E ARCHITECTURAL FORUM / APRIL 1967

FORUM

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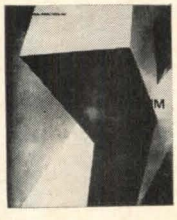

Cover: part of a welded steel giant (page 57).

THE ARCHITECTURAL FORUM
Vol. 126 No. 3. April issue
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PUBLISHER'S NOTE

One of the marvelous consequences of having two birthdays and two ages is to be able to draw on experience even though one is only two years old. Reckoned on one calendar we were 75 in January. On another, this April issue marks our second birthday. So we shuck off 73 years and light three candles on our Urban America birthday cake. The extra, we are told, is traditionally there "to grow on."

And grow we do.

Former Managing Editor Don Canty — since March 1st Urban America's director of urban information services, and the newest member of our prestigious Board of Contributors—is replaced by Paul Grotz. All of Paul's predecessors will recognize that his new title describes in fact an important part of Paul's work at the FORUM never before made clear—publicly.

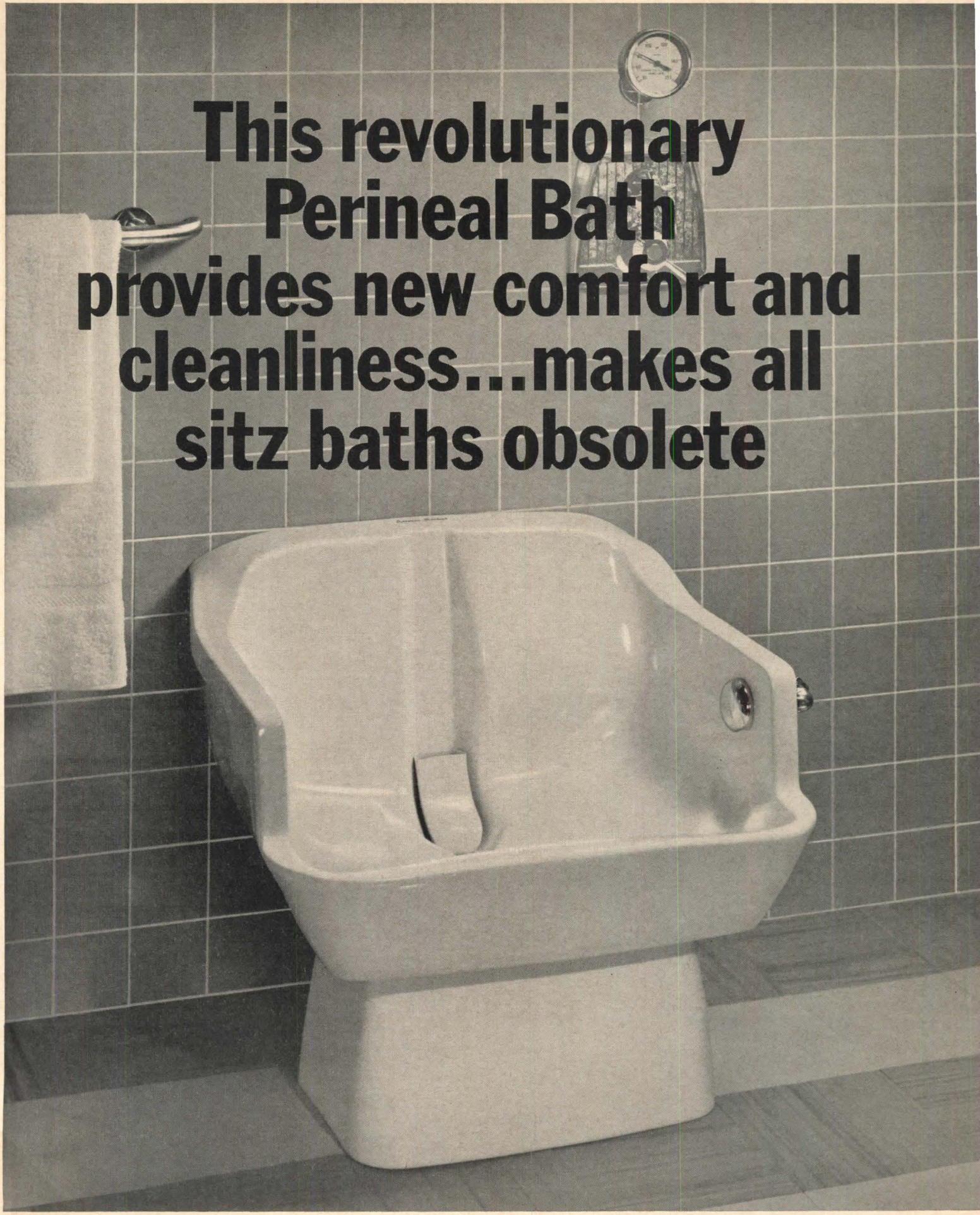
To fill the vacant art director post we welcome back to architecture, Charlotte Winter, whose name is not new to the FORUM masthead, having appeared as our art associate from 1953 to 1964. During the past two years of our new life Charlotte had been sojourning in the lotus-eating land of the shelter magazines.

Neither is Ellen Perry Berkeley, senior editor, new to the field of architectural journalism. Her B.A. is from Smith College. To this Ellen added two and a half years of study in architecture at Harvard Graduate School of Design, more at the Architectural Association School in London, and seven years of seasoning on the editorial staff of *Progressive Architecture*.

Another FORUM prodigal returning to the fold in time for one of our birthdays is Don Peterson, editorial assistant. He had been waiting for his cue in the wings at *Show* magazine.

And that's how it is with an ambivalent chronology; we grow in all ways—as the young are wont to do—controlled, we insist, only by the lessons of experience.

—L.W.M.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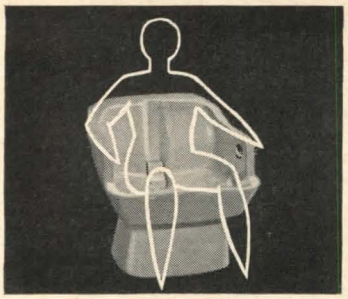
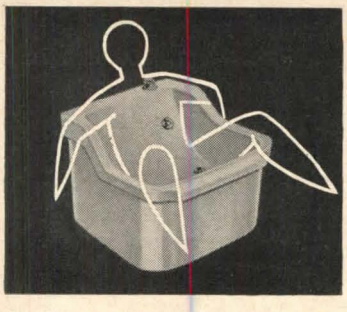


The revolutionary new Perineal Bath is designed to fit the patient. He sits in an unstrained, natural position at chair height. Arms and back are supported, and both feet are planted firmly on the floor. He can usually enter and leave without help. He is bathed in clean, constantly changing water of pre-selected temperature.



The now-obsolete sitz bath makes the patient fit himself to the shape of the tub. He squats awkwardly and insecurely, with his knees higher than his body. There is little support for his back or arms. He must usually be helped in and out. Unless attended, the patient ends his bath in cold, dirty water.

Now, for the first time, maternity-ward patients—and post-operative patients in gynecology, urology and proctology—can bathe in comfort and security. In clean, tempered, constantly changing water, providing maximum wet-heat effectiveness. Without the constant attention of a nurse. This revolutionary new American-Standard Perineal Bath does away with all the awkwardness and indignities that make old-fashioned sitz bathing so distasteful.

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Bathes in clean, running water. The patient takes his bath in clean, constantly changing water of pre-selected, even temperature. Water level is also changeable for different needs—so important for hot- or cold-spot treatment.

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*"The Bathroom," Research Report No. 7, 1966, pp. 50-52

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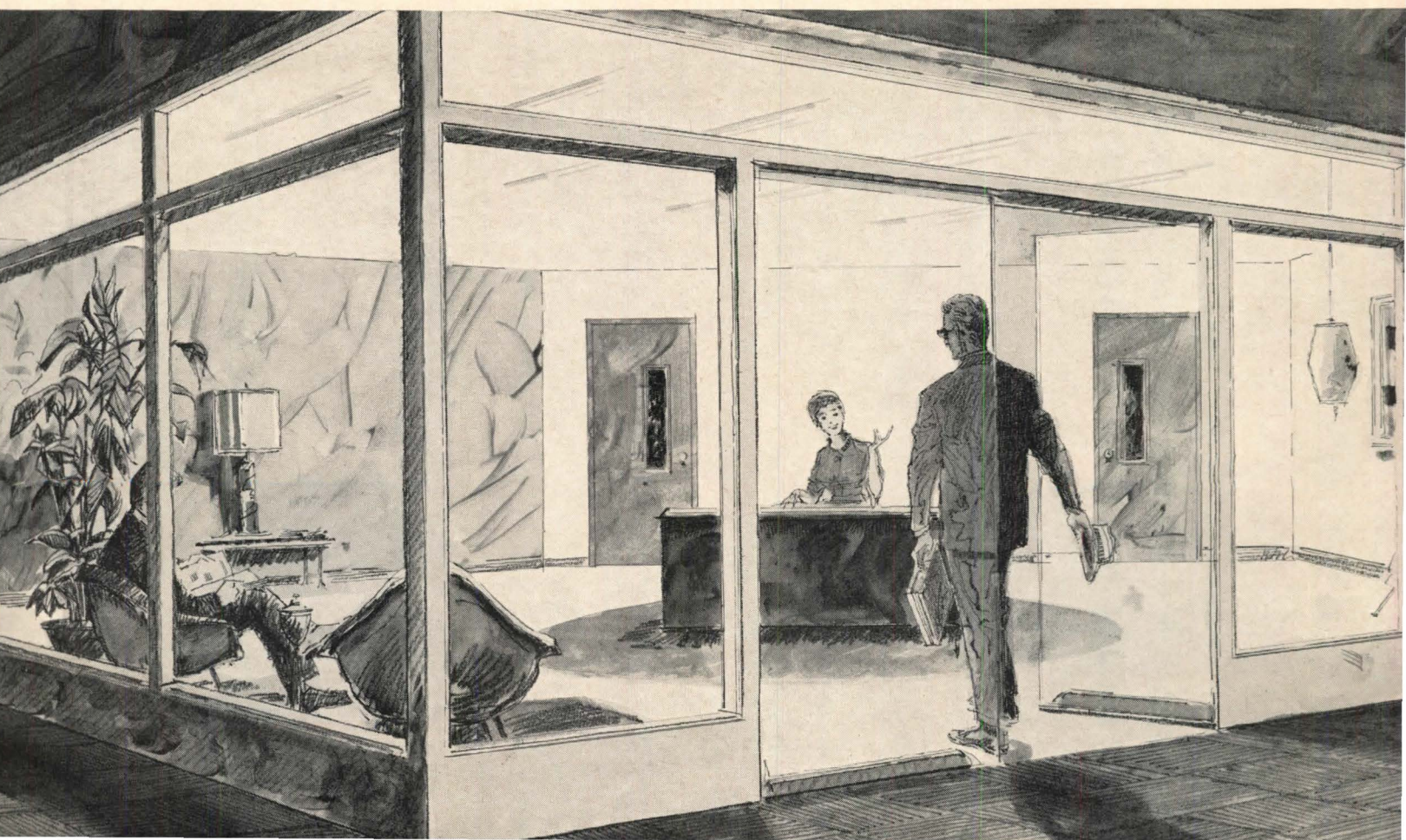

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Olympic Semi-Transparent Stain

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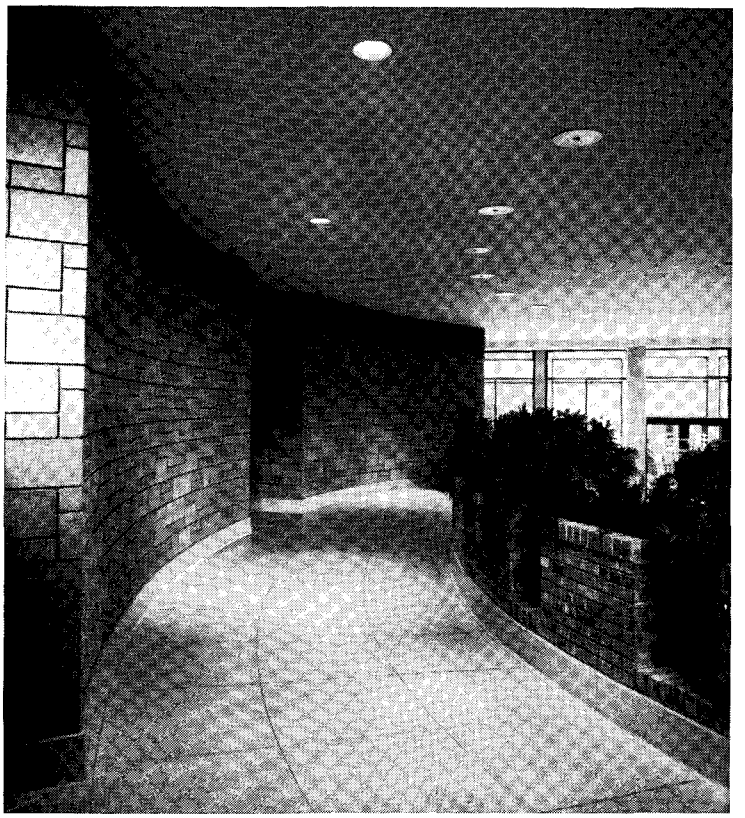
Twelve Concrete Techniques Work Together in This New College Building

The main entrance to the beautiful new concrete structure. (1) A system of concrete walks encircles the building. Some of them have exposed aggregate surfaces.

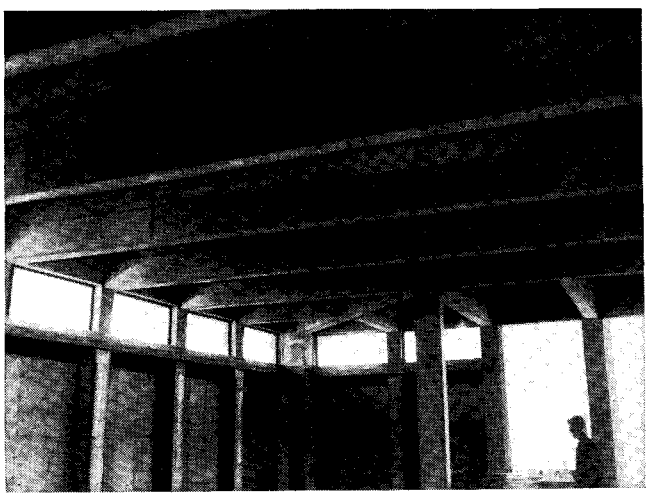
(2) Cast-in-place, post-tensioned entrance bridge takes advantage of the terrain. Bridge was cast integrally with the giant *mushroom base.* (3) Precast columns are used throughout the structure providing both interior and exterior architectural effects. Spandrel at top of building is also made of precast units.

• The new Center Campus Building of Fairfield University blends a wide variety of concrete techniques to produce a design of unusual interest. It shows how cast-in-place concrete combined with precast concrete can so easily conform to an architect's ideas. He is almost unlimited in his freedom of design.

Lehigh Cement was used in the ready mixed concrete for both precast and cast-in-place concrete. Precasting of wall panels, columns and miscellaneous units was done on the job site by The E & F Construction Company. With such a wide variety of construction techniques, uniform dependable quality of the ready mix was of vital importance. Coupled with the skill and ingenuity of the contractor, it permitted the rendering of a most unusual and interesting new structure. Lehigh Portland Cement Company, Allentown, Pa.



(4) Terrazzo floors add a note of luxury to interiors. (5) Concrete block walls with special exposed surfaces provide decorative effects throughout the structure. (6) Concrete block units are also used in partition walls throughout the building.



(7) Cast-in-place beams over the recreation area of the building are post-tensioned.

(8) West facade of building features sculptured, cast-in-place exterior walls. (9) Precast panels are used for walls above first floor levels.

(Concrete applications not shown in photos.) (10) Precast roof deck units. (11) Precast concrete fireplace chimney units. (12) Bushhammered texture on lower level exterior wall on east facade.

Owner:
Fairfield University, Fairfield, Conn.

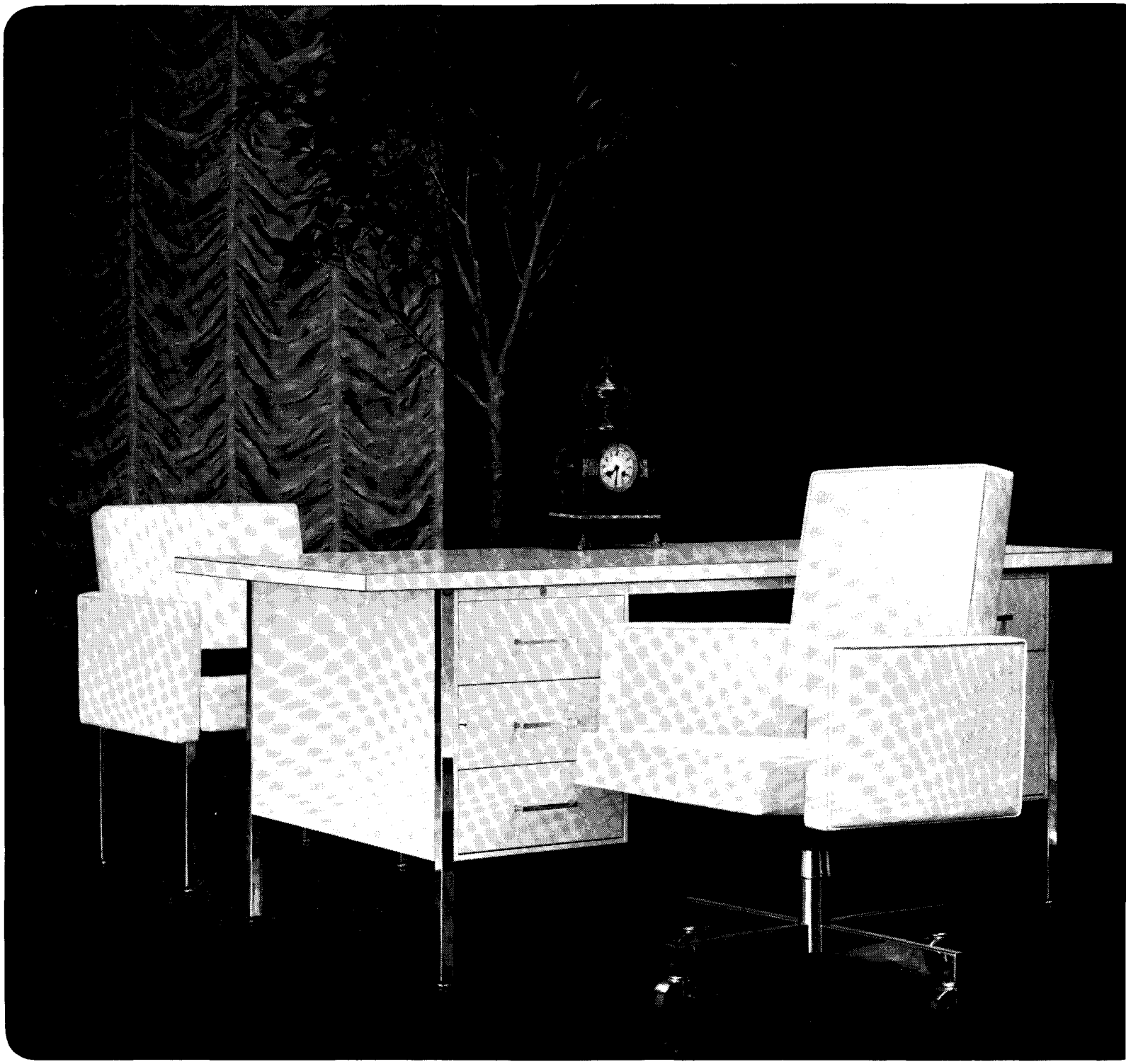
Architect:
J. G. Phelan & Associates, Bridgeport, Conn./Robert H. Mutrux, Associate in charge

Contractor:
The E & F Construction Company, Bridgeport, Conn.

R/M:
Silliman Company, Bridgeport, Conn.

Concrete Block:
Milford Concrete Products, Inc., Milford, Conn.

LEHIGH CEMENTS



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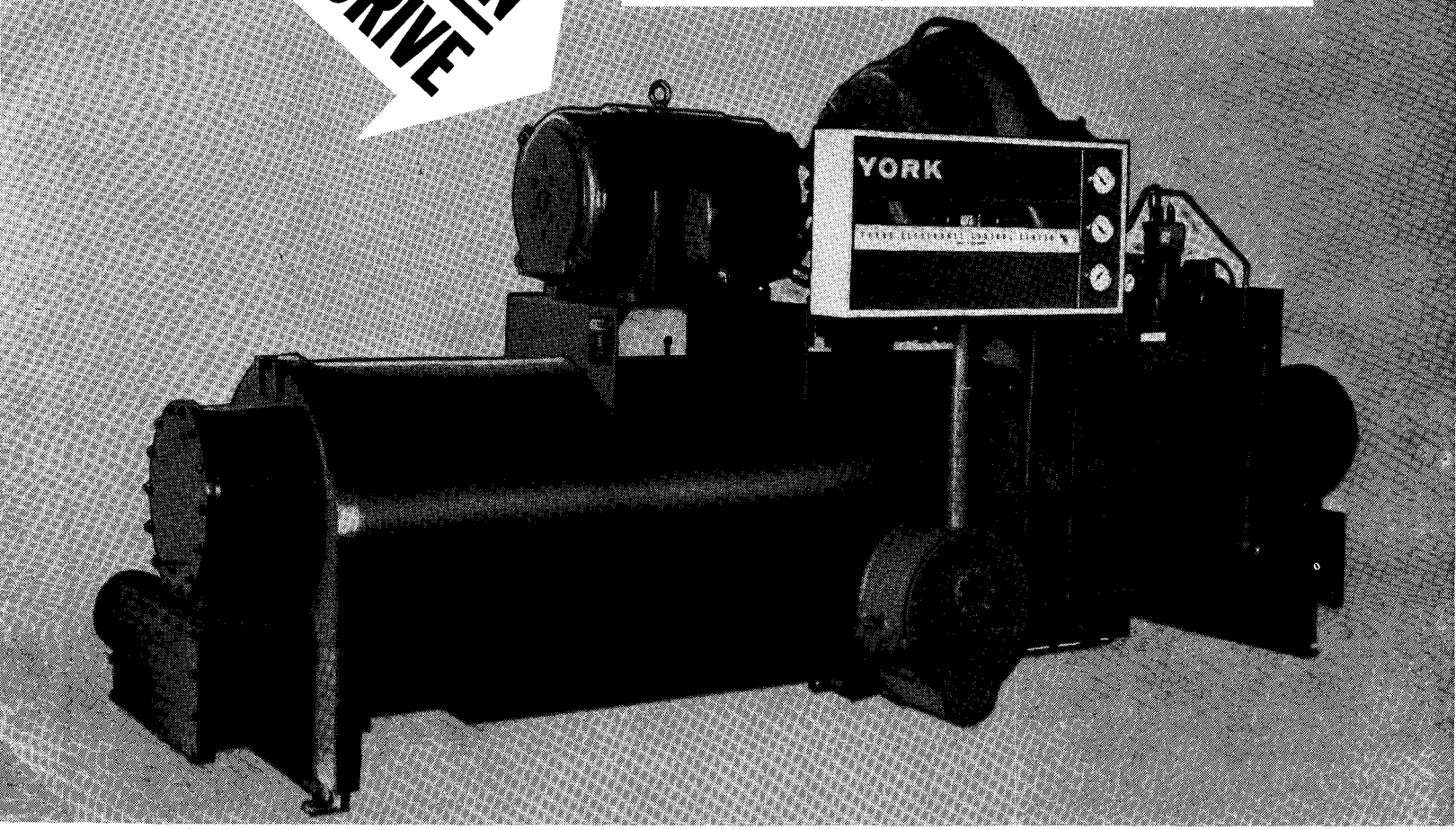

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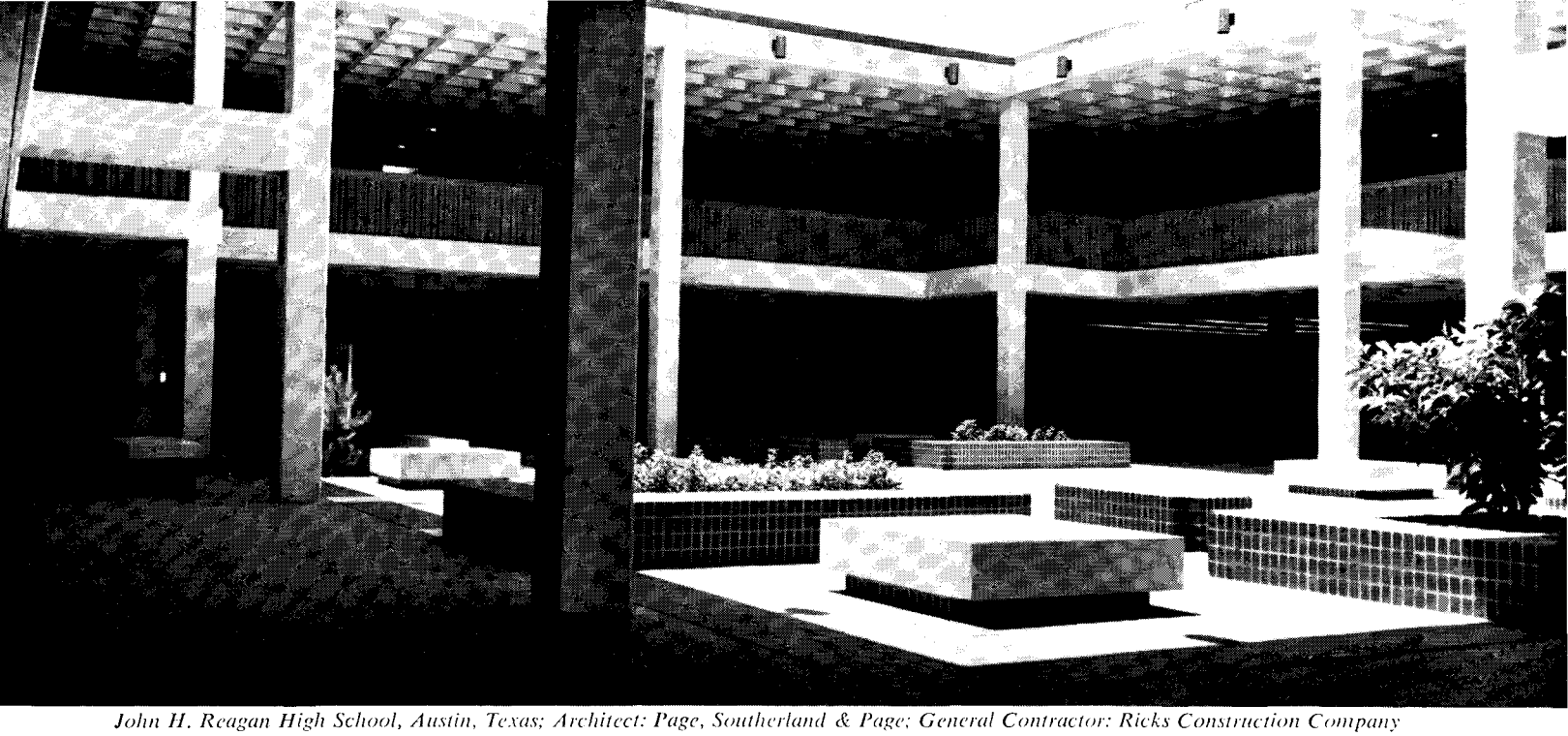

John H. Reagan High School, Austin, Texas; Architect: Page, Southerland & Page; General Contractor: Ricks Construction Company

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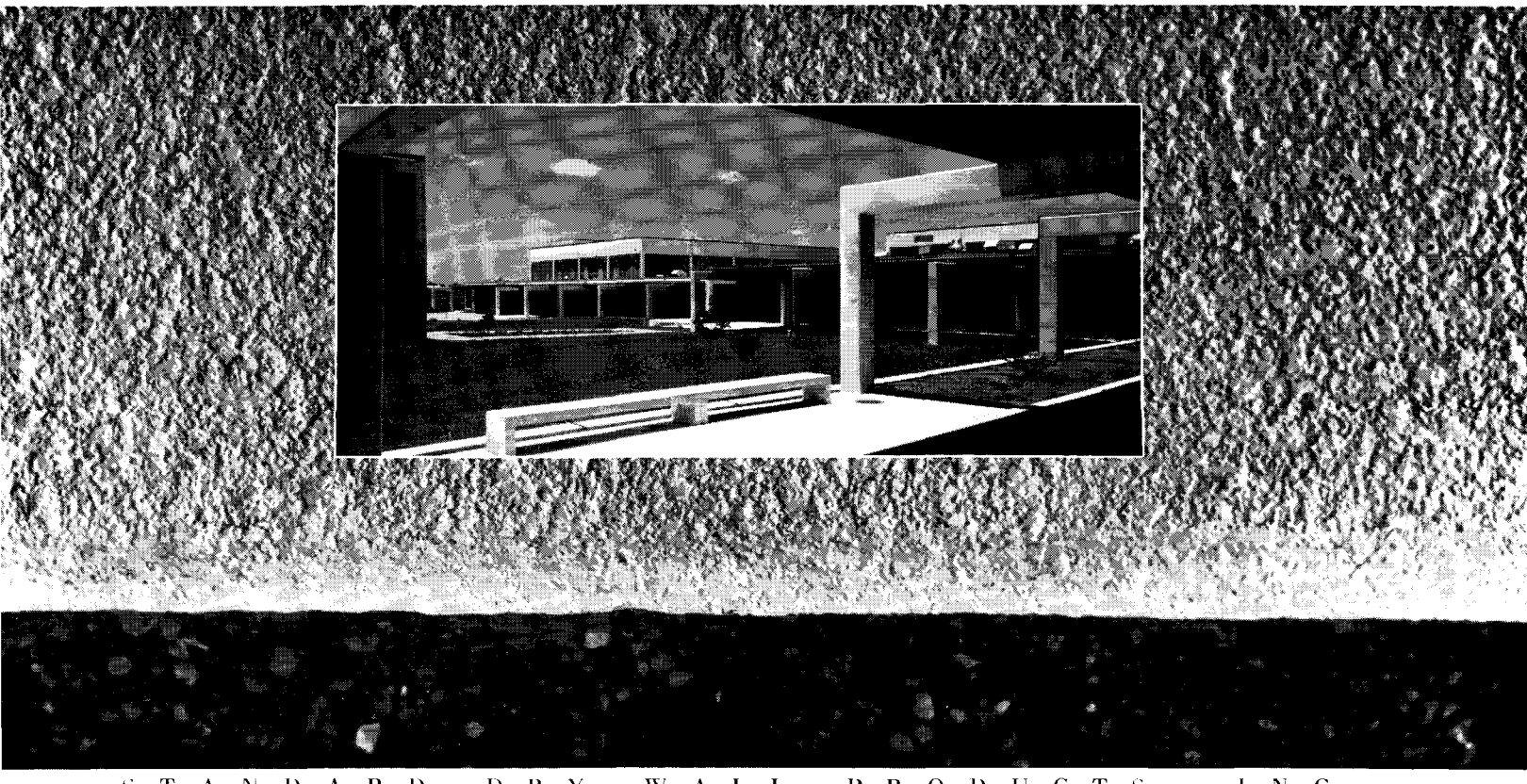

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Because of the enthusiastic acceptance of NatureTones, the Architects Advisory Council has added eight new tones, bringing the total now available from Institute members to 24. These additional hues broaden the range of browns, blues, greys, and provide the first pure white.

The new colors are accurately reproduced in a small folder and in a larger brochure containing all 24 colors. For your copy of the new brochure, just write Armco Steel Corporation, Dept. E-1317, P. O. Box 600, Middletown, Ohio 45042.

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LETTERS

SEMANTIC CORRECTION

Forum: A note about your description of me which appeared below my review article in your March issue. I have not attempted the registration examinations since receiving my degree in architecture from the University of Pennsylvania. I am only an associate member of the AIA and by the letter of the law I cannot be called a practicing architect.

C. RICHARD HATCH
Executive Director, Architects
New York City Renewal Committee in Harlem

ARTISTS AMID CHAOS

Forum: Congratulations to Forum for having someone as sensitive as Richard Hatch review the preposterous exhibit of "architecture and renewal" perpetuated by the Museum of Modern Art. The only aspect of this effort which should be relegated to the museums, and here to those of antiquity rather than contemporary life, is the assumption that the design of the human environment can be so readily conceived and portrayed. As Hatch points out, the problems of a humane environment are complex and defy the simplistic view of the architect's perspective and model. The profession has too long generated misconceptions as to the process of designing and building cities. The Museum of Modern Art does no one any good in proselytizing the role of the architect as artist in the midst of social chaos.

Were it not for Hatch's sensitive review, the best response to this exhibit would be to ignore its existence and hope that by the lack of applause all parties involved would learn not to repeat such a poor performance.

MORTON HOPPENFELD
Director, Planning & Design
Baltimore The Rouse Company

NERVI'S FIRST

Forum: It was indeed good to see your article on the George Washington Bridge Bus Terminal: "Nervi's Gilded Gateway" [March issue, pages 68-73].

However, is it possible that not only did the three architects polled not know the answer to the question "Where is Pier Luigi Nervi's first U.S. building?," but that the Port Authority terminal is *not* the first Nervi building in the U. S.?

As an undergraduate at Dartmouth College in Hanover, New Hampshire, I watched the construction of Nervi's Nathaniel Leverone Field House. That was in 1962. At that time I was under the illusion that the new fieldhouse was to be Nervi's first work in the United States. When Nervi spoke at Dartmouth at that time he seemed to be suffering from the same illusion.

Whether or not the Leverone Field House is Nervi's first American work, it is certainly a building deserving more attention and unquestionably one of the finest buildings on the Dartmouth campus.

WILLIAM D. MORGAN
Columbia University Architecture Student

Shall we call it a tie?—ED

TIME CAPSULES

Forum: You have failed to give adequate recognition of the advances that Colorado Springs had made between 1875 and 1901 (March Forum, pp. 84-85). Not only had the city developed extensively in an architectural sense, but a technological sense as well. For example, the 1901 photo of Colorado Springs shows that some people were driving vehicles which look just like the ones later made in 1958. Now that is real progress!

ANTHONY JAMES CATANESE
Dept. of Urban and Regional Planning
University of Wisconsin

As the caption indicated, 1901 was the year the Antlers Hotel was built at the vortex of Pikes Peak Avenue. The photo was taken years later.—ED

CALL FOR HELP

Forum: The Council for Parks and Playgrounds is currently gathering photographic material on park and playground design. This will be made available to community groups interested in securing better parks and playground facilities in their neighborhood.

If any readers have copies of photographs or slides relating to parks and playgrounds in the United States and abroad, would they please send them to Council for Parks and Playgrounds, 120 East 86th Street, New York, N. Y. 10028.

MRS. LAWRENCE BUTTENWIESER
New York City President

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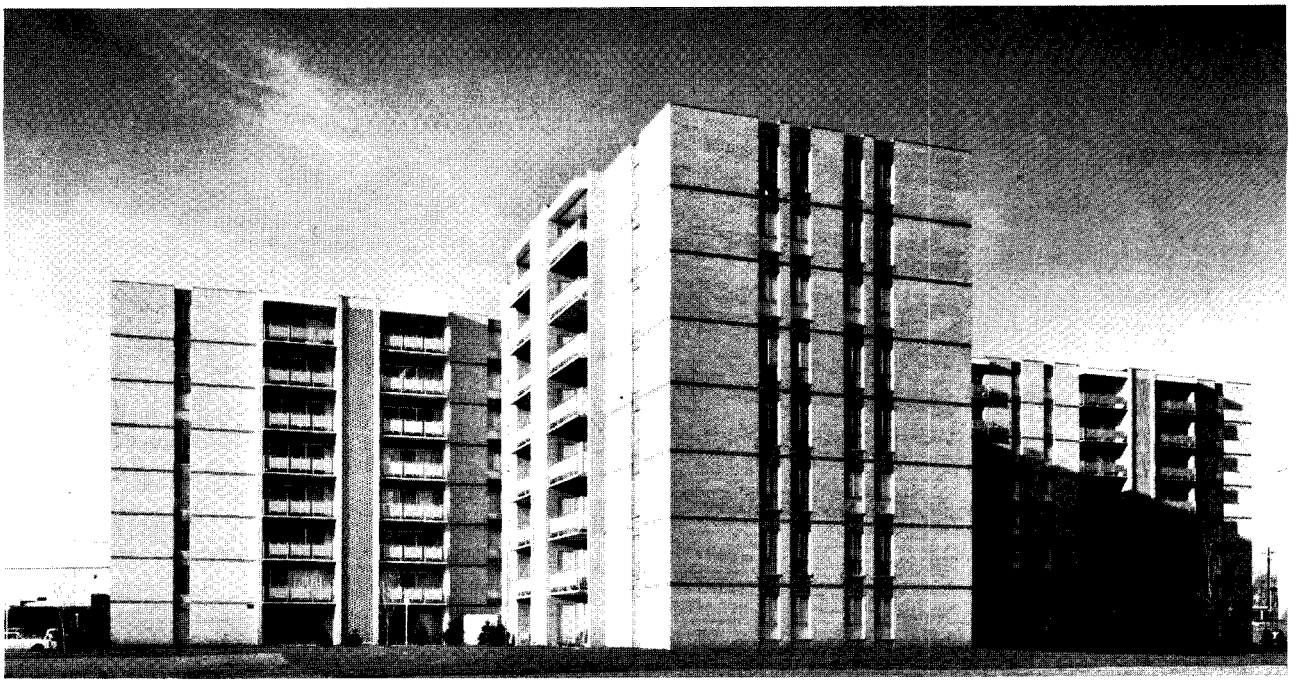


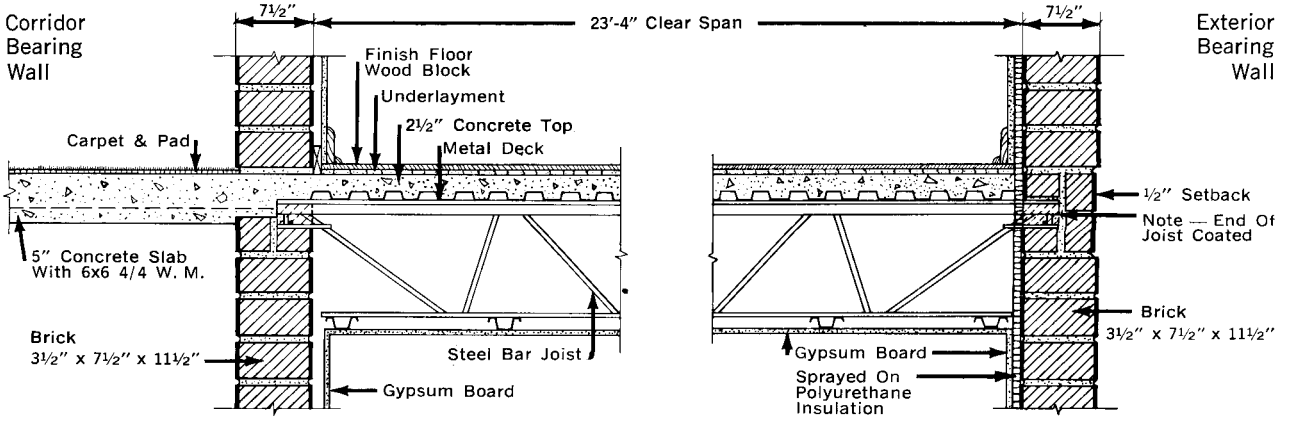
8" BRICK BEARING WALLS IN APARTMENTS

Oakcrest Towers III,
Prince Georges County,
Maryland

8" brick bearing walls are used through the entire eight floors of Oakcrest Towers III, located in Prince Georges County, Maryland, just outside Washington, D.C. Completed at a rate of one story per week, this apartment building contains 161,334 square feet of floor space. The contractor saved more than $1 per square foot of floor area by using brick bearing walls rather than structural frame. (Speed of erection also offers a savings in interim financing.) Construction was simple because all brick wall thicknesses are identical from the foundations to the roof. In essence, Oak Crest Towers III is a series of eight one-story buildings, one atop another.

Maintenance of corridor and shear walls is eliminated because exposed brick serve as the interior finish and as the structural walls. The 4-hour fire resistance of the 8" brick wall provides safety and low insurance rates. Privacy, extremely important to tenants, comes from brick bearing walls with 58 decibels sound resistance. Oak Crest Towers III is another significant example of the modern brick bearing wall concept, providing structure, finish, fireproofing, and sound control.

Architect/Bucher-Meyers & Associates
Engineer/H. L. Keller & Associates
Contractor/Banks Engineering Corporation



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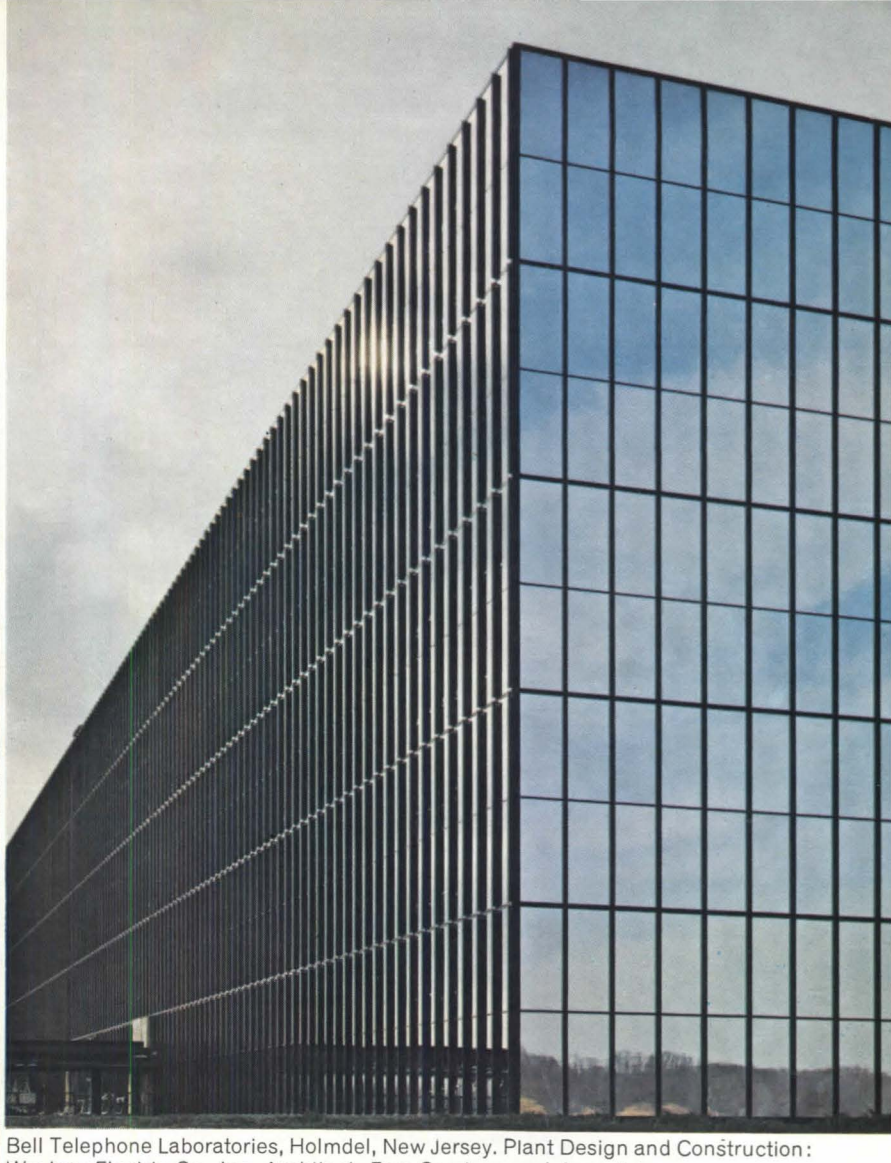

Bell Telephone Laboratories, Holmdel, New Jersey. Plant Design and Construction: Western Electric Co., Inc. Architect: Eero Saarinen and Associates.

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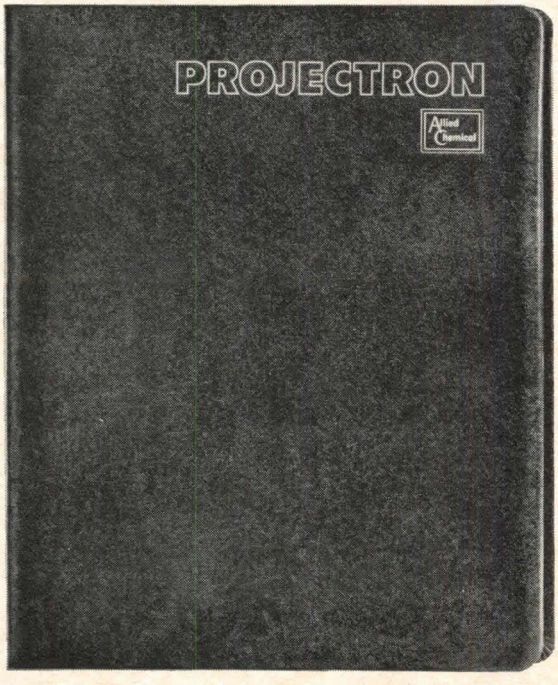

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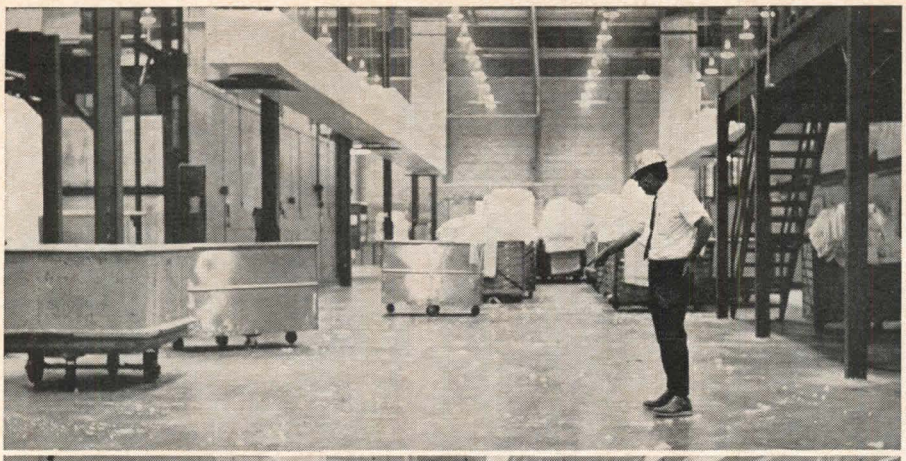
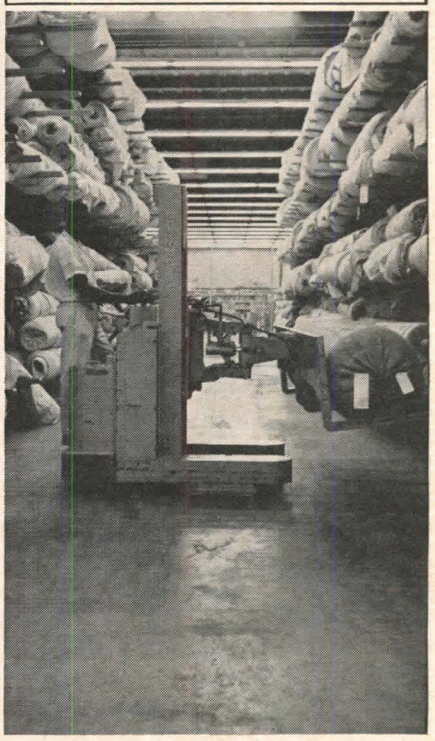


At the new Crandall Finishing Plant of Springs Mills, Inc., Wagram, N. C., one million sq. ft. of Masterplate floors withstand the wheeled abrasion of an 800-car tow system, 20 fork lifts, and countless hand trucks and carts.



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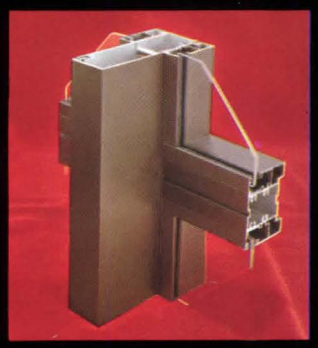

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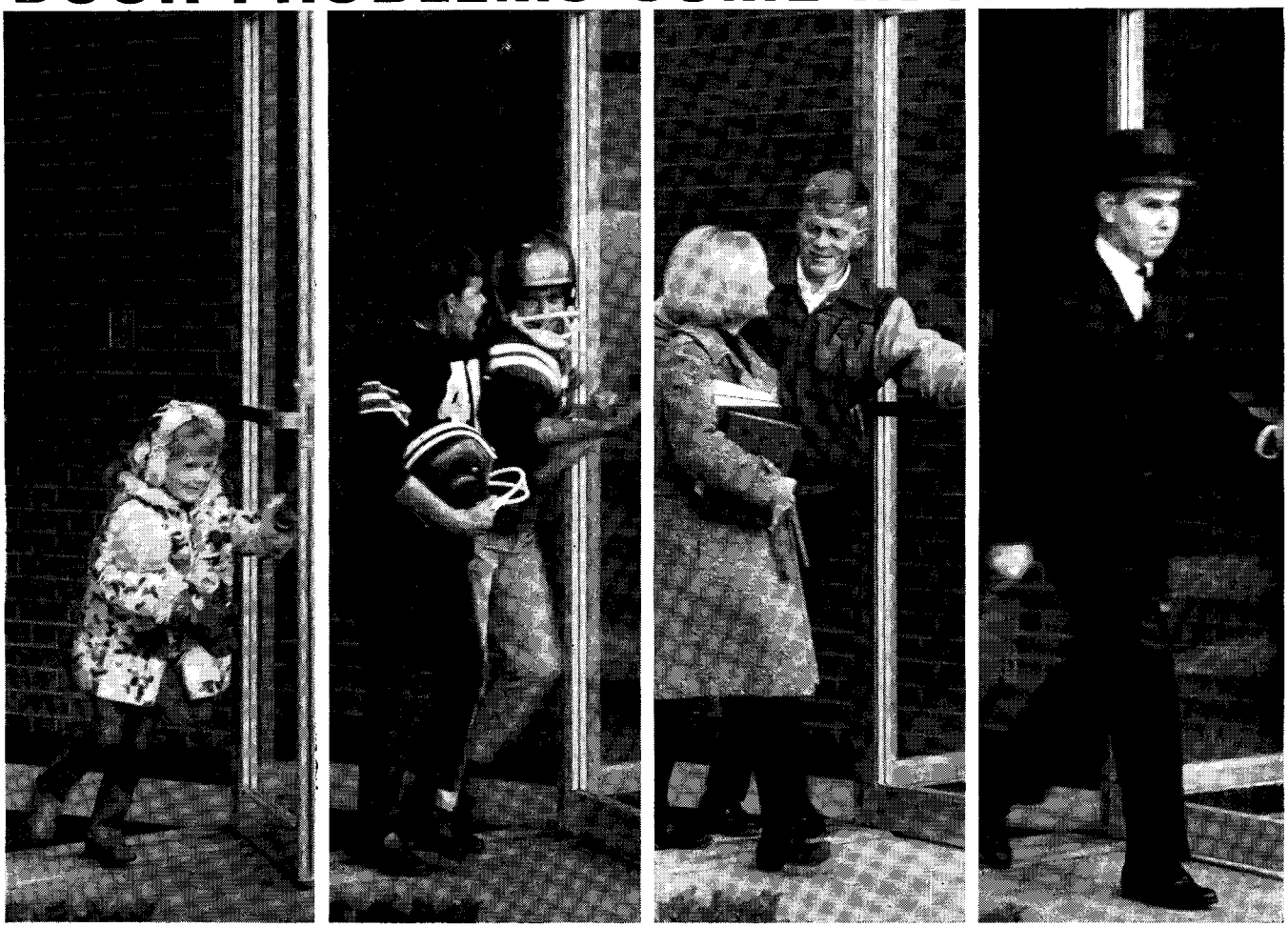

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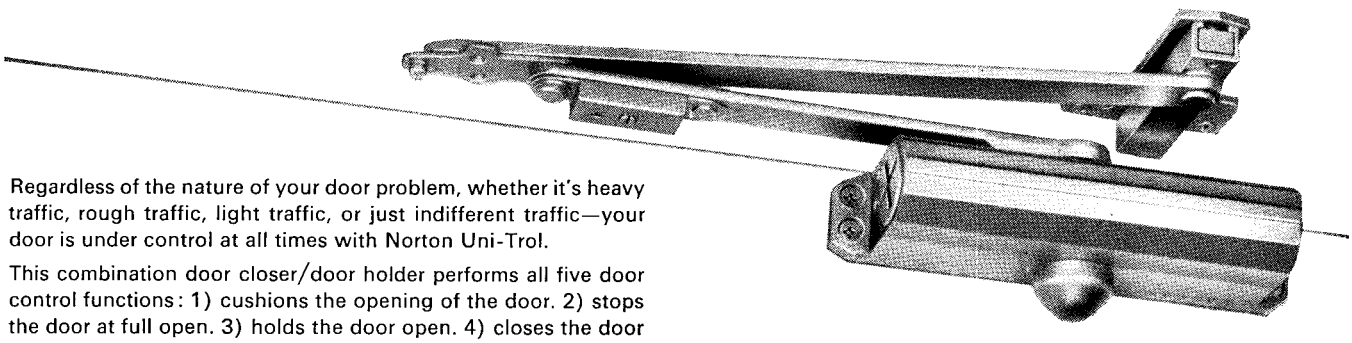

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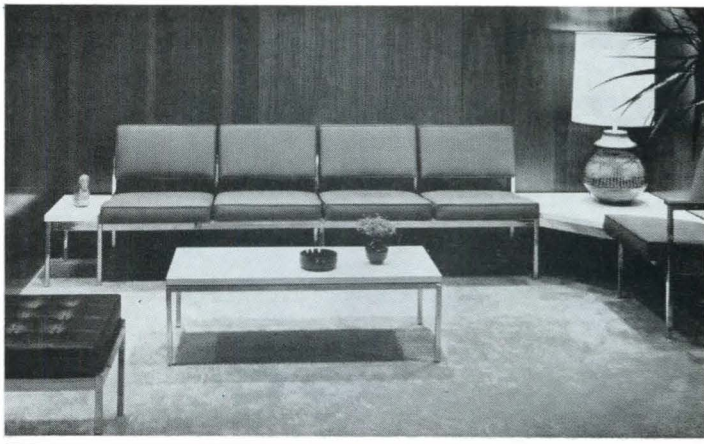

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FORUM

Last month, President Johnson released $350 million in additional Federal funds for highway construction and announced he would release another $575 million beginning in July. These funds had been frozen last December to counteract inflationary tendencies in the economy.

While this move was sure to help prevent the "recession" predicted recently by some experts, it was also supplying funds for one of the most ruthless, ill-conceived, and disastrous programs ever inflicted on America's cities.

Across the continent whole sections of cities are being torn apart and rendered virtually uninhabitable by those entrusted with these huge Federal funds — by the highway planners who are under enormous political pressure to spend the funds fast, and therefore without much concern for planning, design, or local preference. Examples:

▶ In Cleveland, Interstate 90 is slated to cut an eight-mile swath through 200 acres of city parks.

▶ In Milwaukee, highway engineers are "going ahead as scheduled" with plans for a freeway that would slash through a tree-lined boulevard and a prized park on Lake Michigan, even though the issue is on the ballot this month.

▶ In Chicago, a 22-mile crosstown stiltway will loom as much as 45 ft. above ground, even though the city is spending $1 million on a study of how to get rid of a similar mistake, the Loop El.

▶ On Staten Island, the highwaymen are sticking to their plans to put a 300-ft. wide section of freeway through a precious greenbelt area, even though an alternate route proposed by Mayor John V. Lindsay would save the greenbelt and cost only slightly more.

▶ In New Orleans, the highwaymen are getting ready to plunk a 40-ft.-high expressway along the historic Vieux Carré, cutting it off from the riverfront (Mar. issue).

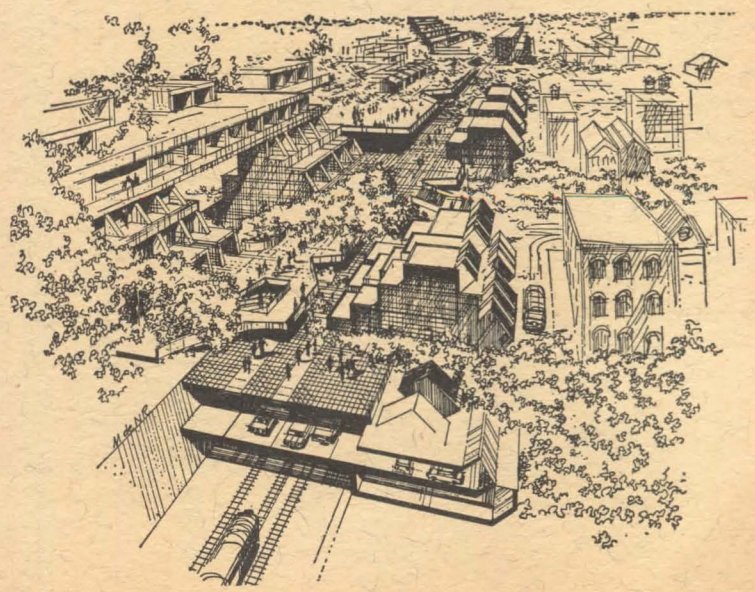
This multibillion-dollar nationwide wrecking operation directed, deliberately or not, against the American urban scene, makes the constructive efforts of HUD (e.g., $11 million for model cities this year) look ridiculous by comparison. Moreover, after years of protest from citizens, local officials, and urban designers from coast to coast, the Federal highwaymen can no longer plead ignorance: they are fully aware of the ruthlessness of their operations.

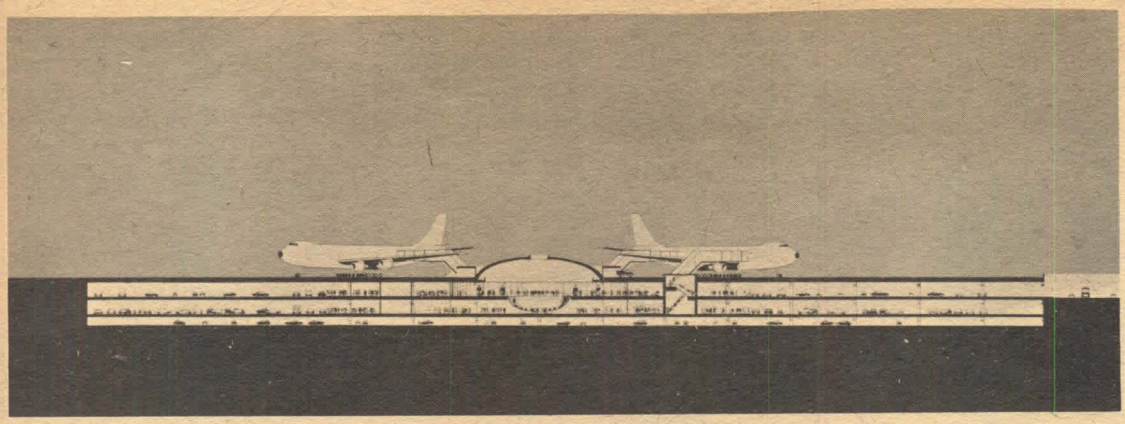
It is time an administration that professes to be concerned with such matters as urban blight and urban design put a stop to the urban desecration practiced by its own all-powerful agents.

THE PROCESS IS THE PRODUCT

New York's Mayor John V. Lindsay last month released an imaginative and eminently workable scheme for a "linear city" to run 5½ miles on air rights over a proposed cross-Brooklyn expressway. It was promptly rejected by the Bureau of Public Roads which, in its infinite wisdom, had long since picked another route.

The mayor's proposal, prepared by Architects McMillan, Griffis, Mileto, called for a "spine" of schools, colleges, houses, and community facilities along the route (below), providing a much-needed





PROGRESS

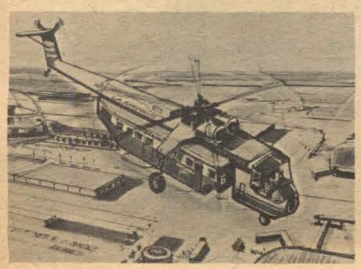
DOWN WITH TERMINALS

Los Angeles International Airport's future passenger terminals may go underground, freeing the increasingly congested surface for the forthcoming jumbo jets and supersonic transports.

The scheme, now on the drawing boards, would incorporate parking, public roadways, and passenger concourses below grade, with aircraft ramps on the surface (section above). Only domed skylights, limited in height to allow free wing movements, would show above the surface.

Adjustable, mechanically operated "snorkle" escalators would transport passengers from the boarding concourse directly up into the planes. The terminal might even have a huge elevator-lounge for carrying 250 passengers to the planes' doorways—an idea borrowed from the elevators on aircraft carriers.

The city's Board of Airports is also looking into better ways of getting people to and from the airport. One possibility put forth by its planners is a "skylounge" (below) that would pick up passengers at downtown points, then be picked up itself by a flying crane-type helicopter and flown directly to the airport in about eight minutes.



FAR-OUT LANDINGS

Meanwhile, airport planners in both Los Angeles and Chicago are looking into the possibility of "floating airports." The one serving Los Angeles, dubbed a "seadrome," would be located some five miles out in the Pacific, accessible to the mainland by passenger helicoptors. It is now under study, according to Mayor Sam Yorty, as a "far-out look into the 1980s."

Chicago's version, proposed by the Chicago Association of Commerce and Industry, would not really float. Its site, located several miles out in Lake Michigan, would be encircled by a dam and pumped dry (above). An underwater tunnel would give it a direct physical link with the Chicago area. So far, the proposal has received no official support.

MULTISTORY BURIAL

Along with floating airports and underground terminals comes the newest answer to the growing shortage of urban space. The Greeks have a word for it—catacombs.

The latest word from Athens is that an acute shortage of burial space (and skyrocketing prices for any new acreage) is prompting the city to build an underground cemetary in the heart of the city. The long corridors will be about 30 ft. underground, more or less following the layout of the existing cemetary above. Bodies will be inserted in the walls, and no statuary will be permitted.

All plans have been cleared with the Greek Orthodox Church, which finds no prohibition against multistory burial. Cremation, however, is banned.

CITIES

A BETTER CONDUIT

The National League of Cities last month blasted the Federal-state tax sharing proposals now before Congress (Mar. issue) and put forth a city-oriented counter-proposal of its own.

Stating that "there are compelling reasons for not allowing the states to administer or even to decide how to allocate Federal funds intended to aid localities," the league suggested that the Federal Government make "unassigned grants" directly to cities, starting with $1 billion the first year and building up to $26 billion by the tenth year.

Basing its statement on an economic study of Federal tax sharing prepared for it by TEMPO (General Electric Company's center for advanced studies), the league said U.S. cities face a revenue gap of $262 billion over the next ten years, $125 billion of which can only be closed by the Federal Government.

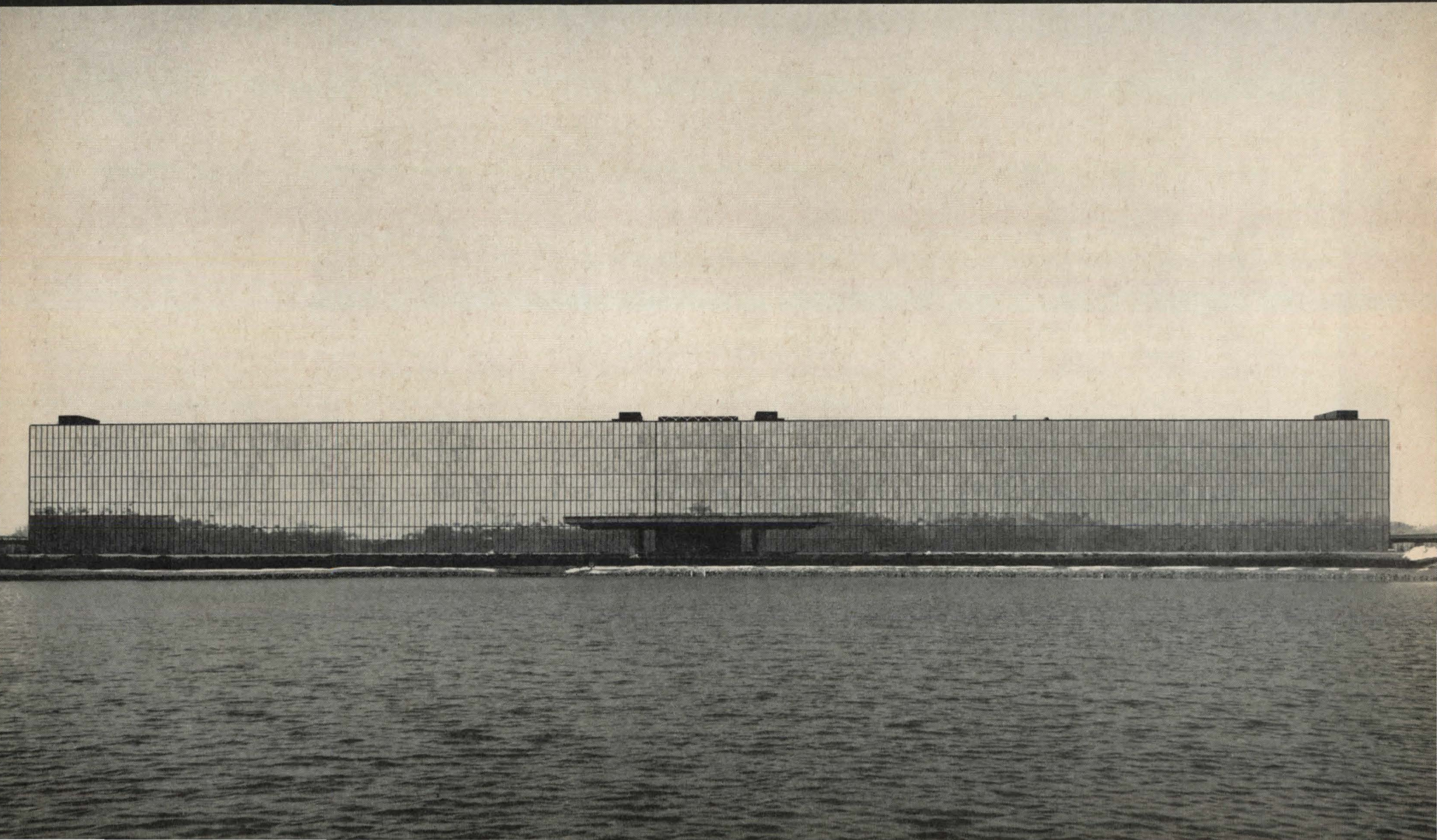
"Using the state as a conduit is justified only if the state adds value to the services being supplied," said the league. Judging from the past performance of state governments, such a possibility seems highly unlikely.

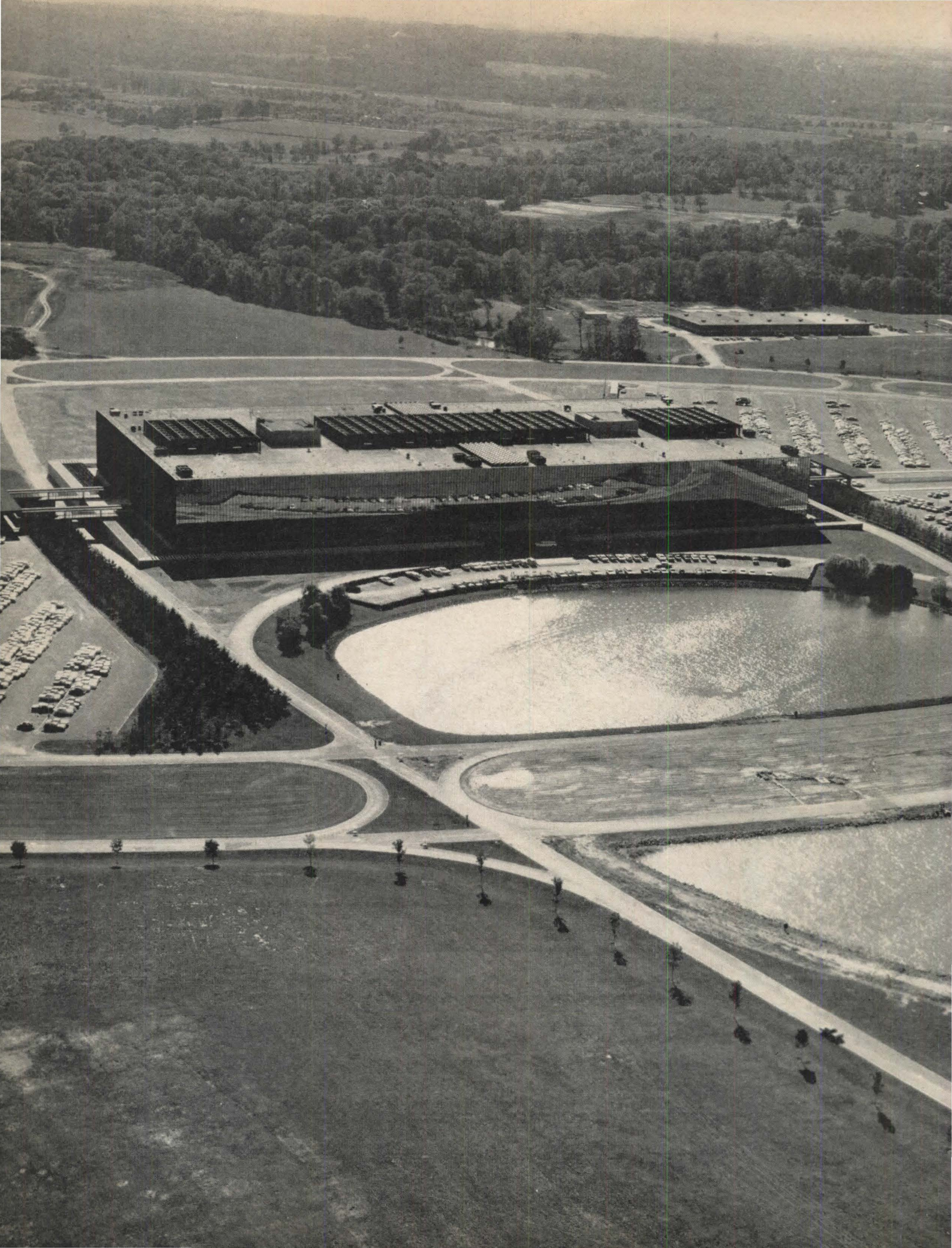
GAUGING THE 90TH

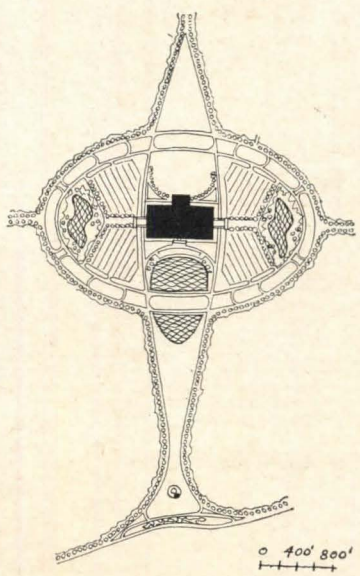
To no one's surprise, President Johnson's urban message to Congress, dispatched March 14, of-

(continued on page 87)

THE BIGGEST MIRROR EVER







Now fully grown and mirror-clad, Bell labs occupy a palatial site

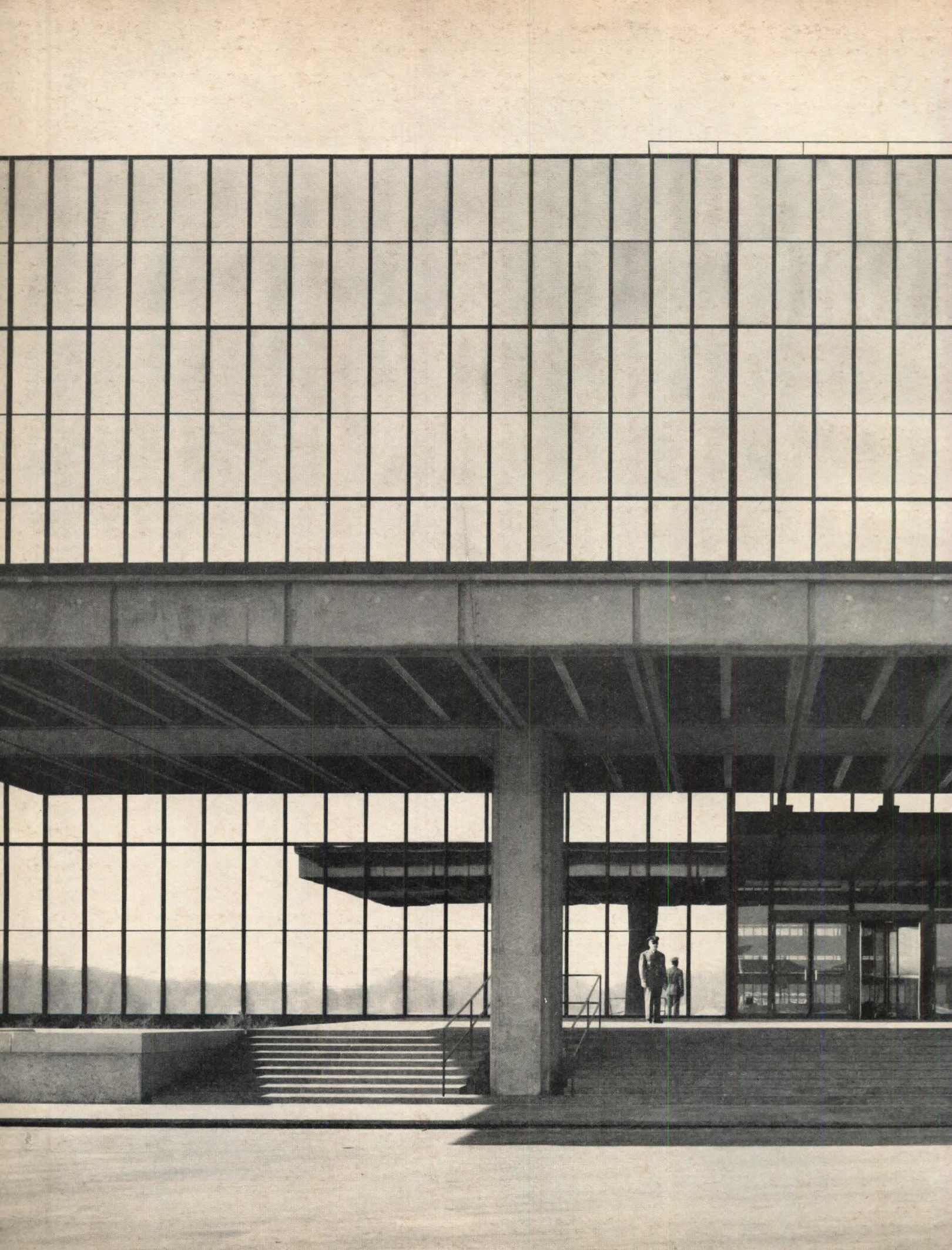
Ten years after he began to plan them, Eero Saarinen's laboratories for Bell Telephone in Holmdel, N. J., are now a physical reality. The first phase of construction, completed five years ago (see Oct. '62 issue) was little more than a preview. It contained half of the eventual working space, but lacked the two features that make the final product spectacular: an all-mirrored exterior wall and a vast interior garden.

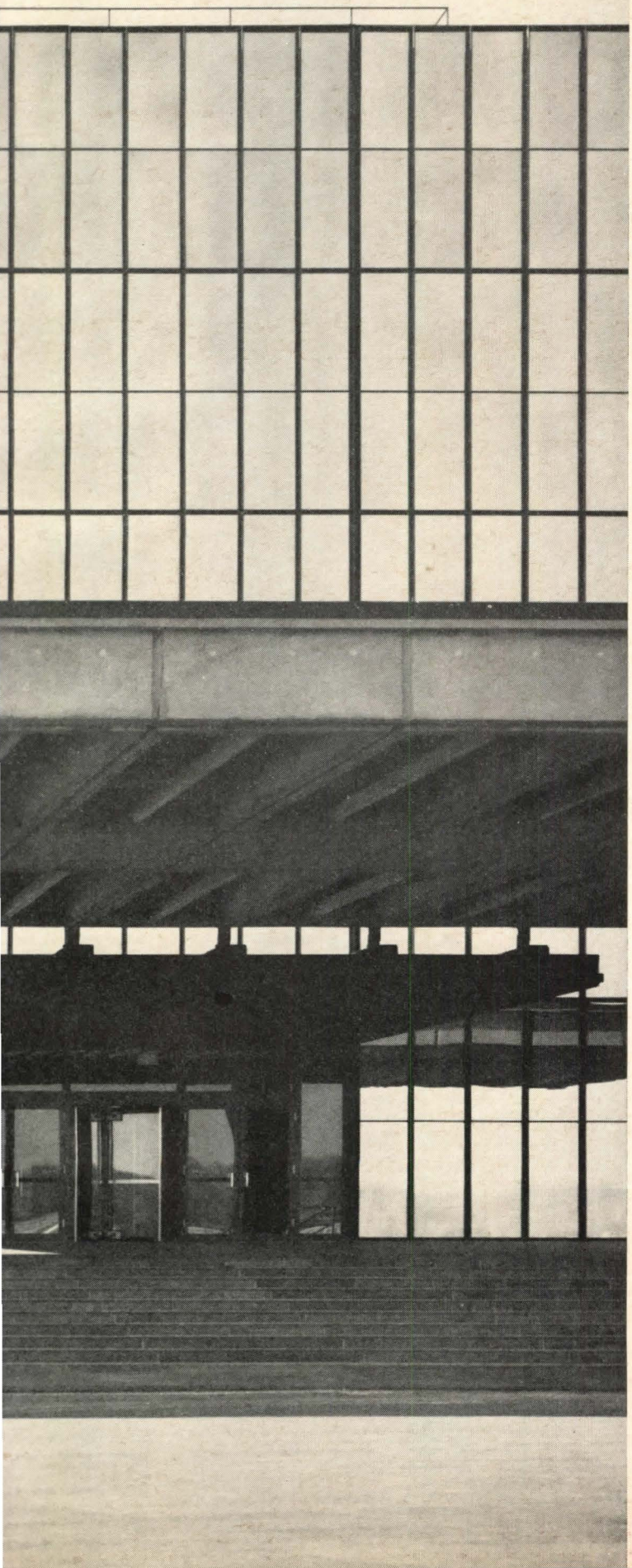
The mirrored wall has the eerie effect of turning a 12-million-cu.-ft. structure into an ephemeral pattern of rolling hills, shifting clouds, or of parking lots—depending upon one's point of view. Sometimes the black aluminum mullions look like a mere screen around a patch of landscape—or, rather, four separate patches that don't match at the corners.

The surrounding real landscape is remarkable in itself. At first, the plan has a look of megalomania about it; one imagines bulldozers flattening acres of woods and knolls. But that is not what happened at all. This field, at the heart of Bell's 460-acre tract, was virtually as flat to begin with as it is now.

The seemingly monumental site layout is actually quite efficient. Employee parking areas accommodate a staff of 4,500, and none of them have to walk more than 650 ft. to covered bridges that lead over service drives and into the building. The first-time visitor, however, runs the risk of straying on the way to the visitors' parking area (by the reflecting pool) and driving miles in an oval holding pattern.

The ponds, like the roads, were planned with more than monumentality in mind. The six-acre pool in front of the building is part of the air-conditioning system and has hundreds of spray fountains arrayed in an arc. All ponds are available for fire-fighting in case the 300,000-gallon water tower at the entrance to the grounds runs dry.





By daylight the glass walls show only the sky and landscape

Mirrored exterior walls were part of Saarinen's original design for the Bell labs, but his ideas were running ahead of technology. When the first phase was built, only enough special glass could be produced to cover part of the south wall.

The architects foresaw technical advantages in using mirrored glass—the same type long used in one-way mirrors—as an exterior wall material, and experience at Bell has proved them right. Solar heat gain through the section of wall where it was used was so low, despite the southern exposure, that the practical-minded client was willing to replace almost two acres of heat-absorbing glass on the original portion of the building.

The mirrored glass performed so much better because the 70 to 80 per cent of heat energy that is blocked out is reflected rather than absorbed. The glass itself, therefore, does not become a source of radiant heat on the interior.

The glass is made reflective by spraying an evenly dispersed film of metal powder—in this case, a combination of aluminum and chromium—on the back of ordinary glass; then a second sheet of glass is laminated to the first one to preserve the very delicate film. After the try-out at Bell, the Saarinen firm used mirrored glass again on the Deere & Company offices at Moline, Illinois (see July '64 issue), adding gold to the powder to produce a different color effect.

Like any one-way mirror, the Bell wall reflects on the side where the light is stronger and appears transparent from the darker side. At dusk (photo at left) the secretive mirror gradually discloses the organization of things behind it. At first, only the pattern of ceiling lighting—a very revealing one—can be seen, along with ghostly images of the surrounding landscape. When total darkness comes, Bell looks just like any other glass-walled building, but more orderly.

Behind the big mirror: monumental spaces at no extra charge

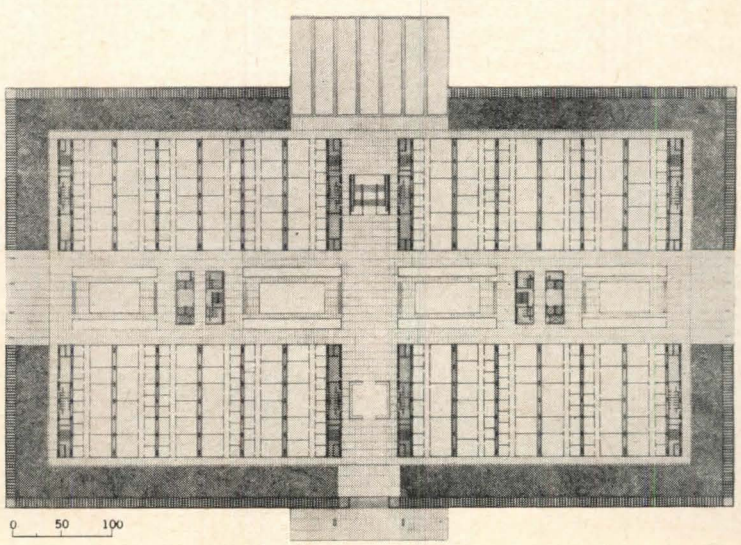
Unified as it appears from the outside (by day, at any rate), the Bell building is really four buildings in a single vast package. From the outset, the client set a maximum of 5,000 employees and decided to divide them among four equal blocks, to be built two at a time.

Throughout the four blocks, a single basic unit of plan is repeated: a line of 24-ft.-deep labs coupled with a row of 12-ft.-deep offices across a 6-ft.-wide corridor. The labs are placed back-to-back along utility corridors with structural columns in them; the office rows are separated by sound-deadening storage walls between columns. The whole block is then ringed with main corridors.

With this layout, nobody—regardless of rank—has an exterior office. On the other hand, nobody has to go more than 60 ft. from his own door to a main corridor with a lively view.

Once the four blocks were laid out in a close rectangle (to minimize distance between them), it was clearly more economical to roof the spaces between than to wall in each one separately. The big dividend was a central covered garden 700 ft. long, 100 ft. wide, and 70 ft. high. Intersecting it like transepts are a reception lobby (right) at the front of the building and an employees' lounge at the rear.

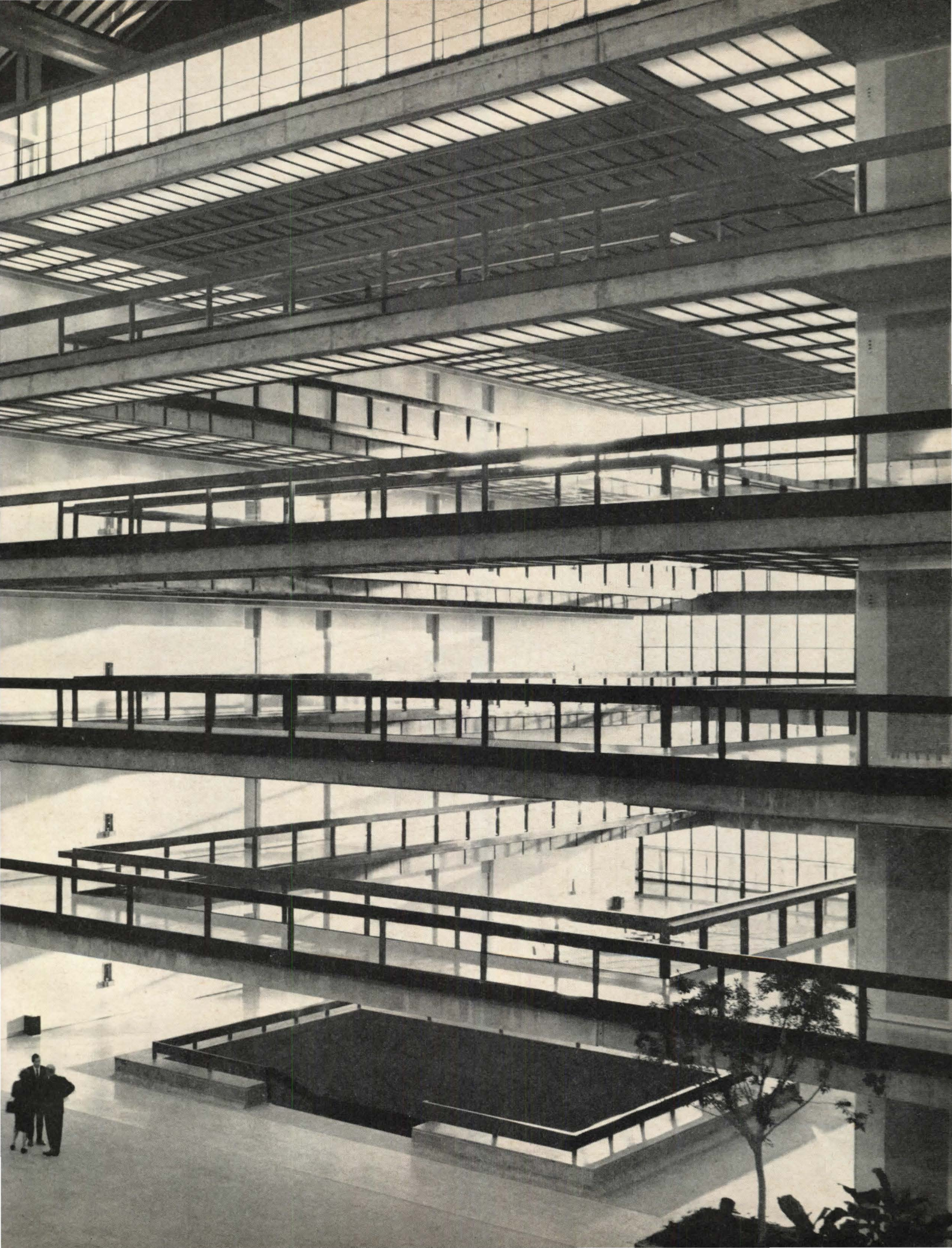
With all of their majestic formality, inside and out, the Bell Labs are, as Kevin Roche put it, "economical working spaces, with no phony mechanical shafts." The client obviously agrees. The working spaces of phase two duplicate, virtually detail for detail, those of phase one.



FACTS AND FIGURES

Bell Telephone Laboratories, Holmdel, N. J. Architects: Eero Saarinen & Associates. Landscape architects: Sasaki-Dawson-DeMay Associates. Engineers: Severud Associates (structural); Jaros, Baum & Bolles (mechanical and electrical). Building area: 1,200,000 sq. ft. (gross). Construction cost: $34,000,000. PHOTOGRAPHS: *Cervin Robinson.*

A skylight of heat-absorbing glass framed in self-oxidizing steel spans 100 ft. across Bell's interior garden. The classical layout of spaces is broken up by bridges at every floor. The stair at right leads down to a cafeteria overlooking fields to the rear.



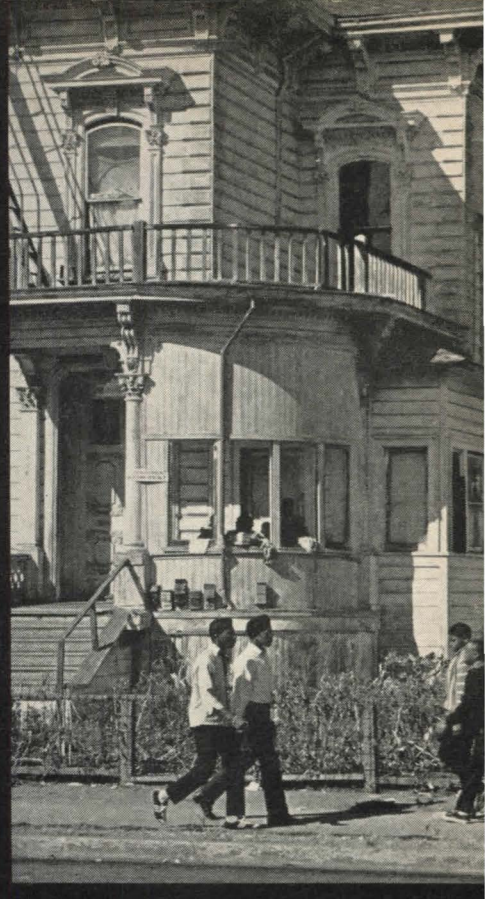
OAKLAND PRESENTS ITS CASE FOR SALVAGING A GHETTO

Soon, HUD willing, the bleak and dismal neighborhood pictured above, and the lives of those who live there, will be transformed by the newest and biggest weapon in the Federal Government's antislum arsenal: the model-cities program.

The place is West Oakland, a cheerless swath of flatland where 50,000 people, 70 per cent of them Negro, live in conditions as oppressive, stultifying, and potentially explosive as any in the country. This month, the city of Oakland will formally ask HUD to include West Oakland among the first group of areas to be designated for model-cities treatment.

Certainly, it would be hard to find a ghetto more in need of help. Even Los Angeles' Watts and San Francisco's Hunters Point, both better known because of the violence that erupted there, are generally acknowledged to be better off than West Oakland. Moreover, the city's plan of action for West Oakland dovetails neatly with the major goals to which the model-cities program is committed. It would:

- Coordinate city, state, and Federal programs and funds in a massive attack on the problems of a whole neighborhood covering 10 per cent of the city's land area and containing 14 per cent of its population.
- Concentrate on rehabilitation, rather than clearance, and sharply minimize displacement problems by pooling the large back yards in the area and building new units on them before some existing structures are remodeled and others removed.
- Give every present inhabitant of the area the opportunity to remain if he wishes.
- Provide a variety of community facilities, recreation spaces, and other amenities.
- Improve the number and scope of social and welfare services,



West Oakland, a somber mixture of raw industrial blocks (left) and once-fashionable Victorian houses (above), is acknowledged to be one of the nation's worst slum ghettos. Now, the city of Oakland, with HUD's help, hopes to turn it into a "model city."

and expand job and business opportunities.

▸ Involve citizen participation throughout the planning and development process.

▸ Overhaul the entire school system in West Oakland, with the help of the University of California, in an effort to make its educational standards equal to, or even better than, those elsewhere in the city.

A fresh breeze

The breadth and scope of the West Oakland program would be impressive coming from any city. Coming from Oakland, it seems just short of a miracle. For decades, the West Oakland ghetto had been neglected and its mounting problems ignored or mishandled by a long succession of insensate city administrations. Then, two years ago, a scandal forced the resignation of Oakland's Mayor John C. Houlihan, and John H. Reading was picked by the city council to replace him. Reading brought a new air of constructive pragmatism into city hall.

The program for West Oakland began as an early morning breakfast conversation between the two men who later were to play important roles in its development: John B. Williams, executive director of the city's redevelopment agency, and Marshall Kaplan, a San Francisco planner. Williams, who had recently come to Oakland after working with the Cleveland redevelopment agency, was looking for ways to restructure and revitalize the city's slums without putting the inhabitants through the agonies of massive clearance and relocation. And Kaplan, who suggested the meeting, thought he had the basis of a solution.

Most of the residential areas in West Oakland, Kaplan noted, were characterized by decaying, Victorian-style houses fronting on long and narrow lots, with generous backyards. Why not, suggested Kaplan, find a way to take advantage of this "open space," most of which was not being used, except as a repository for junk. Williams bought the idea, ordered his staff to do an evaluation study, and named Kaplan as staff consultant to lead the effort.

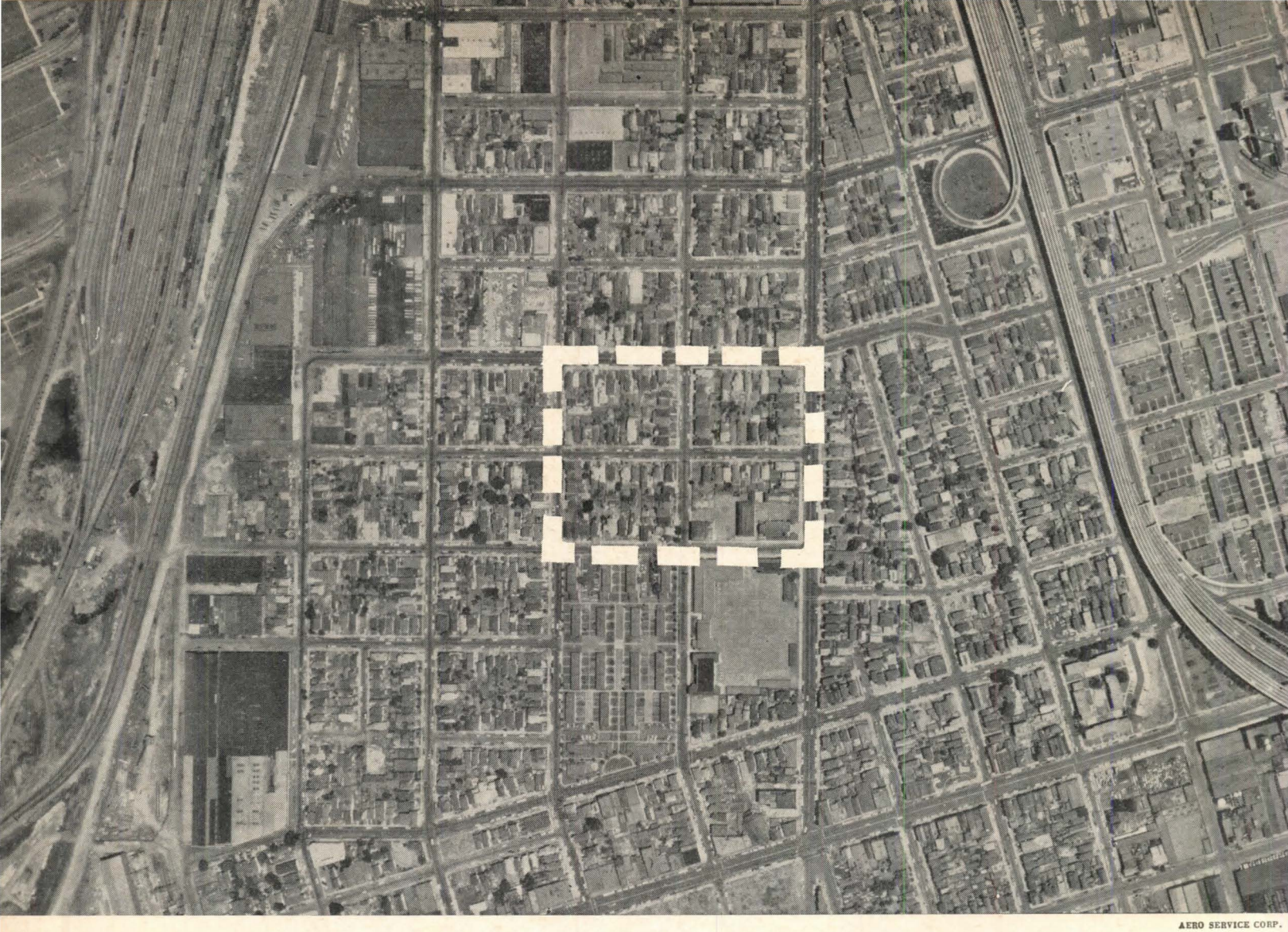
Later, the study was broadened to include social problems and carried on by a multiagency task force under City Manager Jerome Keithley, with Kaplan as consultant.

Instant plans

To find out first of all what the people of West Oakland needed and wanted, members of the agency's staff and designers from Kaplan's office (Marshall Kaplan, Gans & Kahn) conducted a series of highly unusual interviews with some 500 residents of the area. During each interview, while the resident talked to the agency man, the designer translated his statements into a two-dimensional design plan. Then the plan was shown to the resident and, if necessary, altered on the spot to conform with his views.

The interviews revealed that housing condition was not the main worry of West Oakland's residents. Most of them rated educational disadvantages, the lack of recreational and community facilities, and unemployment ahead of housing as problems requiring priority action. Their major housing concern was the fear that renewal might force them to give up their present housing and move out of the neighborhood. They were almost unanimously enthusiastic about Kaplan's backyard idea because it offered a better alternative.

The key to the West Oakland model-cities proposal is the



AERO SERVICE CORP.

group of four blocks shown opposite in plan and outlined on the aerial view above. The four blocks are real, selected by the planners as the site of a model prototype for rehabilitation of the entire area because they mirror the physical and social conditions typical of West Oakland: the median income of the 197 families living in the four blocks is $3,000, about half that for the city as a whole; nearly a fifth of those in the labor force are out of work; none of the dwelling units meets the city's code requirements. Moreover, the housing pattern is typical: long, narrow lots; houses fronting on the streets; large backyards.

As shown opposite, the plan for the four blocks prepared by Kaplan and the redevelopment agency is a microcosm of all the diverse programs and techniques that would be pulled together to revitalize West Oakland. In a carefully phased program, the backyards would be cleared, new housing units would be built on the site, and salvageable houses would be remodeled.

Residents of houses that are considered too far gone to save would be allowed to remain until the new units were built. Then the occupants would move into the new housing, and the vacated structures would be torn down to make way for new open space or community facilities. Streets between the blocks would be closed off to become new recreation zones.

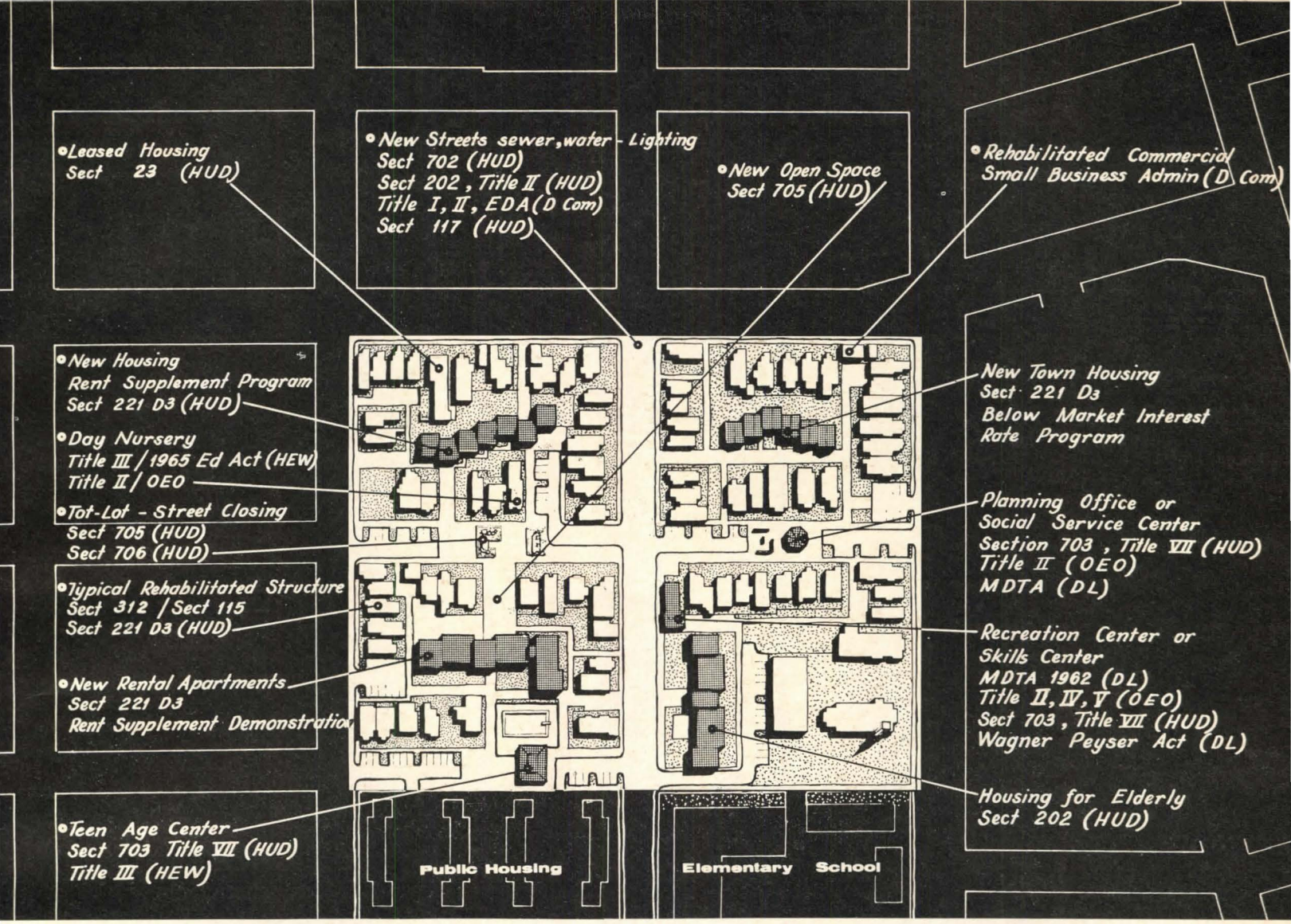
To bring down the price of the rehabilitated houses, the plan proposes that the write-down provision of the Federal urban renewal program be extended to include rehabilitation. Under the proposal, the city would purchase owner-occupied houses, rehabilitate them, and sell them back to the same owner at a write-down. This, combined with existing Federal rehabilitation aids such as grants and low-interest loans to homeowners, would reduce sale or rental prices to within the means of most of the area's low-income residents.

To encourage full citizen participation in the planning process, a locally controlled planning office would be built on the site. Later it would be converted into a permanent "little city hall," a convenient dispensing place for all city services in the area. "Instead of being an enemy," says Kaplan, "city hall would be a part of the neighborhood."

Educational void

Significantly, the program gives a high priority to upgrading the quality of education in West Oakland, proposing a top-to-bottom restructuring of the school system within the area. Education in the ghetto, and its relationship to the area's physical and social problems, was the subject of a year-long study financed by a $25,000 state grant and carried out by a team composed of staff members of the redevelopment agency, the school district, and the University of California, with Kaplan again serving as consultant.

The interviews had disclosed that most of West Oakland's citizens felt their children were being shortchanged by the Oakland school system, and a report produced by the study team confirms this view. The report notes that a full 50 per cent of the *students entering* McClymonds, the high school that serves West Oakland, have reading abilities below the seventh-grade level, and that the elementary school children test far below their counterparts in other parts of the city. "Apparently there is a void between the desire of the Oakland Unified School District to achieve educational excellence



for all and the result," it stated.

But the problems of education, the report points out, cannot be attacked in isolation. "To be enveloped in an environment whose only signals read poverty and despair cannot help but mute enthusiasm for formal education," it notes. "Tensions created by broken homes, unemployment, and low incomes obviate the best efforts of the best teachers in the best facilities.

"Obviously the schools cannot in effect go it alone. To restructure our slum areas, in order to provide increasing job, education, housing, recreation, and health opportunities will require a massive effort by all levels of government as well as increasing participation by all citizens."

Cottages and labs

As one innovation designed to "negate early educational deficiencies," the study group has proposed the immediate creation of small "cottage schools" for preschool children throughout the area, using existing remodeled houses. Some children, with their parents' consent, would actually live in the schools with teachers and staff members, some of whom might be University of California graduate students or parents themselves. Hopefully, the schools would provide a stable "family" atmosphere and an intensive educational experience for youngsters whose home environment discourages learning.

Another proposal calls for the setting up of experimental "educational laboratories" throughout the area, designed to seek solutions to specific educational problems, such as teacher-student relationships, dropouts, delinquency, or the slow learner, or to carry out more generic programs, such as constant evaluation of the curriculum, teacher education and training, teaching processes, the relationship of education to the environment, and the use of new technology.

Before the millennium

The plan stresses the importance of integrating West Oakland's schools, which now have virtually 100 per cent Negro enrollment, but it takes the realistic view that meaningful integration is some years away. "A comprehensive program to improve the quality of education in the McClymonds area need not await the millennium," asserts the report. "To do so would sacrifice present students to ideological and semantic rigidities. Indeed, to delay the attainment of excellence in the schools would deny another generation of Negroes choices open to most white students."

To carry out the detailed planning of West Oakland's revitalization, the city is asking for some $500,000 in model-cities seed money from HUD this year. But if Oakland loses out against the tough competition that is expected to be generated for the meager $11 million that HUD has available for the first round of model-cities planning, the city need not abandon the program, Kaplan claims.

He points out that 125 Federal programs of all types and sizes are currently underway in Oakland, adding up to an expenditure of some $100 million. "If a way could be found to coordinate all these programs and direct them systematically toward a set of overall goals, we could still get the job going," says Kaplan. He points to the interagency task force under the city manager as an encouraging step in that direction.

"For a city that has a historic legacy of alienation from the problems of its slum ghettos," Kaplan declared, "it could be a fresh start." —JAMES BAILEY

DOUBLE-DECKED VILLAGE

At first glance, this little cluster of houses and apartments near London seems pleasant, but not particularly remarkable. But on closer inspection, some very impressive qualities begin to stand out—qualities almost wholly lacking in comparable housing in the U.S.

The first of these is usually called "organic." For, incredible as it may seem, this tiny development on all of 1.22 acres of a former Victorian garden is, in fact, a highly imaginative prototype for a multilevel city, in which cars and pedestrians move on separate levels.

The second quality possessed by this little group of dwellings is a "sense of place." These 37 units are not merely a housing statistic dumped on some available property; they are, instead, a tightly knit "village," centered upon a small "piazza."

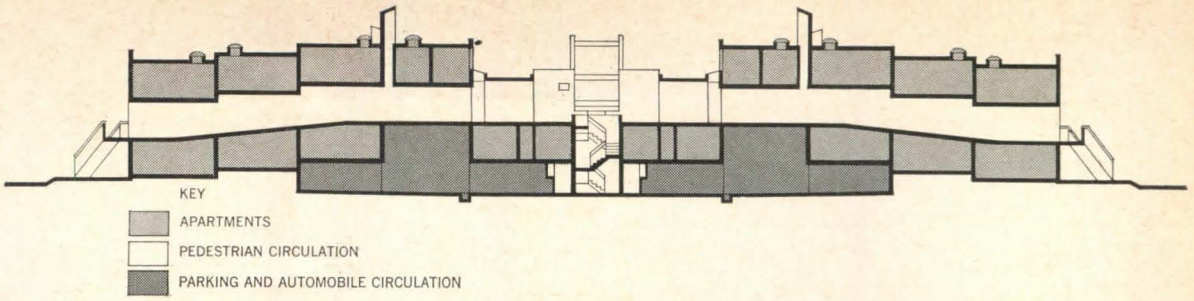
And the third quality possessed by this cluster is "variety." Although this is a moderate-rental project (constructed by a nonprofit housing association formed under the British 1962 Housing Act), the group of 37 units is made up of six entirely different types of apartments ranging in size from "bed-sitting-room" units to 3-bedroom houses, three stories high. Yet the entire cluster of 37 units is, in effect, one building.

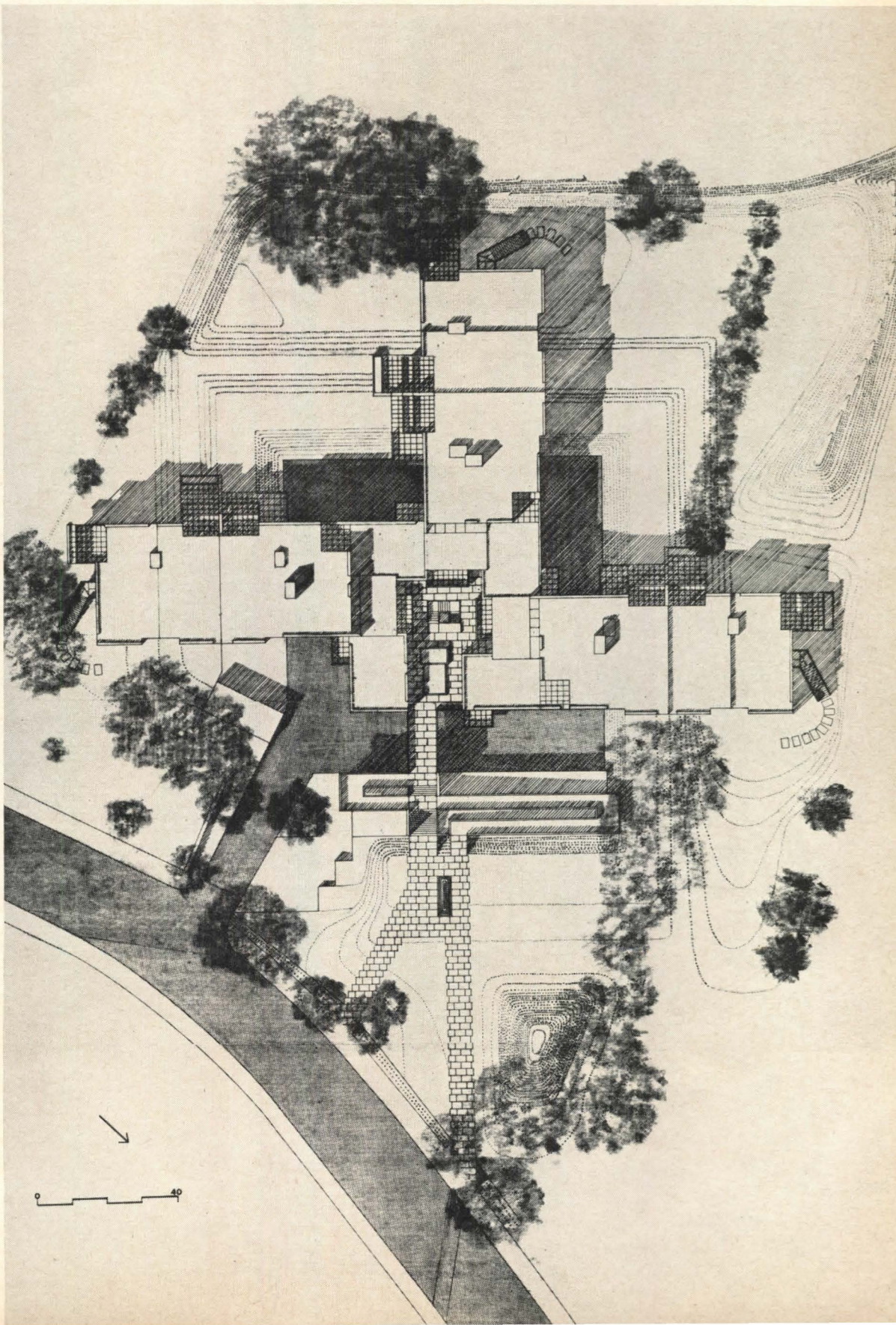
Organic plan

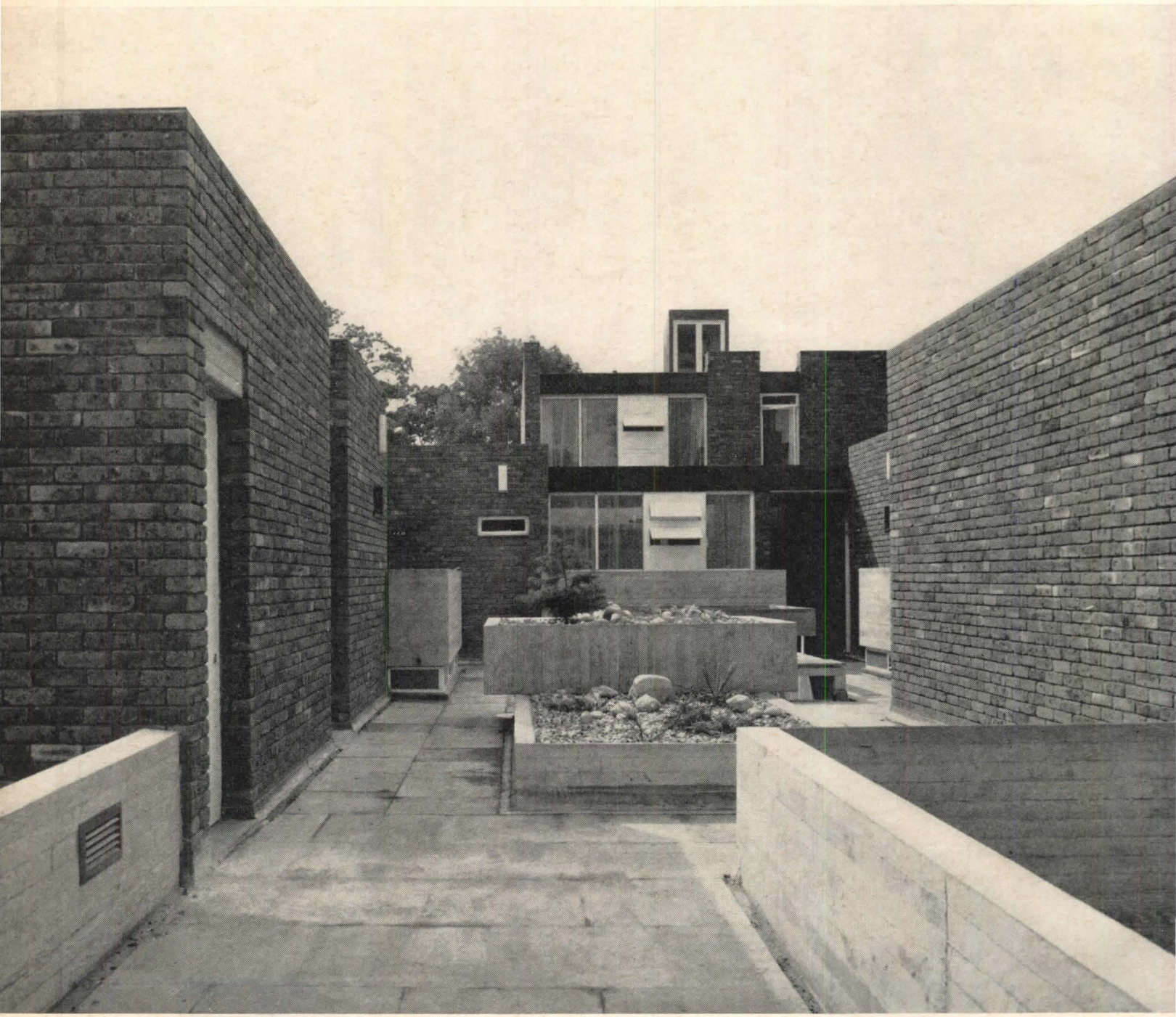
Briefly, the cluster is arranged in the form of a pinwheel, with the fourth wing of the pinwheel removed. The three remaining wings separate the small site into public gardens. (Some beautiful existing trees were retained by the use of the spread-out pinwheel plan.)

At the lowest level (see section, top right) there is an automobile access road that forms a loop under the entire building complex, and is ringed by about 40 garages or parking spaces. The center of this loop contains, in addition to some garages, storage areas, entrances to the four 3-story houses, and a common hall and central stairwell that serve the entire cluster.

Having parked his car on this level, the tenant then climbs up







the central stair and emerges in the small piazza at the hub of the pinwheel plan. From this piazza extend three covered passages that form the access spines to the three wings of the pinwheel. Entrances to all the remaining dwelling units are from these covered passages. The passages terminate in steps that lead down into the gardens (see second plan, top right).

Tenants or visitors arriving on foot can enter the cluster either by a broad flight of steps that leads up to the piazza, or by way of a ramp that terminates in the piazza also. Thus, mothers with baby carriages need not maneuver stairs.

In short, the organization of this little cluster of dwellings makes it appear like a small-scale model of a modern, multi-level metropolis. This may have certain drawbacks—e.g., some of the devices used to separate pedestrian from vehicular traffic appear out of scale with a small development—but on the whole, the result is strikingly successful.

A sense of place

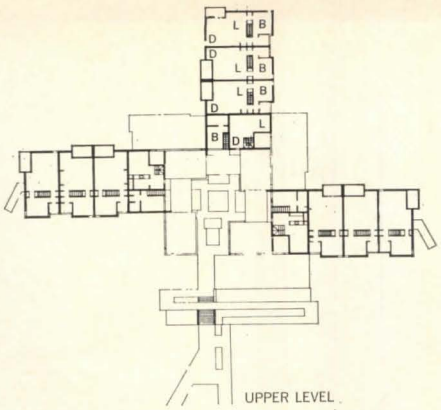
The idea of creating a small piazza at the center of the cluster (left) is further evidence of the originality of this plan.

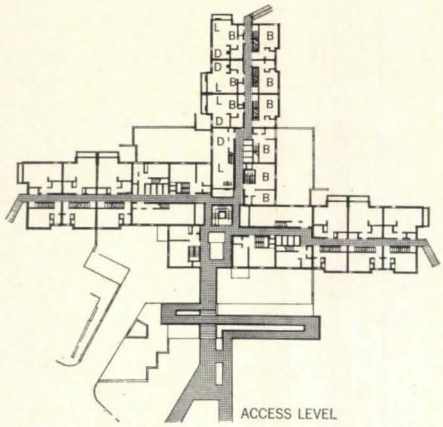
The piazza measures all of 40 ft. by 30 ft. (at best), yet its very smallness seems in proper scale with the size of the cluster. The piazza is not merely a formalistic cliché; it is the essential circulation hub for all tenants and visitors, the entrance court for pedestrians, and part of the vertical circulation core that takes motorists to their apartments. Though it might have been pleasant to have a small "general store" on the piazza, the size of the project could not have supported such a commercial venture.

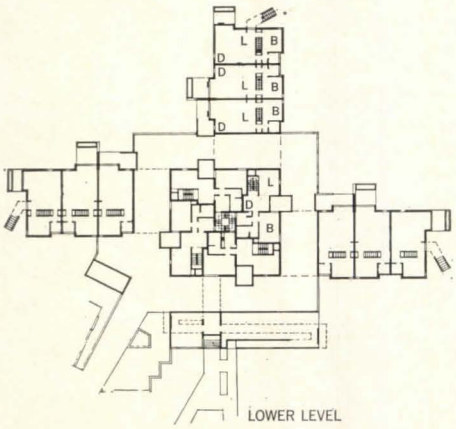
While the piazza is the central meeting place, there are also balconies off all apartments to provide private outdoor space (photo, right).

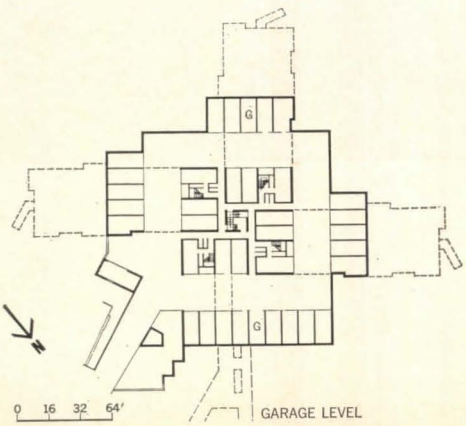
Variety of units

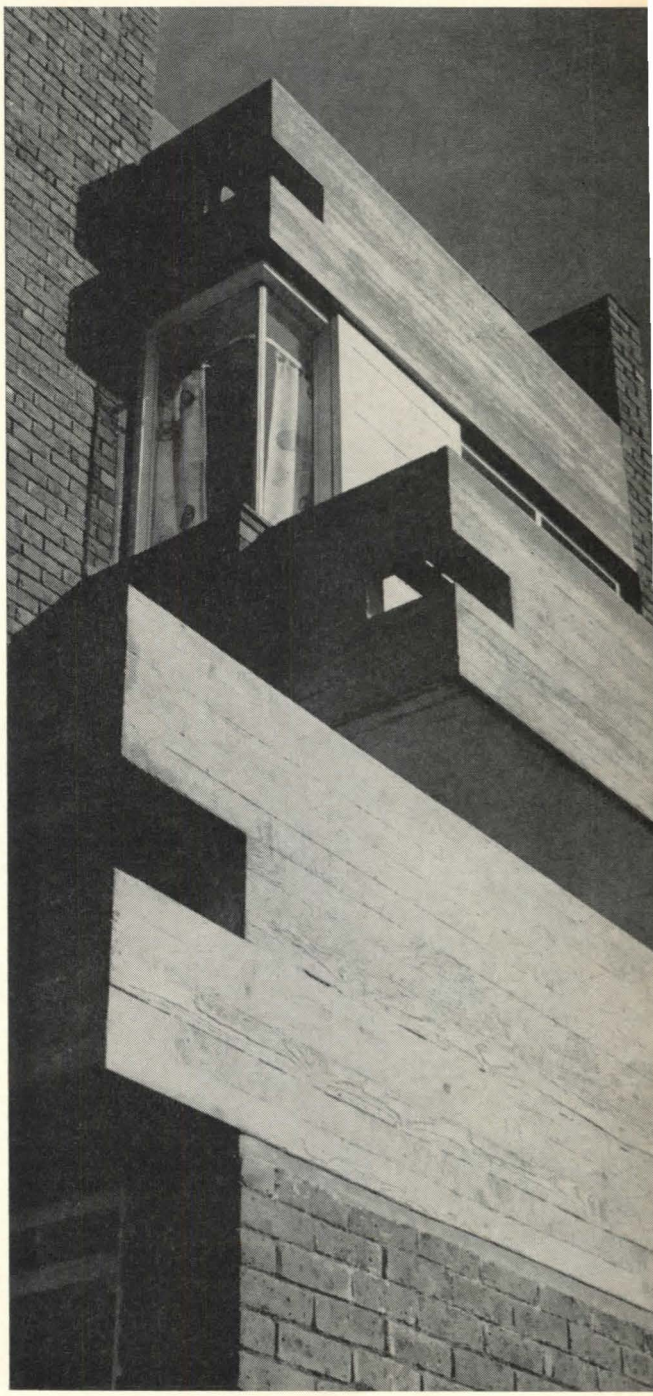
The plans of the three principal levels (previous page) show six entirely different dwelling units. The ones grouped around the









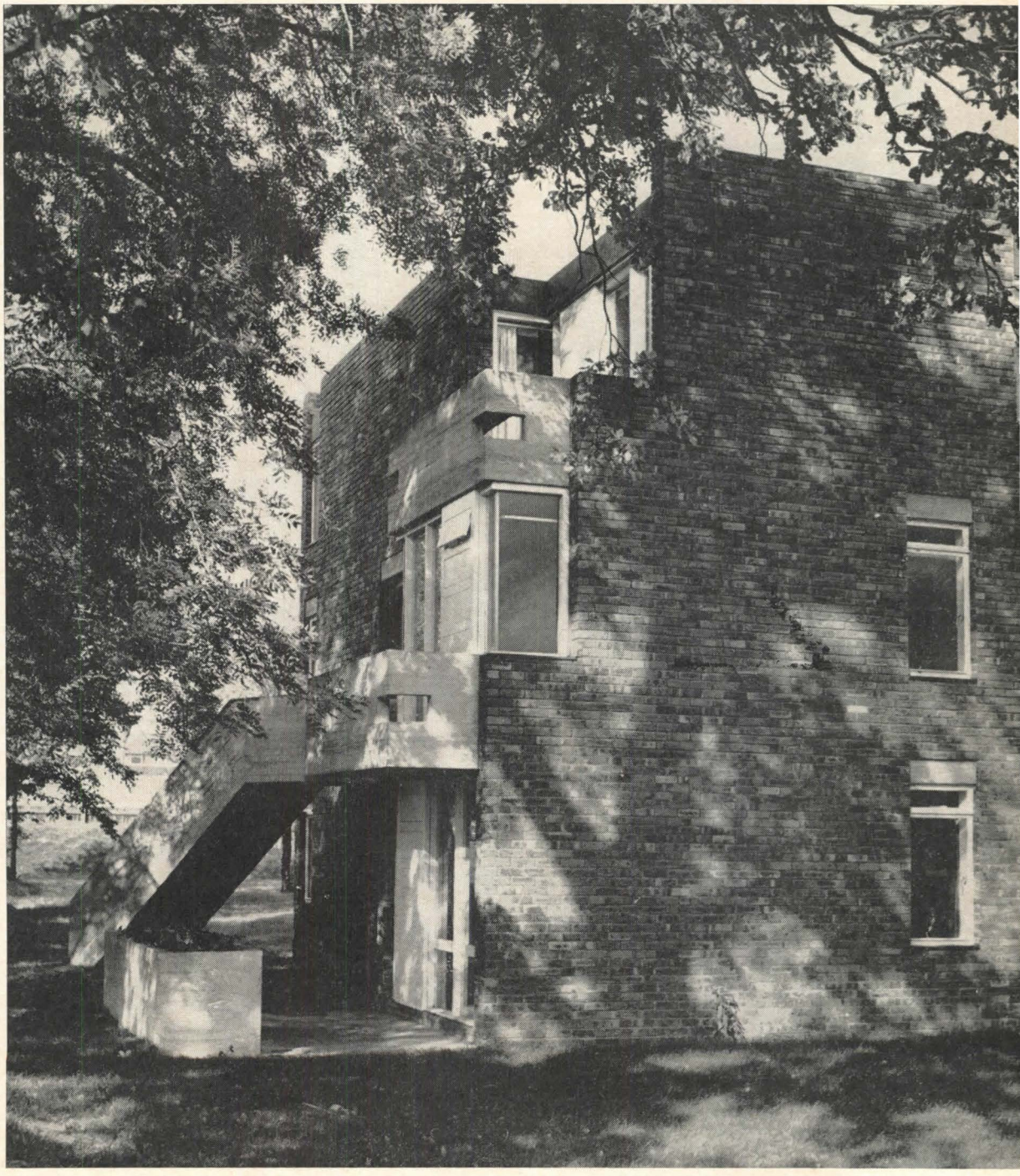


central stair are 3-story-high, 3-bedroom houses; and the ones accessible from the covered walks that radiate from the central piazza vary in size and type from nine efficiency apartments, through 15 one-bedroom units (of three different types), to nine two-bedroom apartments.

Except for the efficiencies, all apartments are duplexes. This spatial variety was made possible by the familiar skip-stop section of each of the wings: the access passage is on the middle-floor, and apartments are entered on both sides of the passage, and then extend upward or downward to occupy a full upstairs or downstairs bay. Thus each of the duplexes enjoys cross-ventilation and two different exposures.

The facades of the cluster-building reflect this great spatial variety within — possibly too much so. Still, to those accustomed to the deadly uniformity of most housing nowadays, the crazy-quilt patterns of these facades will seem a welcome relief.

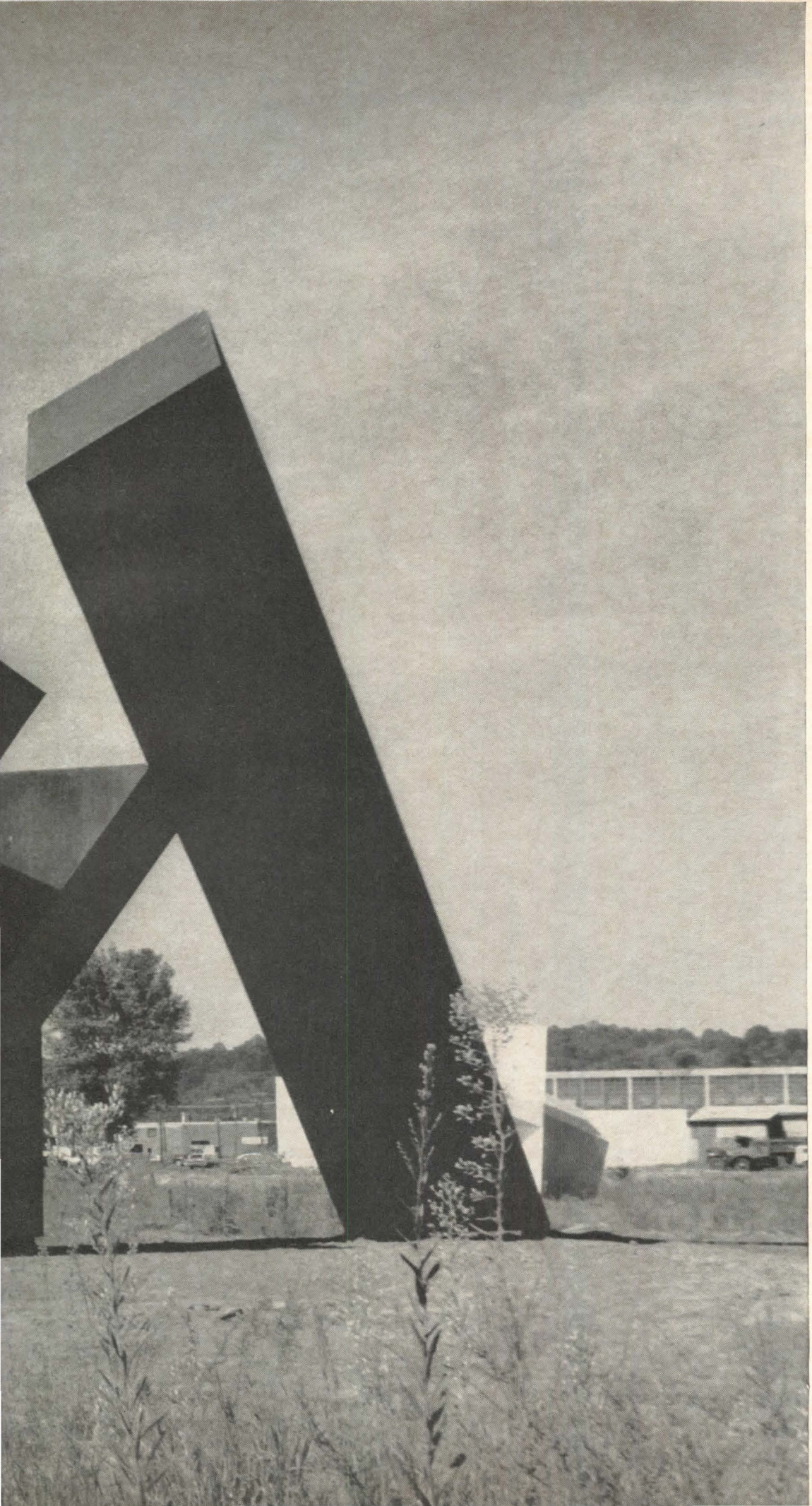
Obviously, this cluster development is not the cheapest way of building 37 apartments. However, there may be criteria more important than sq. ft. cost in the design of dwellings: people, given a chance to live in imaginatively designed apartments, might be willing to spend a larger part of their budgets on rents, and a smaller part on ways and means of getting away from it all.



FACTS AND FIGURES

Housing, Slough Lane, Kingsbury Green, London, England. Owner: Hastoe Housing Society Ltd. Architects: Clifford Wearden & Associates (associate staff: Peter Deakins, Tom Clayton, Maurice Eskenazi, Samuel Bettany). Quantity Surveyor: Young & Brown. Engineers: Thomas N. W. Akroyd (structural); F. Roy Nicholls (ventilating). General Contractor: Mullen & Lumsden Ltd. Building area (gross floor area): 28,712 sq. ft. Cost: £ 111,137 ($311,183).

PHOTOGRAPHS: Pages 46, 48, 50, Colin Westwood. Pages 49, 51, Sam Lambert.

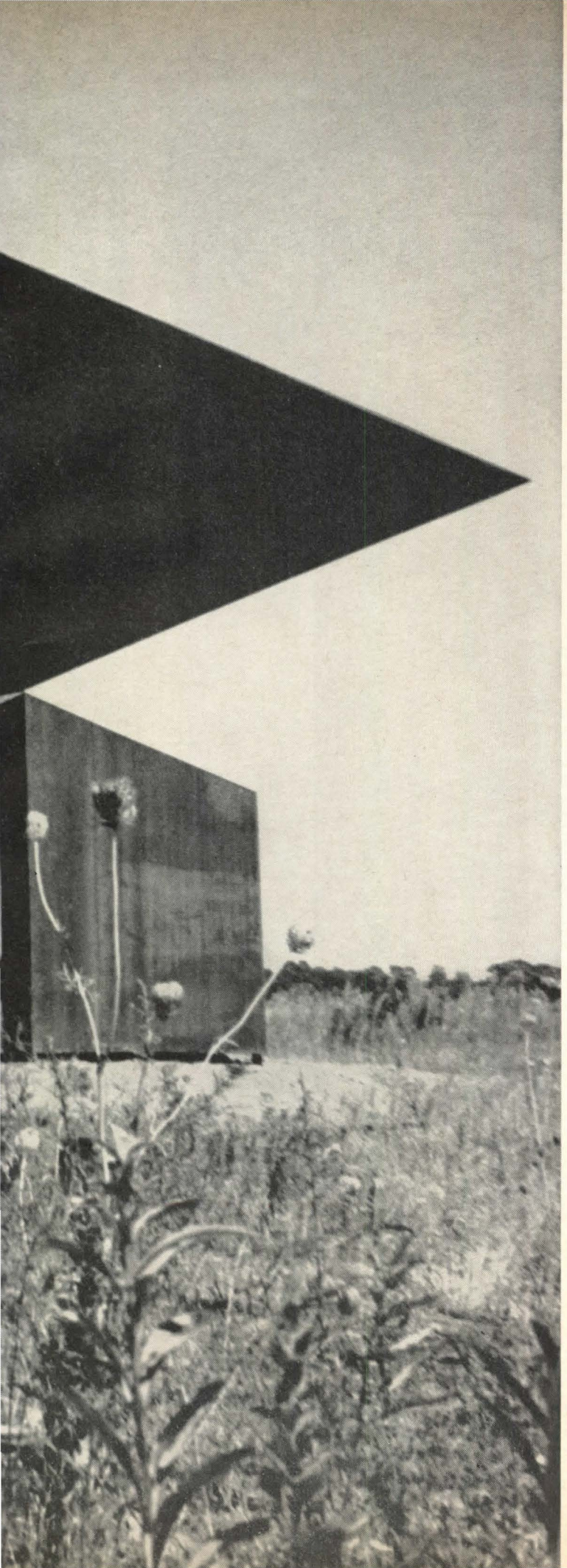


WELDED GIANTS

For months, steel objects have been rising in a weedy field on the industrial fringe of North Haven, Conn. The keeper of this unorthodox sculpture garden is Lippincott Environmental Arts, Inc., whose rangy young president, Don Lippincott, would never use a phrase like "environmental arts" aloud.

To fill an obvious demand for large-scale outdoor sculpture, Lippincott has set up a system that eliminates the doubts of working from models or mock-ups. The client is offered a finished, visible piece, with all costs known.

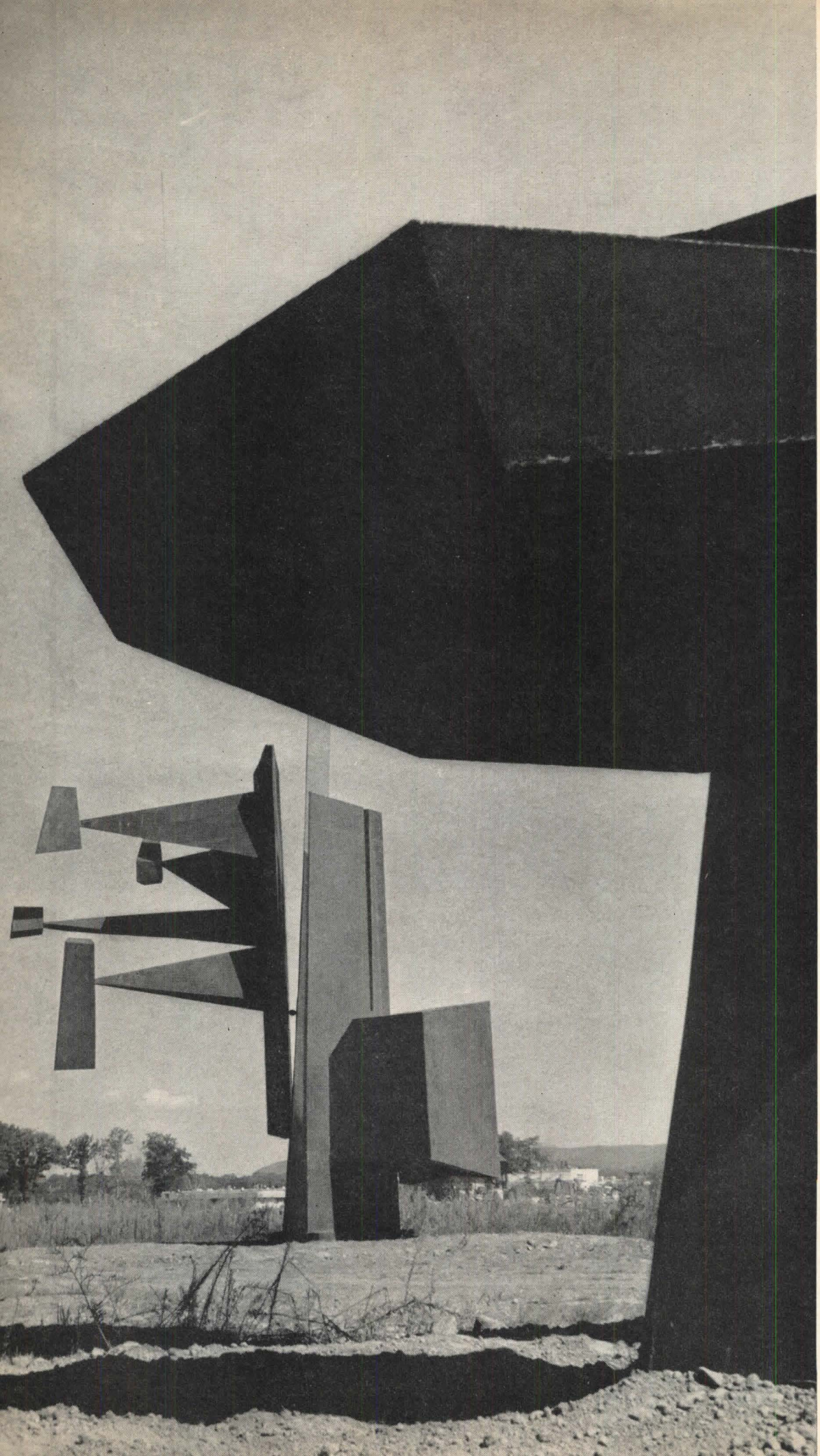
The largest, most "environmental" work in Lippincott's field so far is "Ursa Major," by William Underhill. This assemblage of primary forms, all in controlled-corrosion steel, measures 50 ft. from prow to rudder.



The vacant wing of a steel-fabricating plant gave Lippincott the space he needed. He hired two full-time welders, found a fuschia-painted crane, and set to work. The first pieces produced were by his younger brother Steve, a sculpture student, and William Underhill, a young but not unknown New York artist.

Self-oxidizing steel was used because it is cheaper, stronger, and easier to weld than other self-protecting metals. And, if color is wanted, this steel provides an excellent surface for painting before it oxidizes.

"Ursa Major" is meant to be seen from all angles (including underneath). In a broadside view, it seems to be pointing, but where it will finally point, nobody knows. Now it is in the field, acquiring a patina.



Work now in progress in Lippincott's shop includes a 14-ft.-high black painted cube, standing on one point, by Bernard Rosenthal. It is no mere cube, of course, but one with intriguing ins and outs. Another piece, by Robert Murray, will consist of two identical units side by side, adding up to an overall length of 30 ft.

Other pieces are now being designed by Robert Morris and Marisol. So far, all work has been in self-oxidizing steel, but other materials will be tried as the program grows.

Steve Lippincott's "Split Alliance" (left) is seen beyond a part of his "Royal Family." In Underhill's "Sphinx" (right), the steel has been painted to bring out the complex shadows and reflections.

FREI OTTO DESIGNS 1.864 MILLION CUBIC FEET OF AIR

The German Pavilion at Expo 67 is one of the largest and most daring tensile structures ever erected by a non-spider

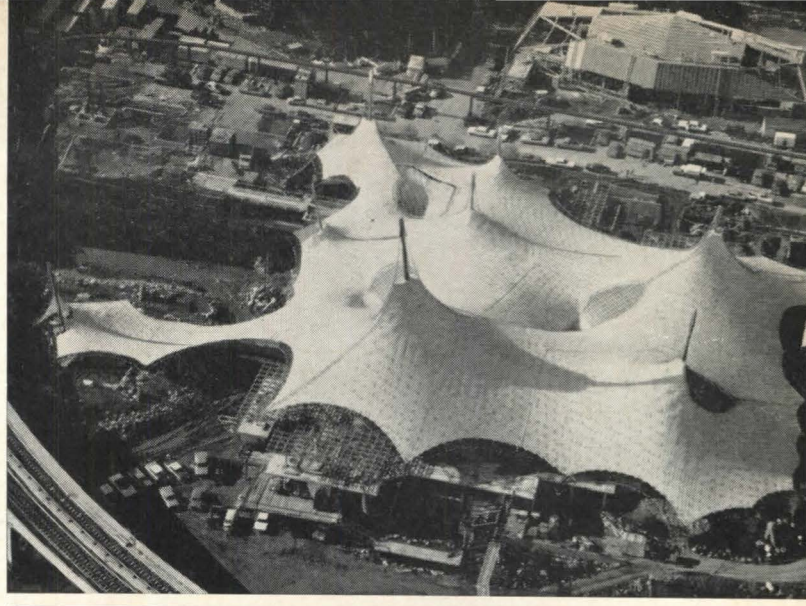
On April 28, when Expo 67 is officially opened, three of its structures are likely to stand out as Montreal's most dramatic contributions to 20th-century engineering and 20th-century architecture. They are Moshe Safdie's "Habitat" (see next month's issue); Buckminster Fuller's U.S. Pavilion (June '66 issue); and the great plastic tent, designed primarily by Frei Otto (with Rolf Gutbrod as the chief project architect), which will house the West German Pavilion.

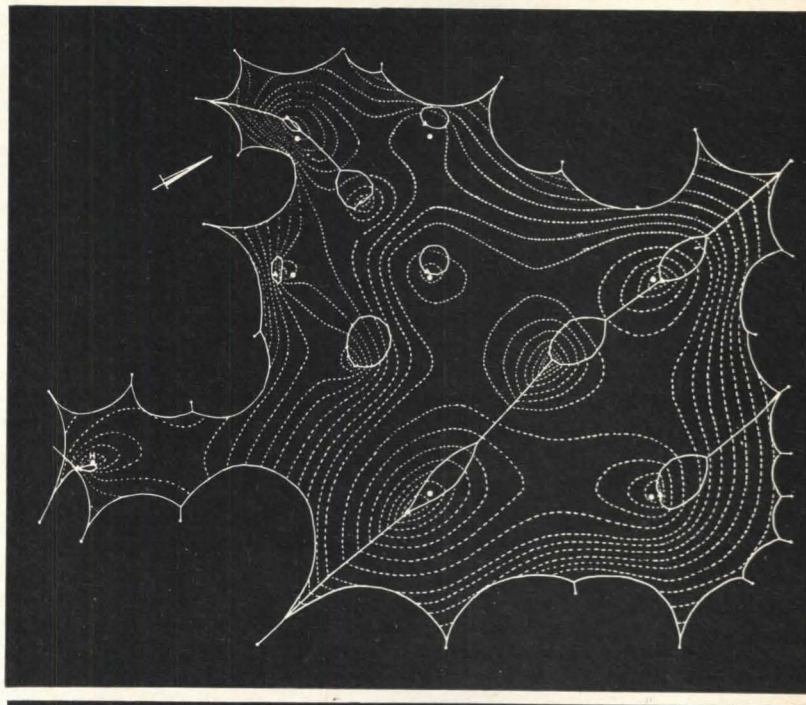
This article is based upon a detailed description of Frei Otto's tent structure, prepared by Richard Larry Medlin, a young American architect who is listed as another of the "project architects" for the German Pavilion.

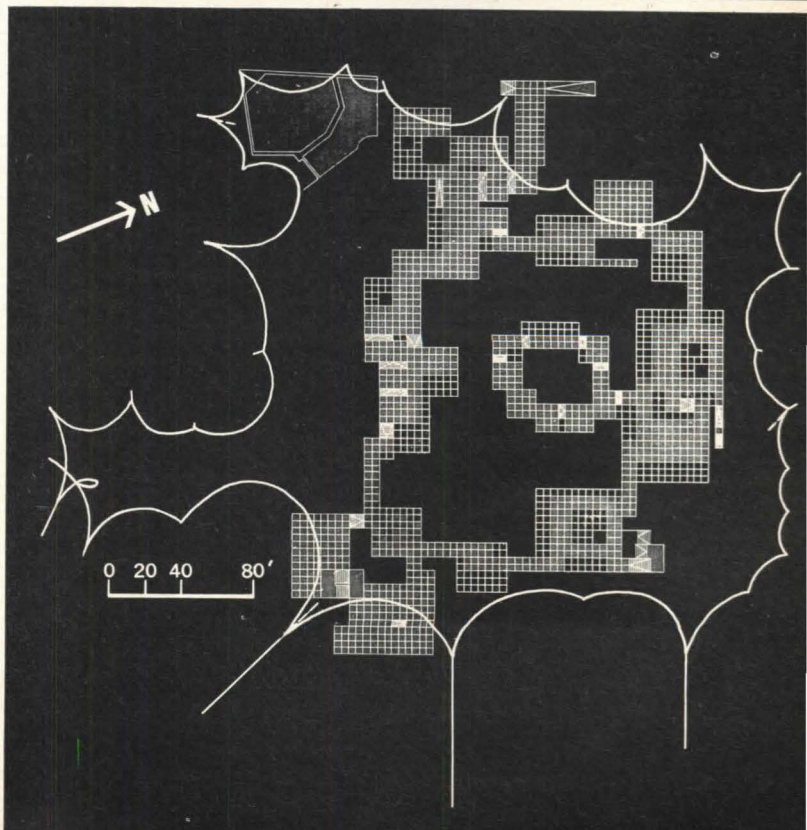
The theme of Expo 67, "Man and His World," was taken from Antoine de Saint-Exupery's *Terre des Hommes*. In the official publication discussing the theme, Expo authorities state, ". . . the author explores the world to which he belongs and the sense of human dignity which pervades the relationship between men. 'To be a man,' says Saint-Exupery, 'is to feel that through one's own contribution, one helps to build the world.' "

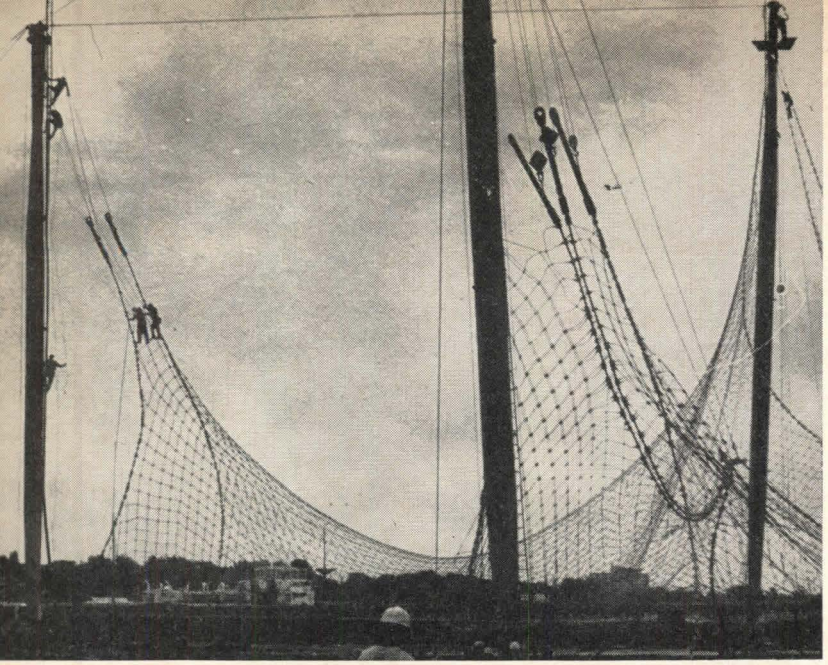
In this spirit, current research studies on minimal surface theory and prestressed membranes with interior points of support and restraint were applied to the design of a *Grosshülle* (loose translation: big tent). The big tent hovers like a cloud over a tract of *Menschenerde* (man's earth) providing a weather shield for a freely developed terraced exhibition landscape. This landscape is molded from a double-spiral-like sequence of ca. 4 ft. by 4 ft. steel frame elements combined to form 20 ft. by 20 ft. platform modules. The visitor may overlook the total exhibition area from most points of the platforms. Light, passing through transparent eyes, emphasizes larger volumes in contrast to light modulated by passing through the translucent skin of the lower saddle surfaces.

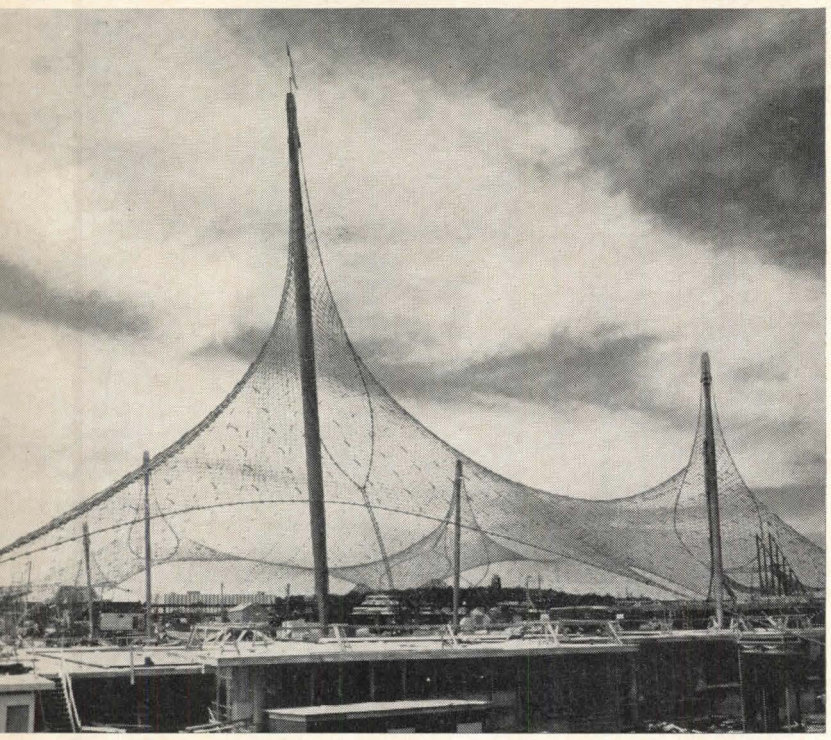
In the summer the big tent will be open about the periphery. Wind screens, placed as suggested by aerodynamic studies, will direct air currents so that cold air, blown in at still areas, will build a "sea" of cool air at visitor levels; while lighter, warm air will rise to the tops of masts where it will be drawn off by ventilators that will open and close automatically. Enclosed areas (the auditorium, restaurants, kitchen, offices, etc.) will be fully air conditioned. Three structural systems were developed in the pavilion: the big tent made up of a prefabricated, prestressed, standardized steel cable net of minimal weight, under which is spanned a prefabricated plastic membrane (top right); the auditorium and its gallery covered by two wood lattice shells; and the terraced landscape mentioned above, a prefabricated flexible steel framework of 4 ft. by 4 ft. elements (plan at bottom, right).











Construction of the big tent

The cable net is spanned over eight masts, three interior restraint eyes, and thirty anchor points about the perimeter. In plan, seven of the masts are located at the corners of a large and small square, with one common corner. The eighth is on an island next to the site. (The tent stretches across the water.) The axis extension of all masts pass through a vanishing point below the earth's surface.

The cable net consists of ½in. galvanized steel cables that form equal squares generally 1 ft. 8 in. in size. The cable and spacing were selected in preference to a larger cable and mesh to permit workmen to walk over the net (see opposite).

The masts are constructed of galvanized steel pipe, with cylindrical middle sections and conical head and foot sections. Thus the maximum necessary diameter is provided only in the middle, to resist buckling.

The masts and net together comprise the main structural system that carries wind and snow loads. The skin, consisting of a polyester fabric with PVC coating, makes the building rain- and snow-tight and transfers live loads over short distances to the net. The skin and net are separated by adjustable turnbuckles, which compensate for differences in the expansion of each.

The skin is supported by the spring steel cloverleaves connected to the turnbuckles that are visible at top, right. The cloverleaves droop to a cupular form under snow loading, but spring back flush with the membrane as the snow melts. Points of attachment were prefabricated in the membrane.

The entire tent structure was prefabricated in Germany. The net was shipped to Montreal in 26 ft.-wide, carpet-like rolls (the longest section measured about 150 ft.). The masts (the largest is 125 ft. long, weighs 17 tons, has a 40 in. middle diameter, and is of 8/10 in. plate) were shipped in one or two pieces.

The net was prestressed by raising the masts with hydraulic presses and pulling edge cable ends through the anchor blocks. After prestressing was completed, all guys were removed and the slope of the masts was maintained by the cable net.

The skin was also assembled on the surface. Pieces of about 1,000 sq. ft. were combined with an "assembly splice" to form sections about 10,000 sq. ft. in size. These sections were raised to the cable net and connected with a laced "tension joint." The tension joints were tightened again in the spring to retension the membrane, whose prestress was reduced due to membrane expansion under winter snow loads. (The photos at left show the sequence described above.)

Why use a tension structure?

In the big tent, most of the members are in tension; and the number of compression members (masts) has been reduced to a minimum. This has resulted in great economy of material expenditure in relation to the span.

The cable net is an extension of suspension bridge techniques to a three-dimensional surface structure: one set of cables similar in curvature to the catenary sling of a suspension bridge has been hung side by side and another set of cables curving in the opposite direction has been laid across the first set to form a surface of anticlastic (saddle) curvature. The surface thus formed may be prestressed (i. e., stretched taut before live loads are encountered) by pulling the counteracting cables. This permits snow loads to be carried within the limits of allowable net deflection; it also permits the development of an aerodynamically stable form that will not flutter under wind loading. Such a structure does not abut wind pressure as would a rigid steel skeleton frame, but sways slightly like a tree. Wind loads raise or lower pretension in the cables without substantially altering the overall form of the net itself.

How the membrane was formed

To produce a prestressed membrane surface of anticlastic curvature, an initially horizontal membrane may be pushed up and/or pulled down with points of support and/or restraint. Sharply pointed devices cannot be used for this, since they would pierce the membrane. However, plate-like capitals, beam sleds, arches, or other mechanical devices may be used. Another method involves connecting the support or restraint apparatus with one or more cable loops.

The possible use of such cable loops was discovered by experimentation with soap films (top right). Within given edge conditions a soap film will assume a minimum surface of equal tension. If a thread loop is suspended in a flat soap skin, the equal tension will pull the thread into a true circle. Lifting the ends of the thread will form the loop into a configuration of equal radius of curvature in space and draw the film into an anticlastic surface.

For a given loop circumference, the possible height of the concave cone-like form produced by support or restraint points is proportional to the membrane span. If, in a cable net, this height is higher than that in a similar soap film, then the surface tension will not be uniform.

The form and length of the loop cables were determined by the area of the net carried or restrained, and the curvature and slope of adjacent portions of cable netting. In certain areas, ridge cables, from edge anchors to mast heads and/or through eye loops, supplemented the eye cables in transferring net stresses to masts or anchors.

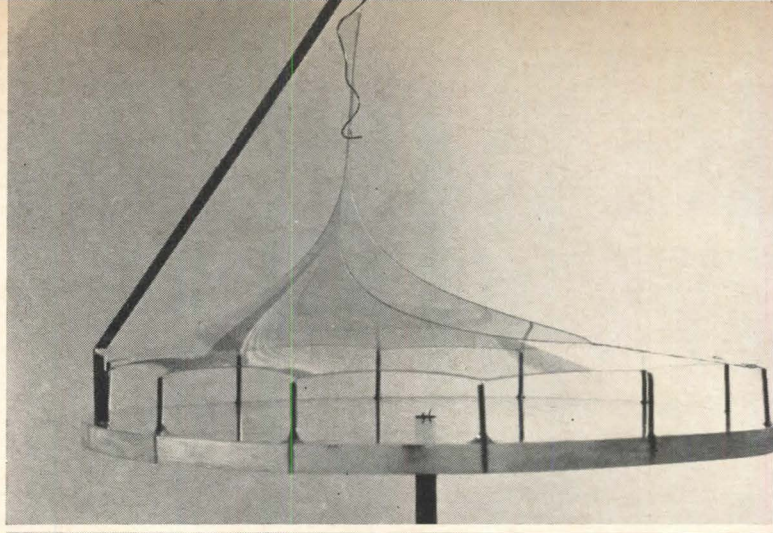
The shape came out of model research

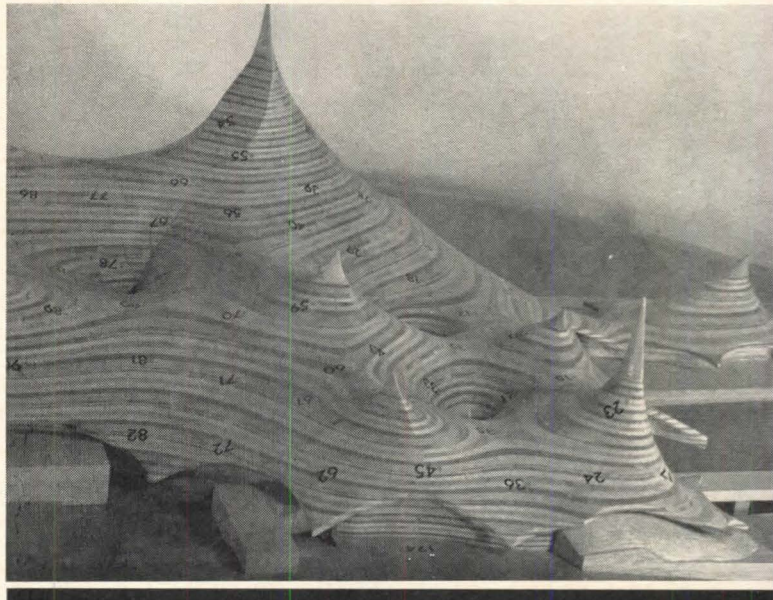
The design of the big tent was studied with seven complete models (and with dozens of isolated part-studies) made up of a square-mesh synthetic curtain net fabric and of heavy thread. The scales were 1:200 and 1:100 (about 1/16 in. and ⅛ in. to 1 ft.). The design evolution was a trial-and-error process of developing a form that defined the architectural spaces desired and corresponded as closely as possible to a minimal surface. In the final design model, the circumference and form of eyes, the height and slope of masts, the orientation of the cable net grid, and the lengths and radii of ridge and edge cables were established; and the starting point for engineering analysis was reached.

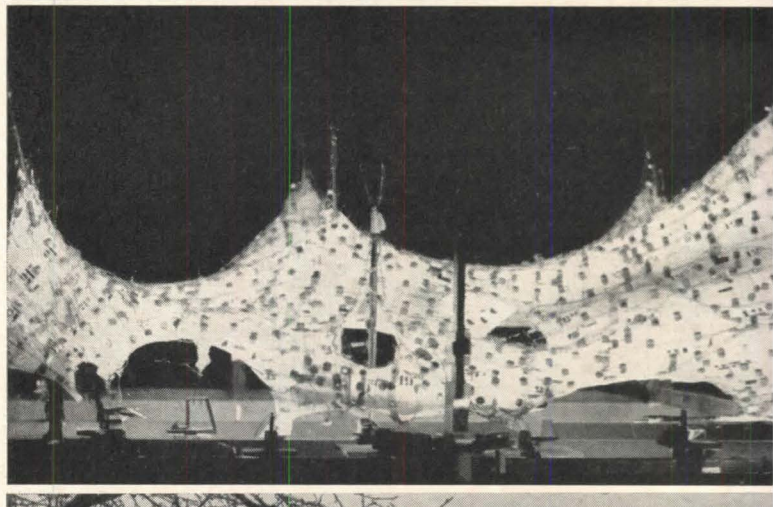
From a contour plan of the final design model, a laminated plywood wind tunnel model was built (near right). One hundred and twenty-nine measuring points on the surface provided readings for an analysis of negative and positive wind pressures.

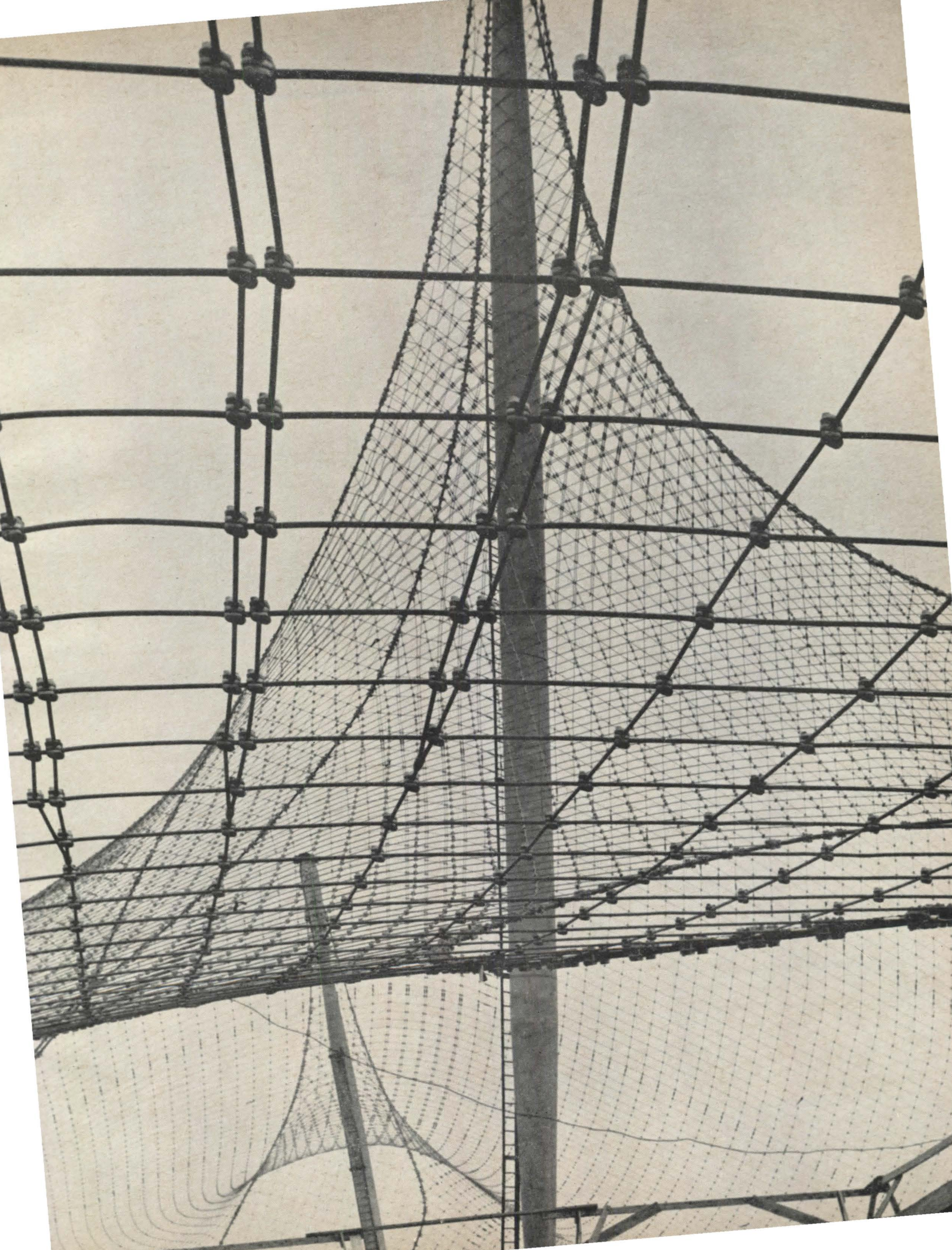
A model of steel wire, at a scale of 1:75, was made to obtain exact measurements of surface tension, deformation under snow loading, and the geometry of the membrane (third from top). Through this model, the form of the design model was further refined and minor corrections suggested by the wind tunnel tests were made. Tension in the wires was measured with mechanical gauges and controlled to approach equal surface tension. Double exposure photographs (with and without suspended weights) were taken to study deformation under a variety of snow loading combinations. Fabrication drawings of the cable net were primarily prepared by tracing detail slides of the net edges, enlarged 7½ times by projection. A linen membrane with grid lines was hung in the model and measured for the preparation of working drawings for the skin.

Finally, a full-scale, partial research structure (similar to the part of the tent around the top of the main mast in the final, Montreal pavilion) was erected near Stuttgart (bottom right). This building served to test all details, as well as erection and prestressing procedures, and permitted the study of expansion relationships between the cable net, the PVC skin, and the plastic eye membranes. It also served in the study of night lighting.









The tent as a research project

The handling of many details in the German Pavilion does not represent the achievement of ultimate solutions; in some cases problems are simply resolved to a workable definition for further research.

For example, the plastic skin would be unusable after five years; it was conceived as a short-term covering because all pavilions will be dismantled after the exposition closes. On the other hand, the present steel cable net could be applied to a permanent structure. In Stuttgart, studies on roof and eye coverings, side walls and connections to the roof, flooring systems, and subdivision of the interior are being carried on to see if the building could be reused and turned into a permanent structure to house the Institute for Lightweight Surface Structures. Permanent roof and eye coverings present particularly challenging problems. The current studies concentrate on panel units that would allow later dismantling of the building if desired. Such panels must be relatively small to permit cutouts between units to apply them to the anticlastic surfaces. Another research task is the development of exact and rapid means for the measurement of similar forms in the future, to provide information for engineering calculations and working drawings. Topographic and computer drawing methods are being investigated.

Prestressed cable net structures are applicable to a wide variety of construction tasks. The stressing of a membrane with interior high and low points permits extension of the membrane to cover virtually unlimited surfaces. The displacement of support and restraint points from the median plane may be proportionately large, as in the pavilion, or reduced by use of more frequent points, so as to form a basically horizontal roof.

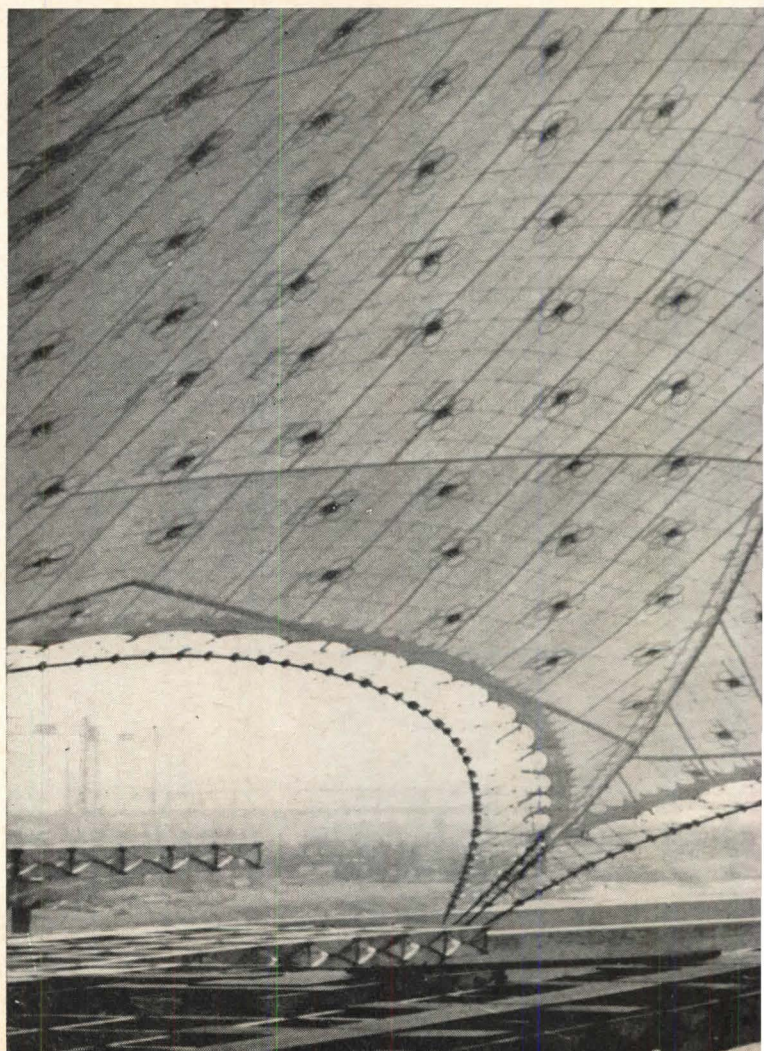
The development of near minimal surfaces reduces material quantities. The resultant lightweight structures may be economically transported to otherwise inaccessible sites and fitted to the most complicated topography. Their prefabrication minimizes on-site work and permits quick erection.

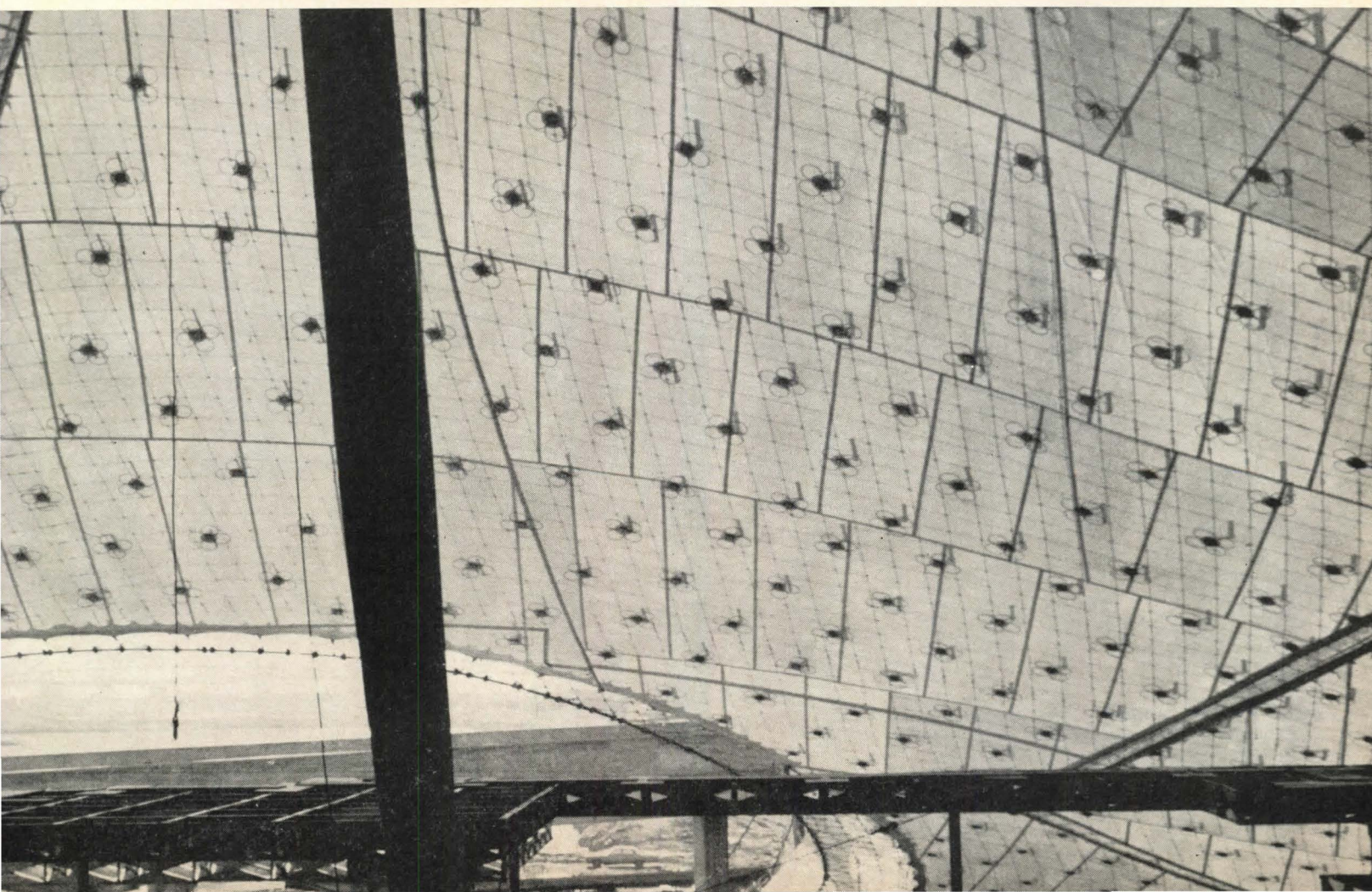
The reduction of compression members in tension structures reduces the required contact area with the earth's surface, a need demonstrated by the widespread use, today, of buildings on stilts. There are numerous possibilities suggested by this flexibility and economy: urban macrocomplexes where, for example, a tension cable net structure may carry a residential quarter and shield a park landscape of pools, recreation areas, etc., or contain an office community and cover a transportation center, assembly complex, or shopping plaza.

Thus, in the German Pavilion, an attempt has been made to develop an urban structure, a *Terre des Hommes,* in which the total form will serve as a stimulus to the imagination of architects, engineers, and planners.

FACTS AND FIGURES

German Pavilion, Expo 67, Montreal, Canada. Owner: Federal Republic of Germany. Project Architects: Rolf Gutbrod, Frei Otto, Larry Medlin, Kiess & Kendel. Canadian Contact Architects: Tarnowski & Eber; Bryan, Associate. Engineers: F. Leonhardt; Andrae & Egger. Canadian Contact Engineers: Mannicke & Drab. German General Contractor: L. Stromeyer & Co. Canadian General Contractor: Ross & Anglin, Ltd. Area of pavilion: 80,000 sq. ft. Cost of the big tent (materials, foundations, transportation, erection): $880,000.





DREAMS OF TOMORROW

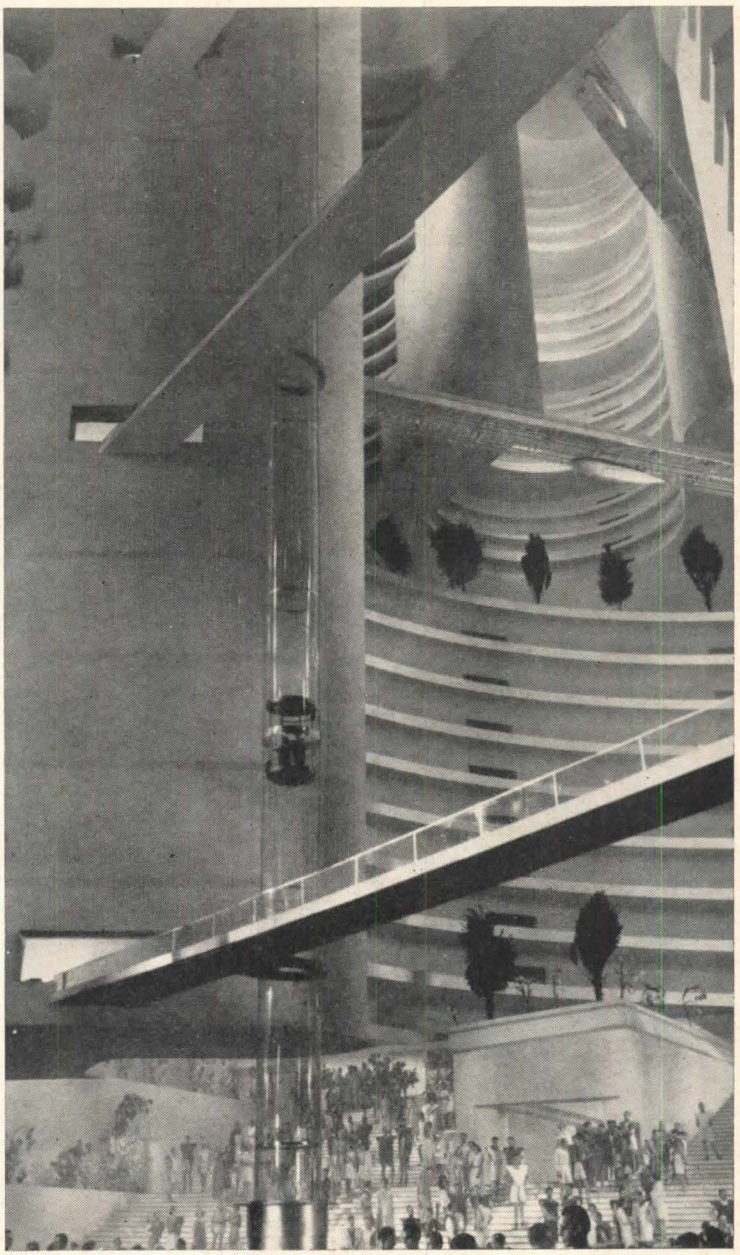
BY ROBERT B. RILEY

There was a time not long ago, say from 1910 through 1930, when architects dreamed of what would be possible when the hopeful promises of new knowledge and new technologies were fulfilled. That time is gone. Very few any longer dream of what architecture *might* be; by our rational standards an architecture without restrictions of client, budget, program, or existing technology is hardly architecture at all.

As the horizons promised by science and technology have expanded, the dreams, curiously, have shrunk; architects have turned to romantic facadism and time worn concepts of "civic design." But, in science fiction, the dreams have lived on and grown.

Today's science fiction is very unlike its early bug-eyed-monster-and-nubile-maiden phase. The best of science fiction is now as well written as any popular writing. As its style has changed, so has its orientation. Science fiction today pays less and less attention to space opera adventures, and, more and more, turns to sociological and political speculation.

The result has been a progressive blurring of the already hazy border separating science fiction from mainstream literature. If any one quality distinguishes science fiction today, it is the fact that its ideas are not only more imaginative but more *serious* than those one can generally find elsewhere in fiction. But despite the burdens of seriousness and respectability, the science fiction writer still *dreams;* it is his job. In his dreams of far times and far places, under skies of unfamiliar clouds and colors, beneath strange mountains and beside stranger seas, he sees buildings and cities. And his buildings and cities are more wonderful than any that architects dream of.



The "city," above, is a scene from *"Things to Come,"* H. G. Wells' grand 1936 cinema fantasy that explored the future of cities.
Photo: The Museum of Modern Art.

The history of fantastic literature abounds in architectural imagery. Certain themes appear again and again: dreams of pastoral simplicity; of unrelieved geometric purity; of geomorphic spaces—fairy tale grottoes and flowery castles indistinguishable from the mountains from which they rise; of *Arabian Nights'* pleasure cities of jeweled columns, golden domes, playing water, and scented gardens; of vast spaces where stairs and ramps intertwine in Piranesian complexity. To this traditional store of images, science fiction has added ideas based upon scientific and technological predictions, ideas which go far beyond architects' ideas of what might be achieved.

Science fiction writers have dreamed of sensual effects possible with a far advanced understanding of the basic physics of materials: walls instantly changeable from opaque to translucent or transparent—closing off a room, flooding it with filtered light, or throwing it open to the outside, all at the flick of a switch; luminescent surfaces glowing with a soft diffused light, containing moving patterns of changing colors at different depths; walls that change their surface shapes like waterfalls; floors that change their textures from glassy smoothness to furry richness with the movement of people. F. Scott Fitzgerald's *The Diamond as Big as the Ritz* contains several such

Mr. Riley is an architect who practices in Albuquerque, New Mexico, when he is not busy reading Ray Bradbury or H. G. Wells.

splendid displays. He and many other writers have created the descendants of the *Arabian Nights'* pleasure palaces.

Light effects figure frequently in science fiction. One writer describes a rotating lens which focuses a constant beam of sunlight on an altar standing alone in a dark temple. Another pictures a future art form where patterns of light are composed on a screen like moving paint—formed, changed, and erased from an electronic console. Still another dreams of creating light from the air itself, lighting gardens and whole parks with a rose-tinged silvery glow.

More common than the sensual dreams are those of structural and engineering developments. Self-contained light, power, and sanitation units make houses independent of fixed exterior utilities; lighter than air, or equipped with antigravity devices, they move anywhere, anytime. New building materials are envisioned, ranging from just a little beyond our present capabilities to the truly fantastic. One fantastic example: a small package—open it, add water, and materials flow from it and expand in minutes to form the floor, walls, roofs, and windows of a complete house. Climate control is, of course, a science fiction necessity for life on other worlds. Indeed, these dreams may not be so fantastic; in our own world the advanced climate controls of a few years hence may be a feedback from systems developed for use in space.

Science fiction worried about automation long before it became a matter of practical concern. Ray Bradbury has written several haunting descriptions of its effects on architecture:

"Their sound-proofed, Happylife Home, which had cost them thirty thousand dollars installed, this house which clothed and fed and rocked them to sleep and played and sang and was good to them."

"The sun was setting. The house was closing itself in, like a giant flower, with the passing of the light . . .

In the dawn the sun, through the crystal pillars, melted the fog that supported Ylla as she slept. All night she had hung above the floor, buoyed by the soft carpeting of mist that poured from the walls when she lay down to rest. All night long she had slept on this silent river, like a boat upon a soundless tide. Now the fog burned away. The mist level lowered until she was deposited on the shore of wakening."

In Bradbury's Happylife Home, the children in the nursery can create living, three dimensional walk-in scenes—an African veld, for example, complete with animals.

One of the strangest of science fiction buildings is the "Psychotropic House"—set, reasonably enough, in Los Angeles. This house joins automation and advanced materials technology to a far advanced science of psychology. The result is a house which senses its owner's moods and automatically adjusts to them: changing its colors, scenting its air, playing music, expanding and becoming transparent or shrinking and closing itself in as those moods vary.

One even more fantastic creation is based on a breakdown of the border line between organic and inorganic processes: the Martian village which not only grows houses out of living matter, but secretes food, water and shower baths for its inhabitants —the end result of truly organic architecture. Another idea postulates a similar breakthrough between the conventional concepts of force and matter, and constructs a city from fields of pure energy — now solid, now transparent, always changing color and shape.

A science capable of such accomplishments would surely reshape physical patterns of living as well. With their new buildings, science fiction writers dream of new cities and new landscapes; their dreams echo both the hopes and the doubts of professional planners.

The most commonly imagined city is remarkably like the *Ville Radieuse* of Le Corbusier. Great slender white towers, chaste and aloof, rise from manicured parks, and are linked one to another with graceful ribbon-like motorways. Often the motorways disappear, and transport becomes a matter of individual air scooters or antigravity belts.

The other common science fiction picture of the city is the supercity—todays Manhattan extrapolated to an appalling density of people and buildings. H. G. Wells portrayed it first in 1907 in his novel of the future, *When the Sleeper Wakes*. The image starts with tall skyscrapers linked together by roads and ramps at all levels. It ends as a city where lawns and parks, streets and houses disappear. The city becomes one monstrous superbuilding. Twenty million, perhaps a billion, people are born in it, live in it, and die in it, never leaving it for an hour. It is a structure of hundreds of stories above ground and as many below, a matrix of moving roadways, walkways, and conveyor belts. It becomes not a dream, but a nightmare.

Science fiction sees man settling the sea as he has the land. As the oceans are farmed and grazed to feed the earth's growing population, buildings invade the seas. Great bubbles holding millions of people float on the surface, anchored to the bottom or moving about under their own power. Domes and vaults cover the ocean floors. People live and die under the water, dwelling in self-powered, doughnut-shaped structures, moving with their work or joining together to form colonies.

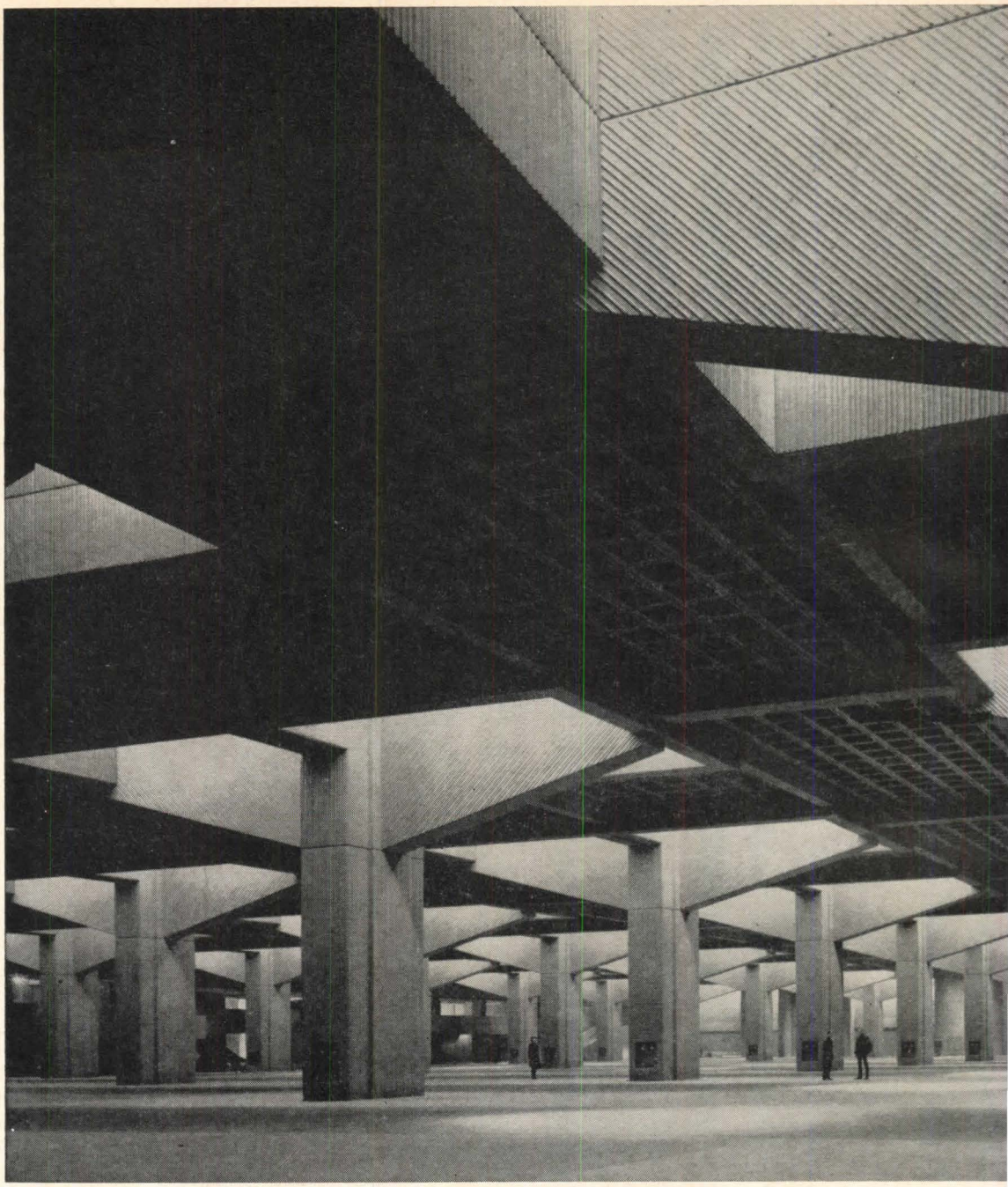
Finally, as man moves far from earth, great migrant space bubbles evolve: cities containing thousands of people, moving through galaxies following the demands of interstellar trade and labor.

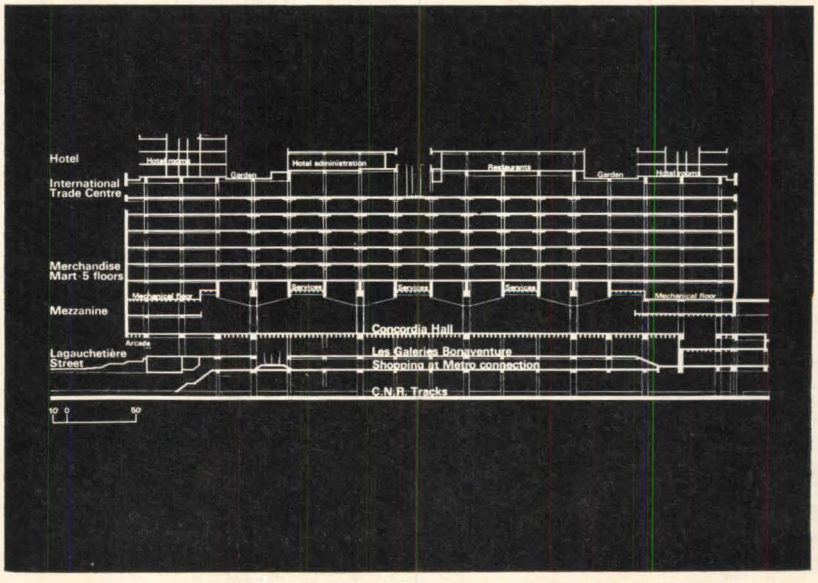
The best of science fiction deals not only with the architectural gadgetry of a glamorous superscience and supertechnology, but with human and social side effects. One might expect science fiction to be filled with predictions of glorious human happiness achieved through man's increasing power to shape and change the world about him. Indeed, this is partly true; there is a sense of the wonder and magic promised by science. But another theme runs through much of contemporary science fiction, a theme of doubt and distrust, a troubled questioning of man's ability to control the science he creates. Like the puritan whose conscience hurts when everything else feels good, the science fiction writer cannot convince himself that the marvels he creates will make anyone happy. He is afraid that man, like Frankenstein, will be destroyed by his own ingenuity.

The buildings and cities that

(Continued on page 112)

FOCUS

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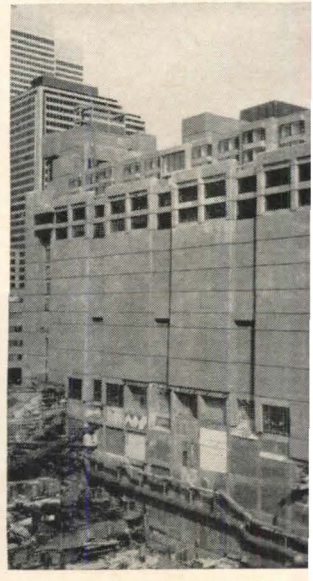
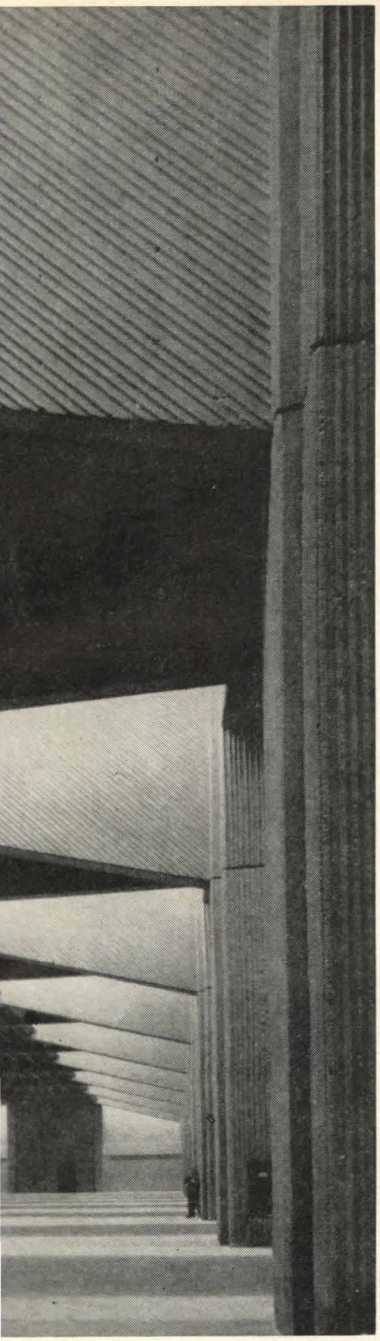


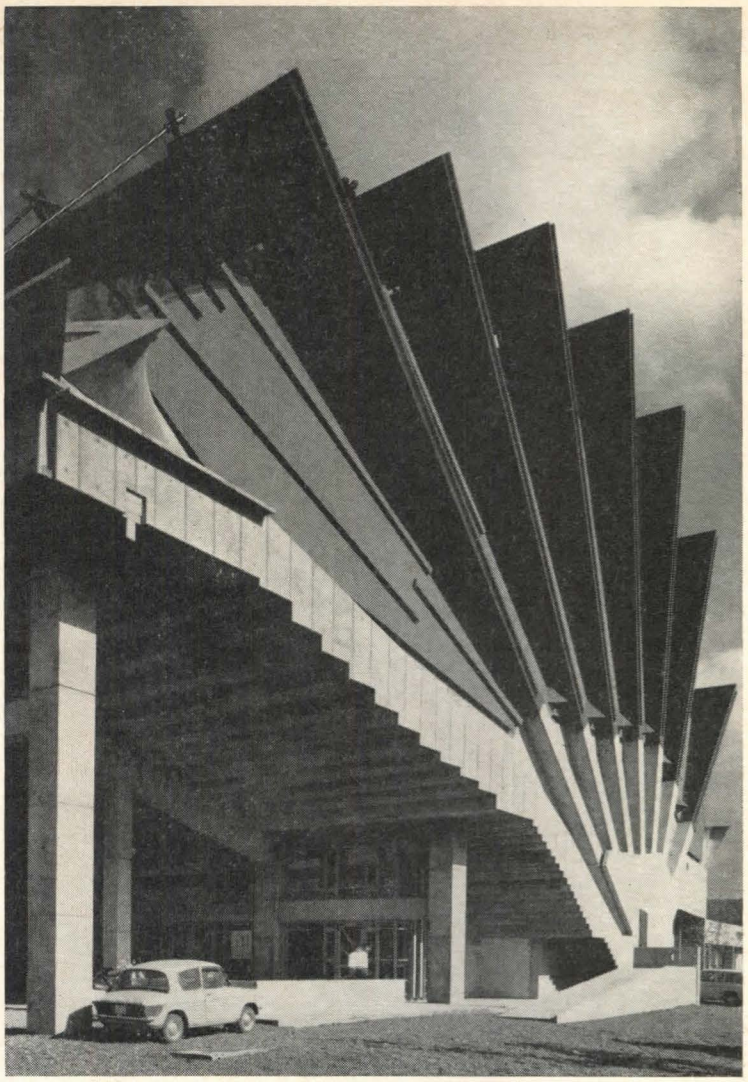


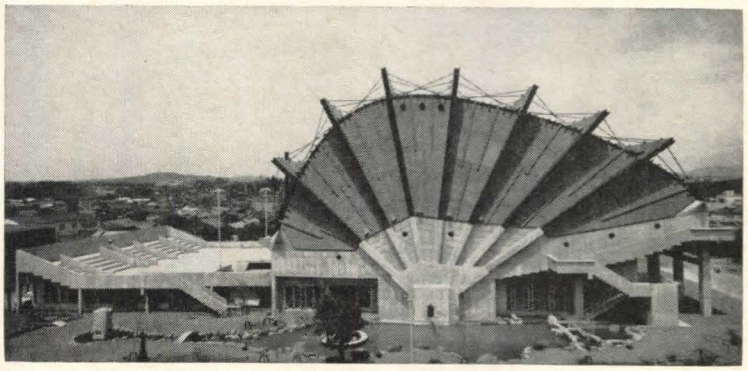
ANOTHER PLACE IN MONTREAL

Place Bonaventure, the latest in Montreal's collection of mammoth-scaled, multipurpose urban compositions (see Sept. '66 issue), is being rushed to completion in time for this month's opening of Expo 67. The reinforced concrete structure, ribbed and sandblasted on the exterior, covers six acres of air rights over the Canadian National railway tracks and ties in with the city's underground network of pedestrian-shopping-subway facilities (section lower left.)

Designed by Architects Affleck, Desbarats, Dimakopoulos, Lebensold & Sise, the rather brutalist building contains, in ascending order, two shopping levels connected directly to the subterranean network, a huge exhibition hall (left), a five-floor merchandise mart, an international trade center for permanent exhibits and offices, and atop it all, a 400-room hotel and garden (Sasaki, Dawson, Demay & Associates, landscape architects).

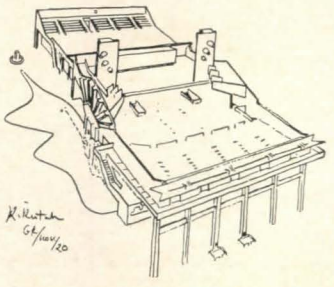
The 3¾-acre exhibit floor, called Concordia Hall, is already in use. To gain larger expanses of exhibit space, its column system departs from the 25-by-25-ft. grid of the building dictated by railroad track clearances. Here, the architects have established a 50-by-75-ft. bay system of tree-like columns and poured-in-place, post-tensioned concrete transfer trusses that also accommodate mechanical, electrical and lighting facilities.





A FAN IN JAPAN

The civic auditorium in Miyakonojo, Japan, evokes images of the oriental fan, though it is far from delicate. Its rigid steel bents spread out from a hefty concrete pedestal (see sketch) to support the steel sidewalls and the cables of the suspended roof. Architect Kiyonari Kikutake has backed up an outdoor theater (left in photo immediately above) against an indoor one, with both sharing the same backstage facilities. Outdoor stairs (top photo) lead to the balcony level of the theater within the fan. On the level under the pedestal are conference rooms and halls for banquets and marriages.

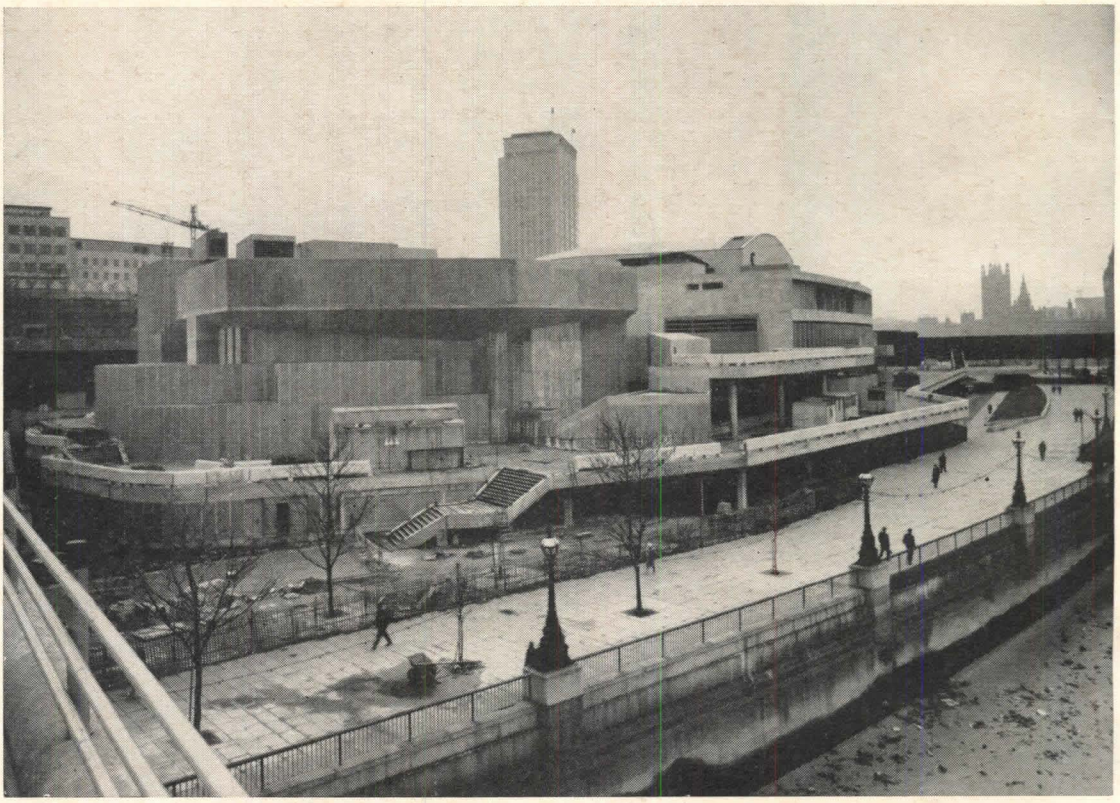


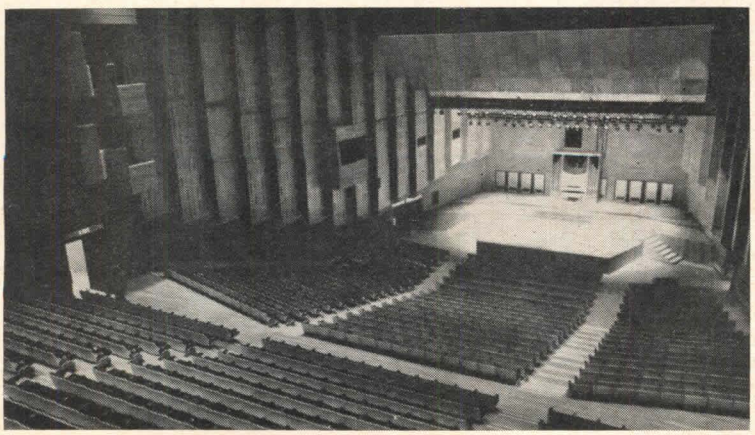
ARCHES IN BARBADOS

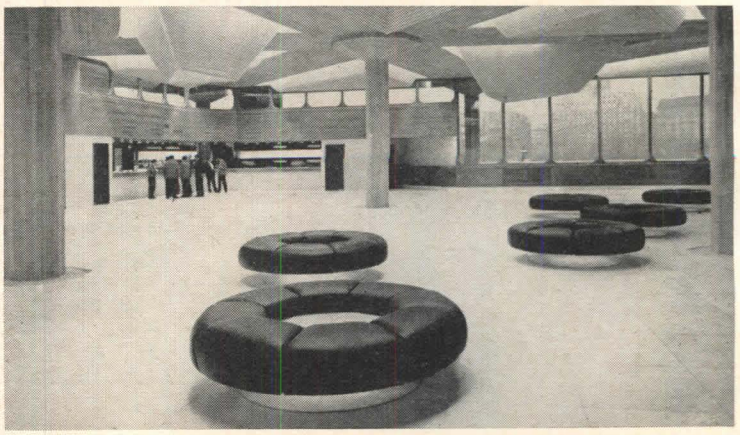
Before Warner, Burns, Toan & Lunde began design of the $9 million Barbados Hilton hotel, explains a Hilton press release, they "sent out a top team of architects to Barbados to study the history of the island and its architecture." Thus the hotel, "delicately curved and daringly arched," is patterned after the old military garrisons which still remain on the island. It is built of weathered coral stone and contains 104 luxury guest rooms —each with private balcony and a view of the Caribbean—54 outlying "lanai" suites (left in photo), and assorted restaurants, bars, and public spaces.

FORMIDABLE PLANES IN LONDON

Queen Elizabeth Hall, the newest addition to London's South Bank Art Center, was criticized as "shapeless," "antimonumental," "formidable," and "permanently temporary" before its opening last month. But now, even some of its former critics agree that the structure's broken granite-faced planes and multilevel walkways make it the city's most arresting structure to come along in years—especially by comparison with its neighbor, the 16-year-old Royal Festival Hall. The building was designed by Denys Lasdun for the Greater London Council (Hubert Bennet, chief architect) and houses two concert halls: the 1,106-seat, steeply banked Queen Elizabeth (below) and the 327-seat Purcell Room. The foyer for both halls (below right) has hanging, pyramidal lighting fixtures.

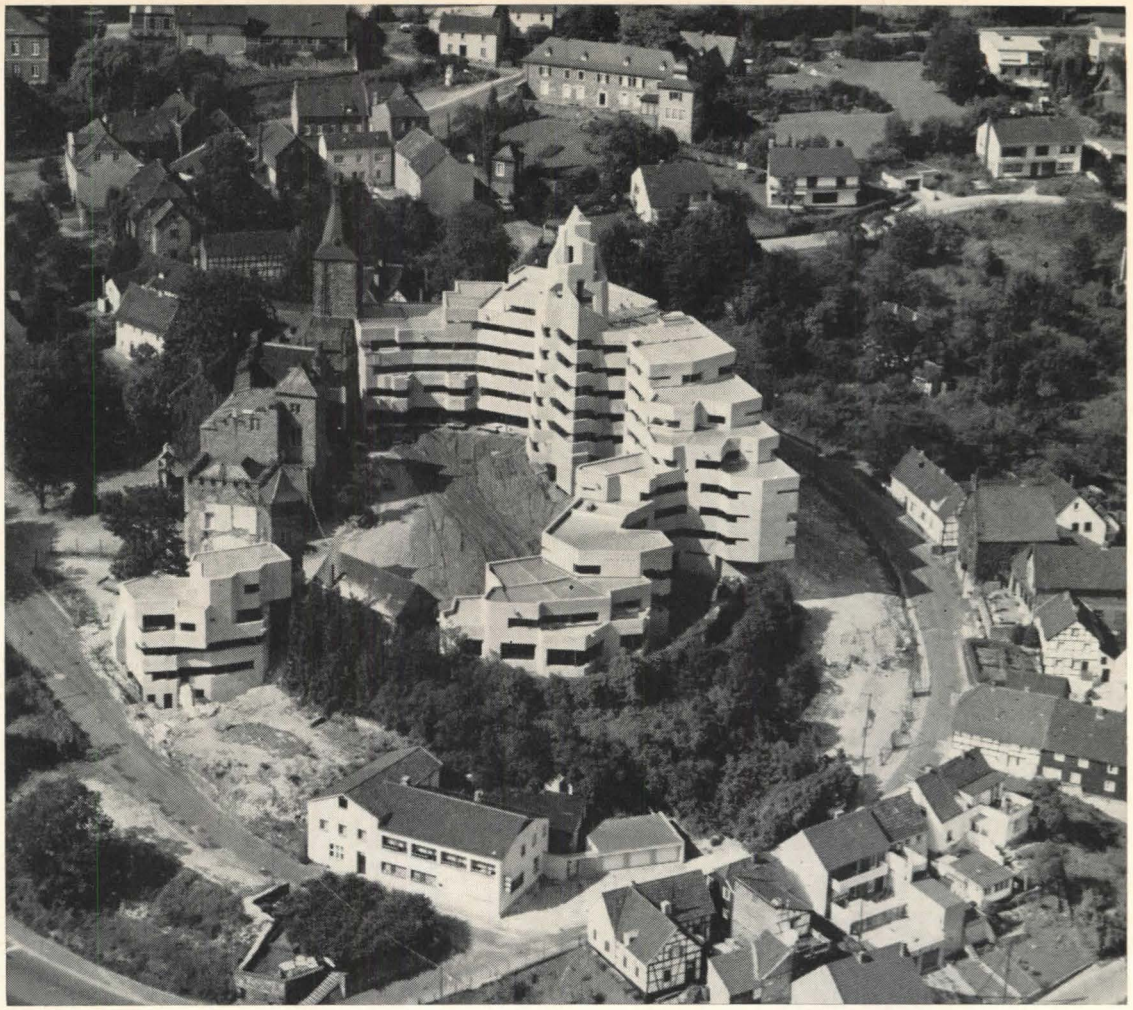






CASCADING HALL IN BENSBERG

Stepping down its hillside site in a powerful curve, Gottfried Boehm's city hall for Bensberg, West Germany (near Cologne), seems quite appropriate in its picturesque residential setting. The craggy tower, containing a staircase and elevator, echoes the preserved tower of its predecessor on the site, a castle built in the Middle Ages. Council chamber, meeting rooms, offices of city officials, and public spaces can be reached from the main entrance located at the base of the tower. The entire structure is of reinforced concrete which is board formed and bush hammered. It serves Bensberg's 30,000 citizens.



PHOTOGRAPHS: Page 68, Michael Drummond (top), Ed Bermingham Inc. (bottom). Page 69, Taisuke Ogawa. Page 70, Willie Alleyne (top), Fox Photos (center), Central Press (bottom). Page 71, Hamburger Aero Lloyd (top), J. Andernach (bottom).

COMPACT URBAN GATEWAY

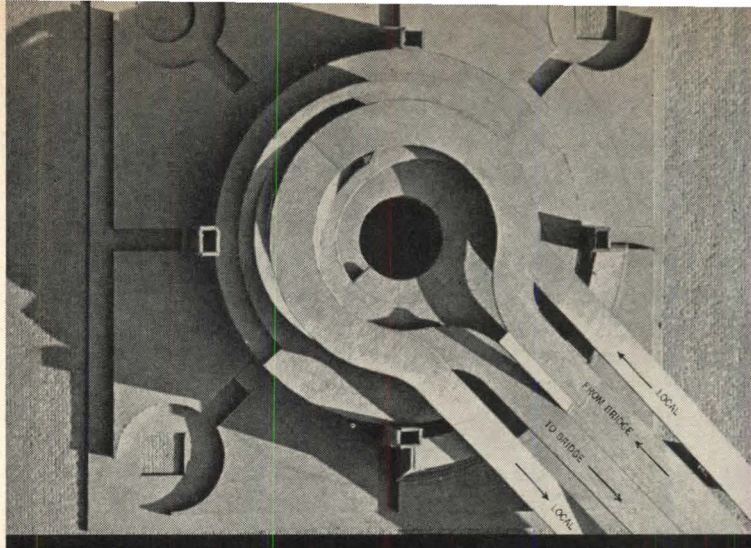
Roger Katan, environmental designer and planning consultant, has designed a prototype "Gateway to the City" that saves 8 of the 11 acres of a typical traffic connection. A critic of certain aspects of the recent Lower Manhattan Plan (among other criticisms: traffic from the Brooklyn Bridge will "penetrate like a dagger into the flank of Manhattan"), Katan replaces the knife with the clenched fist of his prototype and reroutes traffic before it makes an undesired trip into lower Manhattan.

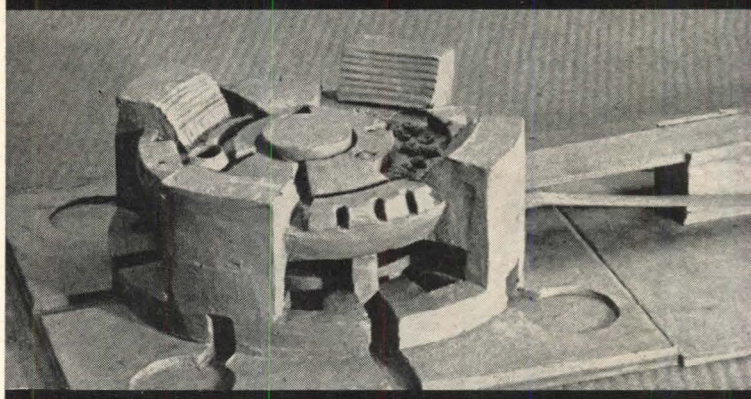
Katan's Gateway covers barely 3 acres. It is a double helix in form; cars travel less than the full circumference, making the single loop (see model of interchange level) that sends them back again in the direction of Brooklyn and then either to local roads or the East River Drive. Only 70% of the bridge traffic wants to go into lower Manhattan anyway, according to origin-destination studies, so why not solve the traffic problem through peripheral movement, says Katan, "rather than by murderous crosstowns?" Otherwise, he predicts, streets that should be vehicular rivers will be clogged by illegally parked cars—"rivers of stagnant water filled with dead bodies."

The Gateway interchange is 400 feet in overall diameter, permitting a wider arc and greater speed than the warmed-over dish of spaghetti served up by the Lower Manhattan Plan (compare the two plans). In one variant of the Gateway (photo, this page), Katan builds almost 2,000,000 sq. ft. of commercial space into the structure—for parking, offices, hotel rooms, pedestrian platform, and convention center. Other variants would add dwellings to the mix. The form could be introverted or extroverted, as shown on opposite page, according to specific context.

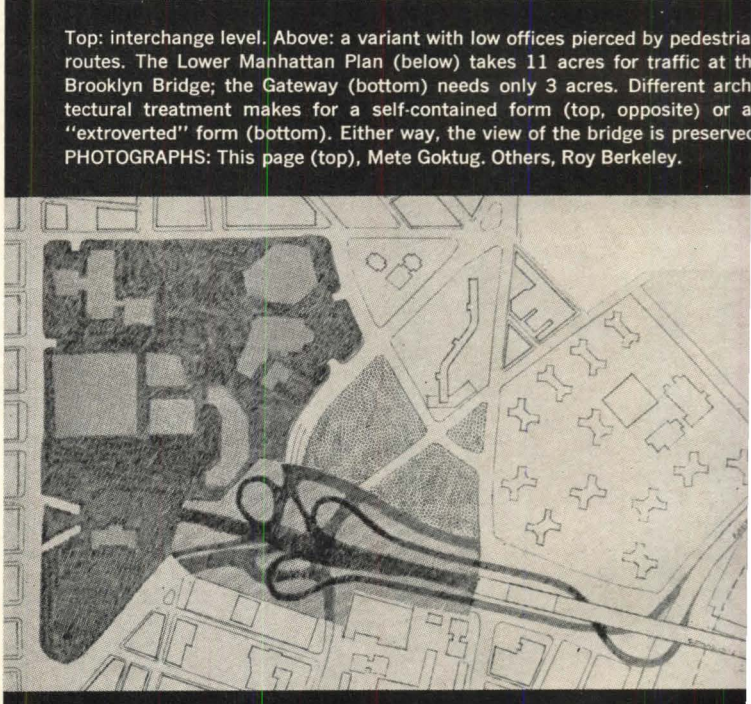
Katan is a 35-year-old Frenchman, Moroccan-born—a planner, architect, painter, and sculptor. "As long as urban designers fear the automobiles and their destructive power, leaving the solution of 'car planning' to the traffic engineer," he says, "we will have chaos and piecemeal solutions." He pleads for an understanding of the order of movement, the different scales of motion. He worked in Kahn's office for several years, and speaks of "the great garages of Lou Kahn, signalling the end of high-speed vehicular travel and the beginning of urban forms of transportation." In his own Gateway, he hopes to have created "a form read clearly among other urban forms and understood as what indeed it is: A Gateway to Manhattan."

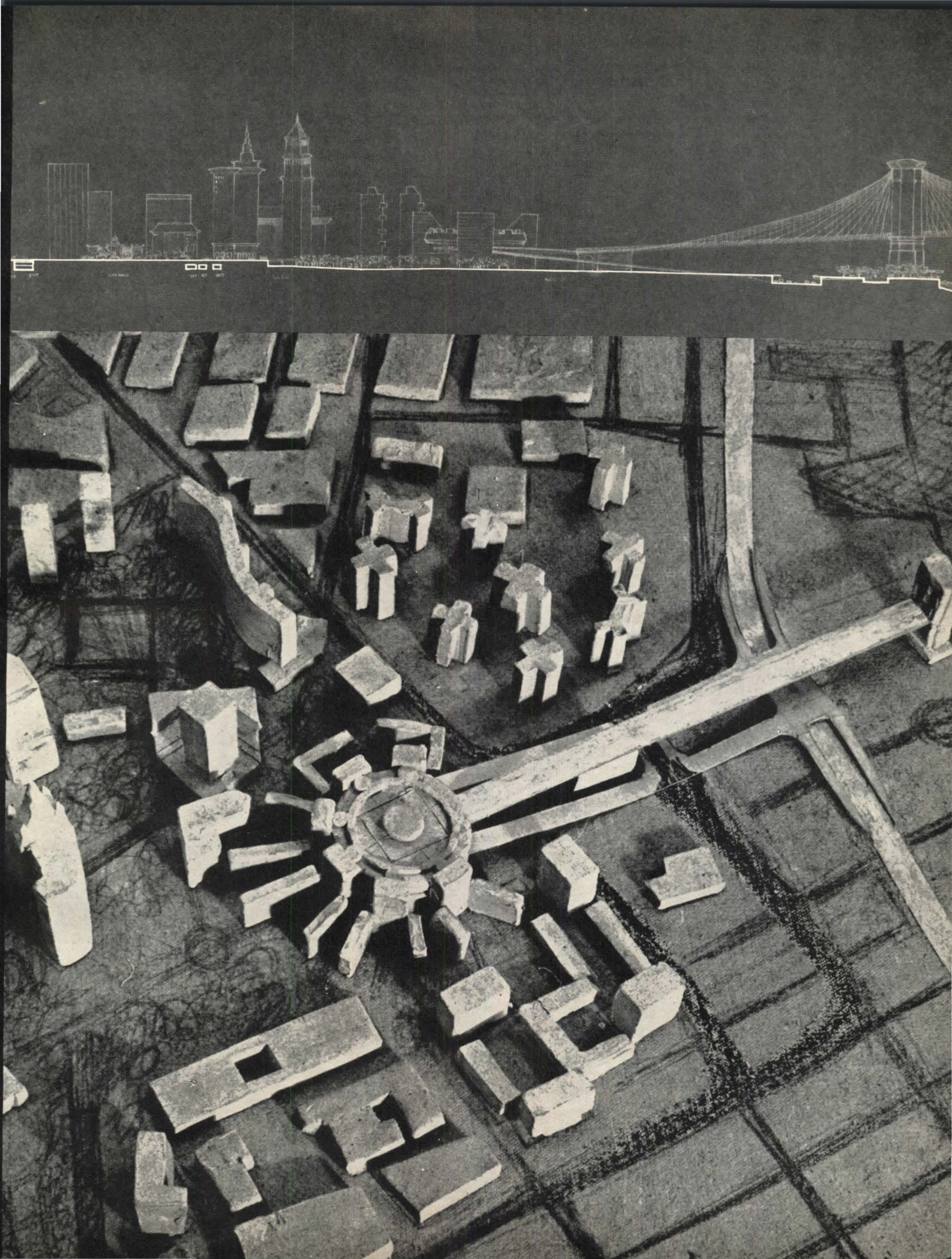
Katan has brought his proposal to the interested attention of traffic engineers, other design professionals, and city officials. He is currently seeking support for further development, and official approval for the planning of a specific Gateway.





Top: interchange level. Above: a variant with low offices pierced by pedestria routes. The Lower Manhattan Plan (below) takes 11 acres for traffic at th Brooklyn Bridge; the Gateway (bottom) needs only 3 acres. Different arch tectural treatment makes for a self-contained form (top, opposite) or a "extroverted" form (bottom). Either way, the view of the bridge is preserved PHOTOGRAPHS: This page (top), Mete Goktug. Others, Roy Berkeley.





BOOKS

JOHN WELLBORN ROOT: A study of his life and work. By Harriet Monroe. Introduction by Reyner Banham. Published by The Prairie School Press, Park Forest, Ill. xxii + 291 pp. Illustrated. 8¾ by 6¼ in. $8.50.

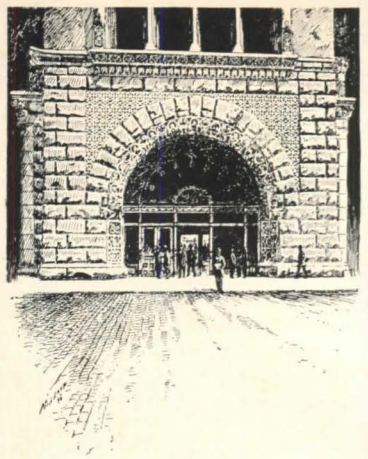
REVIEWED BY CARL W. CONDIT

John Wellborn Root died in 1891, a few days after his 41st birthday and on a flood tide of achievement that ordinarily would have promised another 25 years of architectural triumphs. Harriet Monroe, sister of his wife, Dora Louise, and founder of *Poetry* magazine, wrote the biography within a few years of his death, while the memories and the sorrows were still unbearably vivid, and saw it published by Houghton, Mifflin and Company in 1896. Long out of print, the book has been rescued from oblivion by Mr. W. R. Hasbrouck, who has dedicated his Prairie School Press to saving just such records of our architectural past. The passage of 70 years has made it easier for us to judge the quality of Harriet Monroe's book, but it is questionable whether we are any closer to an adequate assessment of Root's mind and work.

In the decade or so that has seen the publication of Ernest Jones's biography of Freud, Richard Ellmann's of Joyce, and George Painter's of Proust, the reappearance of *John Wellborn Root* is not likely to be a literary sensation. Taken simply as an example of its art, the work must be charged with very serious defects. In the first place, it is so poverty-stricken in dated chronology of events, so bare of concrete detail, especially having to do with youthful experience, feelings, and associations, that it simply cannot be regarded as the record of a young man's development. Root meets Burnham, for example, on page 23, about one-twelfth of the way through the text but halfway through his life. Burnham himself, the exact antithesis of Root but nevertheless vitally necessary to his growth as an architect, scarcely exists beyond a name, so that it is impossible for us to gain any insight into this wonderfully fertile union of talents. Miss Monroe's second chapter, "Early Training and Struggles," has largely to do with the financial struggles of the new firm and thus throws no light on the human drama.

The third and fourth chapters, on youthful emotions and mature work, are the most exasperating in the book. They presume to tell us about Root's strongly held and unorthodox religious views, his enthusiasm for science, his love of music that seems to have amounted almost to an obsession, his powerful attraction to women and they to him, his unparalleled, explosive career as an architect; but with scarcely any empirical material and no detailed, cumulative chronology (the list of commissions in Appendix B contains no dates), we have largely a succession of vague, abstract, superficial impressions and generalizations. And the language is often marked by overblown and sentimental clichés that are an embarrassment to the reader. The descriptions of the great urban buildings offer, at best, an outside look that tells us little of why they are important architecture. Here was a woman who knew Root as a member of the family circle, drawn to him by the warmest personal affection, who later revealed an enormous prophetic insight by being the first editor to publish T. S. Eliot; yet her descriptions of Root's creative activity tell us only that he met the problem head on, rapidly built up the solution in his mind, and accurately drew the broad outlines as quickly, apparently, as the mental images took shape. How did he use his wide knowledge in the development of his art? How did experience, feeling, practical exigency, conflicting demands, and visions merge to produce these architectural harmonies?

In two of the eight chapters Miss Monroe gives us the substance of genuine biography. In



Burnham & Root's Rookery Office Building, Chicago, 1886 (top to bottom): main entrance, exterior, covered court, ornament of capital.

Carl Condit, professor of art and history of science at Northwestern University, is the author of the well-known book, **Chicago School of Architecture.**

the fourth, "His Ideas of Modern Architecture," she modestly steps behind the pages and allows Root to speak for himself ("anthological autobiography," Mr. Banham aptly calls it). As a result, many precious papers and addresses which would have disappeared long ago are here preserved for us and made available once again. This chapter alone justifies the republication of the book. The seventh chapter, "The World's Columbian Exposition," contains all the virtues that are missing in the others. It is solidly fleshed out with fact, and the week-by-week narrative has a genuine dramatic movement. Root emerges as a three-dimensional man, revealing the full reach of his powers as chief consulting architect during the maddening struggles that characterized the planning for the fair. The only mark he was able to leave on it was the site plan, for he was as much its author as was Frederick Law Olmsted. After this vivid account, Miss Monroe's final chapter on Root's last days is more an anticlimax than the tragic final act. One cannot escape the conclusion that she was relying on memory and feeling rather than documents, and that her chief motive, whether conscious or not, was to record her own emotional reaction to events rather than events themselves.

Her book is to be regarded as an interpretive and impressionistic biographical essay, not as biography in the usual form. She tried, as Mr. Banham writes in his introduction, to combine in a very personal way the portraits of the man of business and the man of art. In spite of the book's weaknesses, however, there emerges from it the picture of an extraordinary individual whose complex character was rich in paradox. He was an architect who could create revolutionary works like the Monadnock and the Great Northern and at the same time produce the gay, bizarre, extravagant essays that he offered as projects for the fair. Perfectly appropriate to their ephemeral materials and festive occasion, they belong as thoroughly to the Romantic tradition as the music Root loved. An enthusiast of the new science, he nevertheless cherished deeply held and highly personal religious convictions. He was fascinated by the empirical world, yet he was drawn to a kind of mystical Neoplatonism that sought a grand harmony underlying this vast material diversity. He was extremely attractive to women and equally attracted by them because of the readiness with which he expressed the rich, subtle, ambiguous feelings of his richly creative personality while simultaneously evoking the complex feelings of others. At the same time he was equally at home with the tough-minded businessmen who ran the fair and commissioned his buildings. He was confident and optimistic, convinced of the triumph of democracy and the New West, but he also possessed an ironic, gently mocking wit that suggested an awareness of the contradictions between profession and reality. The burdens of the fair and the multiplying commissions at the office were a terrible drain on Root's energies but the real cause of his tragedy lay deeper, as Harriet Monroe implies: he lived too many dimensions of life to excess, responding with passionate sympathy to every social and artistic demand. He could not resist, and it was this refusal to spare himself that killed him.

THE CLASSICAL LANGUAGE OF ARCHITECTURE. By John Summerson. Published by The MIT Press, Cambridge, Mass. 80 pp. Illustrated. 9¼ by 7¾ in. $5.95 (Cloth).

REVIEWED BY DOUGLAS HASKELL

This is a strong, slim, full, thoroughly informed, wrong-headed, brilliantly pedagogical, fascinating, and a bit snobbish illustrated volume. The author contends that Modern architecture now is dead, and extols the "language" of classicism and the Renaissance as the world's "immemorial, most universal, and explicit model," a model of "rational procedure controlling—and inciting—invention." Sir John Summerson is the curator of Sir John Soane's Museum, a classical one, and has written fine books including *Georgian London. The Classical Language of Architecture* is three BBC broadcasts reedited, and is better packed for any student than many a shelf of fat textbooks.

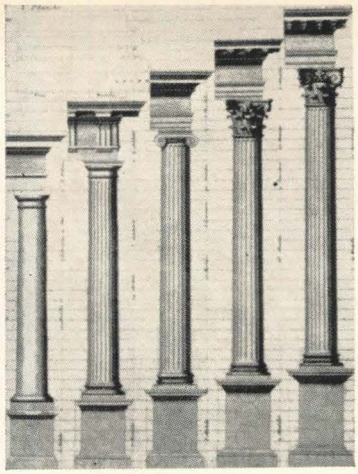
To understand the book at all one first has to grasp that Sir John's idea of a sufficient essential "language" for architecture is one of composition only—the factor that turns buildings into a kind of music. All considerations that make for a good program and a good plan and structure and social effect are preliminary; they are "just building."

Given such an underlying assumption, it is possible for Sir John to dispense with all hanky-panky concerning a "classical spirit." He goes into a thorough and precise exposition of just the five Roman "orders" and three Greek ones as a grammar, and describes the harmonies obtained by their very diverse handling, which includes an expansion of their devices. He traces this history across several centuries, attending chiefly to the post-Renaissance ones, through the lusty Baroque and Piranesian episodes to the present time.

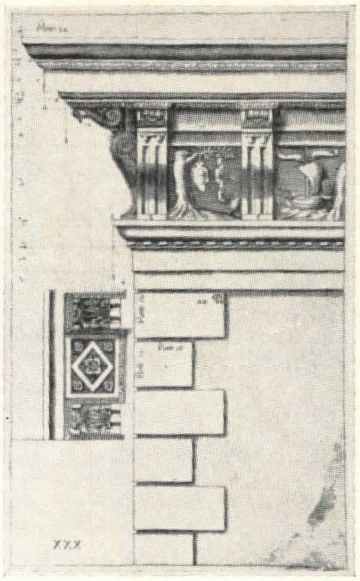
For those who have always thought classicism was just "those columns hooked onto everything," there is a revelation waiting. There is a detective-story delight to be had in following the sensuous mathematics of those endless manipulations which handle a variety of themes, moods, and styles sometimes ages apart, just as music does. For, among the things the author does extremely well is to elucidate the nature of the orders as *controls*, not only as decorative adjuncts. Because of strict rules of proportion, when one thing changes everything else must be adjusted that adjoins it. Summerson does not seem very explicit about the effects on space itself—he takes space forms too much for granted—but a close reader can ferret out

(continued on page 106)

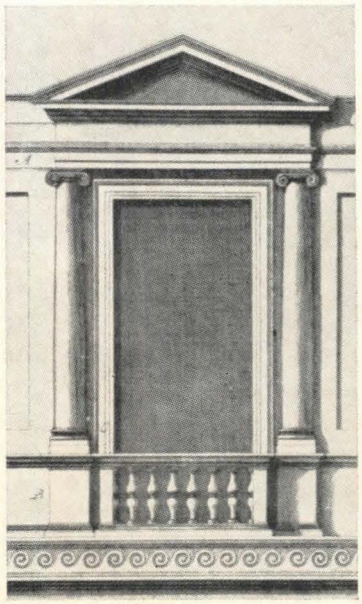
Mr. Haskell, a member of our Board of Contributors, is the former editor of The Architectural Forum.

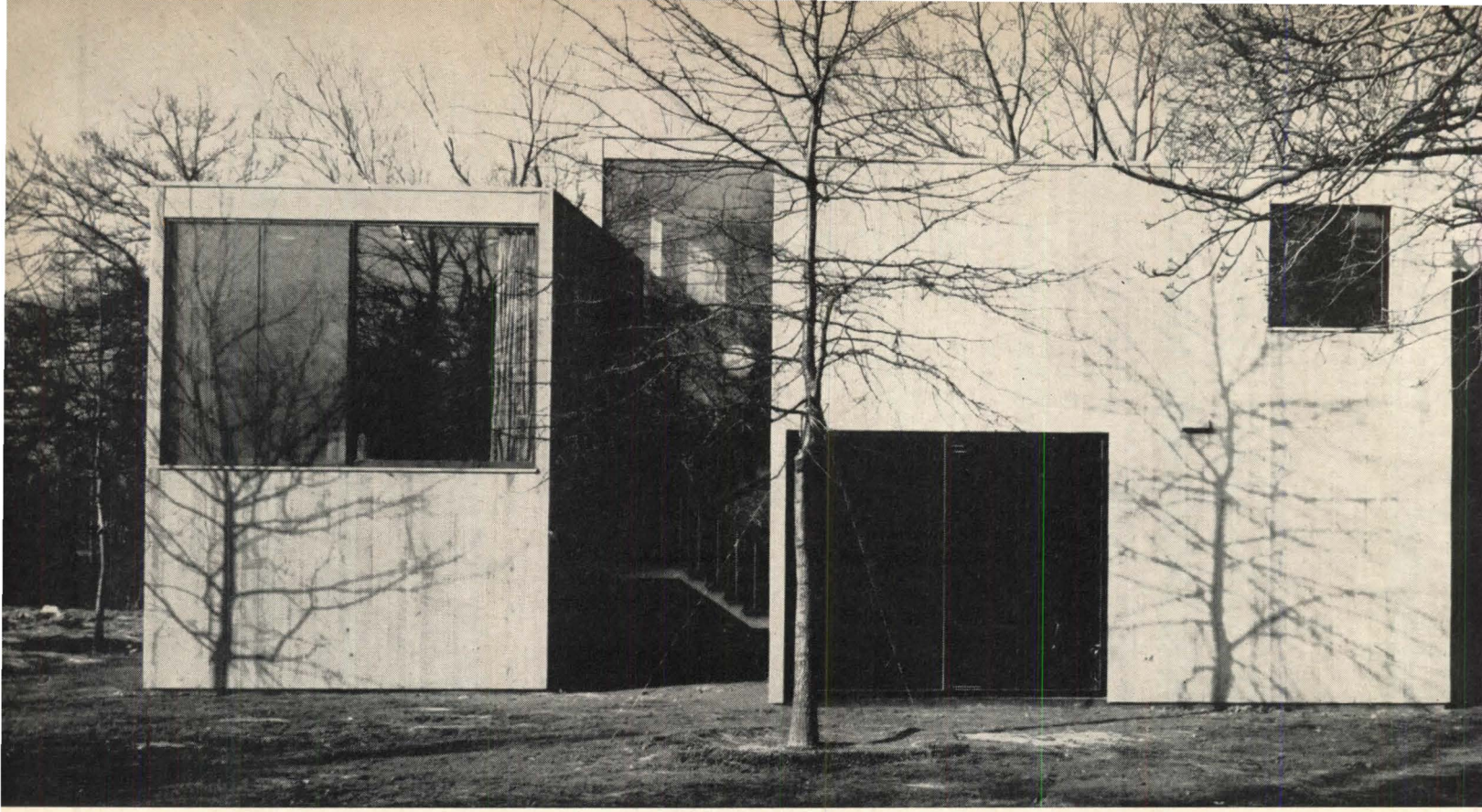


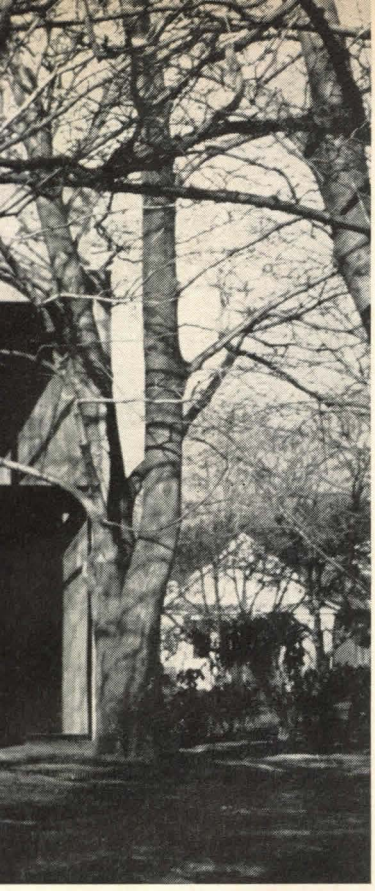
Above: Perrault's version of the five orders (1676). Below: Entablature of Vignola's Castello Farnese.



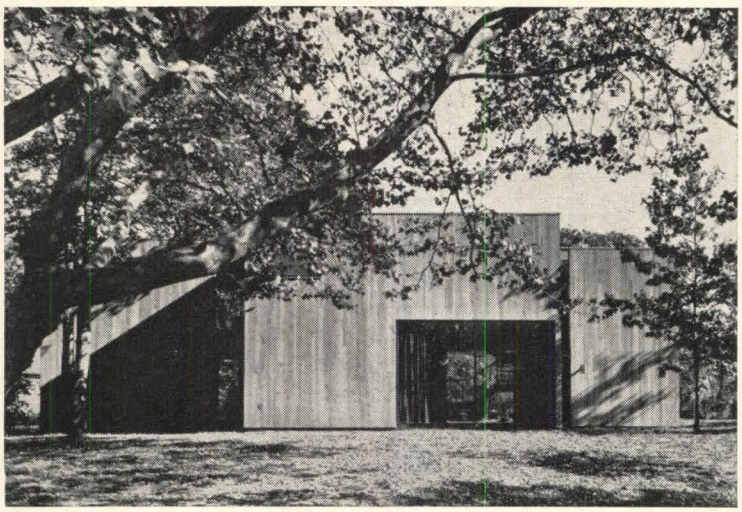
Below: Frame for window at Pandolfini Palace, Florence, in High Renaissance "prose" by Raphael.







Not far out on Long Island

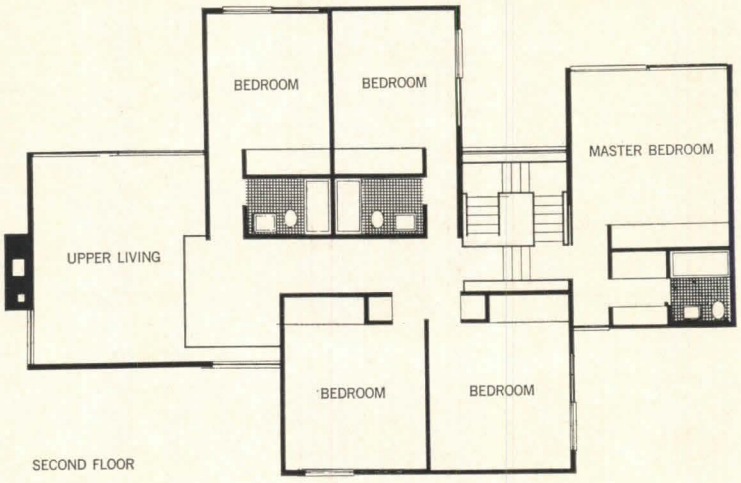


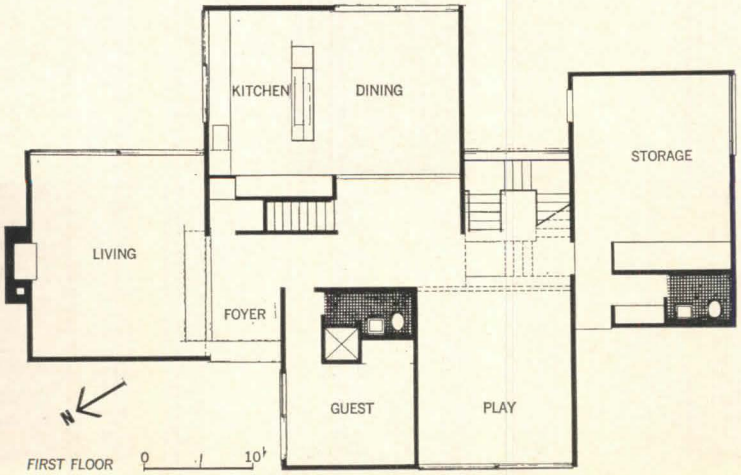
Although it may not look "far out" to the fans of fun-house Pop architecture, this house by George Nemeny is an eye-opener to Woodmere, Long Island. Set among the mini-manors of an affluent suburb, the Prussack house is the neighborhood's first close-up view of contemporary design.

The house is a rich massing of large volumes that merge into each other, all opening broadly to the outdoors. Windows may seem large for a house so close to its neighbors, and may seem arbitrary in size and placement. But Nemeny points to the appropriateness of the different facades—relatively closed-in at the front and sides, completely open at the rear—and to the different window openings for different needs. The play of light makes for varying delights within—the changing shadows on interior walls, and the view upward to leaves and sky (particularly through the high window in the living room). Only some of the windows are curtained; the owners have discovered that with the same amount of light on both sides of the glass, either by day or night, the interior is not readily visible to outsiders. When landscaping is completed, with a row of stubby pines, neighbors to the rear will be well screened out.

Inside the house, one continually moves from dark to light—the upper hallway and lower circulation space both open up to the light at each end. Changing heights also keep the spaces from being static—two of the major downstairs areas (playroom and dining room) are 9 ft. 6 in. high, while the storage-laundry area is 7 ft. 3 in.; upstairs, the master bedroom is 9 ft. 6 in., while the children's bedrooms are 7 ft. 3 in. The two grand spatial elements are the full-height living room, with a balcony overlooking it, and the full-height open stairway; each is glazed to its full height on the southeast.

Continuity of design is sometimes subtle; the same 9 ft. 6 in. height of the sliding doors in the living room reappears as the height of the windows in the





master bedroom. A more obvious means of continuity is the rough-sawn cypress that covers all exterior and interior surfaces. Cypress is furred out around the chimney, which seems an unnecessary vanity, and even covers the bathroom walls (except directly around tubs). The cypress is treated with a combination of regular bleaching oil and clear bleaching oil, in order to soften the redness of the wood while keeping the knots visible.

Detailing throughout is exquisitely simple—cypress siding is applied without baseboard or ceiling trim; sliding windows disappear into wall pockets. Against the cypress, and the other natural or subdued materials (trowelled-on resilient flooring on the first floor, albarene stone at the fireplace, plaster ceilings throughout), are such strong accents as a rich oriental rug, classic Breuer chairs, and vibrant fabrics.

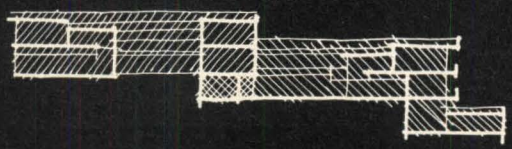
Under a recent local ruling, the site planning of any new housing must be approved by a local board; but, as can happen with design controls, instead of insuring good design the controls almost killed it in this case —the board's hesitancy in approving the drawings would have sent a less resolute owner-architect team heading for the hills.

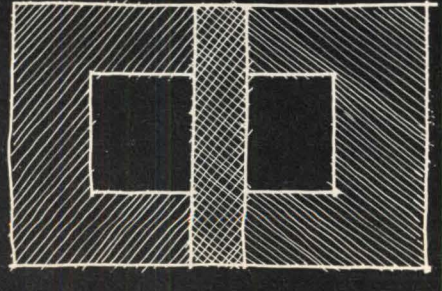
An architect would be the first to say that good design does not have to be avant-garde; to the professional eye, this house would have been possible and reasonable 10 or 20 years ago. Perhaps the community of Woodmere understands this, too, now that the house is built and occupied; a neighborhood that first looked upon the design with skepticism has now come to accept it with equanimity and even approval. What was "far out," in their eyes, now comes into focus as good design.

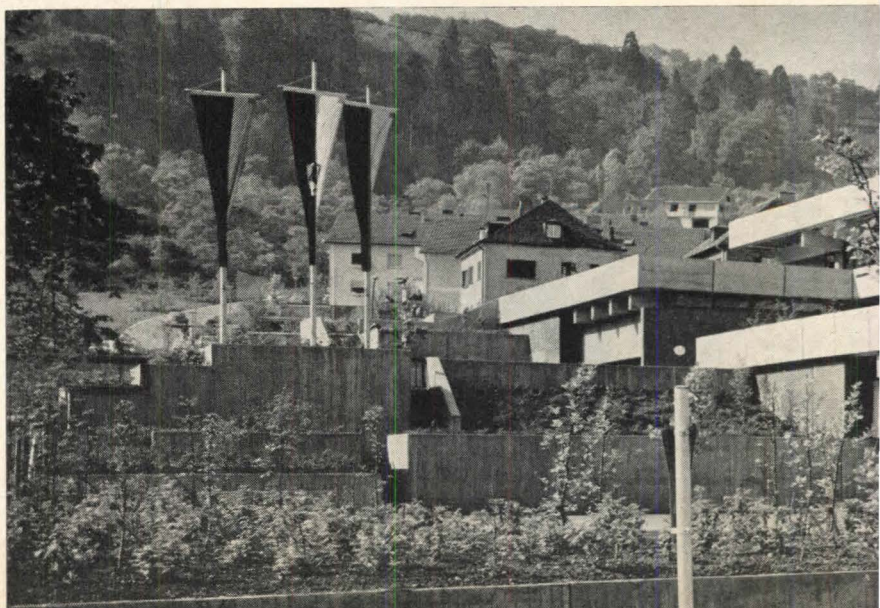
—Ellen Perry Berkeley

FACTS AND FIGURES

Residence for Mr. and Mrs. Charles Prussack, Woodmere, Long Island, N. Y. Architect: George Nemeny; Richard Henderson and Debora Reiser, associates. Engineers: Edward S. Klausner (structural). Construction superintendent: Aadne Aasland. Building area: 2,900 sq. ft. Construction cost: $68,000. PHOTOGRAPHS: David Hirsch.







TWIN SCHOOLS ON THREE LEVELS

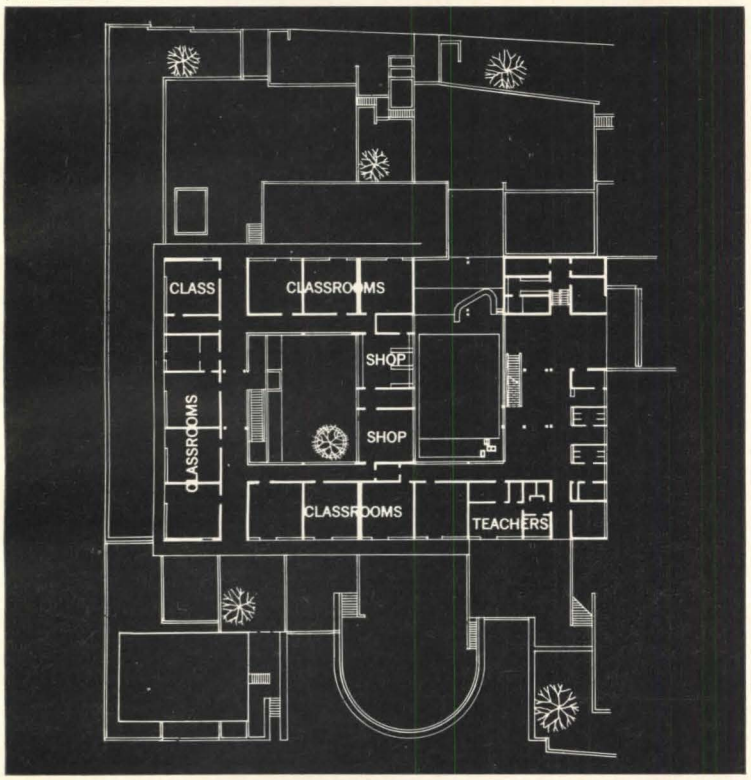
The handsome, multilayer structure shown on these pages houses two very special schools in the West German city of Stuttgart. The schools are special in that they take care of retarded children, and of deaf children (who require speech instruction), respectively.

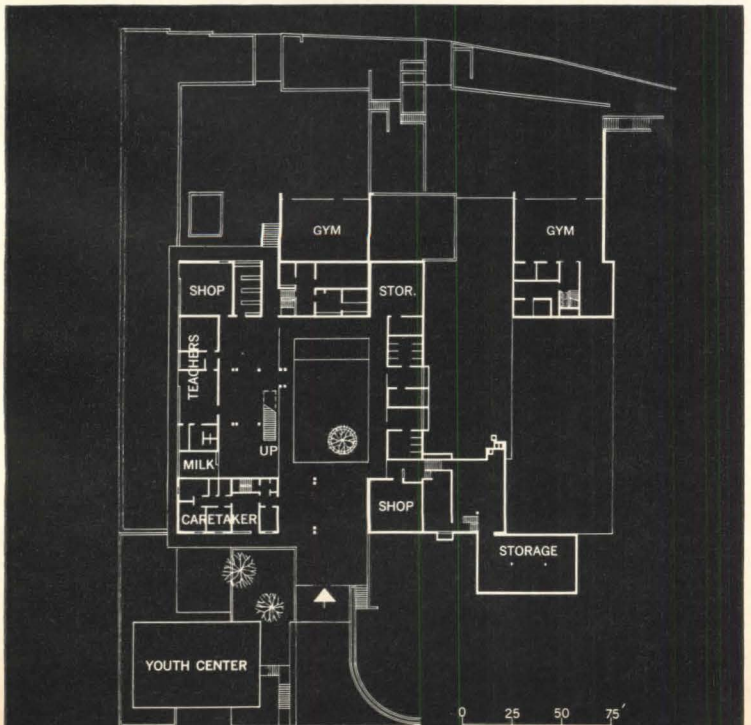
Such specialized schools draw their pupils from all over town—which means that the schools need to be centrally located. And central location, in turn, means land shortages. So the Stuttgart authorities decided to combine these two separate schools in a single building, and to fit that building to a very small and difficult site near the center of town: about 3 acres located between two roads, with a 40 ft. drop (ie., a 15 degree slope) from the southern (uphill) property line to the northern edge. The architects' solution is ingenious and as intricate as a Chinese puzzle.

To explain their solution, schematically, there are three major levels altogether: the top level, on the uphill side, houses most of the facilities of the speech school; the bottom level, on the downhill side, houses most of the facilities of the school for retarded children; the middle level is divided about equally between the two schools.

The entrance to the speech school is from one of the two existing streets, on the middle level; the entrance to the school for the retarded is from the other street on the lowest level.

More precisely, there is a basement level in addition to the three principal floors, and this contains a parking garage and a gym for the downhill school. (The gym for the uphill school is similarly tucked away under the middle level.) But, in general, the building is divided into two entities by an axis running east-west through the site.

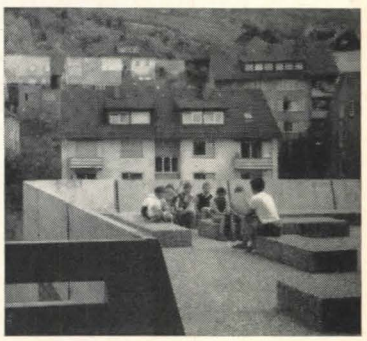




DOWNHILL SCHOOL

The lower, northern portion of the site is occupied primarily by the school for retarded children. Access to this school is from the west, past a curved, walled-in playground, under a portico (topped by a row of classrooms above) and into a pleasant interior court (opposite). To one side of the court is a spacious entrance hall (top, left) ringed by shops and offices.

A stair leads up from the entrance hall to the next higher level, which contains virtually all classrooms. The classrooms are accessible from both an interior corridor that overlooks the court, and from continuous balconies around the periphery of the building. These balconies are a feature of the entire building, and help fit the structure into the hillside: for they make the double school appear like a series of terraces—ie., an element of landscaping, rather than a bulky construction. Apart from these esthetic considerations, the balconies provide additional fire exits, sun control, and a sound barrier that keeps out some of the traffic noises along the two existing streets. The balconies meet the slope of the site on the uphill side.



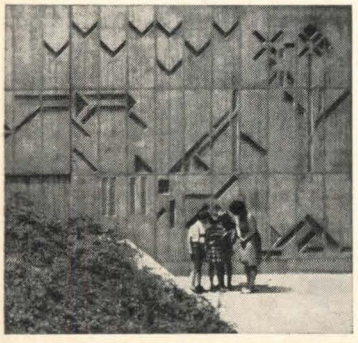
Much of the structure of the building is poured-in-place retaining walls, columns, beams, and ceiling slabs. The deep exterior parapets and fascias, however, are of precast concrete; and interior partitions are of face brick. The pleasant contrast between the roughly formed, poured-in-place surfaces and the smoothly precast parapets is one of many subtleties in detailing.

UPHILL SCHOOL

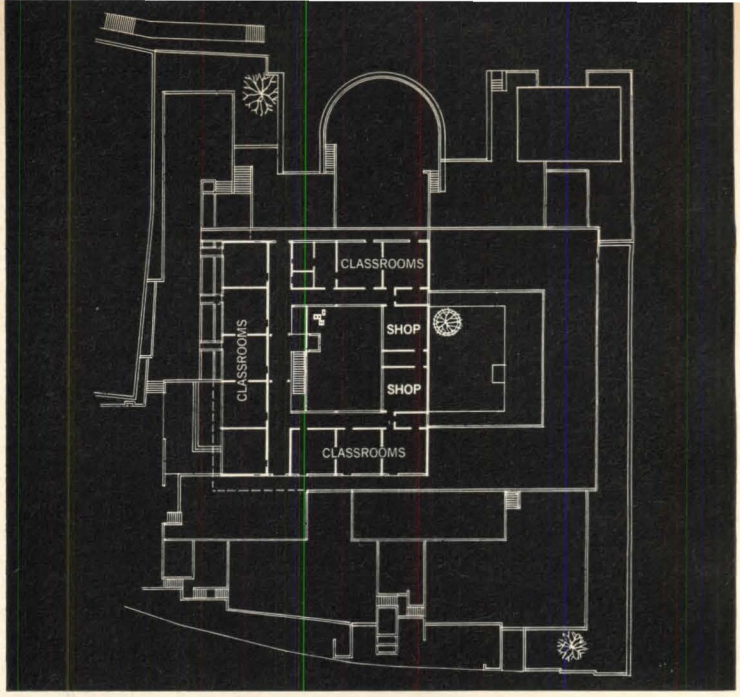
The speech school occupies most of the upper, southern half of the site. Entrance to it is from the east, up a ramp, under a portico formed by upstairs classrooms, and into a second, interior court. This court is one level higher up the slope than the courtyard for the retarded children. It is marked by a tall concrete "sculpture" that is, in fact, a playful grouping of chimney stacks (opposite page) that serve the central heating plant.

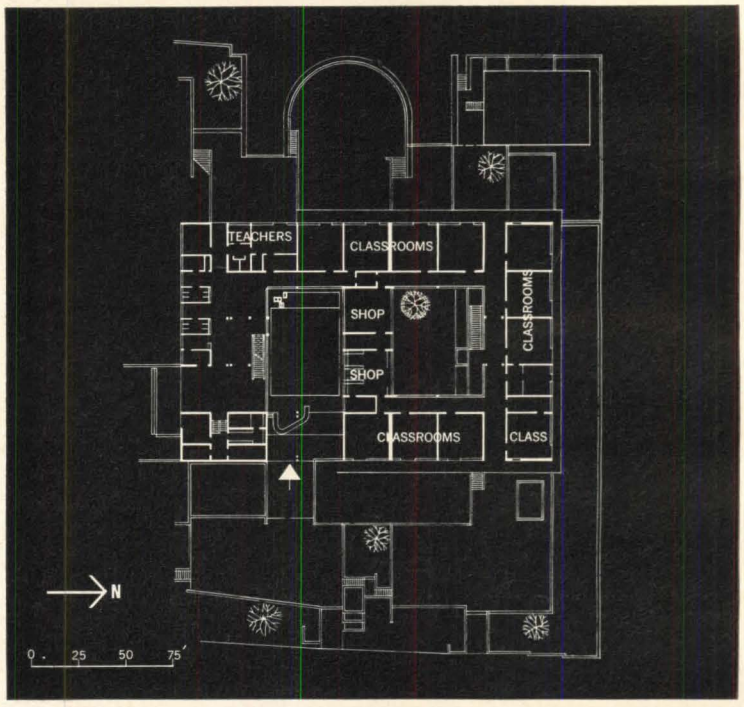
From the interior court, the speech school is entered by way of another, glass-walled hall, similar to the one in the downhill school. Here, too, the entrance hall is ringed by administrative offices, while the classrooms, by and large, are located on the next floor up—the top level of the entire school complex. As in the downhill school, the classroom floor has been surrounded by terraces that seem to grow naturally out of the slope, and serve as play areas and for outdoor classes.

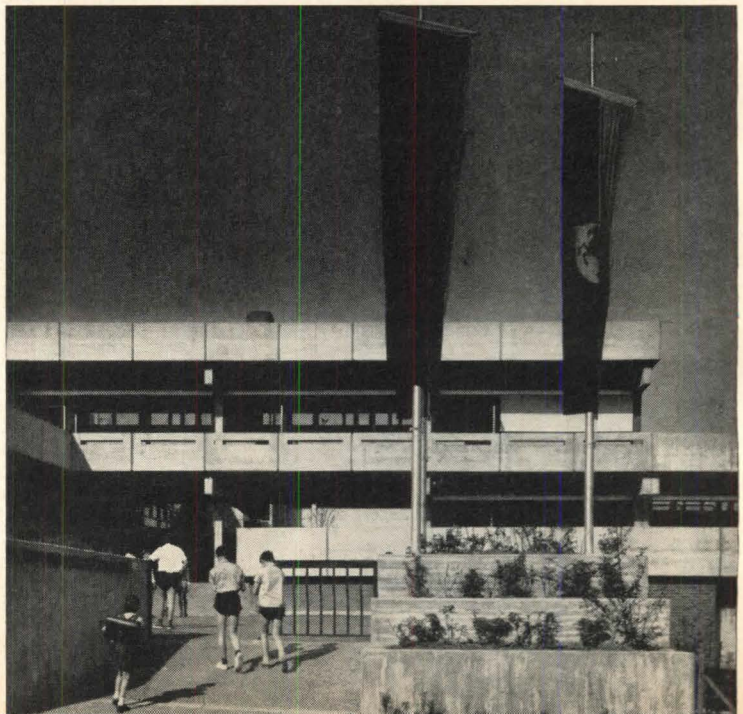
The chimney "sculpture," designed by the architects themselves, is only one of several works of art incorporated in



this building. There is another, abstract sculpture in concrete (by Dieter Bohnet) on one of the play terraces, and a relief (by Roland Dörfler) cast into one of the outdoor retaining walls. Indeed, wherever one looks, it is apparent that much love and care have gone into the planning and execution of this remarkable public school, to make life as pleasant as possible for its handicapped pupils.







FACTS AND FIGURES

"Lehenschule" (a school for retarded children) and "Sprachheilschule" (for children with hearing and speech handicaps), Zellerstrasse, Stuttgart, Germany. Architects: Hans Kammerer and Walter Belz. Assistant Architects: Hans Roder and Dieter Lutz. Cost (including landscaping): 4 million DM ($1,000,000).

PHOTOGRAPHS: Brecht-Einzig Ltd.


NAN

FORUM CONT'D

fered next to nothing in the way of new programs for the cities. In contrast to past messages, it was mild, almost apologetic in tone—calculated to appeal to a 90th Congress whose heart lies several degrees right of its predecessor's.

Clearly, the Administration will consider itself lucky if it can just prevent Congress from undoing past gains, specifically the model-cities and rent-supplement programs, both of which are acknowledged to be in deep trouble on Capitol Hill. "The 89th Congress made them law," noted the President, "it remains for the 90th Congress to give them life."

Asserting that "we have inspired the hopes of large and small cities in every state," the President asked Congress to appropriate $12 million for model-cities planning grants, $400 million to implement programs for which $11 million in planning grants will be awarded this year, and an extra $250 million for urban renewal projects in the model cities. For rent supplements, the President requested the full authorization of $40 million.

MINI-COMSAT

The President's urban message did contain one fresh idea: a low-income housing ownership pilot program that appears to bear some vague connection with the "Comsat for Housing" proposal which came out of the Woods Hole conference last summer and which the President promptly shelved (Jan./Feb. issue).

The President's message informed Congress that he had directed HUD to start the program "within existing authority," and had authorized the Federal National Mortgage Association to put $20 million into it. The program will "identify" low-income families potentially able to build up ownership equity in a home; provide guidelines to assure the economic soundness of their investments; explore ways to insure them against mortgage defaults and foreclosures; and encourage ownership equity through self-help in the construction of homes.

Though it is far narrower in scope, the scheme sounds suspiciously like a proposal put forth recently by Republican Senator Charles Percy of Illinois. Apparently the President has been stung by criticism from Percy and others for his failure to come out with a Comsat-like housing scheme, and this program is his answer. It's hardly even a shadow of the real thing.

ENTER WESTINGHOUSE

Westinghouse Electric Corp., like its major competitor, General Electric, has jumped into the new-town business. The company announced last month it is building a new city for 60,000 residents on a 10,400-acre tract near Fort Lauderdale, Fla., giving it a step up on G.E., which has yet to start a new town, though it began gearing up months ago.

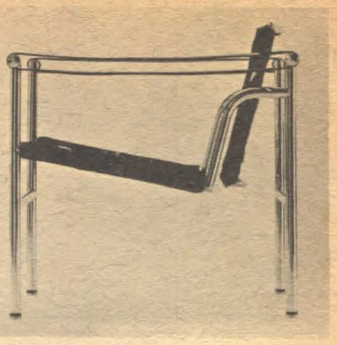
Westinghouse's new town, to be called Coral Springs, will serve as an "urban laboratory" where the company will develop and test products for the construction market, according to W. B. Weathers, head of a new major projects and urban systems organization set up within the firm to coordinate its urban development programs. Westinghouse will build commercial buildings in the city and sell off tracts of land for houses to private contractors who will build to its specifications.

Total eventual cost of Coral Springs will be $250-$300 million. So far, some 40 miles of roads have been built in Coral Springs, and city-owned sewage systems are being installed.

INS & OUTS

CORBU'S NEW LINE

Furniture design was never quite the same after Le Corbusier, in a burst of creativity, designed his remarkable series of chairs, tables, and storage wall units in 1928. They all have had enormous influence, yet authentic copies of the Corbu pieces—especially the chairs—are rare, simply because no manufacturer until now has been willing to tackle the intricate complications of mass producing them.



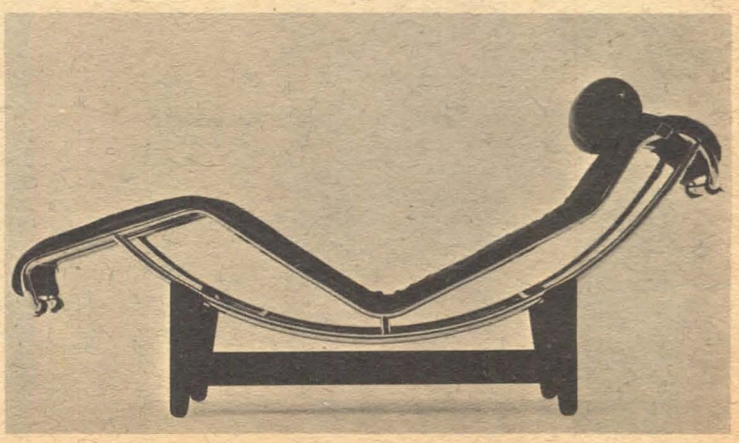
Shortly before his death, Corbu modified his designs for mass production and, now, Figli di Amadeo Cassina of Italy has begun manufacturing them. The U.S. distributor is Atelier International Ltd., a newly formed firm in New York City.

Included among Cassina's Corbu offerings are the form-fitting reclining chair (below), consisting of an H-shaped cradle supporting a sled-shaped, tubular steel chair frame that can be adjusted to any angle; and Corbu's modern version of the "British Officer's Chair," (above) done in tubular steel and leather. Not pictured, but also being produced, is Corbu's heavily upholstered easy chair, also executed in steel and leather.

RELOCATION

California's 89-year-old, ornately Victorian governor's mansion is, like the state's new governor, an outstanding product of the 19th century. But, curiously, the two just haven't hit it off. Governor Ronald Reagan hates the old place, in fact, and has made arrangements to move out.

California's first lady reportedly wept upon first seeing the mansion, and Reagan himself declared it a firetrap and an unfit place for their eight-year-old son, Skipper, to play in. So the Reagans began



FOOTNOTE

Gremlin—Everybody knows that there is somebody inside the ceilings of all our office buildings who is paid to bang away at ducts and pipes at regular intervals. But, to the best of our knowledge, nobody has ever managed to take a picture of the fiend. Well, here he is. Our message to him is to remember the late Hilaire Belloc's verse: "If you were born to walk the ground/ remain there, do not fool around!"

center replaces Urban America's local development services division. Its activities are being financed under a Ford Foundation

steel composition designed by Jose de Rivera in association with Roy Gussow.

The sculpture (rendering right)

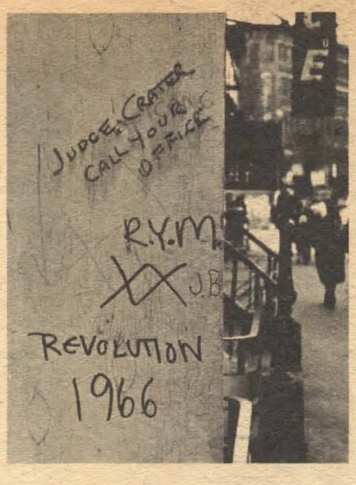
ture at Columbia; and Benton Murdoch Spruance, chairman of the Fine Arts Department at Beaver College, Glenside, Pa.

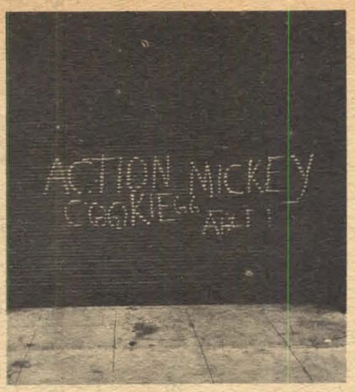
looking around and finally settled on a 12-year-old, vaguely Tudor-style home three miles from the capitol. Among other reasons, the Reagans liked it because it had a base[illegible]

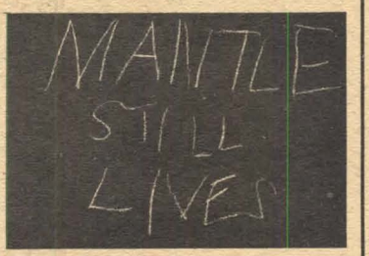
the first in the nation, prevented architects, engineers, and land surveyors from performing more than "subsidiary" planning functions and prohibited them from [illegible]

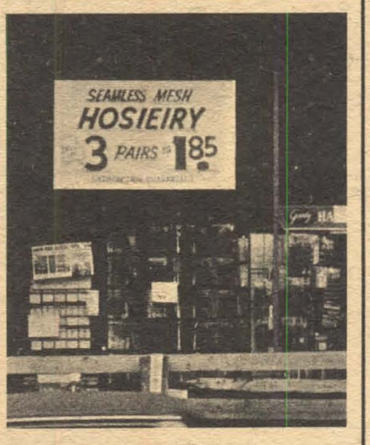
Walter McQuade

NOTES ON THE CIVIC BULLETIN BOARD





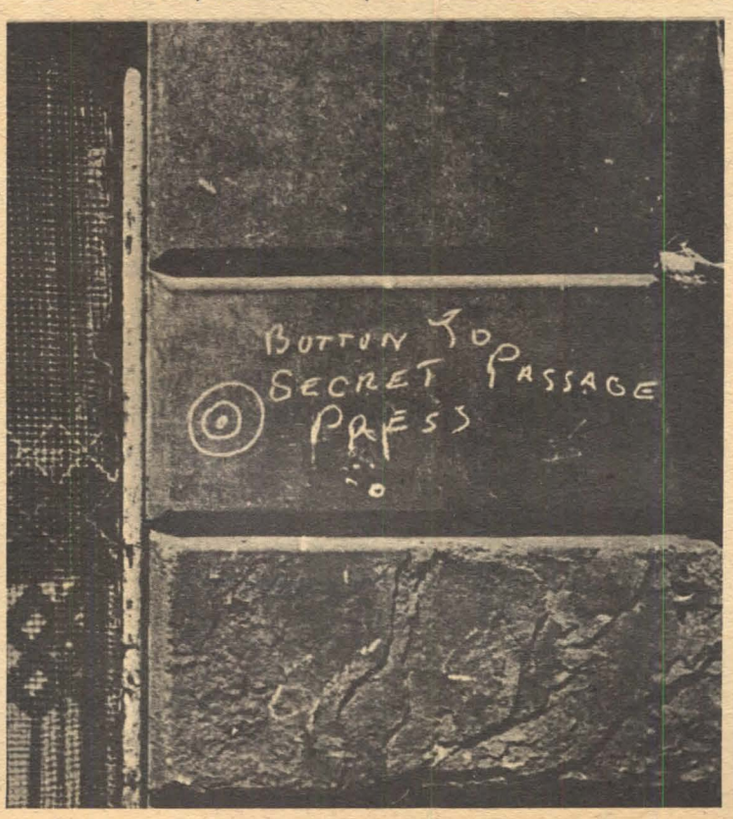




People are not content to be scale figures in the city. They insist on affixing their signatures to it, marking it up. In my neighborhood of New York City, a determinedly defiant one, there seems to be hardly a wall that doesn't say "LSD not LBJ" or "Make Love not War." One quite frequently comes across the word ACTION written large outdoors. Perhaps it stands for the American Council To Improve Our Neighborhoods, a subsidiary of Urban America. But, then again, maybe not.

Not all the messages are belligerent. Frequently, on the way home from the Italian bread store on Bleecker street, I used to walk up Cornelia Street to find a favorite. It was always written in schoolroom chalk on the sidewalk in a very young hand: "Joe is a horse." I haven't seen it for several years now. Perhaps the author, grown into his teens, is among those poets now working in the more serious subway-wall school: "God is love; love is dead; God is dead." (Jim Polshek tells me he recently saw, while driving on a freeway, a sign pasted on a car's rear window: "God is well and happy in Mexico City.") Nor are all the messages young, or cynical, or in fun. Eight or ten years ago one frequently came across "SUPPORT MENTAL HEALTH" scrawled in the West Side subways on walls, stairway risers, and steel columns. A friend of mine who is substantially more inquisitive than most people somehow tracked down the author. It turned out to be a man who had been institutionalized for schizophrenia several years, then discharged as cured. But, pathetically, he felt himself slipping, and this apparently was the lifeline he was throwing out, riding subways and scrawling through the night. But after a while his plea for help ceased to appear and my friend could no longer find him. The fallible human touch sometimes graces even professional sign painters' works. The sign for ladies' stockings shown at the right is on a building near a section recently designated by the New York Landmarks Commission to be a historic preservation area. That should include the sign.

But the best, most stirring work remains that of the very young, when first they are handed the written language and a piece of chalk in school, and pocket both. This is demonstrated by Helen Levitt's fine photograph of a wall in Spanish Harlem, below.



PHOTOGRAPHS: Page 30, UPI, Aero Photographers. Page 32, Los Angeles Department of Airports. Page 88, Baron Wolman. Page 89, Lawrence S. Williams Inc., John D. Schiff. Page 90, Helen Levitt.

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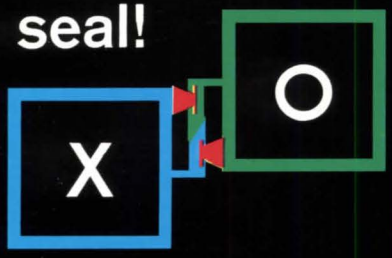

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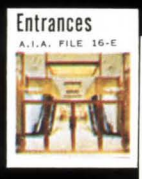

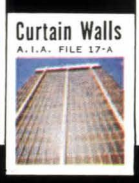

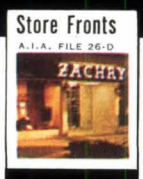

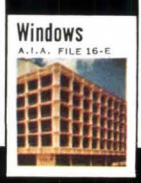

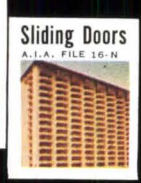

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PREVIEW

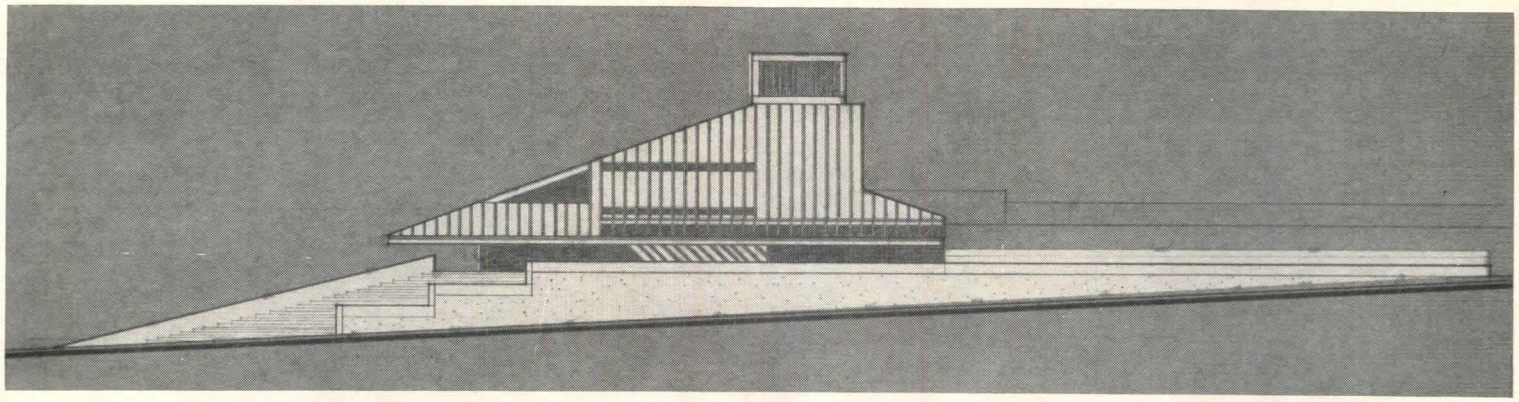
PUBLIC PARKS GO PRIVATE

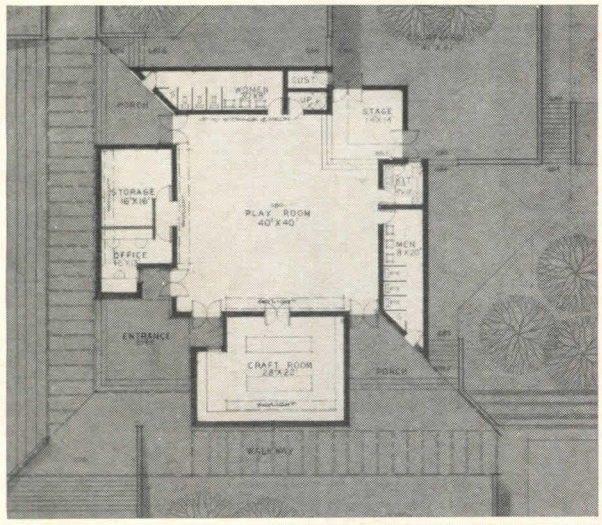
The District of Columbia may not have home rule yet, but it now has local private architects designing its small parks. The new program whereby the National Parks Service hires outside architects for the district is barely six months old. First project is a playground in southeast Washington; architects are Hartman-Cox.

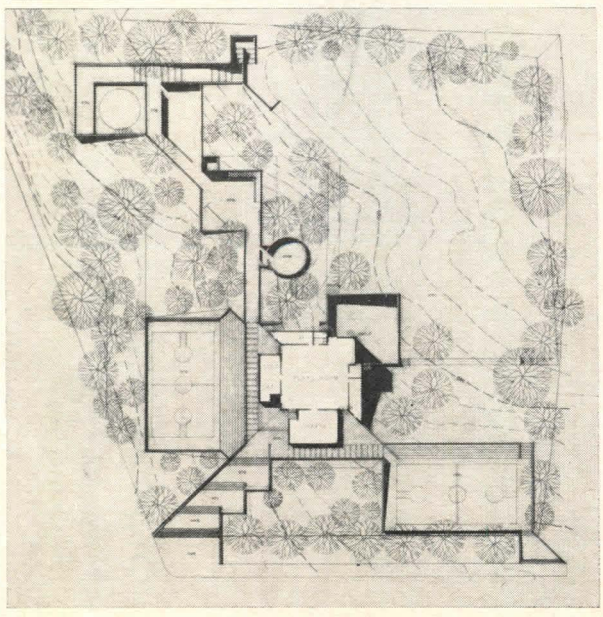
The new NPS policy on small parks seems to be as much fallout from the Beautification explosion as it is a response to maintenance problems from in-house designs. Hartman-Cox have designed a low-budget ($115,000) shelter of concrete block and sheet metal roof; windows are well hidden in the roof to reduce replacement costs.

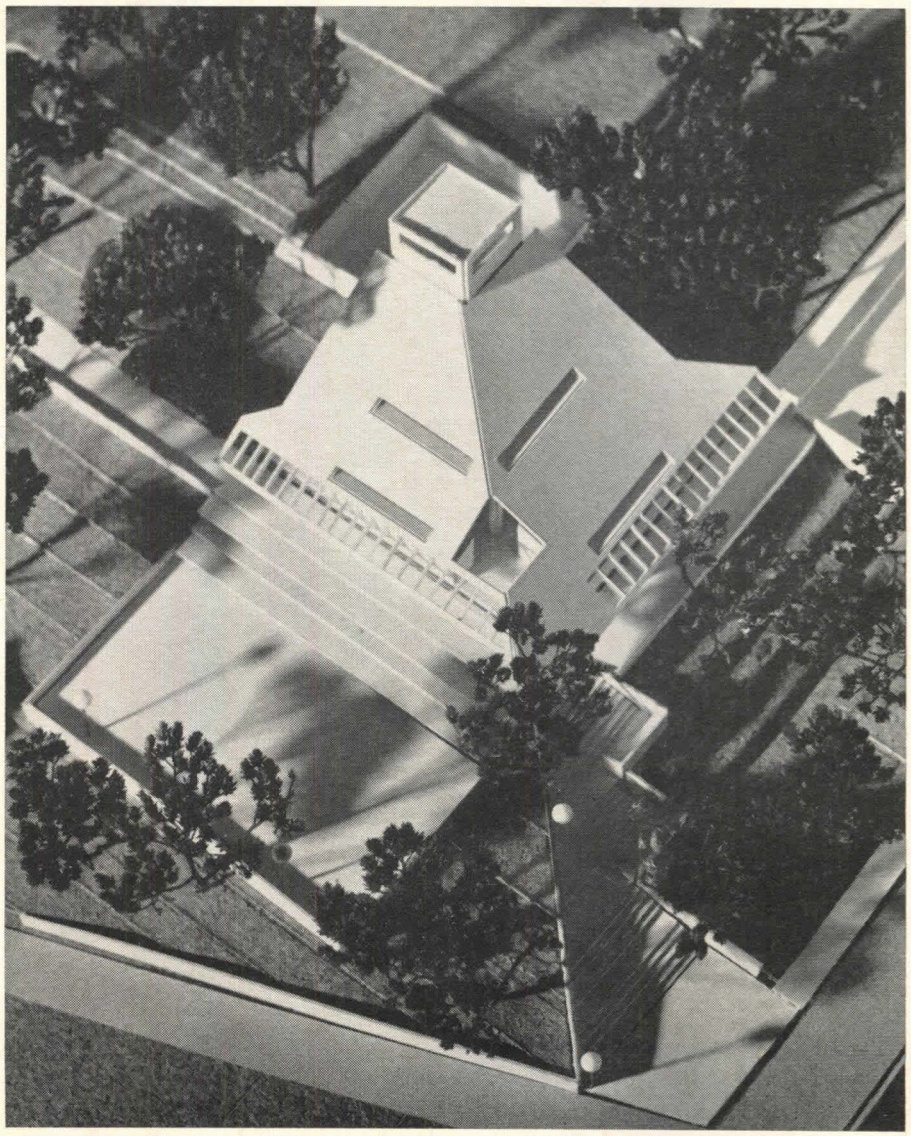
The 2¾-acre site slopes steeply upward from the corner. The architects carry the slope of the land into the building, where the slope reappears as the roof pitch.

Terraced out from the building on a diagonal axis are a spray pool, a square court with play equipment, and another square court with geodesic climber. The variety of spaces keeps age groups separate without barricading them from each other. In addition, says George E. Hartman Jr., "the contouring acts as built-in play sculpture and subordinates the commercial equipment to the space containing it." Total budget for the park is $250,000.









(continued on page 96)

Today any suite of offices worth its status symbols boasts a few art originals. The paintings for the walls are selected with care. The sculpture for the reception area. The most creative of non-desks. But too often, when they get to the floor, the people in charge forget all about art.

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In fact, if *we* were decorating an office to create the best possible impression, an Alexander Smith carpet would be our very first step.

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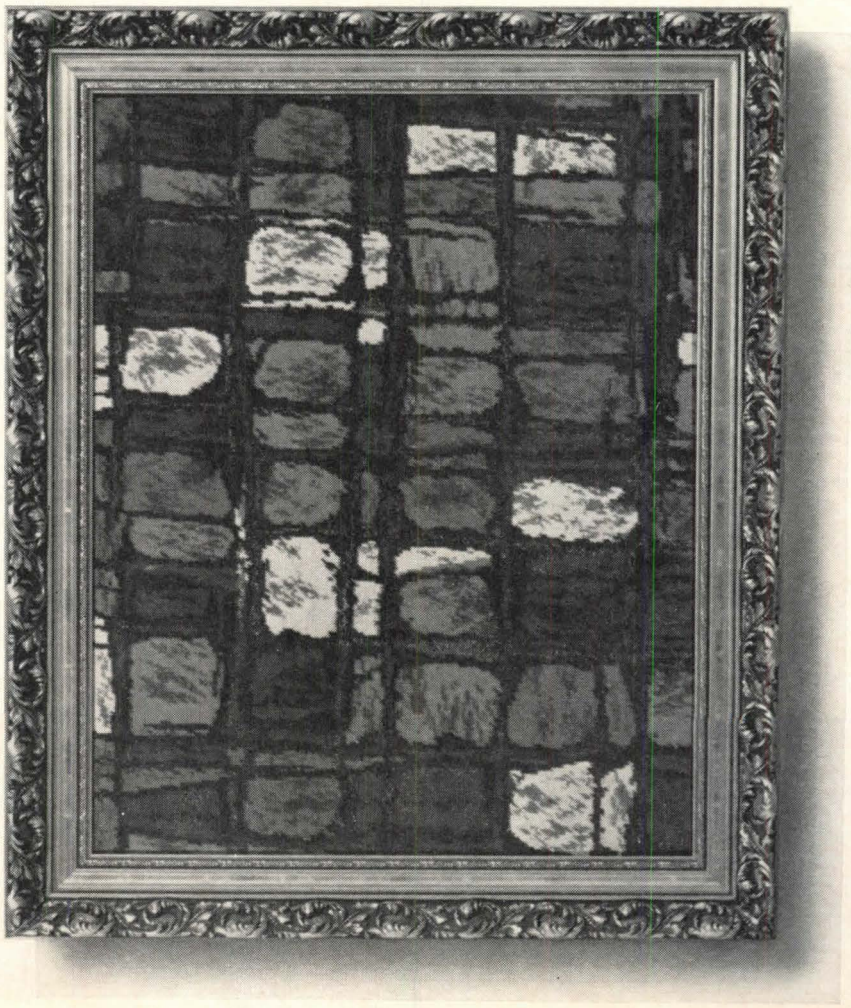
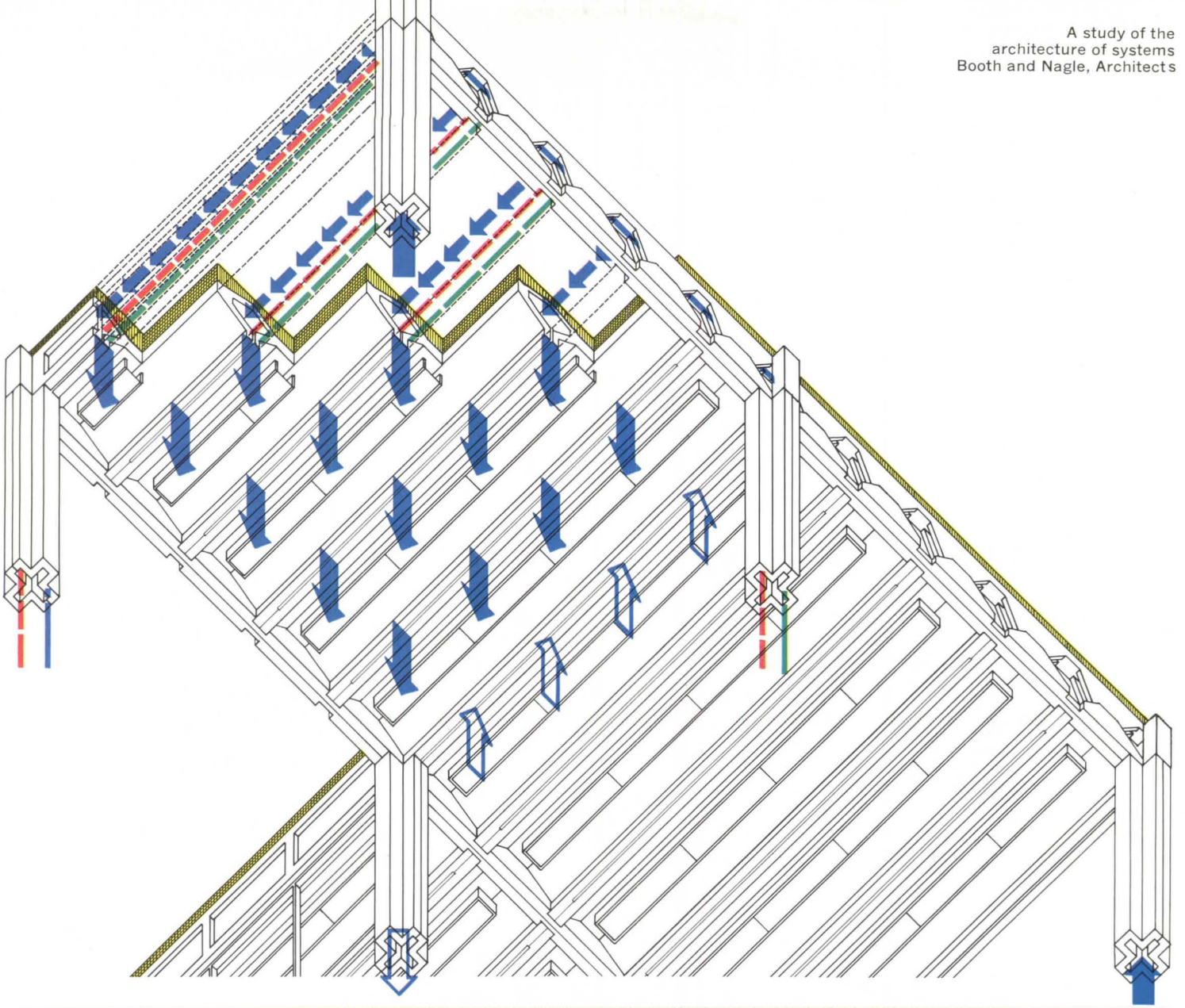
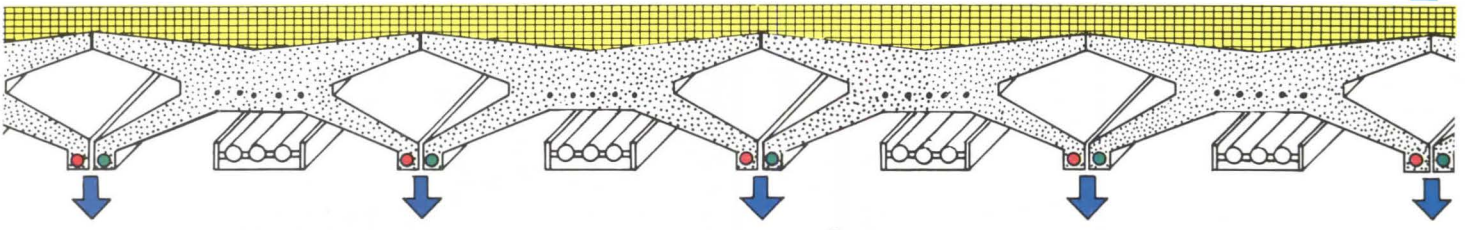


A study of the
architecture of systems
Booth and Nagle, Architects





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PREVIEW

OLD AGE: NEW FORM

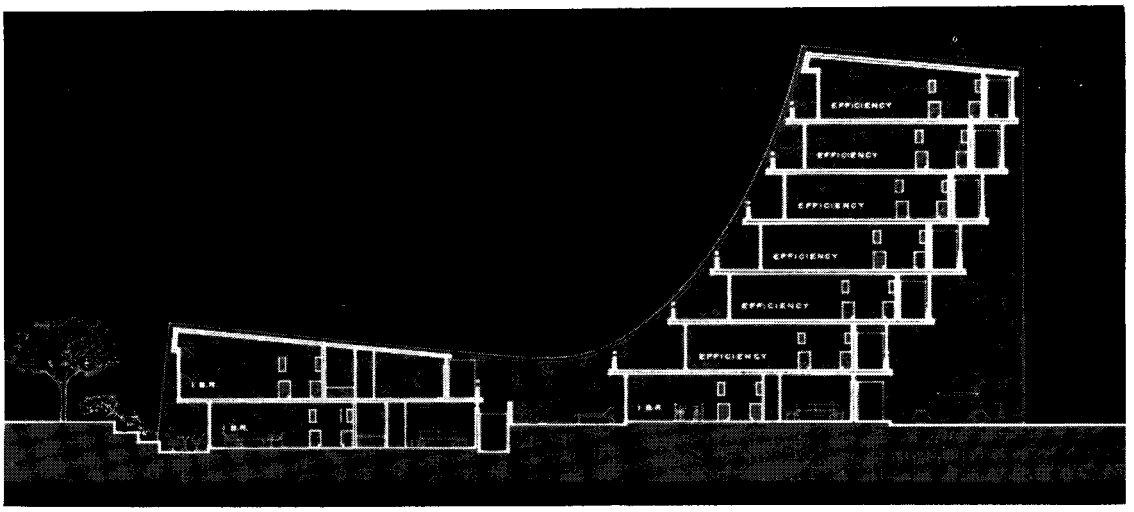
Adding to an existing Senior Village in Columbus, Ohio, Architects Ireland & Associates designed what they call a "contour-rise" apartment for the elderly. Fan-shaped in plan, swoop-backed in section, the building answers the specific needs of southern orientation and river view, and unifies the otherwise incompatible neighbors in the 7.65-acre village — an 11-story slab to the southwest, a 1½-story recreation building to the south, and some 2-story units to the east.

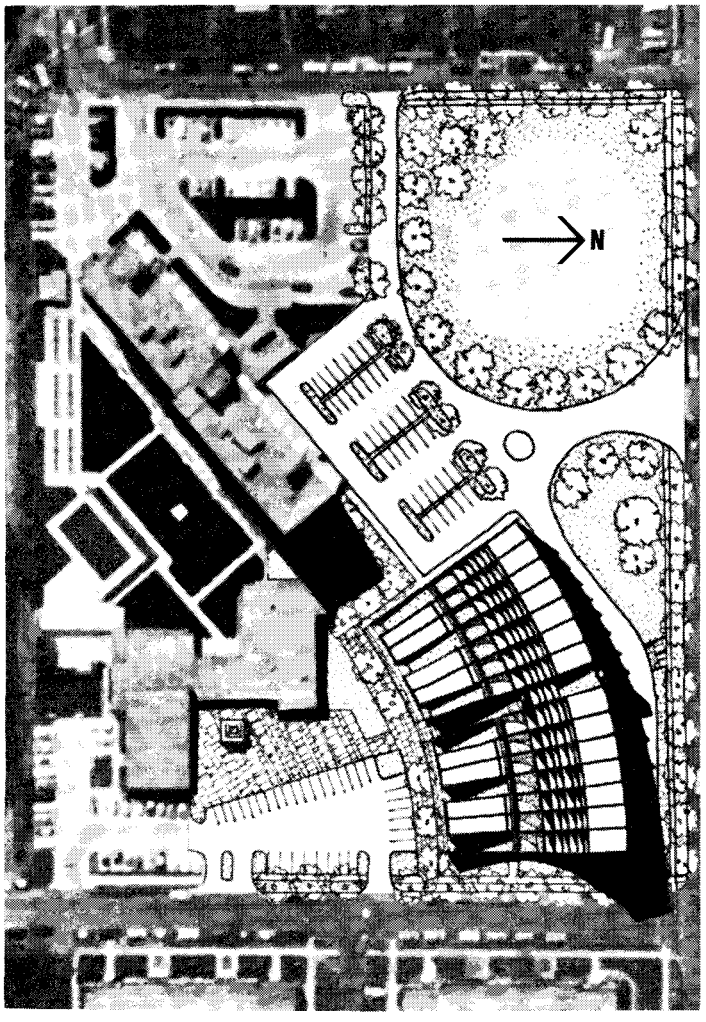
The proposed unit swoops from two stories on the south to its maximum height on the north. All 120 apartments—84 efficiencies and 36 one-bedroom units — have through ventilation and a terrace to the south. Entry to all apartments is via galleries on the north.

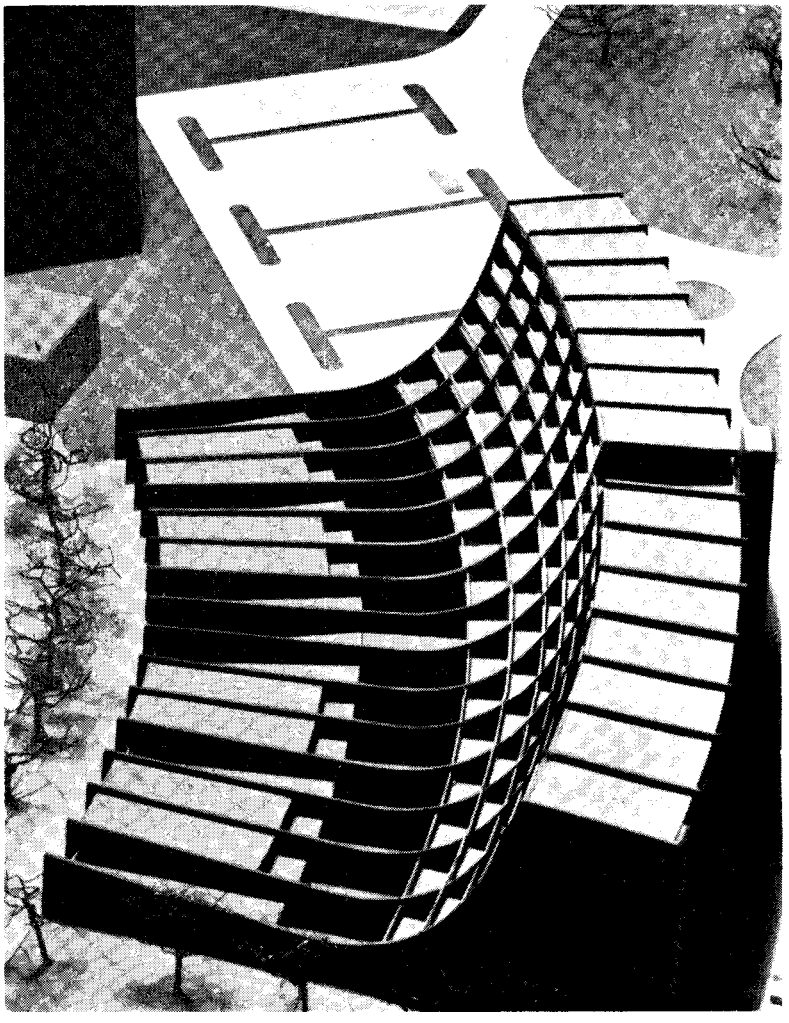
Each floor has a community facility — sitting room, billiard room, etc. Car-parking ratio is 1:5 (the building is directly on public transportation lines).

Load-bearing brick cavity walls distribute mechanical services and provide acoustical barriers between units. Precast slabs span between bearing walls.

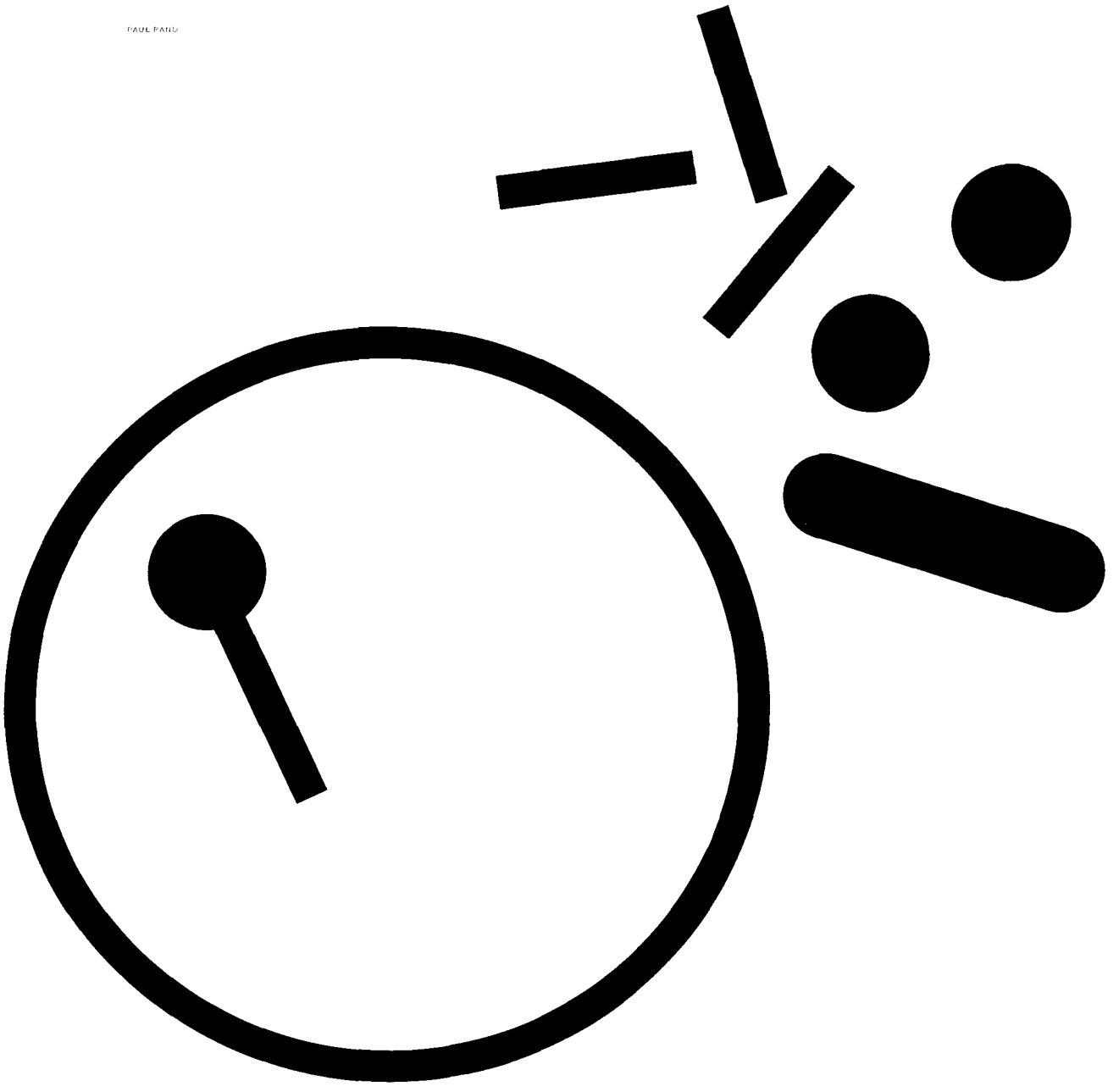
Sponsored by the Metropolitan Housing Authority of Columbus, the project has already received preliminary approval for Federal funds. The building is budgeted for $1.5 million, or $18 per sq. ft.







PAUL RAND



Born: **A new Design Center at Westinghouse**

Needed: **graphic designers**
industrial designers
architects and interior designers

For the last six years Westinghouse has been preparing the way for a Corporate Design Center. It has the backing of the highest level. The Design Center was the idea of D. C. Burnham, president of Westinghouse. It reports to Marshall Evans, vice president to whom research, engineering, manufacturing and marketing staffs also report. E. W. Seay has been named director of corporate design.

Eliot Noyes is the consultant director of design for Westinghouse. For the past six years he has helped shape the company's design philosophy and has been a moving spirit in establishing the new design center. Paul Rand is graphics consultant. He designed the well-known Westinghouse symbol and guides graphics design in all areas. Charles Eames has produced one film for the company, and hopefully he will do more.

Westinghouse has been called the most diversified company in the country with over 8,000 different products. We believe a designer can get broader experience, and have the opportunity to do better work, here than in most independent studios.

The new design center will have a staff of 30 architects and designers. We already have a number of them, but still need:
manager, graphic design
manager, architecture and interior design
graphic designers
architects and interior designers
industrial designers.

If this sounds interesting, write:
E. W. Seay, Westinghouse Electric Corp., Gateway 3, Pittsburgh, Pa. 15222.

James F. Lincoln Library, Lake Erie College, Painesville, Ohio; Architect: Victor Christ-Janer and Associates, New Canaan, Conn.; Designers and Builders: The Austin Company, Cleveland, Ohio

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*Patent applied for

And since FoamWall is really a wall of insulation, it can be used for an interior wall at the same time. That's how it was used in this beautiful James F. Lincoln Library.

Consider Smith FoamWall for your next building project. For additional information look in Sweet's Architectural File 20b/Sm. To see a sample and complete details call or write your nearest Smith office now.

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Samborn, Steketee, Otis and Evans design a retirement village on a neighborhood concept

New design freedom in the Open World of L·O·F Glass

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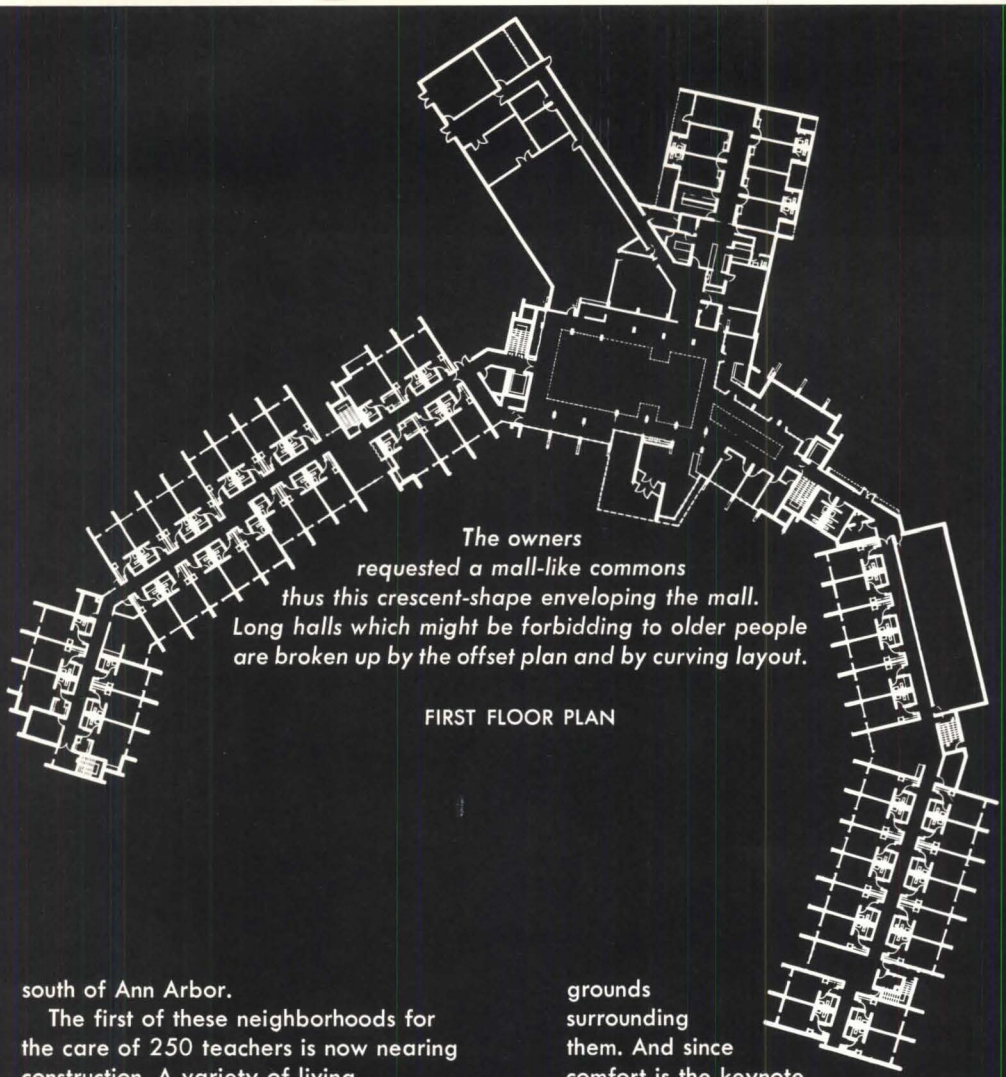
d still let them preserve their individual
ntities without becoming overwhelmed by
er numbers? You break up the complex
small villages. Each with its own barber and beauty shops. Medical facilities. Library and workroom. Dining, lounging and writing areas. Even a village street with an old-time country store and post office. And breath-taking vistas from each living unit.

This is the concept for MEHA Village, sponsored by the Michigan Educational Home Association. It will be located on 250 acres of beautiful rolling land near Saline and about 7 miles



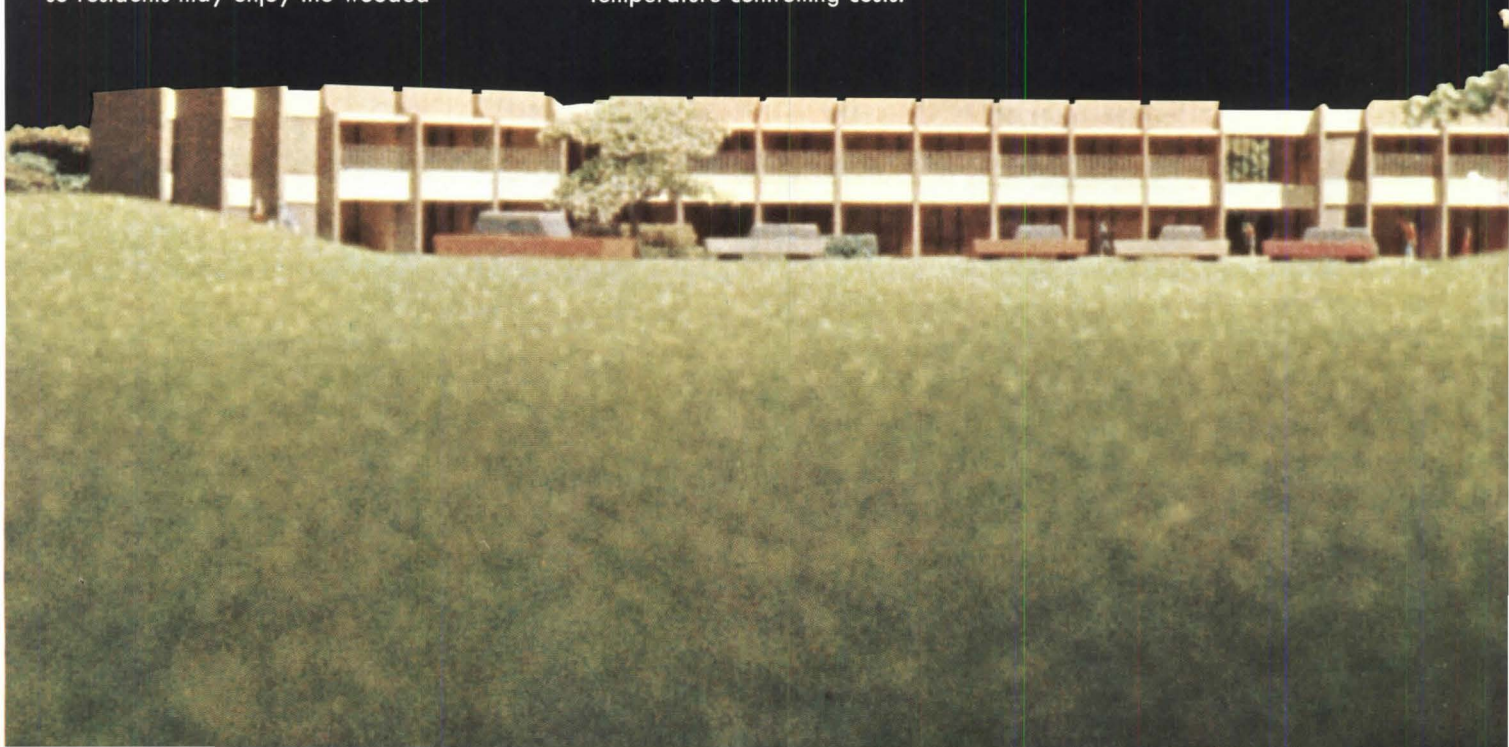
The owners
requested a mall-like commons
thus this crescent-shape enveloping the mall.
Long halls which might be forbidding to older people
are broken up by the offset plan and by curving layout.

FIRST FLOOR PLAN

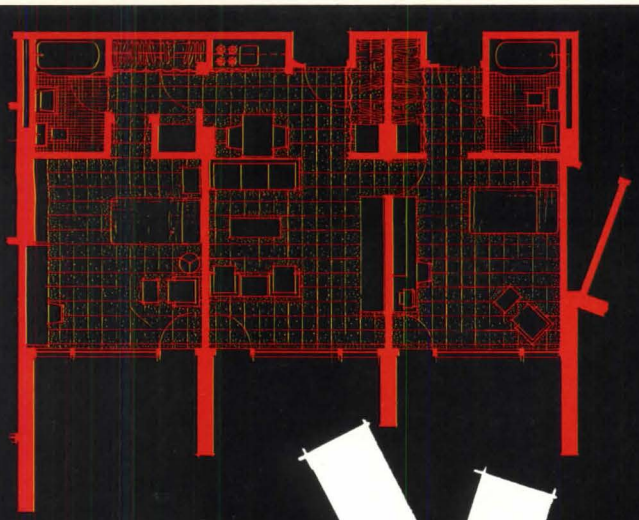
south of Ann Arbor.

The first of these neighborhoods for the care of 250 teachers is now nearing construction. A variety of living accommodations, with flexibility among each, has been provided. The resident has a choice of a two-story terrace unit with a patio outside each room on the lower floor, or an apartment with a balcony on the second floor. Or the retiree may prefer living in a hi-rise tower in which each room also has a balcony.

In all cases, window walls are provided so residents may enjoy the wooded grounds surrounding them. And since comfort is the keynote for the buildings, Thermopane® insulating glass with glare-subduing Parallel-O-Bronze® plate glass as the outer pane is specified. With Thermopane, one is comfortable in winter, even next to windows, making it possible to use all interior space. By insulating windows against heat loss in winter and heat admission in summer, Thermopane cuts temperature controlling costs.

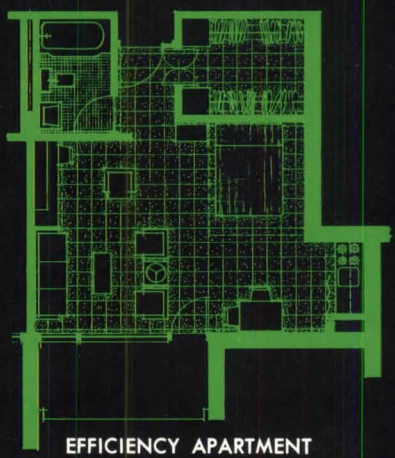



MODELS BY MITCHELL

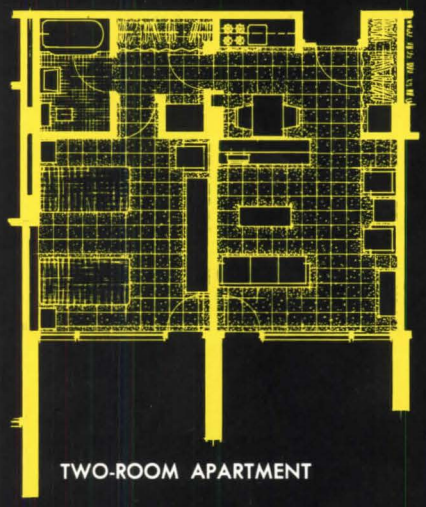


THREE-ROOM APARTMENT

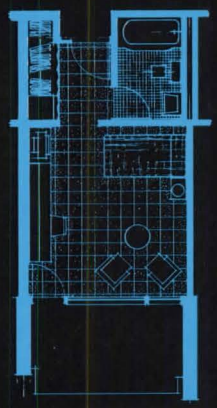
Additional three-room apartments can be provided by removing a knock-out panel between the two-room and adjoining single. Likewise, additional two-room apartments can be created by removing the knock-out panel between efficiency and single room adjoining it.



EFFICIENCY APARTMENT



TWO-ROOM APARTMENT



SINGLE-ROOM APARTMENT

Samborn, Steketee, Otis and Evans, engineers and architects of Toledo, Ohio, stacked the balconies to provide sun shades for the window walls and as an aid to window cleaning.

L·O·F makes a particular kind of glass for every purpose in Open World design. Refer to Sweet's Architectural File or call your L·O·F Glass Distributor or Dealer listed under "Glass" in the Yellow Pages. Or write to Libbey·Owens·Ford Glass Company, 811 Madison Avenue, Toledo, Ohio 43624.

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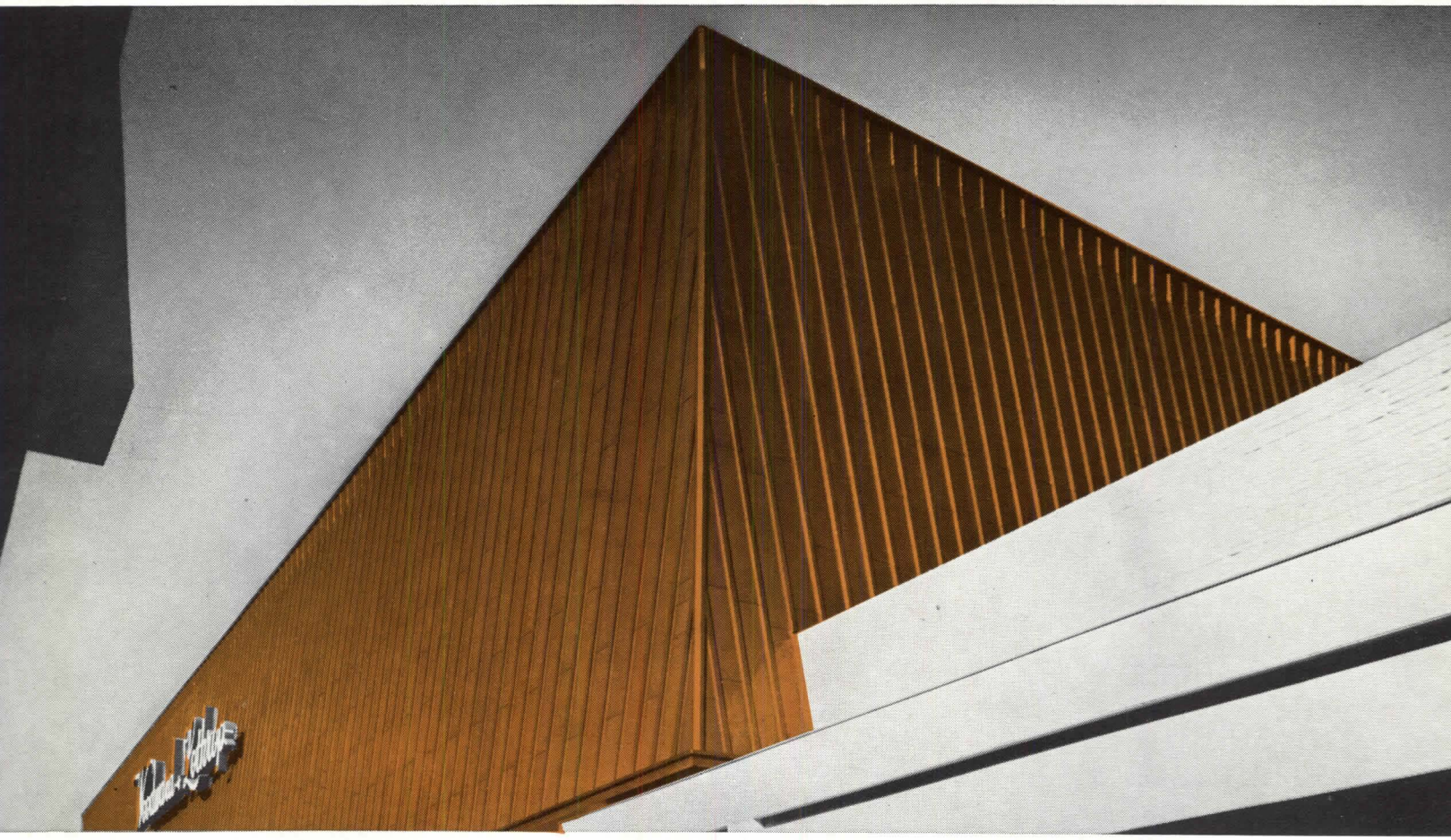

In conceiving the design for the new Woodward & Lothrop Department Store, part of the Landmark Shopping Center, Alexandria, Virginia, the architectural and engineering firm wanted a structure that would dominate . . . a shape that would shout, "Big!" without being blatant. The result was this unique, windowless structure, the only glass being at the two entrances.

Then, after the big shape, what material with which to cover it? Revere Copper, 70,000 lbs. of 20 oz. cold rolled, was selected to cover the facade and roof, using batten seam construction. Other materials were rejected because they did not have the right texture to give the desired effect. In addition, copper is one of the natural materials, with character, that eventually will wear a natural patina.

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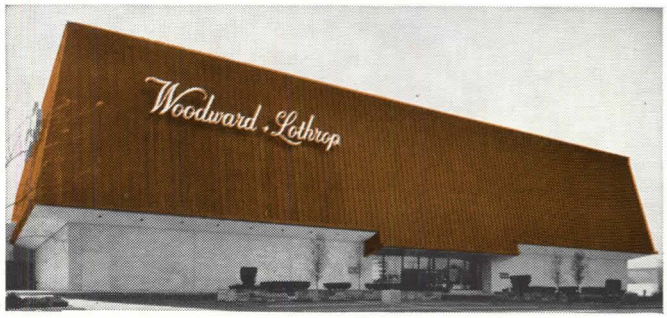
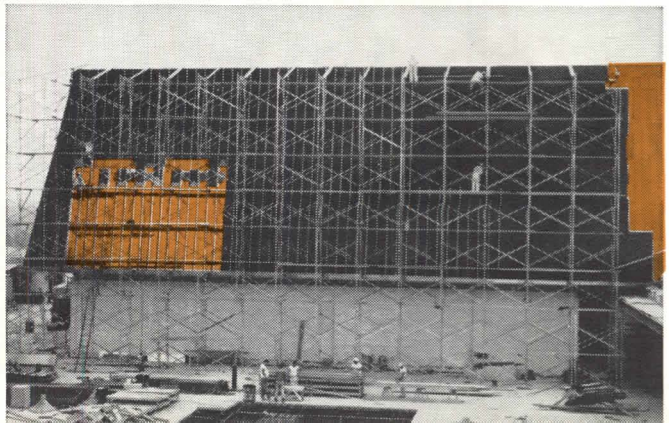


Architects & Engineers—ABBOTT, MERKT & COMPANY; *General Cont's.*—HUMPHREYS & HARDING, Inc., N. Y. & Washington, D.C.; *Sheet Metal Cont.*—THE MATHY COMPANY, Fairfax, Va.; *Distributor*—YORK CORRUGATING COMPANY, Washington, D.C.



Dome Design: Welton Becket and Associates, architects and engineers, Los Angeles, New York, San Francisco, Houston

Architects and Engineers: Victor Gruen Associates, Los Angeles, Washington, New York and Alexander Ewing & Associates, Philadelphia

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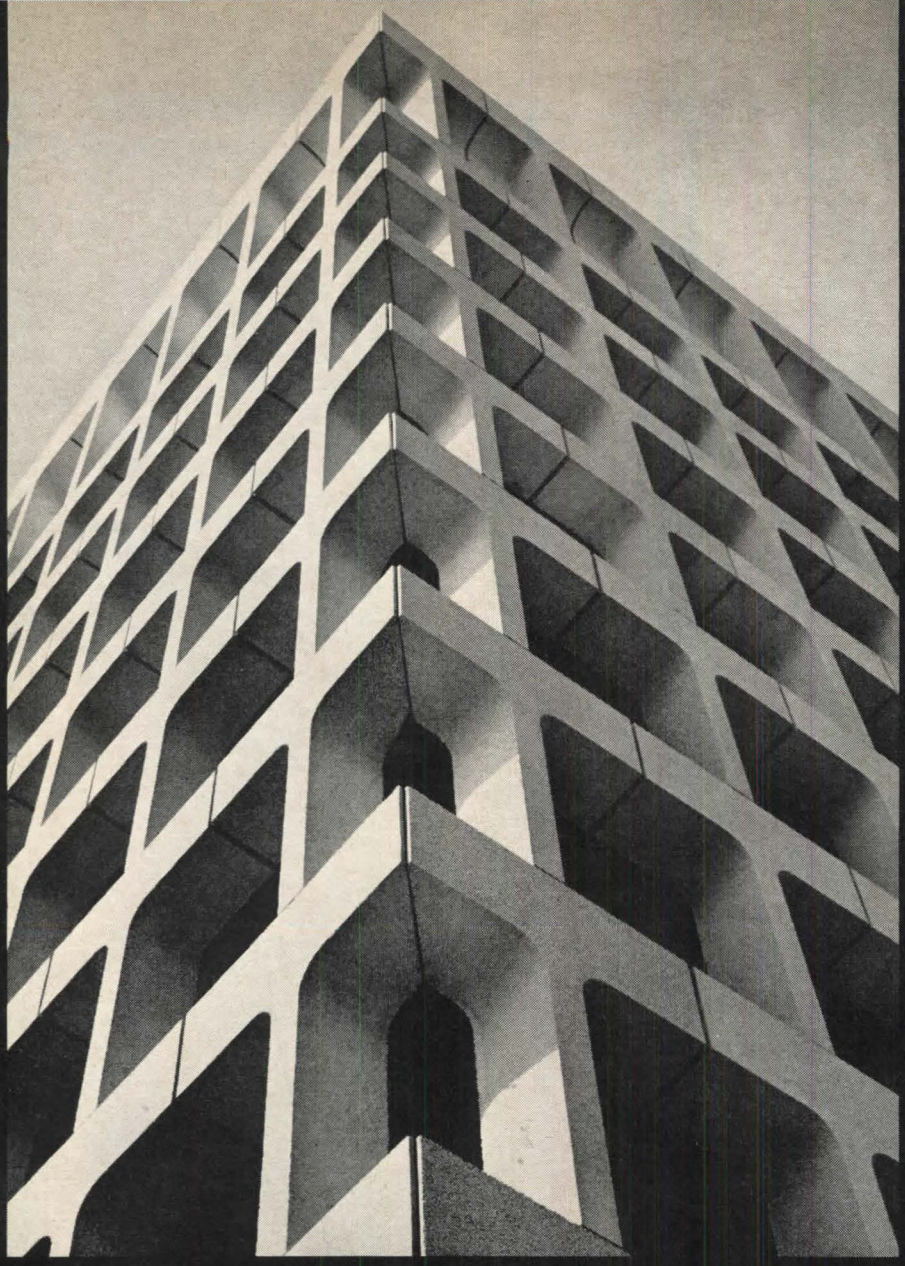

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BOOKS

(continued from page 75)

how a majestic space, too, is controlled in its proportions by adjacent structural ordonnances.

Having charmed us and nearly persuaded us that here is one of the greatest splendors on earth, Summerson does not even try to explain why classicism as a monastic order, under strict rule, eventually faded. In part it seems to have been disappearance of favorable conditions, including technical ones, in part changes of belief, purpose, and preference. After all, the orders are just one way, in a world split in many different directions.

If a firm conclusion were possible on what the orders meant in the first place it might establish that the column succeeded so fabulously as much for symbolic reasons as for the esthetic ones given. For it all seems to have started with the very radical Greeks facing up to awful Nature by slyly honoring their gods with "better" shrines, replacing wood with man-made stone trees, a purely human invention. How daring this was we can scarcely any more dream, but this boldness came out of a deep well of faith in man himself, and, in effect, ever thereafter these columns were stone men; they were people. Around this symbol there clustered all those brilliantly evocative sculptural elements and systems, not too allegorical and yet not too abstract, and always sensuous. What intuition! Along with this there grew also those invaluable canons of proportion.

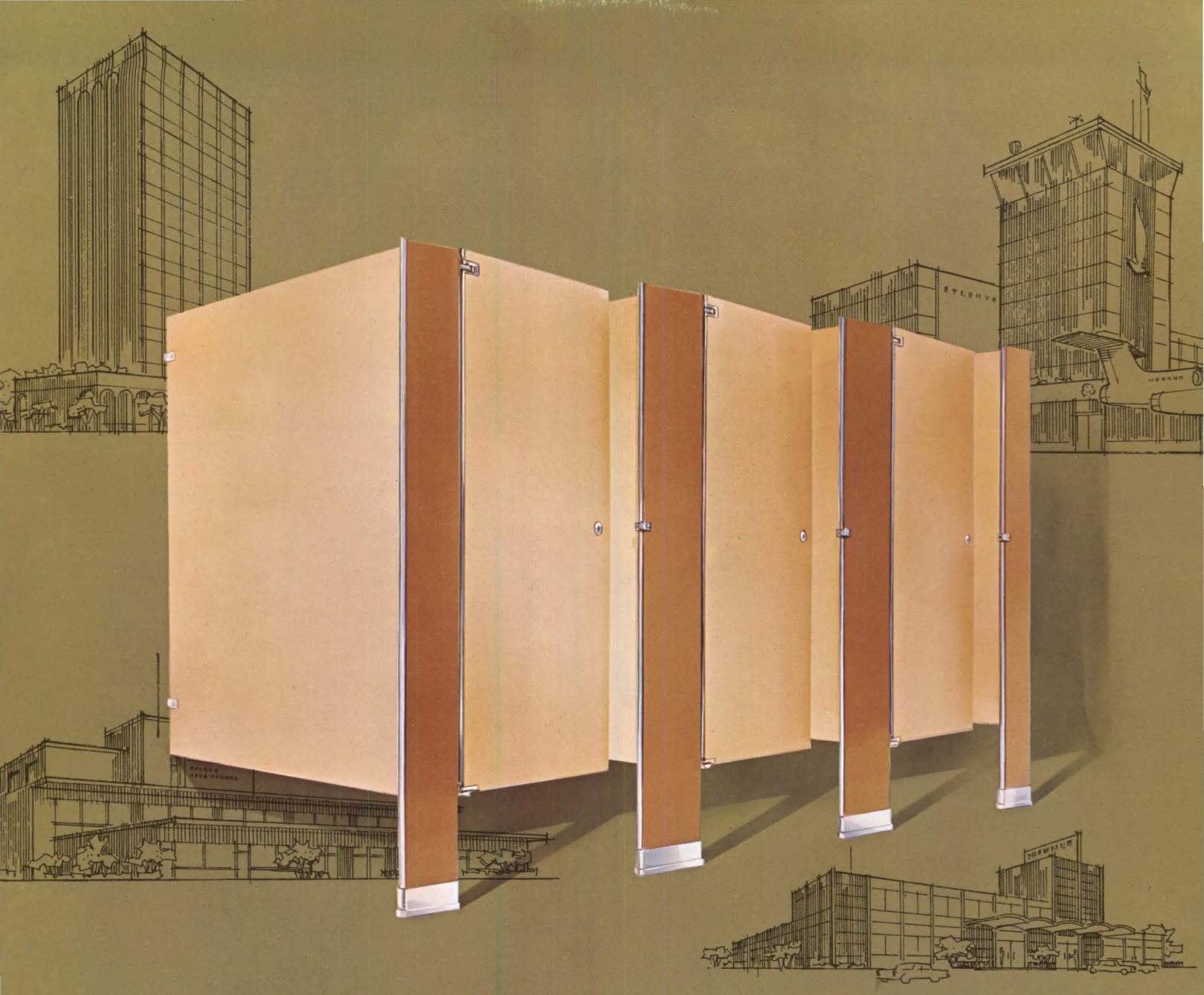
Once when an Englishman asked that the Oracle of Delphi be revived, he was answered that "alas there would not be the necessary shared belief in it." Belief in the stone men waned too, because they came to be reenlisted as an honor guard for too many empires and principalities. Significantly, every one of the superior examples which Summerson shows is a polite type of establishment building. And as for the punk classical ones never mentioned in the book (although punk Modern is punished) they carry the staleness of endless banks and ruling bureaucracies from Rome to Moscow to Washington.

Meanwhile the Leonardo branch of the Renaissance itself gradually engendered a new belief in the potencies of science, which in turn helped start urgent new problems regarding a new kind of community and its place in Nature, again demanding new belief, with new rhythms and new symbols. We seem to be right back again in the same hot crucible in which those Greeks were.

In a brief review, let's bypass other limitations on the classical that escaped the author's mention, and let us regard his last chapter, on the Modern. This time his observation is thin, upside-down, and outside of things, but he has his finger on the big issue.

Now, of course, we will not surrender our idea that an incomparably bigger stage involving all man-made surroundings is the concern of architecture, giving it more work to do than the monumental buildings ever did. But precisely the idea of a perceivable language for the eye, communication to the eye, that can pull into focus an almost unmanageable variety of elements and make them sing together, is one of our greatest needs, if not the greatest, now and hereafter. Toward this, every precedent must be studied. And we may be able to extrapolate a good deal from this clear record of a tighter, earlier, smaller-compass achievement.

The difference, which makes it harder, is that our order has to be unprecedentedly inclusive where the one Sir John gives us was patricianly exclusive. Yet the fact that he can accept Le Corbusier's Ronchamp chapel endears him to us and cheers us. If he could start viewing Corbu not as a last bequest of the academy, but as a precursor, we might gain a valuable ally in Summerson. Meanwhile let no one slight the lessons there are in his early model.



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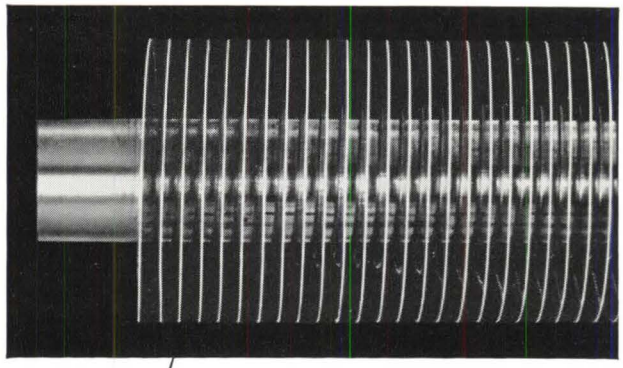

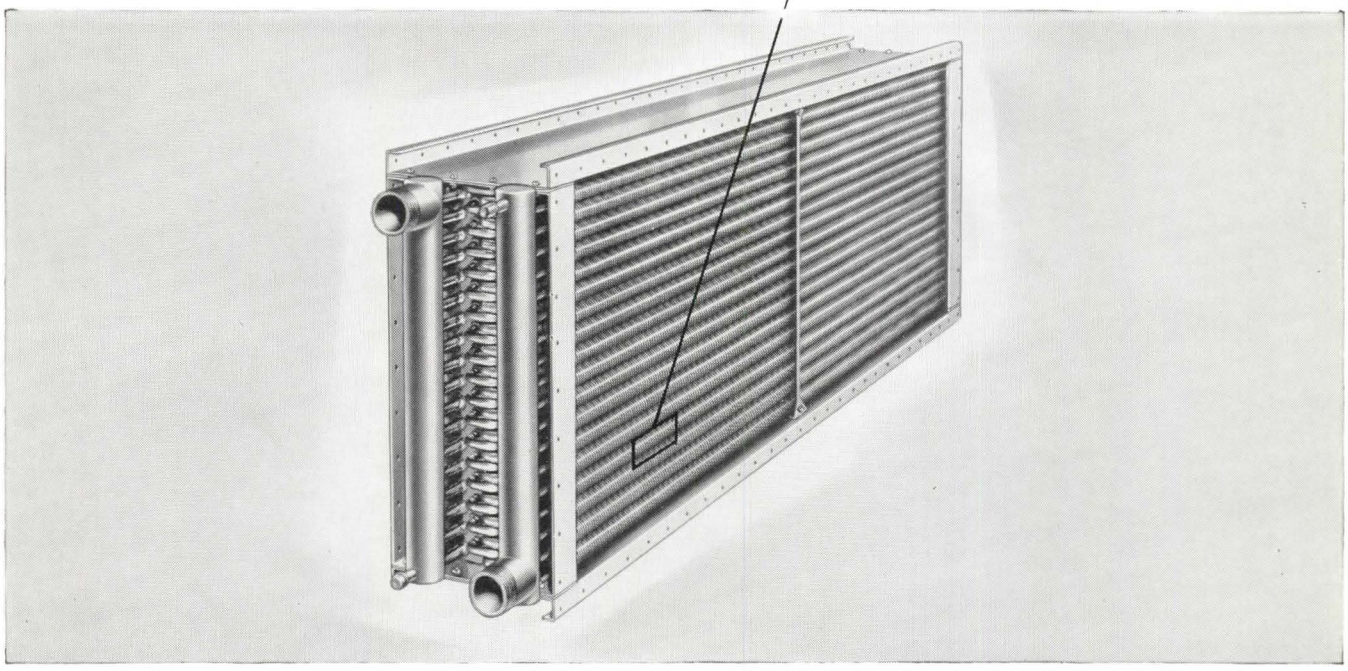

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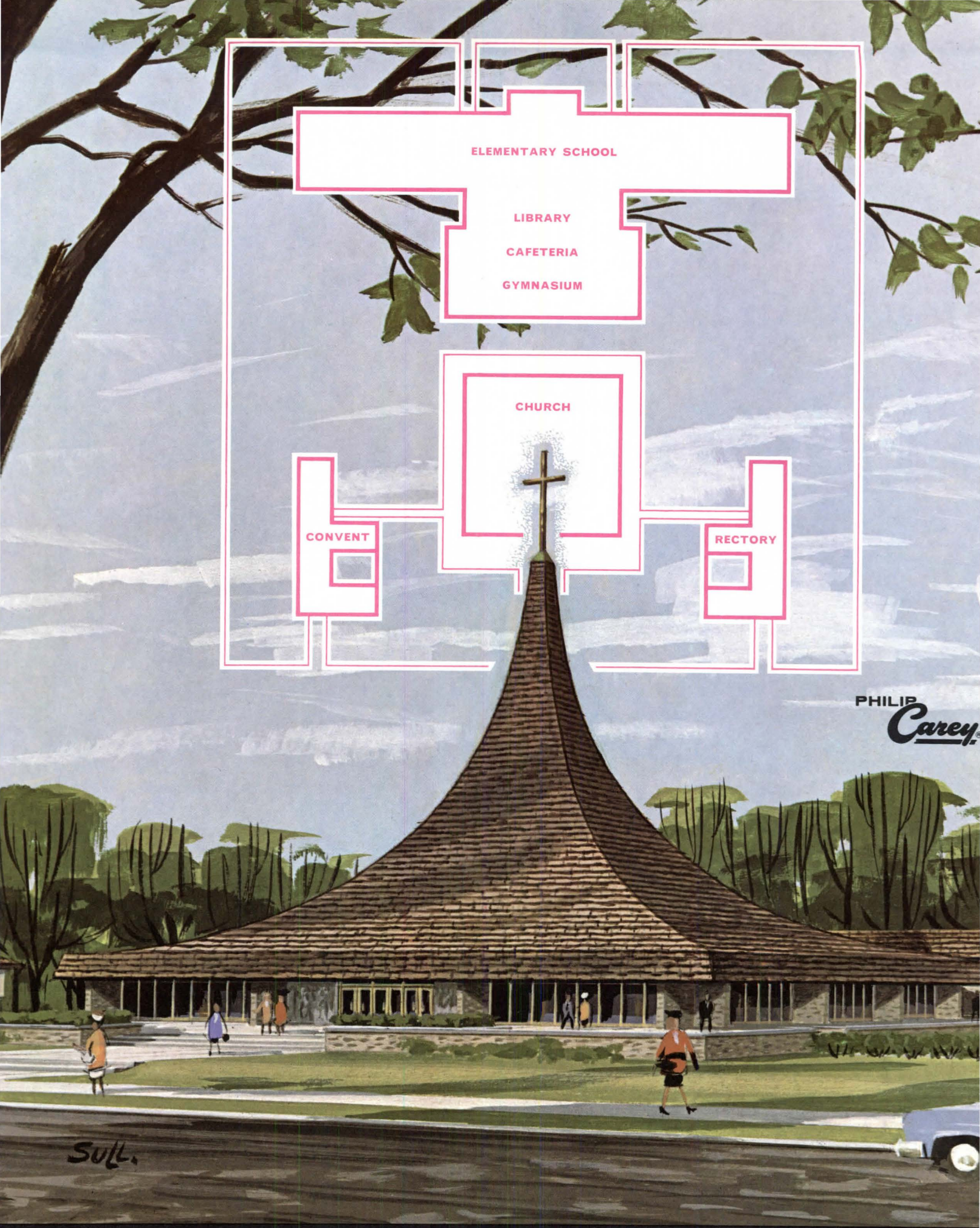

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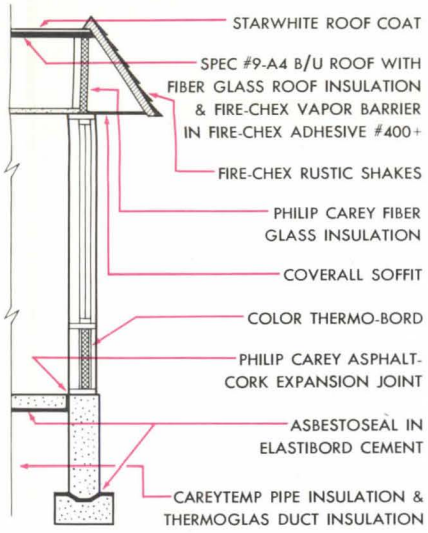

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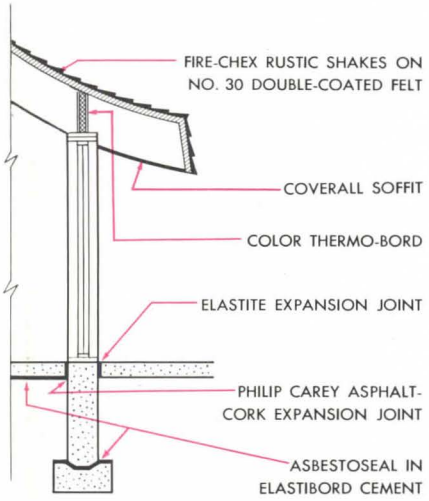

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From any direction, the rising roof spire is visible, framed by secondary buildings. Parking and play areas are closely tied-in yet screened by buildings and planting.

This concept might well be heeded in studies for all such complexes and in the redevelopment of existing parish properties.

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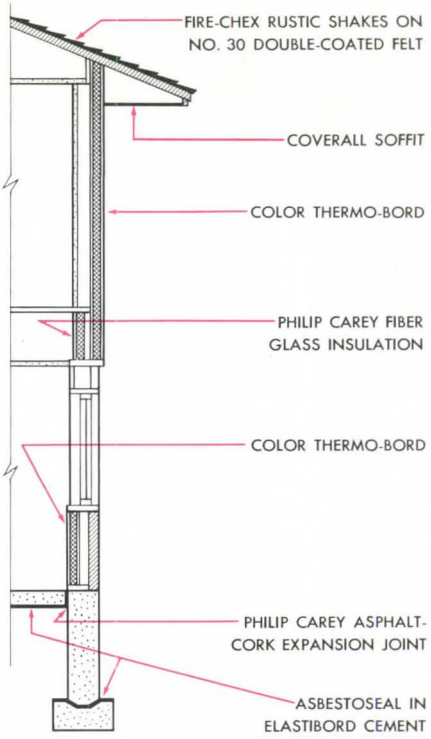

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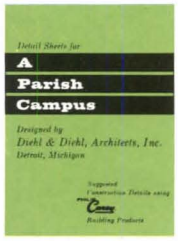

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DREAMS OF TOMORROW

(continued from page 67)

he creates turn from dreams into nightmares. A real lion emerges from the 3-D nursery veld scene to eat the parents who try to turn the power off. The organic Martian village, built to feed and clothe its inhabitants, now vanished, is unable to adapt to human biology. It transforms the hapless space traveler into a snouted, four-footed Martian. The automated house burns itself out attempting to please its former owners, whose radiation-etched shadows are seared into its walls. And the marvelous machine city, built to serve man, turns him into a spineless automaton; surviving him, it goes on repeating its now senseless tasks for eternity.

This ambivalent attitude, a glorification of science and technology hedged by doubts of man's ability morally to control his creations, shows up clearly in the science fiction writer's view of the city. He approaches his two dreams, *Ville Radieuse* and the supercity, in very different ways. *Ville Radieuse* in science fiction is a glamorous symbol of man's ability to assimilate his technical skills in a healthy way. It is a happy, prosperous place where man's power over his environment produces a comfortable, idyllic life. The supercity is a place of terror, where man is a degraded pleasure-seeking cipher, a minor entry in the computers that order the city's life. The belowground levels of the superbuilding become a proletarian cesspool for the use of those lucky or cunning enough to live on the highest levels. Wells saw it so in 1907; Isaac Asimov, in a 1956 novel, called the supercities *Caves of Steel.* In Asimov's city, the citizens—quartered in cramped cubicles, fed in vast automated community kitchens—are so degraded and urbanized (words often synonymous in science fiction) that the sight of open sky or naked sun produces panic.

Nowhere in science fiction does the *Ville Radieuse* plan of high rise towers and large landscaped parks produce the kind of gang rule Jane Jacobs attributes to it. Seldom, on the other hand, does the supercity produce the civilized, sophisticated life we associate with the great urban centers of the Western world. Where such traditionally urban pleasures are described, they are confined to the lucky elite, or isolated in some exotic port on a distant world, some faintly sordid pleasure place for space-roving roisterers and playboys. The logical conclusion of this idea of the evil city occurs in the story of a race so advanced in technology, psychokinesis and behavioral science—and so powerful in control of their environment—that they abandon their cities and choose to live in small villages of bare huts, practicing primitive-seeming rites for emotional fulfillment. Perhaps science fiction writers, most of whom are British or American, suffer from historic national prejudices against the city. Certainly their views are curious echoes of current professional controversy.

Realization of many of these dreams lies centuries in the fu-

ture — others may never come true. But some might be realized in a few generations, or even a few years. The history of aeronautics and astronautics proves that predictions of the future consistently underrate the speed of scientific advance. Predictions fail, as Arthur C. Clarke has pointed out, from failure of nerve (the unwillingness to push available facts to their logical conclusion), and failure of imagination. As Clarke says, in his excellent book, *Profiles of the Future:* "Anything that is theoretically possible will be achieved in practice, no matter what the technical difficulties, if it is desired greatly enough."

The visions of future architecture in science fiction are not as of now "desired greatly enough." We prefer to spend our energy on arms, or on men on the moon. But with social and political change we may choose, in a not far away time, to spend comparable energy on housing, planning, and environmental control. If so, many of the science fiction dreams may, like more conventional predictions of the future, fail from being too conservative.

Now the architectural dreams of science fiction tell us three things: First, they warn us that technological advance may not produce better living conditions. Perhaps we cannot be reminded too often that even the most daring and high-minded proposals, when realized, are not necessarily guaranteed Utopia.

Secondly, the dreams of science fiction, like those in all fantasy writing, remind us again that architecture has great potential for immediate sensual satisfaction, a fact that contemporary architecture has chosen to ignore until very recently. Now, literary romancing about architecture is a tricky thing; it is difficult to translate satisfactorily even into pictures, for the illustrations in fantasy and science fiction are flat and unsatisfying. Familiarity breeds disinterest; attitudes change; yesterday's pleasure palace survives as an amusing relic. But the fault may lie not in the fact of dreaming, but in the nature of the dreams.

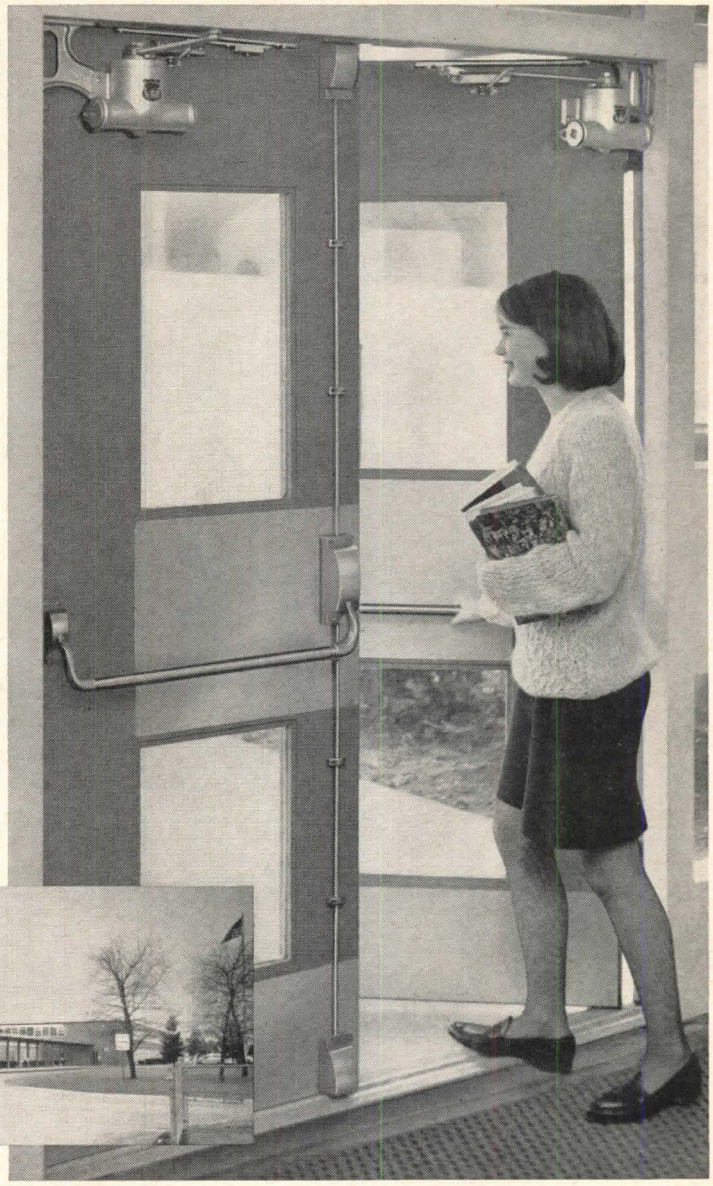
Science fiction offers us the dream that science and technology, properly controlled, can create not only a more comfortable and affluent world, but a richer, more beautiful one. It is a dream troubled by doubts and misgivings, but one full of promise. Strangely, for a society otherwise obsessed with science, it is a dream that now interests only a few architects—Buckminster Fuller, Frei Otto, a handful of others.

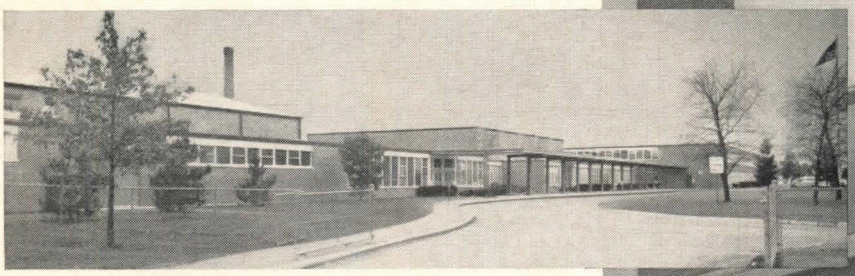
This was not always so. In the 1920s, the European avant-garde, Taut and others, based their visions firmly on the promise of technology. But as the promise has grown, the dreams have almost vanished. The trivial and unimaginative uses to which architecture has put technology might have tarnished the dream.

Success—the common acceptance of technology at all levels of society—could have itself destroyed the dream; but the acceptance of Baroque spatial complexity and Victorian historical revivalism instead led on to progressively wilder visions. Certainly today architects are dreaming, perhaps more than ever; project renderings in the architectural press are filled with a romance and fantasy unthinkable 10 or 20 years ago. But the dreams have changed; they look backward, not forward. They are filled with open or half-concealed allusions to medieval town squares and Palladian villas. They are dreams that lead into blind alleys, into stylistic fads that last a year or two and pass.

The third message of science fiction, the one most important for architects, is the reminder that architectural dreaming can be a positive force. Dreams, founded not on historical reveries but on the potentialities of science, are a response to those forces which are reshaping our world. Perhaps they might even help remedy those failures of imagination that inhibit predictions of the future, and so help us more accurately to see the shape of tomorrow's world.

again and again and again





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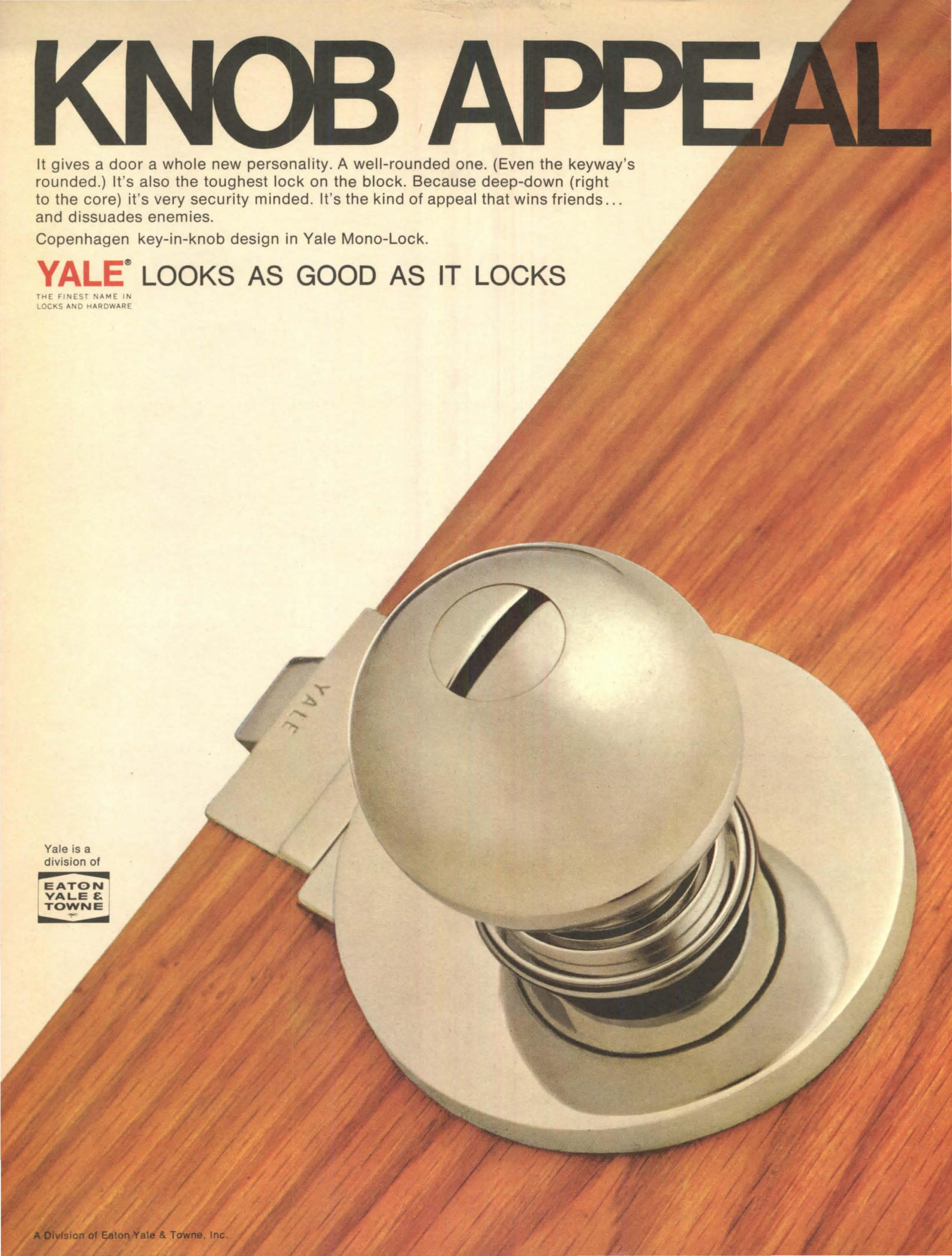

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