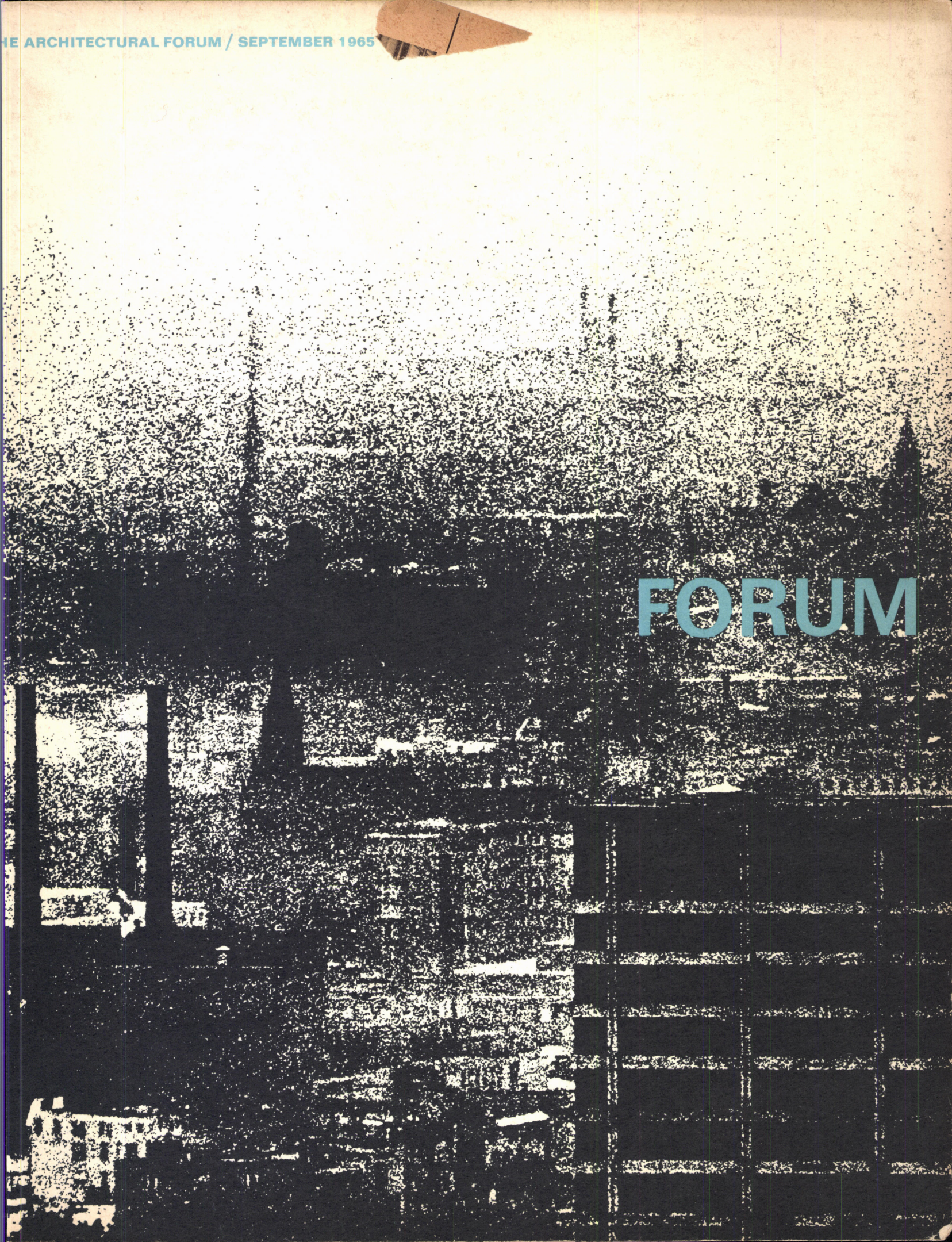

FORUM

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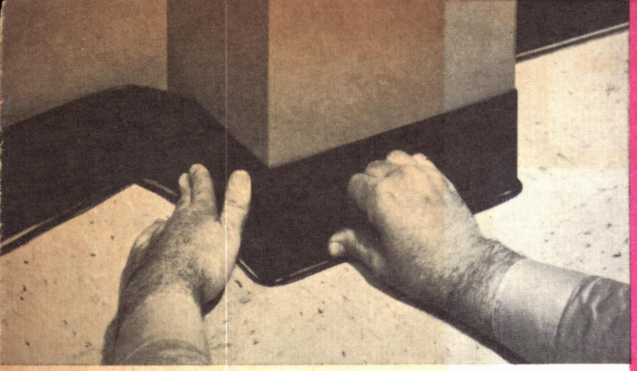

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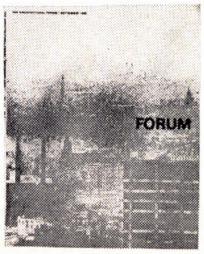

Cover: Tower of the new University of Illinois campus (pages 21-45) rises over Chicago. Photograph by Orlando Cabanban.

PUBLISHER'S NOTE

Whichever way you view it, the bigness of the Chicago Circle Campus of the University of Illinois becomes overwhelming. And the 25 pages we are devoting to it in this issue become, in our collective memory, the ARCHITECTURAL FORUM'S biggest editorial commitment to a single project, ever.

Our decision to publish so detailed an article (an exclusive, by the way) was made many months before publication of the first issue of the new FORUM. A couple of years ago, in fact, at the Aspen Design Conference, one of our editors listened to Walter Netsch, a partner of Skidmore, Owings and Merrill, and the chief designer of the campus, explain his approach and his solution. Our man felt, then, that even Netsch himself underestimated the significance of his project to the future of our cities. More recently, two other editors made several field trips to the 106-acre site, spaced over a period of eight months. During that time they endured a January site inspection tour through a mire of construction mud seemingly designed to peel off the best-laced overshoes from the most prehensile foot; a Chicago big breeze which ignores stabilizers and induces nausea even among the most thoroughly seasoned helicopter pilots; and most recently, a typical Chicago August heat spell—than which there is nothing muggier.

We couldn't avoid being impressed by size alone, but that hardly accounts for our major effort. The Chicago Circle Campus will be one of the 1960's most significant demonstrations of what a great university can do to set an example for the shaping of our cities.

As we said when we first gave you a bird's eye view of the campus in our April issue: "—by its tautness of organization and strength of design, it shows modern architecture's emerging maturity in handling larger elements of the environment." —L. W. M.

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FORUM

We have just, on the day of the closing of this issue, received news of the tragedy. He died, we are told, while swimming—a man of 77. It is a measure of the strength which seemed, if anything, to increase with the work of his last years. The influence of his buildings, and of the passionately held ideas they embody, also has been growing steadily stronger. It will not end with his death.

We (and others) will have much more to say about his life, but at the moment we are thinking about his legacy, and about a remark once made by Walter Gropius. It will take an entire generation of architects, said Gropius, to realize all of the concepts in the projects and the sketches of Le Corbusier.

WASHINGTON

THE AIA TAKES A STAND . . .

It has long been obvious that the Potomac site for the Kennedy Center for the Performing Arts (below) is just about the *worst* possible location for this building.

For one thing, the site is far removed from where Washingtonians work and/or live. For another, it is about to be surrounded by a fantastic tangle of freeway-spaghetti, which will cut it off from Washingtonians even further. Indeed, nobody initially took the Potomac site seriously—it was just a kind of "token-site" to get the fund-raising under way.

. . . AGAINST OVERWHELMING ODDS

Now the Center is just a few weeks away from the opening of construction bids, so this is the last possible chance of changing its location. Last month, the AIA took that chance, and we applaud the Institute for doing so.

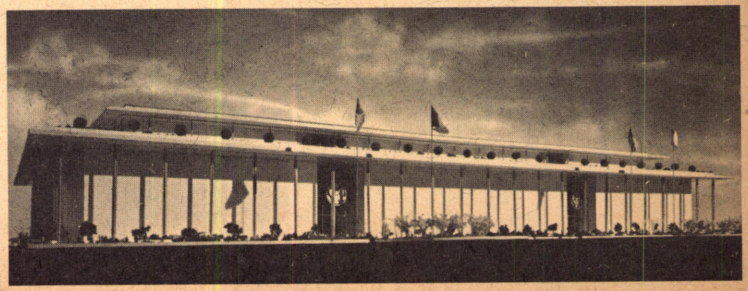
Despite the lateness of the hour, it makes sense to press for a

change in location on several grounds:

- Since the Potomac site was first suggested, the Pennsylvania Avenue Commission has been created and has come up with its remarkable suggestions (above).
- The recommendations contained in the Commission's report will form the basis, this fall, of legislative proposals President Johnson will send to Congress.
- Locating the $46 million Center on Pennsylvania Avenue would be an effective send-off for the renewal of the entire Avenue.
- Midtown Washington (and, thus, the Center) will become infinitely more accessible as a result of the new subway system about to be okayed by Congress (see page 74).
- And midtown Washington has just become eligible for urban renewal funds for the first time, which means that the Center could become a part of a larger, impressive development.

THE PROS AND CONS

These, more or less, were the arguments advanced last month by the AIA. They met with encouraging support: Daniel P. Moynihan, vice chairman of the Pennsylvania Avenue Commission, claimed that the Center's architect, Edward D. Stone, loved the waterfront site, but that he, Moynihan, thought it was "a terrible place." (Moynihan is currently running for NYC Council president, and will need Mr. Stone's vote. . .) In-



dividual architects, critics and interested laymen joined the AIA's plea for reconsideration, as did the Architectural League of New York.

Those opposed to any change seem motivated largely by expediency: they are understandably concerned about further delays, additional design and engineering costs, possible withdrawal of contributions pledged to a riverfront Center.

Certainly, expediency would suggest that the present plans go ahead. But there have been far too many mistakes made for the sake of expediency in recent years, and these mistakes have proved to be ineradicable.

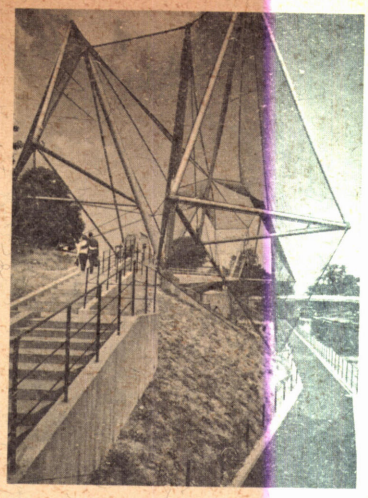
We suggest that the President, and the backers of a Center on the Potomac, demonstrate their unquestioned devotion to a better Capital (as well as to the performing arts) by using the Center for the latter to help improve the center of the former.

AVICULTURE

ARE YOUR FRIENDS FEATHERED?

The world is going through a veritable building boom in the bird house industry; and while the bird house might seem, to some of you, to be one of the less significant contemporary building types, this just goes to show how ill-informed you are about current trends in the field.

The significance of the trend was brought home to us when we opened the Friday, August 13th issue of *Time*, and came upon a full-page ad that read, in part: "400 LIVE FINCHES! Cheerfully cavorting in a 20 foot cage . . . COLLEGE EDUCATED PIGEONS! See these feathery geniuses match colors and perform

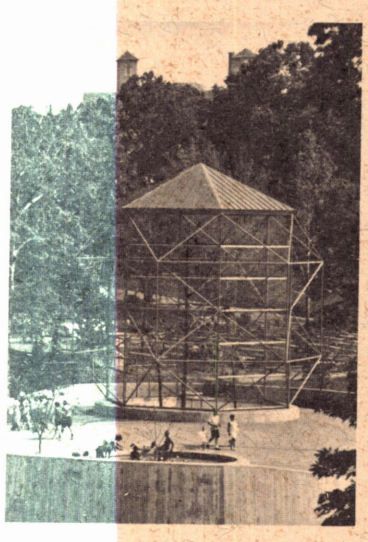


other astounding mental feats. . . ." And so on. The ad was an open invitation to visit the Exhibition Center in the Time/Life Building which, we gathered, had been turned into a giant aviary.

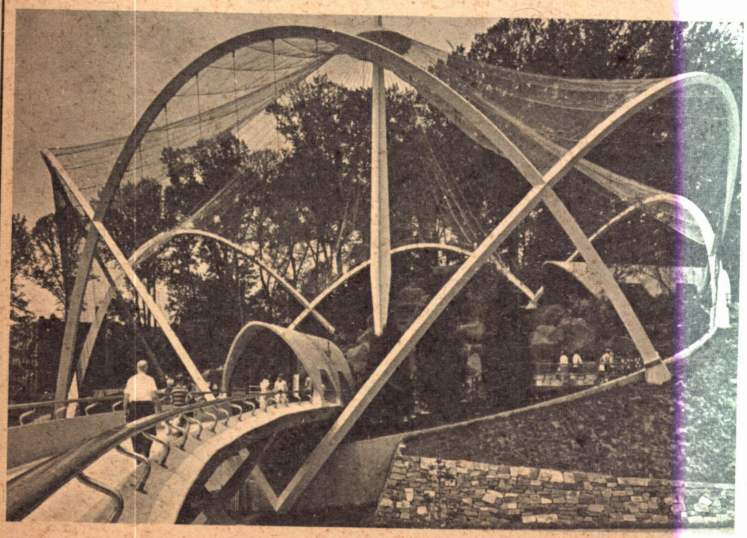
Well, we've seen stranger things happen in that Exhibition Center; but the invitation reminded us of one or two other bird houses to which we have been invited in recent months.

The most startling one, without doubt, was the Northern Aviary in London (above), a structure of aluminum struts, steel tension cables, and black anodized aluminum mesh, designed by Lord Snowdon, Cedric Price and Frank Newby. The fantastic structure (which almost, but not quite, won the Reynolds Aluminum Prize this year) was planned to house avocets, alpine choughs, glossy starlings, laughing thrushes, and people. Lord Snowdon explained to us that the basic concept was his, but that Price and Newby made the thing feasible. There was also some landscaping by Peter Shepheard, who supplied nesting holes, perches, waterfalls and pools for ducks, spoonbills and, presumably, additional people. We didn't go.

The next bird house party to which we didn't go was held in the new aviary in the National Zoo, in Washington. This particular structure (bottom, left) consists of a series of intersecting parabolic steel arches, over which the architects (Daniel, Mann, Johnson & Mendenhall) have draped vinyl-coated steel wire netting reinforced by steel cables. The National Zoo's director says that the design was intended to provide "a relationship between bird and human on the bird's terms"—which is *precisely* why we didn't go. The Washington job contains 44 different kinds of birds—43 live ones, plus one 5,700 pound eagle made of granite and originally perched on top of New York's crumbling Pennsylvania Station.



Unlike the London and Washington aviaries, the new triangulated bird cage in the St. Louis Zoo (above) suits us just fine: the birds are *in*side, and you are *out*side. It was designed by Hellmuth, Obata & Kassabaum, and we'd be very happy to visit it—and them—any time. Its frame is welded steel pipe, its mesh is stainless steel, and the relationship between bird and man is friendly, but formal.



LANDMARKS

USSR ON PRESERVATION KICK

Past visitors to the U.S.S.R. will recall vividly that they were gently but firmly discouraged from photographing such charming relics of the Russian past as primitive log cabins and fading onion-domed churches. Instead, they were invariably led to the latest mammoth housing development (which always looked like Lefrak City,

unevenly rendered in concrete) and advised to photograph *that*.

A couple of months ago, all this began to change: an article in the Young Communist League paper, *Komsomolskaya Pravda*, deplored the dullness of much modern construction, and chided Young Communists for allowing foreigners to outdo them in respecting Russian landmarks, and for condoning the destruction of old churches.

What the Young Communists should be doing, said the paper, was to join the new National Preservation Society, retain traditional place names (like St. Petersburg?), use the royalties from the sale of Russian classics to maintain the authors' homes, and commemorate the architect who went to protest the razing of St. Basil's in Red Square (above).

That's what the paper said, verbatim! Splendid—but there's just one thing, *Komsomolskaya Pravda:* landmarks were invented by Stewart Udall, an American, and don't you ever forget it!

ESTETIKA

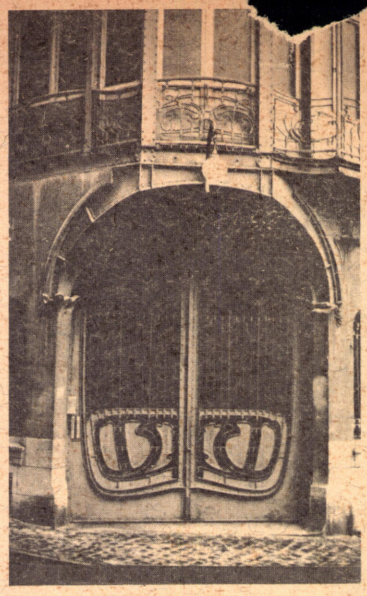
Being on the beauty kick—"estetika" in Russian—is, of course, the first, fatal step toward bourgeois constipation. No sooner had our friends from *Komsomolskaya Pravda* come out for beauty, when their comrades from *Literaturnaya Gazeta* got on the same bandwagon: two weeks ago, the *Gazeta* announced an architectural competition with the objective of beautifying Moscow.

The program for the *Gazeta's* competition sounded like a small-town, "Jaycee" effort, or like a tree-planting drive by a Westches-

ter Ladies' Garden Club commando. But just as gloom began to envelop us (re: Future-of-the-World, Communications-Gap-between-same-generations-East-and-West, and related matters), we came across a suggestion by the movie director Mark Donskoy, in the *Gazeta*. Donskoy, obviously, was a Pop Artnik; his solution for jazzing up Moscow was to paint all the cars pink, gold, violet, blue or turquoise! We really dig you, Donskoy—how about you working on the hot line, or, maybe, Vietnam? "A Socialist city should be a city of the rays of the sun," Donskoy was quoted in the *Gazeta*. Sun? Blue? Turquoise? Donskoy, Tovarish, you're 100 per cent color blind, but you're still ir boy!

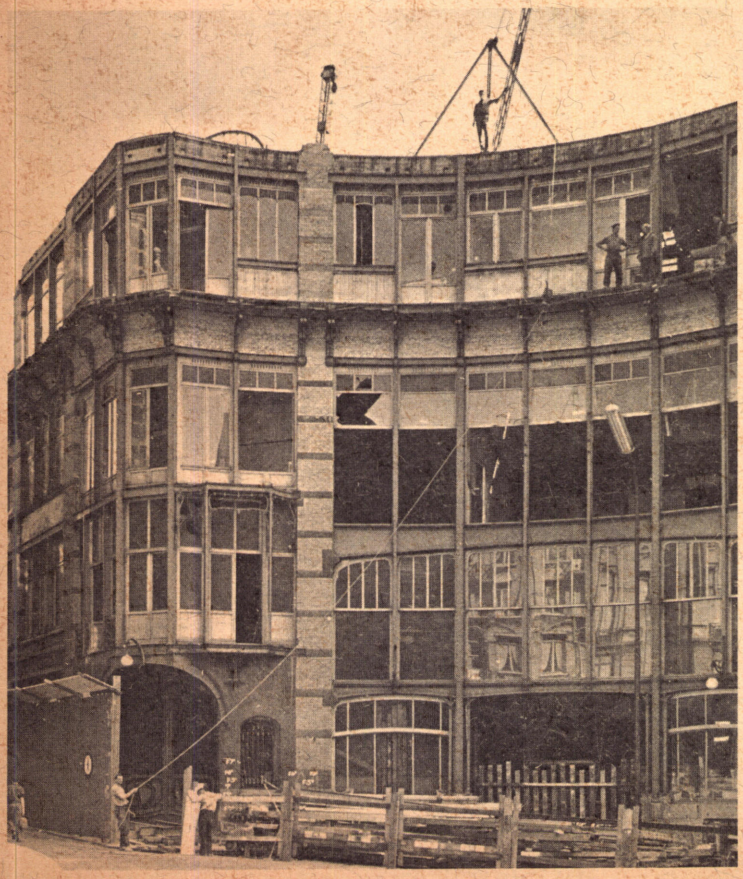
WE ARE NOT ALONE!

Baron Victor Horta, who died shortly after the end of World War II at the age of 88, was one of the architectural giants of the *Art Nouveau* movement — one of its great innovators. And few of his innovations were as significant as the 1896 *Maison du Peuple,* almost all glass and iron, built as a headquarters for the (then) Belgian Workers' Party (entrance door, above right).



We went to visit *La Maison du Peuple* on a typical rainy Brussels afternoon last fall, having heard that it had been doomed to make way for some "improvement." It seemed incredible that a building of such extraordinary delicacy and, of course, such historic significance could be doomed. Obviously, someone was pulling our leg.

Unfortunately not. Last month the evidence arrived on our desk, in the form of the photograph below. If it makes anyone feel any better, the picture proves, at least, that we Americans are not the only ones who destroy the best of their architectural heritage.



DEATH OF AN ENIGMA

Simon Rodia, better known as "Sam of Watts," died July 16 at 90 in Martinez, Calif., after more than a decade of self-imposed exile from his fantastic creations in Los Angeles. Working in his spare time, it took him 33 years, often marked by neighborhood hostility and vandalism, to complete his strangely beautiful Watts Towers of steel, cement, broken bottles and shells (below). Then—nobody knows quite why—he abandoned them in 1954 and remained indifferent to their growing fame as works of art.

The towers once were declared unsafe by the City of Los Angeles, which sought to destroy them. The resulting outcry from art lovers failed to move the city, but after the towers withstood a privately financed load test, the city finally relented.

An uneducated Italian immigrant, Rodia the man was as hard to categorize as his towers. He gave several versions of why he built them, several explanations of their meaning, several reasons why he abandoned them. But mostly he refused to talk about them at all. Once, when asked why, he said, "If your mother dies and you loved her very much you don't talk about her."

The important point is that he created them. They stand today, in the riot-torn Watts section of Los Angeles, as a monument to a man whom historians some day may rank with the greatest American artists of the century.

Although the Los Angeles riots of last month erupted all around Simon Rodia's towers, and though a liquor store only a stone's throw away was demolished by the rioters, nothing happened to the strange and wonderful spires. At the nearby "Watts Towers Art Center," classes continued all through the rioting. A possible reason, according to Edgar Goff, a Negro architect practicing in Los Angeles, is that "the Towers and the Art Center do not represent negativism."

[redacted] AIA

MORE THAN A TRADE UNION

The AIA's determined stand on the Kennedy Center issue seems to be part of a conscious effort on the part of the Institute to become more activist, even if that means stepping on the toes of some revered members.

As we reported in our last issue, New York's Arthur C. Holden boldly objected, at the AIA's 1965 convention, to the construction of what he considered to be an overscaled, new office building on the site behind the little Octagon, and to the consequent destruction of several flowering trees on that site. (Since some readers misconstrued our comments on Mr. Holden's protest, we wish to go on record, here and now, that we are in complete and enthusiastic agreement with Mr. Holden on this and many other issues. OK?)

Well, Mr. Holden has been joined by others; and the AIA leadership, again demonstrating a degree of imagination not always evident in the past, may re-examine the whole matter and consider several alternatives. We wish them luck!

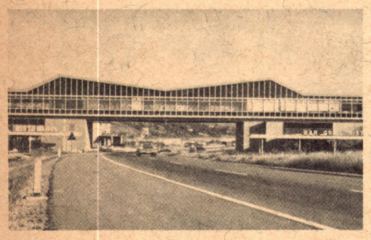
We also wish to commend the AIA for its vigorous emphasis upon urban design, rather than architecture *à la carte.* Last month, AIA President Morris Ketchum presented one of a new and continuing series of Citations for Excellence in Community Architecture to the city of Eugene, Ore. We congratulate Eugene, Ore., Morris Ketchum, the AIA and everyone else concerned; and we hope that the city of Eugene will find a good, prominent, public place in which to display its citation. (As we reported in our last issue, New York, when recently presented with a Landmark's plaque for Central Park, had to hang the plaque in the Park Commissioner's office, rather than display it in the park, to make sure it wouldn't be stolen . . .)

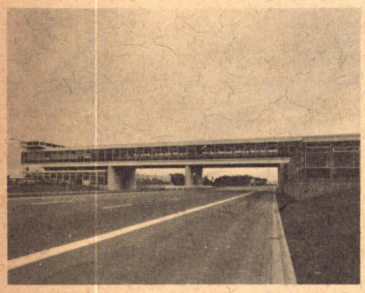
HYBRIDS

A BRIDGE IS NOT A BRIDGE

One reason most of our cities don't really work is that we still think of them as collections of individual, single-purpose buildings. Yet, all around us, structures are going up that demonstrate how easy it is to combine several functions—i.e. to kill several birds with one stone.

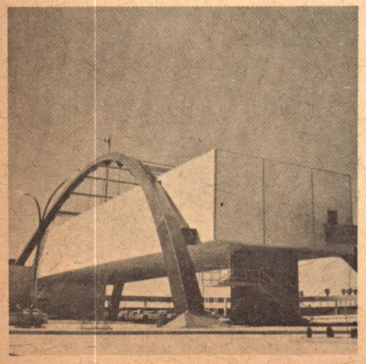
Here are four recent examples of "bridges" that are not bridges at all or, at least, not primarily. The butterfly-roofed "bridge" near Bologna (below) is actually a combination restaurant, bank, tourist bureau, post and telegraph office, barber shop, flower store, newsstand and gas station. It is

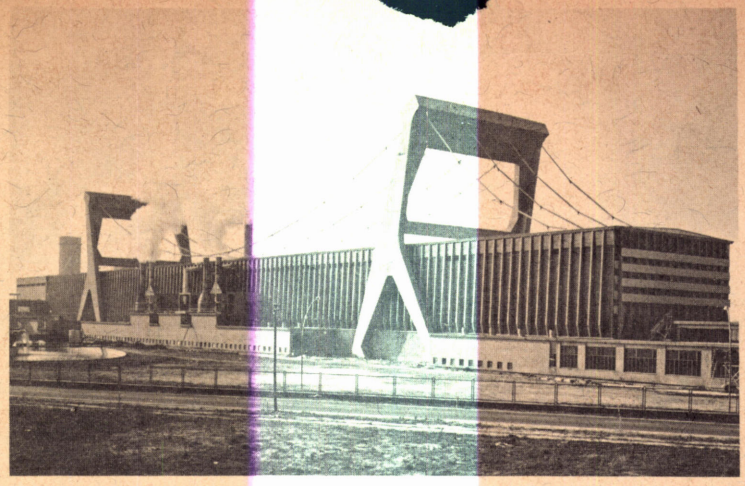




also, of course, a perfectly fine pedestrian overpass. The architect was Melchiorre Bega.

The concrete-supported "bridge" designed for the British Ministry of Transport by Terence Verity Associates (above) is also primarily a restaurant and service station. It spans Highway M.6. near Keele, in Staffordshire, and it, too, is incidentally a pedestrian footbridge. Mario Pani's parabolic arch (below) bridges the





main highway leading from Brownsville, Texas, into Mexico, at Matamoros. It is both a gateway into Mexico, and a building containing immigration controls, tourist facilities, concessions, etc. Plus, again, a pedestrian crossover.

Nervi's famous paper mill at Mantua (above), which we published in our July 1964 issue, is a combination factory and suspension bridge, with a clear span, between piers, of more than 500 ft. —plus 140 ft. cantilevers at each end! It is also, of course, a means of taking a 5-minute walk without getting your feet wet in the rather swampy surroundings.

The moral of this tale is that much is wasted, and much could be achieved, if those in charge of building our urban structures were on speaking terms with one another.

There are a good many opportunities of creating "urban organisms" instead of isolated structures: elevated highways, for example, could carry continuous parking garages within the depth of their structural deck—and thus keep cars out of the centers of cities. By the same token, air-rights over highways could be used not only to produce new tax revenue for cities, but, more importantly, to sew together the urban fabric torn apart by those highways.

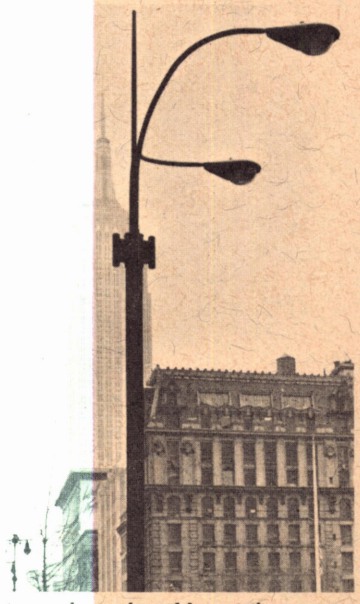
Or—for a modest beginning—why couldn't an intelligent city administration have a good designer to combine all the offensive debris that now litters most street corners—public phone booths, mail boxes, waste baskets, fire hydrants, traffic lights, street signs, street lamps, directional signs, and police call boxes—into a single, compact, handsome and efficient unit that would do away with all the present clutter?

STREETSCAPES

IS THIS IMPROVEMENT NEEDED?

Speaking of clutter on our streets, defenders of New York's Fifth Avenue have loudly denounced Huntington Hartford's determination to plough under trees and grass for his Central Park restaurant, and deplored General Motors' decision to replace the old Savoy Plaza with something supposedly better and certainly bigger. But the same critics have paid little attention to an "improvement" of their Avenue that may be much more disastrous than either of the others.

We refer to the ridiculous street lamps (below) that are beginning



to replace the old cast iron posts which have adorned the Avenue since the twenties. The new lamps, designed (if that's the word) at the behest of the Department of Water Supply, Gas and Electricity, have bronze shafts, twin projecting arms and black bases. So

(continued on page 73)

THE PLAN:

Everything comes together at the multilevel core

The Chicago Circle Campus of the University of Illinois, just west of the Loop, introduces new concepts of organization for an urban university — and for still larger scale urban design. Its architect, Walter Netsch of Skidmore, Owings & Merrill, calls it a "micro-environment" of a 20th Century city. Compact and tightly knit together on more than a single plane, the campus is, in fact, a micro-city in several important respects:

► Its population this fall will be 9,000 students and 1,100 faculty and staff, already that of a small city. Before this year's freshmen graduate, the enrollment will be more than 20,000;

► Its compactness and concentration is characteristically urban. The first-phase buildings are clustered on 40 acres, and the full campus is only 106 acres;

► Its setting is distinctly urban, with sadly characteristic urban decay on two sides and the Eisenhower and Dan Ryan expressways as the northern and western boundaries. (The traffic circle where the two expressways meet, which gave the campus its name, is precisely at the site proposed by Daniel Burnham for Chicago's civic center);

► Its silhouette, almost random in its outline and dominated by a 28-story tower, could be a segment of a city skyline;

► And its plan, shown at right in full development, converges boldly on a multilevel core.

The core is a 300 by 450 ft. plaza (1 in plan, photo at left), punctured by an amphitheater and adorned by four "exedrae" —hollow, concrete mounds that give the plaza the look of a moon landscape. Every element of the campus—its buildings, its circulation systems, the campus lives of its students and faculty —come together here with urban intensity.

The plaza is called the "great court" of the campus, but it is actually a great roof. Beneath it is a lecture center used by all academic departments, containing 21 separate halls ranging in capacity from 75 to 500.

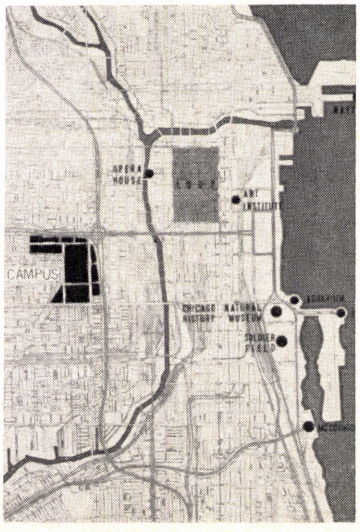
Plugged into the lecture center, walling the plaza on the east and west, are the student union (2) and the library (3). And extending from it to the north and south are long elevated walkways (4) leading eventually to the perimeter parking lots.

Classroom buildings, also unassigned by discipline, are in pinwheel clusters (5 and 6), two already built at the beginnings of the walkways, two more to come.

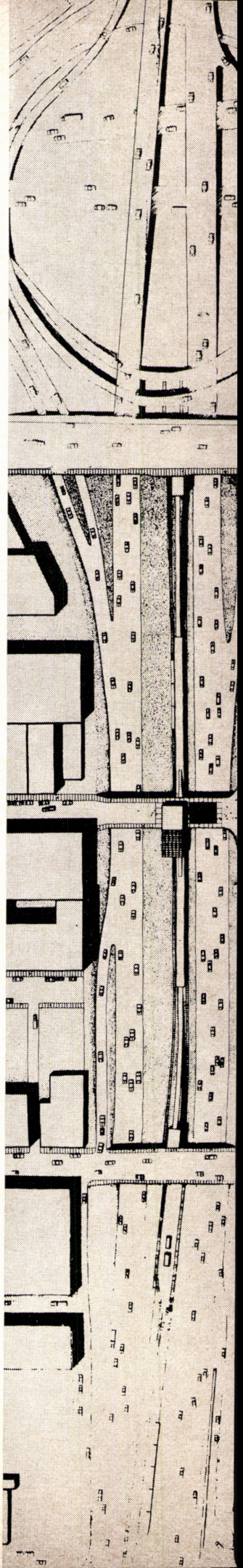
Near the end of the walkways, and penetrated by them, are Chicago Circle's two biggest buildings. The engineering and science laboratories (7) are in a structure which defines the south boundary of the main campus, and whose massive scale is only implied in plan. At the northwest corner is University Hall (8), Chicago Circle's high-rise landmark.

University Hall contains all staff and faculty offices—there are none in the classroom or laboratory buildings—and seminar rooms. On axis with it, in Phase II, will be the architecture and art building (9).

All of this is given organization and meaning by a few simple but daring ideas. The development of these ideas, of the plan, and of some of the stern and powerful structures which are the campus itself, is described on the following pages.



1. LECTURE CENTER AND COURT
2. STUDENT UNION
3. LIBRARY
4. ELEVATED WALKWAYS
5. EXISTING CLASSROOMS
6. FUTURE CLASSROOMS
7. ENGINEERING AND SCIENCE LABORATORIES
8. UNIVERSITY HALL
9. FUTURE ARCHITECTURE AND ART BUILDING
10. FUTURE ENGINEERING AND SCIENCE OFFICES
11. FUTURE AUDITORIUM
12. FUTURE GRADUATE SCHOOLS



CAMPUS CITY, CHICAGO

University of Illinois' new urban campus
is a slightly scaled-down model
of what a 20th Century city might be

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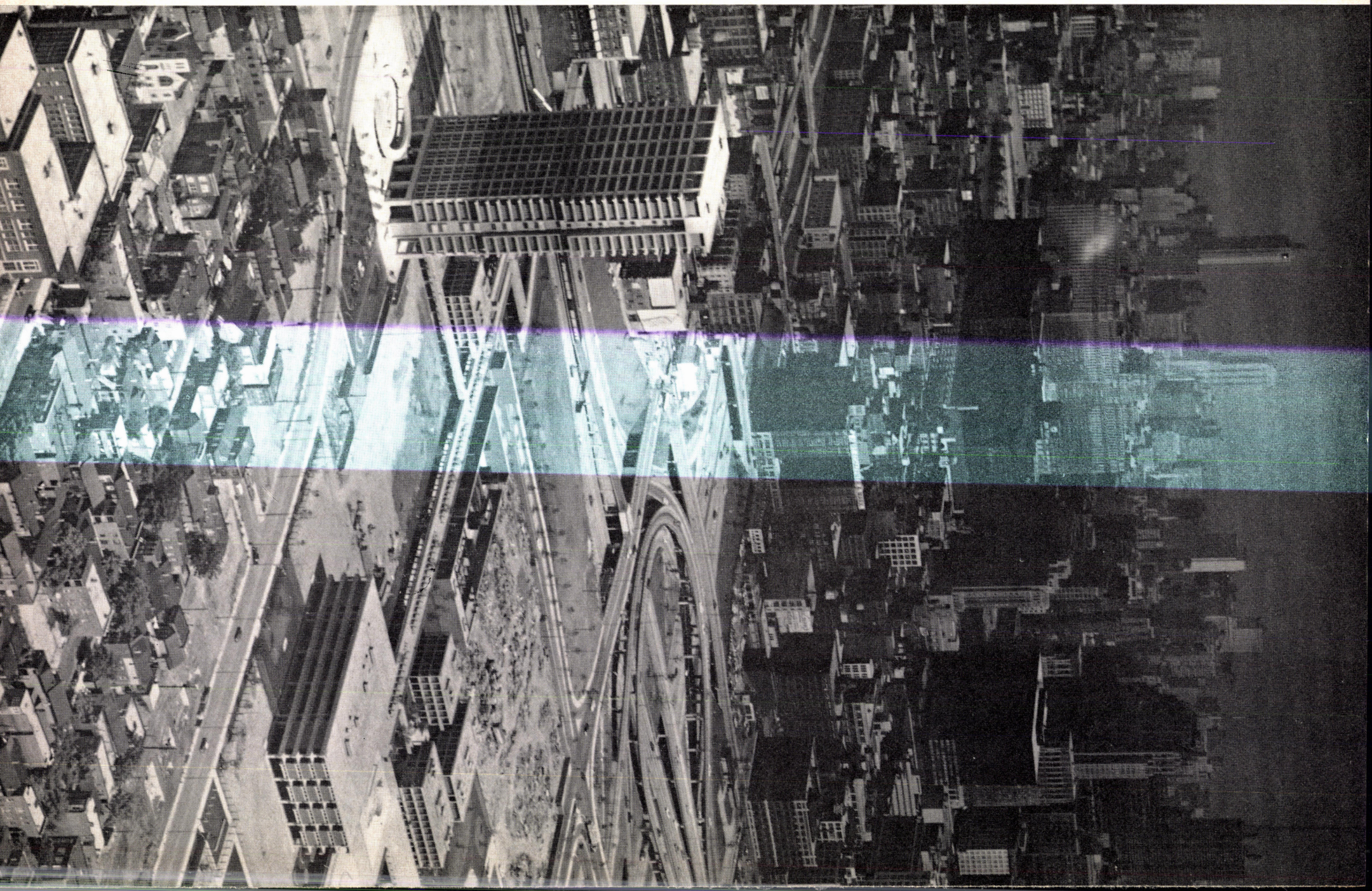

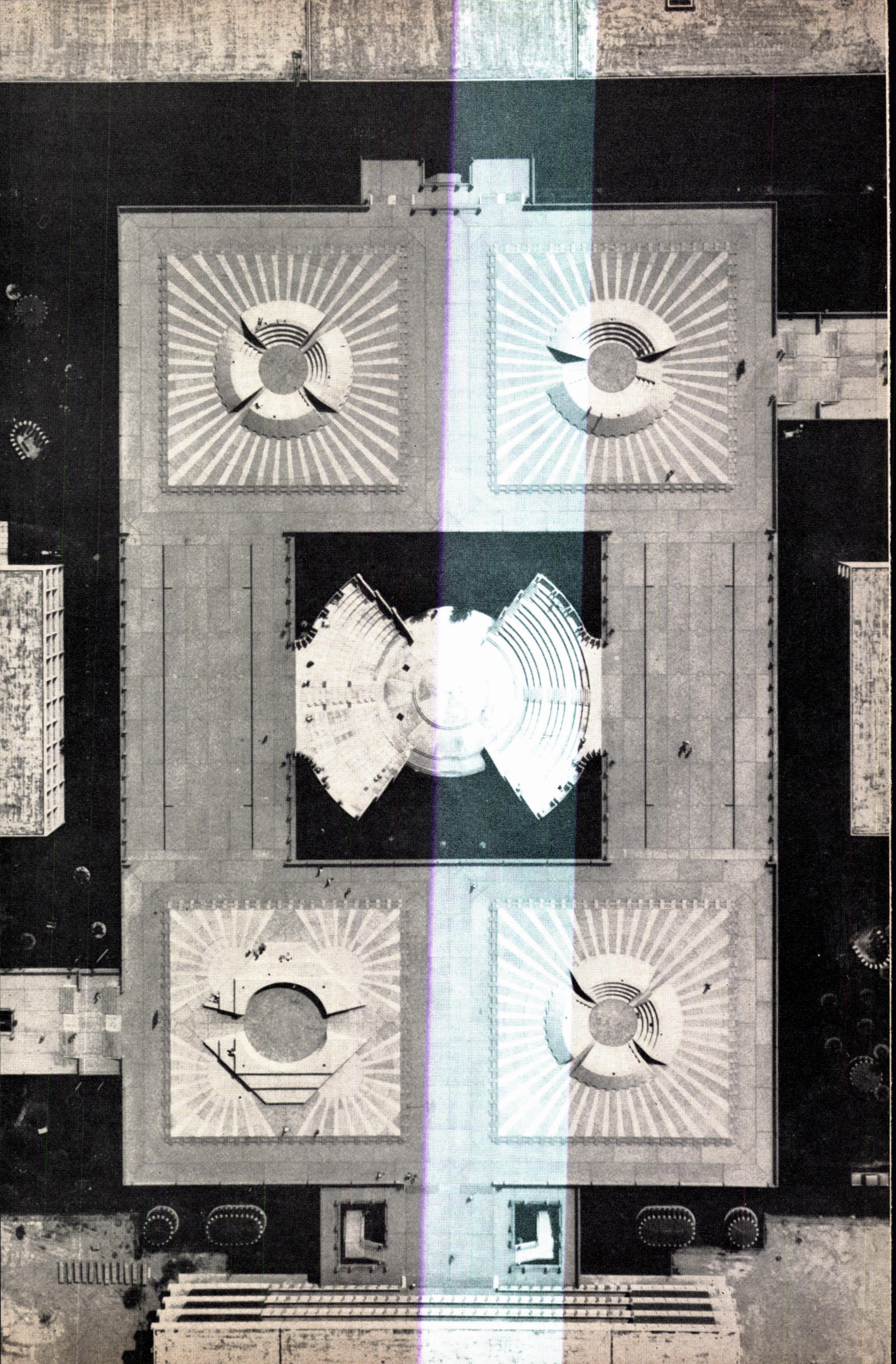

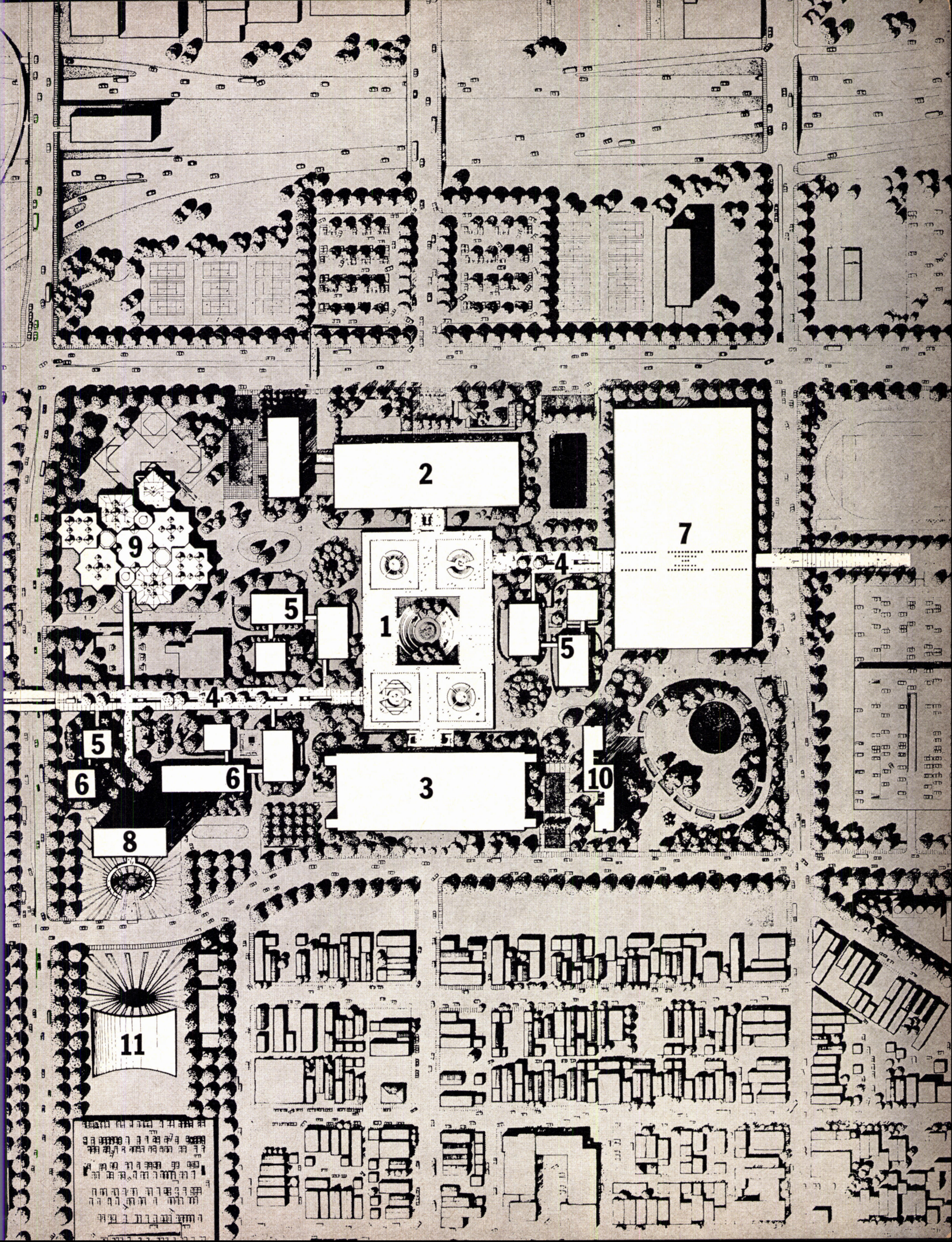
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THE CONCEPT:

Walter Netsch creates a bold pattern from a set of 'pins'

The form and workings of the Chicago Circle campus—its very nature as an educational institution—derive from a single concept of organization, and two design corollaries.

The concept was to group the campus buildings by their function, rather than by discipline. Offices are with offices, lecture halls with lecture halls, classrooms with classrooms, and all academic departments of the university come together in their use of these common facilities.

The corollaries are the lecture center with its rooftop plaza, and the double-level network of circulation. "Everything fell into place with these two elements," says Walter Netsch.

They came to Netsch with classic suddenness, and in a classic manner. Netsch simply thought of them one day and drew them on a matchbook cover. But first came something else, and that something else was program information—lots of it.

"The important thing," Netsch says, "is that the conception of the lecture center and the walkways occurred more than a year after we started. We refused to make design decisions early. The pieces of program information were like pins. We took the pins, spread them out on the table, and then started to group them together in ways that would have meaning."

Another factor of importance, in Netsch's estimation, was that the program information was plentiful. Much of it was contained in a thick, yellow-covered report issued in 1960 by the university's building program committee, headed by N. E. Parker, who has since become vice-president in charge of Chicago Circle. The Parker report took several long steps toward defining the nature of the new campus.

Program for expansion

Before construction of Chicago Circle, the university's only outpost in Chicago had been a two-year branch opened after World War II on a former Navy pier in Lake Michigan (upper right). Perhaps the nation's most picturesque and least comfortable college campus, it quickly grew to its capacity of 4,600 students.

The Parker report proposed relocation of the two-year pier program on a new campus for 6,000 students by 1963, expansion to four years and 12,000 students by 1965, and to 20,000 students by 1967, all but 300 to 400 of them undergraduates. It assumed that the educational program would be along the general outlines of that at the pier: liberal arts and sciences, business administration, engineering, architecture, art, music and physical education.

The report also made some significant assumptions about the campus plan. There would be no student or staff housing, no museum, no stadium, and a single library. In general, buildings were to be walk-ups "not exceeding four stories and basement."

Finally, the book was given its heft by tables estimating enrollments and space needs for each department at the three stages of campus development. The figures were developed by projecting 10-year records of student distribution among disciplines at both the pier and Champaign-Urbana, then applying space ratios used by state universities in California, Colorado and New York, as well as Illinois.

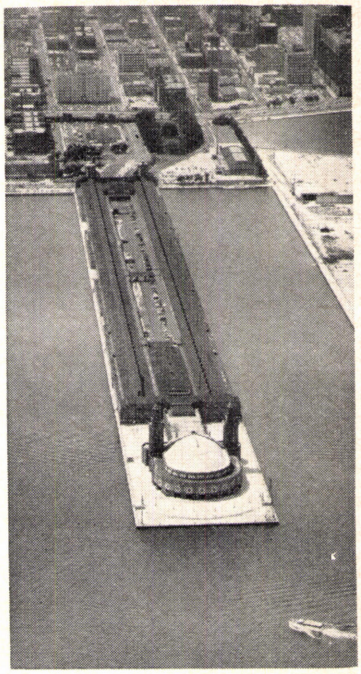
These figures comprised most of Netsch's pins. Before he could arrange them, however, there remained the problem of the site.

Struggle for a site

The search for land began in 1954. Ninety sites were studied, four were given thorough analysis by SOM, but one by one it turned out all were unavailable. To the rescue came Mayor Richard J. Daley ("A building mayor," says Parker gratefully) with the offer of the urban renewal land that became Chicago Circle. It was eminently accessible, and heartwarmingly inexpensive: the city and federal governments would pay all but $4 million of its $27 million cost.

The university's problems still weren't over, however. The property Daley offered had been scheduled for housing, and neighborhood groups objected to the switch. It took a Supreme Court ruling to overcome their objections.

The results of the litigation were the preservation of Hull House (right), which pops up at the east edge of the site, as a gesture to the losing side; and a substantial delay in the university's timetable. The Supreme Court ruling came in December, 1960; the master plan was unveiled in September, 1961; and the first students came to Chicago Circle last Washington's birthday. By then the university had decided to start with 9,000 students, and a full four-year program, this fall.

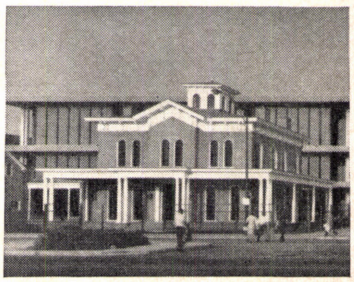


FAIRCHILD AERIAL SURVEYS

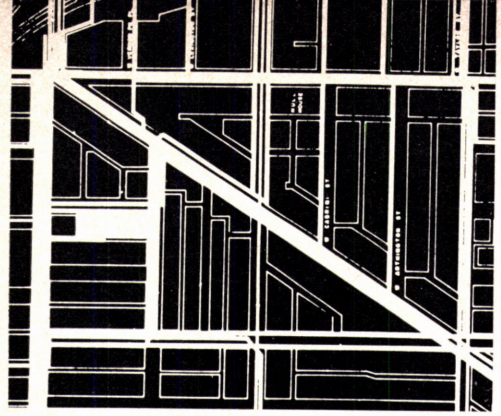
Out of his previous experience in campus design (Naval Postgraduate School, 1955; Air Force Academy, 1959), Walter Netsch has developed a technique of making statistics into graphics. He takes figures such as those in the Parker report and converts them into brightly colored charts. The charts at first show the number and sizes of rooms required, then relationships between them, then detailed space and equipment requirements.

"Pretty soon we begin to get the grain of what goes on," he says of the process. "Significances begin to show up. We find there are parameters missing in the big beautiful Bible of statistics."

One such non-statistical parameter for the Chicago Circle program was "social communication," says Netsch, and it soon assumed a role of prime importance. "What happens between classes," he says, "came to be regarded as being as important as what happens in classes."



PHOTOGRAPHS OF CAMPUS BY ORLANDO R. CABANBAN



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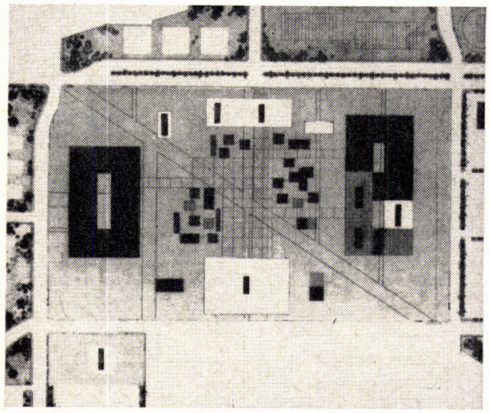

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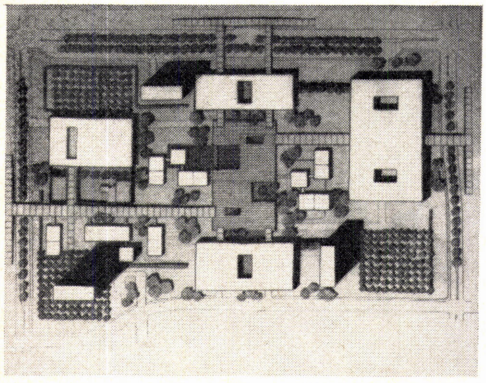
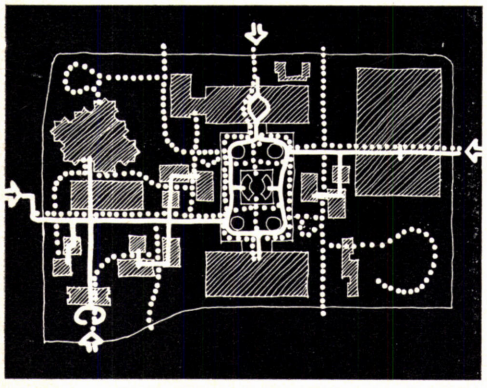
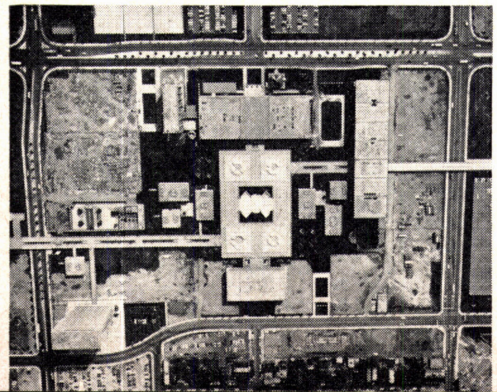


C

Above, the core site and its utilities (A); an early grouping of buildings around them (B); and the debut of the lecture center and walkways (C). Below, circulation (D) and the end result from the air (E).

D





E

The idea became a plan, then—guided by six distinctive principles—a design

It was "social communication," among several other considerations, that led Netsch to suggest the organization of Chicago Circle by function. The fact that the idea originated with Netsch is significant. He is a Massachusetts Institute of Technology graduate, and the MIT campus grew outward from a single, commonly used building whose extensions were planned to encourage continued chance encounters between disciplines. The Chicago Circle plan, says Netsch, "provides the meeting-in-the-corridor on a grand scale."

It also made the campus somewhat easier to build. The common facilities (virtually everything in Phase I) could be constructed first at the center, with expansion on the perimeter. "The key problems," says Netsch, "were growth and accretion." Organizing the buildings by function eased the solution of both.

Finally, this basic approach did much to simplify circulation. There are more students than faculty members; *ergo*, if the faculty has to move the greatest distances, there is less traffic to accommodate. Foot traffic was the sole consideration: an early decision banished all autos to perimeter parking lots.

These last decisions—to let the faculty do most of the walking, and keep all cars off campus—reflected a unique aspect of the programming process. The faculty was consulted on space requirements and relationships, but the entire first phase was designed without department heads—and thus without faculty voices having the prestige to demur against an energetic administration and a persuasive architect.

The pattern evolves

The development of the physical plan according to these "parameters" is best shown graphically. At the beginning was the site (A), which exerted a discipline of its own. It was underlaced by utilities, tracing the existing street pattern, including a set of lines running diagonally underneath the campus core. All had to be left accessible for maintenance. The large rectangle at the left center is a Commonwealth Edison substation, which Commonwealth Edison said would cost too much to move.

The first site development study, made while the Chicago Circle site was still being evaluated by the university, was a very SOM-ish group of individual buildings, skillfully, but rather stiffly, organized around the utility lines.

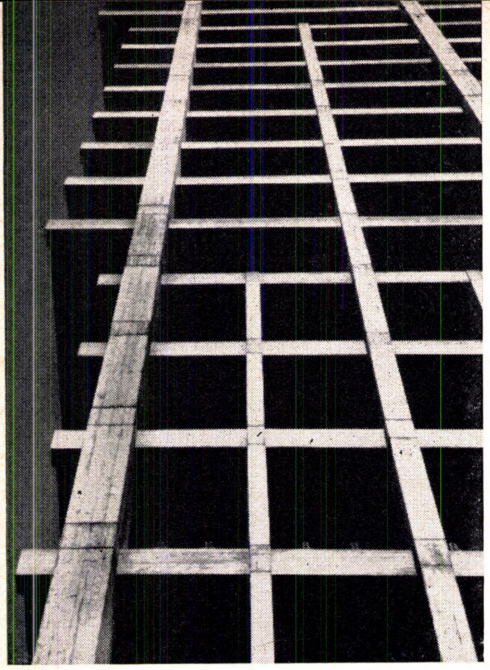
Diagram B shows the impact of the evolving educational program. By this point, the major campus buildings have taken their final positions (except the administration building, which is still a tenuously pasted-on label). Classrooms are in clusters around a central open space; the architecture and art building is to the north, the library to the west, the student union to the east, laboratories to the south. By this time space needs and relationships were well worked out. The number of common facilities manifested the gradual movement toward grouping of buildings by use.

Diagram C represents the first of the post-matchbook plans. Netsch, seeking a way to join the elements of the campus together, had come up with the central lecture center (at this point a notched rectangle) and the concept of elevated walks.

The lecture center became the intensive meeting-place of the campus and its roof the great court. A series of stairways at its nucleus, joining the roof to the ground, became the amphitheater (symbolic, says Netsch, of freedom of speech).

The walkways, the straight lines leading out from the great court in Diagram D, became pedestrian "expressways," in Netsch's term—straight, direct, unencumbered. They also were to shelter ground-level paths beneath from snow and rain. The ground level, shown in dotted lines, was made "ambulatory—secluded, devious, shaded."

The elevated walks also provided second-story access to the major campus buildings, reducing the number of stairs to be climbed and carrying out the university's idea of walk-ups. The great exception to this idea was University Hall. By now it had become a full-fledged tower, containing, among other things, the faculty offices, which *are*



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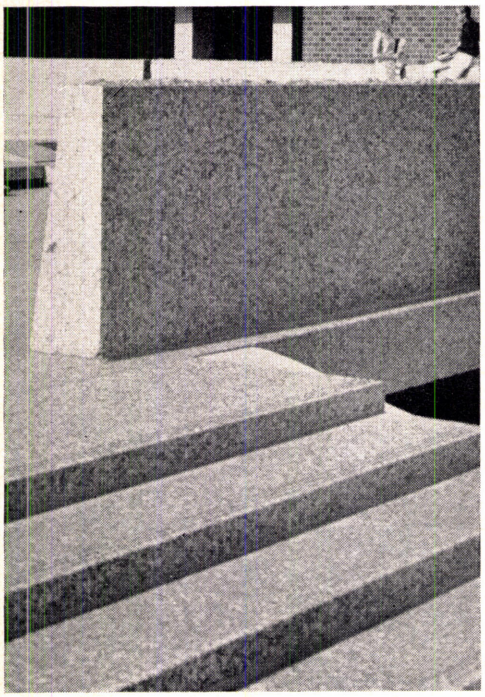

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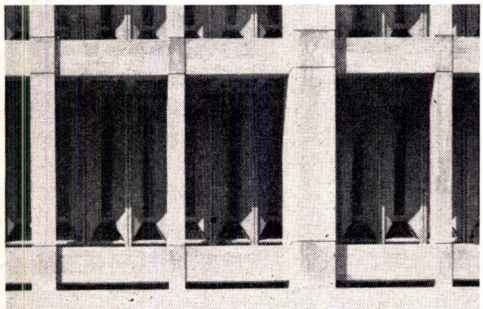
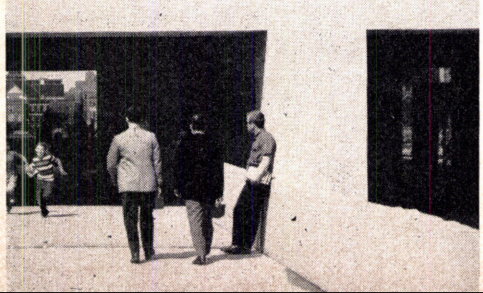




3

grouped by discipline, and seminar rooms, lifted above the campus hurly-burly.

The overall plan can be described in terms of a series of concentric circles: places of most intense activity, of greatest traffic, are at the center; activity decreases and specialization increases with the outward rings. And over this pattern slash the die-straight elevated walks and their branches, giving the whole an easily readable cohesion it would otherwise have lacked.

Six rules of order

When it came time to take the plan into three dimensions, Netsch took an approach that was, once again, revealing of his turn of mind. He established a set of six architectural principles, then let the differences in program lead where they might. These were the principles:

1. All structural members were to be concrete of uniform strength, with a minimum of reinforcing steel. Differences in the strength of members were to be expressed in form, not absorbed by hidden details.

2. Materials were to be "indestructible": concrete, granite, hard-surfaced brick. Maximum use was to be made of variations in concrete textures to reflect conditions of use and to articulate structural systems.

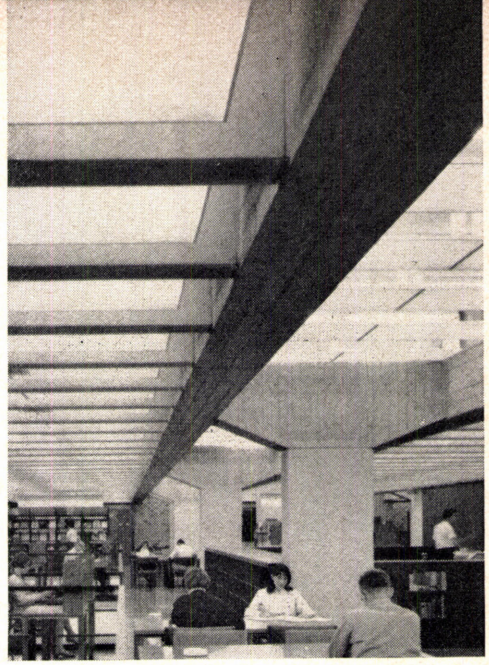
3. Each major building or building type was to have its own scale, its own structural-spatial module suited to its own internal needs.

4. Mechanical and lighting systems were to be integrated with exposed structural systems, all but eliminating hung ceilings.

5. Fenestration was to be opaque enough to eliminate the need for blinds, which create a severe maintenance problem. Admission of natural light was to be controlled to the extent that projectors could be used in teaching spaces without covering the window glass.

6. Proportions were to conform wherever possible to the Golden Section ratio. The Golden Section held no mystical attraction for Netsch, but he felt the repetition of a single system of proportion, within the variations of form and scale, would give the campus a subtle consistency.

These six ground rules do much to explain both the virtues and the idiosyncracies of the architecture of Chicago Circle.



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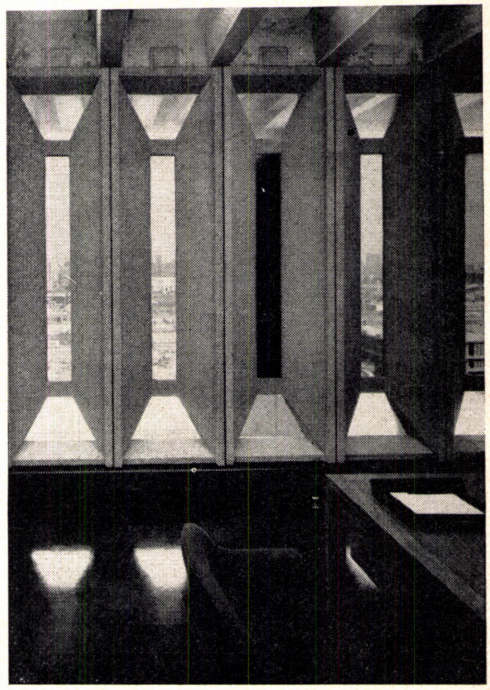

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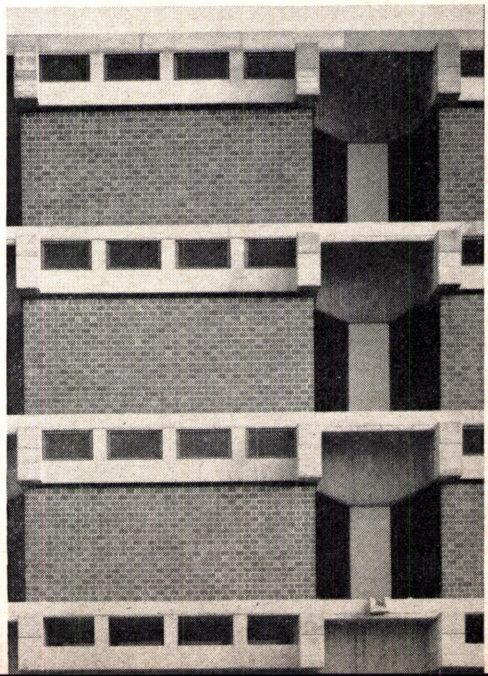

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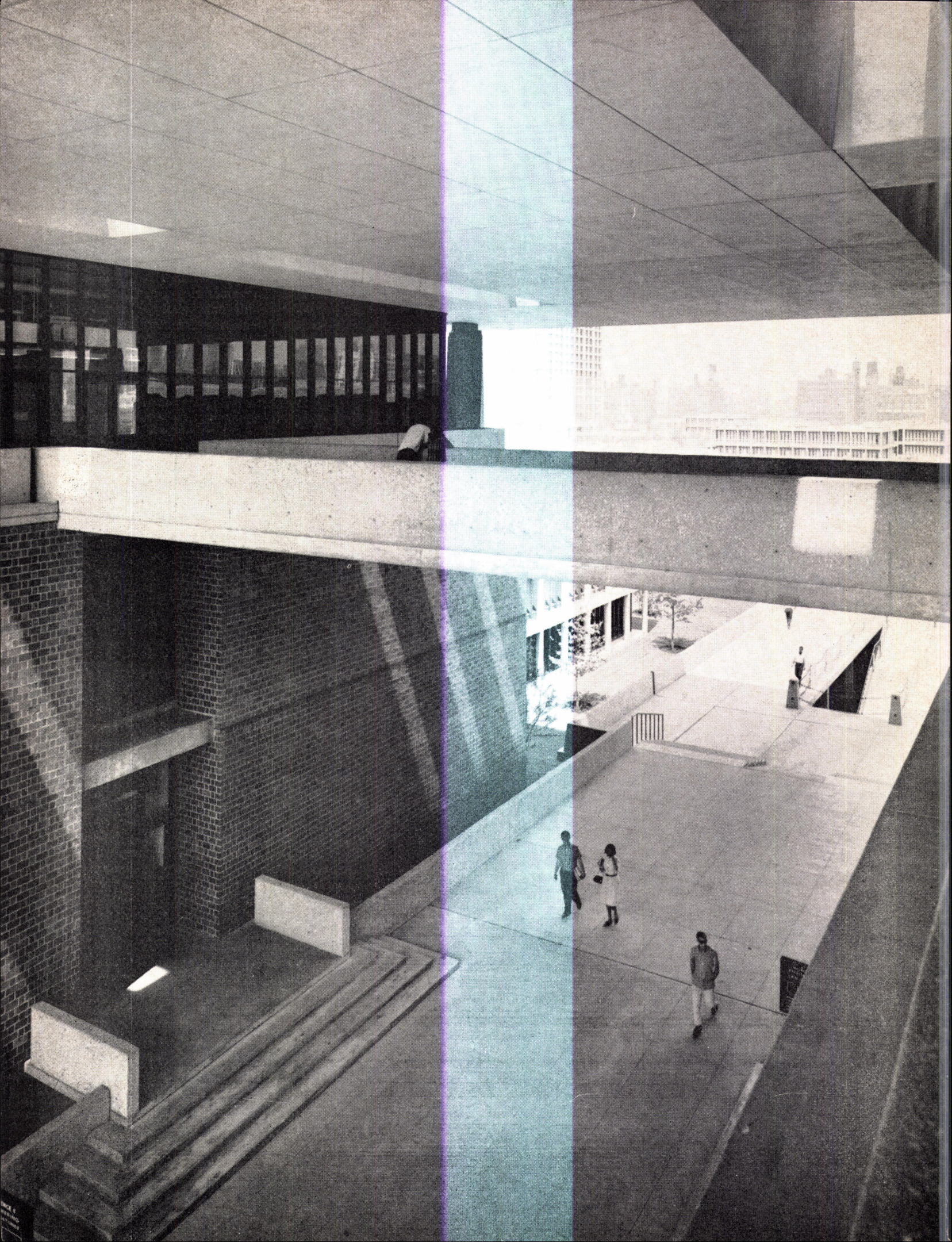
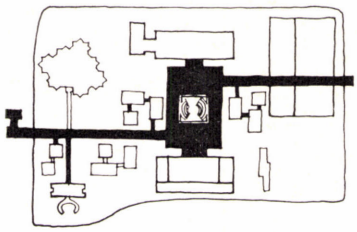
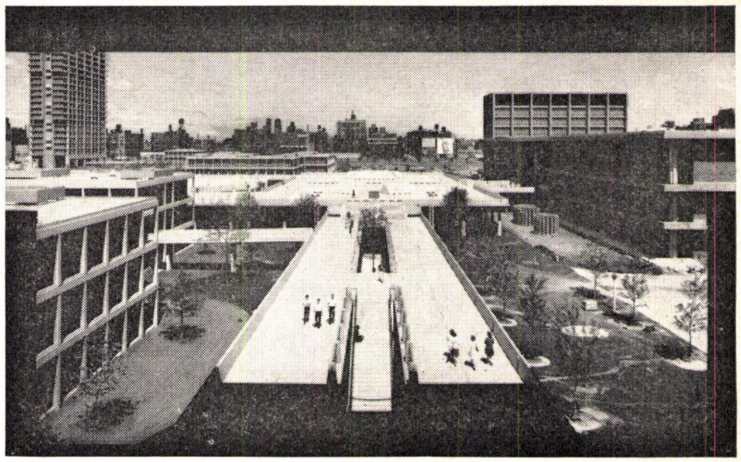


THE WALKS:

They are expressways leading through the core of a micro-city





Entering the campus on one of the elevated walks is like traveling on an urban expressway—not the kind of expressway we usually find today, but the kind we ought to find. Access ramps rising far beyond the campus walls carry their human traffic smoothly over the earthbound streets and straight in toward the great court—itself a pedestrian cloverleaf.

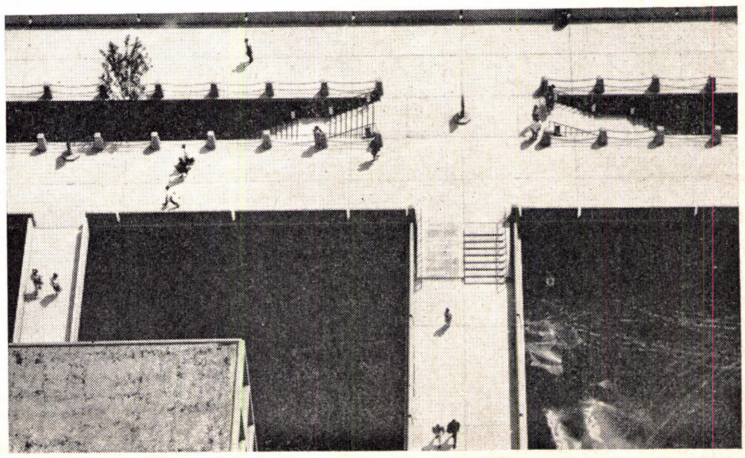
The ramp from the parking lot to the south tunnels through the mass of the engineering and science building (left) and emerges to disclose the entire layout of the campus (above). The axial view along the walk, which now fizzles out in some distant factories, will soon have a stronger objective: the architecture and art building.

After darting along across the small-scaled pattern of lower level walks and classroom buildings, the upper level route reaches a space of its own—the central court. This rectangular space, almost two-thirds as large as the Piazza di San Marco, is defined by the classically balanced facades of the library and the student union, but redeemed from static symmetry by the eccentric pull of the walkways themselves.

The combination of symmetrical and asymmetrical plan elements, the play of conventional enclosure to the east and west against irregular recession of space to the north and south, give the space some of the excitement—and some of the ambiguity—of the adjoining cityscape.

The two planes of pedestrian travel are sharply distinguished visually. The upper level walks are straight-edged, hard-surfaced, light in color, and large-scaled. The ground level walks are laid out in curved lines, with darker colors, softer textures and more intimate scale. (The curves of these walks serve the vital secondary purpose of accommodating emergency and service trucks.)

The distinction between levels is further expressed by the kind of inducement each offers for casual encounters and repose. On the upper level, students can perch on the exedrae of the great court. But on the lower level, SOM has provided individual folding chairs (designed as an adaptation of the traditional 19th Century lawn chair). What appear to be miniature temples spotted about the campus are storage places for these chairs.



The two planes of circulation offer two distinct kinds of environment

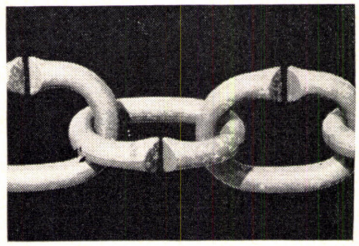
The lower level of the circulation system is partly open and partly sheltered. The curving open walks lead to comfortably scaled spaces such as the classroom courts (bottom photo) and the handsomely paved tree garden (below). The shelter is provided by the lecture center, cut through by passageways, and the broad elevated walks which act as roofs for the paths beneath.

The structural system of the elevated walks has been obsolete for so long that it has become avant-garde. The walks are composed of granite slabs acting as structural members, sitting on sturdy columns. Primitive as it is, this structural application of stone was not arrived at directly.

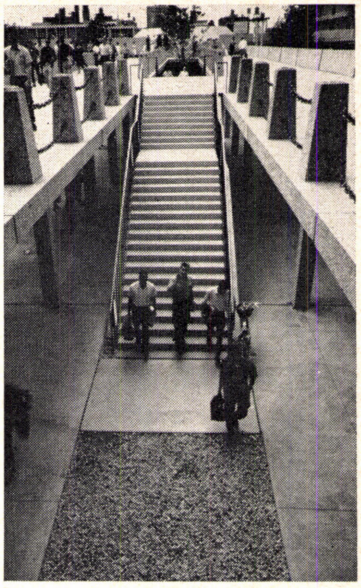
The granite, which can survive extremes of wear and weather, was first proposed as a finish for a concrete slab, but it was too expensive. (The entire cost of the walkway system, which was not envisioned in the initial budget, had to be eked out through savings on Phase I buildings). Then someone thought of eliminating the concrete instead of the granite. Still, the cost remained out of reach until a way was found to eliminate factory processing, by leaving the bottom surfaces rough. Since there were no local codes covering structural granite slabs, standards had to be worked out on the spot. The result was a cautious allowance of 12-ft. spans for 12-in. slabs. But larger slabs meant fewer joints and lower costs; hence the 20-ft. slabs supported on 8-ft.-wide "butterfly" capitals—a rather dense forest of supporting members.

The same structural system is carried through the covered walkways of the lecture center, with a change in column design to allow for the greater height. The tapered columns used there have square cross-sections at the top like the other walkway columns, but diagonal square sections twice as big at the base.

The walks are lined with rug-



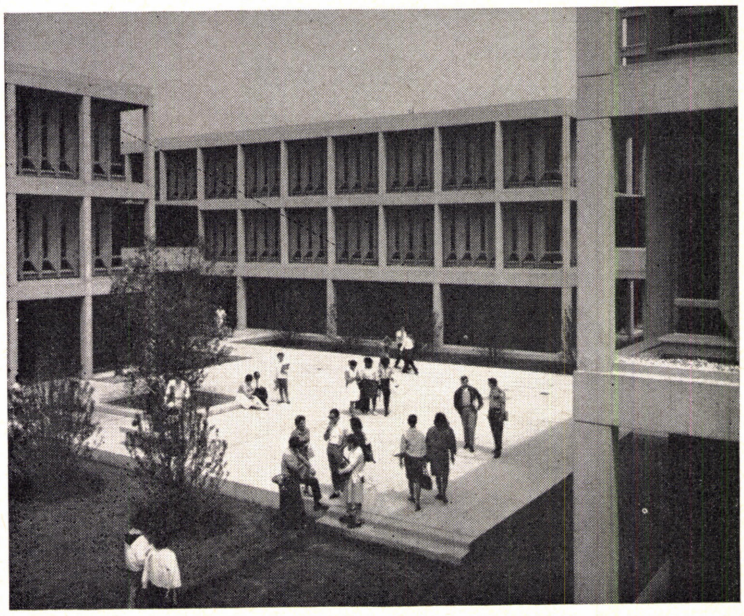
ged granite parapets or with granite bollards and chains. The bollard-and-chain arrangement is used where the silhouette of the parapet would look overpowering—where it would be seen from the walks below or from the small-scaled classroom buildings nearby. In the original design, there was a single chain between the bollards; the lower one—added to restrain small children—is poorly related to the shape of the bollards and adds to the congestion of details that develops at some intersections. The chain itself was designed by a member of SOM's staff with metal-working experience.

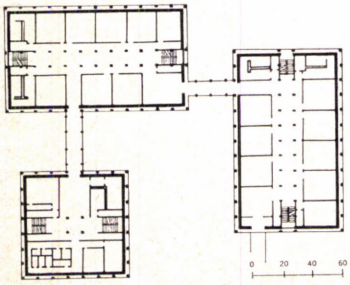


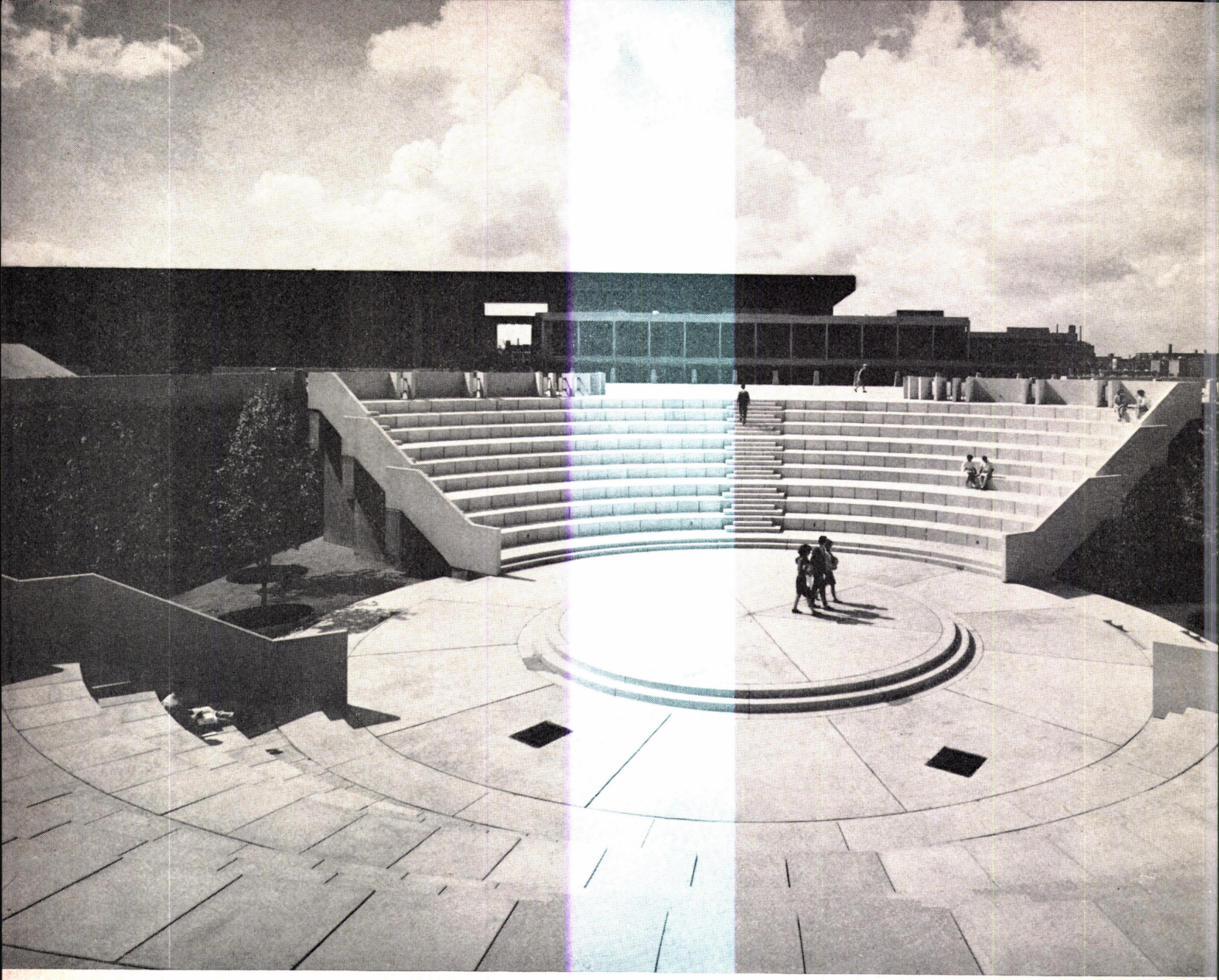
The major flaw in the granite walkway system is that it cannot be carried throughout the entire campus. Wherever trucks might pass underneath, possibly striking the relatively brittle granite, the architects have had to fall back on concrete walkways. Where this has happened—in the spurs serving the classroom clusters and in the overpasses at the ends of the campus—the forms of the granite slabs and parapets have merely been duplicated in concrete, making the discrepancy in materials all too obvious.

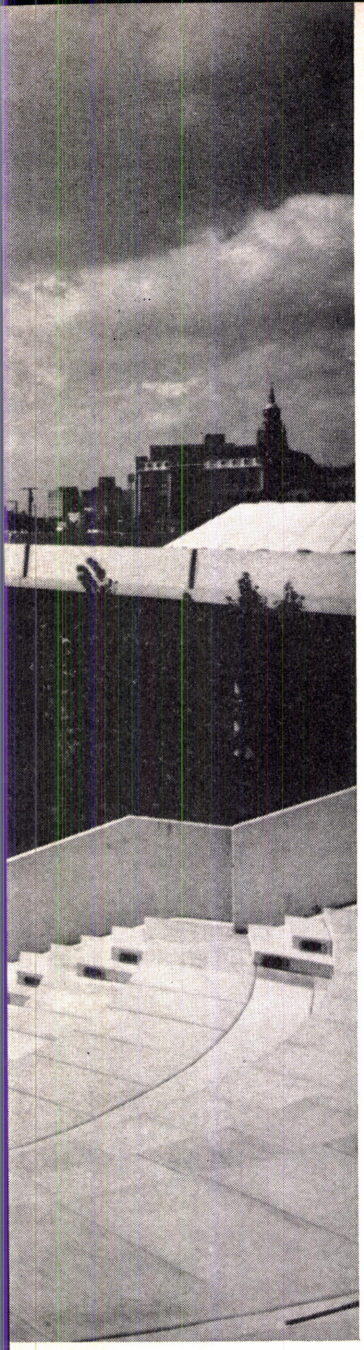
Spurs of the upper level walk system lead into the clusters of classrooms along the way (left). Each cluster is entered at a single point. Access to other buildings in the cluster is through the wide interior corridors which are defined by rows of freestanding concrete columns and lined with student lockers (not the typical clanging high school type but quiet ones custom-designed by SOM).

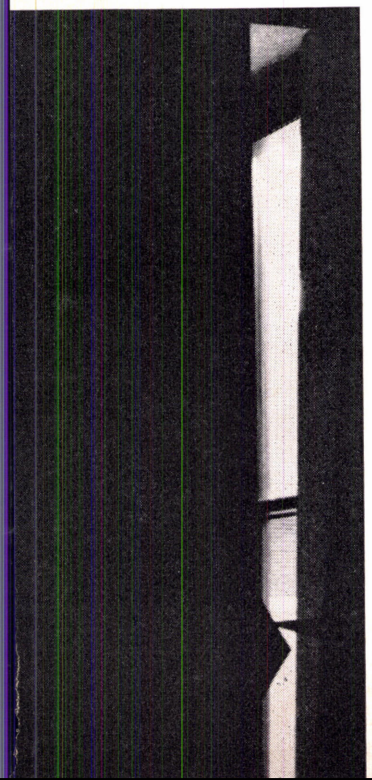
Lower level entrance to the classroom buildings follows a completely different route—through the courtyards at the center of each cluster. This arrangement creates a critical—and, in rainy weather, wet—break in the system of protected walks on this level.





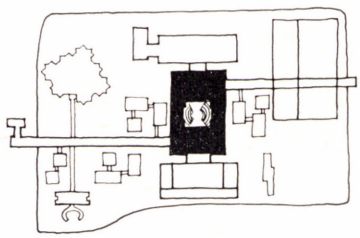


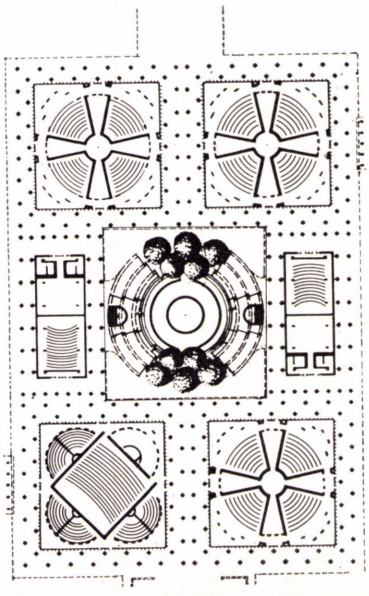




THE HUB:

The whole design revolves about the lecture center





The two organizing principles of the campus—the concentric rings of function and the two-level circulation system—are both focused on the lecture center, the nucleus of the entire composition. Here is where the routes of both levels converge and here is where people congregate.

The lecture halls themselves are on the lower level, enclosed islands in a network of sheltered walkways. Above them is the great court of the campus, the place for outdoor, casual gathering above the place for indoor, organized gatherings.

Walling the court to the west and east are two of the most intensively used (but least interesting) campus buildings: the SOM-designed library; and the student union, the work of C. F. Murphy Associates and the only major building not by SOM. They are joined to the lecture center at both levels.

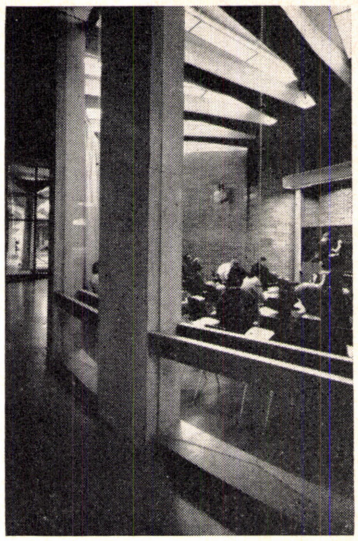
At the center of the structure —and the center of the campus— is a stairway between the two levels that developed, as the design progressed, into a double amphitheater seating well over 1,000. It remains, in function, an important stairway and has become, in form, a landmark among American stairways.

The role of the lecture center in the over-all campus form made it necessary to build it all at once, although the full capacity was not yet needed for teaching. The halls now double as study halls, their glass walls making supervision simple.

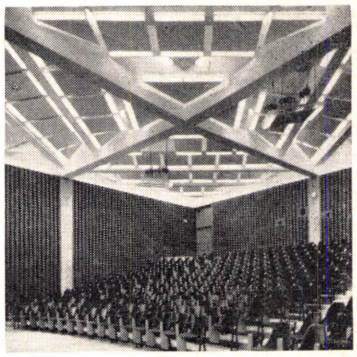
Each typical cluster of four 175-seat halls is arranged around a circular core where rear-projection equipment can be installed in the future. The plans of these clusters can be read in the paving of the courts above. The fanlike arrangement of their precast roof-beams is repeated in the pattern of precast paving slabs—alternately smooth-finished and acid-etched.

Centered above each lecture hall cluster is an exedra, a circular sitting place shaped to trap sunlight and fend off wind. The exedrae are good for open-air lectures, for choral rehearsals, or for just sitting. Netsch hopes to see sculpture in them some day—hovering above the centers or sitting casually on the steps among the students. ("Architecture itself is not a sufficient focal point. The exedrae need something to hold the eye.")

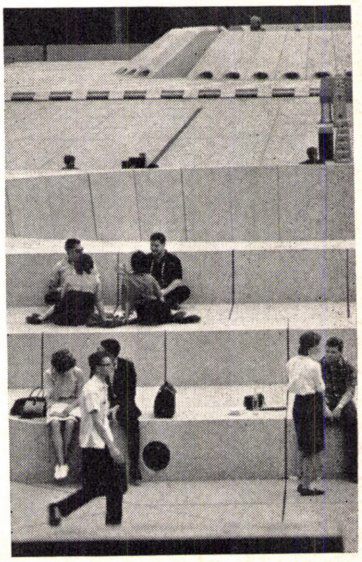
One of the lecture-hall clusters

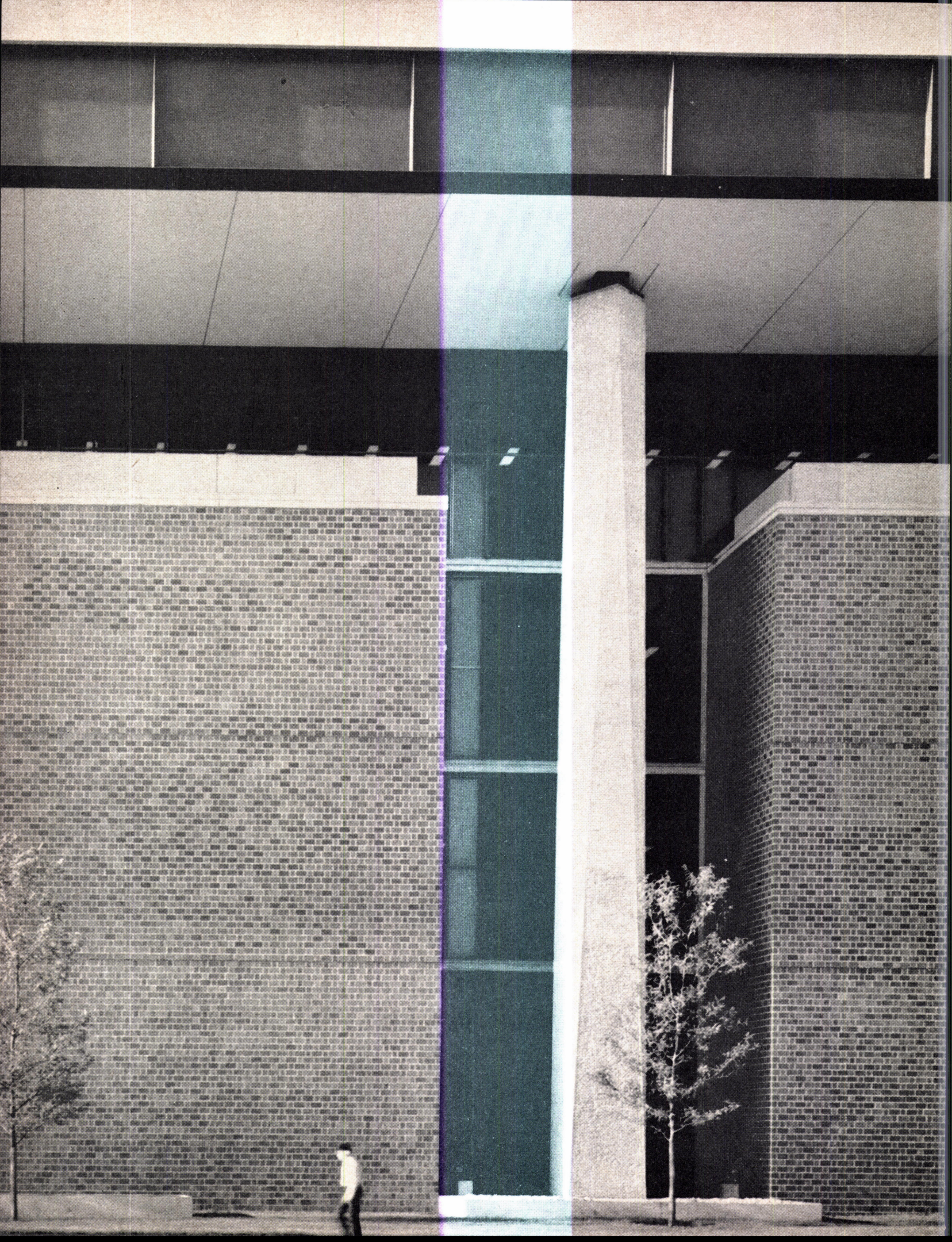


is different from the other three: it contains a single 500-seat square hall (which had to be spanned by fireproofed steel—a



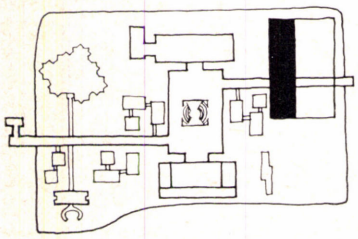
concession to local codes) with three 30-seat seminar rooms around it. The exceptional plan of this cluster has also been conscientiously recorded in the paving overhead—and it has been crowned with an exceptional exedra. This one, called an "extroverted exedra" by its designers, is a fine place for sunbathing and girl-watching.

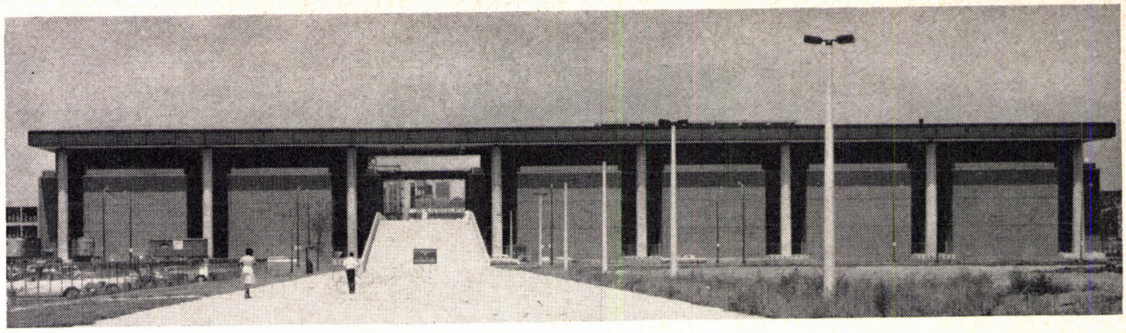




THE LABS:

The big module on campus belongs to the sciences





The concrete column seen on the facing page, 60 ft. high and 5 ft. square at the base, is part of the biggest structural bay on the campus—one of the seven equal bays of the engineering and science laboratory. This building represents one end of Netsch's spectrum of scale, as the classroom buildings huddled beside it represent the other.

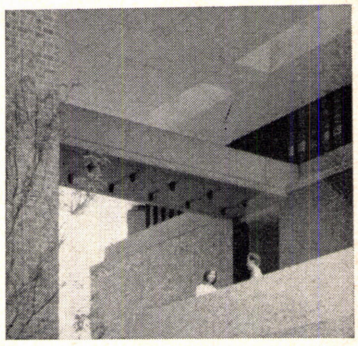
This giant scale was derived from functional needs by a process that was rational, but obviously directed by a concept of campus form. Out of the broad range of laboratory sizes called for in the program, SOM abstracted a large common multiple—a working area 50 ft. square—and a standard unit of related auxiliary space. Three-story blocks of the laboratory spaces, enclosed in windowless brick walls, were then lined up, alternating with auxiliary spaces behind recessed panels of dark glass.

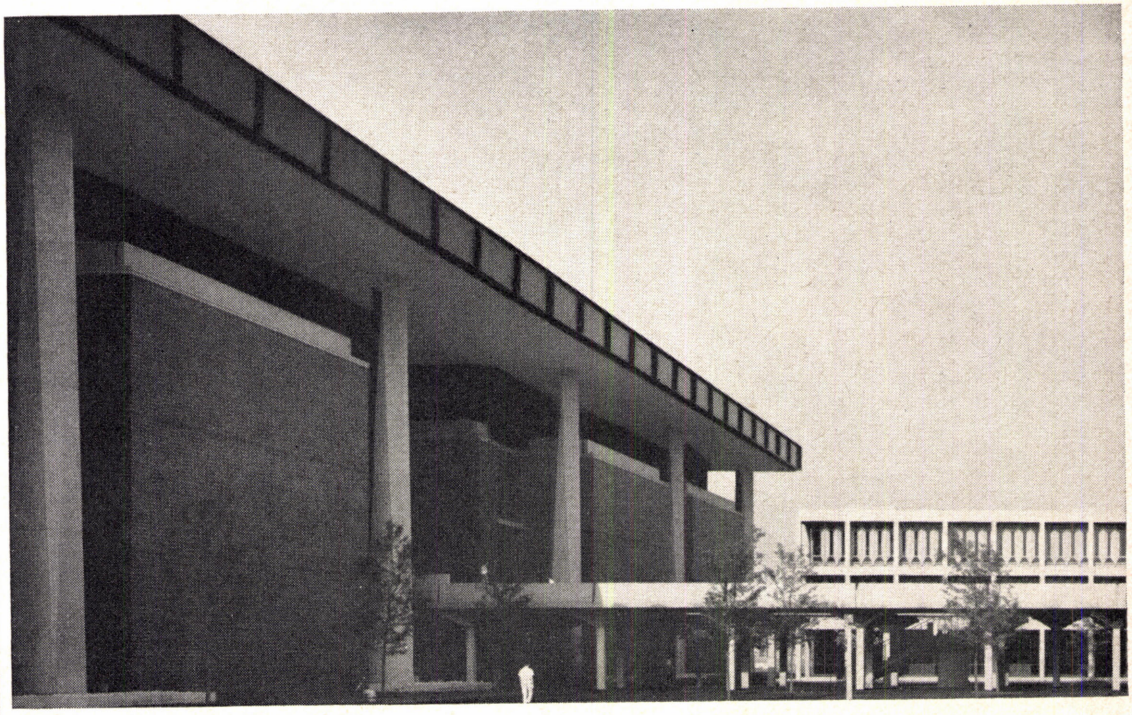
To frame these giant modules and emphasize their scale, the architects took advantage of the need for a column-free floor to house the unpredictable requirements of technological research. They sheltered the top story under a steel-framed roof spanning 75- by 112-ft. bays. An exposed steel edge girder gives visual expression to the steel framing, a conspicuous exception to Netsch's ground rule on structure.

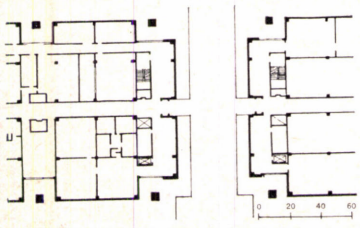
The columns that support this roof have the same faceted form as those of the lecture center walkways, but are 3½ times as large (and turned 45 degrees in plan). The difference in scale is maintained in the coarse texture of the concrete, which was produced by deep sand-blasting to expose the 2-in. gravel aggregate. A more calculated—even deceptive—expression of scale is seen in the brick walls: the bricks used here are of the same type and color as those of other campus buildings, but twice as large.

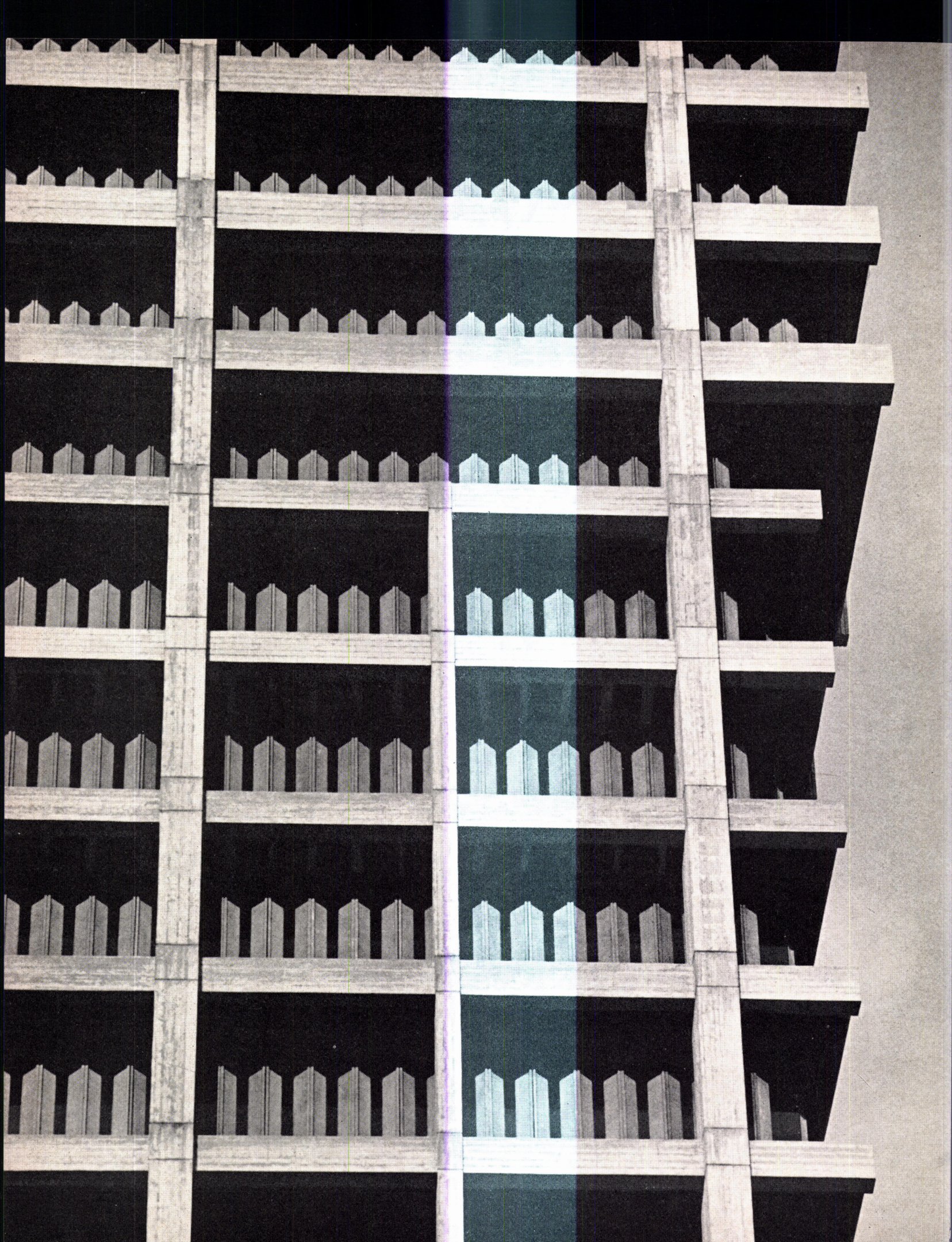
The freestanding columns and the massive girders emphasize the role of this building as a gateway to the campus. Next to them, the typical walkway passing through the building seems almost dwarfed. A flying bridge two stories above the walk provides a standard for measuring the vastness of the soffit.

The threefold expansion that is planned for the building determined much about its design. The second and third phases of construction will have almost no effect on existing laboratory spaces. Circulation links can be cut through the auxiliary spaces after construction work is virtually completed. When the entire scheme has been executed, eight of the major columns will be hidden in the heart of the building, but its visual identity will hardly have changed at all.



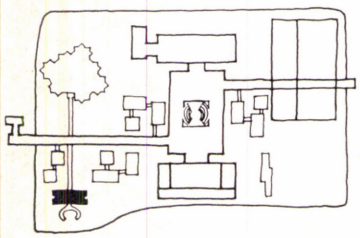


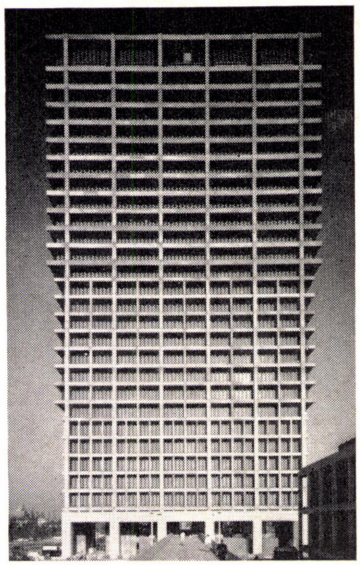




THE TOWER:

Here the structural principles are most clearly proclaimed





The broad-shouldered frame of the 28-story staff tower—the symbol of the university on the city skyline—is a restatement in concrete of Netsch's rule about structure. The rigor of its logic is tempered only by the demands of another of his rules: the one about the Golden Section.

This exposed, poured-in-place concrete cage shares the loads of the structure with the monolithic walls of the central service core. As loads accumulate on the lower stories of this cage, great increases in the area of vertical members are required to meet the structural ground-rule (concrete of uniform strength to be used with a minimum of reinforcing steel).

But the rule was applied in an unexpected way: instead of thickening the columns, the architects inserted intermediate ones. The 30-ft. bay of the top tier of floors is cut in half, and then in half again, before the loads of the tower are transferred to massive four-column portals at its base. The number of stories in each structural tier—five, eight, and thirteen (reading from the bottom up)—is the most unabashed expression on the campus of the Golden Section ratio.

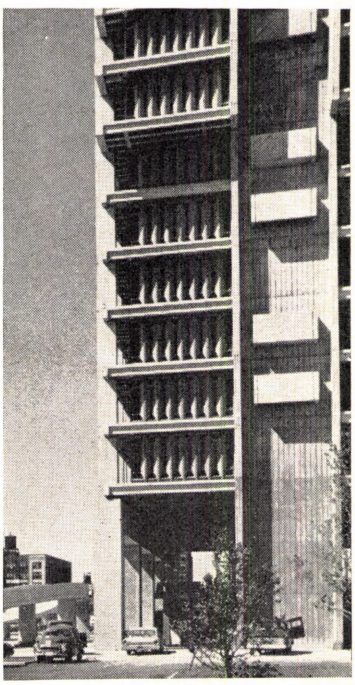
As the tower goes up and the bay dimensions increase, the size of the spandrel beams increases and with it the length of the end cantilevers, which are always one-third of the typical span. Hence the expanding silhouette of the tower and greater area of the upper floors. (The breaks in silhouette, it is worth noting, occur one story above the changes in bay width.) One feature of the structural form that Netsch is especially pleased with is its "absolute scale": a larger or smaller building with the same proportions would violate the rationale (just as a horse cannot be the size of a mouse or an elephant).

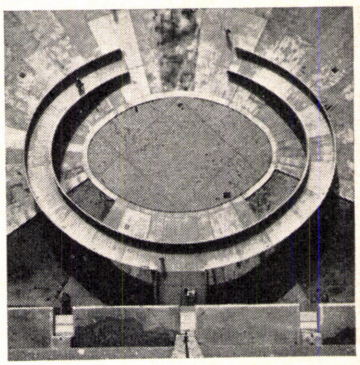
Vertical and horizontal members of the structural cage have been articulated with form-board textures along their lines of stress, and joints have been set off by incised rectangular panels. At the base, recessed bearing blocks separate the cage from the massive bents that carry the loads to the ground. The magnitude and complexity of their stresses are suggested by a non-directional texture of 2-in. exposed aggregate—the same texture used in the columns of the engineering and science laboratory, the other gateway building of the campus.

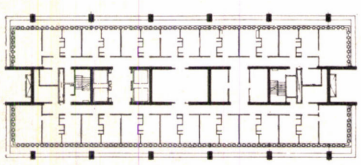
Set 4 ft. inside the structural frame, and unaffected by its variations, are the serrated rows of precast concrete window-walls. These walls are identical in detail to those of the classroom buildings, but admit more light. The laminated glass used in the vertical panes here transmits 11 per cent of incident light, while the trapezoidal panes at the floor and ceiling admit 27 per cent. (Corresponding figures for the classrooms are 2 per cent and 11 per cent.) Practical as this wall system may be, it reduces to slivers the potentially impressive views from the higher floors.

Typical floors of the tower have private offices along the perimeter, clerical spaces and seminar rooms in the central core. The exposed ends of the core have been used for mechanical equipment. Air intake and exhaust grilles, each serving three floors, pierce the massive end walls. Their concrete hoods, which prevent cross-contamination, make a bold pattern of shadows and textures.

The elevated walk that penetrates the base of the tower does not extend across the street, as the one at the laboratory building does. Instead, an elliptical ramp of Baroque ancestry leads it down to street level—defining as it does a formal entrance court, patterned with concrete and granite block, that expresses the role of this entrance as the visitor's introduction to the campus.

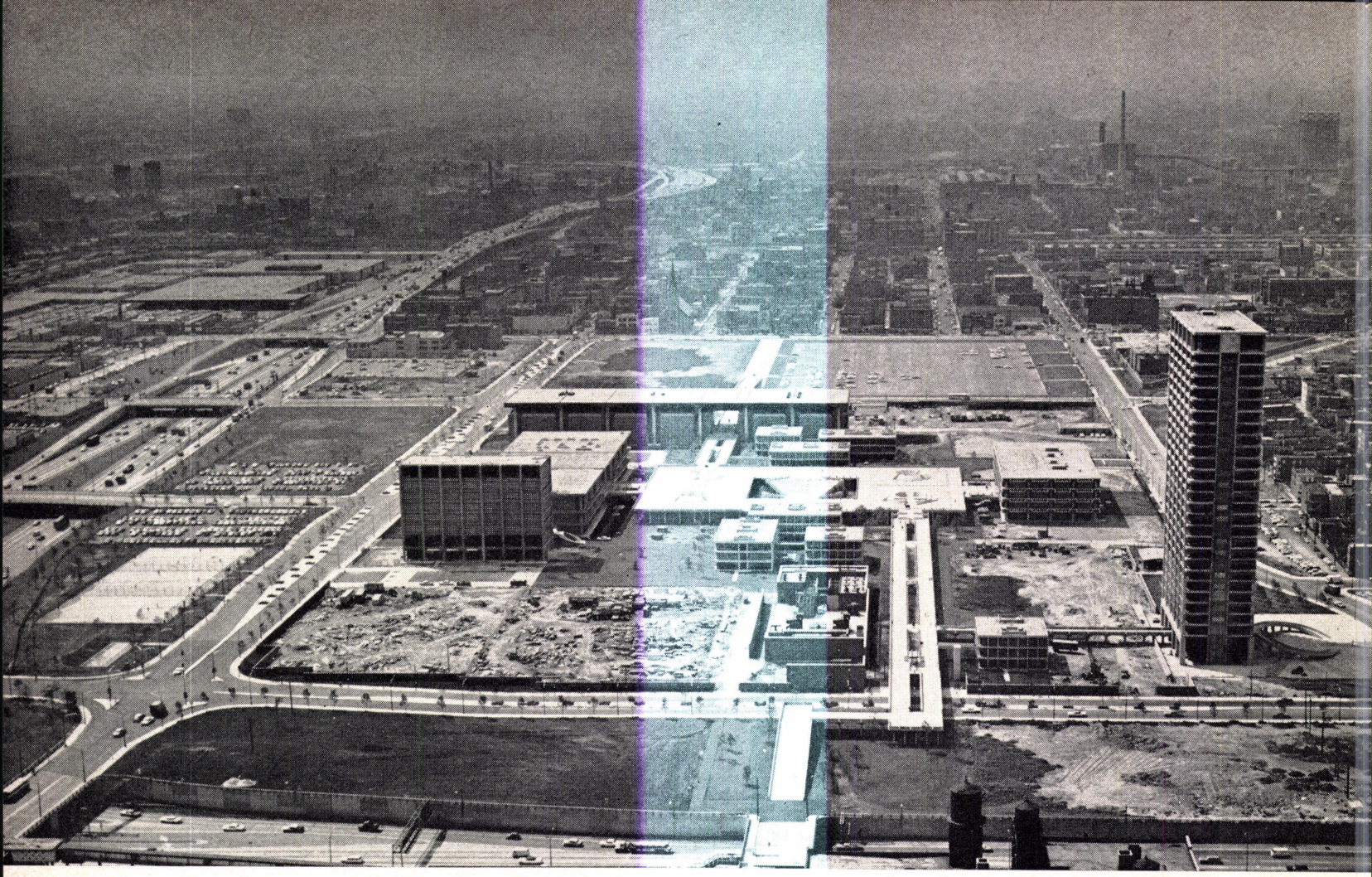


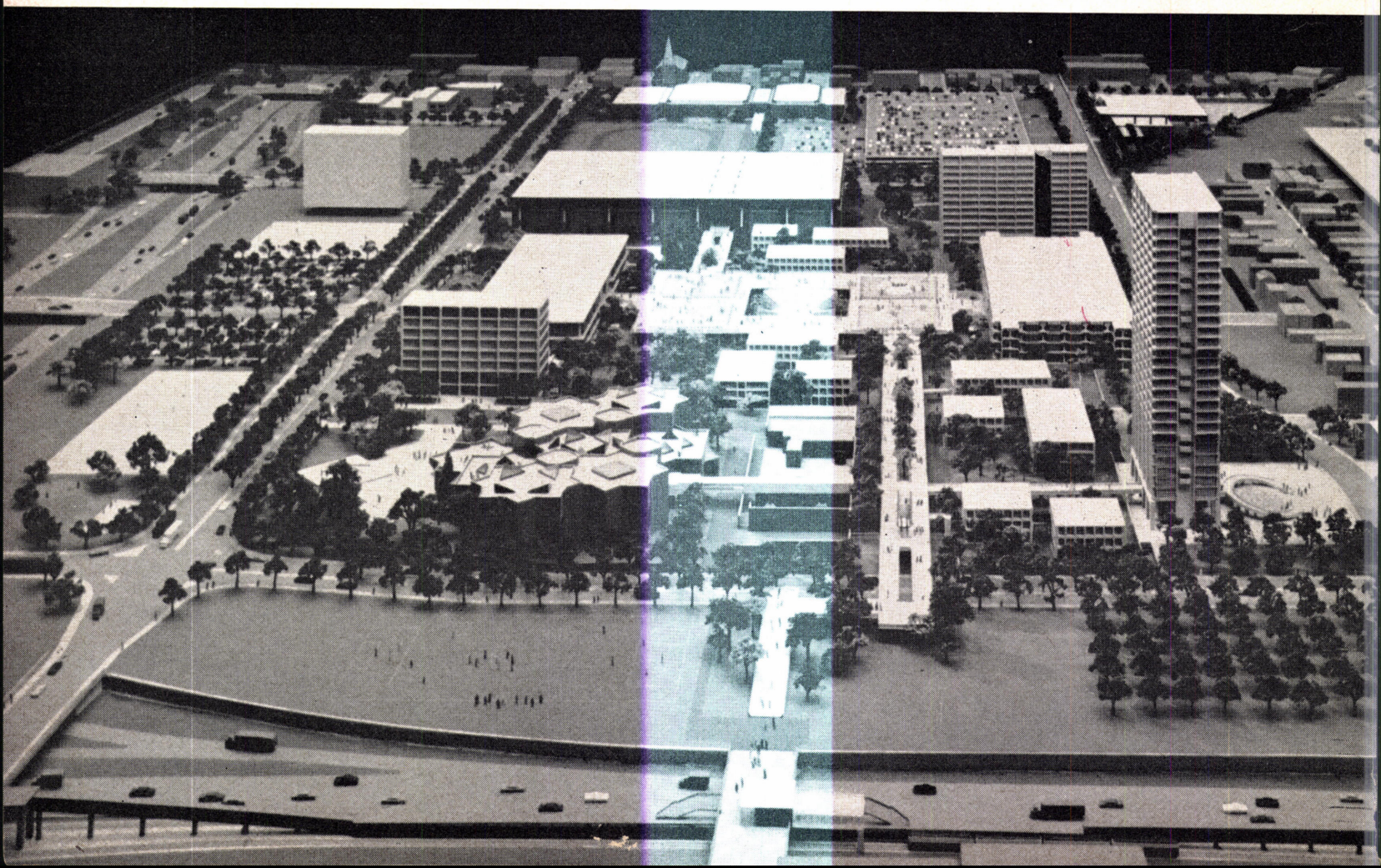




FACTS AND FIGURES

Chicago Circle Campus, University of Illinois, Chicago, Illinois.
Architects & Engineers: Skidmore, Owings & Merrill. Associated Architects: C. F. Murphy (Student Union); Harry Weese & Associates (Physical Education Building); A. Epstein & Sons, Inc. (Physical Plant); Sargent & Lundy (Utilities Center); Frazier, Raftery, Orr & Fairbank (Hull House restoration).
Design team for SOM: Walter A. Netsch, Jr., R. P. Youngren, J. DeStefano, C. Hunter, A. Muschenheim, D. Ohlson, D. Powell, W. Rueter, K. Wertz.
Consultants: Sasaki, Dawson, DeMay Associates, Inc., landscape; Bolt, Beranek & Newman, Inc., acoustics; John Massey, graphics; Real Estate Research Corporation, urban statistics; Waldren Associates, Inc., critical path.
Gross building areas, Phase I (in sq. ft.): University Hall, 299,100; Library, 153,400; Science & Engineering Laboratories, 228,500; Lecture Center, 131,500 (covered area figured at 50 per cent); Student Union, 372,000; Physical Plant, 110,000; Utilities Center, 23,600.
Costs, Phase 1: $60 million.
General Contractors: Gust K. Newberg Construction Co., except for: Student Union, Power Construction, Inc.; Heating Plant, Ragner Bensen.





THE FUTURE:

With expansion will come some drastic changes of direction

The expansion of the campus will move steadily out from the core. Second-phase construction, already out for bid, will include expansion of the laboratories and library, addition of two new classroom buildings identical to the originals, and three entirely new buildings: one a gymnasium (1), one for engineering and science offices (2), and one for the architecture and art department (3).

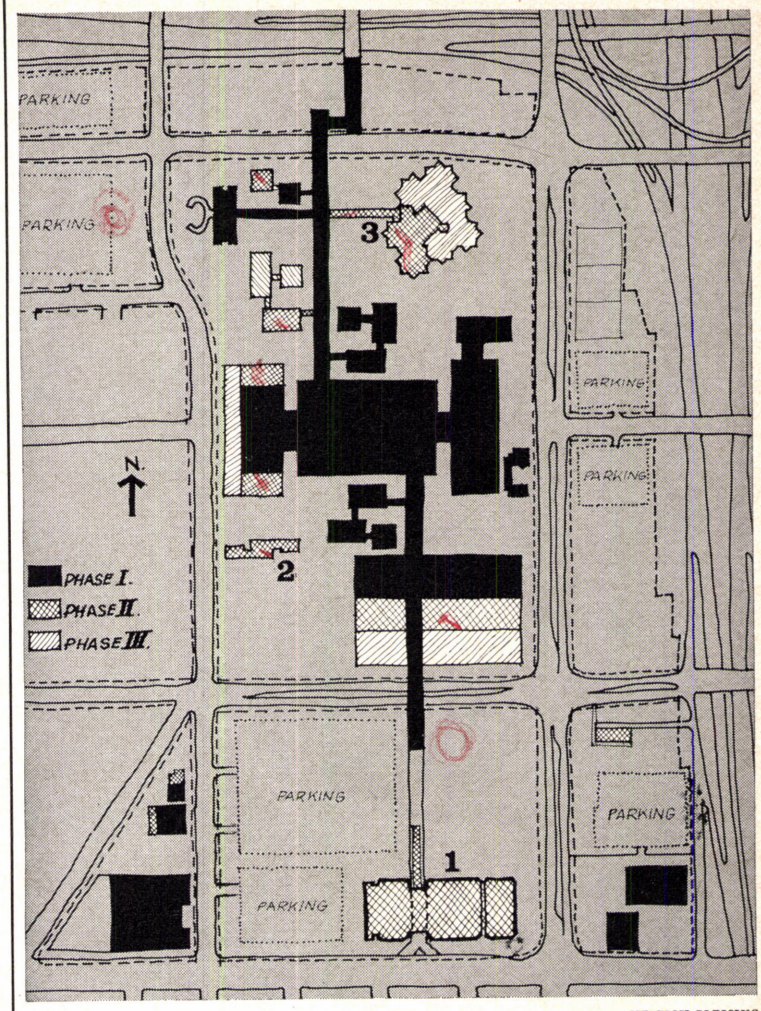
Two of them depart in form from the first-phase buildings. The gymnasium, designed by Harry Weese, uses Netsch's vocabulary of materials, but will give the campus its first chamfered form. It is a pleasing variation, well out of the way of any possible conflict with the core buildings, and it neatly defines the big space behind the laboratories. (Netsch's master plan showed the gymnasium placed along the north-south street to the side, but Weese succeeded in turning it around.)

The architecture and art building is the cluster of angles shown in the left foreground of the model photo opposite, and was designed, despite appearances, by Netsch. It is a drastic variation in form from the other core buildings, and an equally drastic departure from the central planning concept of single-function buildings. It is described in detail on the following two pages.

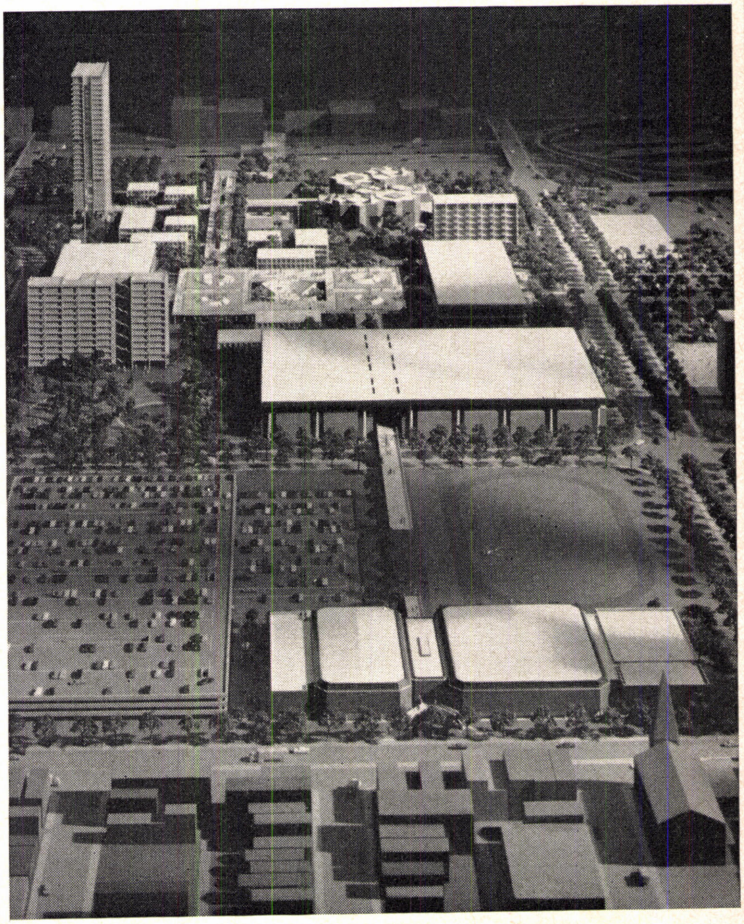
The third Phase II addition, the engineering and science office building, is the relative conformist in the group, with a strong affinity for the tower. It began as a 12-story building with typical floors like those of the tower, but when it got down to detailed design, Netsch sought a way to slim its stubby mass.

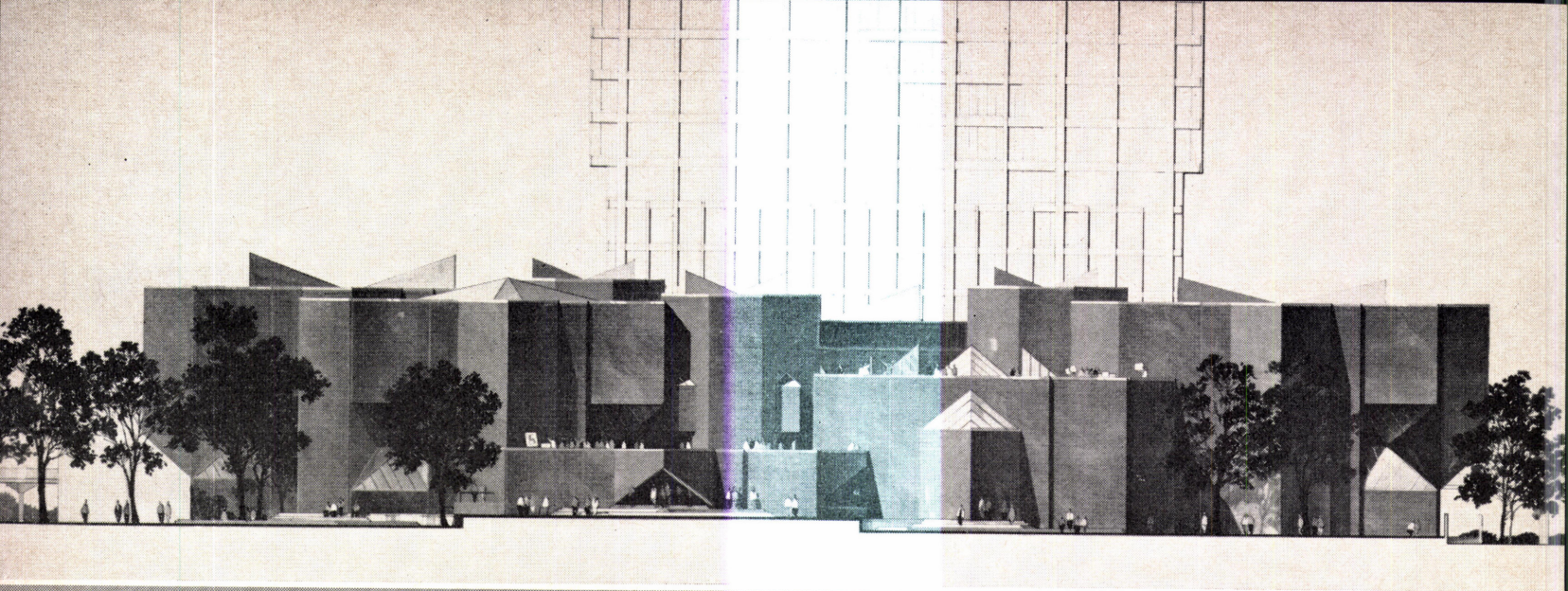
He accomplished this by sliding the two blocks of perimeter offices apart along the central spine, producing the form of two interlocking slabs. The flat sides of the slabs will have roughly the same dimensions as the top tier of the tower. The flat walls will use the same mullion system as the tower and classrooms, and the end walls will be of solid poured concrete, thickening in steps as they go down, in a subtle reversal of the tower's silhouette.

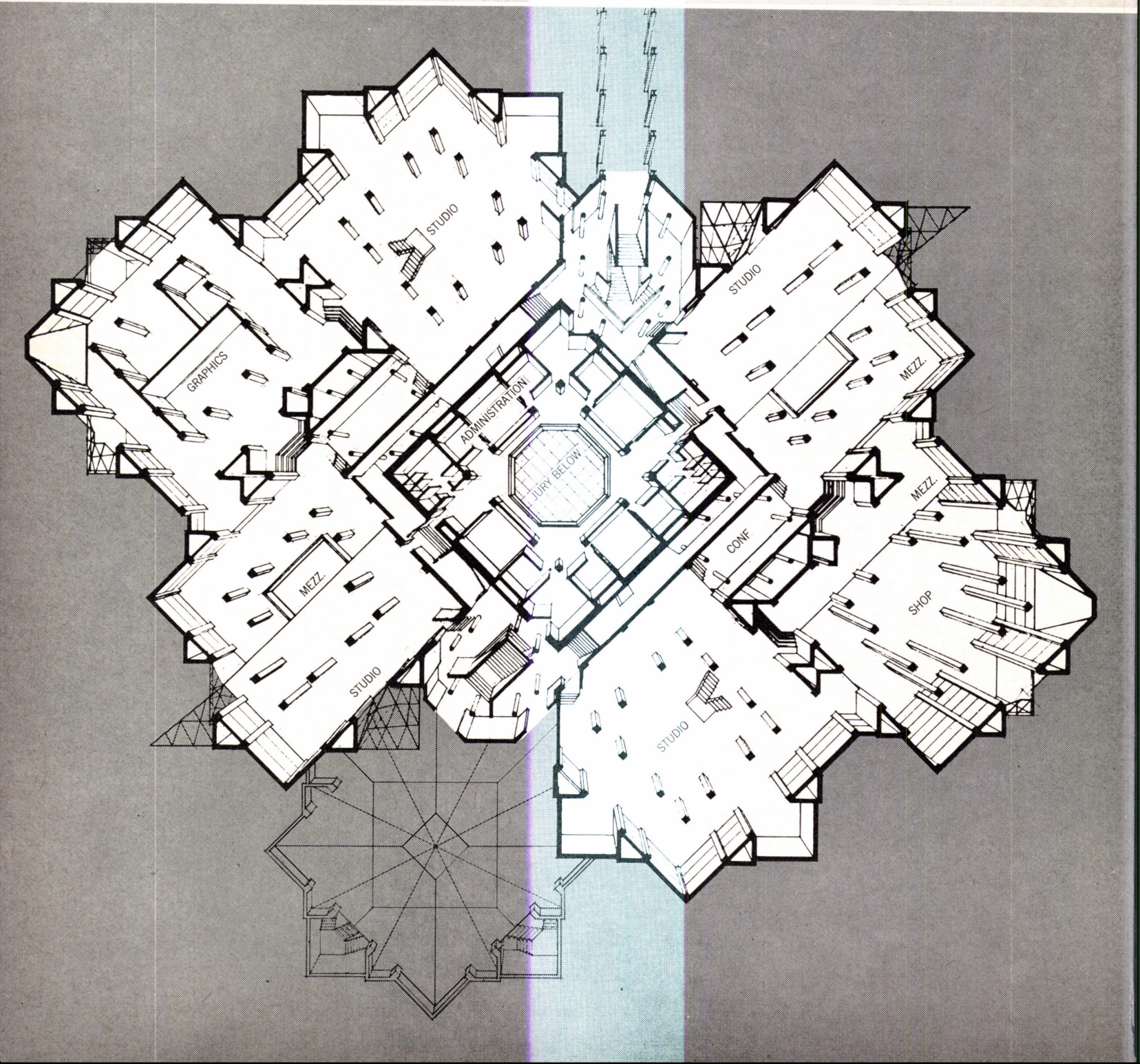
In the original master plan, the architecture and art building was a big rectangular block something like the laboratories. What has happened to it since has paralleled the evolution of Walter Netsch's thinking.



HEDRICH-BLESSING



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The architecture and art building will introduce Netsch's 'new geometries'

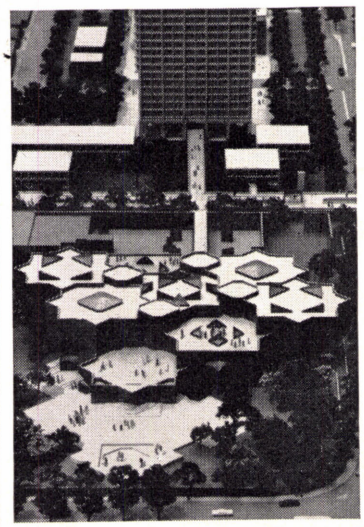
Lately, Netsch has been experimenting with "new geometries," offering more possibilities than the rectangle for the interlocking and subdividing of spaces and the integration of services. (At the same time he has, not coincidentally, filled his apartment with Op Art). The geometry he chose for the basic unit of the architecture and art building was that of an eight-pointed star.

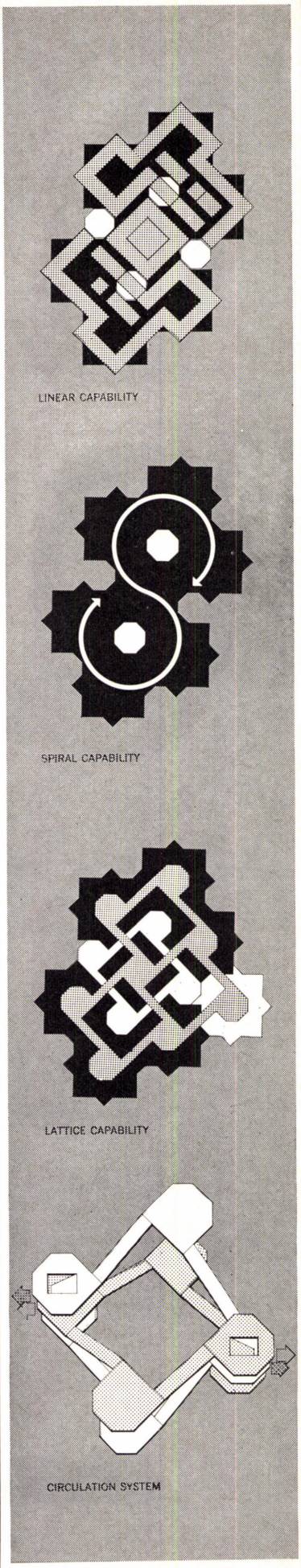
The program for the building, which will eventually house 1,200 students, called for studios providing about 84 sq. ft. of space per student. When Netsch pulled the program apart, he decided this could be reduced to 75 ft., with the other 9 used for common spaces.

The students were divided into "colonies" of 80 each. Netsch placed two colonies in a 2-story box, with a hole through the second floor. The hole became a 2-story central space, surrounded by mezzanines, to be used for displays and for working with models and mockups.

And the box became a star in plan, formed by the overlapping of 80- and 88-ft. squares. The difference in dimensions is important: when the big squares are butted together, the gaps left between the smaller ones can be used for circulation (as in the diagram labeled, in Netsch's language, "linear capability"). The points of the stars also came in two useful sizes: small ones suitable for utilities, and bigger ones for work alcoves.

Instead of lining up the boxes on conventional floors, Netsch joined them in a "continuum." Each is 3 ft. above or below its neighbor (see "lattice capability" diagram), and they are laid out in a double helix. On completion, it will be possible to follow a helical path ("spiral capability") through all the interior spaces. A steeper and more direct route will be provided by long flights of stairs in the central star, the means of circulation shown in the bottom diagram.





Top-floor studios will have angular skylights, and those below will have faceted windows 2-stories high. Large concrete cantilevers will support everything above the windows; otherwise, the structure will be of concrete block bearing walls. The block (and the cantilevers) will be covered by brick.

The building will be, to put it mildly, prominent. Its site is a doubly exposed corner; it is on axis with the south walkway; and, with the laboratories and tower, it completes the triangle of large-scale buildings that mark the present campus perimeter.

It does not resemble either of the other apex buildings in the slightest, a fact which will dismay some but which is consistent with Netsch's avoidance of repetition as a means of achieving unity. The role of this triangle seems to be redemption of the near dullness around the campus center. The laboratories do this by scale, the tower by size and structural expression. The architecture and art building promises to do its part by the sheer daring of its form.

This was the first Chicago Circle building designed after its dean and department heads were appointed, so it is not surprising that it is also the first with self-contained departmental offices and library. Having offices here instead of in the tower was sold to the administration on grounds that the tower was filling up, and the library was disguised as an "instructional resources center."

The break with the basic planning concept of single-function buildings is likely to be permanent, according to Vice-President Parker. The reason is that the university is changing before his very eyes.

"We originally assumed that this would be an undergraduate institution with a relatively small amount of research," Parker says. "Now it is becoming a comprehensive university." Present projections are for 3,000 to 4,000 graduate students at peak enrollments—and graduate study and research require a more cohesive arrangement of offices, teaching spaces and library facilities.

THE OUTCOME:

Chicago Circle has achieved strength, but not through unity

The strength of the environment at Chicago Circle is in part the strength of rough-cut granite and coarse-textured concrete, of big spaces and massive forms, of long straight lines and uncompromising intersections. But beneath and beyond all this, it is the strength of consistency achieved without conformity.

There is no nice repetition of motifs and forms, no precise enclosure of outdoor spaces, no regularity to the campus skyline, not even a consistency or orderly progression of scale. The consistency, in fact, is in the avoidance of such devices—in letting each building, each detail work itself out independently within the framework of the Netsch ground rules. The strength is in freedom.

It is this freedom that makes the seemingly unrelated architecture and art building a consistent extension of Netsch's original concept. The justification may be dryly intellectual, but the harmony between this building and its neighbors is an esthetic reality already visible in the models of the future campus. It is less apt to ask why the architecture and art building is what it is than to ask why the Phase I buildings are not more like it.

Objects and systems

The question has occurred to Walter Netsch. "I hope," he says with exaggerated modesty, "that this is the last 19th Century campus we ever have to design." Next time he would approach the campus "more as a single system, not a group of objects." The "systems" he speaks of are the kind hinted at in the architecture and art building, but even they are only "a transition" in Netsch's thought.

The tension between theory and reality, between what is and what might have been (or might be next time), is strongly felt at Chicago Circle. It is the most ambitious U. S. demonstration to date of the idea of a compact, stratified urban core. But it remains a collection of buildings, of "objects," dramatically but only partially joined by the double-level core and walkways.

The quality of the educational environment which these objects comprise depends, to a remarkable degree, on the validity of the central idea by which they are organized—the idea of grouping buildings by use. It was of obvious utility to the architects and the administration. It is an equally obvious irritant to the faculty, whose ideal of organization is contiguity between teaching spaces, offices and parking.

For the students, Chicago Circle would seem to offer little to allay the sense of alienation that is an inherent danger in a large university. The buildings belong to everyone, and therefore to no one. The environment is hard, unyielding, vast in scale.

Rubbing shoulders

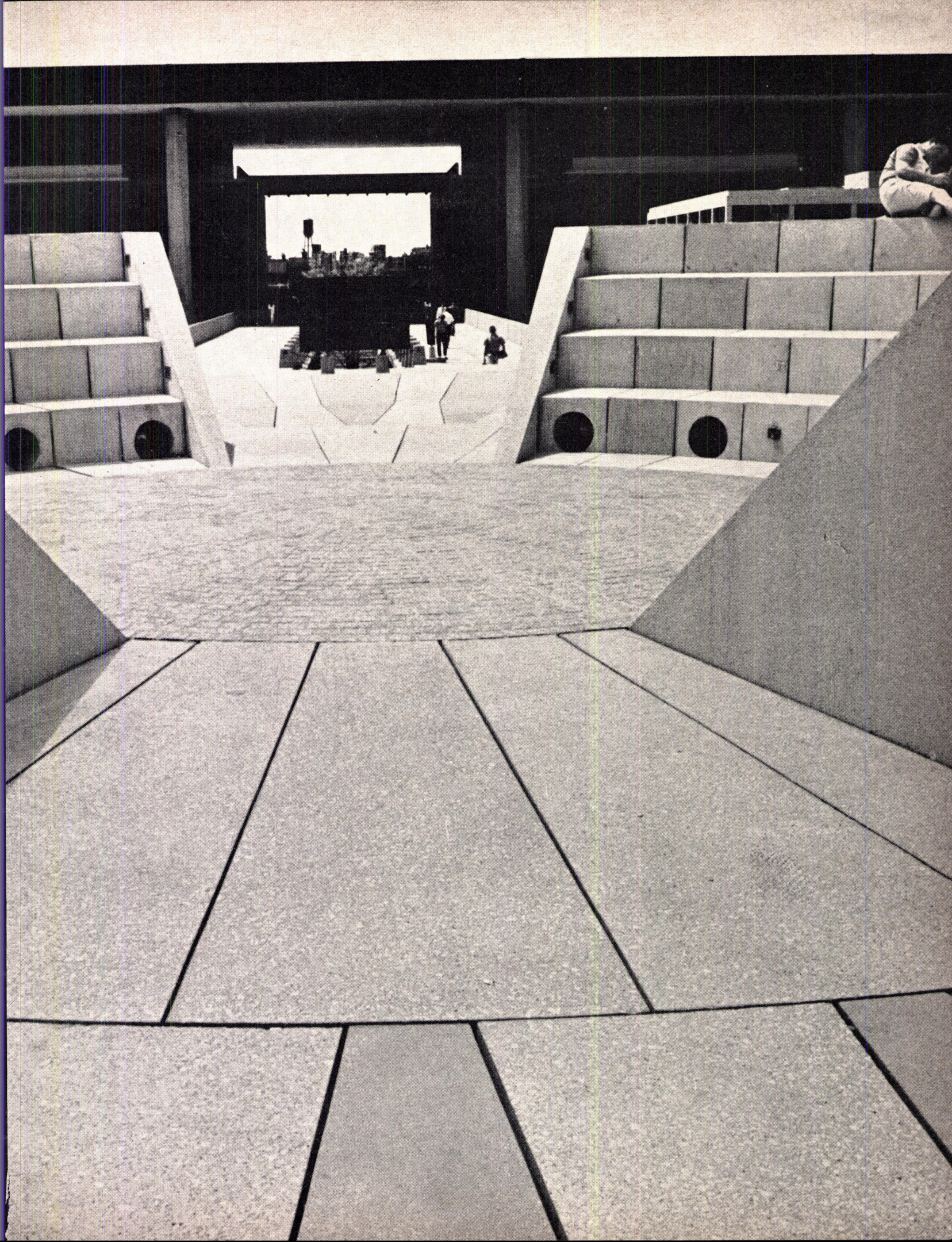
Netsch points out, however, that the students have been given "the heart of the campus," and that the casual paths and spaces at ground level should provide relief from the sternness overhead. Also, the concentration of the campus and its convergence on the core should make isolation less a threat than an unattainable ideal. "Everybody will be constantly rubbing shoulders," says Vice-President Parker cheerfully.

They will also, in inclement weather, be rubbing shoulders with a great many columns. The two-level circulation system, the major organizing element of the Chicago Circle plan, functions beautifully on fine days. Come rain or snow, however, and the campus moves on a single level, everywhere obstructed by groves of columns that become a dense forest at the core. It will be a sight to see when the campus reaches its full enrollment.

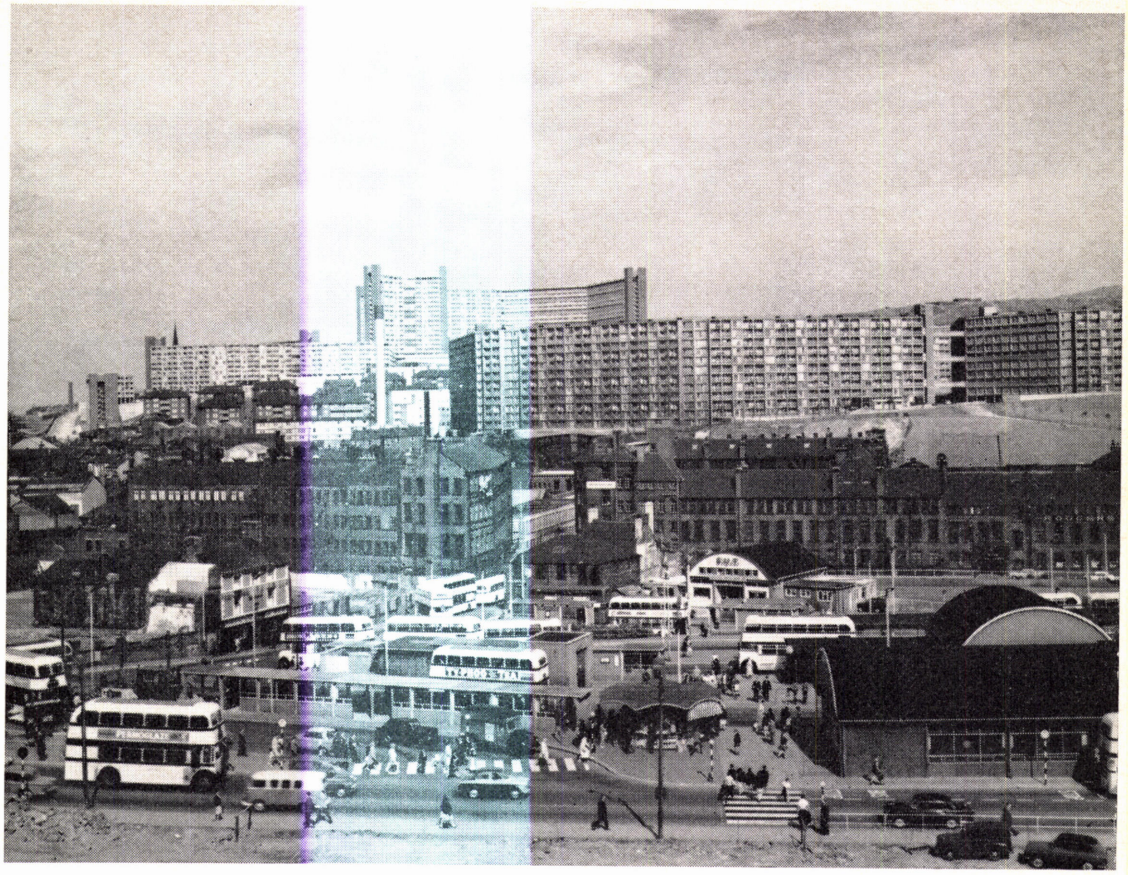
Projections of what that enrollment might become still are being revised upward, raising the specter of expansion problems. Future growth could push the campus far into the surrounding area, reducing the utility of the concentrated (and unexpandable) core.

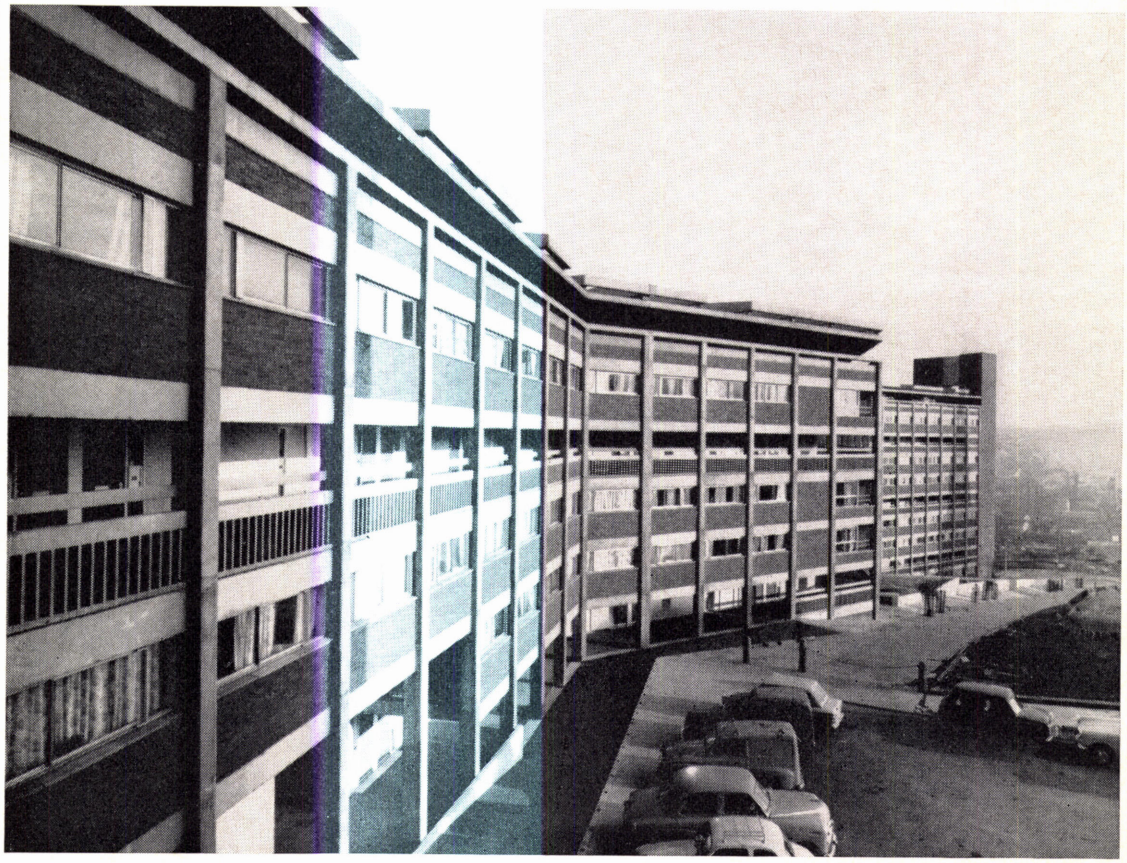
Even if the campus does not expand outward physically, there are other ways it can—and should—extend its influence to the surrounding neighborhoods. At present it is content to sit behind its brick and concrete walls, uninvolved in plans for urban renewal in the surrounding areas.

Parker speaks in terms of making urban problems the focus of the entire academic program. If this could come about—and if the expertise thus generated could be applied to the deteriorating community close at hand—it could make Chicago Circle a uniquely urban university.



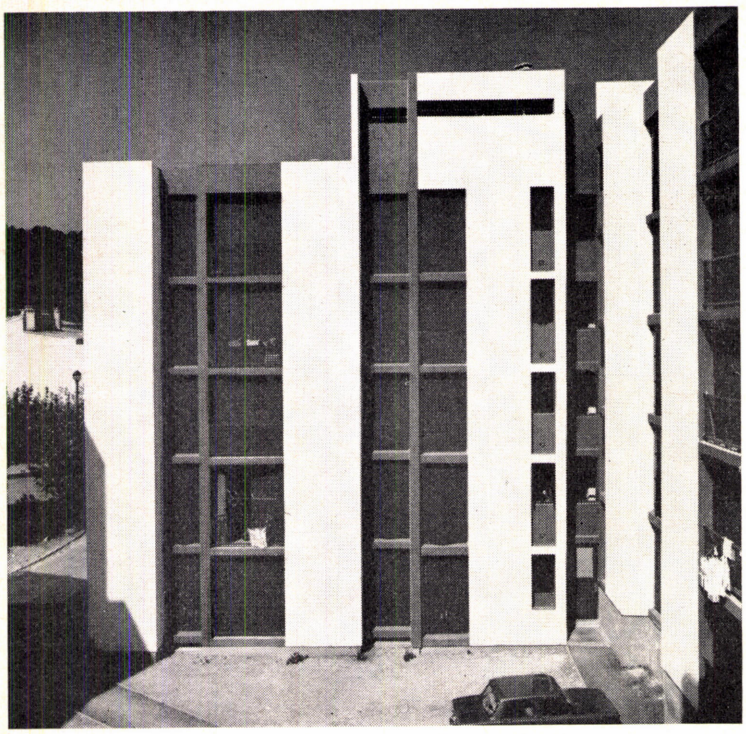
FOCUS





TWISTING FORMS

Coming hard on the heels of the FORUM'S special July-August housing issue are the four distinguished habitations on these pages. This one is a two-stage development for steelworkers and their families in Sheffield, England, designed by the City Architect's Department. The second-stage Hyde Park Terraces (shown in detail above and at the crest of the hill at top) rises above Park Hill's serpentine block, which twists and turns on the site for over half a mile. Both structures have "streets in the air" at every third floor.



GEOMETRIC PLANES

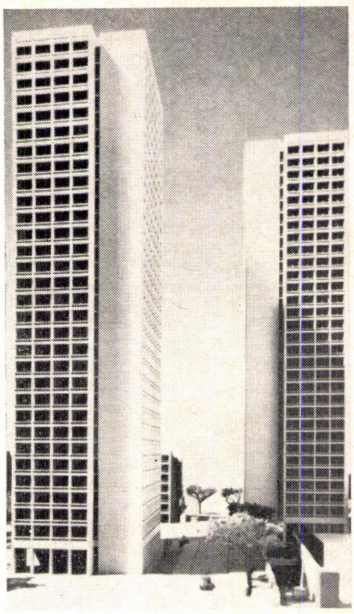
At Aix-en-Provence in Southern France, Architects Candilis, Josic & Woods continue their variations on the five-story-apartment-building theme, which avoids the economically undesirable need for elevators. (For another variation, in Nimes, see the July-August issue.) The one above also has its apartment units pivoted from central stair cores in groups of four. The groups form a continuous block distributed on the site in a pattern of interconnecting crosses. There are 200 apartment units behind the sharply geometrical, Mondrianesque facades.

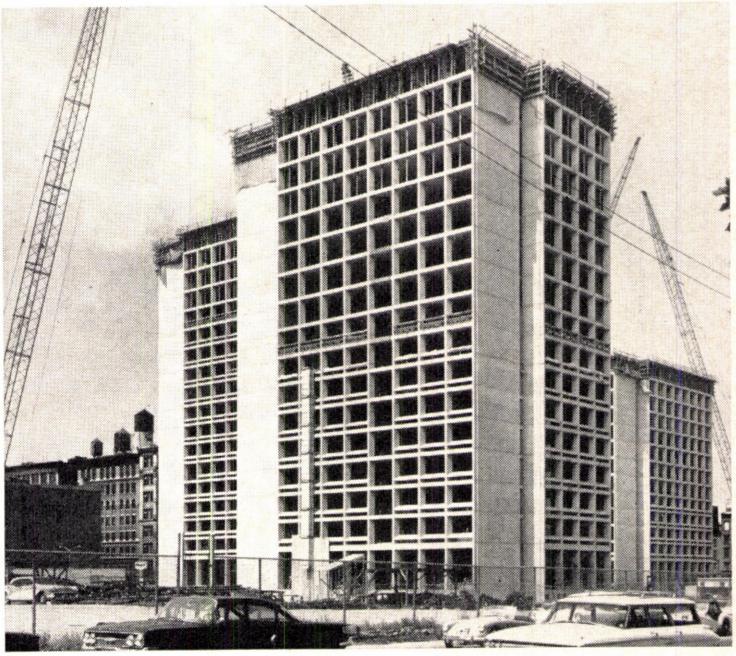
LIMESTONE FLATS

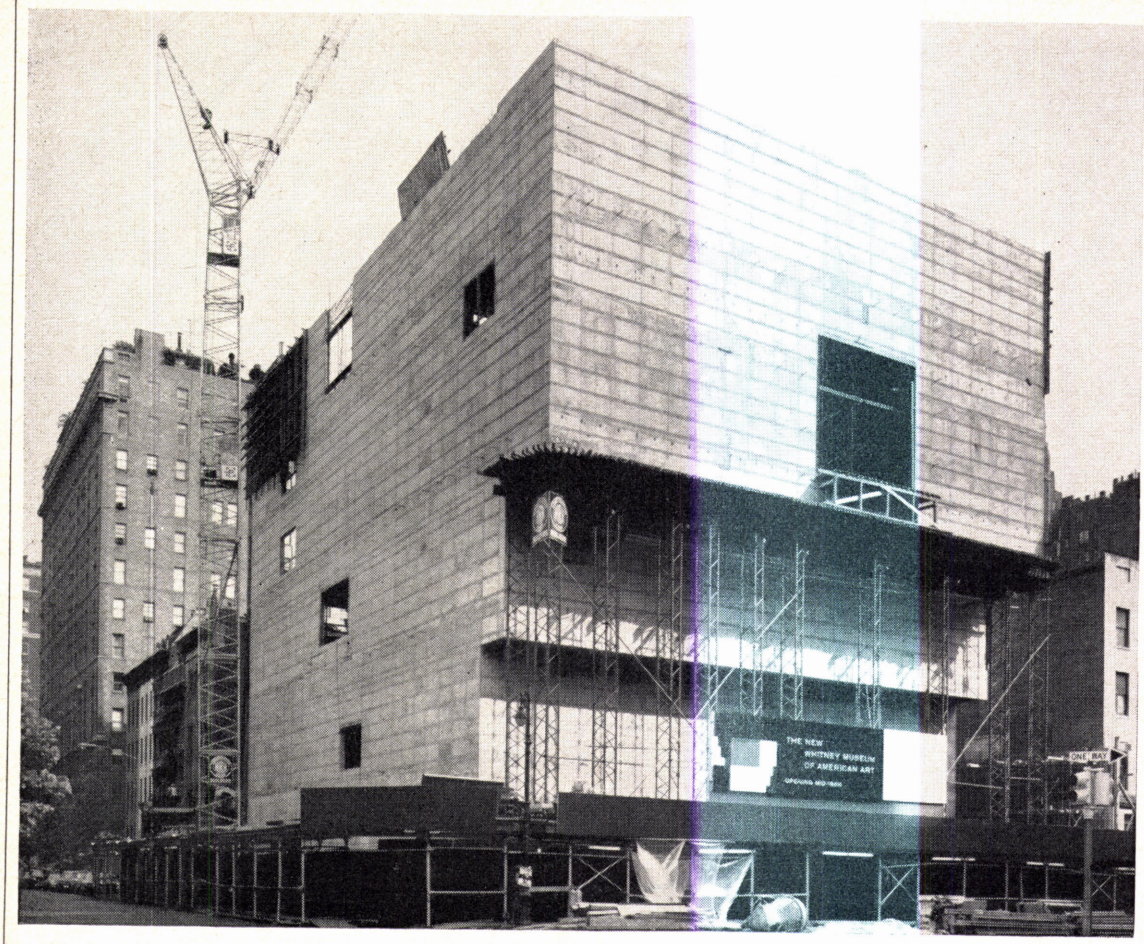
Looking as though they had pierced through their rocky site instead of having been placed upon it, the two- and three-story buildings below are housing for 59 British officers and their families at Malta. Built atop a slope overlooking the Mediterranean, the flats are constructed of Maltese limestone on abruptly changing levels dictated by the undulations of the hard rock and a resultingly high excavation cost. Architects: the Austin-Smith Salmon Lord Partnership.

RISING TOWERS

In different degrees of rise (below) are three concrete apartment towers designed by I. M. Pei & Associates for New York University. When completed, all will reach the same height: 30 stories (study model at right, before the third tower was added). One of the 178-unit buildings will be a moderate-income cooperative; the other two will house NYU faculty and staff members on a rental basis. Called University Village, the towers occupy an urban renewal site near NYU's Greenwich Village Campus. The buildings' strongly structural character is the result of deeply recessed windows, with the structure as sunshade.







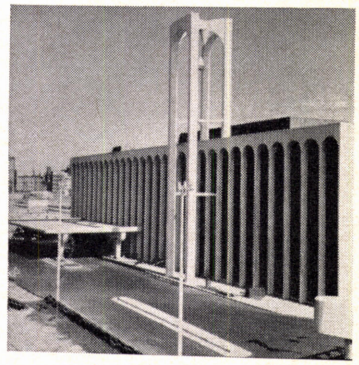
ZIGGURAT IN NEW YORK

The new Whitney Museum of American Art, designed by Marcel Breuer in the form of an inverted ziggurat, is almost ready to receive its cladding of grey granite. Scheduled for a May 10, 1966, opening, the Madison Avenue museum will contain a sunken outdoor sculpture garden shaded by the overhangs, a ground-floor restaurant, three gallery floors (the largest with a picture window), and museum offices at the top.

INDEPENDENCE ON THE MALL

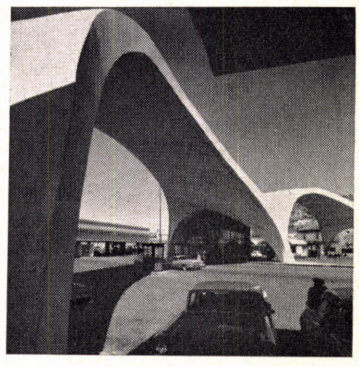
The new Rohm & Haas Co. building in Philadelphia, designed by Pietro Belluschi in cooperation with George M. Ewing Co., stands uncomfortably close to Independence Hall. Its brown spandrel panels and bronze-colored sunshades are of plastic manufactured by the owner. The reinforced concrete structure is mounted on concrete prismoidal columns capped by inverted truncated pyramids. Cost of construction: $10 million.

PHOTOGRAPHS: page 46: Bellwood Photography Ltd; page 47: Pierre Joly, George Cserna, Henk Snoek; page 48: George Cserna, Milwaukee Road, Bill Sears; page 49: Technicolor Corp.



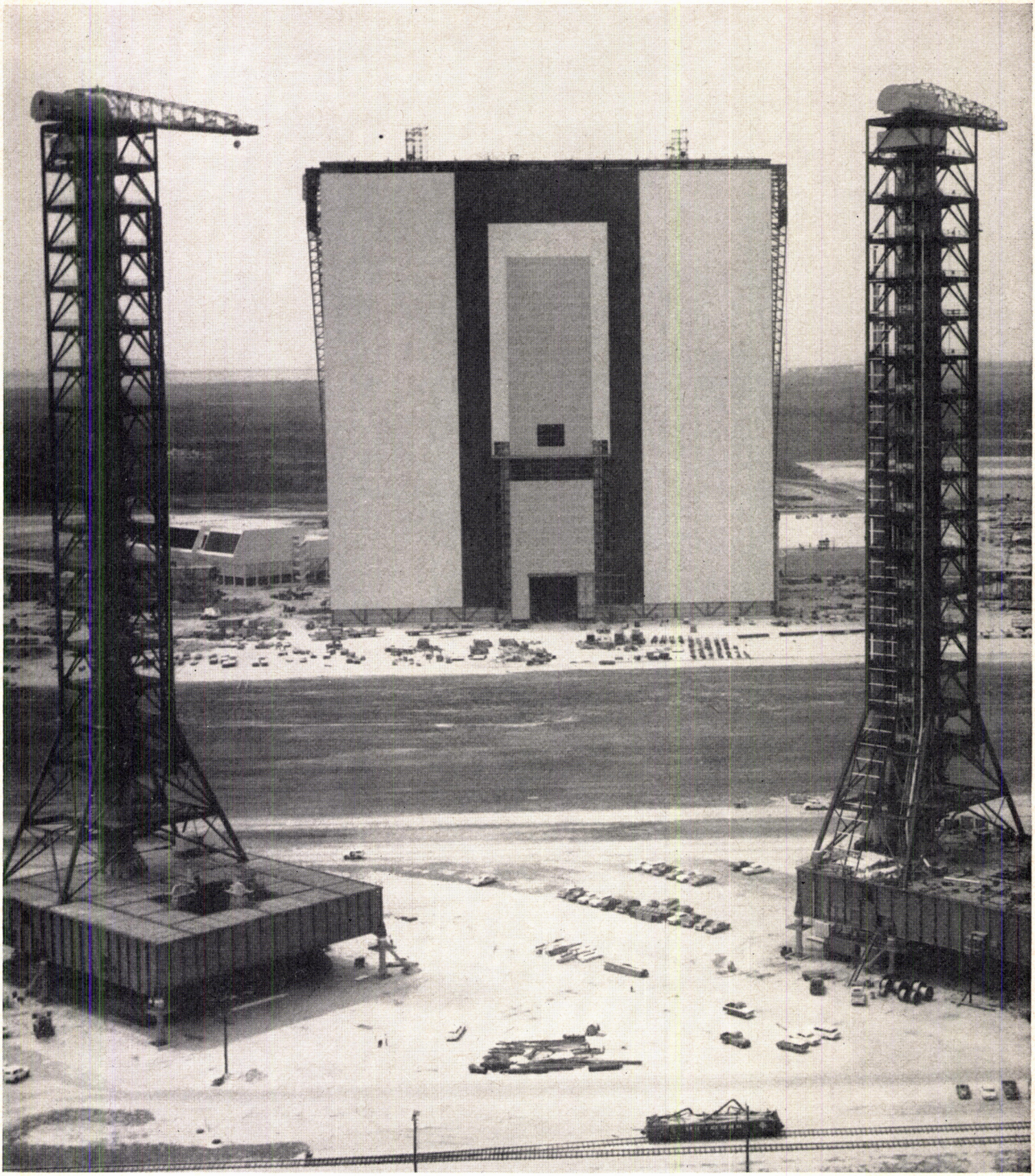
TERMINAL IN MILWAUKEE

Milwaukee's Union Station (top), dating from 1886, will be demolished soon, and its successor (above) already is in use. The new "modern version of Renaissance architecture," says a railroad press release, "has been credited with being a number of things other than an attractive and comfortable terminal for travelers . . ." It certainly is. The railroad architect was K. E. Hornung; Donald L. Grieb, consulting architect.



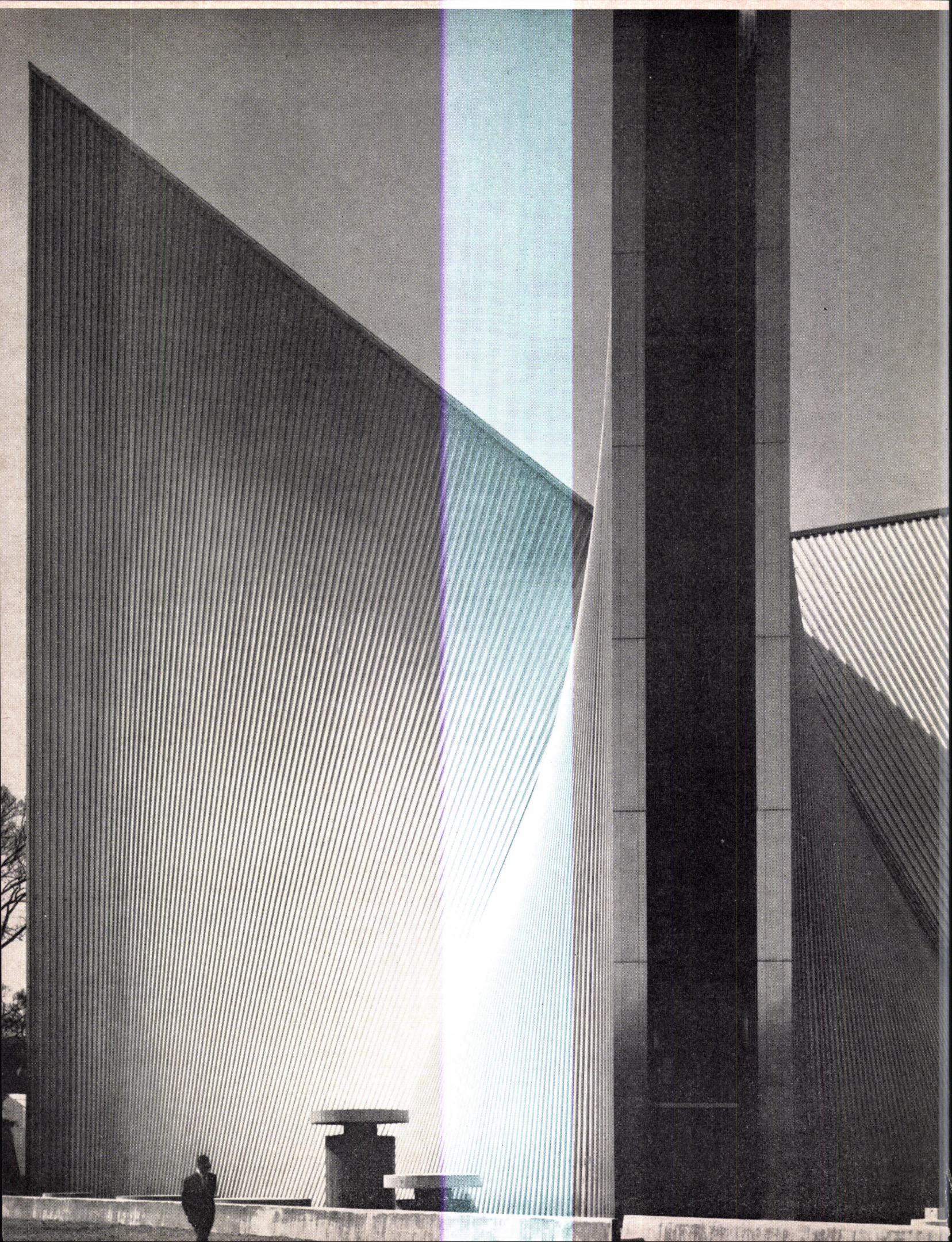
ARCHWAY ON THE BORDER

Spanning the highway in two wavy loops, this thin-shell structure is an immigration station on the Mexican-U.S. border at Nogales. One arm stretches 305 ft., the other 141 ft. Designed by Mexican Architect Mario Pani, the two shells intersect to form the roof of the checking booth, which serves passengers traveling in both directions. (For another Pani production on the Mexican border, see page 20).



OP ART AT CAPE KENNEDY

As it nears completion, the world's largest building is beginning to look like the world's largest work of Op Art. Record-shattering statistics on the Vertical Assembly Building at Cape Kennedy, designed by Urbahn-Roberts-Seelye-Moran, are seemingly endless. Examples: the building encloses 130 million cu. ft. of space, which is 34 million more than its nearest competitor, the Great Pyramid of Cheops. Four of its doors are 456 ft. high, to accommodate Saturn Moon Rockets. A crawler as big as a football field will move the Saturns from the assembly building to the launch site. Launch platforms towering 405 ft. (pictured flanking the building) will hold the Saturns both during assembly and for the launching. So that it can withstand hurricanes, the building rests on 4,000 piles driven 160 ft. down to bedrock in 60-ft. segments welded together.



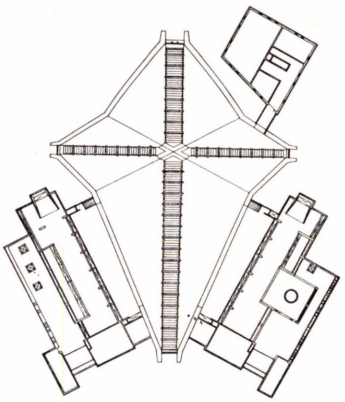
A CRUCIFORM WINDOW ONTO HEAVEN

In his latest, completed work —a monumental, Roman Catholic cathedral in Tokyo —Kenzo Tange creates "a majestic space in repose."

BY ROBIN BOYD

It almost seemed as if the creative potential of the plain old hyperbolic paraboloid had been pretty thoroughly explored in every contortion and combination by 1960—especially in ecclesiastical architecture. Thus the prospect of a big cathedral of 1965 using eight hyperbolic paraboloids may not seem especially exciting. Yet Kenzo Tange has shown before that he can inject new life into forms and techniques which have become hackneyed or even tiresome in the hands of others; and this time he has produced something much more remarkable than exciting. He has made of the eight warped planes a majestic space in repose.

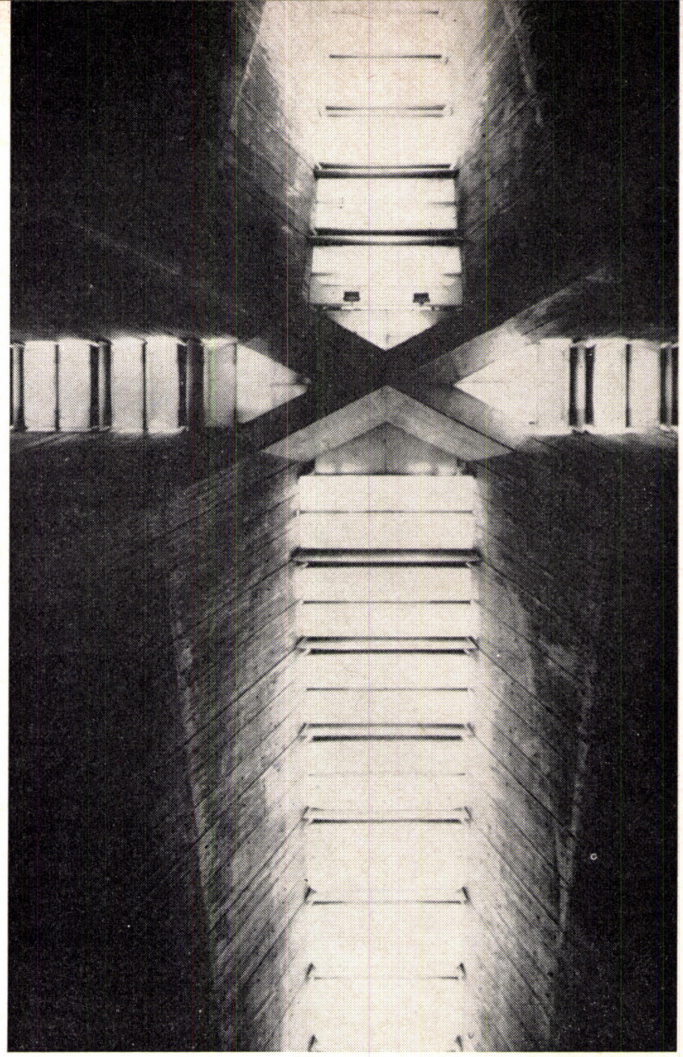
At the base, the plan is the shape of a kite with blunt corners, but each straight sidewall

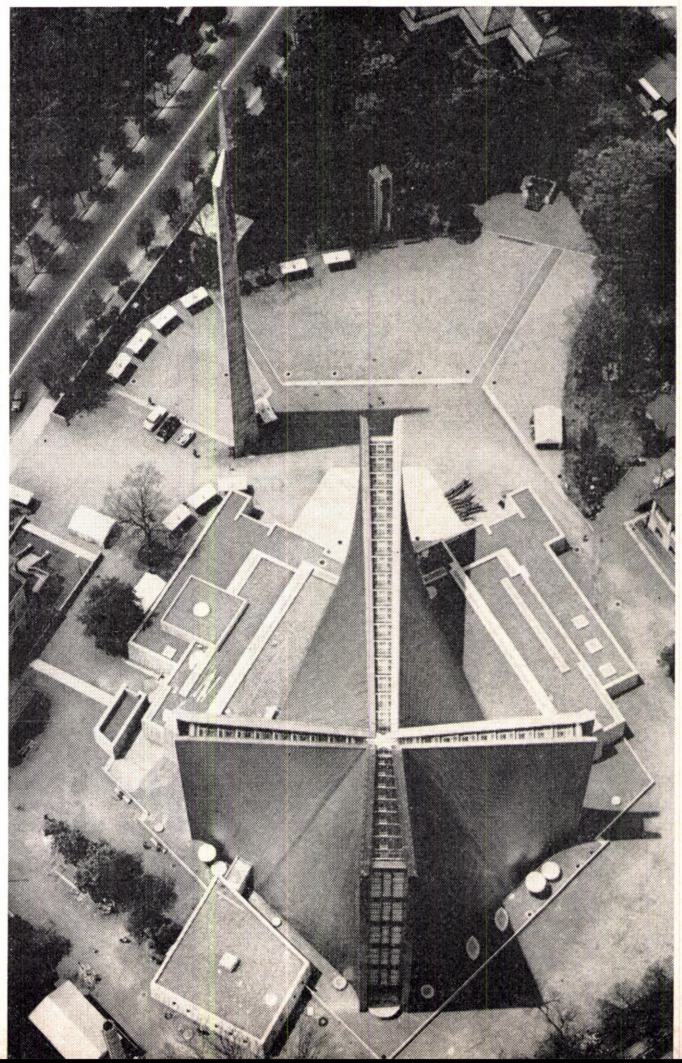


in fact consists of two hyperbolic paraboloids. As each wall rises its outer edges are vertical and parallel; but its centerline, where the hyperbolic paraboloids butt together, caves in overhead until (by the time it reaches the top) the wall has folded into a right-angle, pointing inwards. The four walls, between them, thus form a cross. It is in the conventional proportions of the crucifix, and it is glazed. It is a crucifix skylight: a window onto Heaven, you might say.

Of course that's not all there is to it. Tange's statements nowadays are never so bald that they can be described easily in words. He starts with a strong concept, a regular form, and works it over, introducing subthemes and unexpected erratic breaks. Sometimes these disturb the image, yet he seems to want this and he knows when to stop before the vision dissolves into confusion.

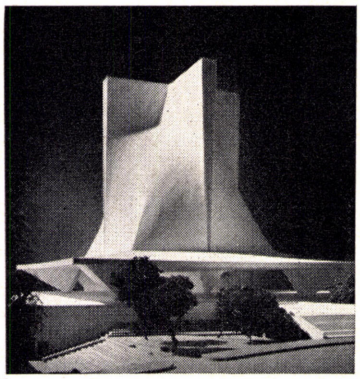
In his cathedral, the unexpected twists are, as usual, es-





Mr. Boyd, a well-known Australian architect and critic, is the author of the monograph on Tange's work, published several years ago by Braziller. Mr. Boyd is also a member of the Forum's Board of Contributors, and a frequent visitor to Japan, where he recently saw Tange's extraordinary new building.

sentially Japanese. The original concept of a kite underfoot transmuting into a cross overhead might be of a fairly universal sort of character. Something similar is the basis of Pietro Belluschi's design for a twin project on the other side of the Pacific: another St. Mary's Roman Catholic cathedral proposed for San Francisco (1). In Belluschi's case the final, formal image is,



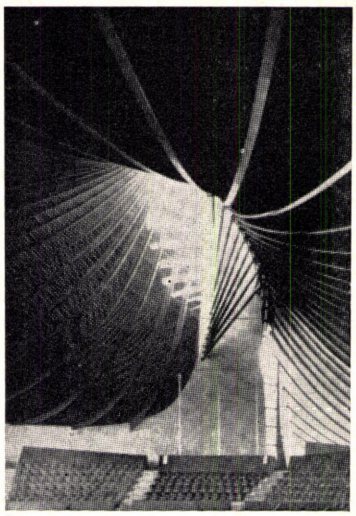
1.

as one expects in our Western Style, an inevitable and logical consequence of the conceptual idea. In Tange's case there is nothing inevitable in the development from idea to image, and there are things which happen for no logical reason. Tange is determined not to let geometry rule him. He loves it but wants to master it. And he comes out of the conflict almost completely successful. In short, he gains mastery but loses geometry.

Tange has come gradually to this position. Very few living architects have had anything like the experience with the plastic form that he has gained during the last 14 years. He was in the forefront of that brave quest for engineered excitement in the 50's.

2.

3.

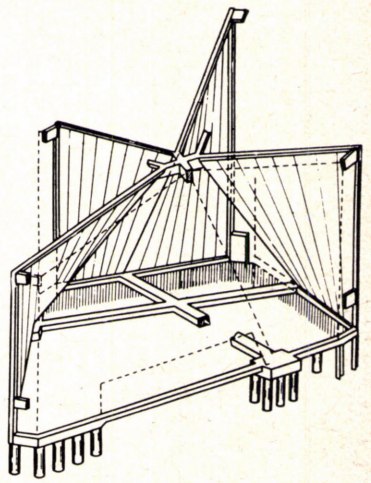


4.

His very first building to be completed, the charming, dilapidated Children's Library at Hiroshima (2), designed in 1951, had the pure and simple geometrical concept of a trumpet-bell sprouting from the ground, a curtain wall dropping from its rim. His Ehime Convention Center (3) of the next year played around more with its circular geometry, and in the Olympic Games stadia of 1964 he carried this personal contest with geometry to its strongest conclusion so far (4). In those mighty metal tents —surely the most creative tension structures yet erected—he achieved characteristically Japanese forms spontaneously, without compromising modern architecture.

The Tokyo Cathedral is much less obviously constructional, and the twist given to the geometry is just at the finish, in the oblique cuts to the tops of the warped planes (5). These unexpected angles cause the skylight cross to be depressed in the middle and to soar nobly in the corner behind the altar.

This corner is further accen-



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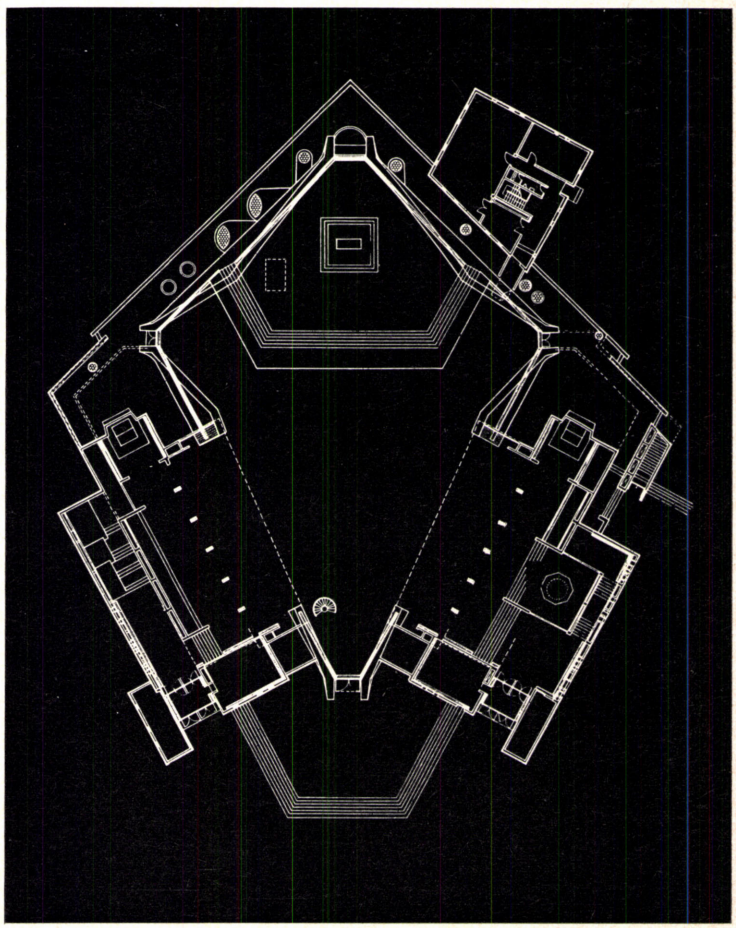
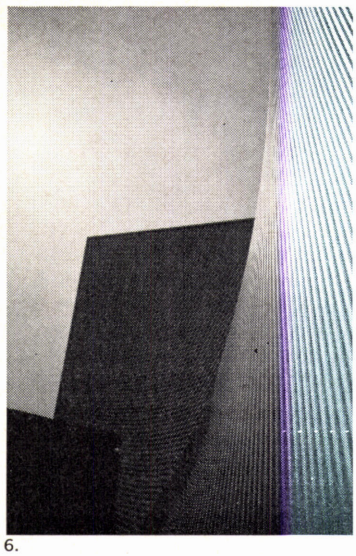


tuated by being "glazed" with a coarse translucent marble that glows dull gold. All the shapes are arbitrary. They were sculpted by Tange on study models. The erratic dip in the center of the skylight system extinguishes the effect of a cross when viewed from below—except when viewed from directly under the center.

The result once again is a triumphant combination of modern international technology and Japanese feeling. It has not, of course, a hint of the precious *shibui* or Japonica, or any sort of tradition mongering, all of which are anathema to Tange. Except for the fugitive cross in the sky, the Cathedral is also, at the present time, quite innocent of any iconography, although some stained glass is proposed. No doubt this is inevitable, but it is quite unnecessary. Tange, who is by no means a Catholic, has made a Catholic space, as well as a Japanese space, by means of great height and a basic severity of form and finish, tempered by sensitivity at every turn and in every detail. The whole is as serene a blend of old and new, of East and West, as the face of the Japanese nun in the black and white coif who met us at the door.



6.

The hyperbolic paraboloid may have a special fascination for Kenzo Tange because of its inbuilt, resolved inconsistency of curves and straight lines. While it is a universal and pure form it also has a touch of the perversity which marks many Japanese traditional forms. Its blending of straights and curves echoes faintly but clearly a repetitive theme in Japanese building: the line of the pagoda, of the lintel over a temple gateway, of the optimistic uptilt at the ends of the shrine roof.

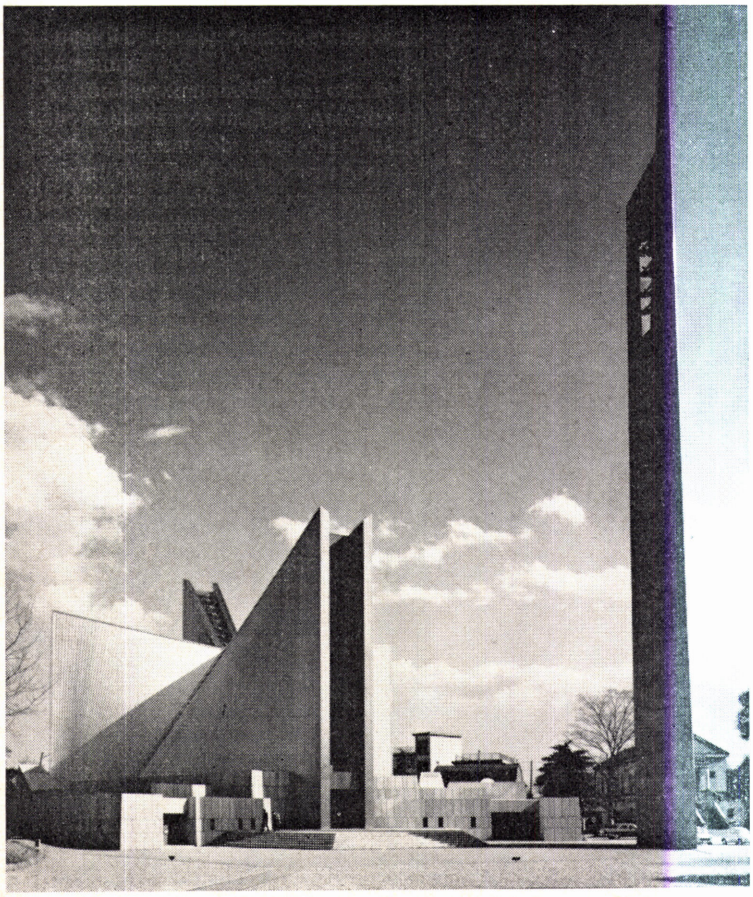
Externally, the shell concrete of these twisted walls has been given a rich covering of stainless steel (6). The trays of the steel are in comparatively short lengths and are lapped. The cover pieces, about a foot apart, are in single lengths reaching 100 ft. and more to the top, accentuating both the height and the straight-line components of the warped planes. But internally the immaculate concrete of the shells is left naked. Its grey even texture is in keeping with the familiar austere idiom of modern Japan; and the texture reflects a grading of light that reveals the curved surfaces of the same warped planes.

The uniform greyness of stripped concrete links the nave to the other interior spaces. Long, wide corridors lead down from either side and round the corners of the kite to an irregular space in the crypt, which in turn leads to open-ended chapels. The windowless darkness is stabbed now and then by a flood of light from an invisible source spilling down a far wall. This is in fact daylight claimed from outside the walls of the cathedral overhead by a variety of snorkles that break through the roof of the podium.

Externally, the building complex consists of three independent elements, and rather too clearly independent. In the foreground of the approach is a free-standing campanile, splay-sided, tall and tapered, in bare concrete (7). Behind this is the podium housing the crypt and offices, faced with heavily pebbled precast blocks. Above the podium rise the steel roof-walls of the cathedral itself.

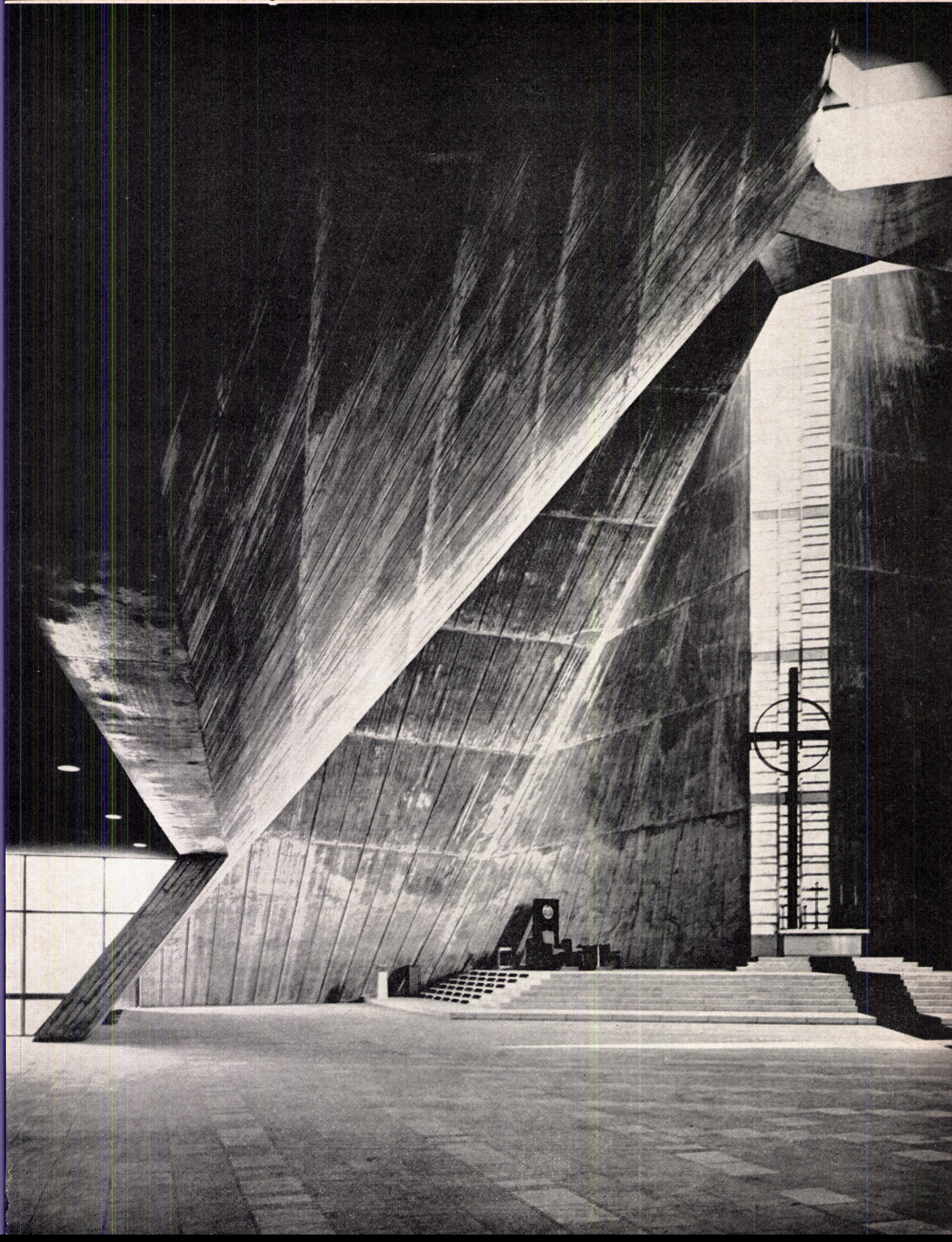
The monumental form of this major element is an uncomplicated complement of the interior. It is understated and unexplainable. It poses mysterious questions and promises answers to be divulged inside—in the best cathedral tradition when, as here, the promises are fulfilled.

7.



FACTS AND FIGURES

St. Mary's Basilica of Tokyo Cathedral, Tokyo, Japan. Architects: Kenzo Tange & Urtec Team; Structural Engineers: Tsubohira Laboratory, Tokyo University; Acoustical consultants: Ishii Laboratory, Tokyo University; Contractor: Taisei Construction Co. PHOTOGRAPHS: Courtesy of Professor Kenzo Tange



The Most Forgettable City Reader's Digest Ever Met

The last frontier of civic self-reliance — certified as such by no less an authority than the *Reader's Digest*—has fallen to the lure of federal funds. In July, Indianapolis, Ind., accepted $15.9 million in government money to continue the urban renewal program it began 20 years ago in disdain, if not outright defiance, of help from Washington.

A little more than two years ago, a big headline on one of the *Digest's* little pages crowed, "Federal Aid? Indianapolis Says Uncle, Go Home!" The accompanying article (written by Paul Friggens, a former editor of *Farm Journal,* and originally published in the *National Civic Review,* a house organ for city officials) began boldly with a statement that the *Digest* obviously considered outrageous: *"We're paying for it, so we might as well get our share."*

The *Digest* article dealt unmercifully with such heresy: "Soothed by this self-deception, mayors and city managers from all over the United States are today parading to Washington for perhaps the juiciest federal handout ever — slum clearance and urban renewal. Every city and hamlet in the land is being encouraged by the government to get its snout in the trough and discover its own 'urban renewal problems'."

"But not Indianapolis!" proclaimed the *Digest*. "This proud state capital is pushing its own urban renewal—*without one dime of federal aid.*" The article let Charles E. Wagner, then president of the Indianapolis Chamber of Commerce, state why. "We're stubborn, independent Hoosiers, and we don't believe that the citizens of California or Kansas or New York are obligated to clean up our slums," said Wagner. "It's *our* job, and we intend to take care of it."

The *Digest* then recited the city's accomplishments, making lavish use of adjectives like "dramatic," "gleaming," "spectacular," and "prideful." They included "$55 million in new schools; $65 million for sewers and sanitation; a $25 million flood-control program; a $40 million downtown luxury apartment complex called 'Riley Center'; $12 million in new hospitals; more than $11 million to date for slum clearance; and one of the best 'self-help' housing developments in the United States, in which homeowners contribute their own labor as their down payment."

Another viewpoint

At the same time the *Digest* story appeared, the *Indianapolis Times* published a series of its own articles. The contrast was considerable. While the *Digest* gushed, the *Times* gasped. Proving that two can play the *Digest's* game, the *Times* published a cartoon depicting a fat, cigar-puffing individual pointing to a slum area and remarking, *". . . and We Built It Without Federal Aid."* And, in an editorial, the *Times* charged: "There's been much too much self-satisfaction about housing here for years. Too much self-congratulation over inadequate results. And too little dissatisfaction with what hasn't been done."

Indianapolis, pointed out the *Times,* had not built a single low-income housing unit in the then 18 years of its go-it-alone program. Nor had it made any real effort to find decent housing for those displaced by clearance, the newspaper charged.

"This community and this state do, of course, join in countless other federal programs, including highway building and airport construction," said the *Times*—a fact overlooked by the *Digest*. (For that matter, the *Digest's* assertion that Indianapolis refused all federal renewal help is an overstatement: such federal aids as VA mortgage guarantees and FHA mortgage insurance were used extensively.)

"But in dealing with the immensely human problem of decent housing," continued the *Times,* "the community says no. It's certainly time that Indianapolis asks itself if the price it's paying isn't too high, and, most important, if it isn't being

HEDRICH-BLESSING

Most notable achievement of Indianapolis' home-grown renewal program is the James Whitcomb Riley Center, a partially completed residential-commercial complex which replaced a downtown slum area. Designed by the Perkins & Will Partnership, the luxury development thus far contains 500 apartment units in two 30-story towers and one 17-story building, plus a 500-car garage and restaurant. Eventually, if plans for its completion are carried out, it will have 1,842 living units, a theater, concert arena, school, churches and commercial facilities.

charged against the wrong people—those who, for a variety of reasons, urgently need the low-cost housing these programs would help provide."

At the time the two articles appeared, Indianapolis voters were pondering some of these questions, and wondering about the price of independence. On the one hand, the city's achievements were not inconsiderable: clearance of 347 acres of slums, and construction of 1,268 new dwelling units, 11 business buildings, and three public buildings on the reclaimed land.

All this had cost the city $13.4 million, however, of which it had regained $3.6 million through land sales. The balance had been paid primarily through a city redevelopment tax, which started at $10 for each $100 of assessed valuation and was reduced after two years to a $5 maximum that was not fully imposed during most years.

Gaps in the program

And there was still a great deal to be done. Despite nearly two decades of slum clearance, more than 10 per cent of the city's housing stock—26,000 units—was dilapidated or without plumbing. The treatment of low-income families, moreover, was getting on the conscience of Indianapolis. In cities which had federally aided renewal programs the record on low-income housing may have been bad, but in Indianapolis it was nonexistent.

Even the so-called "sweat equity" program, in which buyers of single-family homes on renewal sites would earn their downpayments by contributing 1,000 to 1,300 hours of building labor, had turned out disappointingly. Only 371 units were built under the program, sponsored by a local nonprofit social agency, and the average mortgage payment was about $80 per month. It was a figure beyond the reach of 40 per cent of the city's families who now pay rent, including, of course, most low-income families.

"Indianapolis is going through a rigorous soul-searching today," the *Digest* admitted in its article, and indeed it was. Despite the *Digest*, and prodded by the *Times*, civic pressure for federal participation in renewal of the city gradually began building up.

The Democratic mayoral candidate, John J. Barton, was campaigning on a plan calling for federal assistance. Even the local Chamber of Commerce, a long-time powerful champion of Indianapolis' self-determination, began to shift its stance. While it didn't come out in full support of using federal funds, it did adopt a wait-and-see attitude.

"For 20 years we tried to show the way," said the Chamber's executive vice-president, Carl Dortch, "but now we want to bite the apple ourselves. This is not a reversal of our attitude. It is an economic and political fact of life that the federal government is going to be involved in urban affairs."

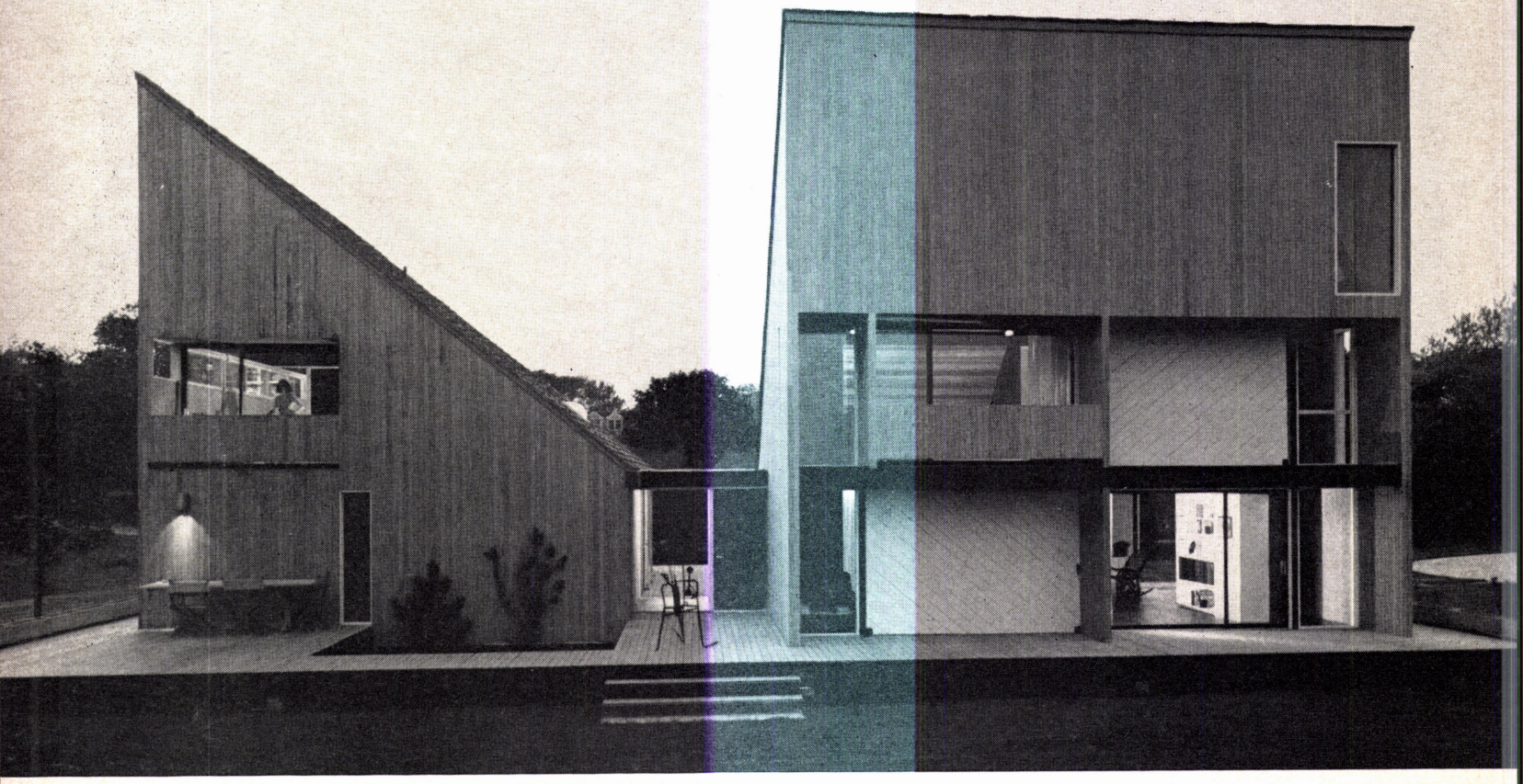
Renewal in politics

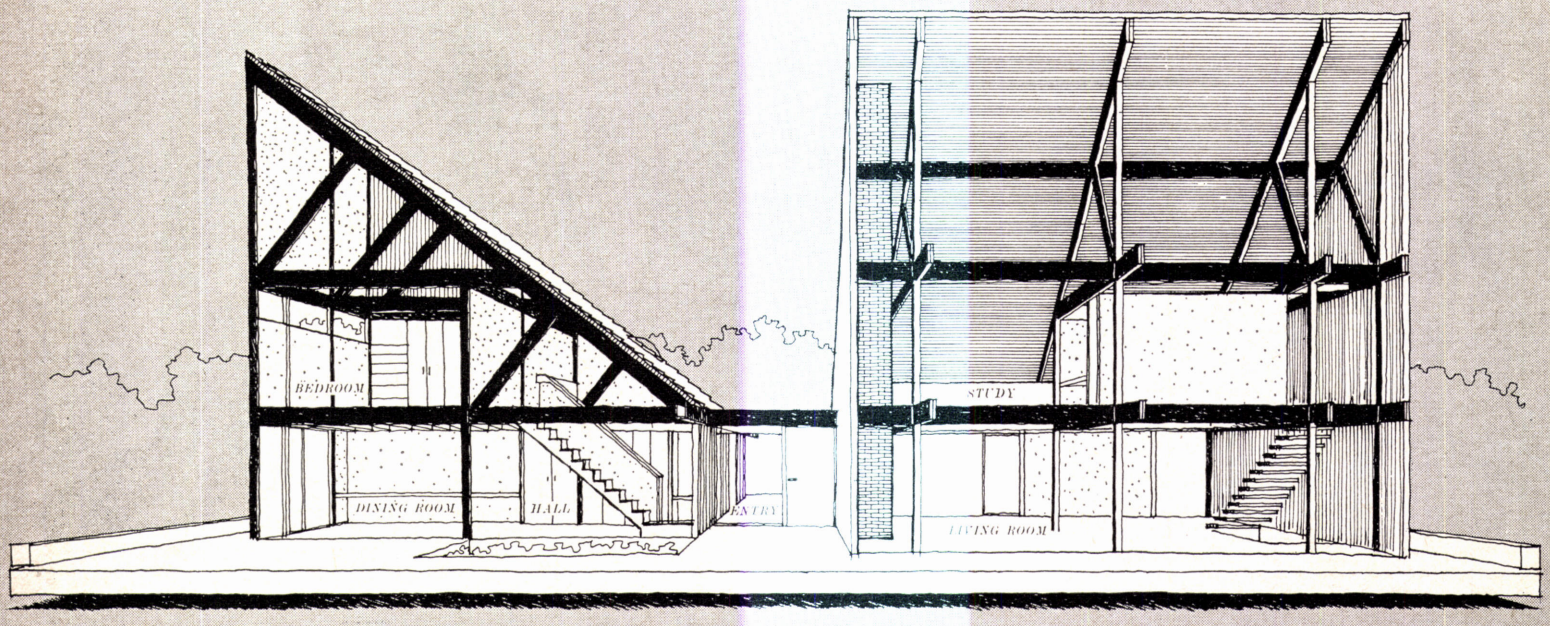
The groundswell of civic discontent over Indianapolis' slum conditions not only helped Barton win his campaign for mayor, but also helped elect a Democratic congressman and an all-Democratic delegation to the state legislature. The new state representatives promptly fought for and got repeal of an eccentric, 20-year-old state law which prohibited Indianapolis from accepting federal renewal funds.

With this last barrier out of the way, Indianapolis was both legally and politically in a position to "get its snout in the [federal] trough," as the *Digest* so indelicately put it. Its snout came up covered in green: the Public Housing Administration has approved a $10.7 million loan for 700 low-rent units, including a 250-unit apartment building for the elderly, complete with its own geriatrics center, and the Federal Housing Administration has authorized allocation of $5.2 million for low-interest loans.

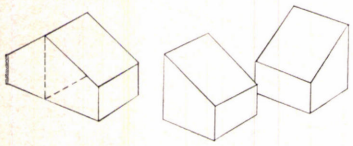
Moreover, Mayor Barton and his Greater Indianapolis Progress Committee are searching for new programs for which federal funds can be used. They hope to appropriate $100,000 of city funds for a full-time urban renewal planning staff, and are asking for another $200,000 in federal grants.

Meanwhile, back at the *Reader's Digest*, Indianapolis seems to have been wiped off the office map. The *Digest* hasn't said a word about the city since the federal money began to flow. Last month, the editors were back at the sort of story they know how to do best: killer sharks, hypochondria, and subversion. —JAMES BAILEY




BEDROOM
DINING ROOM
HALL
ENTRY
STUDY
LIVING ROOM

A SALTBOX SPLIT IN TWO

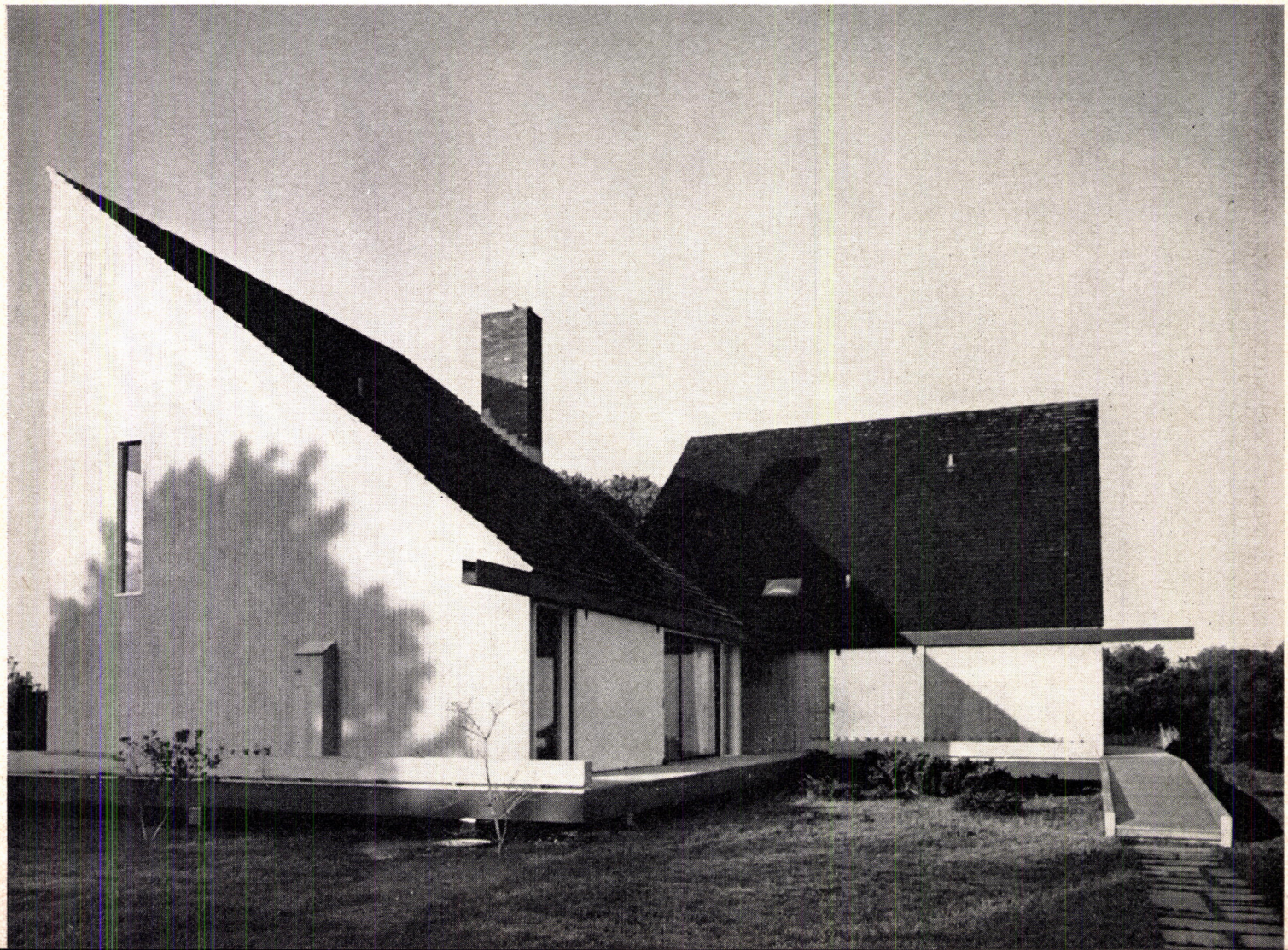


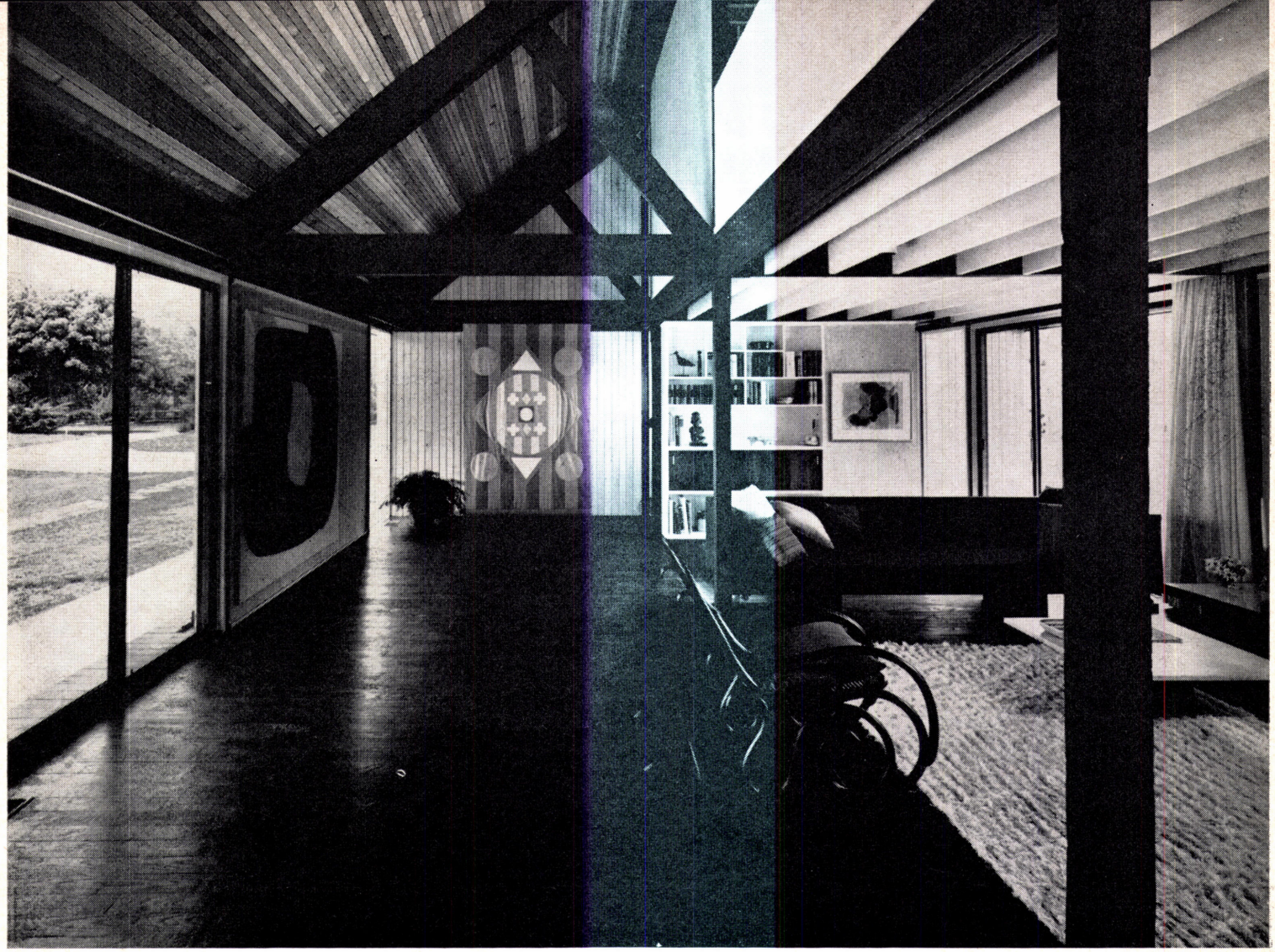
Among its shingle-roofed neighbors on eastern Long Island, this house seems entirely at home: as you approach it along a narrow country road, the house looks like two traditional saltboxes (below), set at right angles to each other, and connected by a small breezeway. Only when you turn the corner (left) does the house reveal itself as an entirely modern, sophisticated arrangement of forms and spaces.

The two parts of the house, at first glance, look like the halves of a typical New England cottage split down the center and rearranged on a big wooden platform. Actually, the "halves" are not identical either in size or function: the shorter one (with its chimney) is a single, two-story-high living room, partly divided by a mezzanine that contains a study and bath; the longer "half" (with a skylight) contains a kitchen, dining room, and bedrooms on two floors (see interiors, next page).

In the offbeat window arrangement, the architect, Julian Neski, tried to suggest the different uses to which each part of the house is put, and the complexity of the interior spaces, many of which rise to the full height of the roof-ceiling. The composition of windows and wall is deceptively casual: in reality, proportions, colors, textures, recesses and projections were studied with great care; and the sliding barn doors used to shutter large areas of glass (for privacy as well as wind-projection), make the exterior window-and-wall-patterns as changeable as an Op Art composition.

Yet the exterior details—cedar shakes, standard barndoors (with projecting headers that are, in fact, gutters to spout rainwater away from the wooden deck that surrounds the house), and bleached cypress siding—are all reminiscent of some part of the New England tradition.





THE INTERIORS of this split saltbox are dominated by an elegant, ever-present structural system: posts spaced evenly apart (10 ft. 6 in. in the living-room wing, 7 ft. 6 in. in the bedroom wing), carrying a triangulated truss that supports both the upper floor levels and the roof decks.

This post-and-truss frame is exposed and painted black to distinguish it from secondary floor joists, and from nonstructural partitions and cabinets. The vaguely Japanese effect of this accented framework is dramatic and decorative, and introduces an orderly rhythm into the most complex spaces. "It also sets up a very demanding discipline," Neski says, since any triangulated frame causes distinct spatial problems, especially where headroom is needed.

Still, any less visible structural system would have robbed the house of much of its organic unity. For the triangulated frame that is visible everywhere *inside*, is the counterpart of the triangulated forms that characterize the *outside*. Apart from which, the frame provides excellent windbracing in an area often visited by severe storms.

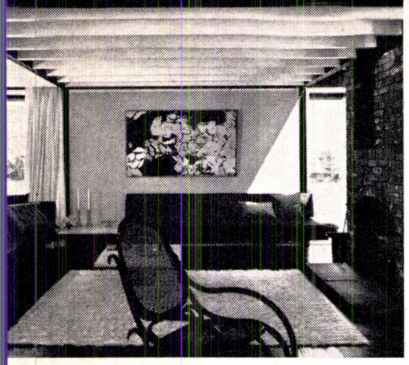
The interiors, for which Neski's wife, Barbara, was largely responsible (she is a graduate of Harvard's School of Design), are a model of understatement: the black structural frame, the white nonstructural partitions and cabinets, and the play of spaces and of sunlight from many unexpected sources—these architectural devices are permitted to shape the interiors. What decoration there is, is confined to color accents, graceful (and undatable) furniture, and art. Although located in a rural, summer resort area, the house is built for year-'round use.

Finally, it is very unlike the slick type of resort cottage that makes the locals wince when they talk of "summer people." This house not only respects the best in the New England tradition; it also suggests something about the quality of life that has flourished in those parts: simplicity, restraint, and a sense of proportion.

FACTS AND FIGURES

House on eastern Long Island, N.Y. Architect: Julian Neski, Associate: Barbara Neski; Mechanical Engineer: Ian Grad Associates; General Contractor: Harry H. Wilde Inc. Cost: under $20 per sq. ft., including cabinets, furniture, decks, etc., but not including landscaping.

PHOTOGRAPHS: Hans Namuth



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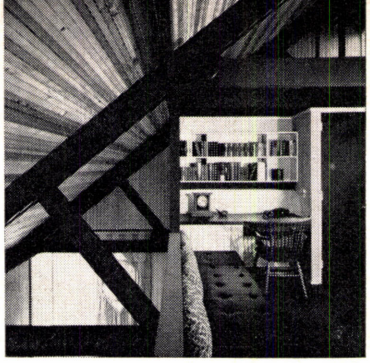

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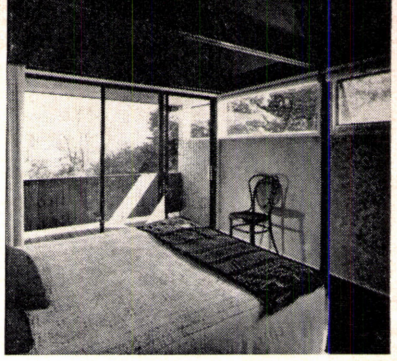

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Above: (1) sitting area of living room, with fireplace, is located under mezzanine. (2) Stair leads up to study (3) on mezzanine level. (4) Master bedroom with balcony is located in other part of house. Below: View into living area from study on mezzanine, showing exposed trusses.

LOW-INCOME HOUSING:

A Massachusetts report demonstrates why states must share the load

IN its special housing issue last month, the FORUM asserted that the federal government is not doing enough to provide decent housing for the nation's poor. But, as a remarkable report recently issued in Massachusetts makes abundantly clear, state governments also can, and should, play a greater role in the field of low-income housing.

The Massachusetts report, produced last April by a 13-member Special Commission on Low-Income Housing set up by the legislature and appointed by then-Governor Endicott Peabody, contains 17 separate recommendations for state action which could serve as a model for the 47 states that currently have no low-income housing programs whatsoever. If adopted by the Massachusetts legislature, which has completed hearings on them, the programs recommended by the commission would:

- Greatly increase the quantity and quality of decent housing available to the poor.
- Help break down slum ghettos of low-income and minority families.
- Offer low-income families a wider choice of housing types and locations.
- Strengthen slum tenants' legal powers to deal with recalcitrant landlords.
- Help arrest deterioration through more effective inspection and better court procedures.
- Attract more private investors into programs for rehabilitating decaying areas.
- Provide social services in concert with better housing.

The housing conditions of Massachusetts' poor families, spelled out in the commission's report, are grimly typical of the national problem, differing in numbers but not in substance. The basic problem is the same: a shocking number of poor families are living in unspeakably squalid conditions because they haven't the money or the help to do anything about it.

In Massachusetts, the report notes, one out of every six families lives in substandard housing, totaling 259,031 units. Nearly two-thirds of these families have annual incomes of less than $5,000, and almost half are forced to pay more than 25 per cent of their incomes for rent.

But even these statistics don't tell the whole story. The official definition of "substandard housing" (structurally unsound and/or lacking in basic plumbing facilities) doesn't take into account the 18 per cent of all housing units in the state lacking central heating, nor the 103,000 families living in overcrowded conditions. And there are no statistics to show the extent of such conditions as environmental deterioration and vermin infestation, which also contribute to the misery of slum living.

Massachusetts' past record in dealing with these problems has been sadly inadequate, yet it has done much more than almost every other state. In one form or another, it has had active housing programs going for almost 20 years. Slightly more than half of its existing 42,126 public housing units have been built with state, rather than federal, aid.

But the state's programs have slowed down in recent years. It is now building only about a thousand units annually—all of them for the elderly. The state hasn't produced other types of public housing since the early 50's.

Weighing the state's past record against the magnitude of the problem revealed by the statistics, the commission reached an inescapable conclusion: Massachusetts needs "a broad program of state action in the low-rent housing field." The commission's recommendations call for just that. They deal not only with *what* needs to be done, but with *how* it should be done best to meet the whole range of problems that low-income families are faced with.

The commission proposes three major new programs designed to increase the quantity and quality of the state's stock of housing available to the poor. One is a new and bigger state program of public housing to provide about 10,000 units under a $125 million bond issue.

To prevent the perpetuation of some of public housing's more glaring past mistakes, the new program would be restricted to four kinds of housing: mixed developments for low- and moderate-income families, built under an arrangement between a local housing authority and a private nonprofit or limited-dividend developer; "scattered-site" projects of not more than 100 units, built on vacant land in established neighborhoods and designed to "blend" with the surrounding architecture; new or used privately developed units, purchased by the local authority in single-family houses, duplexes or apartment buildings; and housing rehabilitated by the local authority.

Advantages in restrictions

Establishment of such ground rules, the commission feels, would encourage balanced neighborhoods; bring an end to huge, degrading public housing compounds; offer a wider choice to the poor; and bring private developers into the low-rent market.

The second low-income housing device proposed by the commission is a state program of rent subsidies similar to the federal program passed by the Congress in July. It calls for a state expenditure of $2 million a year to provide relief for some 4,000 low-income families annually. Local housing authorities would sign leases with landlords of new, rehabilitated and decent existing units, assign the units to low-income families, and pay landlords the difference between what the families can afford and the actual rents.

To lessen the ghettoizing of low-income families, no more than a quarter of the units in

larger apartment buildings, and no more than one-fifth of the units in any given block, would be used to house rent-subsidized families. Thus the program would permit a mixture of income groups, relieve the concentration of the poor in slums and, since the subsidy could be adjusted to changes in family incomes, offer greater flexibility in meeting the housing needs of the poor.

Low-interest mortgages

A third program, patterned after the federal 221(d)(3) program, would set up a self-supporting "Massachusetts Housing Finance Agency" to sell tax-exempt bonds for low-interest mortgages guaranteed by FHA. The mortgages would be available only to nonprofit and limited-dividend developers. Normally, rents for apartments built under this program would be within the means only of middle-income groups, but the commission has recommended that at least 25 per cent of the units be opened up to poorer families through either rent subsidies or "rent-skewing," in which rents are raised on some apartments so they can be lowered on others.

The commission proposals do not stop with new construction. "Slum prevention through maintenance of existing buildings and rehabilitation of deteriorated housing," the report notes, "are essential elements in the struggle to insure that all families are decently housed." The commission urges a battery of state programs in this field:

- To encourage a badly needed return of private investors to declining areas, a fund would be set up by the state to guarantee private lending institutions against losses. "Once the initial loans have established the viability of the area," the commission asserts, "conventional mortgage money may once again begin to flow and the cycle of decline may be reversed."
- To upgrade local code enforcement and thus discourage deterioration, the state would offer matching grants to towns and cities to pay the salaries of new code inspectors and supervisors.
- To provide more protection from slumlords who won't make needed repairs, tenants would be permitted to deposit rents in a district court, whose judges could use the money to remove violations. Superior court judges would be given the power to appoint a receiver of the rents to be used for making repairs, and tenants could claim "hazardous conditions" as a defense against eviction for withholding their rents.
- Since a great many slum properties are owned by absentee landlords who can't be found when the time comes to serve violation notices and summonses, these landlords would be required to file the name of a local resident or attorney on whom processes could be served.

One probable result of these tightened controls would be the abandonment of many more buildings by their owners. To deal with this problem, abandoned buildings would be taken over by the city and, if salvageable, offered at low prices to private developers or the local housing authority for rehabilitation as low-rent housing. If they were beyond repair, the city would demolish them and make the sites available for low-rent developments.

Another danger is that these tighter controls might place a staggering burden on the state courts, which usually are not expert in the technical facets of building maintenance. To find out how the courts can become more effective in this field, the commission recommends a pilot project under which a housing investigation officer would be assigned to a district court in Boston to look into housing cases, advise judges, and supervise the disbursements of rents paid into the court. If the project proved successful, it would be expanded to other courts in the state.

Help to relocatees

The commission also proposes new methods for easing the hardships of families who must be relocated because of state or local eminent domain proceedings. The state already awards financial compensation to relocatees but, in addition, state and local agencies would be required to submit plans to a new "State Bureau of Relocation" showing that decent alternative housing is being provided. The bureau also would see to it that two or more agencies are not using the same housing units in their plans. The commission also proposes the abolition of local residency requirements for public housing in the case of displaced families, as well as priority treatment for them under the proposed rental assistance and public housing programs.

Finally, the commission recommends the broadening of the state's existing low-income housing programs. Housing for the elderly, which has produced nearly 7,000 units in small, attractive developments since 1954, would be increased by raising the state bond guarantee maximum from $125 million to $145 million. For other types of existing public housing, the state would increase the annual subsidy which it pays for their operation from 2½ per cent of the original development cost to 4 per cent. The extra money would be used for lowering rents, providing more social services, or a combination of both.

Further coordination

The commission sees this as only a beginning step in combining social with physical rehabilitation. It also urges the state to conduct further study in the field leading to legislative programs for coordinating welfare, housing, renewal, code enforcement and anti-poverty programs.

"It is naive to think that decent housing by itself will erase poverty and the cumulative effects of poverty," the commission's report notes. "If families living in publicly subsidized housing are to be provided with opportunities for fuller and more productive lives, it is clear that many social services—education, job training, medical and psychiatric care and family planning, to name just a few—must be provided."

The commission estimates that its set of programs would result in some 20,000 to 25,000 units of new, rehabilitated or conserved housing being made available to low-income families. "The price tag on this package is not low," the commission's report concludes, "but there is no reason to expect that the goal of decent housing for all will be achieved without the expenditure of considerable sums of public money. The question is really whether we want to put an end to slums, and whether we want it enough to pay the price."

It is a question that other state governments would do well to ponder.

KIESLER BY KIESLER

Frederick Kiesler was once called "the greatest non-building architect of our time"—and not in malice, either: it was felt that he had influenced the architecture of today not so much by built examples, but by the sheer force of his ideas.

For this reason, now that Kiesler (as Senior Designer of the New York firm of Kiesler and Bartos) has actually built one of the most remarkable structures of recent times, it seems only fitting to let his ideas speak first, to be illustrated, almost incidentally, by his remarkable work. For Frederick Kiesler, in addition to being an architect, painter and sculptor, is also a convincing pamphleteer.

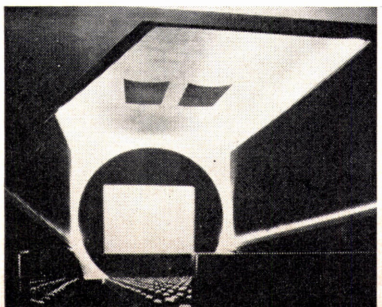
Here then, undiluted and uncut, is Kiesler's explanation of the philosophical notions that helped shape his SHRINE OF THE BOOK, and the SANCTUARY FOR THE DEAD SEA SCROLLS, completed a few weeks ago in Jerusalem. To Kiesler, the shrine and the sanctuary are perhaps little more than vignettes that illustrate a consistent ideology; to his contemporaries, these "vignettes" may seem great works of art in themselves.—ED.

A MANIFESTO OF CORREALISM: To say it bluntly, directly and fast, the principle underlying the concept and design of the Shrine is Correalism. It simply means that a building of any sort for people to live in for private or business reasons can no longer be a single block enclosure, no matter how wide, small or high. The Correalist designer, architect or site planner, before he designs an enclosure for human beings, must be as fully aware as possible of the life forces which bring about the small universe which they are to erect for the human beings by enclosures of any kind, shape or form.

In my manifesto "The City In Space," which was first printed in the *De Stijl Magazine* in Paris in 1926, the principles of Correalism were clearly defined. I remember a key sentence which read : ". . . the question is not straight or curved walls, but how does one live among these straight or curved walls—what life, new life has been fostered by them?" Since then I have pursued this concept as much as I was permitted to in architectural projects (Eighth Street Cinema, 1928; The Ellenville Multi-Purpose Theater, 1952 and others), and in galaxial paintings and environmental sculptures. The terminology which evolved from this principle is now being more and more adopted by those artists and architects who feel that the new space age is imposing its laws deeper and deeper into the conscious and subconscious minds of this planet's population. The terms which I have consistently promoted for forty years and more are: Environmental Design; Multi-Purpose Principle; The Continuity and Continuous Tension in Structures and in Life Dynamics; The Awareness of Time-Space Scale and its Ever-changing Correlation to the Object as well as to the environment; Shell Construction (not only umbrellas); and finally the term Endless (as concretized in the Endless House).

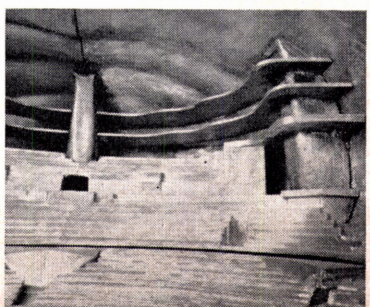
The Ford Foundation project of my Universal Theater is another Correalist concept, a classical plan of an unclassical building, which was to be a large city theater with

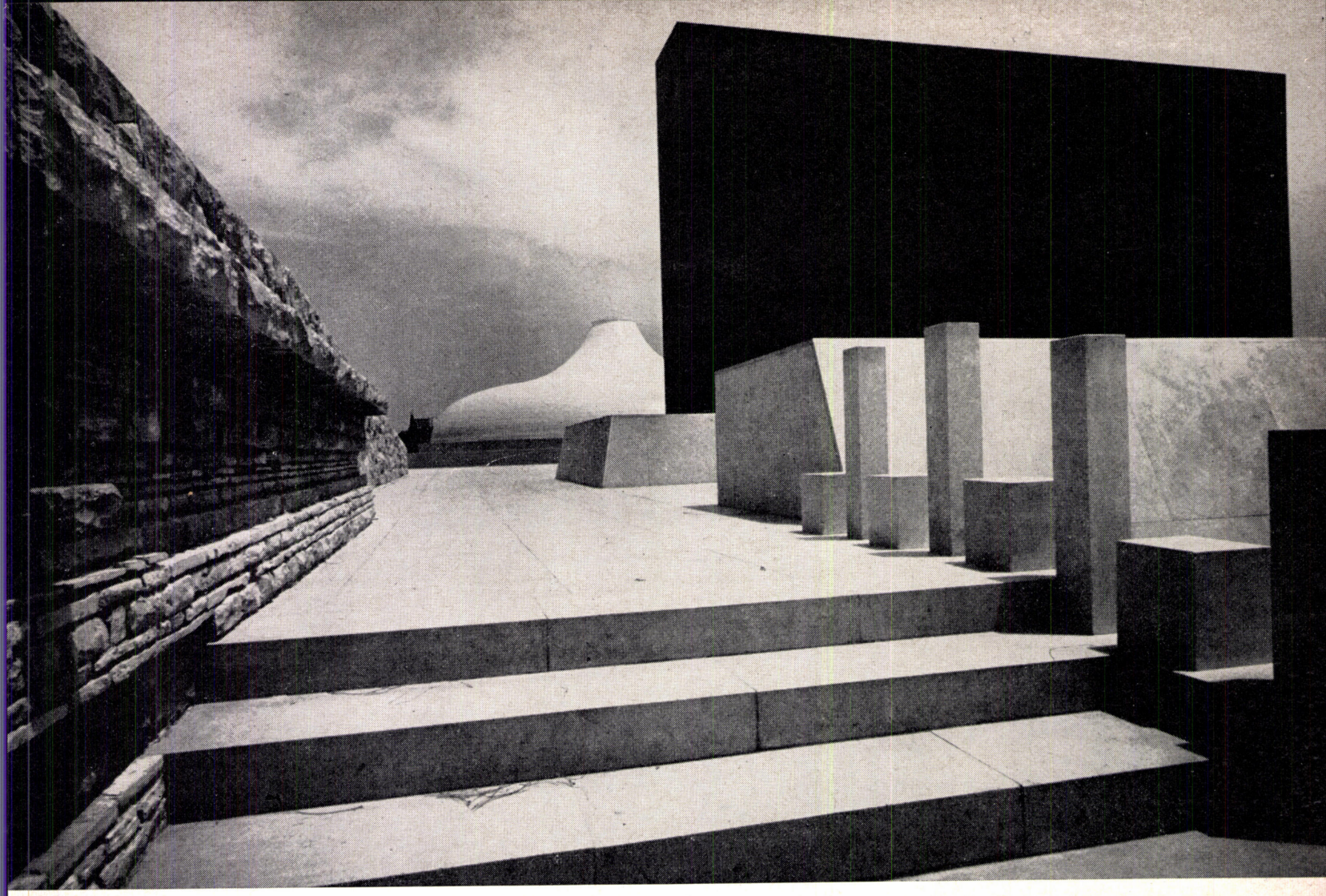
1928 EIGHTH STREET CINEMA



1953 ENDLESS HOUSE

1961 UNIVERSAL THEATER

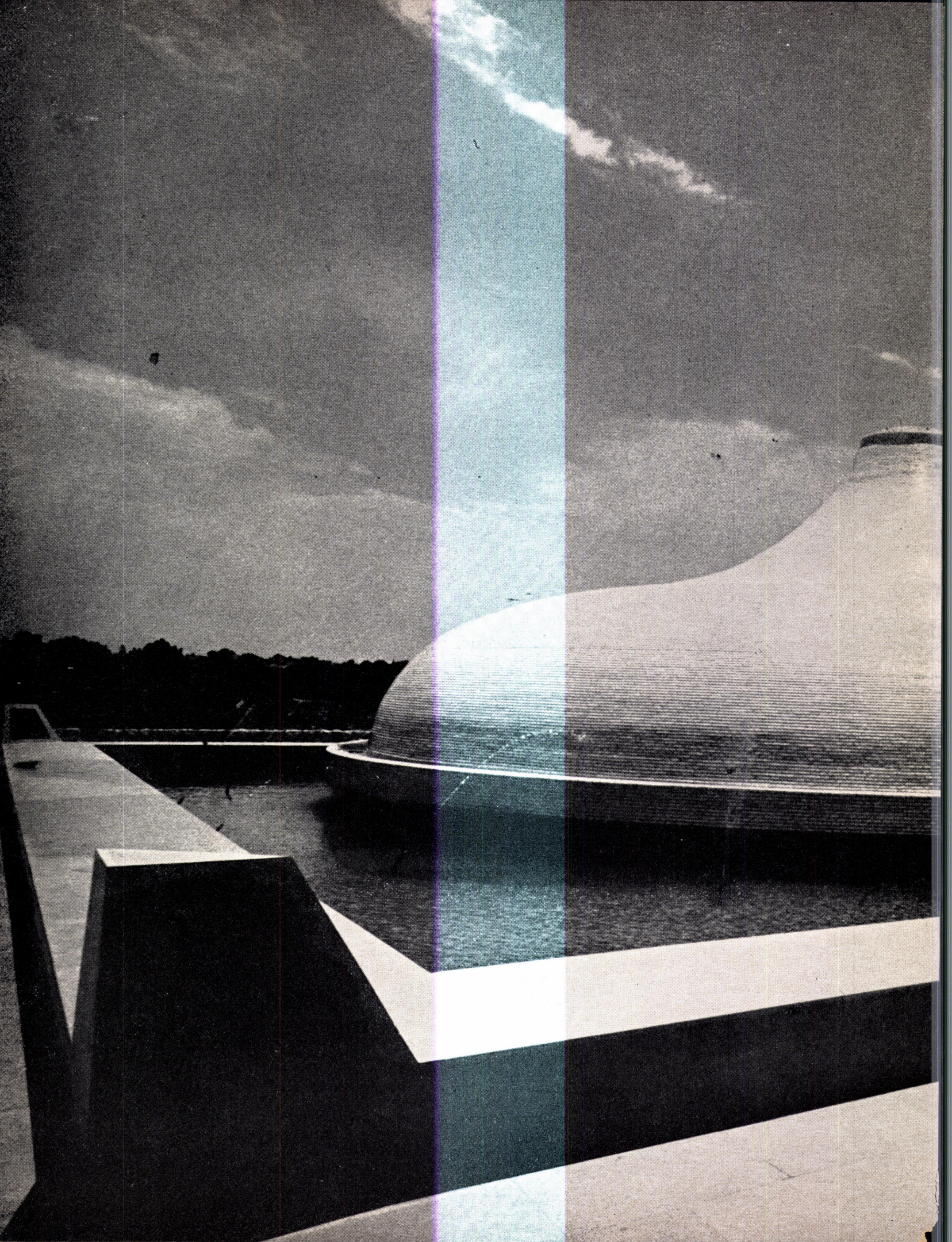


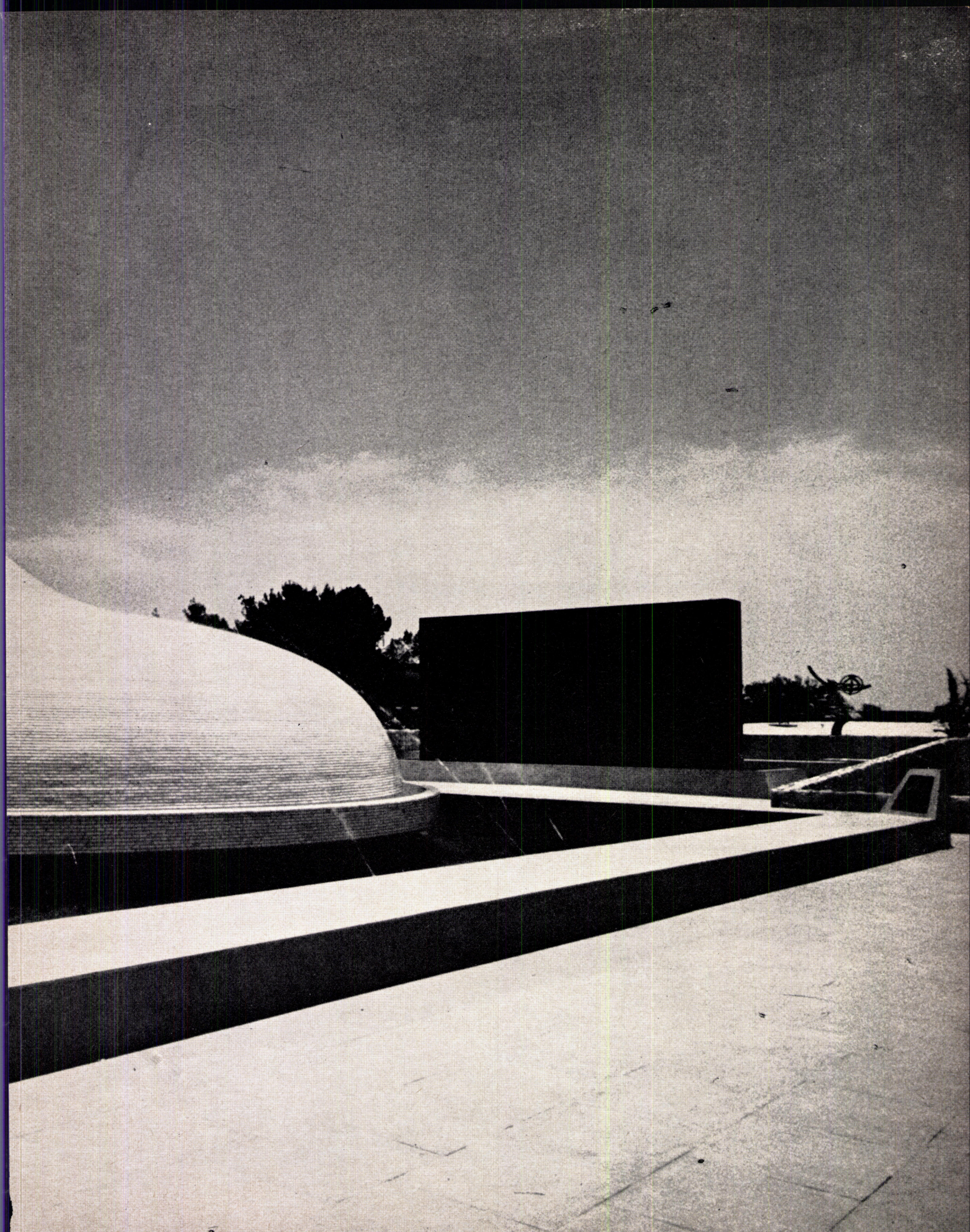


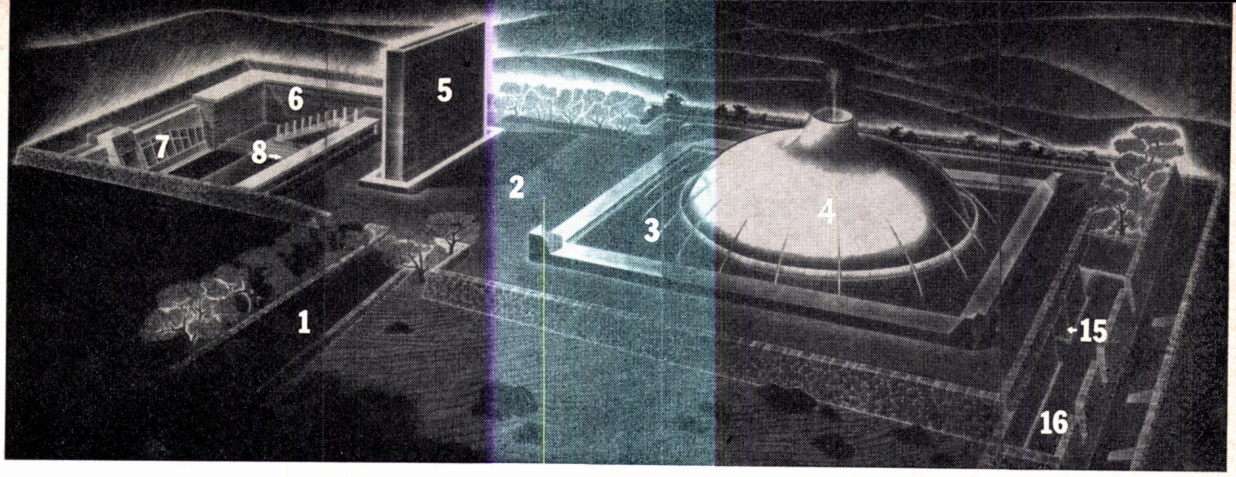
a capacity of 2,000 spectators. But what I found necessary to create was a galaxy of a great variety of space-units all in continuous-tension construction including a large theater (with multipurpose transformations), a small theater of 600 capacity, a shopping center and above it a 30-story skyscraper with rehearsal rooms, offices and three projection theaters for television and those environmental groups which help to keep such a project alive and alert every hour of the day and evening, one supporting the other in inspiration as well as costs and maintenance.

The Shrine of The Book as originally called for by the faculty and the President of the Jerusalem University in 1957 was one large square room in the new library under construction, seven years ago, to house showcases for the seven Dead Sea Scrolls and some other rare biblical manuscripts. I, however, immediately rejected this proposal because I was convinced that the text of these 2,000-year-old scripts could not be studied in an exhibition room, particularly one filled with many visitors. They would just remain curiosa. But the Dead Sea Scrolls are more than curiosa: their contents are the main issue dealing with postulates that shook and are still shaking the world of the theologians. Another architectural approach was necessary to express the transverse space of these documents. My arguments were accepted and the result is today's building of the Shrine of The Book, which consists of 16 different units, each entirely different in shape, expanse, height and width, darkness, dimness, or light. These 16 units correlate to one large complex, strongly contrast to each other yet correlate to the ultimate goal which is the awareness of a great past and the awareness of a great future.

The Shrine is thus an experience in *ideological architecture* annihilating the 50-year-old pseudo-functional architecture which took its cue from the technological advancement of science, the so-called modern materials such as steel, glass, plastics and mass







ALFRED BERNHEIM PHOTO

The Shrine consists of these 16 space units: (1) A lawn gently sloping down a long retaining wall leading into a grove of trees with a circular platter of stone upon which rest four long stone blocks to sit on; (2) the open plateau; (3) the square fountain; (4) the protruding upper part of the vessel-dome covered with 271,000 white tiles upon which, at need, the fountain sprays water for cooling; (5) a black basalt wall 75 ft. away that is almost 60 ft. long, 40 ft. high (with a fire trough on top) and 6 ft. thick; (6) the open staircase leading down to a large rectangular patio; (7) to the right of the patio, the research library; (8) across from it, the entrance to the Shrine proper. Next (9) is the entrance to a high exhibition hall facing the black basalt wall which has descended 1½ stories below the plateau. In it is a square opening with a large tubular bronze gate; then (10) through the bronze gate an underpass of seven platforms each 6 in. lower than the next. To the left and right of these platforms, exhibition showcases for biblical manuscripts; beyond them (11) a 75 ft. underpass supported by continuous arches connecting floor, wall and ceiling and slightly inclined in opposite directions. The color of the concrete shades from light blue-gray at the bottom to dark blue-black at the top. (12) Finally a high flat-chiseled stone wall containing a comparatively small bronze door split in half. It opens on approach and once inside it, a few steps upward, one enters (13) the main vessel-dome, a container for the seven Dead Sea Scrolls. A circular shell construction of double parabolic design, open at the top in a circle 6 ft. 3 in. in diameter through which the daylight filters down the corrugated interior of the dome-vessel which has a diameter at the bottom of 80 ft. (14) Two open stone staircases around the center of the dome-vessel lead downward to a rough stone crypt 50 ft. in diameter which contains show cases with precious artifacts found in the Dead Sea region. (15) The exit from the dome area passes through one of the bronze doors into a corridor 28 ft. long, the walls curved, along an elevated stone footpath leading directly to (16) an almost 200-ft. open-air meditation walk flanked by two high stone walls with three cut-outs, openings through which one may view Jerusalem and its Parliament. Continuing the walk, one finally reaches a door which returns one to the common plaza of the other museums. (Numbers not in drawing are underground elements.)

continued from page 65

production, but forgot the human being whose desire is a correlation of known and unknown, a matter of dedication to love and the awareness of inescapable death.

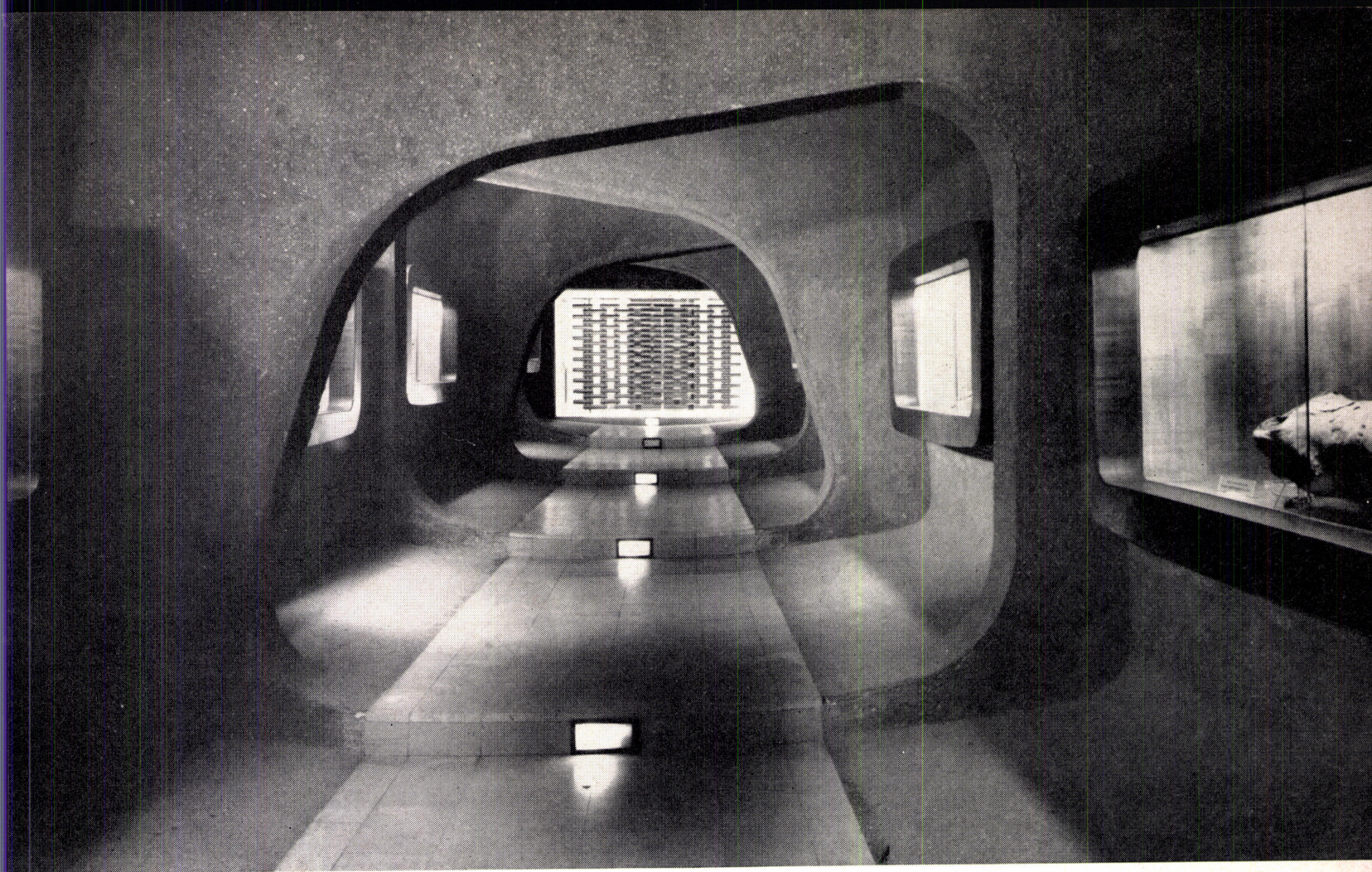
Today we have an emphasis on esthetics, anesthetics, prophylactic building design with total amnesia of ethics. None of which has to do with architecture per se. These corporation buildings are the take-over of a physically sportive training, camouflaged by cosmetics glorifying a teen-age world in striped trousers, stretch pants, black goggles and falsies protruding from under heavy textured sweaters. The inside is solid emptiness. A plastic man with a flat soul. The progression of our design conception goes from: Industrial instrumentation + Economics + Man instead of: Man + Creativity + Technology.

There is nothing that can eliminate esthetics, but some are more valid than others, and many are invalid. To be valid, esthetics must not only evolve from the structure itself but the structure must have evolved from a content. Content, gentlemen, is the question to be answered. The Dead Sea Scrolls came to light in 1947 at Qumran after 1,881 years of interment on the shores of the Dead Sea. In the same year and week the U.N. in New York voted the independence of Israel from the English mandate. Until then Palestine was also in oblivion for almost 2,000 years like the scrolls. This wondrous coincidence of *rebirth*—an event of prodigious fascination—became for me *the very content* of the shrine to be conceived. And with the cordial assistance of my partner, Bartos, it was created and built.

What are we all, you and I, here for? IBM is welcome, but I AM is more welcome.

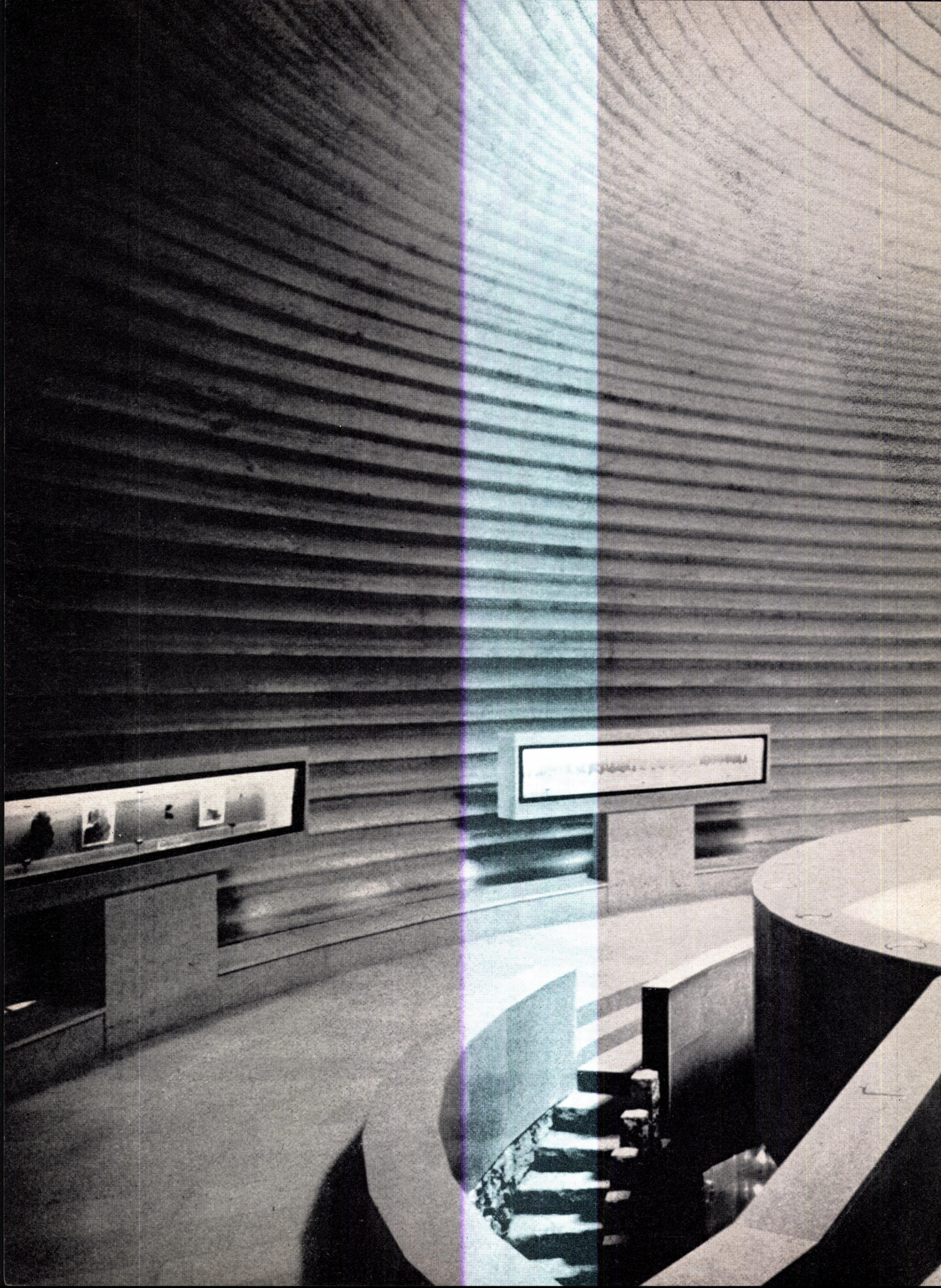
Architecture is the art of making the superfluous necessary in time. Rental buildings are the methods of making the necessary obsolete in time.

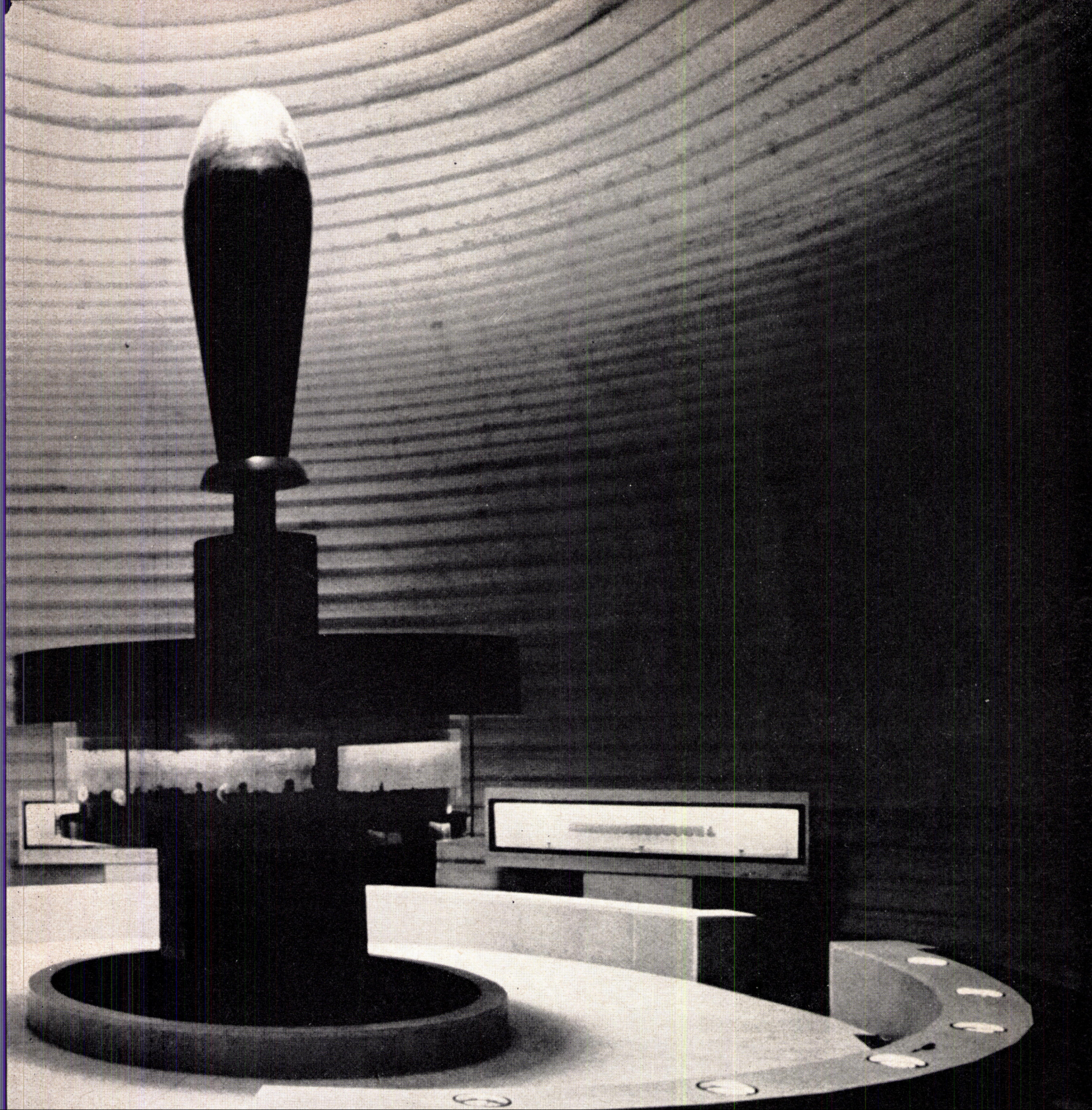
Mobility without repose is waste unless between these extreme points lies an elasticity from zero to X. Measure for measure, without beginning or end, but sensitively controlled, building design is like horses of a quadriga; you hold the reins from start to finish, cycle after cycle trotting, prancing, galloping or stopping. How lucky, my architects, you are! Imagine, you are in full command of all the constellations of a house! Don't let a servant of investments hold your reins. Don't change hands.



BRONZE GATE AND UNDERPASS

STAIRCASE AND STONE CRYPT





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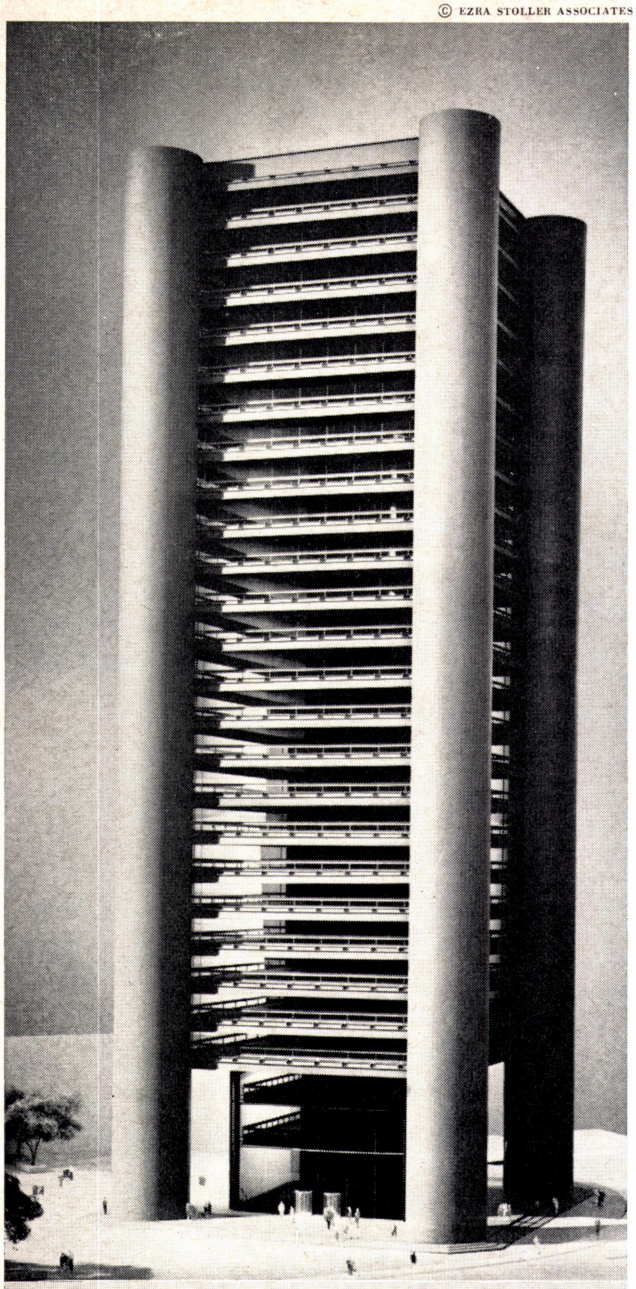
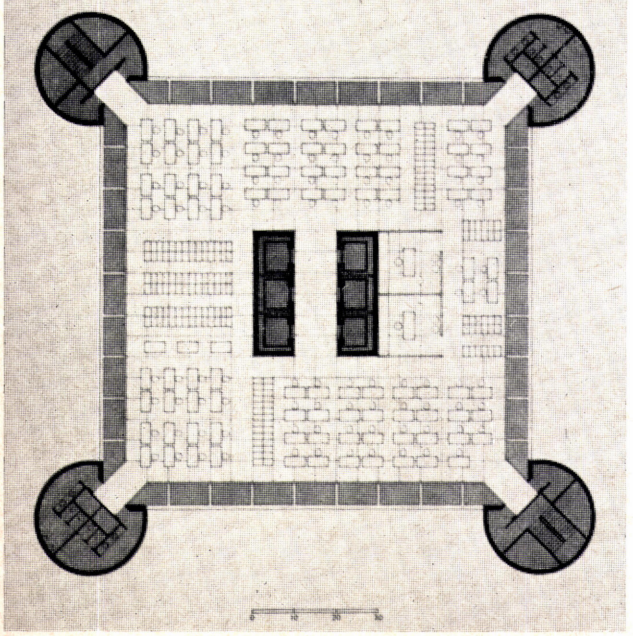
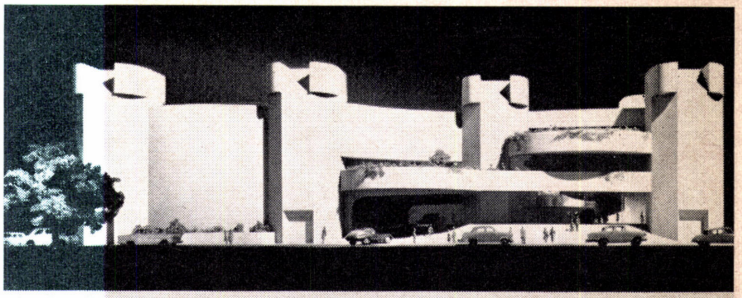
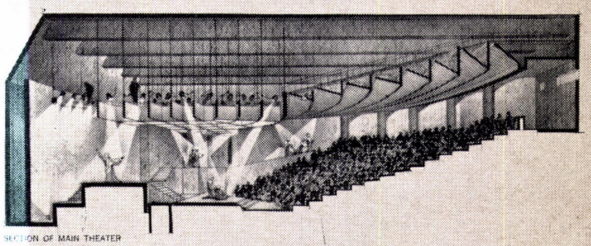
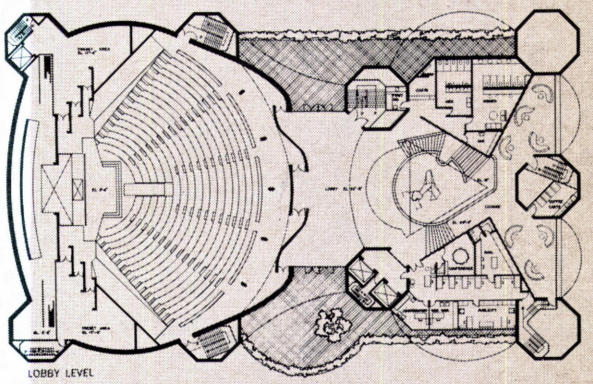




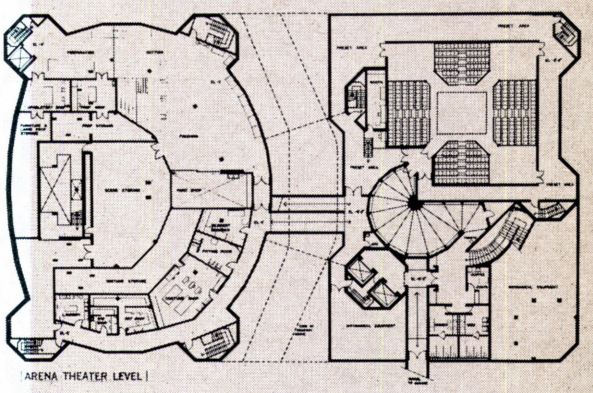




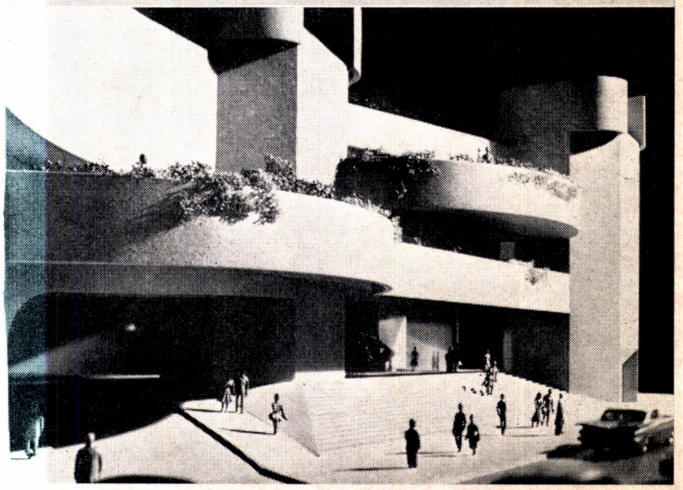
SECTION OF MAIN THEATER



LOBBY LEVEL



ARENA THEATER LEVEL



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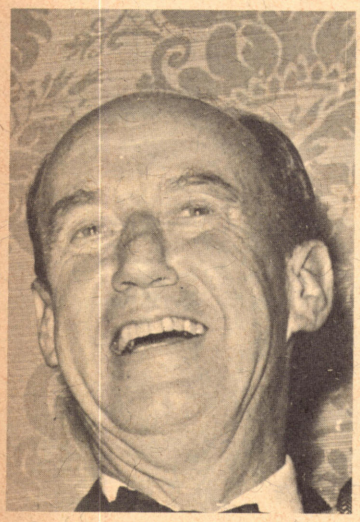

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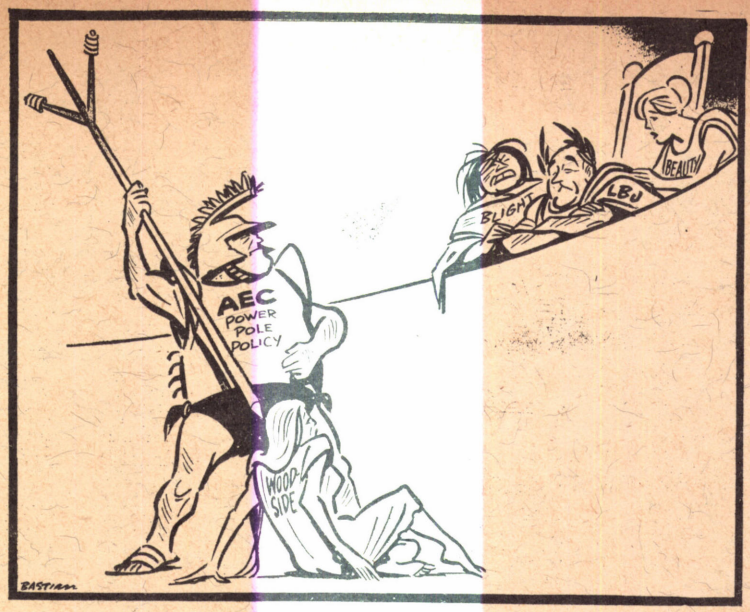

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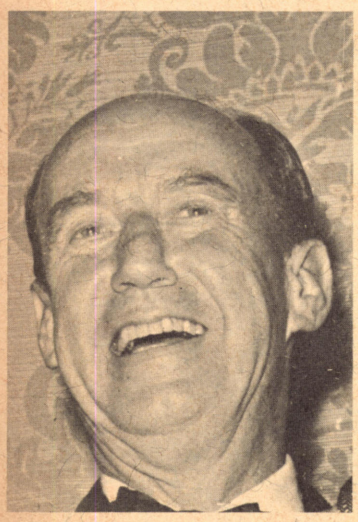

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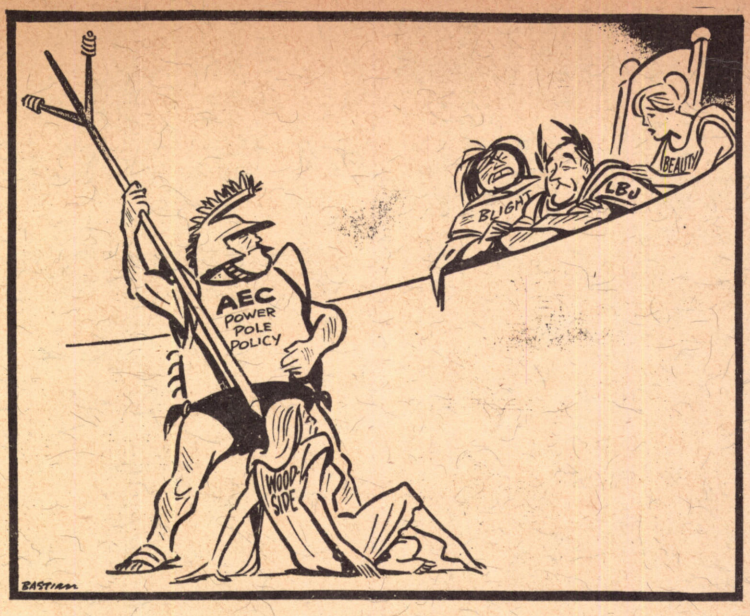

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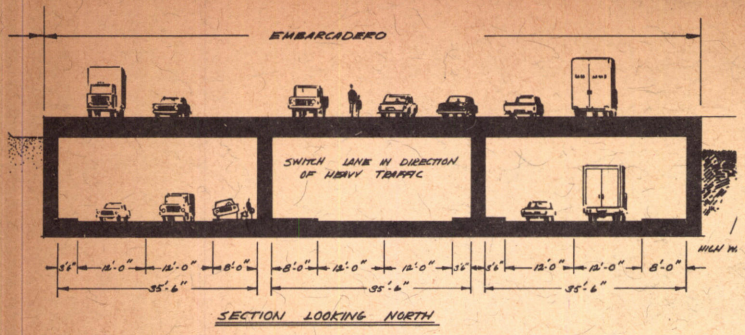


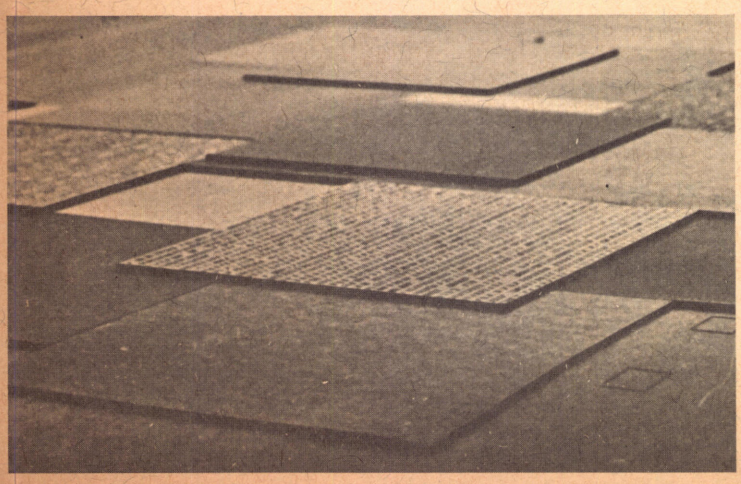
from above. When the heavy-handed State Division of Highways built the monstrous, two-deck freeway several years ago, thus cutting off the city's waterfront from everybody except motorists, San Franciscans were furious, and they have been seething ever since. As a result, the freeway was stopped cold after a mere half mile had been built, until an acceptable solution could be worked out.

Now the city has decided it can't even live with that half-mile stretch—much less with any elevated addition to it. The Board of Supervisors has told the state it wants the existing stump removed and replaced by a freeway-tunnel from the Embarcadero to the Golden Gate Bridge. (Section, above, shows scheme prepared by the Chamber of Commerce.)

The State Division of Highways, however, is used to having its way, and it has started rallying its forces to fight the tunnel scheme. Governor Edmund G. Brown also got into the act by stating that the tunnel would be built only "over my dead body"—a statement that might call for some clarification. San Francisco's Mayor John F. Shelley retorted that the tunnel might be built over Brown's "dead political body," which seemed to hit the Governor where it hurt, since he plans to seek a third term and is running behind in the polls. So the Governor apologized, said the tunnel plan might be feasible after all, and then, to save face, told Shelley the city would have to work out a master plan for freeways before the state would even consider the tunnel. That seemed reasonable enough, but strangely, the state never required a plan while *it* was calling the shots.

The civic-center-plaza fiasco is something else again. It is an all-too-common example of civic insularity asserting itself against imported enlightenment. The city has rejected the design without even giving its architects—Ivan Tzvetin and Angela Danadjieva—a chance to develop it beyond the conceptual stage. After they won the international competition (June '65 issue), the next step was to have brought them to San Francisco to develop their handsome series of various-textured terraces (below) into a final proposal.

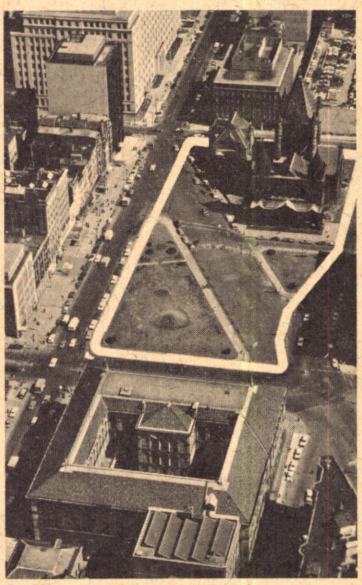
But the Recreation and Park Commission said there was no reason to go any further: it didn't like the initial scheme and it was sure it wouldn't like the final design. Commissioner John F. Conway Jr. said that what they had always wanted was "a fountain, a flower bed, and an esplanade." Which only goes to show that Commissioner Conway never bothered to explore the almost unlimited potentials of the winning plaza design!



COMPETITION

HISTORIC SQUARE IN BOSTON

A new design for historic Copley Square in Boston's Back Bay (below) will be selected in a one-stage competition sponsored by the city of Boston and four of its agencies. The square connects two equally historic edifices: Richardson's Trinity Church and McKim, Mead & White's Boston Public Library. Awards of $5,000, $2,000



and $1,000 will be made to the top three designs selected by a 10-man jury. For information and registration forms, write the professional adviser, Charles G. Hilgenhurst, Boston Redevelopment Authority, City Hall Annex, 10th Floor, Boston 8, Mass. Registration deadline is October 15.

PEOPLE

DEATH OF A FRIEND

Georg Jensen, Inc., on New York's Fifth Avenue, is a store named for a silversmith who never left Denmark. Jensen's president, Just Lunning, who died last month at the early age of 55, earned special distinction by promoting the appreciation of good design on this side of the Atlantic to a degree that indicated a primary commitment to quality rather than financial success. (He achieved both.)

Lunning strongly believed in cultural exchange programs and sent scores of young Americans to study in northern European countries. His activities in the world of design went far beyond the usual confines of merchandising: he organized a major exhibit, "Arts of Denmark," at the Metropolitan Museum in 1960, and established the Lunning Prize which was awarded annually to promising Scandinavian artists further to encourage excellence in craftsmanship and design.

We were indeed fortunate that Mr. Lunning, at least, did not stay in Denmark; we were fortunate to have had him as a friend; and we are fortunate that he left behind him so many pleasant memories.

APPOINTMENT

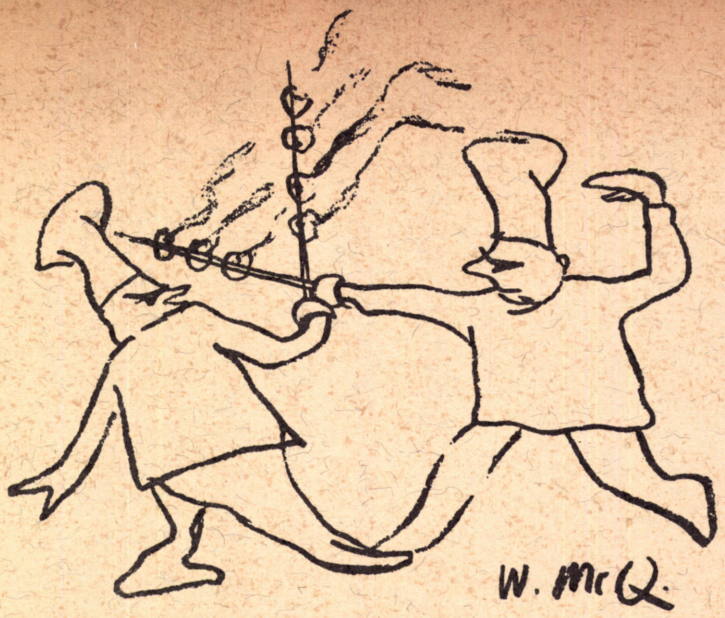
Leonardo Ricci comes from Florence to Pennsylvania State University this fall as visiting professor of architecture, a post he occupied at MIT in 1960. Ricci, who thinks of himself as something of a visionary, is currently engaged in a project to transform a desolate town in central Sicily into an idyllic cooperative community.

POP ARTIST

Please do not write to tell us that we are alienated from reality: we *know* that Pop Art is "out," that Op Art is practically "out," and that something cataclysmic is about to happen in painting and sculpture.

So we are not talking about Pop Art—we are talking about Dime Store Art, and we wish to report to those who may have missed the event that Woolworth's Gallery of Fine Art, at Fifth Avenue and 39th Street, in Manhattan, has begun selling off $750,000 of the stuff, including seven Dalis, and the $1,100 "Single Figure" by Gino Moro (below). The one below, that is.

Walter McQuade



MANHATTAN'S HIGHEST PAID HEADWAITER

New Yorkers may go to the theater now and then and to concerts and galleries periodically, but it is the restaurants of Manhattan that really grip us. Available on this island is a variety of superb food, presented with proper fanfare; the service varies from the suave discretion of La Caravelle to the spirited foodhandling at the Red Devil, where there is no delivery entrance, so that the artichokes are carried into the kitchen by the case through the lunchers' tables before they come back out on plates. All in all, it might even be that this city's spirit is pretty well represented by the alternating haughtiness and servility of the typical *maitre de*.

Yet despite the importance of ritual in dining out, it is only in the past few years that New York restaurants have been given much design attention. Until recently, perhaps, restaurant operators have been so sure of themselves in general that they were certain they could handle design themselves, with the aid of the restaurant supply house salesmen. But as a result, all restaurants on Manhattan were beginning to look alike a few years back.

A change set in during the late 1940's. Al and Dick's steakhouse, by architects Abel Geller and George Nemeny, was one of the early ones professionally designed. Then came Restaurant Associates to establish a whole set of extravagant eating edifices, ranging from the Roman roccoco of interior decorator William Pahlman's Forum of the 12 Caesars (at lunch hour call it the Forum of the 12 expense accounts, and order the gazpacho) to Philip Johnson's loftily elegant Four Seasons in the Seagram building, on to Alexander Girard's La Fonda del Sol in the Time-Life building, where you can buy pitchers of draft Mexican beer and consume them in Aztec-Corbu surroundings.

The newest design-restaurant is the Saarinen Associates granite and mahogany essay on the street floor of their CBS masterpiece, which will open late this fall. It is to be run by Jerry Brody, a former Restaurant Associates head, and in Chairman William Paley of CBS, Brody and Warren Platner have had a client who is genuinely interested in the sauces of life.

Paley is a wonderful kind of business genius. His daring ebullience is as famous as his shrewdness. His zest and high spirits are not just a TV-showbiz sprayed-on gloss, but the man himself. And

he loves to eat. An old associate says, "Bill has that special vision of the American capitalist. He can see where the money is just a little bit before anyone else. Of course he is not always there when you need him. He may be out talking to the cook." Says Kevin Roche, "Paley has a real joy in being alive. You should see the man in a hot dog stand. It's as if the hot dog had just been invented in front of him!"

An easy client for a restaurant? Not very, I'd guess. But both the Saarinen outfit and the Brody firm seem to be enjoying the engagement, and it looks as if something very good is coming of it. I put on my job-superintendent expression and went in to look at the space the other day and can report the design will very likely live up to the exterior of CBS. The restaurant is still nameless (Paley has a long list of suggestions which he is munching on). It will be very masculine in tone, quite majestically so, with a 20 ft. ceiling in the bar, and no tablecloths (at lunchtime, anyway) "but very elegant too," Paley insists, and then adds, "a robust elegance. . . . Most of the meats will be cooked in sight on a big grill out in view. There'll be lots of broiled things. I especially like broiled things." Which broiled things particularly? The chairman of the board snaps gleefully, "I'm not going to tell you."

Every man who really likes to eat wants some day to run a restaurant himself; and it is not inconceivable that Paley, come next winter, will be frequently stepping onto an express elevator about 1 p.m. and coming downstairs from the top executive floor of his office building, to check how his restaurant is doing, standing beside the grill, perhaps even nibbling a bit, before returning upstairs to his own chef. Paley will be the highest paid, certainly the most exuberant *maitre de* in Manhattan.

PHOTOGRAPHS: page 17: Ezra Stoller, Nicholas Soloviоff; page 18: Norman R. C. McGrath, Eugene H. Fleming III; page 19: Norman R. C. McGrath, UPI; page 20: Stewart Bale Ltd.; page 73: Panda Associates; page 74: UPI, Bastian—San Francisco Chronicle, George Knight; page 75: New England Survey Service Inc.; page 76: CBS.