & Merrill—Chicago. W.E. Hartmann (Partner in Charge), B.J. Graham (Partner in Charge of Design), M. Goldsmith (Senior Designer), R. Henick (Project Manager), F. R. Khan (Project Structural Engineer). General Contractor: George A. Fuller Co. Building area: 791,500 gross sq. ft. Cost: ca. \$21/sq. ft. PHOTOGRAPHS: Richard Nickel, page 29, page 31 bottom, page 33 top, page 37; Hedrich-Blessing, page 31; Ezra Stoller Associates, pages 33, 35.

At Brunswick the wall flares out to meet the 7 by 24 ft. transfer girder. The Monadnock Building's upper wall flared out similarly in 1891 to meet its 6 ft. thick base wall.



## Reaching outward from a dense core

Although organized on a rectangular grid, Birkerts' scheme for Tougaloo functions as a radial layout. Each of the linear buildings communicates directly with the core of the complex at one end and projects into the landscape at the other. The outer ends of the residential wings will have a feeling of detachment, but will be in close contact, under cover, with the center.

One of the few obvious drawbacks of the scheme is that the view from many dormitory rooms near the center will be composed largely of rooftops. Birkerts is considering covering some of the roofs with grass or water, and parts of them will probably be used for recreation or walkway links in an upper-level circulation system.

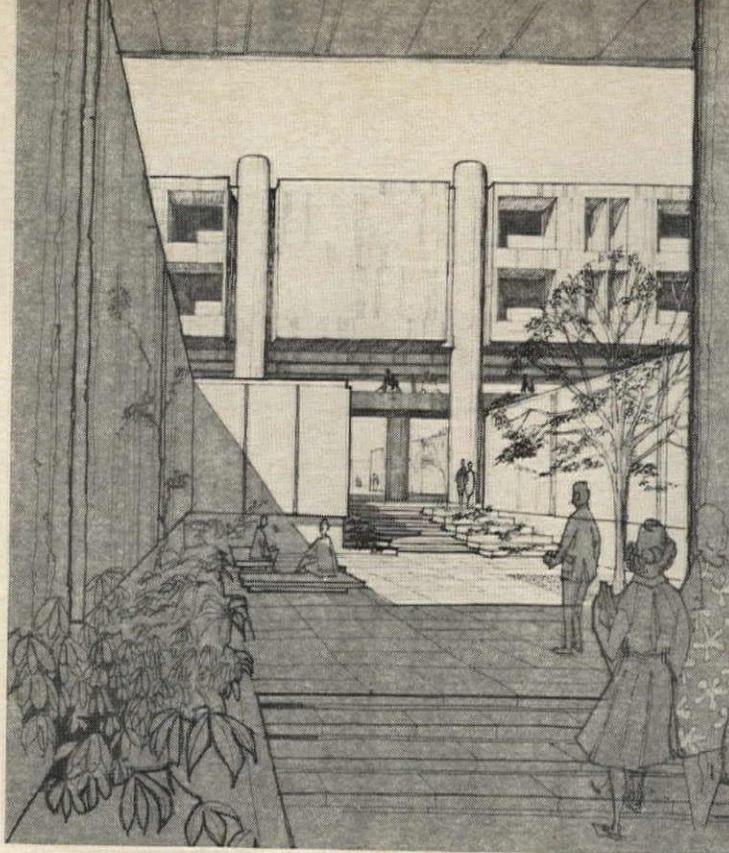
## Allowing for change

Birkerts' plan for Tougaloo is essentially a design for a process, not for a final result. Both the sequence of steps and the design of parts can be adapted to program changes as they occur.

Even in the early stages of development a new image of Tougaloo will begin to emerge, which should be strong enough to survive changes in detail. There will actually be two related images: an internal one of intimate spaces between buildings two to four stories high, and an external one of a single interconnected structure, six to eight stories high. The external form will be visible from distant parts of the campus through cuts made in the woods and from a new expressway that will cross the northeast corner of the site.

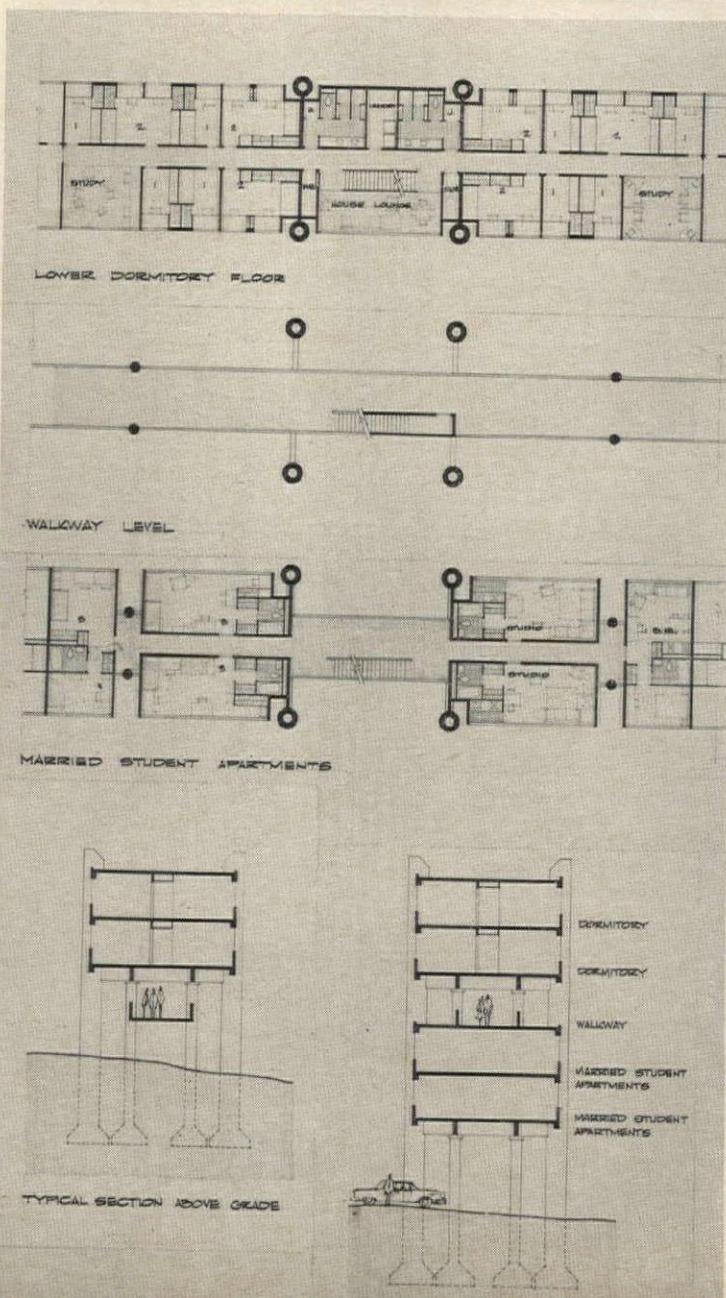
There will be a strong suggestion in this external image of a self-contained citadel, and to some extent that is what Tougaloo will be. A major reason for housing the faculty on campus, whatever the educational value, is that an integrated faculty cannot find housing in the area. For the immediate future, the outstretched arms of the entrance may be making a futile gesture of welcome to the community.

—JOHN MORRIS DIXON

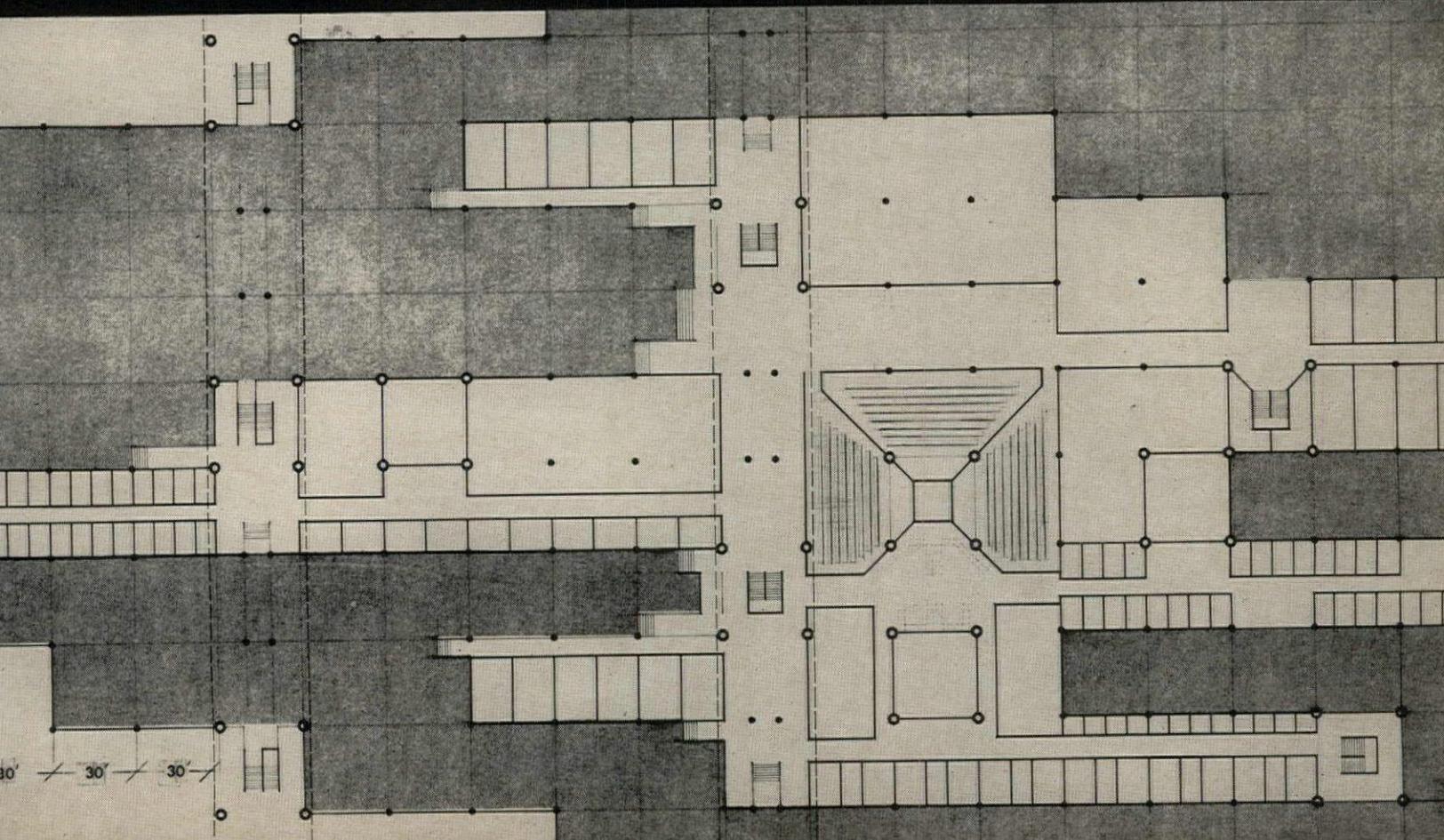
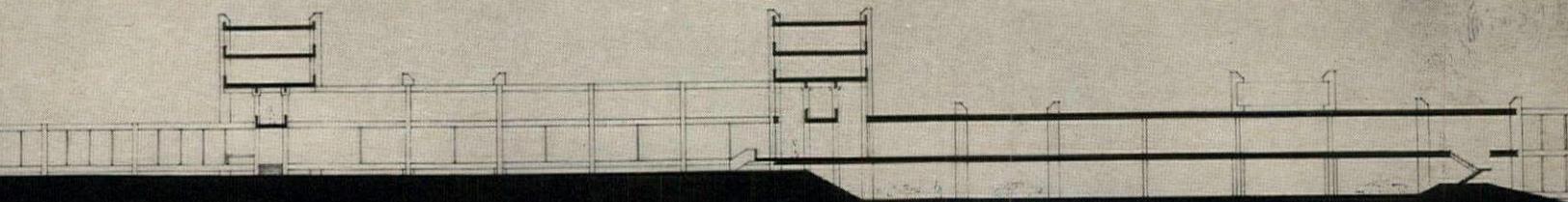
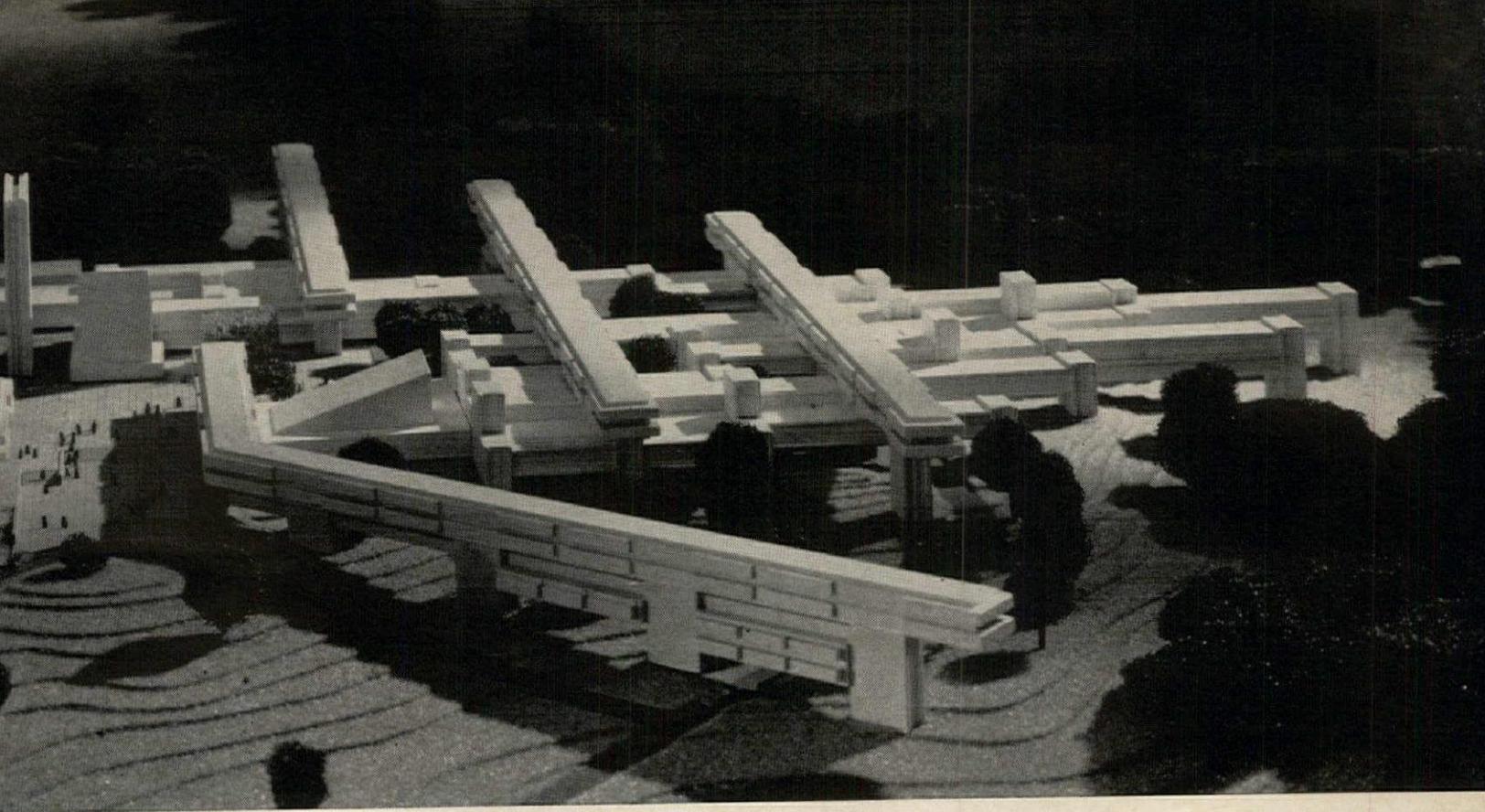


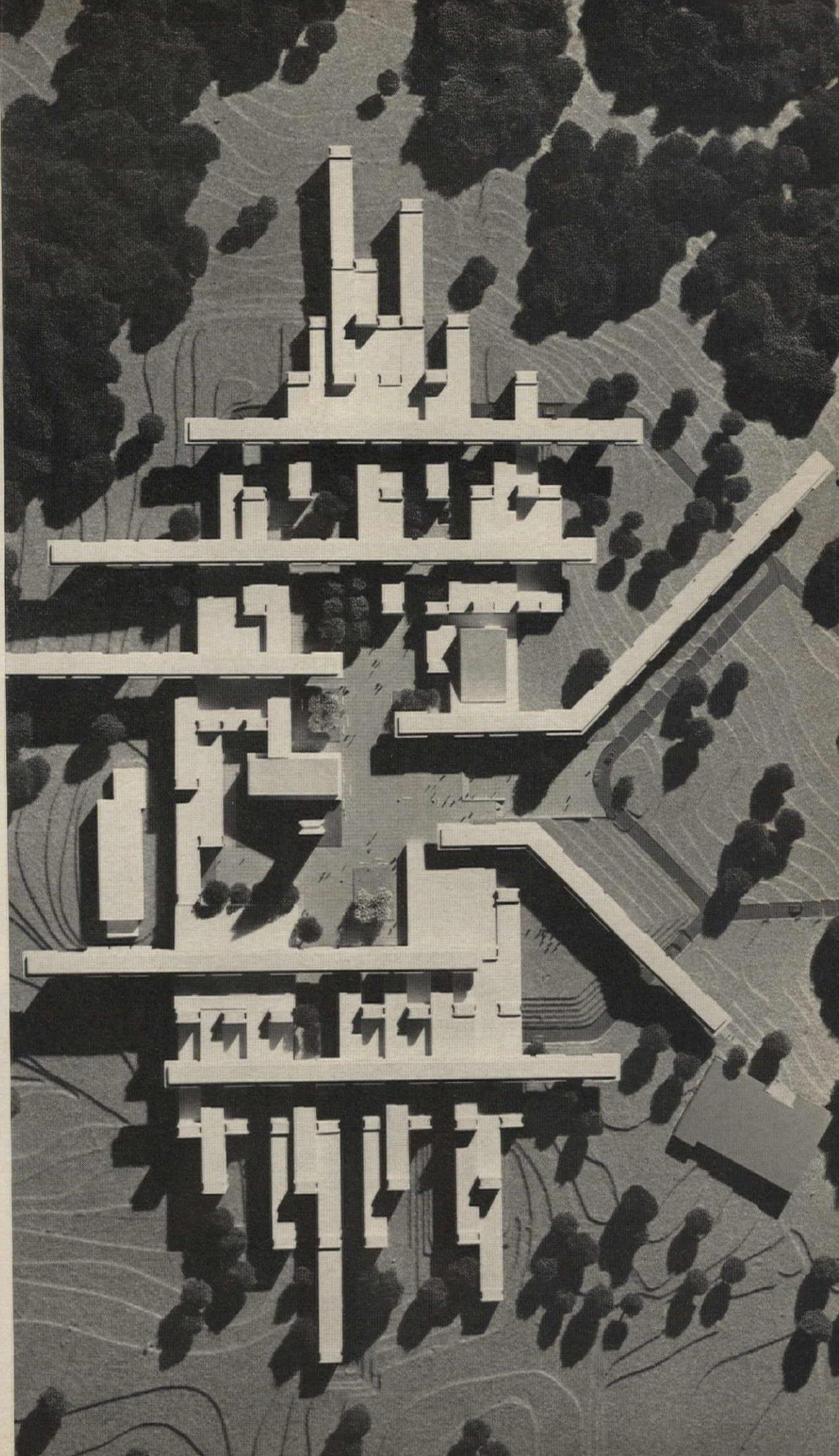
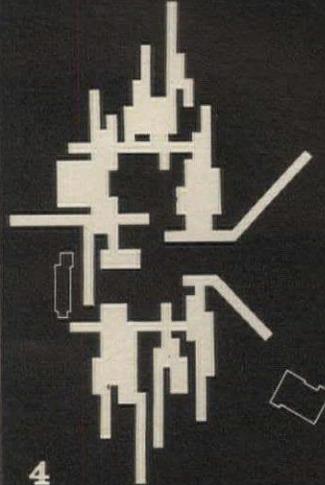
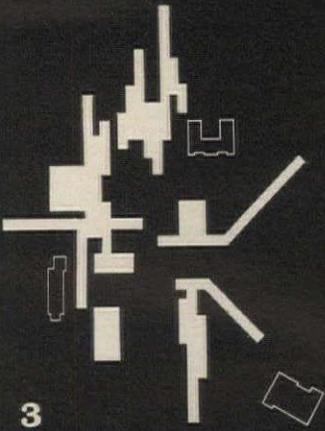
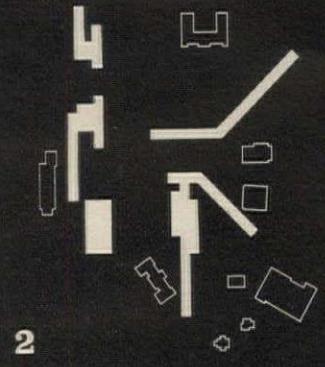
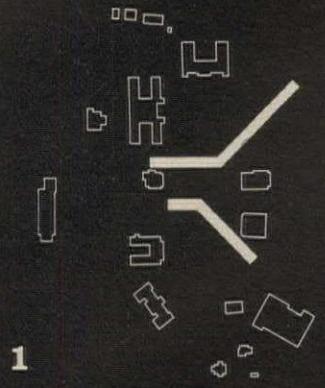
Unlike the academic matrix, the dormitories (left) have layout requirements that are both standardized and unlikely to change; they must also be clearly divided into units for men and women. The results are separated, linear structures of constant width. Walkways at the roof level of the academic buildings serve the dorms and the apartments over the lower slopes (sections below left), as well as student lounges and activity spaces on their own level.

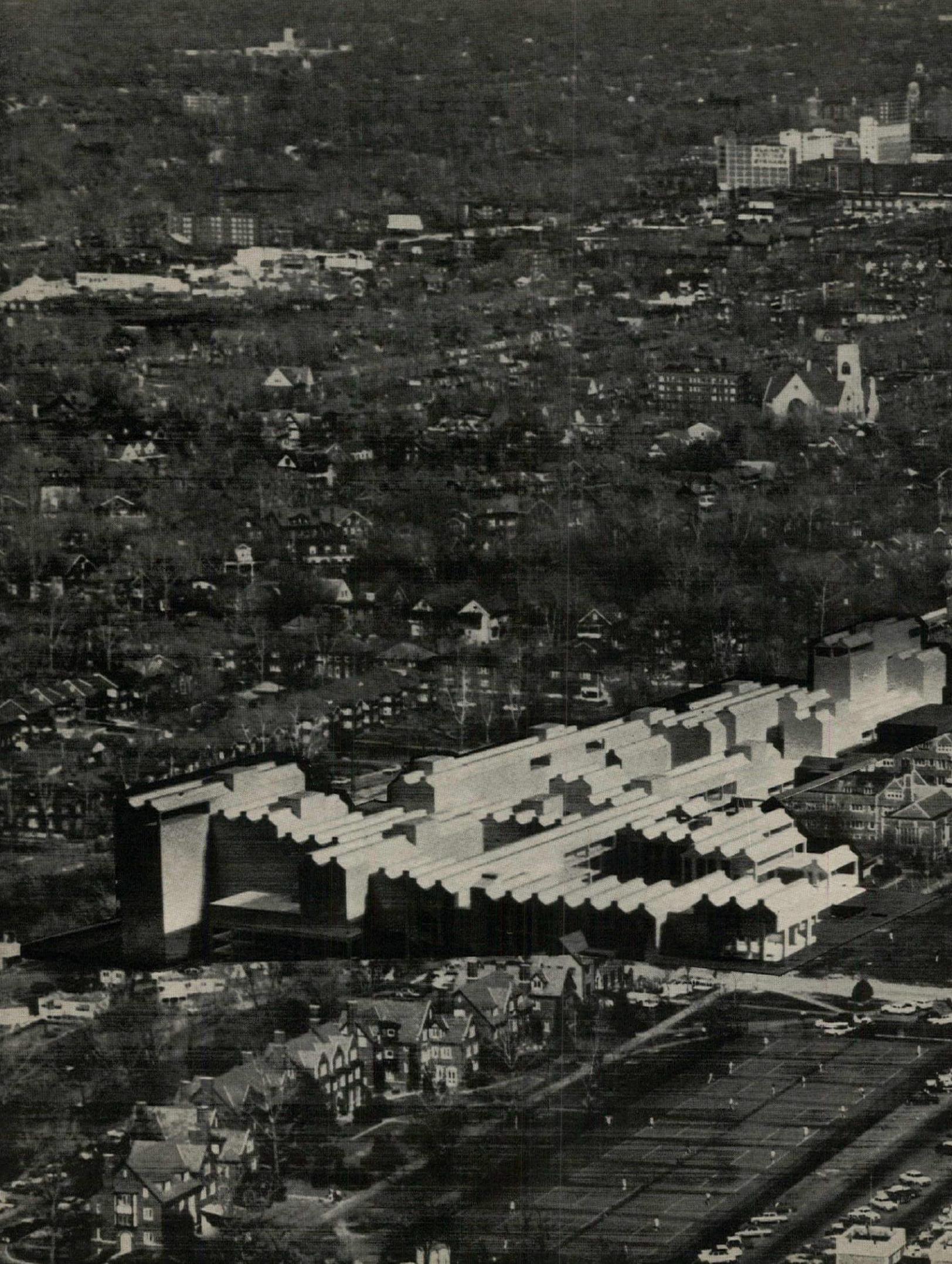
Access to the dorms at 90-ft. intervals will reduce walking distances in the long central corridors. The structure of these buildings, like their layout, will be uniform; service cores every third bay will be framed by hollow utility columns at the corners, producing a characteristic rhythm in the facades (study sketch, top left).



The Tougaloo campus will be replaced gradually but completely over a period of decades (four points in the process are shown at right). There is little sentiment either for the old plantation buildings or the undistinguished newer buildings, and the expanding clay subsoil has badly affected them all. All of the major architectural elements will be in place in the 1,250-student stage (4), but Birkerts has planned for 2,500 (far right) and left the way open for "unlimited" expansion beyond that. PHOTOGRAPHER: Balthazar Korab.







# Who needs New Cities?

We do, says a veteran architect and planner—but only if they are cities of a new kind.

BY EUGENE HENRY KLABER

THE nation's population is rapidly approaching 200 million. The optimum population often cited for new communities, such as those that would be encouraged under legislation proposed to Congress last month by President Johnson, is 60,000 to 80,000. Even if 100 new communities are formed—an optimistic goal indeed—simple arithmetic indicates that they will fall far short of solving the problems of overcrowding in our metropolitan areas.

Have new communities—new cities, I prefer to call them—any significant role to play, then, in meeting metropolitan growth? I believe they have, provided that they are also cities of a new kind.

New cities could point the way to the creation of what the President has called a "great civilization." They could offer new patterns of development, which permit a meaningful life for all of their people. They could offer demonstrations of what a 20th century urban society should be.

They could do these things if they avoided the mistakes of the past—if they were properly located and properly planned. By proper planning, I do not mean merely a good physical layout, but planning of the social and governmental structures of the new cities as well.

The legislation which the President has advocated, while entirely laudable in intent, does not offer much inducement to this kind of planning. In its

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Mr. Klaber has practiced architecture in New York, Chicago, and Washington; has served as a consultant on planning and redevelopment to the Philadelphia City Planning Commission and Housing Authority and the Baltimore Housing Authority; and has taught housing and planning at Columbia and Pennsylvania and lectured on housing at 14 other universities. He was formerly director of architecture for rental housing in the Federal Housing Authority and chief of the technical staff for housing of the Public Works Authority.

present form, too much is missing, and too much is left imprecise.

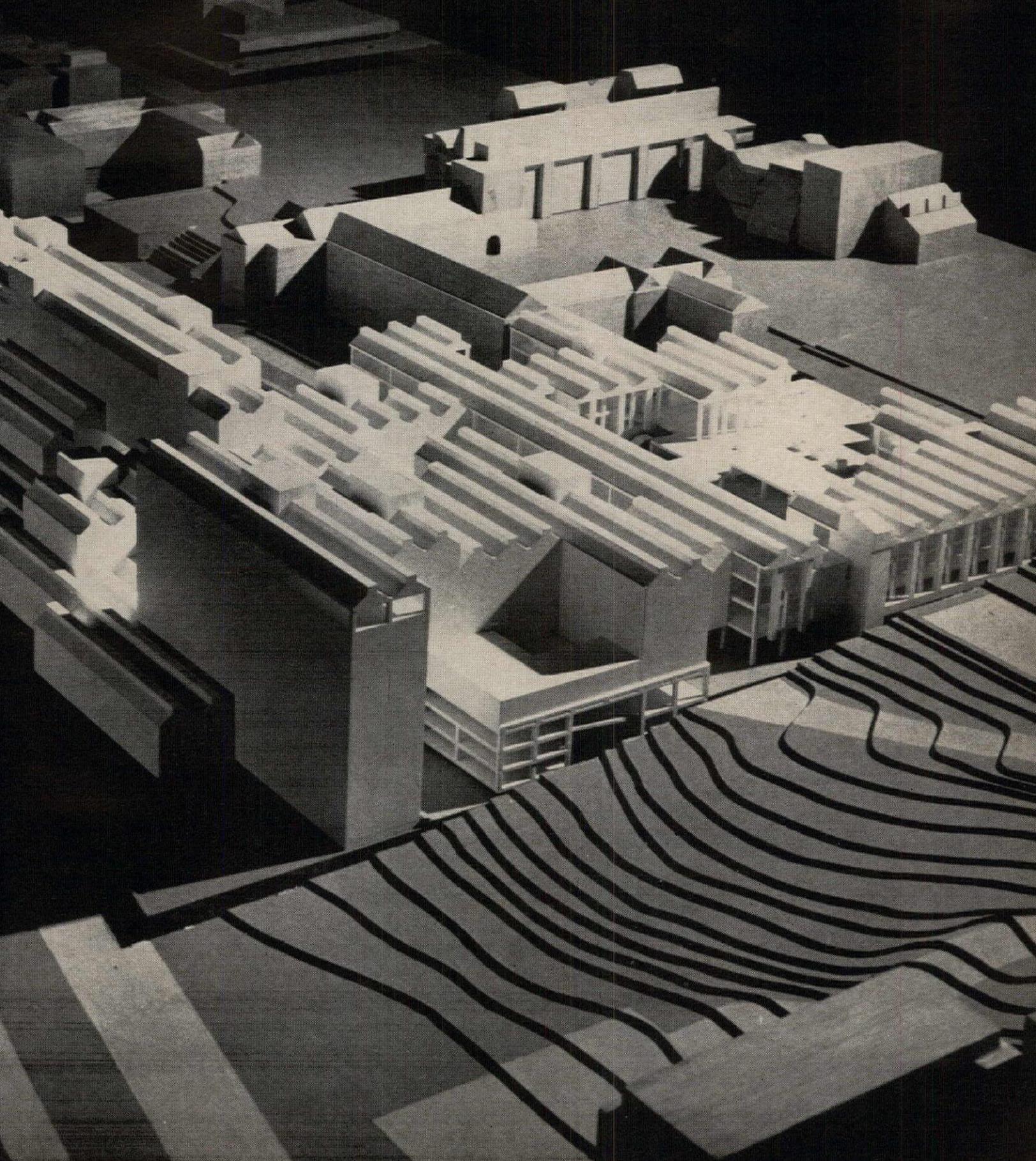
This year's legislation is an only slightly refined version of the proposals which Congress rejected in 1965. It increases from \$10 million to \$25 million the maximum mortgage which the Federal Housing Administration would insure on any single project. It also holds out the promise of other forms of assistance—longer terms, urban planning grants, waiver of population limits for public facility loans—if the project (or community) contains such provisions as adequate housing for those employed in the area and good access to job sources and nearby cities.

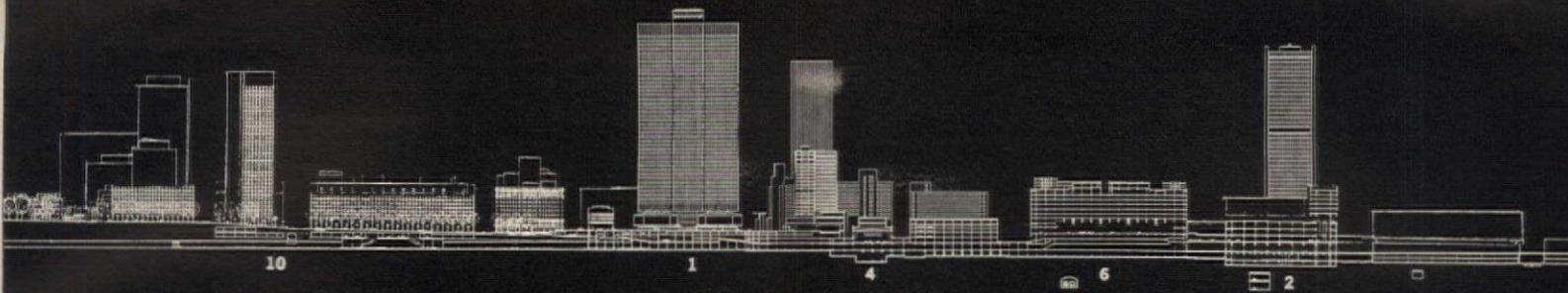
A second provision authorizes loans to state or local agencies to acquire land for later sale to private developers. The agencies could then assure the proper planning of development as a condition of the sale.

## Inadequate encouragement

As it stands, the legislation is inadequate to encourage development of the kind of new cities that could make a meaningful contribution to the solution of metropolitan problems. Despite the raising of the ceiling on FHA insurance, sponsors of new cities still would have to turn to private sources for the bulk of their financing if they intend to build at community scale. Also, the legislation appears to leave the final determination on the location of new cities to FHA, an organization which is not equipped to offer planning guidance and which, in fact, has actively fostered the suburban sprawl which plagues our cities.

The most serious deficiencies, however, are in the previously mentioned areas of governmental and social structure. Some of the new cities would be satellites of existing urban centers.



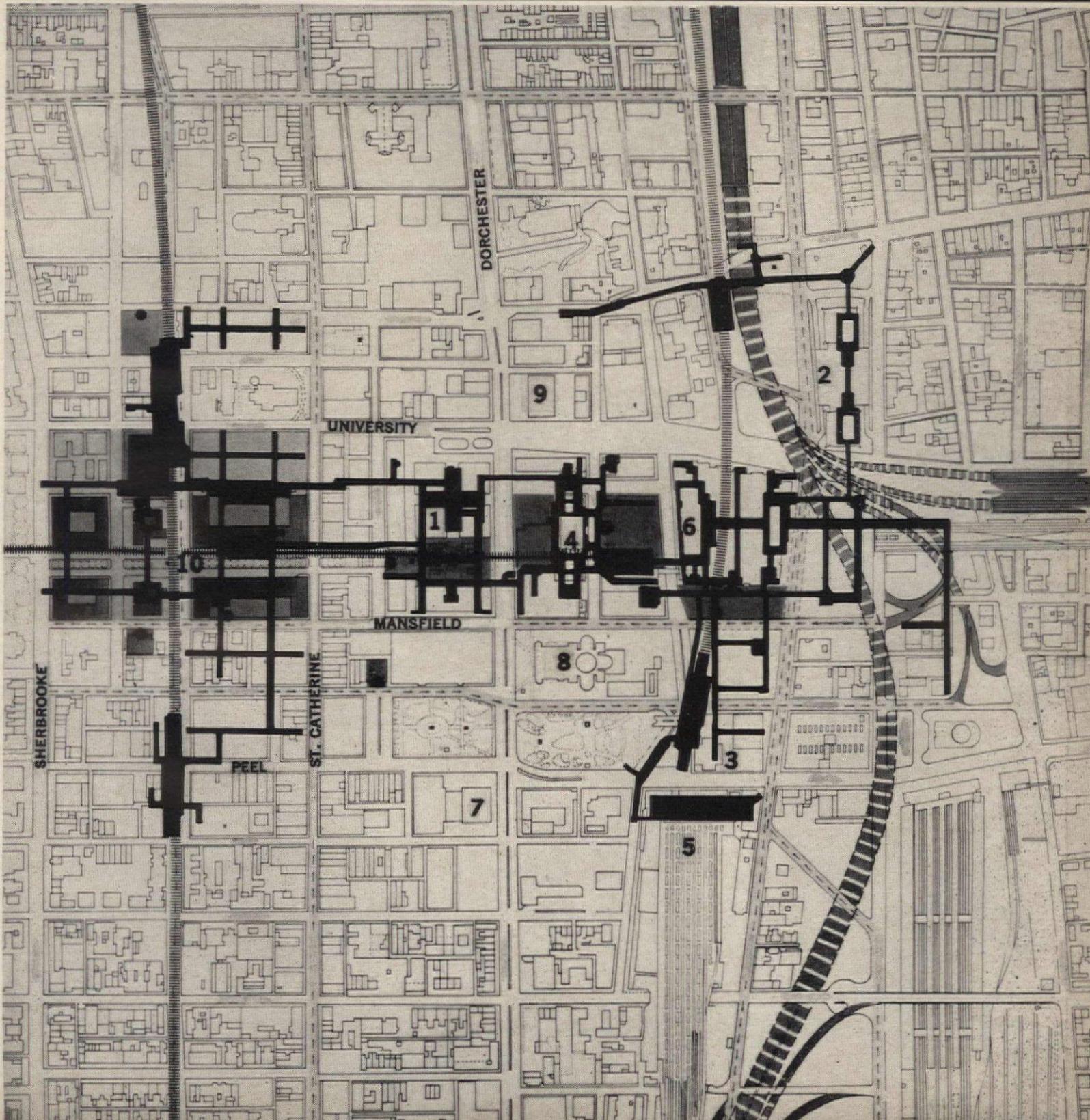


Aerial view on facing page shows Downtown area as it looks today. Plan (below) includes existing grid of pedestrian promenades, plus additional walkways to be built by 1972. It also shows Metro

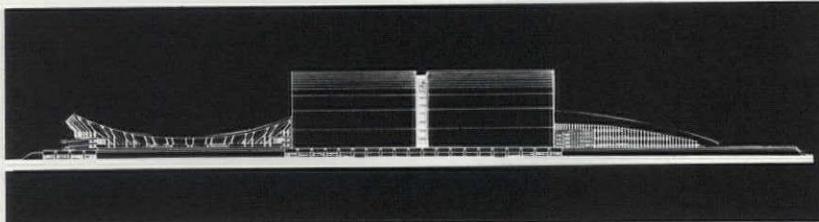
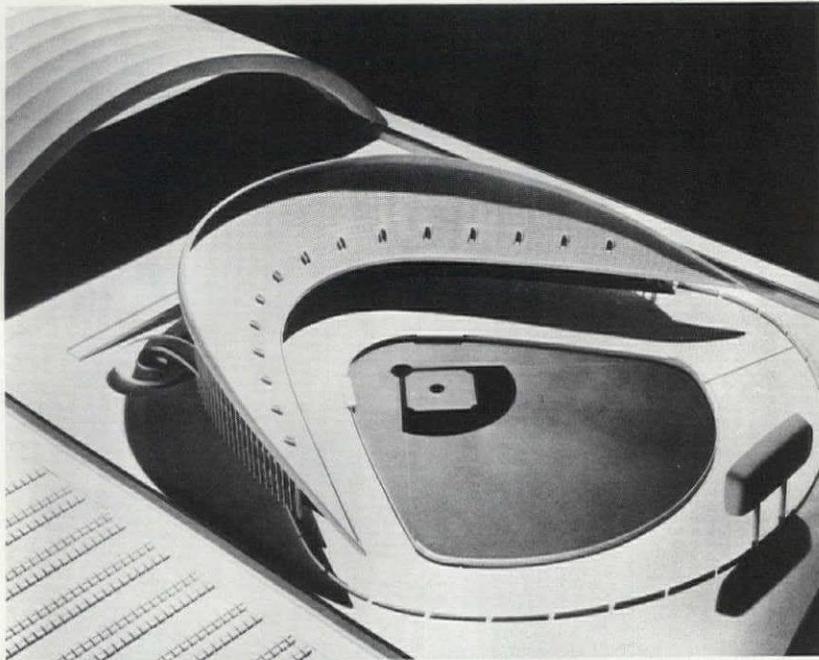
system, new underground highways, commuter lines and, in grey, present and future parking facilities. Section (above), taken through present and future Downtown, shows continuous multi-

level system. Following numbers are key to both aerial photo and drawings on this page: (1) Place Ville Marie; (2) Place Victoria; (3) Place du Canada; (4) CN's Central Station; (5) CP's Windsor

Station; (6) Place Bonaventure; (7) Imperial Bank of Commerce; (8) Cathedral; (9) CIL House; (10) McGill College Avenue Development; (11) Place des Arts; (12) Vieux Montreal; (13) Habitat.







Baseball stadium, above; both stadiums with moving cover in profile, below.

### First Two-Stadium Project Underway in Kansas City

Kansas City has begun a huge construction project with two distinct user groups in mind — baseball spectators and football spectators.

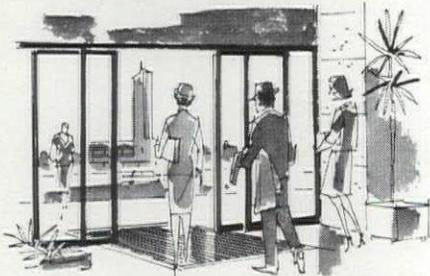
It involves a 75,000-seat football stadium and a 42,000-seat baseball park. Between them will be a nine-acre multipurpose exhibition plaza and around the entire complex there will be parking for 16,000 cars and buses.

Preliminary grading, involving more than \$5 million, is nearing completion on the 370-acre site at the intersection of two interstate highways seven miles from downtown Kansas City.

Twenty-five-year leases with the city's major league teams, the football Chiefs and the baseball Royals, were announced. Present plans are for the football stadium to be ready for the 1971 season and the baseball stadium for the 1972 schedule.

The estimated cost of this first two-stadium project is \$51 million. *Continued on page 28*

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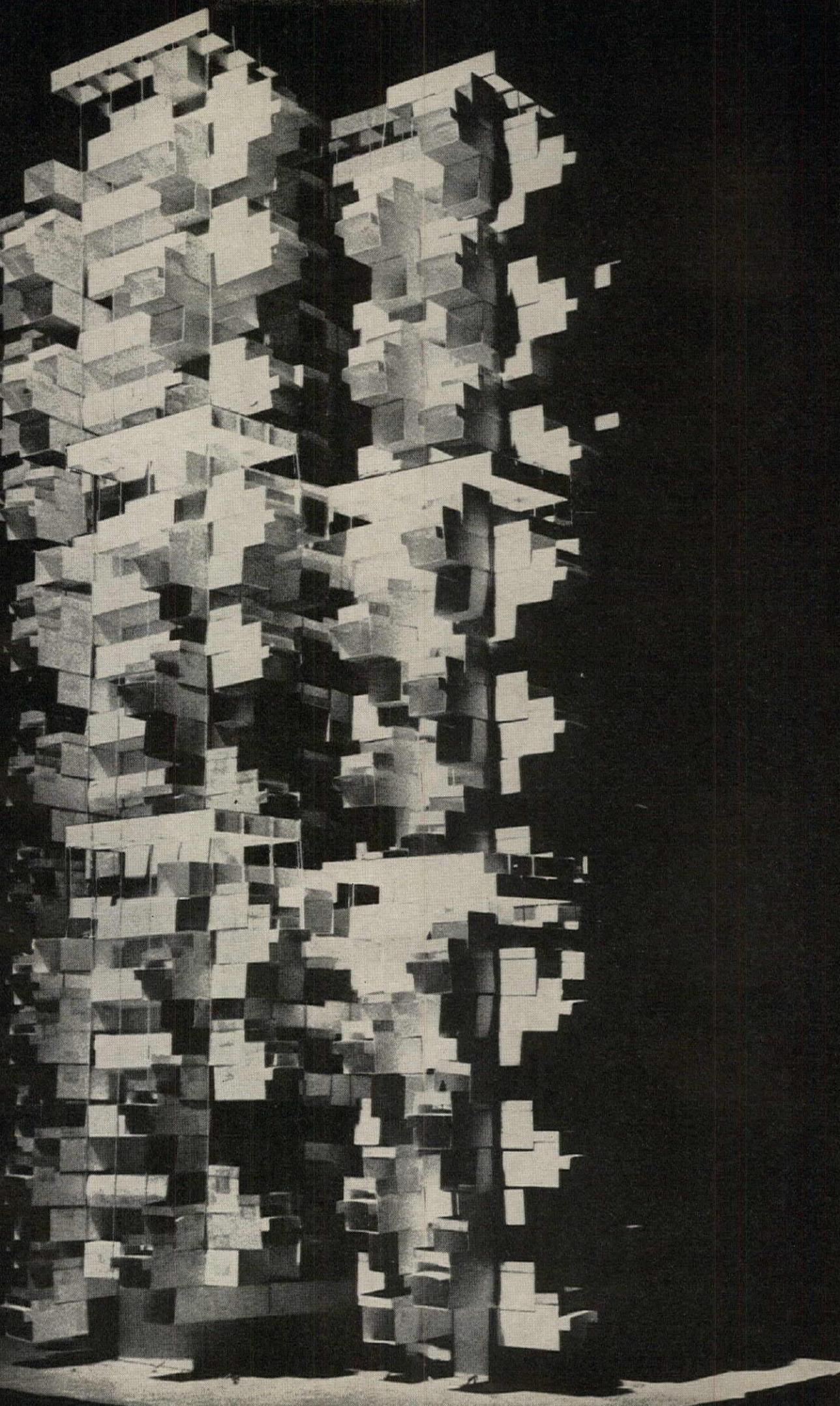
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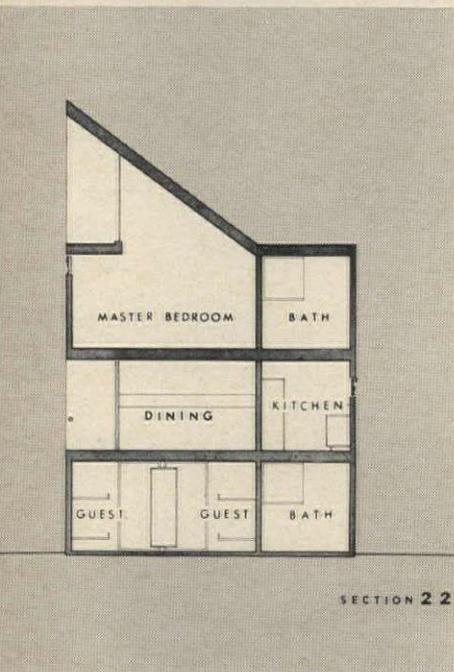
# 3. BUILDING WITH BOXES







The play of shapes on the interior is livened by quick changes of view through the smaller windows: the strip over the dining table (left) shows only the shrubbery below as you approach, a row of distant buildings once you are seated; the square high on the living room wall (right) shows only sky from below, but from the top of the stairs it frames a single fine tree. The photomural on the back of the bedroom cabinet (left) and the period flavor of table legs and sofa frame save the whole composition from over-earnestness.



geometry and featureless planes that intrigued their school day heroes? Why not, as long as they choose an appropriate opportunity, produce visual compositions that really please, work out meticulous details, and carry it all off with wit enough to show that they know their proper place in history?

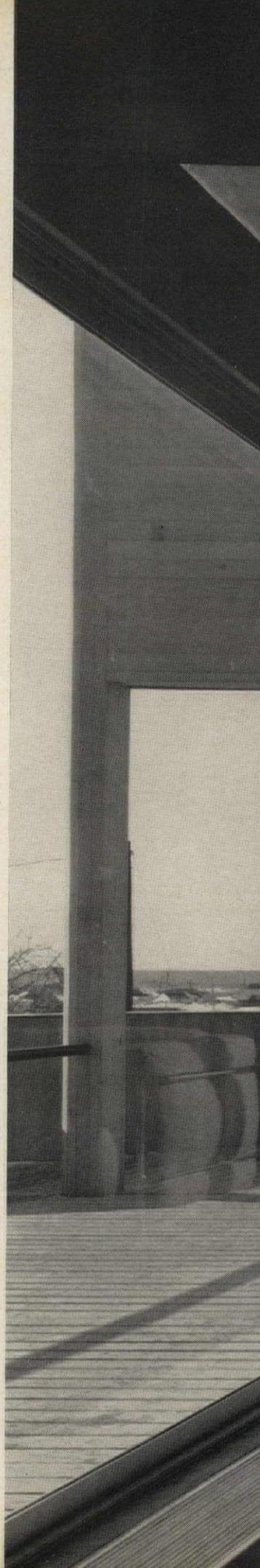
The clients, a painter and his wife who plan to spend the entire year on this coastal bluff, find pleasure in this geometrical interplay. The house gives them a good view over the bluff to the ocean (that's why it is so high), but it also gives them enough spatial interest inside to keep them visually occupied when the Atlantic is fogged in. When the sun shines there are sharp-edged patterns of light and shadow on the cedar board walls—penetrating to the farthest corner of the main room in winter, limited to the ocean-viewing deck in summer (when cool shade can be found on the ground-level terrace).

Everywhere they move, inside or outside, the composition shifts; new openings and new vistas appear. But all of them are precisely cut out of the same smooth surface of fine-scaled cedar boards.



#### FACTS AND FIGURES

House at Amagansett, New York. Designers: Charles Gwathmey and Richard Henderson. Builders: Barbagallo, Caramagna, Castorina. Building area, interior: 1200 sq. ft. (20,000 cu. ft.); decks and terraces: 800 sq. ft. PHOTOGRAPHS: David Hirsch, except page 54 (bottom), Peter Tannenbaum.

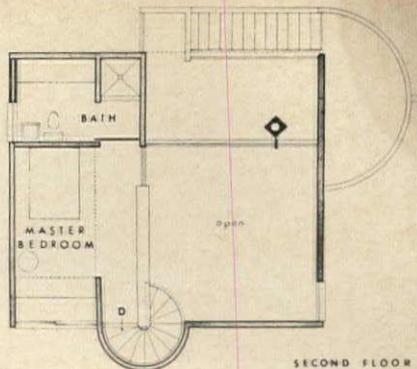


# GEOMETRY BY THE SEA

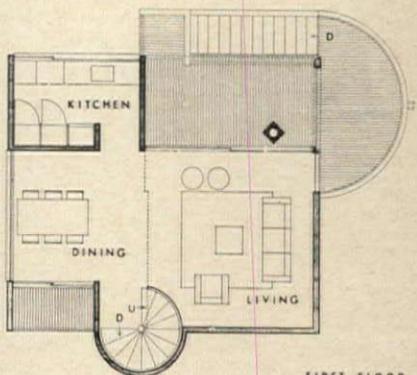
Curious travelers who drive through Amagansett, Long Island, this summer will be going out of their way to investigate a tall, turreted structure that looks, from the highway side (below right), like an old Indian fort for the kiddies. On closer look they will find—with some disappointment—that it is just a house, and not fortified at all. In fact it is so open on the ocean side (left) that evening passersby can see most of the interior.

But since Amagansett is part of the Eastern Long Island summer refuge for architects, there will be some travelers who see more in it than just another house. They will see it as a spatial exercise in thin, blank surfaces cut into simple geometric shapes—an exercise obviously reminiscent of the early International Style. The two apprentice architects who designed it, Charles Gwathmey and Richard Henderson, obviously knew they were following a well-known historical approach.

And why not? Why shouldn't today's architects explore some of the possibilities of pure

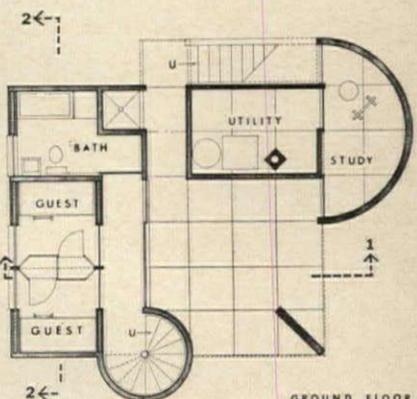


SECOND FLOOR

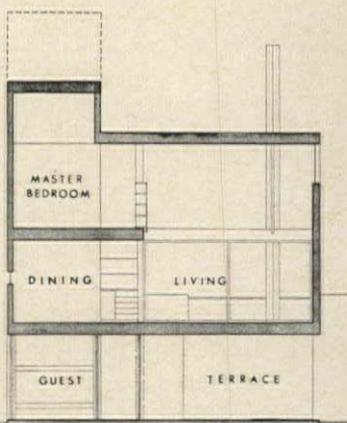


FIRST FLOOR

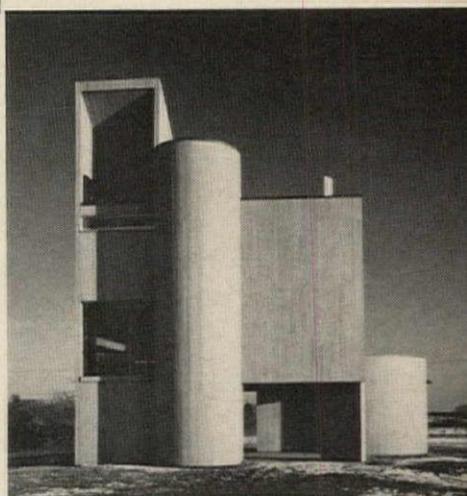
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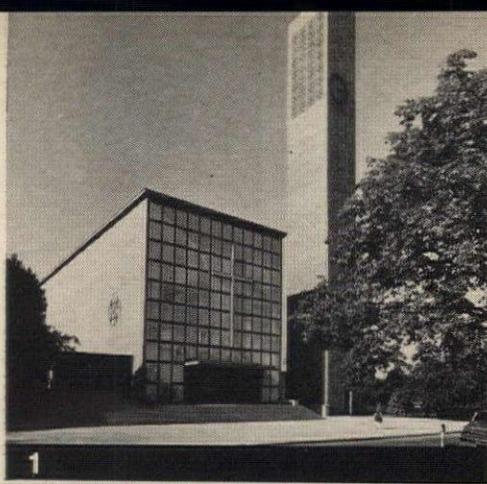


GROUND FLOOR

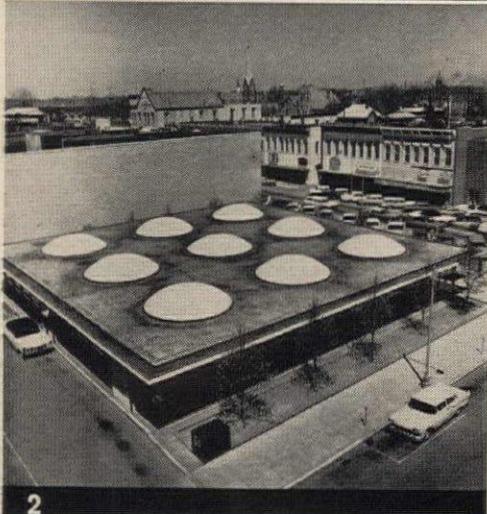


The house is an assemblage of prisms and cylinders tied together with a uniform wrapping of 1x4 cedar boards and pierced by sharply rectangular openings—the largest one on the ocean side (left), the highest over the studio-bedroom to the rear (right).





1



2



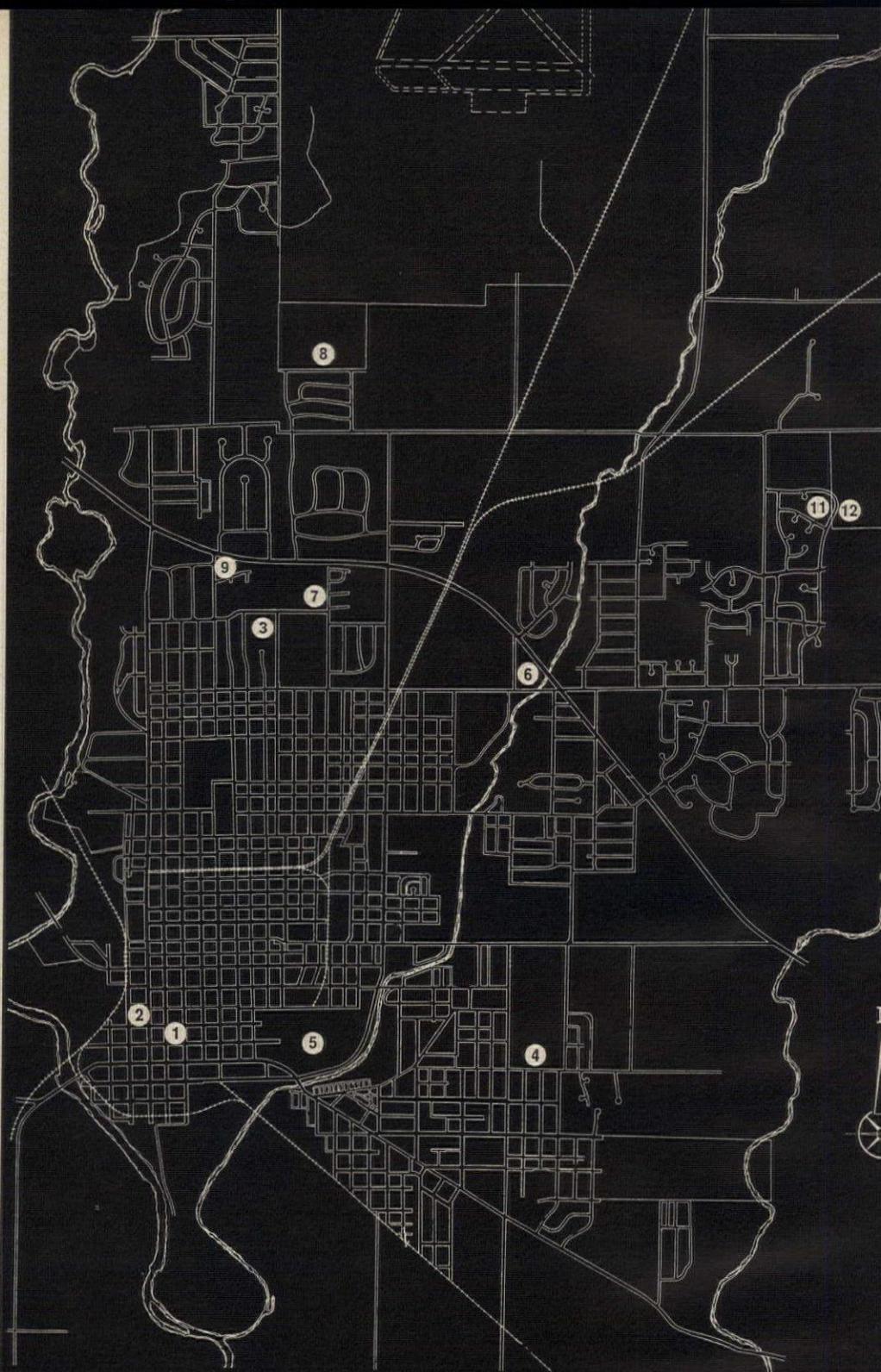
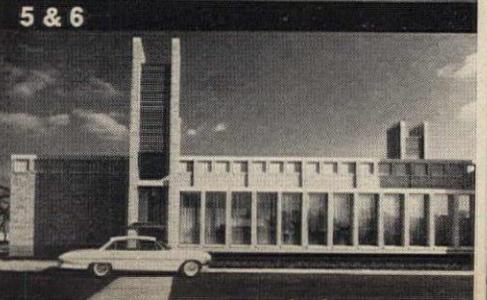
3



4



5 & 6



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