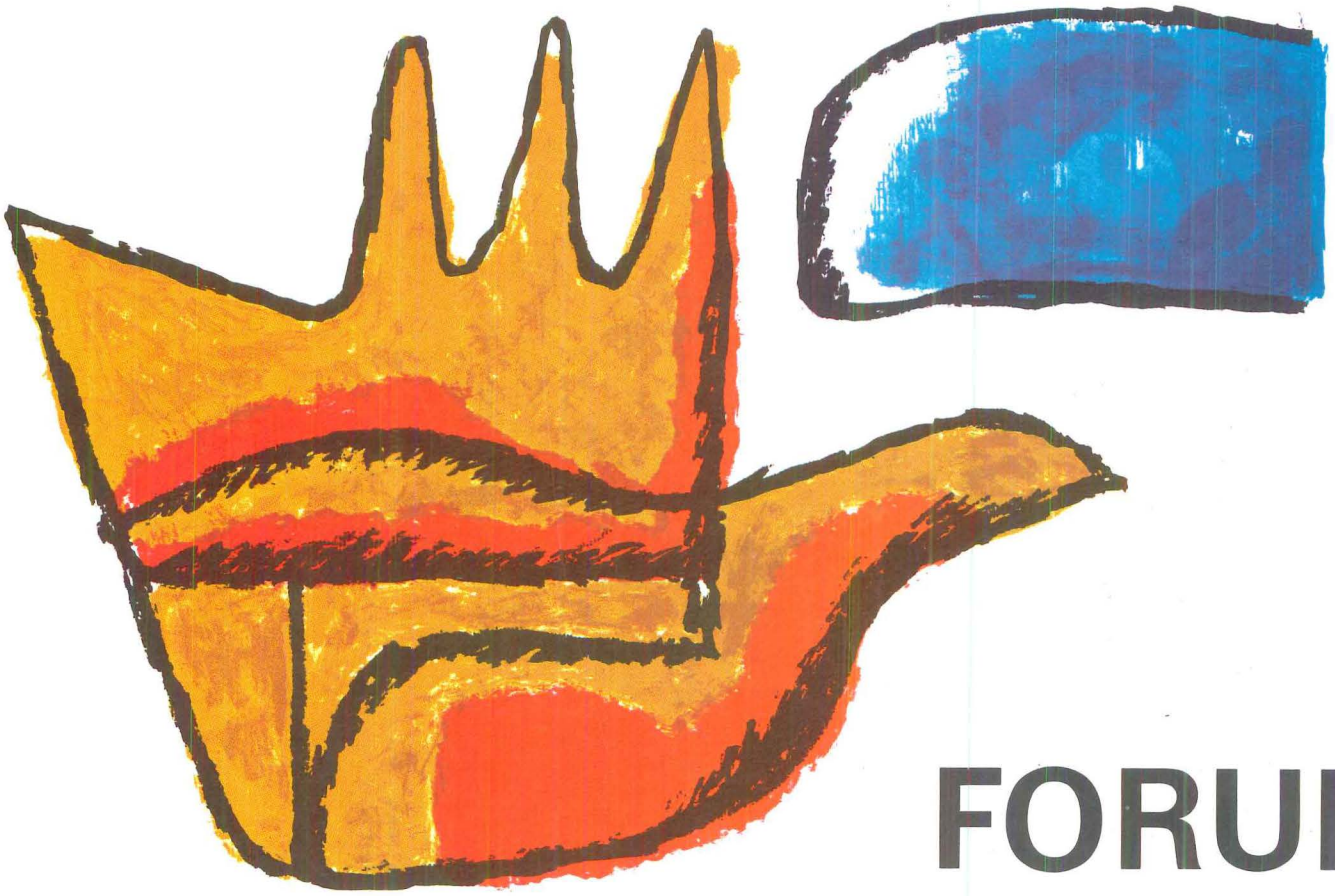

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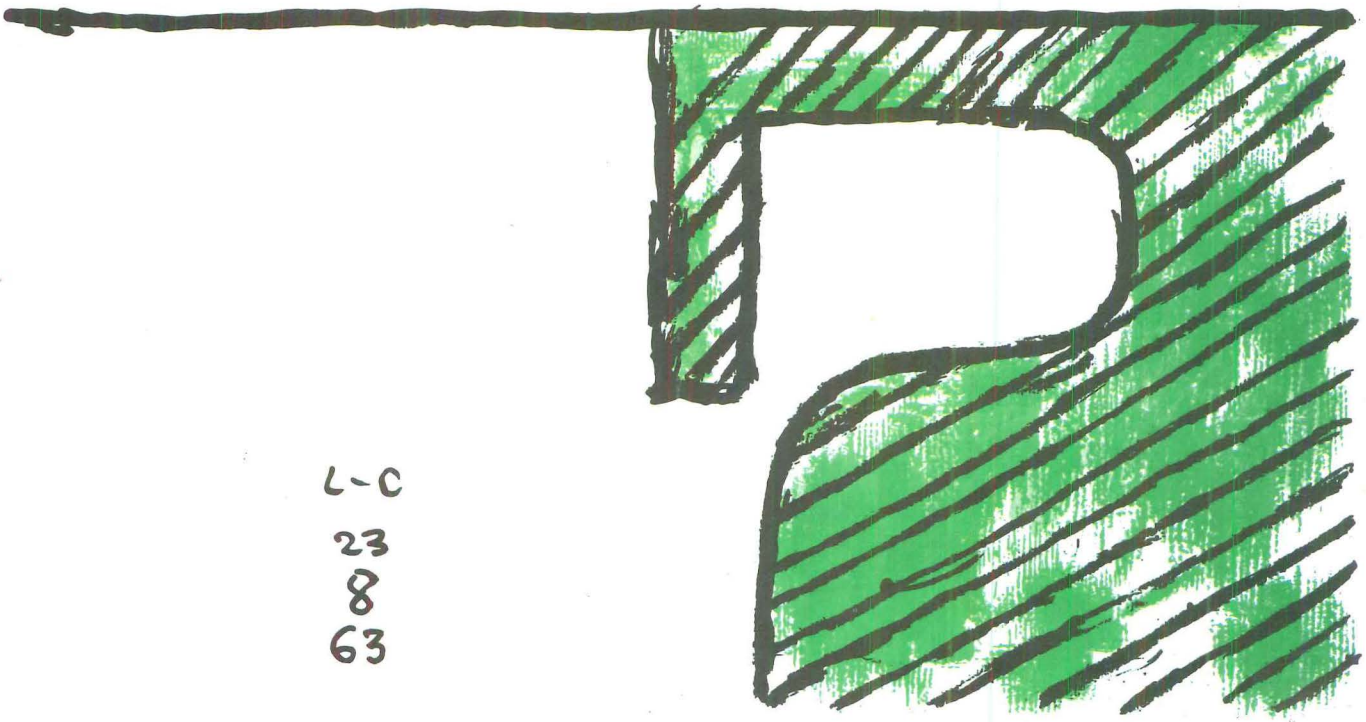

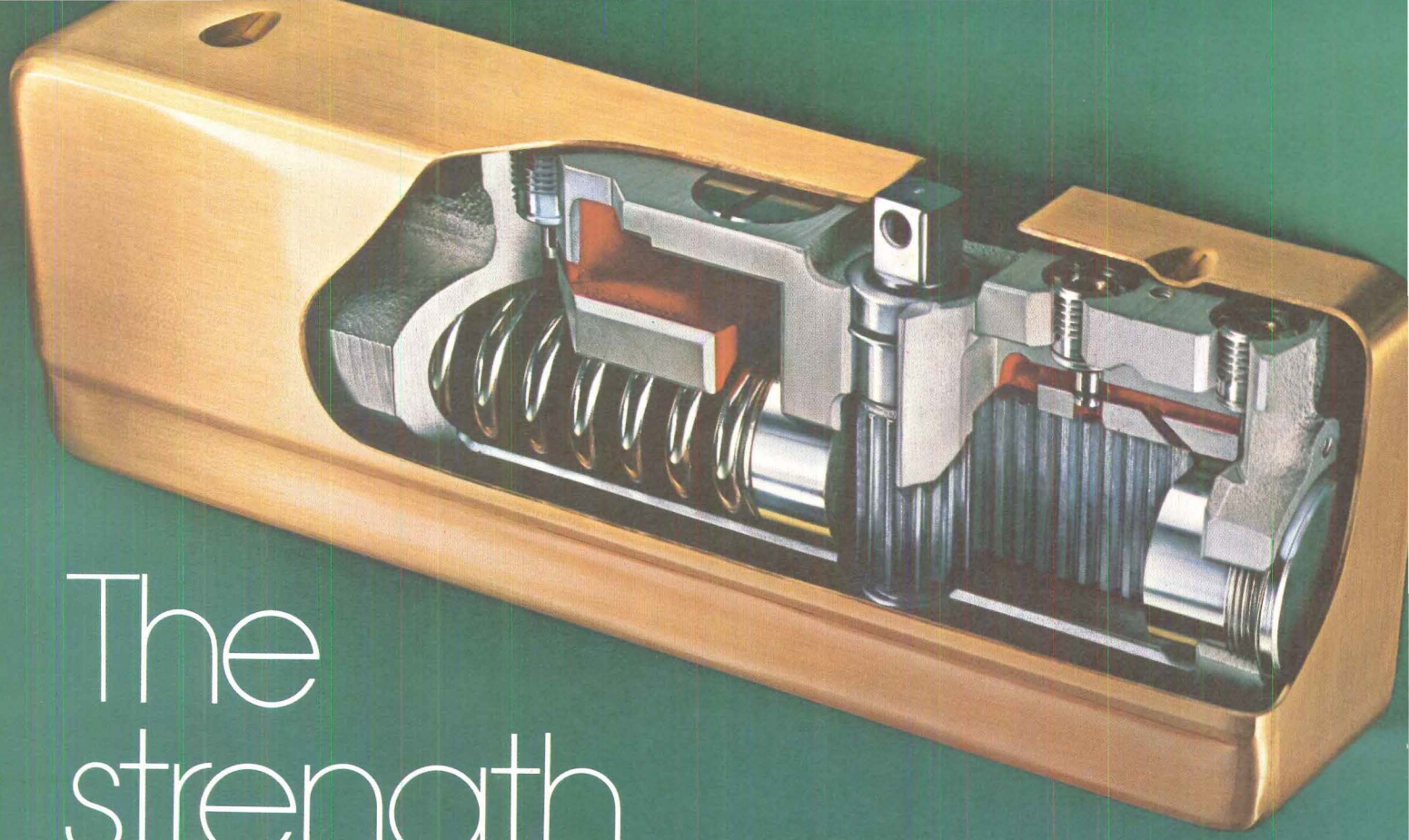

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THE ARCHITECTURAL FORUM / DECEMBER 1972

VOL. 137, NO. 5 • A BILLBOARD PUBLICATION

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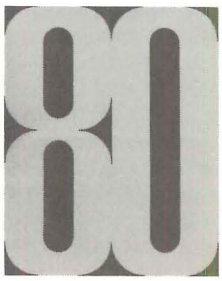

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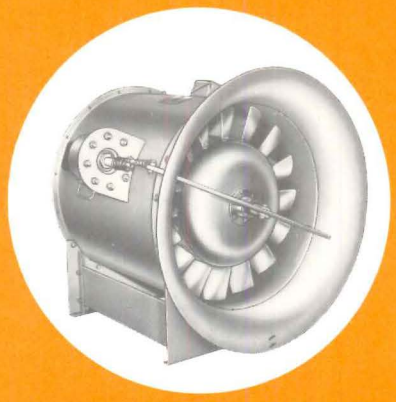

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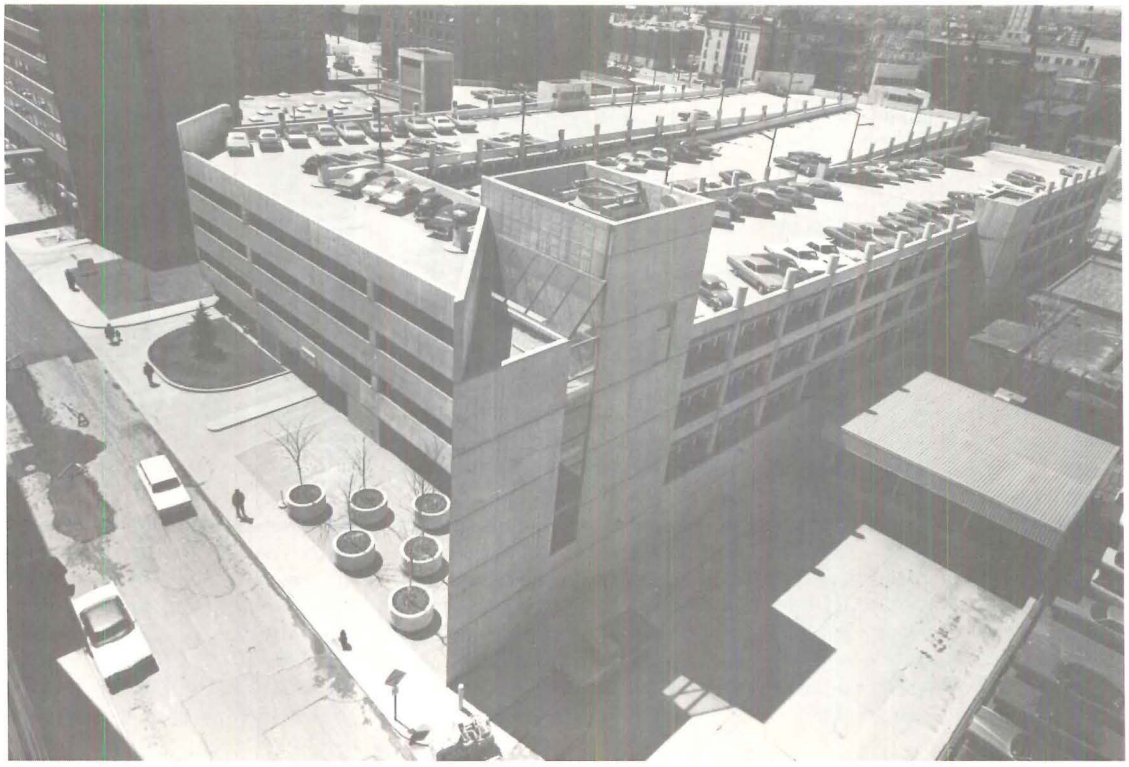
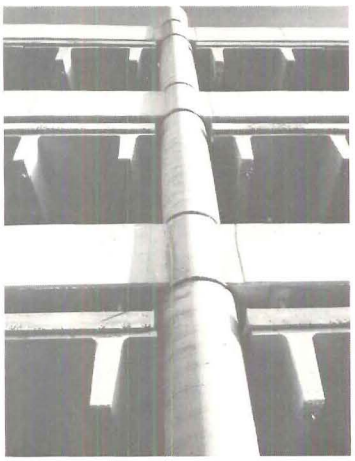
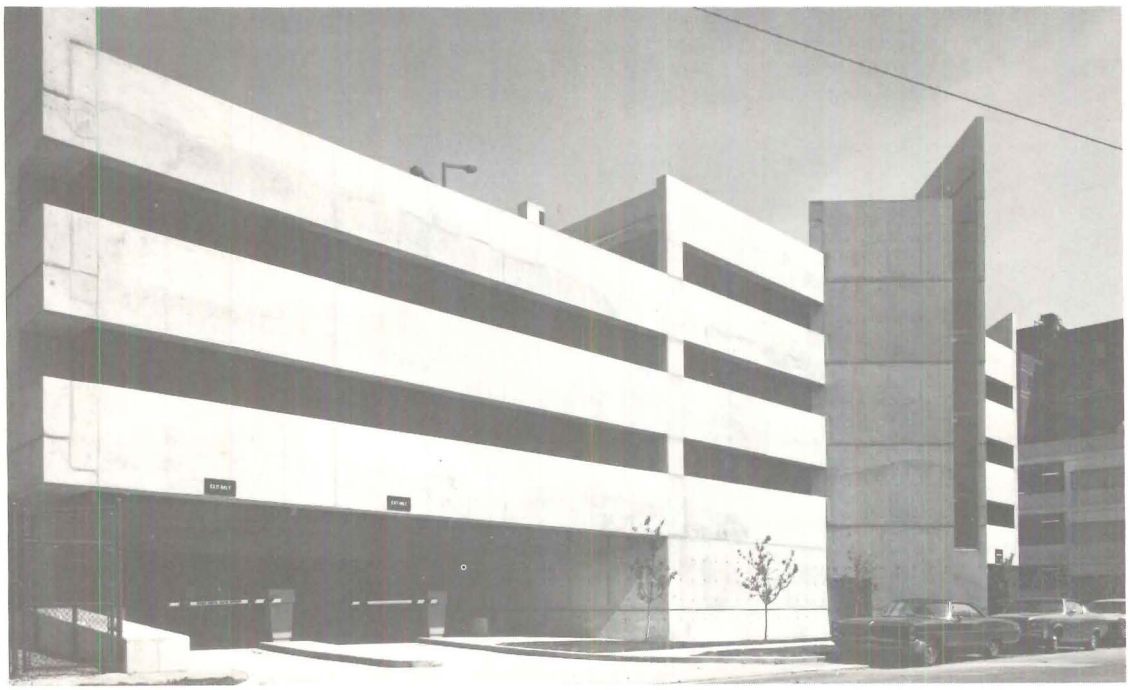


SUSPENDED FLOORS

This parking garage for the Cleveland Clinic Foundation can handle 800 cars, providing 302 sq. ft. for each. It is fire-resistant and relatively maintenance-free. Designed by Architects Flynn, Dalton, Van Dijk & Partners, with Barber & Hoffman Inc. as Structural Engineers, it is one of the 1972 Prestressed Concrete Institute Award winners.

56-ft. prestressed concrete double tees create column-free parking aisles. The ends of these floor units are suspended from the barrier walls that span the exterior columns. The frame is cast-in-place reinforced concrete. In its comment the jury said this was the most interesting parking structure submitted and added, "The ingenious use of suspended floor structure to lighten the spandrel section visually works perfectly. This garage is very good in its relationship to surroundings, both from pedestrian level and its architectural relationships to other buildings nearby. The use of planting in pedestrian areas is very well handled."

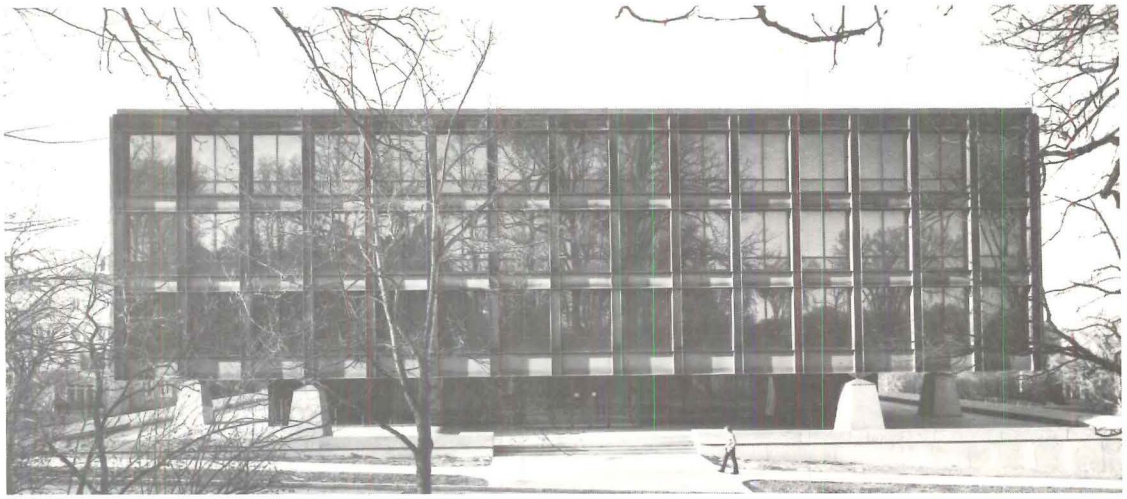




REAL STEAL

This building appears to be a no-nonsense version of the Beinecke Library. (Let's hope the icicles have somehow been tamed. At Yale every time there was that kind of weather the building had to be cordoned off with police barricades so no one would get impaled.) Just occupied this fall, Cornell University's Uris Hall houses the social sciences, economics, psychology and international studies.

Skidmore, Owings and Merrill has again used a Vierendeel truss, but this time it is of weathering steel plate with windows of solar bronze glass. The trusses are each 150-feet wide and 38-feet deep. The girders were erected in 75-foot lengths with 10-foot column sections welded into place. During erection, falsework was used at the corners and on the center of each side.



Although a steel-faced building in Ithaca's extreme temperatures posed severe thermal contraction and expansion problems, the 70-foot high building contains no expansion or slip joints. Instead, the inner structure, which serves as the perimeter of the core, is linked to each corner by diagonal braces. Expansion or contraction force is passed through the brace and distributed by the core's perimeter to the building's other three sides. The exterior welding was completed during an unusually cold winter by placing tents over each welding position to prevent heat loss.

The erection sequence was unusual. Instead of framing an entire level before starting on the next one, the core was erected from ground to roof; then the trusses went up. This saved about six weeks construction time.

CAMPUS ON BIRCH ESTATE

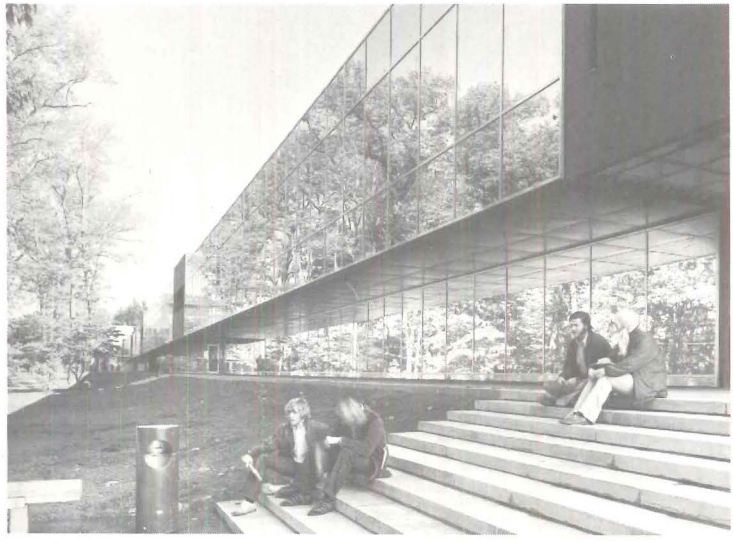
The mirror-wall first phase building of Ramapo College in New Jersey reflects the old John Birch estate. Its mansion is now an administration center.

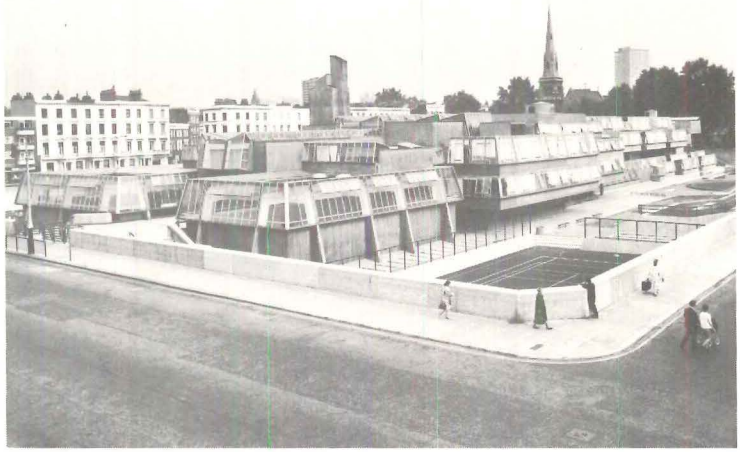
The architects and master planners for this project are Mahony & Zvosec/Kenneth DeMay, a joint venture. Their three-phase plan for the 8000-student campus is to be complete by 1985.

The first phase included converting the mansion, building a power plant and the multi-purpose building shown here. Its front entrance is to the right. This is a systems building of 30 x 30-ft. steel framed bays. Within the 10-ft. overhang are 10 x 10-ft. offices and some circulation. Beneath the overhang on this side is a gravel bed; on the other side, sheltered circulation. During its first-phase operation, this building houses classrooms, snack bar, laboratories, a child care center, health facilities, a recreation center, student lounges, bookstore and library. Eventually it will be solely academic. The interiors have demountable partitions to accommodate change.

The cores, housing vertical circulation, rest rooms and mechanicals, are faced with two-inch slate. Future buildings will tie into the other side of this one at the cores.

This building is one of five New Jersey AIA award winners.





PIMLICO

The Royal Institute of British Architects has given the Pimlico School (Forum May 1971) one of its 1972 awards because the jury "concluded that the sheer adventurousness of the school and the inventive thinking that it represents deserve the recognition of an award." The school has 1725 boys and girls between the ages of 11 and 18. It stands on a four-and-one-half-acre site about three meters below road level. Pedestrian access is at the second floor level. The majority of the building is four stories tall, of light weight concrete frame construction, with extensive greenhouse-like glazing to adequately light many deep rooms. The school was designed by the Department of Architecture and Civic Designs for the Inner London Education Authority; John Bancroft, Group Leader and Job Architect.

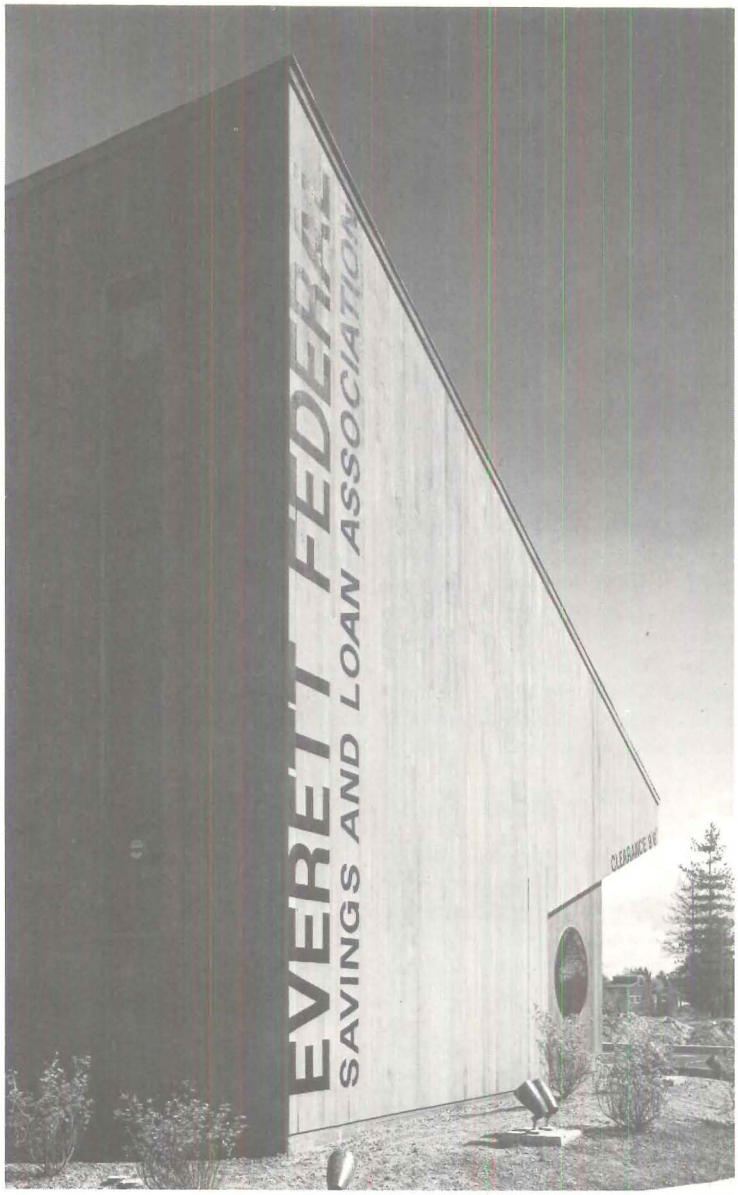
PLAYFUL BANK

The Everett Federal Savings & Loan Association's Silver Lake Branch is a small drive-in bank designed by Bindon & Wright. George A. Hartman of that firm describes his design as giving "an ephemeral impression of movement, of playful form, and quiet elegance."

The exterior diagonal lines are recalled in the fenestration and carried out through the diagonal arrangement of the floor plan. The built-in seats, tellers' counters and check-writing stand were designed as sculptural elements, complementing the architectural forms. The windows—round, triangular and rectangular—give a new slant to outside views.

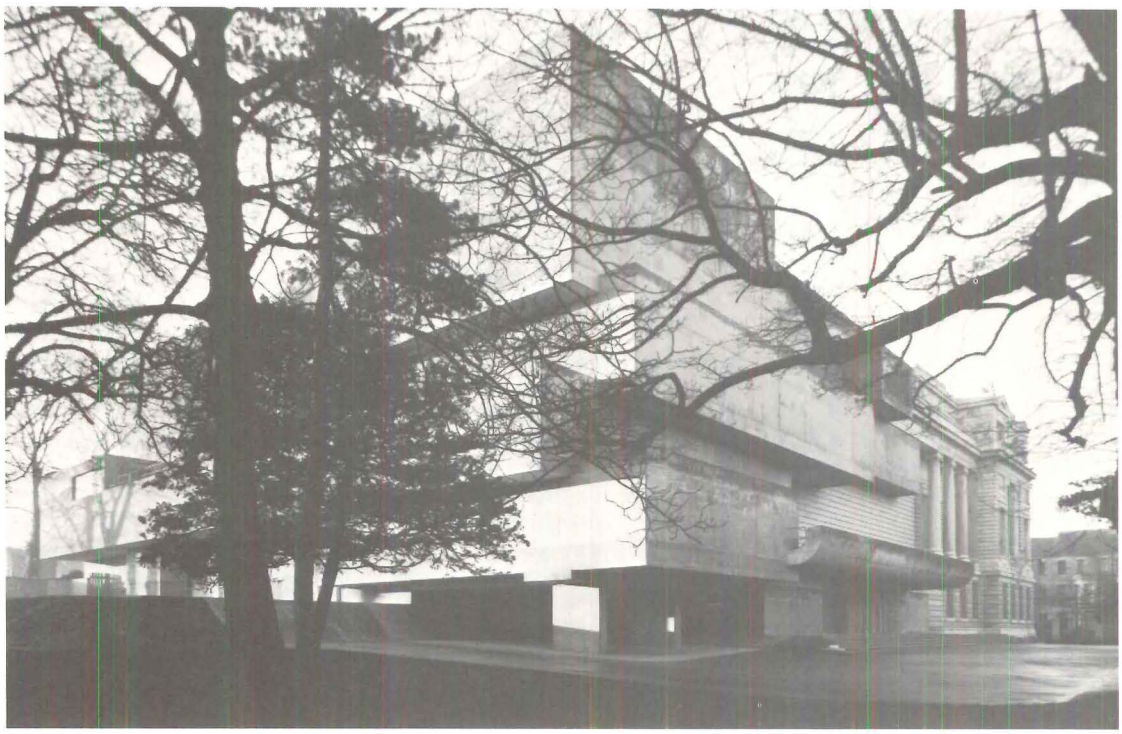
The color scheme is extremely simple: a dark blue carpet, red chairs, red and blue cushions, and white plastic laminate furniture. A matching red-orange accents the bank equipment, vault doors and the windows whose inside frames are painted. This is a very successful detail.

The whole project is a result of close cooperation among the architects, client and Interior Design Group.



TWO TIMER

The Ulster Museum Extension in Belfast provides display space, offices, stores and workshops, a new entrance and a restaurant. It is one of twelve Royal Institute of British Architects award winners. The jury remarked the building is a "deft union of two diametrically opposed building styles," and "has the ring of first-rate architecture about it." The architect was Francis Pym from 1963 to 1968 when the project was turned over to the Chief Architect's branch of the Works Division of the Ministry of Finance for the former Government of Northern Ireland.



PHOTOGRAPHS: Page 5, (top two) Erol Akyavas; (bottom) Jack Sterling. Page 6, (top) Bo Parker, ESTO; (bottom right) Sam Lambert. Page 7, (top right) Hugh N. Stratford; (bottom) Robert J. Anderson & Co.

LETTERS

FORUM FERMENT

FORUM: A word of congratulation to you, your publisher and the architectural profession on the occasion of FORUM's new lease on life. We all expect great things.

Boston ROBERT G. NEILEY, AIA

FORUM: The most recent issue of FORUM has arrived. The new names on the masthead prompted us to review it with even more than our usual interest. Any concerns we might have had about its future are gone. It is obvious that the magazine is alive and well and will continue its long tradition of serving the cause of architecture.

WILBERT R. HASBROUCK, AIA
Chicago *Executive Director*

FORUM: Since it was founded in 1892, FORUM has retained the high standard of excellence in presenting architecture, especially during the years of Howard Meyers and, later on, of Paul Grotz.

Now, with an enthusiastic young new editor, I believe that the intelligent support of good architectural work will be as fine as it was in the past.

MRS. FRANK LLOYD WRIGHT
Taliesin West, Scottsdale, Arizona

FORUM: There's no doubt that the architectural profession can stand some humanistic influence. I wish FORUM every success in its efforts to move the profession onto a course more parallel with present social needs. So it is with some considerable enthusiasm that I congratulate FORUM on the appointment of its editor.

Vancouver PAUL J. S. WILSON

WOMEN ARCHITECTS

FORUM: I applaud FORUM and Ellen Perry Berkeley for the September article "Women in Architecture," including your critical eye toward the AIA, and your adoption of the Ms. appellation. As women students, some of us have felt the lack of women architects as role models—we would very much like to see the work of some women published in future issues of FORUM.

CHARLOTTE P. ROSENHECK
Philadelphia

FORUM: Congratulations on your great article, "Women in Architecture!" Things are finally coming together it seems. Could you continue running that kind of information in future issues? If only you could insert it monthly in the news items following the editorial. Cross pollenization is so important to the growth of Women in Architecture.

GERTRUDE LEMPP KERBIS, FAIA
Chicago

FORUM: Re your September 1972 article on "Women in Architecture": For the woman architect, retaining the label of "that exceptional one," as Belluschi describes her, will only be disservicing herself. Surely such claims of exceptionality prevent real involvement with one's associates; the "ordinariness" of a human being, as well as her/his unique talents, facilitates effective dealing with problems, just as the "ordinariness" makes it easier for associates to approach this person with questions towards the solutions of problems —without the loss of professionalism.

Belluschi's remarks appear to be a specialized version of the obsolete "pedestal" image of women.

Albany ANNA P. CAMPAS

FORUM: The excellent article "Women in Architecture" by Ellen Perry Berkeley (September '72) should prove very helpful. A minor correction: Denise Scott Brown was not invited to speak to women students at Kansas State, but to all students in the College of Architecture and Design.

There is no doubt that women students are encouraged by exposure to women who are active in the design professions, and we have benefited from bringing in others as well.

BERND FOERSTER
Professor and Dean
College of Architecture and Design
Kansas State University

ODE TO VENTURI

FORUM: Once upon a time there was a fruit vendor in Philadelphia who had a little son. When the vendor made his rounds he would take his little son along. The boy loved the cart his father pushed; it was really his home away from home—so much so that he began to confuse it with a building.

"Oh Papa!" he would exclaim, "look at the building move." The father would smile sweetly, and at the same time expose a gold tooth which shone beautifully in the sun and then say, "That is not a building, son, that is a push cart."

The little boy's reply would always be the same, "What's a push cart to you is a building to me, Papa."

As well as taking him along on his fruit vending escapades, Papa would sometimes let his little son arrange the fruits for him. The way he taught him to do it was to arrange all the fruits in geometric patterns and then pick out certain ones and wrap them in tin foil. All the fruits were arranged one after another, similar sizes together, rotten ones in the bottom and pretty ones on top.

"Thank you for letting me arrange the fruits, Papa!" he would say. "It's so clever the way we hide all the lousy fruits so people only see the juicy ones." "That's all that matters, son. It's what's up front that counts."

The little boy was always impressed by his father's insight and thought to himself—"Some day I would like to do a push cart or building with fruits or even vegetables in it. The fruits could be done in papier mache and painted to be even more beautiful than real fruits, and I would make the cart out of cheap wood and decorate it to look very expensive. I'll push the cart fast enough no one would know the fruits are not real and, anyway, I could get all my friends from the market to tell people that they are real as I hurry on."

As the boy grew, he and his father shared many common experiences. From local neighborhood trips they pushed their horizons to the fish market, the meat market and then visits to the area where the second hand clothing and furniture dealers lived. By the time he was a young man, his frames of reference were not only varied bouquets of sights and sounds, but also of smells. All these memories stayed with him forever and were reflected in his work.

The one thing, however, that impressed our little friend most were the sale signs and small billboards his father made to hang on his cart. One of the happiest days of the little boy's life was when his father let him do the banana sale sign.

"Papa," he said ecstatically, "I wish I could cover the world with beautiful signs like this. I love signs."

"Maybe you will, son," said his father as he arranged eight persimmons in a pyramid.

A PHILADELPHIA POET

THEORY IN PRACTICE

FORUM: Robert L. Geddes' "Theory in Practice" which appeared in September's FORUM is so well done. And so very much needed at this time.

I've always contended that schools die when they don't mix practice with theory; and firms get dangerously sick when they don't find a healthy mix of theory with practice. And there are plenty of very sick schools and firms at this time. No mix.

Thanks to Geddes for courageously putting his theory down on paper. When we examine the products the theory becomes so much more meaningful.

WILLIAM W. CAUDILL, FAIA
Houston

DISNEY WORLD

FORUM: The letter from architectural student James L. Tucker, which claimed FORUM made a mistake in crediting Welton Becket and Associates as designers of the hotels at Walt Disney World, is itself an uninformed mistake and must be set straight.

Over a period of several years I was an enthralled observer over the shoulder of Robert Tyler, director of design for our Los Angeles office, as the Contemporary Resort Hotel came to life on his board, and I likewise watched Pierre Cabrol, one of Tyler's senior designers, create the Polynesian Village hotel. And both of these had design supervision by MacDonald Becket.

Our valued client, WED Enterprises, gave us skilled critiques and imaginative input, especially for the interior design, under the direction of WED's Marvin Davis.

MARTIN A. BROWER
Welton Becket and Associates
Los Angeles

ERRATA

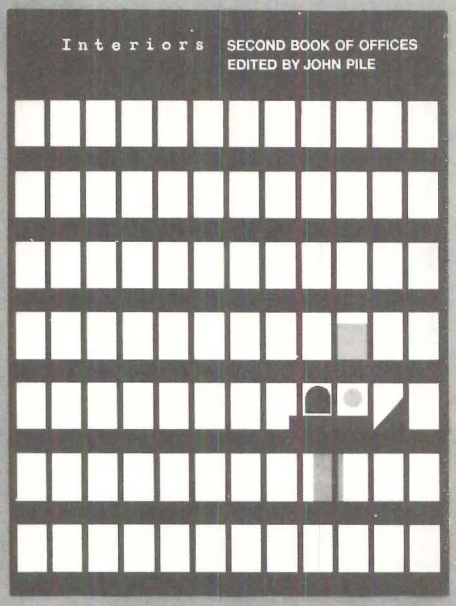
FORUM: I thought you might enjoy reading a page from the November 1929 *Architectural Forum*. In the article the 1929 exposition in Barcelona is reviewed. I was surprised to read that Mies' pavilion did not receive any attention or notice in this article.

DAVID A. SPAETH
Assistant Professor
University of Kentucky

Interiors

SECOND BOOK OF OFFICES

EDITED BY JOHN PILE



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USS Cor-Ten+fluid-filled

Michelson Plaza: A bold exterior and column-free first floor were two of the prime objectives for this four-story office building. Both were achieved by the use of bare fluid-filled USS COR-TEN Steel box columns and roof girders, and by suspension of the upper three floors. The girders are also filled with fluid and represent the first use of the internal fire-protection technique in a horizontal plane.

Owner: Michelson Associates, Newport Beach, Calif. **Architect:** Riley & Bissel, Newport Beach. **Structural Engineer:** Robert Lawson, Newport Beach. **Contractor:** B. H. Miller Construction Co., Newport Beach.

In California, two separate architectural firms decided on boldly exposed USS COR-TEN Steel exteriors for two neighboring rental complexes in Newport Beach.

In order to retain the visual honesty of bare steel, conventional fire protection techniques were rejected, and both firms arrived at a solution that is gaining increased application across the country. The solution was hollow, fluid-filled columns of bare USS COR-TEN steel. Briefly, here is how the system works.

columns=fire protection.

Should the columns be exposed to flame, the fluid inside the columns absorbs the heat, and convection currents circulate the water solution within the closed-loop system. Heated fluid rises and cooler solution replaces it, literally giving heat the run-around.

For information on fluid-filled columns or USS COR-TEN Steel, contact a USS Construction Representative through your nearest USS Sales Office or write United States Steel, Dept. 7565, Box 86, Pittsburgh, Pa. 15230.

USS and COR-TEN are registered trademarks

Airport Business Center: This handsome, four-building complex comprises two four-story office buildings and two one-story branch banks. All exterior steel is bare USS COR-TEN Steel, complemented by bronze-tinted glazing. Perimeter columns of all four structures are 6-inch x 4-inch hollow structural tubes. Columns in the two larger buildings are fluid-filled.

Owner: The Irvine Co., Irvine, Calif. **Architects:** Craig Ellwood Associates/James Tyler and Robert Bacon, Los Angeles. **Structural Engineer:** Norman-Epstein, Los Angeles. **Mechanical Engineer:** (Liquid-filled column system design) Paul S. Bennett, Los Angeles. **General Contractor:** J. B. Allen & Co., Anaheim. **Fabricator/Erector:** Lee & Daniel, Azusa.

USS Cor-Ten Steel

On Reader Service Card, Circle 306

BOOKS

THE PRAIRIE SCHOOL. Frank Lloyd Wright and His Midwest Contemporaries. By H. Allen Brooks. Published by the University of Toronto Press, Toronto. 9″ x 9″. $25.00.

REVIEWED BY WILBERT R. HASBROUCK, AIA

"Happy is he who remembers his progenitors with pride, who relates with pleasure to the listener the story of their greatness, of their deeds, and silently rejoicing, sees himself linked to the end of this goodly chain."

Goethe— (1749-1832)

H. Allen Brooks completed his doctoral dissertation, *The Prairie School, The American Spirit in Midwest Residential Architecture,* 1893-1916, in 1957. His book, *The Prairie School, Frank Lloyd Wright and His Midwest Contemporaries,* was published in 1972. For 15 years, Brooks agonized over this work and the result is the finest study of architectural history this writer has ever read.

The professional study of architecture is an esoteric vocation, yet nothing leaves so indelible an imprint on our progeny. Architecture is civilization recorded in wood, brick, concrete, stone and steel. Allen Brooks has chosen to study a period not so deep in the past to be a relic, but a living architecture.

Mechanically and graphically, the book is well designed, being in square format with footnotes placed conveniently in the interior margins, and photographs nearly always adjacent to pertinent text. The final pages include an excellent "Bibliographical Note" and index. The book has some difficulties. The author presupposes a broad general knowledge of the work of Frank Lloyd Wright and Louis Sullivan. He confines himself to the study of the American midwest, for to be all encompassing would have been impossible.

The book opens with a capsulized study of Brooks' definition of the Prairie School and its roots. Here he begins the frequent references to the arts and crafts publications and homemaker's journals which carried the Prairie School message to the public. Later these same magazines would help destroy the movement. He acknowledges "Louis H. Sullivan was the spiritual leader of the School." He also says "Sullivan's most gifted pupil, Frank Lloyd Wright . . . brought matters into focus. . . ." Brooks never defines the Prairie School as a "style" which in some ways it was, but I am inclined to agree with his implication that it was not a "style" *per se.* The term "school" is broader than "style" and more appropriate. The Prairie School was an attitude, an approach, a philosophy of architecture which by chance and by design was often characterized by a particular style. Brooks' Prairie School is what Thomas Talmadge called "The Chicago School" in his now famous essay of 1908. Through the tyranny of usage and general acceptance among scholars, "The Chicago School" is now applied to Chicago's commercial structures of the late 19th century while the residential work and smaller business blocks have become the Prairie School.

The Prairie School is one of the most clearly defined, shortest lived, and influential periods of architectural creativity man has managed to assemble. The causes and effects of a movement in architecture are not easy to trace, but Brooks has done his work well. We learn of the influences from literature, the arts and crafts, and journalism. All had a part in forming the basic principles of the Prairie School of Architecture. The British, the bungalows of India, and particularly the journals and societies which flourished around the turn of the century are skillfully woven into Brooks' book.

The basic difference between a "style" and a "school" of architecture is one of interchange of ideas among participants. If there is one man too often overlooked in the Prairie School movement, it is Dwight Heald Perkins who built Chicago's Steinway Hall. He then moved into the top floor of his building and brought in colleagues to share expenses and the unexpected benefit of sharing ideas. Part of the interchange of ideas was through The Chicago Architectural Club to which most of the Steinway group belonged. Wright, while not a member, still participated in its activities. This Club and similar ones throughout the United States formed The Architectural League of America in 1899 which offered a platform from which men like Sullivan, Emil Lorch, Albert Kelsey and others were able to speak. Brooks feels that Wright's basic philosophy of pure design came from Lorch. I cannot agree. Wright formed his basic philosophy at the drafting boards in the Auditorium Tower years before he heard Emil Lorch. Sullivan's designs for the Walker Warehouse, the Ryerson Tomb and the Getty Tomb were the beginnings of the idea of the Prairie School. It is possible that the papers presented at the League's annual meetings did provide the substance of discussion, disagreement, and argument which solidified Wright's thinking, but the basic idea was already there.

The Chicago Architectural Club exhibition of 1902 was one of the most influential and significant events of American architectural history. Brooks has used the exhibition to begin his study and he covers nearly the entire *Oeuvre* of the school for the period 1901 through 1909 as a unit. His chapter on "The Studio" deals with Wright and those who worked with and for him in this extraordinarily productive period. This constitutes one of the most valuable portions of the book, for here we learn much about the Wright studio personnel previously undocumented. Brooks decidedly subordinates the architecture of Wright in this section.

Brooks has chosen to deal with the Prairie School in blocks of time rather than by individuals. The technique does create a certain amount of confusion when comparing later works of one man with earlier designs by the same person. Three chapters are devoted to the period following the 1902 exhibition until Wright's departure for Europe in 1909. The presentation is a balanced one, although one wonders if the author has actually seen many of the buildings mentioned. For example, he mentions a "one-storey bungalow for R. L. Blount in Tracy, Illinois" which is only one of seven houses Griffin built on a street in a section of Chicago called Tracy. The only house previously published from the group was the one mentioned. Apparently Brooks had not seen it by publication time and had to rely on published material.

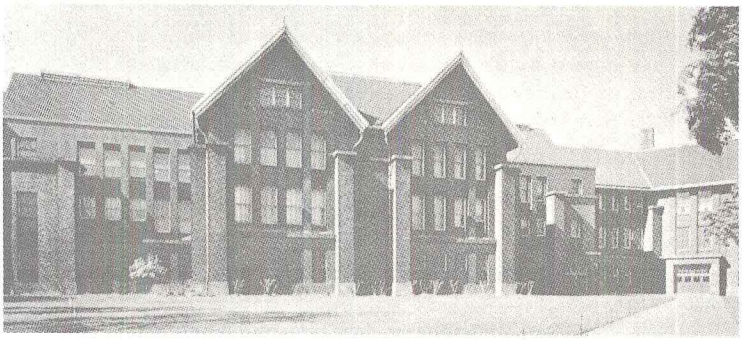
The contributions of Drummond, Purcell and Feick, and Louis Sullivan as well as others during the later part of this period through 1909, is reasonably complete. This portion also brings in some of Wright's work, but only as it relates to the work of his contemporaries. Nowhere in the book is it more apparent that this is a volume for the dedicated Prairie School historian. Only the most devoted amateur will be able to discern the relationships between Wright and his midwestern contemporaries. To understand Brooks, one must first have thoroughly reviewed the work of Grant Manson and Henry-Russell Hitchcock on Frank Lloyd Wright.

The period 1909-1912 is heavily oriented towards the work of Walter Burley Griffin and Marion Mahony, the team which won the Canberra competition in 1912 and moved on to Australia. It is unfortunate that more of Griffin's earlier work, particularly his town planning, is not included. Andrew Willatzen and Barry Byrne are given some space but only a few paragraphs. Their work actually falls outside of Brooks' boundaries since their practice was in Seattle. William Drummond gets more attention but not sufficient to satisfy this reviewer of the substantial amount of material available on this talented and productive product of Wright's studio. Too much is devoted to Drummond's unfinished or lesser works and not enough to his better architecture. Purcell, Feick and Elmslie, later Purcell and Elmslie, are likewise given short shrift in this period although it was the beginning of a very productive period for them. A few other men are mentioned briefly and the section is closed with a study of the influence of European architects and a kind of sub-essay on the critical literature of the period. This literature was crucial to the entire movement of the Prairie School, but recognition by *The Western Architect* did not come until too late. By

Mr. Hasbrouck is Editor and Publisher of **The Prairie School Review,** a quarterly Journal concerned with The Prairie School of Architecture.

1915 when this important journal was devoting much of its content to the Prairie School, clients' eyes had turned away.

The chapter "Diversity, Decentralization, and the Final Fulfillment," covers only the years 1912-14. In Brooks' mind, it was the culmination of the Prairie School and its most productive period. If one ignores Wright's earlier work, he is correct. By now Purcell and Elmslie have welded themselves into the perfect team to produce their small jewel-like buildings across southern Minnesota. Most were encrusted with Sullivanesque ornament superbly detailed by Elmslie. Griffin was at the peak of his creative power, Percy Dwight Bently, even though never part of the Chicago group, was producing splendid residential work in La Crosse, Wisconsin, and John S. Van Bergen was turning out his excellent copies of Wright's "four-square" houses. George Maher was still doing good work, although he had turned his back on the Prairie School to some degree. The movement had spread to Iowa with Griffin's work in Mason City and Barry



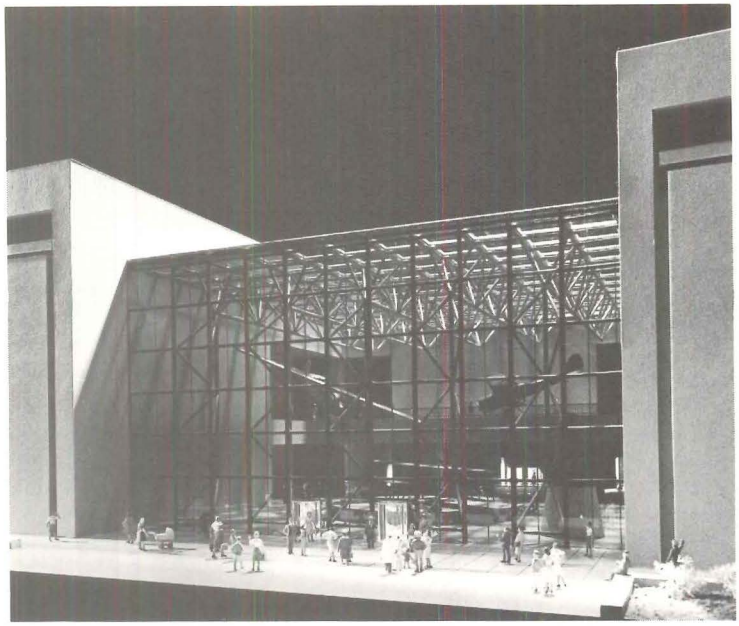
Dwight H. Perkin's Shurz High School

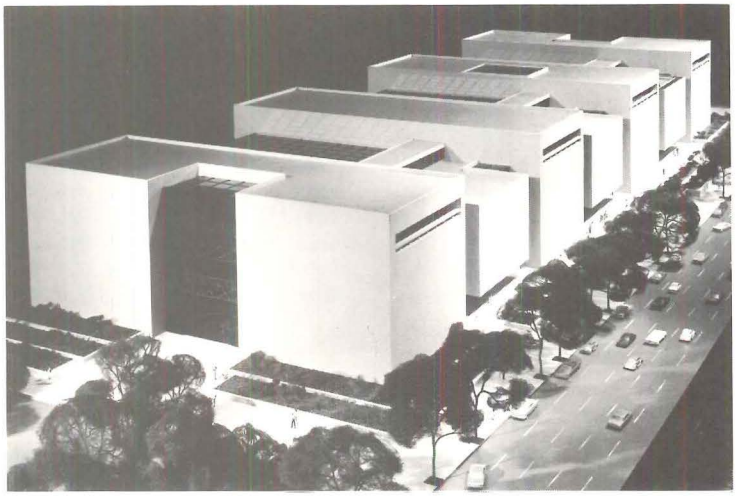
Byrne was soon to follow. Francis C. Sullivan carried the message as far north as Canada. In this chapter Brooks is at his best. He carefully sorts out the work of this man, the influence of that, and credits where credit is due. Critical where criticism is warranted, praising where praise is merited, the historic significance of the Prairie School is clearly demonstrated. He is careful to point out ". . . Personal design maturity was attained by numerous architects at this time . . . all developed distinct, individualistic expressions of their own, while remaining faithful to the broader limits of the school itself."

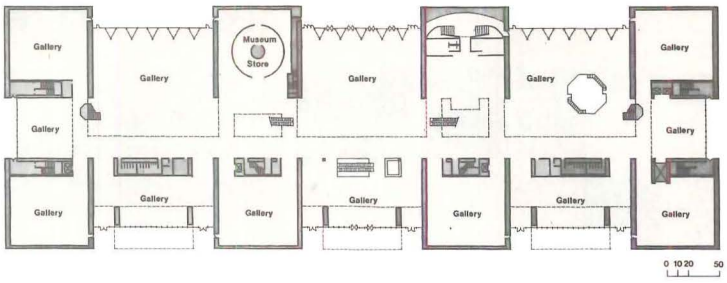
The remainder of the book brings a sadness to the reader. The school is dying. But for a few isolated instances, Barry Byrne and his church work, William Drummond's Shedd Park Building and one or two others even later, no more of the Prairie School will be built. Louis Sullivan lives out his life doing tiny banks which are not really part of the school, finally dying a bitter man having seen what he begat live, flourish, wither and die before him. Brooks' final words are concerned with the whys of the death of the Prairie School; the journalists, the clients' attitudes, the strange return to pseudo classicism. He chooses not to give any space to the influence of the Prairie School on later American architecture. Brief mention is made of the influence on European architects. Even there, it lasted but a few years.

At the time H. Allen Brooks was completing the text for his book in 1968, he took part in the Concora Symposium held at Northwestern University. The subject was the Chicago School of Architecture. Sir John Summerson of Great Britain was in the chair. At the conclusion, Sir John took the opportunity to tell a brief tale of Frank Lloyd Wright's visit to England in 1937 when he took time to visit with a group of young architects and students. Sir John related ". . . we grouped ourselves around the great man. . . . There was dead silence and then he started to talk and his first sentence was: 'It all started in the long grass of the Prairies.'" H. Allen Brooks has written the book which demonstrates what Wright was talking about. It is not the last word. It *is* a definitive work which will stimulate those who read it to even more extensive examination of the roots of modern architecture.

PREVIEW







TAKE OFF ON THE MALL

The National Air and Space Museum of the Smithsonian Institution is a skylit structure which will be on center with the rotunda of the National Gallery across the Washington Mall. St. Louis Architects Hellmuth, Obata & Kassabaum, responding to the Fine Arts Commission, conceived a symmetrical marble and glass building which, though huge, will relate to the existing Gallery and hold the southern edge of the Mall.

The building, which has received one of four Honor Awards in GSA's biennial awards program, consists of four marble and three glass-curtained modular bays. From the Mall people will see displays in the glass-roofed exhibit halls which are 60-feet high, 115-feet wide and 120-feet deep.

Entering the central glass bay from the Mall, visitors will encounter the Wright Flyer rising from a sand dune. In a circle around that will be other famous air and space craft: the Spirit of St. Louis, the X-1 and the Apollo 11 command module. More than 20 exhibit halls in the two-level building will house a progression of thematic exhibits documenting the technology and history of flight, and conveying an understanding of its impact on man and his environment.

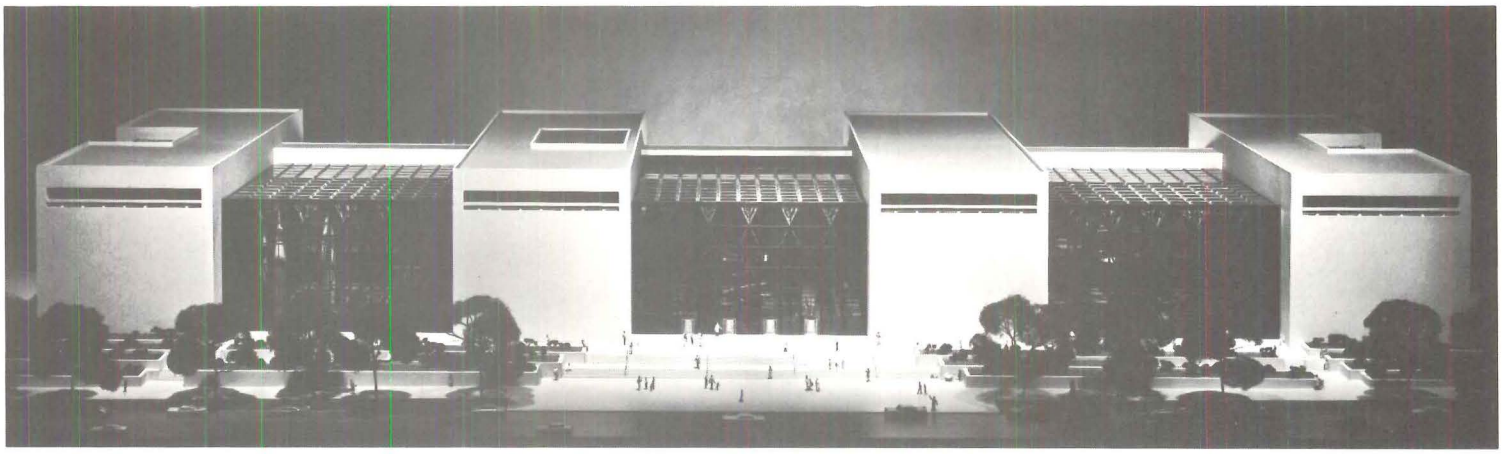
Former astronaut Michael Collins, Director of the Museum, is determined that the building will be as much a catalyst for new concepts as an exhibit area for scientific ingenuity. He feels strongly that the social and human dividends of space research should be as much a part of this museum as the hardware. In the programs that are being put together, he wants to bridge the gap between scientists and non-scientists.

The Museum will house an auditorium/film theater and a 350 seat Spacearium which can project conventional planetarium star shows and large audio-visual presentations. "Between the two chambers, we hope to be able to create sights and sensations as diverse as an early balloon ascent in Paris, seen from Benjamin Franklin's balcony; an orbital rendezvous with Skylab; Lindbergh's landing at Le Bourget; and flights to other planets," says Mr. Collins.

Additional facilities will include the museum offices, a large library-research center, a 300 seat cafeteria for staff and public, and underground parking for 500 cars.

The collection, now numbering over a million items, dates back to the 1876 Philadelphia Centennial Exposition, when some kites were acquired from the Chinese. The Museum is set to open on July 4, 1976, making it the only scheduled event for the Bicentennial.

Associate Architects are Mills & Petticord Partnership.



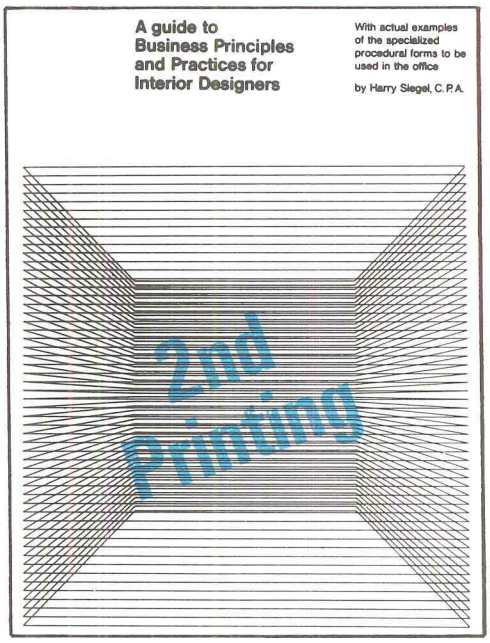
PHOTOGRAPHS: Eugene H. Fleming III

A guide to Business Principles and Practices for Interior Designers

With actual examples of the specialized procedural forms to be used in the office

by Harry Siegel, C.P.A.

This book won't tell you one blessed thing about design but it may well be the most important book ever published for interior designers, space planners, architects and students.



A long time consultant to design firms, Mr. Siegel has put together a clear-cut guide to the business routines which often frustrate the independent designer. He explains everything from the mechanics of setting up as a professional to estimating job time, billing and collecting.

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Chapter Headings

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FORUM

Every so often, architecture scores a nice, neat hit.

That's what happened last November 7, when a front-page article about Ada Louise Huxtable hit *The Wall Street Journal.* Mrs. Huxtable is, of course, architecture critic for *The New York Times* and, as such, one of architecture's most important allies. True enough, she has often taken our tongue-tied profession to task for, among other things, *being* tongue-tied. But, in the process, she has taken it up a peg or two.

It isn't easy being an architecture critic. If you get a Pulitzer Prize, which Mrs. Huxtable did in 1970, there is the problem of answering the fan mail (along with the hate mail), and the problem of helping hang your picture in a place of honor. When it came to hanging Mrs. Huxtable's picture on the 11th floor of the *Times,* her colleagues found they had run out of wall space, and that the only spot left was right next to the women's washroom.

It's not every critic who can get that kind of space in a newspaper.

When you think about it, there aren't that many critics covering this beat. You have Wolf von Eckardt at *The Washington Post;* Rob Cuscaden at *The Chicago Sun-Times;* George McCue at *The St. Louis Post-Dispatch;* John Pastier at *The Los Angeles Times;* and, just maybe, half a dozen others who write regularly. More want to, but there are obstacles.

One obstacle is that a lot of newspaper editors are indifferent to architecture. Another is that a lot of architects are indifferent to journalism. There is a curious, cynical tolerance of almost anyone who can write or speak a decent English sentence—especially when those sentences turn into shives.

Many architects are also suspicious of those who are able to talk in terms of a broader perspective; precious plans, painstaking details become vulnerable that way. One well-known architect recently confided that criticism of professionals by professionals is "healthy," but when it came to matters of perspective, he said, "Hell, I don't need an improved outlook; I need an improved livelihood!"

The two connect, as I see it. And the architecture critic (whether s/he works for a newspaper or a magazine) has to make the connection. As Louis Kahn put it very well, the critic's role is to discuss *potentiality*—which means, not just specifics but the perspectives in which those specifics were drawn; not just technologies but the intentions they reflect.

In so doing, the good, critical piece lets down a bucket into the architect's real self—the core, the conscience which survives the compromise of daily practice. The bucket draws up some aspects of the architect which were not clear, even to himself. It can also draw up some understanding of something he has done and, just as important, something he *may* do. We are all in the same bucket, and we are all drawn up by writing which deals with these deeper factors.

Let's face it. We are a drop in the ocean—whether we are architects, planners, urban designers, editors *or* critics. Strictly between ourselves, and keeping the limited circulation of magazines like this one in mind, no one *has* to listen to us. We have painted ourselves into a corner which is full of other noises, and louder ones.

The thing is, what we do is part of and, often, basic to the din in which we are trying to be heard. The critic comes in as a clear, controlled receiver who can take in the well-meant, often garbled transmissions, resolve the static, and send the message back out on a beam, and at a frequency, which people can tune in on. Furthermore, the critic can do it with a grace and grab that can help set a climate in which people can feel part of what professionals are trying to do, and feel drawn into the outcome.

If, for instance, the critic is obviously having a good time covering an important building, or an important issue or, increasingly, *both* at once, it is only human nature that people are going to want to know what is causing this disproportionate thrill. By understanding an architectural achievement, a person becomes, in a minor way, one of us and, like us, gets this impulse to pass along the message; that person, in a major way, may end up building something, not just because he knows what professionals have to sell, but because he may, at last, appreciate what they really stand for—that stuff in the bucket.

I guess this is really why I took unholy joy in the piece about Ada Louise Huxtable, and why I have it pinned up in my office, and why I think you should look it up. I realize we are always developing. And it scarcely helps, or so it seems, to have one's momentum broken by a critic's comments. The reaction often is, "Must you bother me? I've moved on to the next problem, and I really am trying harder." It is precisely *our* unholy joy, our trying harder, which must be shared if public and professional aims are to achieve parity.—WILLIAM MARLIN

"No kidding! You don't look like a writer."

'76 Olympics snowed out

ENVIRONMENT

A BIG BOO

By a vote of 537,440 to 358,906 Colorado voters banned the use of local taxes for staging the 1976 winter Olympics. The vote effectively halted the efforts of the Denver Olympic Organizing Committee.

It appears that the public is not going in for any large-scale commercial stunt that might erode the environment. The Citizens for Colorado's Future, composed mostly of young people who led the anti-Olympics drive, thought the games would cost too much and encourage haphazard growth. Only six of Colorado's 63 counties approved the spending.

The Colorado legislature was quite active on environmental issues in '72. It passed three laws to slow down the proliferation of subdivisions. Counties were authorized to make approval of new subdivisions contingent on adequate water supply and sewage facilities.

MOTHERING NATURE

More than half of the 50 states approved environmental measures in 1972, and, unlike previous years, far more proposals were enacted than defeated. Among the most notable:

- The Environmental Protection Department in Connecticut received authority over wetlands; and special tax exemptions were provided for keeping land in agricultural status.
- Agricultural drainage is to be regulated in South Dakota by prescribed controls on livestock-feeding near rivers.
- Indiana banned the sales of detergents with phosphates effective next January; and banned the use of them effective in April.
- In Virginia several laws were aimed at voluntary population limitation: one facilitates voluntary sterilization; another provides for birth control information to accompany marriage licenses.
- Hawaii was the first state to broach automotive birth control, establishing a commission to make annual recommendations on the number of cars to be allowed on each of the state's islands.
- A Massachusetts law aims to make it easier for citizens to complain about polluters.
- Roadside littering should be considerably reduced in Maryland by a law that makes littering from a car a moving violation that goes on the driver's license and can increase his or her insurance costs.
- Illinois and South Carolina are protecting their endangered species by banning the sale of products made from them.

NATURE THE NEXT WITNESS?

It is an open question whether the local legislative moves to protect the environment cited above will receive backing from the Supreme Court. The court has tended to uphold the lower court's decisions; or it sends cases back to federal district courts for hearings.

In the two cases which are to be heard this term the commercial interests have emerged victorious in the lower courts. In a Florida case the lower court ruled that no state can set stricter standards or impose greater liability upon polluters for oil-spill damage than those set by the federal government. On the face of it this looks grossly unjust since what may look like a drop in the bucket from the federal point of view may be a mote in a state's eye.

The other lower court decision which the Supreme Court will review stipulated that Burbank, California cannot bar jet departures during hours when jet noise would disturb its sleeping citizens because a federal regulation to control that noise preempted any local action to that end, even though the federal rule was ineffective.

In light of the noticeably pro-business orientation of some of the newer members of the Supreme Court, environmentalists do have cause for alarm. But some commentators feel that issues of states' rights and the rights of individuals could bring some conservative justices to the conservationists' side.

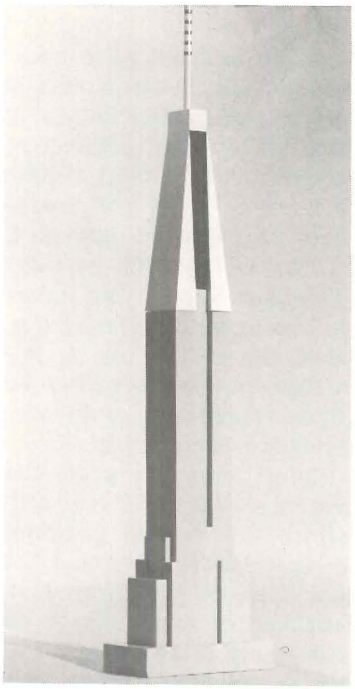
One of the underlying questions which will be dealt with in these two cases is: Who can defend nature? Justice Douglas has suggested that nature defend itself. In his dissent from the court's 4-3 decision that the Sierra Club could not challenge the granting of a federal permit allowing a commercial development in a national forest unless its members would actually be harmed by the proposed skiing development, Douglas said, "These environmental issues should be tendered by the inanimate object itself." It might work on the principle that sights speak many times louder than words. If the Sierra Club is ruled out of the game then surely nature must speak up. "Next witness please."

KEEPING UP

There are measuring games little boys play and it's no surprise that big boys play them too. The latest feather on the competitive brain, obsessed with bigness and being first, is the idea of not letting the Empire State Building dwindle to third place among the world's skyscrapers. The proposition is to tear down the 16-story tower on top, remodel the six stories beneath that, and encompass them within a new 33-story structure. That would make the Empire State Building 1,494 feet high with 113 stories; which is 144 feet higher than the 1,350-ft. World Trade Center towers and 44 feet higher than Chicago's 1,450-ft. Sears building.

There is just no way in which the whole notion is not buggy. First of all the imbecility of adding 33 floors of office space when there are many headlines like this in a recent Wall Street Journal: "That Empty Feeling, Rates of Occupancy In Office Structures Continue 2-Year Drop; Some Buildings Half Vacant; Construction in Progress Presages More Problems."

Under that head it is reported that occupancy levels nationwide are the lowest since 1943: they are down in Chicago from 98% in May 1970 to 90% now; and down in Pittsburgh and



Raising the roof to 1,494 feet

Dallas to below 75%. Owners are giving two years of free rent, paying moving expenses, giving free carpeting, drapes and partitions, and providing executive spas with whirlpool baths to lure prospective tenants.

Besides that, could the sidewalks or the plumbing take it? Where do you put the elevators? How much would it cost to temporarily relocate the TV antennas? And what *style* should it be?

The architect who conceived the idea, Robert W. Jones, Vice-president of Shreve Lamb & Harmon, the original architects, said: "I think it would be pretentious as hell to do it in the style of the building. If you're going to do something like this you'd better not get cutsey about it. It's like Chartres. They built one tower in early Gothic and later they built another one in flamboyant Gothic." *Pray*, say it isn't so.

Some designers—perhaps detractors?—say the addition might cost $150 per sq. ft. Does any one need any more reasons for forgetting about the whole thing?

It's really too bad; it could have been a good joke. Guess it's still good for a few. When the question arose about how do you demolish 16 floors more than 1,000 feet above ground, Mr. Jones said, "If you can get it up there you can get it down."

TOURS DE FARCE

During a visit to the U.S. several years ago, French President Georges Pompidou impressed architects with his knowledge of our historic buildings. That was before he guillotined Les Halles, and got guillotined for it.

Recently, Mr. Pompidou had harsh words for those who think of France as the site of Notre Dame, or as the source of Bordeaux wines. And he insisted it is a *modern* country, which is going to invite investment, encourage construction and host conventions.

To prove it, his government has decided to spare a 557-ft. office block, built by an insurance company, which is rearing up behind the Arc de Triomphe, disrupting the perspective from the Champs Elysees.

A plan to build a pair of curved towers, opposite each other, and within the sight line through the Arc, is being studied for possible modification. But, as of this writing, they have not been suspended.

These would be three of 34 towers planned for the western suburb of La Defense. Though two miles away, they are visual stabs at the heart of Paris—a heart already sclerotic with renewal schemes that threaten its scale.

Perhaps thinking of this, Premier Pierre Messmer has asked Public Works Minister Oliver Guichard to devise a plan for limiting building heights within Paris. Customarily, these have been kept to eight stories, at the most. Now, the Maine-Montparnasse tower overshadows the Right Bank and, if investors have their way, several more will go up around the site of Les Halles—soon to be a troglodyte triumph of underground shops sandwiched between a ground-level plaza and a Metro station. We are assured by official spokesmen that Bordeaux wine will be available from handsome vending machines imported, like most everything else, from the U.S.

HOUSING

PREFAB FIGURES

A nationwide survey by Professional Builder magazine of over 900 housing manufacturers reveals that prefab sales are up 46% in the first half of 1972, compared with last year, and that the firms forecast sales for the whole year at almost 50% over 1971.

Some large-scale operations have failed, but smaller firms have found success. In 1971 some 325,000 homes, or 16% of all housing built in the U.S., was prefabricated in 1,265 plants owned by 575 manufacturers. They ranged from $12,000 to $100,000 or more. In addition there were almost 500,000 mobile homes.

The survey also reports that 53% of both single and multi-family units will be built with components or manufactured units this year, the first time the figure has exceeded 50%. This means seven out of 10 large-volume builders will use components or other forms of factory building in 1972. Builders are being forced to turn to components because there is a shortage of skilled craftsmen for on-site work; labor costs are escalating; and, as of now, these costs amount to two-thirds of the cost of a house.

PLANNING

GEWORFENHEIT

That's a marvelous neologism of Martin Heidegger's which means thrown-in-edness. No English word gets so close to describing the effect of gaming/simulation which we recently experienced at the invitation of the Cooper-Hewitt Museum of Decorative Arts and Design (a branch of the Smithsonian). The Museum inaugurated a series of urban games at IBM headquarters in New York on November 16th. They invited 27 individuals from various fields of city, state and national government, the university, the design profession, industry and the foundations to play a game called *Metropolis*. The game was run on three successive days with three groups of 27 people ranging from police and budget officials to editors of *The New Yorker* and *Mademoiselle*.

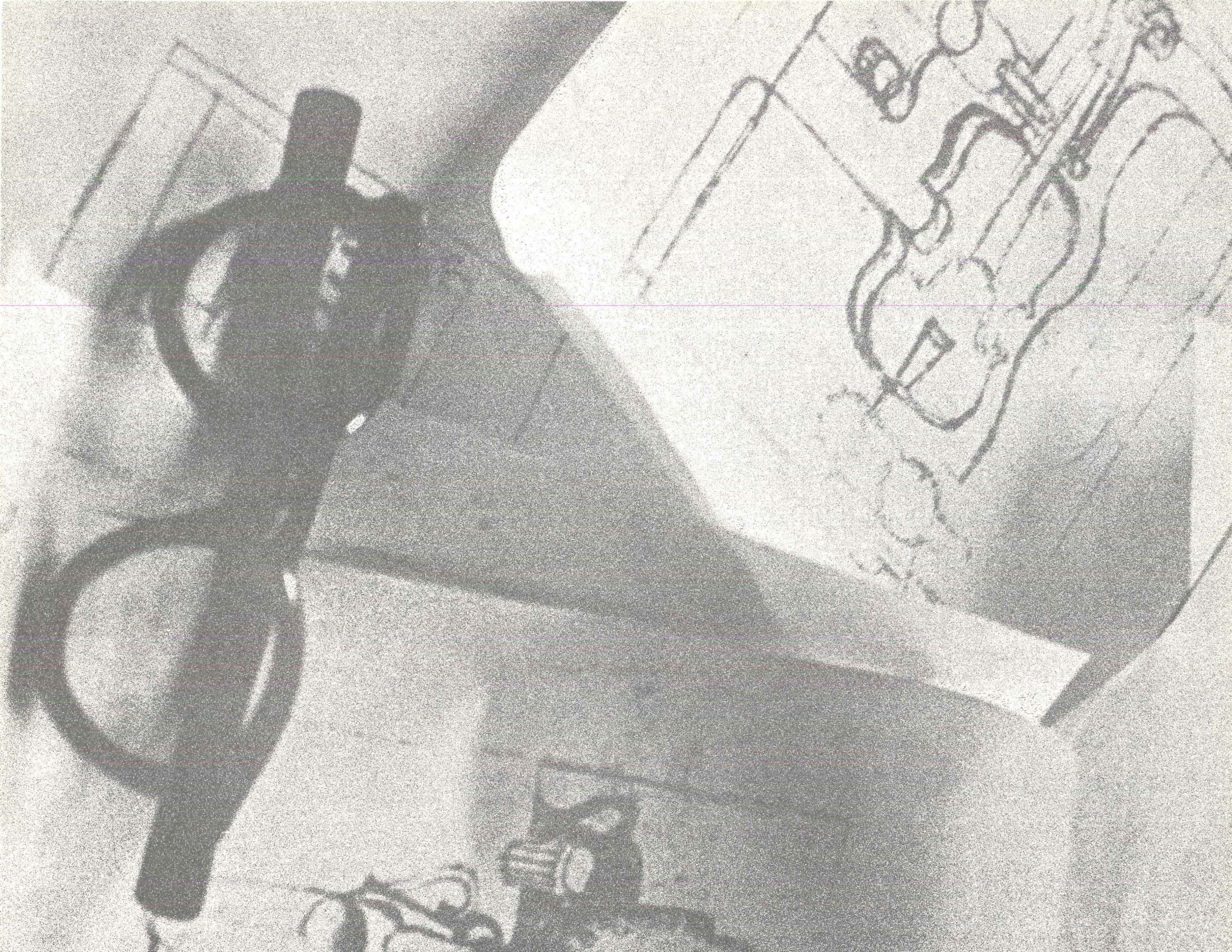
Metropolis was originated and, in this case, run by Richard D. Duke, Ph.D., who is the Director of the Environmental Simulation Laboratory and Professor of Urban and Regional Planning in the School of Natural Resources at the University of Michigan. He runs over 1000 games a year.

Metropolis has been run several thousand times. It was designed for undergraduate courses in urban planning and simulates the developments in a town's capital improvements program indicating the effects on land use and urban development.

Based on actual happenings in Lansing, Michigan, the game results can be compared with reality. For instance, in actuality Lansing appropriated and spent $200,000 on a bridge near the University to alleviate traffic jams. Subsequently the University prohibited students from having cars so the bridge was useless. This was reassuring to the game team which had voted that construction of the bridge be reconsidered.

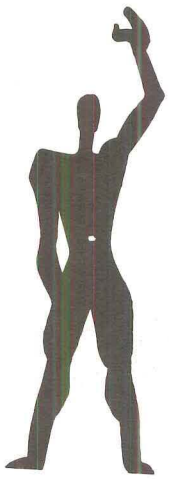
Dr. Duke began the gaming session with a *very* brief animation of Lansing population explosion diagrams for the period from about 1850 to 1965. Then

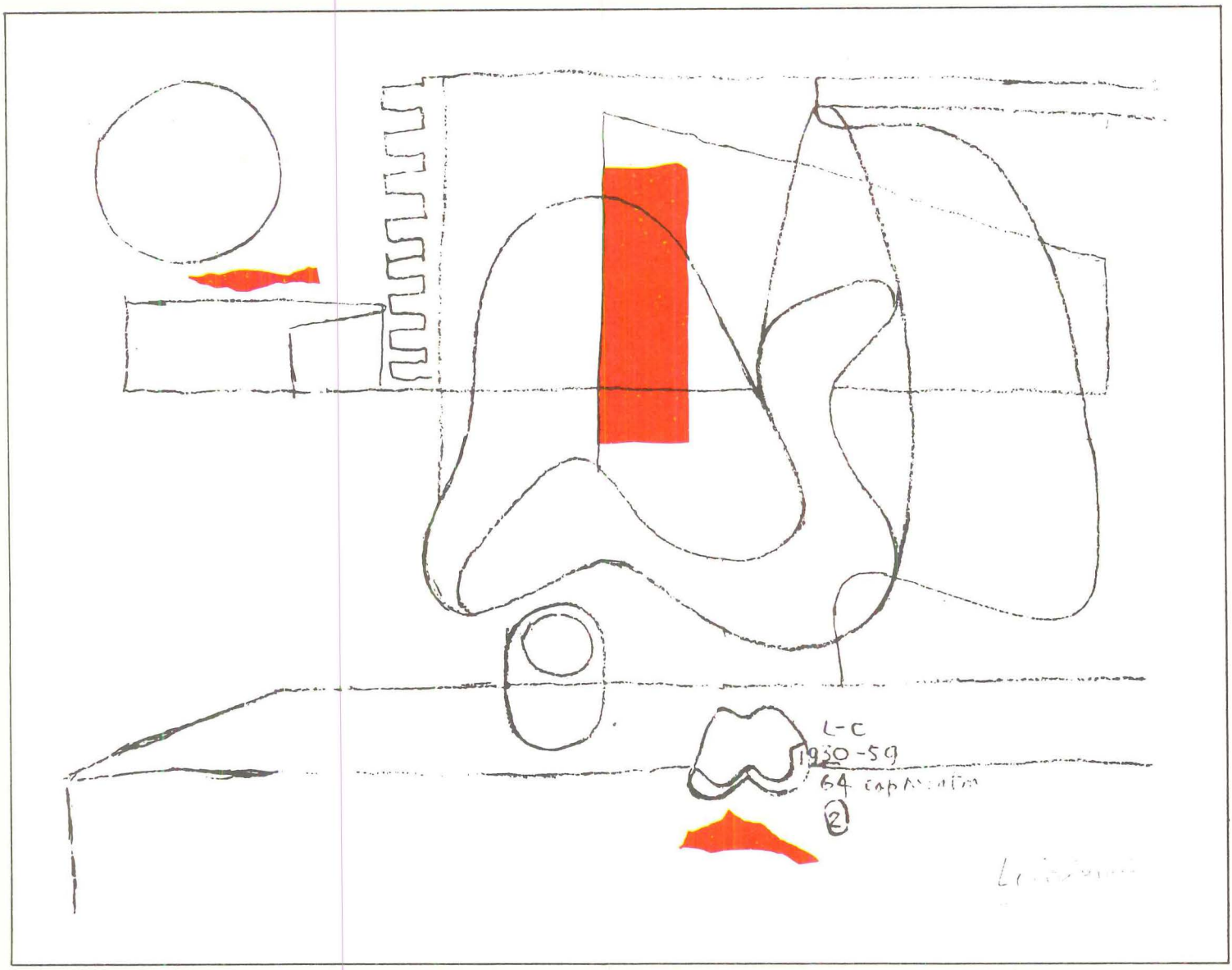
(*continued on page* 61)



le Corbusier

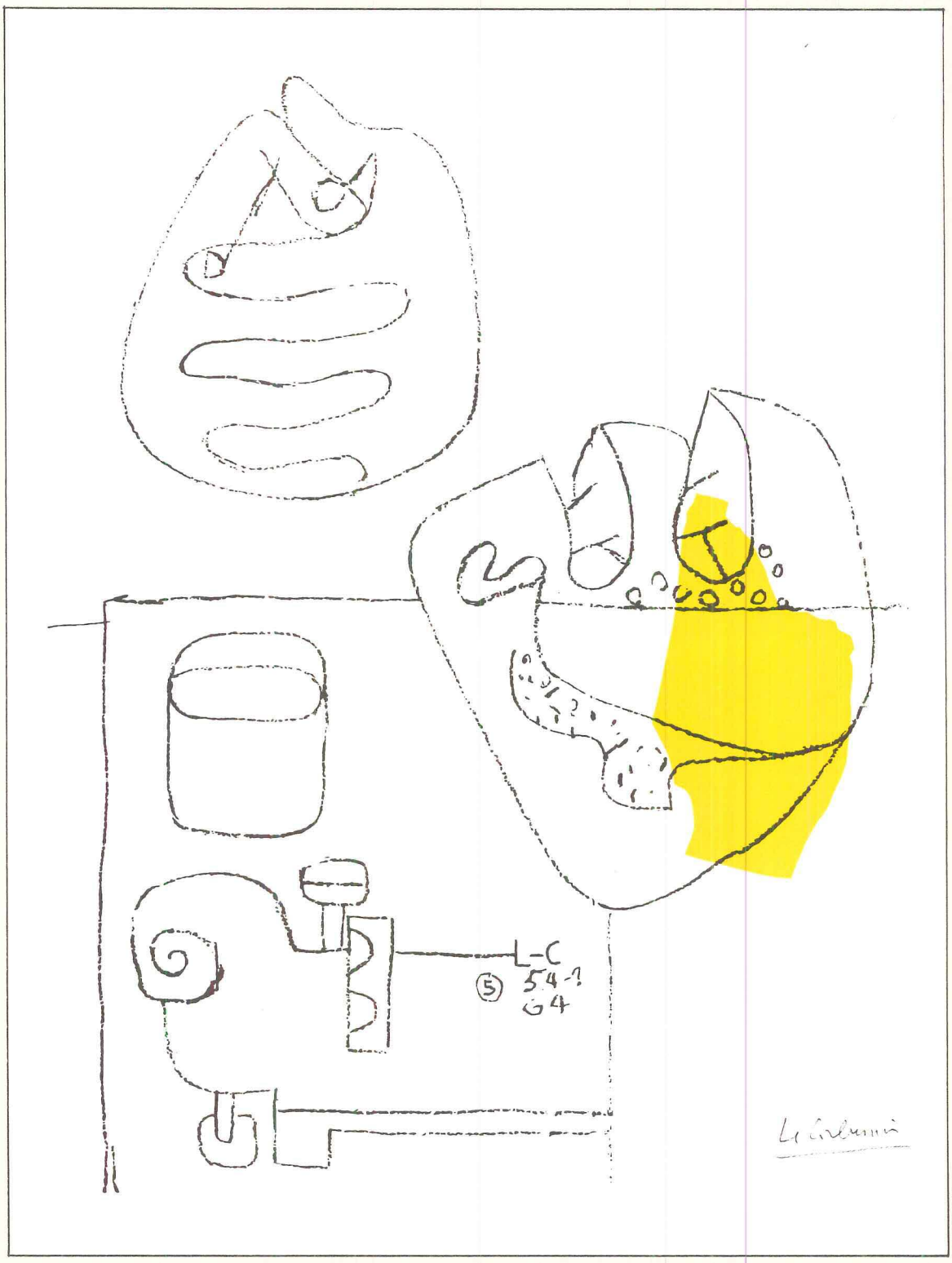
The lithographs on the next two pages are among Corbu's last. They are from that handsome little book, "Oeuvre Lithographique," brought out by Heidi Weber, who runs Centre Le Corbusier in Zurich. Recently, we came upon the originals in a Chicago gallery, run by Jacques and Anne Baruch. And, before long, we were climbing their 40-ft. walls with concern about the rest of Corbu's legacy. It is, we were told, in a scandalous state. His Indian city of Chandigarh is, we pointed out several months ago, already overgrown with weeds and slums. But the legacy in question here involves Corbu's drawings, prints, paintings, the models of his buildings. These represent a creative state which could not be compromised, or commissioned, works which can not, or should not, be subject to political indifference or bureaucratic bungling: the quick, cosmic sketches, the testing of light and shadow with cardboard forms, moved this way, then that; the search for color, for texture, for symbolism—on a canvas or through a silk screen. These are pure Corbu. And they are, to architecture, what the first drafts of Gide are to literature; or the early notes of Einstein are to science; at least as telling, as to intent, as his finished buildings. That is why they are so important. For we, too, face "a great epoch. . . . there exists a new spirit," and many of the questions we must ask are inherently part of Corbu's unbuilt oeuvre, those passionate probings which, now and again, would "create drama out of inert stone," adding dimension to inert technology. Very few have understood that Corbu, while extolling the machine, also tried to transcend it. He could marvel at and write about its precision, but he felt its true logic consisted in liberating life. His buildings became active, not passive, elements—experiential. Pilotis were not structural devices; they were philosophical ones—putting architecture face to face with what we now call the Post-Industrial Age. The machine was not just an apparent medium; it was a transparent medium. And the interpenetration of space and experience, sought through a lifetime, came through with spontaneity in those moments when he was alone with the pencil, or the brush, or the etching knife—those moments devoid of the often pontifical explanations about why he had





Le Corbusier's OS 2 (above) and MAINS CROISEES (opposite) were done in 1964, the year before his death.

built something "that way," or reassuring what Lewis Mumford called "all the little Corbs" of his prescience. Many of the remnants of this very private Corbu are still around. Some are with Heidi Weber in Zurich; others are at the Fondation Le Corbusier in Paris, which recently sponsored an exhibit of Corbu's Pessac work at Harvard's Carpenter Hall; many more, in fact thousands more, are in Corbu's Paris apartment which is strewn with drawings, paintings and prints, just there, neglected, uncatalogued, and so messed up that we have been getting phone calls from people saying, "Can't you do something?" "Alas for Paris, the wasteland, the ruthless battlefield," Corbu once said. Alas, for the world, a wasted resource. As Robert Furneaux Jordon makes clear in his recent biography of Corbu, the last years were spent largely alone, especially so within the memory of his struggles. Ronchamp, La Tourette and Chandigarh filled his time but, by 1965, his mind has begun to close in on the beginnings of his life, when the elementals of engraving, learned in Switzerland, first led him into architecture. In many ways, he had come full circle. And it is now that golden ring, corroded by the praise of recent years, which must be fetched from the clutter, refurbished, studied, and put in safe-keeping. Taken together, the drawings, the lithographs, the paintings—carried out right up to the last—suggest that Le Corbusier knew that the "great epoch" he wrote of in 1923 had, by the 1960's, altered, and that he was, very privately, pursuing his own adjustment to that event.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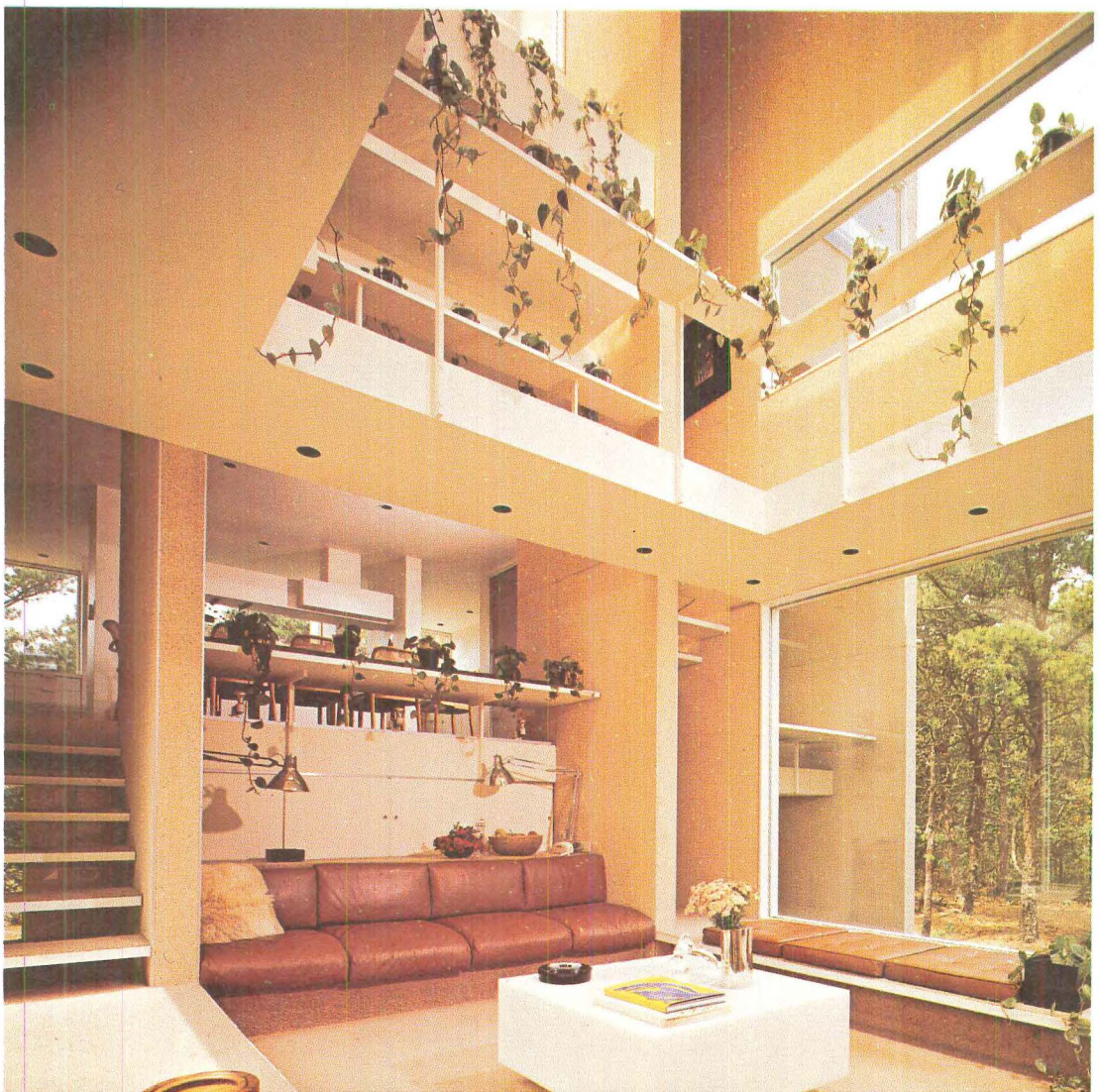
The view above is into the living room from the entry, with a LeCorbusier tapestry on the right. Firewood may be stashed on the steps at either side of the fireplace, and one may enter the living room through here or via the steps at the left. The living room (right) floating above ground (as can be seen in drawings on pages 28 and 29) is itself one of many bridges in the house. The platforms on either side form seats and steps.



SAND CASTLE

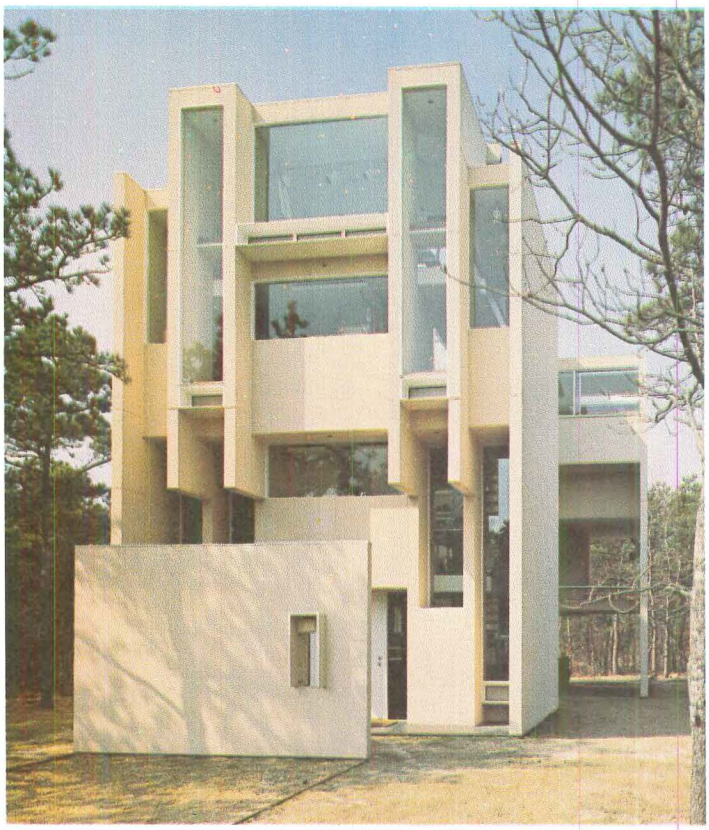
Light and nature infuse this towering Vineyard house

The house is every architects' sandbox. In this instance a sand castle has arisen in a Martha's Vineyard forest.

"This house really worships nature," says its owner, Marlene Rubin, who is the most satisfied client one could imagine. She says it is "dedicated to the nature around it . . . and is almost humble in always opening to what's out there. . . . you are always looking either at the bottom, middle or top of the forest."

Mrs. Rubin, who has spent over a year in the house with her two teenage daughters, still feels it is a revelation being constantly aware of what's going on in nature. The kids, who adore the house, feel as if they're on top of a tree. And she, who used to be one to tell her friends not to call her before eleven since she works late into the night on her painting, now finds mornings a pleasure and doesn't resent being awakened by the dawn. "The house changes your way of thinking and living," she says. "You feel like you're at one with the world."

This house, much more than most, is composed of light. It comes pouring into the center of the house from the skylight, and both ends of the house are almost entirely glass. So are the walls of the living room, and light filters in through flights of stairs without risers. Photographer Norman McGrath says light is coming from everywhere, and he needed no supplemental light in photographing the house. Mrs. Rubin says it is rare, even in winter, to need any lights at all. And there is so much light that she feels she has to rotate the philodendrons on every rail and bridge. Among the most magnificent moments in the house are during summer storms at night when the skylight makes it



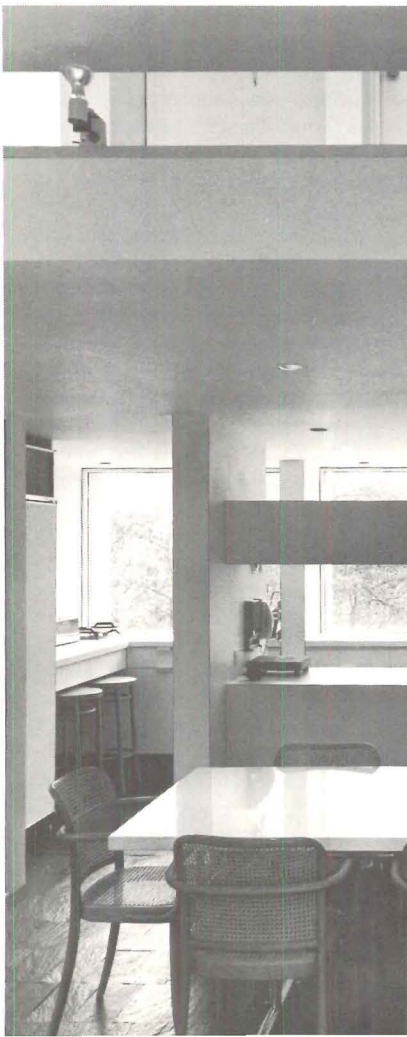
There is a freestanding wall in the front of the house (left) so that the living room does not look out on automobiles. The wall houses an intercom and a shower for removing sand from your feet when you come in from the beach. The master bedroom and studio (below) receive light from the skylight as well as windows.

seem the house is filled with lightning. Recounting this Mrs. Rubin said, "You are not living inside of anything; you are actually living outside in that forest."

However, architect Peter Berman does not just leave dramatic lighting to nature. There are floodlights on the roof, over the skylight, which can illuminate the entire living room, which is great for big parties. At other times recessed lighting in the ceilings can be adjusted in a great variety of combinations. In the studio there are also can wall-washers and adjustable floods plus lamplight. In the daytime, light pours into the house; at night, it pours out.

The most conspicuous thing about this house is its multiple levels. The interval between them is a reassuring, regular four feet. Although the house may seem to be an immense jungle gym, since one never has to go from top to bottom unless the car keys got left in the studio, one is not terribly aware of climbing stairs; they are all just five or six step hops. Mrs. Rubin's major impression is that the stairs are very decorative. Being afraid

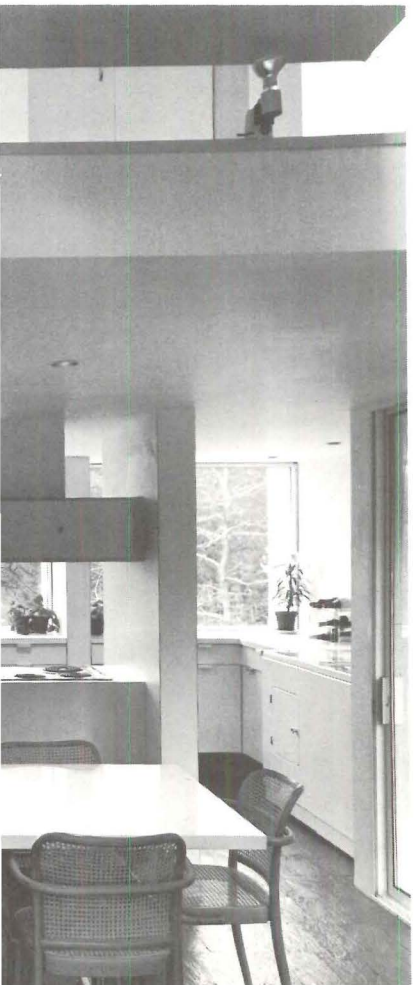
The rear of the house (above) forms a sheltered play area for inclement weather and provides space for storing boats, bicycles, firewood and garbage. The stair leads up to one of the terraces, and provides a back way into the kitchen, which spans the play area, and to the children's quarters above. The pivoting front door (below) is flanked by closets and opens directly onto the fireplace. Above the door is the powder room window.

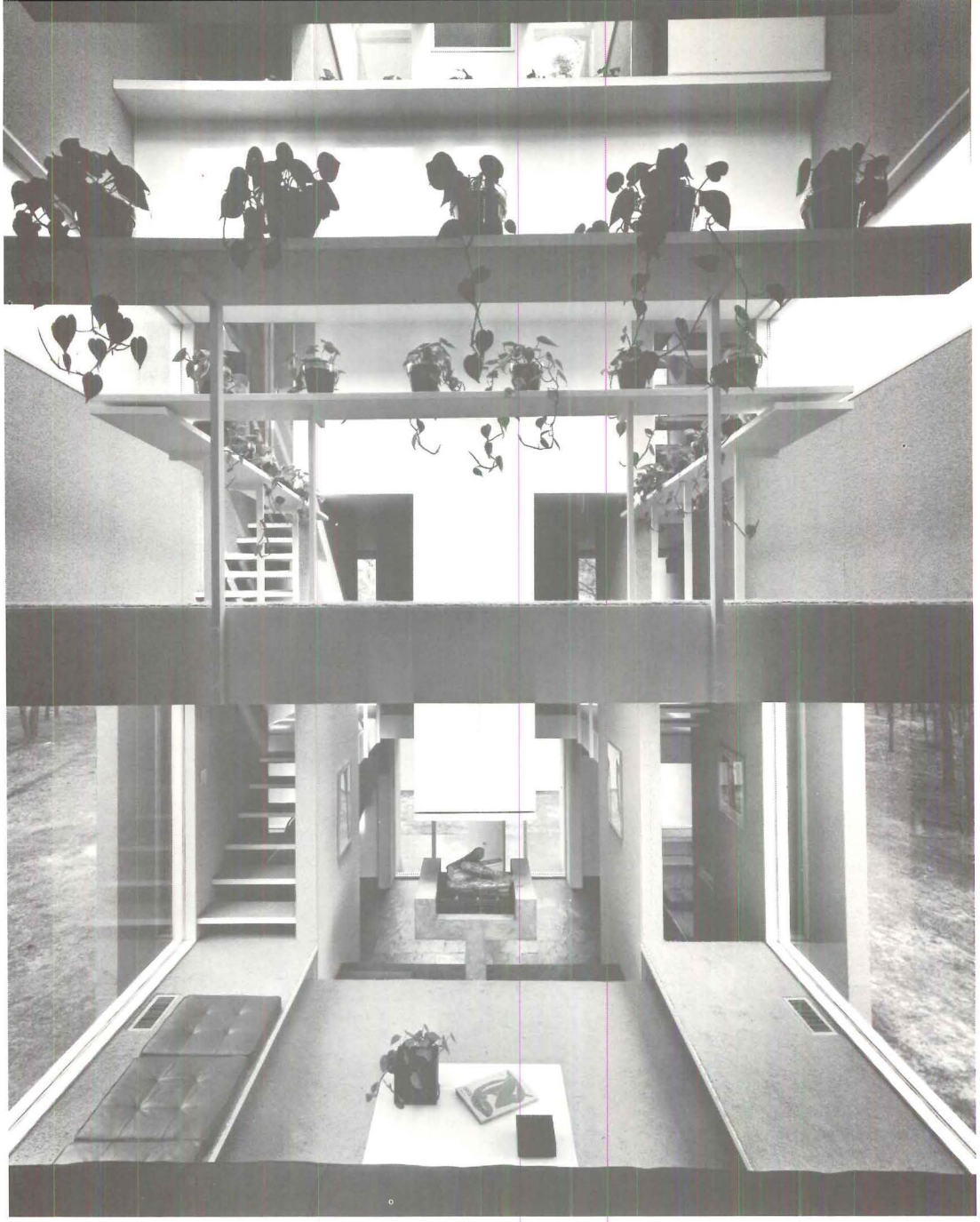


of heights she has been relieved to find that there is no point in the house where she feels uneasy.

For all its openness the house is essentially closed on the sides. This is explained by the fact that "there is nothing between this house and England," as Mrs. Rubin puts it, and it is nothing for the Vineyard to get 70 miles per hour winds. So the blank side of the house is oriented towards the worst, northeast winds. This was the first siting consideration. Additionally the studio gets a corner on the steadiest light from the north and the only view of the harbor. There are no views of the water from grade which was the prime reason for building tall.

Mrs. Rubin says it is a blessing that most of the windows are fixed. It is the most bug-free country house she's ever experienced. Under the fixed lights there are more than a sufficient number of ventilators —over fifteen. They are wooden doors (with screens outside) that you flop open when you want fresh air and sounds. There are two chimney fans which draw smoke out and, in





The view above looks out from the dining room, under the main bridge, over the living room sofa, and out past the fireplace to the entry. In the center photo is the dining room with the kitchen beyond. A characteristic view from one end of the house through the other (left) goes from the studio (drafting table at left), through one of the children's bedrooms, and through an intervening clerestory window.

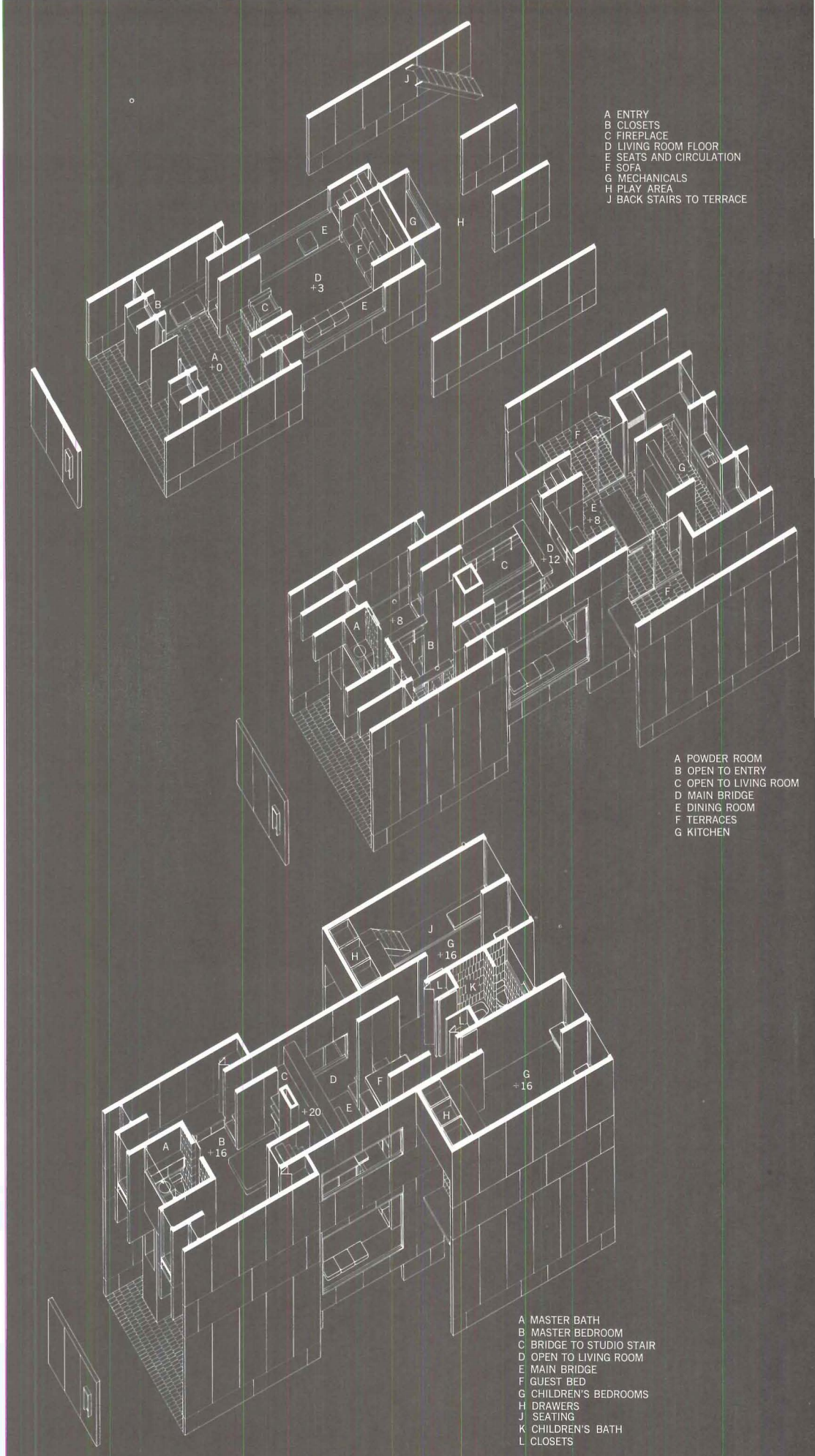
hot weather, circulate fresh air throughout the house. Also there are sliding windows above the bunks in the children's rooms and sliding glass doors onto the terraces.

The house is primarily constructed of Sanspray by U.S. Plywood. It is ⅜ inch plywood with about ⅛ inch of stones epoxied to it. The architect says, "My architecture doesn't really have an inside and outside," which accounts for his use of Sanspray both inside and out, except in the baths, the kitchen—which is white formica — and the children's bedrooms which are sheetrock and plaster. As the joints of Sanspray do not disappear, the architect regulated them so that the pattern expresses what's happening inside. Mrs. Rubin finds this material beautifully warm, giving the house a mellow glow. She also finds she can constantly hang and rehang paintings without the holes showing.

The architect prides himself on the fact that there is, as he puts it, "not one unstraightforward bit of joinery." All the exterior plywood corners are mitred and, where a corner had to be turned on the inside, aluminum angles were used. Since he feels that materials shouldn't draw inordinate attention to themselves, he reads the glass here as planes and as the absence of another material, not as punctured openings.

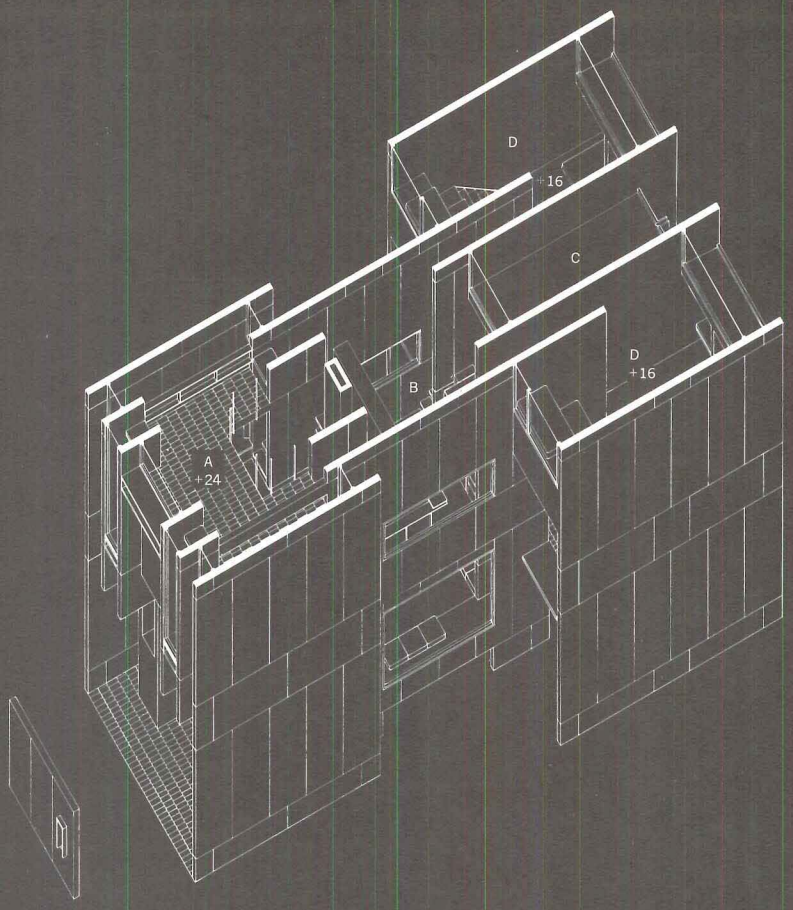
Berman insists that his architecture doesn't rely on details; that it is space-oriented. When asked if he felt his work to be a metaphorical statement of the difficulty of defining boundaries in this life, he said it was not about boundaries — that he works not from plans, or sections, or elevations, but from space.

It will be interesting to see if Berman's style—which already has taken on very strong definition — has significant wider applications.—JANET BLOOM

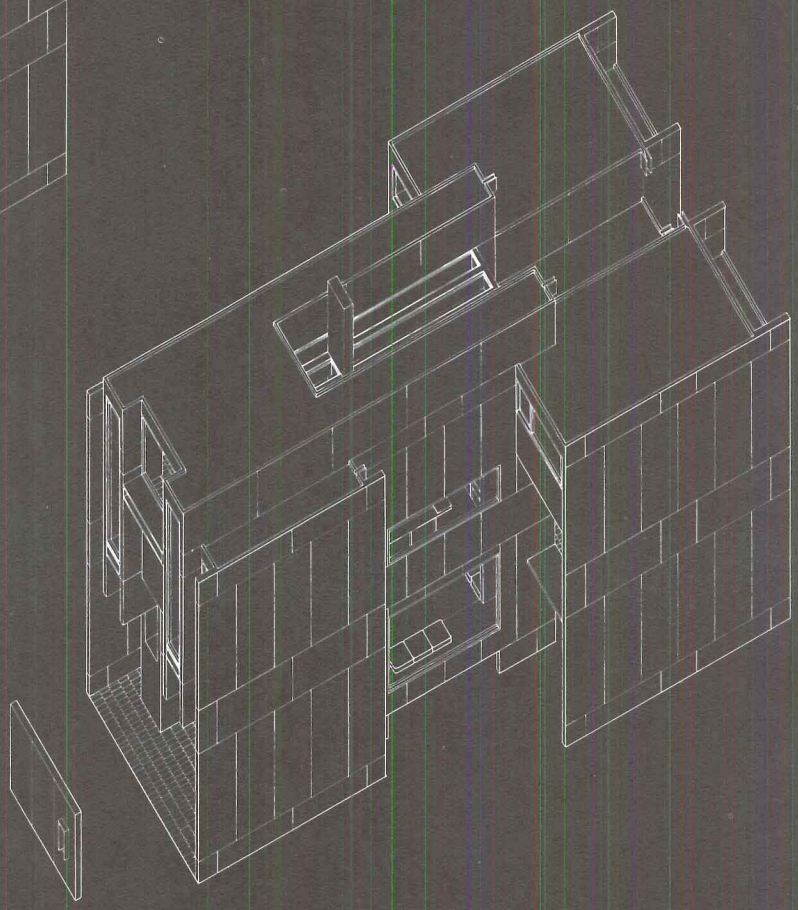


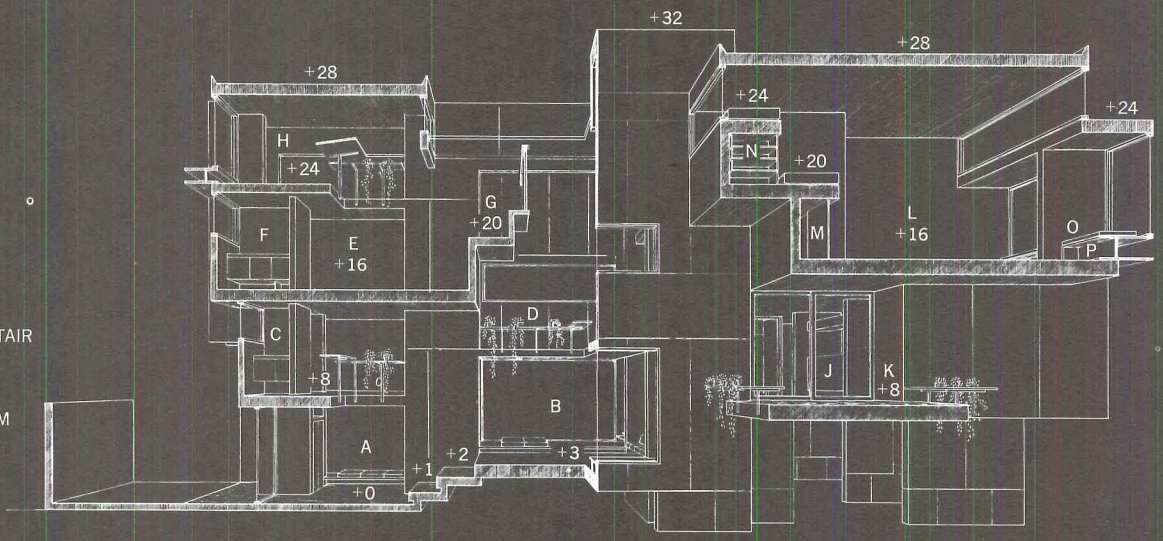
FACTS AND FIGURES

Rubin Residence, Martha's Vineyard, Massachusetts. Architect: Peter Anthony Berman. Engineers: Robert Silman (electrical); George Langer (mechanical). Interior Designer: Peter Anthony Berman. Contractor: Ray Contracting and Raul B. Medeiros Jr. Inc. (general). Bldg. area: 2000 sq. ft. (For listing of key products see p. 69.) PHOTOGRAPHS: p. 24, William Maris; all others, Norman McGrath.

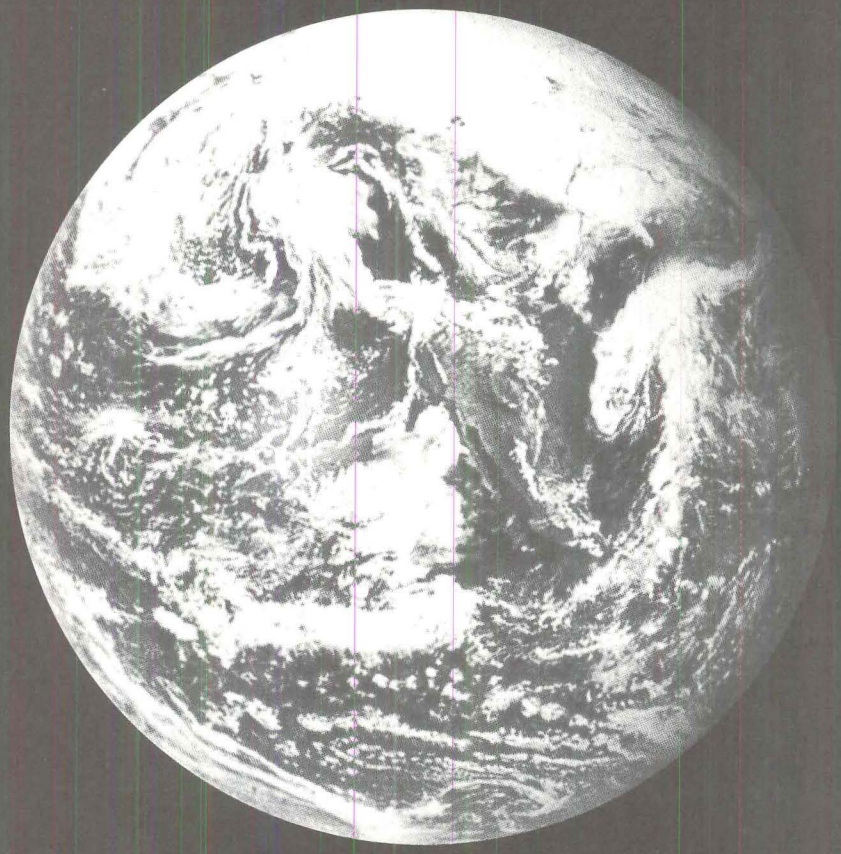


A STUDIO
B OPEN TO LIVING ROOM
C ROOF OF CHILDREN'S BATH
D CHILDREN'S BEDROOMS





A ENTRY
B LIVING ROOM
C POWDER ROOM
D MAIN BRIDGE
E MASTER BEDROOM
F MASTER BATH
G BRIDGE TO STUDIO STAIR
H STUDIO
J DINING ROOM
K TERRACE
L CHILDREN'S BEDROOM
M CLOSET
N DRAWERS
O WINDOW SEAT
P VENTILATOR



AN URBAN PLANET?

BY BARBARA WARD

URBAN EXPLOSION

Do we, as a human species, need to know what is happening to us? Other terrestrial species clearly do not. Instinctively the animals move on when the grasses fail or the forests burn. Instinctively they know where to hunt in summer or hibernate in winter. But they do not know or understand or forecast or control their habitat. And if disasters strike, they may, like lemmings, simply surge to a collective death.

Should humans behave in the same blind, reactive fashion? In a sense it is clear that they *do* so behave. Otherwise, the whole range of ecological disasters—lakes poisoned with effluent, air tainted by smog, land eroded to desert by overuse—would not be the pervasive evidence of blind, indifferent misuse of an environment that no one has taken time to understand.

But can we continue in this ignorance or indifference? If we do, can we be sure of avoiding the lemmings' fate?

The fact is that we must grasp the nature of our habitat so that we can hope to survive in it. This is the fundamental reason for studying our cities.

Humanity's new environment

For the cities are, increasingly, the habitat of mankind. Suddenly, in little more than a century, urban settlements are becoming the daily environment of much of the human race.

The Planetary Trend. In 1920 fourteen percent of the world's population lived in urban centers (officially defined as over 20,000 inhabitants). By 1960, it was twenty-five percent; projections to 1980 show almost thirty-five percent. By the year 2000, less than thirty years from now, more than one and a half billion souls must be added to urban centers which al-

Barbara Ward, a member of Forum's Board-of-Contributors, is the Albert Schweitzer Professor in Humanities, Columbia University and is widely regarded as one of the world's most influential writers. This article is adapted from "An Urban Planet?"

ready seem crammed to the bursting point.

The trend is universal — the surge toward urbanization is occurring in all the developed industrialized regions of the planet (Europe, North America, the Soviet Union, Japan, and Australia) — the two worlds consisting of the nations of the Eastern and Western spheres of influence.

And it is occurring even faster in the Third World—the developing nations of Latin America, Africa, Asia, and the Middle East—where urban centers multiplied fivefold between 1920 and 1960. The acceleration continues: between 1960 and 1980 the *increase* in the urban population of the *developing* countries will be equal to the entire *present* urban population of the *developed* world.

Moreover, the bulk of this planetary shift is probably going to end up in the big cities —the ones sprawling all over the landscape with half a million inhabitants or more: in fact, the larger ones are racing to pass the ten million mark.

The Experience of the United States. Let the experience of the United States stand as example. The Founding Fathers created their constitution for a land in which ninety-five percent of the people lived in townships of less than 2,500. Only New York and Philadelphia had reached 25,000 inhabitants (the population today of Pottstown, Pennsylvania). Two hundred years later, nearly seventy-five percent of the population lives in settlements of over 20,000, with nearly one-quarter of the urban dwellers in the *big* cities.

Nor is this the end of the story. By the year 2000, over 100 million people must be added to America's urban settlements. Such growth will entail building not much less than the equivalent of the whole of urban America today. Two hundred cities the size of Cincinnati — this is the minimum expansion, both physical and social, that must be accomplished in under thirty years. And that figure does not allow for the reconstructing of at least half the existing cities, as obsolescence and blight overcome older sectors.

We cannot evade these facts. The people will be there. They cannot be dumped, homeless, all over the landscape. The choice is not between acting and not acting; it is between doing well and doing badly.

The environmental crisis

The choice is critical because the present onrush of the urban revolution gives alarming evidence of growing progressively worse. We face not an orderly human adaptation to a new total environment but something that might develop into a lemming-like catastrophe.

There would be no crisis if current unchecked growth were producing efficient, secure, and beautiful cities. But it is not. The great megalopolitan settlements that spread, cell by cell, along the Atlantic seaboards, on the fringes of the Great Lakes, out from the Third World capitals, are more often characterized by their horrors than by their achievements.

"High-speed" highways clogged with traffic; communication and power systems overloaded to the point of breakdown; urban ghettos entrapping generation in hopeless poverty; one-class suburbs with marooned housewives; smog in the air; filth in the rivers; countryside receding before the outward waves of ticky-tacky houses—anyone can make his own priority list of evils and add the despondent conclusion that not one of them is self-correcting.

On the contrary, the crowding of billions more citizens into unreformed urban structures could push each evil over the edge into unmitigated calamity.

If Lake Erie now faces biological death because of effluent from the lakeside megalopolis, who knows whether 30 million more urban inhabitants along the shores may not turn it into the active generation of mortal disease?

So it is not simply a question of absorbing the new multitudes. The present container does not properly serve its purpose. The city must grow, but it must also be transformed at the same relentless speed. Improvement, reform, radical change — this is the need of the urban revolution. It is like trying to rebuild and raise a dam when the lake is already full, and to do so without agreed specifications or even a consensus on what is causing the problem.

CITIES IN DEVELOPED LANDS

How have we come to our present state? Do we really need to know? Is it of anything more than antiquarian interest to understand how the urban revolution has come to take its present crisis-ridden form?

The truth is that no cure is possible without diagnosis and no diagnosis has validity unless it deals with the roots of the trouble. The life of a man must be known if his deepest disorders are to be healed.

Equally, the life of a society, the life of a city—its growth and development—must be understood. They make it what it is, and it is this historical reality that has to be analyzed and cured. Take away the dimension of history and we are all like the fool in the Bible who, after looking in the mirror, "went away and forgot what manner of man he was". So, with our urban crisis, we must know "what manner" of social organization we are dealing with and how it came to be.

Origins of the megalopolis

Many of our ideas on the urban process are formulated on the assumption that cities just happen. But this is an hypothesis grounded in the history of the nineteenth century. This arguement ran that if modernization and industrial growth occurred, the city would follow; it would look after itself, and, despite a few epidemics and transient unemployment, the result would be an urban society that worked.

By and large, this was true. Victorian cities were neither salubrious nor smoothly functioning. Dickens can be our authority. But one could argue that they did forge an increasingly stable urban population, a society increasingly adapted to the context of the day; an urban culture with some claim to civilization did emerge.

Why has the automatic mechanism ceased to function today? Were our ancestors wrong in their assumptions or has our world changed so much that we must develop a new set of working plans? Let us review the historical record.

The First Cities. If we take the longest view of human history, we can see a progressive shift in the location of the activities by which men earn their daily bread. For centuries, the forests and the river banks provided the hunters with game and fish. With neolithic agriculture, men moved to the fields and hamlets. Towns grew up for the market exchanges made possible by an agricultural surplus for the increasingly elaborate administration needed in more mobile, commercial, and productive societies. Thus the city was born as the political (and hence religious) center of the community's life and as the chief market for goods and ideas.

The Cities of the Industrial Revolution. The profound change made by the Industrial Revolution was to bring man's basic work in from the fields to the factories. The process was not planned in any way. Earlier cities could be laid out by high priest and despot and to this day we visit them as tourists to gape at their order and magnificence. But the typical urban conformations of the industrial age "just growed."

This largely spontaneous growth followed a definable rhythm. During the late eighteenth and the nineteenth centuries in Britain, in Western Europe, in the United States (and, at the end of the century, in Japan), the story began, paradoxically, on the farms. Profound changes in the structure and technology of agriculture raised the surplus produced on the farms decisively above the old subsistence level.

This extra margin available for saving was transferred, either by the rising entrepreneurs and bankers, or, later, by government, to a new manufacturing sector. Older urban centers developed factories and competed with new factory towns. Industry first mecha-

nized and concentrated the output of existing consumer goods; then, after the invention of railways, it expanded into the innumerable branches of metalworking and energy-producing industries, a process of invention and innovation which continues, unbroken, to our own day.

This new, elaborate, interlocking system of production and of marketing called into being a growing third sector, the service sector, represented by brokers, accountants, civil servants, salesmen, advertisers.

Cities, new and old, grew rapidly in response to the manufacturing and service sectors. Concentration had become an economic necessity. Enterprises gained by sharing installations, by having access to a concentrated labor force, by drawing on a pool of increasing skill and knowledge, and by serving accessible, growing markets.

The availability of these new opportunities drew in manpower from an agriculture that was ready to release it. More productive farming methods required fewer workers to produce increasing supplies of food. But the release of manpower from agriculture did not overload the cities, since, until the middle of the nineteenth century, population growth in urban society was held in check by disease caused by unsanitary conditions. One can scarcely call cholera and typhoid "benefits" of the early cities, but there is no question that epidemics and filth held back growth and mitigated the risk of cumulative unemployment.

By the time improved drainage systems and a better control over epidemics had lowered urban death rates, the birth rate had become stable and reasonably low. From bemused migrants, landless laborers, starving farmers and ruined weavers, the cities had bullied, molded, and trained a settled, modernized urban society. In short, the cities had been the "quick forge and forcing house" of the transformation from a static, hierarchical, largely agricultural order into the society of technology, science, opportunity, and rapid change that we recognize, for good and evil, as the modern environment.

The twentieth century dilemma

But the story does not end with the conquest of the worst sanitary and civic evils of the Western industrial cities. The urban order no sooner solved its early evils than new problems crept upon it, many springing from its apparent successes, in particular its formidably growing economic capacities.

No one quite expected the sudden acceleration of the flight from work on the farms. No one foresaw the scale of artifacts that affluence would pile up in the cities. No one guessed the geometric increases in the production and distribution of more and more goods. No one could foretell what the post-war boom in automobiles and the chemical industry would do to revive pollution as lethal as the Victorian "pea soup" fog. As the cities became a massive pile-up of men and their machines and their effluents, there was no time even to ask the right questions, let alone to supply the answers. So the new technology, which by this time was preparing men for moon landings, simply let the urban problems go by default.

So a new complex of problems is upon us. The keynote to the modern city is change. Nothing seems more solid than a hundred square miles of concrete and brick, yet much of it is no more stable than a sand castle. A speeded-up picture of a city taken from outer space would show a membrane of construction, its levels rising and falling, its surface criss-crossed with traffic, every cranny swarming with activity.

Change, mobility, expansion are the medium of modern urban life, whether it is the physical mobility of the day's journeys, or the social mobility of a would-be equal society, or the psychological mobility of educated, increasingly affluent citizens.

The Spread City. The economic need for concentration and nearness dictated the early centralization of cities. But "nearness" and "access" have wholly different meanings in the age of the train, the automobile, the telephone. The peak of density in many Western cities was passed as early as 1860.

Therefore, the train and then the car brought increased mobility and hence greater choice, setting in motion a new cycle of change. People with better incomes began their escape from the dirty, over-crowded, expensive city center to the ever-widening suburban ring; then came the shops following shoppers, industry needing more space, and offices able to keep in touch by telephone. These movements, of residence and work, created the "spread city", with its dense core, its satellite dormitories, its scattered shops and services, its lifelines of road and rail, its spreading deterioration in water and air.

Today, in many regions, these "conurbations" overlap. Continuous built-up belts from London to Manchester, from Boston to Washington, are appearing; Belgium, from Antwerp to Ghent, is the very pattern of urban "fall out"; so are the shores of Tokyo Bay.

The most dramatic illustration of the virtual impossibility of fixing limits to city growth comes from the Soviet Union. In a Communist society the cities cannot be said to have been shaped by consumer pressure or the lobbying of private developers or the cupidities of a free market in land. As early as 1931, the Russian planners concluded that Moscow and Leningrad had reached the limit of desirable growth. The decision was taken to ban all new enterprises in both cities. Each then contained two to three million inhabitants. In 1962 both had over six million.

Such unexpected urban migrations, in a country that has the theoretical ability to completely control its urban policies, make it clear that the ever-spreading metropolis is the dominant pattern of the twentieth century. Such areas are the world's apparently most successful urban form in that they are growing 100 percent faster than medium-sized cities.

Yet the word "successful" has a certain irony. Choice and mobility may have shaped the modern metropolis. But the city offers richness of choice and variety only if citizens have access to them. And the present structure of cities frustrates easy access.

The motor car contributes the sharpest edge of irony to these frustrations. In theory, it confers extraordinary powers of free decision over personal mobility. In practice, it has become one of the chief architects of immobility as it packs the main routes at peak hours, infiltrates the by-streets with heavy traffic, leaves pile after pile of metal at every curb, and on the weekend systematically frustrates the flight to the beaches and the hills. (In 1900, carriages moved in Manhattan at an average speed of eight miles per hour; today, the average speed of a vehicle in the same place is about four miles per hour.)

The Frustrations of the Ghetto Dwellers. These obstacles to physical mobility imposed by the structure of the modern city affect all its citizens. But the structure imposes deeper and more damaging immobilities on smaller groups. In the center city and the inner ring of suburbs the poor remain or arrive when the better-off have moved on.

If racial differences are added to poverty—Blacks in North Philadelphia, Pakistanis in Bradford, Algerians in the *bidonvilles* around Paris — the poor are often literally trapped in the inner city, since housing is segregated in the newer districts while service jobs, which can absorb the semi-skilled, follow incomes out to the better suburbs and deprive the ghetto-dwellers of accessible work. A poverty from which there is no escape creates continuing poverty: lack of knowledge, lack of skill, lack of hope for the children.

That violence erupts from such despairs to ignite the riots of Washington or Newark or Belfast is a surprise only to those—all too many—for whom a slum is a flash of buildings seen from the passing car. This is the recipe for civic violence and breakdown. Rome, it is said, decayed because the rich pulled out and the urban core succumbed to mob rule.

The Frustrations of the Middle Class. The ghettos are the extreme evils of social im-

mobility, the social starvation induced by almost total deprivation. But men can be wretchedly undernourished, yet remain far short of starvation, if their diets have inadequate protein. Many of our suburbs have such a quality of depletion. One-class, one-income, one-age-group, almost one-sex except during weekends they belie the urban promise of variety and choice. They are part of the bored and restless background to student unrest in Western lands, to the zany anarchism of Amsterdam's provos.

This Moment in History. Thus, looking back over the emergence of the technocratic society, we can see the new urban order developing in two waves. In the first, industry created the manufacturing, commercial center with hideous risks of epidemic and filth. But it was slowly reformed to an ugly yet workable container for man's increasingly urban activities.

In the United States and northern Europe, this phase lasted until the First World War. Thereafter, the motor car, new forms of energy, advances in communications, and the sheer accumulation of material goods brought the second metropolitan wave with which we have now to grapple. In some cities, the older evils of slums and filth still persist. Through, around, across all of them, the frustrations of obstructed choice and defeated mobility collide.

Ahead lies perhaps another phase not yet fully grasped—an urban order too mechanized, depersonalized, and denatured to sustain a fully human society. However, this risk is for the future and may be prevented by proper ordering of our own world. The priorities for urban policy today lie with the evils that can already be recognized and diagnosed.

THE CITIES THAT CAME TOO SOON

Do cities in the Third World follow this same pattern, the same double wave, first establishing a manufacturing base and then adding to it expansion in urban population, machines, and artifacts that a full-scale industrial, technocratic society brings about?

The truth is that a double wave has indeed occurred, but of a more complex and distorted kind. The first wave was part of other countries' manufacturing growth and did not initiate widespread local transformation. The second represents the expansion not so much of goods and real wealth but of poverty-driven migrations and social disruption. We speak of "crisis" in the urban order of rich societies. It would be nearer the facts to speak of urban "catastrophe" in poorer lands.

Growth as Colonial Cities. The first urban wave in the Third World had had its roots in colonial days. The white "tribes" of Western Europe took over the globe, by conquest or settlement, between the sixteenth and twentieth centuries. During the first expansion of Atlantic industrialism, food and raw materials for the hungry mouths and machines of Europe and North America were sought all around the globe.

Nearly all the big cities in the Third World grew up to serve the growth of the Atlantic economy, not their own. Most of them, significantly, are ports. Rio de Janeiro, Buenos Aires, Bombay, Calcutta, Shanghai—on a more modest scale, Dakar, Lagos, Dar-es-Salaam—all grew looking outward to the markets of the Atlantic world to which they sent their tea and cocoa and minerals. They did not grow up, like the cities of Europe and North America, in the wake of *local* diversification and sustained development. They were simply centers where indigenous raw materials were exchanged for Western manufacturers.

To serve the Atlantic economy, the urban centers grew rapidly. Fifty years ago Latin America had as large a proportion of its urban population in cities of over half a million as had Europe, which had already known a century of full-scale modernization. Yet under 10 percent of Latin America's economic resources were derived from industry.

There are cases where the impact of the Atlantic industrial revolution reversed the process of development elsewhere. In the eighteenth century, India supplied a large part of Britain's textiles. But the Indian handicraft worker could not compete with the mechanical looms of Lancashire using slave-produced American cotton. British exports of textiles to India wiped out the local cottage industry and destroyed the artian skills, which, in Japan, were one of the bases of later industrialization. Calcutta and Bombay developed not as great manufacturing centers but as the commercial and administrative bases of British trade and rule.

Growth as "free" cities

This derivative character of the first urban "wave" profoundly affected the difficulties of the second, which is occurring now, at increasing speed, all around the developing world. In this process, we do not witness the problems of an increasingly lavish urban consumer society. On the contrary, the cities of the Third World are symbols of a development process that has, to a dangerous degree, gone off the tracks.

The Disruptions of History. The first reason for this "derailment" has already been mentioned — the degree to which large cities in the developing countries grew up ahead of any systematic movement toward local industrial modernization.

The second reason is well-known—the explosive growth of population, following the conquest of major epidemics and grosser forms of contamination.

This crisis also has a historical root. During the Industrial Revolution in the West, public health came *after* full-scale industrialization. But in the Third World public health measures have been introduced ahead of a full-scale diversification of the economy. And the resulting longer life expectancy is, in the main, responsible for population growth of 3 percent and higher. In Latin America, for instance, the birth rate has not increased over the last sixty years, but the death rate has nearly halved.

History provides yet a third reason. In large parts of the developing world the post-feudal agricultural revolution, which arose in Europe after 1848, has still to occur. As a result, food supplies are still inadequate. They are improving, but not on a sufficient scale. Latin America remains divided between *latifundia* too large for the entrepreneurial competence of their owners and *minifundia* too small even for subsistence. Many parts of Africa have still to develop acceptable post-tribal forms of food production. In India the dominance of the cultivating castes has not yet produced sufficient managerial skills for decisive increases in productivity or enough employment for the rising mass of landless men.

This is changing with the so-called Green Revolution — the new fast-growing grains, the new methods of fertilizing and water control. But the Green Revolution still lies in the future for many lands. Meanwhile past stagnation in the countryside has meant no sizeable surplus to transfer to other sectors.

Worse still, as the population rises explosively, the countryside cannot offer enough jobs, so a massive migration of labor to the city begins, nearly half of it to the *big* cities. Yet the rural migrants are not so much released by rising productivity as squeezed out by hopelessness, poverty, and the belief that urban life could hardly be worse.

But the metropolis cannot absorb the job hunters either. This brings us back to the first point — the lack of balance in developing lands between urbanization and the growth of industry. In the developed world the stimulus to industrialization and all its attendant, employment-giving needs always *preceded* urbanization. As various countries in Europe crossed the threshold of industrialization, the proportion of the population living in cities was invariably *smaller* than the proportion of the working force engaged in manufacturing. Today, in the developing world, the position is almost exactly reversed. In country after country, the percentage of the population in

cities is considerably higher than the percentage of the work force engaged in manufacturing.

These disproportions and symptoms of derailment are not simply of academic historical interest. They are desperate signals of the true nature of today's urban crisis in the developing world. At the core stand the daunting statistics of rising unemployment.

Thirty percent of the labor force in Latin America is probably unemployed or underemployed, and the bulk of this unemployment is centered among landless men who are on the move to the cities or already in the slums and shanty towns. In India, the Fourth Plan (for 1969-74) estimates that 19 million new jobs will be created but that 23 million more workers will try to enter the labor force. And 10 million Indians are already, officially, out of work.

For industrialization today carries special difficulties. Modern technology needs capital, not workers without skills—early Lancashire mills could be run with pauper skill.

As for industrial markets, the rural and urban poor in the developing countries today have little purchasing power. And in exports the developing nations do not confront, as did the West, an open world empty of competition. They find a world thoroughly occupied by large industrial nations not yet prepared to buy freely even those goods that can be produced competitively elsewhere.

Thus, of the cities of the developing world it must in general be said that they have outgrown their own means of livelihood. The wretched slums and shanty towns, the steady growth of unemployment, the overloading of the city structure with more and more hopeless workers, despairing parents and half-starved children—these are all symptoms of a deeper evil. It lies in the inability of these cities to act, as in earlier stages of development as the stimulants to full modernization and the training ground for modern skills and modern citizens.

Urban growth has become pathological. It threatens to overlay and stunt the healthy elements of expansion. In the same measure, it threatens to destroy the cities' capacity for survival before a settled urban order has emerged.

A planet without urban order

Thus, we can see that the urban crisis is by no means the same in developing countries as in the wealthy ones. The Tokyos, the Londons and the Philadelphias reflect the unresolved conflicts of high industrial activity and high consumption standards of an increasingly enfranchised middle class embracing 80 percent of the population. In Rio de Janeiro, in Calcutta, in Lagos, not even 25 percent enjoy middle-class standards, and the manufacturing base lags behind the urban thrust.

Yet most of the world's cities share two problems. First, wherever minority groups are left behind, wherever social standards have deteriorated, wherever shadows and remnants of Victorian slums and tenements survive inside existing cities, comparative strains and pressures appear.

The farm boy from West Bengal seeking a living in Calcutta is cousin to the boy from Georgia who seeks his fortune in Philadelphia; the five thousand Brazilians arriving every week in Rio de Janeiro face the same problems as the Puerto Ricans landing at Kennedy.

Lack of skills in an increasingly technocratic job market, ever-rising food prices, housing scarcely worthy of the name, senseless crowding, endless red tape to obtain social help theoretically offered by the government, rising crime rates, discrimination on the basis of race or religion or language or tribe, lack of relevant education for the children, a confused and changing social context — these can be found in all the cities of the world. They tick like time bombs in a threatened urban structure.

The second problem is, if anything, more dire. Neither wealthy nor poor, neither developed nor developing, neither "North" nor "South" in all the lands of our planet have yet produced the model of a *good* urban society—rational, beautiful, and flexible enough to help recover and rejuvenate modern man's urban soul.

NEW POLICIES FOR DEVELOPED CITIES

The crisis in a wider context

Defining the goals of urban policy is not only complicated in itself, by virtue of all the thousand strands of decision on transport, on housing, on utilities, on open spaces—which such a policy entails. The task is also complicated by a number of larger human issues or values that carry man beyond his city but at the same time profoundly affect his urban life.

The Social Revolution. The first springs from an historical coincidence—the fact that the urban revolution has caught up with an earlier upheaval which is not yet complete. This is the social revolution, the revolution of human respect and equality with which America, in 1776, began to lead mankind away from the accepted norms of inequality and hierarchy.

Many of the current social and political goals of the United States, indeed of all the Western nations, are primarily concerned with completing the earlier revolution. They do not specifically envisage the urban challenge. But since the most underprivileged citizens congregate more and more in the cities, the new revolution of urbanization mingles at every turn with the unfinished business of equality and opportunity. This increases the complexity of urban reform and can induce despair at the notion of so many interlocking and self-perpetuating evils. Equally, however, radical actions improving human dignity or economic competence or decent urban surroundings can set in motion a spiral of renewal.

Conceptually, these reforms can be separated from the problems of urbanization. Realistically, they are an essential part of the solution since the deprivations they are designed to end afflict roughly 20 percent of the citizens living in the cities of the developed countries, nearer 80 percent in those of the Third World. Moreover, the fears they engender and the despairs they rouse weaken the social ability of cities to deal with their own problems. Therefore, a successful urban revolution presupposes continuing the worldwide revolution of equality and opportunity.

Sufficient food, adequate education, reasonable health services can be considered as goals apart from the cities. But it is in the cities that most people will—or will not—reach them. Employment, economic opportunity, and justice—these are society's general aims. But more and more of the world's billions seek them in an urban setting. Nor can the final goal of all social existence—good order under just laws—be achieved in rotting, rioting urban stews. All that we say about goals for our urban structure presupposes that the wider social commitments holds firm.

Environment. A second set of preoccupations, which grow in urgency as the whole problem of environment takes greater hold of the public imagination, concerns the quality of life in urban centers. In part, this is a psychological preoccupation. In some great cities, are not children growing up in an almost lunar deprivation of the colors and scents and textures of living things? The steel towers, the windswept asphalt yards, the din of traffic—what will they breed? Is not the weekend rush to hills and beaches a collective cry of need for lovelier sounds and sights? Are these really "extras"? May they not be, on the contrary, the preconditions of human existence itself?

This preoccupation is part of a wider issue—the whole problem of "human scale." As technology, industry, and the mass consumer market have shaped the pattern of the twentieth century, the feeling has grown that machines and artifacts, not human beings, have the real priority in life. It is reported from London that 80 percent of the tenants in Council (public) housing dislike and even fear the towers of thirty to fifty stories which architectural fashion and land market "realities" appear to dictate. People respond with relief and gaiety when, for a few hours,

streets are closed to the steel cataract of traffic and they can walk and talk and even dance and sing—without risk.

The sense of being overpowered by the sheer scale of modern technocracy's energy and output is, of course, more than an urban phenomenon. But it can have a nightmarish, inescapable quality in our traffic-driven, sky-scraping megalopolises.

The search for ideas

Neighborhood Units. Increasingly, the search for better cities begins with the smallest and most human unit—the neighborhood. One approach is through history. In most urban regions, pre-existing villages are embedded—Chelsea in London, Germantown in Philadelphia. Instead of sending in the bulldozers to flatten and rebuild, planners now tend to respect and renew the ancient patterns of community—the green, the Baptist chapel, the old bank.

Neighborhoods can be created as well as rescued. The walking distance of the child to his school, of the mother to the market, of neighbors to the British pub or Italian piazza can give spatial definition. These are areas from which major traffic can be banned and within which streets and playgrounds, like the ancient capital of the Sung dynasty, can be "not without the sound of water nor the scent of flowers."

These units can be the basic building blocks of the whole urban order, the places where "human scale" is preserved. Even within the most rundown urban centers, areas of renewal —a Norton, a Bedford-Stuyvesant, a Lansbury district in London—can be created in which a practical experiment in neighborhood can be plugged into the existing urban circuits.

It is when we reach the wider level of complexity that the urban dilemmas really begin to emerge. The first difficulty goes back to the historical experience of earlier industrial expansion in which cities tended to be the by-product of other forces, usually economic forces operating in the market. This absence of an urban philosophy is less marked in Europe where the traditions of planning princes survived into the modern age and a modern Haussman, like an ancient Bernini, could redraw the whole of a central city. But since the nineteenth century, the Topsy tradition of "just growing" has been dominant. The idea of a total urban order has been so weak that, with nearly 80 percent of its people living in urban settlements, America's federal government lacked any department of urban affairs until the day before yesterday.

On the other hand, perhaps if total plans had been evolved earlier, they would have crumbled under the incredible impact of the automobile. Today, after half a century of accelerated motorization, pursued with a remarkable absence of serious social or economic cost/benefit analysis, the urban authorities have a better idea of the new centaur—the man-machine, the citizen in his moving ton of steel—with which urban planning has to cope.

Haphazard Answers. For it is clear that the whole urban order is so inter-connected that realistic planning must be total. Partial responses, one-problem solutions have either aggravated the challenges they were designed to meet or created worse ones.

More freeways into the city's center increased urban congestion; more parking lots and wider roads to reduce it simply buried the overloaded core under acres of asphalt and concrete. More mortgages for single-family homes helped the clamant needs of a rising population but increased the spread of the city, the length of the journey to work, and the emergence of racial ghettoes at the center and one-class suburbs on the fringe. Public housing projects provided some desperately needed new dwellings, but destroyed neighborhoods, encouraged land speculation in some places and drove out the middle class in others. The list of contradictions is endless; it makes clear the need for *total* urban breakthrough.

The Regional Approach. And now, at last, there is evidence that some broad lines of vision and policy are beginning to emerge. The first is the acceptance of the need for an overall view of the urban region. For over a decade, Philadelphia has been able to make a start on programs of urban renewal because responsibility has largely been placed in one authority. The greater London Council and the Greater Paris regional authority are other examples of cities beginning to get a grip on their interlocking fields of interest and force. Sweden, with its usual inventiveness, bought up all the land needed for orderly, nonspeculative development, before the first World War. In fact, one can take as a test of serious urban commitment the existence of an authority with sufficient power and scope to act.

Of course, urban planners propose various—sometimes rival—strategies for acting within this wider area of responsibility. But virtually all agree on the worst possible outcome—that one city's spread should reach the next city's sprawl and create nightmarish extensions of indeterminate urban and semi-urban installations, encased in a mesh of rushing traffic, without cores or communities, without open space or natural surroundings, with used car lots and pizza parlors alternating with pizza parlors and used car lots. "Boswash," "Chi-pitts," and "San-san," the shapeless spread of cities on the Eastern seaboard, the Great Lakes, and the West Coast are the ultimate nightmare of mindless urban sprawl.

So the concept of *metropolitan* planning, increased in scope to cover the whole urban "magnetic field," is beginning to emerge. Within that field a number of strategies are possible.

Satellite Cities. One concerns the grouping of functions. Instead of scattering factories, shopping centers, schools, and subdivisions all over the landscape, planning strategy seeks to bring them together in recognizable communities with access to a good range of services and opportunities for employment.

Some American industry has been quick to see the value of clustering activities. Thus we find the growth of "industrial parks" in the outer suburbs, such as Valley Forge and Fort Washington near Philadelphia. But most such parks are not inclusive enough; they do not provide adequate housing or amenities for workers. If many of the factory workers live in the core city or inner suburbs, and if public transport is inadequate, a reverse commuting problem appears.

Thus, the planners aim for total communities away from the core city where workers and their families may dwell with easy access to employment.

As we have noticed, most urban regions do have villages buried in them which can be the nuclei of such centers. New towns can also be built within the urban "magnetic field" as is being done around London and Stockholm and Paris. Such towns are likely to grow along the major lines of transportation, and the risk is that they may eventually merge. But foresighted control of land use can see to it that open spaces, farm land, and areas for recreation are set aside in advance for conservation, giving continued access to the non-urban and even spreading fingers of uninterrupted park land into the heart of the center cities (as Fairmount Park does in Philadelphia today).

All these communities can be connected with the center city and with at least some of the subsidiary towns by new forms of rapid transit, by high-speed trains and buses, mono-rails, hovercrafts—the technological possibilities develop daily. The process of sorting out the needs and uses of different types of transport (and assessing their full economic and social cost) is a critical part of this redrawing of the transport map.

Such a pattern of subsidiary towns linked by rapid transit to a single center city appears in Stockholm's plan, in the plans for the Paris region, and in the Washington 2000 Project (in northern England). London's ring of New Towns also conforms to it, as do the towns of Columbia, Maryland, and Reston, Virginia, which represent private enterprise's first systematic town planning in the United States.

But some planners are beginning to suspect grave weaknesses in this concept of center and satellites. Some of Britain's New Towns—Crawley and Stevenage, for instance—have already been pulled into the met-

ropolitan sprawl of London. In Sweden, Vallingby, thirty minutes from Stockholm by train, was designed as a community employing at least half its own inhabitants. Today, the great majority still commute.

So, we are back to the overloading of the central city, which decentralization was supposed to cure. If a city is made the magnet of too large a region, there are only two choices, both bad: choke it with vehicles or bury it under concrete to make more room for their movement and parking. Manhattan or Los Angeles—neither is the ideal solution.

Force and Counterforce. The problem seems to be that these and many other plans, although innovative, are not comprehensive enough, not truly revolutionary. When the reformers thought about cities, they aimed at better versions of the same thing, at improvements on the old, fixed structure of concentric circles, a central core surrounded by subordinate districts. Now they think about cities in new terms—of growth rather than size, of mobility, of alternatives and choices rather than a rooted environment. And a radically new pattern has begun to emerge.

The basic principle is that if the megalopolis acts as a giant magnet, sucking greater numbers of people and square miles into itself, then it must be met with an effective counterforce, diverting future population and the crush of artifacts away from it.

Since the urbanization of man is reality, the counter-magnet can only be one or more cities (either brand new or existing ones developed in accordance with careful planning) that lie close to but outside the existing urban magnetic field. And the counter-city must be of sufficient size, with sufficient industry and amenities, to act as a counterbalance; otherwise more varied employment, education, entertainment will still pull the commuter into the "great wen."

Such a pattern of counterbalancing centers keeps movement and density manageable, permits wide experiments in new technologies in the new city and gives the old city time to reorganize creatively for the pressures to come.

These concepts of a multiplicity of centers within a wider urban field brings us to another emerging principle: that the lines of movement (and hence of force) in the urban region should follow the pattern not of concentric rings but of a grid.

The word easily conjures up horrific pictures of hundreds of American cities, all divided into regular and indistinguishable square blocks. But the grid simply means that communication is kept open in all directions, from all neighborhoods, and that lines of movement and growth are not turned back upon themselves. Applied to all the means of movement within an urban region, it can give the citizen the greatest chance of unimpeded mobility, and, if it is combined with the imaginative siting of facilities, can also give him the widest selection of choice.

The wife whose children are in the neighborhood schools has the chance of employment nearby, but she travels north for university courses and joins her husband south for an evening concert. The de-concentration of activity prevents lemming-like surges of traffic, and this, in itself, helps to conserve speedy movement, keeps the whole urban region in touch, and gives it some measure of community. The sorting out of different kinds of traffic is essential—from pedestrian paths and low velocity roadways to railways and six-lane highways linking the total urban organism to the arterial system of the entire country.

Two preliminary proposals put forward in the last five years are interesting examples of such new modes of thought: a study of the Detroit metropolitan region by Detroit Edison, Wayne State University, and Doxiadis Associates; and a study for the British Ministry of Housing and Local Government for South Hampshire.

The most systematic attempt yet made to plot a metropolitan region as an area of pressure and counterforce appears in the Detroit plan. The initial impetus was given by Detroit Edison's long-range research into where it should plan to lay power lines. A complete inventory was taken of trends in the region—growth, movement, density of population, sales of farm land, lines and modes of traffic, length of commuting journeys, concentrations of industry—all extrapolated to the year 2000.

This led to an examination of Detroit's regional field of force and its place in wider patterns of movement which crisscross the region, linking it in every direction to other areas of the United States and Canada. Four or five major criteria were chosen—the siting of urban centers, major concentrations of industry, harbors, airports, educational and research centers—and then tested against such alternatives as density of traffic, speed of movement, traveling time.

Using this information, a complex planning operation was initiated, each stage increasing the detail examined and eliminating the least workable solutions of the preceding stage. The process finally converged on one solution that, in terms of cost, practicality, amenity, and convenience gives the best answer for the entire region's future—the construction of a completely new city, Port Huron, at another "natural" intersection of movement and traffic. This would permit both the old and the new city to flourish and would not exclude the expansion of Toledo as a third center in the twenty-first century.

The South Hampshire plan in Britain has a similar rationale. The proposed urban region already contains two city centers in Southampton and Portsmouth. A concentric pile-up of people around each would lead to unworkable pressures on already inadequate facilities. Eventually the urban "fallout" could even meet London's outward sprawl with maximum disorganization and degradation of the environment. The plan, therefore, proposes that both centers be incorporated into a much wider urban network with a third center at Southwick to link them. This would be an entirely new city with virtually all the amenities of London—save government and history. The three then would share the traffic, the density, and the dynamism of the region.

Such concepts of whole regions as fields of force are still new, and no one has really put them to the test. But they reflect an inventiveness springing from a new readiness to see the urban environment as a whole.

Urban Ecology. Since these plans are inclusive they do not neglect the natural elements in the built-up environment. The South Hampshire plan proposes the careful preservation of the region's three river valleys. The Detroit plan has taken shape as a result of precise decisions to preserve the Great Lakes.

These plans recognize that the conscienceless destruction of trees and contours and hillsides in so many private subdivisions destroys more than beauty or recreation. It damages the environment, the health, the vitality, the climate of the whole region. There is an ecology of cities as well as of nature. Bulldozing disrespect for the ultimate springs of life can destroy urban societies just as dust bowls can wipe out farming. The new strategies, by seeing the balance of a whole region, help to restore urban planning to what it should be—not simply a balance sheet of development but a true ecological achievement, a true enhancement of human existence.

The search for resources

Can such visionary plans ever be implemented? Pessimists will cry that the costs are too great, the concepts too radical, the needed collaboration between jurisdictions and between government and private enterprise politically impossible. But the United States has already faced and won a challenge that required comparable vision—the conquering of outer space. In fact, it is hard to conceive it is the same community that conquered the moon and that still considers its "inner space" so timidly.

True, the space program concerned wholly new problems. It was not "cluttered up" with people and their vested interests. But at least the methodology is relevant—assembling the data, setting ultimate and proximate aims, enlisting science and industry, devising new public and

private instruments of collaboration. And, as with the space programs, the actual construction of systems and facilities would be, in the main, the responsibility of private enterprise. In fact, in terms of scale of operation, of capital expended, of stimulus to the market, an "inner space" program would only do more coherently what government and private enterprise must accomplish if the urban crisis is not to overwhelm the cities in a decade.

The Freedom of Technology. Although the technocratic order has created the crisis, it also offers some instruments of salvation—the sheer scope of modern technology, man's vast resources of knowledge and ideas, his built-in habits of inventiveness.

In the past, it could perhaps be argued that the problems of the cities were too vast, too overwhelming, and too subject to continuous change to permit any sort of analysis. Pessimists pointed to various traffic surveys that were obsolete long before the data had been interpreted. But the computers have changed all this. To give only one instance, the Detroit Plan is the result of a sophisticated consideration of a staggering range of factors and alternatives. Ten years ago such calculation could only be done by guess. But computer technology gives urban man an entirely new mastery over the options ahead of him. Properly used, it promises liberation from the tyranny of ignorance and the tyranny of trends.

But the computer is only a machine; it remains for human beings to apply the solutions found by technology. Thus, the urban revolution demands not only new ways of planning but new forms of social cooperation and political leadership.

The Institutions of Government. There are, of course, good historical reasons for the difficulty in achieving the first step in good city planning—establishing the revelant urban "field of force." The present structure of local governments was inherited almost directly from the eighteenth century. And nothing in those structures anticipated the agglomerations of population which ignore not merely municipal lines but also county and state boundaries. (For example, the Philadelphia Metropolitan Area includes 339 jurisdictions.) Thus, the megalopolis is characterized by political fragmentation which makes it almost impossible to deal with its problems.

The responsibility for the city should be shared, in some measure, by every level of government. Nations such as the United States and Canada that split powers between federal and state or provincial jurisdictions have peculiar difficulties. But non-federal states have problems of comparable complexity.

In the United States, since the city has hitherto existed largely inside state boundaries, the federal government has not carried direct responsibility for urban development, in spite of the fact that it alone commands sufficient funds and authority to offset the costs of urban services which disregard state lines (for instance, the costs suffered by Northern cities as a result of inadequate education of Southern migrants).

The failure of the federal govenment is reflected in its expenditures. For 1969, the Department of Housing and Urban Development had a budget of $2.7 billion. But the Department of Agriculture received $8.4 billion, and NASA $3.8 billion, not to mention $76 billion for the Department of Defense. These figures explain the cities' failure to command the brains, hardware, and sheer attention needed for the urban revolution. They underlie the crisis trend to bankruptcy in the biggest cities. Unchanged, they could spell the disruption of the whole urban order.

But the state governments can and must do more, especially if the current proposals for revenue sharing between federal and state governments become fact. They possess the legislative competence to encourage the cities to reorganize their powers so as to overcome the array of small, competing local jurisdictions which obstruct, purposely or inadvertently, the emergence of orderly metropolitan areas. For example, one can only applaud the recent plan of the Miami Valley Regional Planning Commission (representing the twenty-nine municipalities centered on Dayton, Ohio) to disperse federally subsidized low and middle-income housing throughout its five-county area. By sharing 14,000 new housing units, these communities may have taken a step toward reversing the concentration of the poor in the city core. As important as the actual plan is the acceptance of the fact that *all* jurisdictions within the area must share its burdens.

Moreover, state governments can reshape their tax and fiscal systems in order to give proper financial assistance to the vast task of modernizing the cities. They can modify restrictive zoning and introduce modern building codes. Above all, governors and legislatures can see the cities not as burdens but as exciting areas of prospective growth.

The Responsibility of Business. Effective action on the part of the governments will depend, in large measure, on pressure from their constituents, especially businessmen. On the whole, business has not yet seen the urban region as an interlocking area in which one-sided decisions, however locally rational, can add to the obstruction and breakdown of the whole. Men who might be expected to see the wider ramifications of decisions in enterprises that spread from Philadelphia to Tokyo do not always see them when the spread is from Philadelphia to Trenton.

Yet few things would so direct the nation's attention to the tasks of the urban frontier as a full commitment on the part of business leaders, particularly those with command of capital outlays and of the means of communication. If corporate management and banks could accept the urban revolution, could realize that its thrust and speed create new social responsibilities and demand new methods of cooperation between government and business, the institution-building that the crisis demands would have some chance of moving ahead. In nineteenth century Britain, it was groups of business and professional people—in Birmingham, in Manchester—who set up civic improvement trusts and pioneered the new forms of local government. And Birmingham was just as unwieldy a phenomenon in 1830 as the New York Metropolitan Area is today.

The Wishes of the Public. But business commitment is only a part of the wider aspect of citizen opinion, that, ultimately, is decisive. Politicians can operate only within areas of voters' acquiescence—or apathy. Technology has conducted the nations into the spiralling costs of a senseless arms race basically because "defense" has solid citizen acceptance.

Or, take the automobile—center of the most publicly-subsidized private activity because of its vast consumer support. In the United States, $15 billion a year of tax monies flow to highway construction alone.

Particular pressure groups can also gain the same access to public funds. In its heyday the U.S. tariff contributed millions each year to the pockets of American steel tycoons. And the farmers have been able, at crucial moments in both American and European history, to secure massive sums of public money to sustain their private output.

In America's trillion dollar economy, it is not resources that are the problem. The problem is to focus the public mind to see cities as the environment in which virtually all man's needs, activities, and interests will be well or ill accomplished. Then, a ten-year plan to conquer America's "inner space", might bring the Republic to its 200th birthday with a little of its promise realized and its vision intact.

The cost is certainly not horrendous. Even half-hearted, tentative, basically pathetic efforts like the Model Cities program have done good far beyond the sums involved. If nations could stabilize their arms spending at half the present level (which would still leave them $100 billion each year with which to blow up the planet) then another $100 billion would be available to make the world's cities better places in which to live out the "splendours and miseries" of modern man. Nor can one doubt that cities would offer an infinitely greater chance of that basic security for which our planet so vainly longs and so

frantically and frustratedly spends its substance.

THE POOR WORLD'S CRISIS

The search for policies

To what extent can the Third World draw on, or make use of, new ideas in urban policy evolved to solve the problems of cities in the developed world—for instance, the idea of adopting an urban strategy at all, or the concept of "neighborhood units" and the urban "gravitational field", the sorting out of traffic flows, the preservation of natural environments and unpolluted surroundings? Have these ideas an immediate relevance to the far more catastrophic quality of urban life in developing lands?

In theory the answer is obviously yes. Neither in rich lands, nor in poor, do good cities "just grow" in the technocratic age—they have to be invented and guided and corrected. But, in practice, any urban strategy for developing lands has to come to grips with the unique characteristics of the two urban "waves" that broke over the Third World: the degree to which they have *preceded* full-scale modernization, and the degree to which urban growth has been conditioned by actions and interests dictated by *other* economies and transmitted to the local scene by the world's unequal circuits of capital and trade. These two features of urbanism in developing lands must be recognized and incorporated into policy if any successful urban strategy is to be achieved.

From the first "wave" it follows that urban strategy cannot be a matter of simply applying patterns of better arrangement—of movement, traffic, industrial location, open space, and so forth—to a strong, productive but disordered urban organism. In developing lands, the organism itself is critically weak and the new arrangements have to be part and parcel of the basic effort to build up its modern economic and social resources.

In other words, urban strategy is an essential *element* in total development strategy, a fact which in some ways complicates the task of policy-making, but in others can give added energy and direction.

Hope from the Land: The Green Revolution. The 1970's may prove to be a time for new hopes and new beginnings in development strategy, and, by an apparent paradox, better prospects for the cities appear to be rooted—as in the eighteenth century—in the land.

The discovery of hybrid grains which can treble harvests has been combined, over the last decade, with new practices in fertilizer use and water control to produce some of the largest advances in agricultural productivity since the introduction of chemical fertilizers in the nineteenth century.

This "Green Revolution" of hybrids and fertilizers and correct water use has already turned the Philippines from half a century of rice importing into a potential rice exporter. Before the recent typhoons, wheat production in Pakistan was up 60 percent from the mid-1960's. In India, there is the possibility, even in the aftermath of disastrous monsoons in the late 1960's, of self-sufficiency in grain in the decade ahead. A chance, therefore, exists that the critical increase in agricultural productivity—which *preceded* Western industrialization—is now belatedly appearing all through the developing continents.

Rightly handled, this productivity can be used to encourage a far more human pattern of urbanization. Of course, such an outcome demands policy, not drift. Larger harvests and greater incomes can be engrossed by feudal owners or the more enterprising peasant farmers. Large holdings can be mechanized, smaller farms consolidated, ruining the little man. As in East Prussia during the nineteenth century, a vast region almost devoid of small diversified urban centers can be handed over to mass production, primarily for export, on large estates where both direction and income are concentrated in one hand.

But it is also possible, as in Denmark at a comparable period, to give small farmers the benefits of credit and education, to achieve the advantages of scale through cooperation, and to build up a network of market and service towns where storage, administration, peoples' high schools, and extension headquarters help to bring together a lively population, which in turn attracts traders and light industry.

Even if, on strict economic analysis, East Prussia's agricultural growth rate may have had the edge over Denmark's (which is doubtful), there was an inhuman social cost in terms of junker dominance, lack of local diversification, migration to big cities, and the exploitation of Slav newcomers.

And even in economic terms, it is not enough to produce the grain. It must be sold. Empty countrysides and unemployed cities will not add up to an expanding market.

If, in addition, the feudal classes tend to salt away their savings in Switzerland, as so many Latin American entrepreneurs, an agricultural revolution could occur but all its gains would drain into too narrow and too static a group for economic diversification to take hold.

Hope from Intermediate Towns. In short, if the new possibilities in farming are left to traditional channels or simply to the unregulated play of the market, the chances are that they will play no creative part in easing the crisis of the cities. But as a basis for a policy of explicit urban development and decentralization, they can be an essential element of creative change. They can provide the economic energy, the rising productivity, the new technology that make an urban strategy possible and begin to underpin urban patterns resembling the "fields of force" or "urban grids" theories evolved in developed lands.

It is significant that, in the early stages of the Green Revolution, a seminar held in Kanpur to consider the regeneration of this rundown Indian industrial center laid its whole emphasis on building around the city a network of smaller market centers, geared to intensive investment in the new agricultural technologies. These would provide the facilities, services, and processing plants that could help the farmers to reap some of the middleman gains from their increasing harvests. Their expanding income would, in turn, build lively markets for consumer goods manufactured locally by labor-intensive methods and for farm machines and fertilizer made in more elaborate plants in the big urban center.

This pattern of creating an interdependent urban "field of force" involves decisions of policy by government. It means an end to the high concentration of investment in regional or national capitals where politicians believe they see the quickest results. It means a careful assessment of where the potential growth points in the countryside actually exist.

In Kenya's planning, for instance, a kind of points system has been devised, in which each town is evaluated according to its suitability as a market center, its record of growth, its accessibility, its position in the country's grid of communications. The town with the highest score has the first chance of being picked for intensive development. In neighboring Tanzania, specific "poles of growth" to draw economic activity away from the capital, Dar-es-Salaam, have been written into the official Plan.

These reactions spring from a new insight into development—the insight that in the context of creative planning, the needs of city and countryside are reciprocal. The developing world's potential agricultural revolution will not fully succeed unless the need for a decentralized network of urban markets and service centers is properly met. But the agricultural revolution is fully as much a precondition of successful urbanization. Intermediate towns with lively economic opportunities rooted in productive farming could act as so many dams holding up the flood which now pours toward the great cities. It is in such towns that the health clinics, social education, and economic incentives necessary for responsible family planning would begin to appear. The whole system would add up to the kind of open grid planning, to the establishing of counter-magnets to the megalopolis that first

evolved in developed lands but could be even more decisive in the Third World.

If intermediate cities checked some of the flow of population, the task of upgrading existing metropolises would be less unmanageable. Experience, particularly in the Latin American shanty towns, has shown that the squatter groups have unsuspected vitality and initiative. Given help with the layout of the area, given assistance in drainage, water, and communal buildings, the squatters themselves often band together—the Victorian touch—into improvement associations. Then they can transform a shanty town into a neighborhood or even an incipient suburb within a surprisingly short time. The provision of roof loans or core houses (as, for instance, in the Volta area in Ghana) encourages remarkable efforts of self-help. Moreover, evidence from all the developing continents suggests that the chance of a better home, made possible by state-sponsored mortgages, can be one of the most certain ways of mobilizing peoples' savings and making a frontal attack on a poor country's shortage of domestic capital.

Hope for Employment. These facts also underline the degree to which a positive policy toward agricultural breakthrough and directed urbanization can help with the corrosive difficulties of unemployment. Modernized farming can be labor-intensive, especially if double or triple cropping becomes possible as a result of better water management. Small farmers can, as in Japan, make a middle-class income. Laborers can get year-round work. Their increased income keeps more people away from the bigger cities, provides markets for regional urban centers.

In addition, the construction of these centers, together with rehabilitation in big cities, can act as a stimulus to the construction industry.

This is critical. The building trades are still the largest users and trainers of unskilled labor. The bitter Boston jest of the 1850's that "God invented the wheelbarrow to teach Paddy to walk on his hind legs" is a reminder of how many migrants first found their feet on the scaffolds of urban construction.

The need for new housing is so vast that planners have been daunted by it. In the developing continents, estimates of $12 billion a year needed for houses alone have caused governments and economists to avert their eyes from such horrific "welfare" expenditures. But if one looks at houses as a consumer durable for which people will mobilize their savings, if one reflects upon the degree to which a large building program stimulates local industries (building materials, timber, plumbing equipment, furniture), if one remembers that Britain's New Towns, set up with public capital under a statutory corporation, have paid a commercial return on the investment, it is possible to ask whether a vigorous policy of town building, coupled with the new opportunities in agriculture and the careful choice of labor-using technologies in processing light industry, might not prove one of the most effective means of countering worklessness and building urban communities in which it is worthwhile to live.

Resources

But if ideas are available, it is not so certain that the necessary resources can be found. The urban societies of the developing world are still, in some measure, derivative societies. The industrial nations with their populations making up less than one-third of humanity still command 80 percent of the world's income, trade, and investment; over 90 percent of its shipping, banking, and insurance; virtually 100 percent of its research. The developing cities were drawn to growth as subordinate parts of a worldwide economy dominated by the West. Their status has not yet much changed nor has their relative poverty. The really large resources of the world are still at the command of the Atlantic powers.

Yet if one speaks of securing the wealthy nations' assistance for investment in a new global strategy of expanded agriculture and rational urbanization, two obstacles rear up.

The Need for Capital. The first is scale. A profound impact could, without doubt, be made on the world's festering cities if, in addition to the $12 billion needed for housing, perhaps half again as much could be applied to the services, installations, and facilities of productive urban "fields of force."

But such a sum is already three times the flow of all existing public aid. Electorates, which do not boggle at an insensate $200 billion spent each year on essentially inflationary arms budgets, still go into a state of shock if ten times less is suggested for the constructive works of peace. Yet the cities' recovery from despair would not only provide non-inflationary growth; it would give infinitely greater guarantees of "security" than does the piling up of ever more "ultimate" nuclear arms.

The Need for an Aid Strategy. The second obstacle lies in our failure to make up our minds about the real purposes of international aid and to see a long-term strategy of aid as a sane and valid part of our planet's search for genuine security.

One of the main difficulties in developing a strategy of assistance lies in the degree to which the natural supporters and lobbies for aid—the liberals, the academics, the young—have lost confidence in a system that, they suspect, aids the wealthy rather than the needy and strengthens the interests—foreign or local—already entrenched in the developing world. This disillusion has taken a lot of the drive and courage out of the development effort today.

If, however, an aid strategy geared to modernized agriculture and a new urban network were evolved, the old pitfalls could be avoided. Agricultural policies that open up credit, cooperative structures, and local processing to the farm people, and urban policies that build up new towns with public investment and control can reach the masses in quite new ways and cut across many of the ideological divisions which bedevil the aid issue.

Moreover, some aspect of financing could be among the least expensive of all types of aid. Given the readiness of people to save for their homes, an international system of guarantees to local mortgage institutions—possible through a new international apex mortgage bank—could provide maximum mobilization of capital with minimum expense.

At a time when governments are considering a greater internationalization of their contributions to world development, a determined drive by the World Bank, the United Nations Development Programme, and the other United Nations agencies to fashion the strategy, the institutions, and the inputs for a creative urban world might put new life into the Second Decade of Development and give its targets of growth a humane and social dimension.

EPILOGUE

We end as we begin. If mankind in the technocratic order does not desire great cities and is content with urban disorder as a by-product of ill-directed economic growth, then a human urban order will escape us, whether we be rich or poor. Possibly the survival of our full humanity may escape us, too.

But if we will the end, we have the means. A strategy for decent, manageable, humane, and beautiful cities is not more impossible and not much more expensive than a program of space probes and planetary exploration. It only requires a balance of interest in our planet's precious inner space.

A program for the world's cities is infinitely less costly and more manageable than the false and desperate search for an armed "security" that now drives the nations to frenzies of fear and inflation and leaves them, at the end of it, chiefly capable of destroying the planet itself.

We are not condemned to false choices by our technology or by our resources. On the contrary, they can be the means of our liberation, if that is what we are prepared to seek. The roots of wisdom do not change. It is for us, not for our machines, to "choose life." It is for us, in the time of moon landings and space probes, to discover and use the instruments of a safer landfall upon the planet Earth.

PHOTOGRAPHS: page 30 UPI (top), Rotkin, P.F.I. (bottom).

SACRED SPACE

St. Procopius Abbey conveys a spirit of simplicity and order with faithfulness to materials and site

BY M.W. NEWMAN

The Benedictine Order has a strong architectural tradition (Marcel Breuer's St. John's Abbey being a ready example), but it is a *localized* tradition. "Do your own thing" has a meaning for the Benedictines. It is a phrase at once prolog and precept for the new St. Procopius Abbey Church and Monastery in the green country of suburban Lisle, Ill., west of Chicago.

Do not go there seeking massive symbolism or canonical pyrotechnics. St. Procopius has an almost domestic familiarity that "conveys a spirit of Christian optimism, simplicity and order, and relates us to one another and to our environment." The words, and they are well-chosen, are those of the Rev. Michael Komechak, a young monk and Chicago architectural buff.

In accordance with Father Michael's words, St. Procopius is decidedly *not* monumental. It may even be suburban, although severely so.

It is masculine yet avoids muscle-flexing except for a few bursts of heroics; it is complex in form yet insistently simple in substance. And it is determinedly unadorned: a natural-looking essay in wood, common brick and concrete, set generally close to the earth.

If all this seems unspectacular, be assured it has its startling side. Postwar Chicago seldom has distinguished itself in Roman Catholic church design and often has opted for the banal (and this is true not merely of Catholic churches).

St. Procopius as a result is a substantial breakthrough into unaffected contemporary design adapted to the Church's new liturgy. "Nothing triumphal," in Father Michael's understated phrasing. Architect Edward D. Dart, who matches Father Michael in discretion and modesty, puts it this way: "We wanted a sense of community and oneness. . ."

And that they got, in an architecture of light and shadow, dignity and flexibility, resonance and texture: you want to touch the brick walls. In the handsome, color-splashed chapter room, Dart even has managed a cedary aroma. It is a lovely way to remind you that St. Procopius relates easily to a wooded 80-acre site.

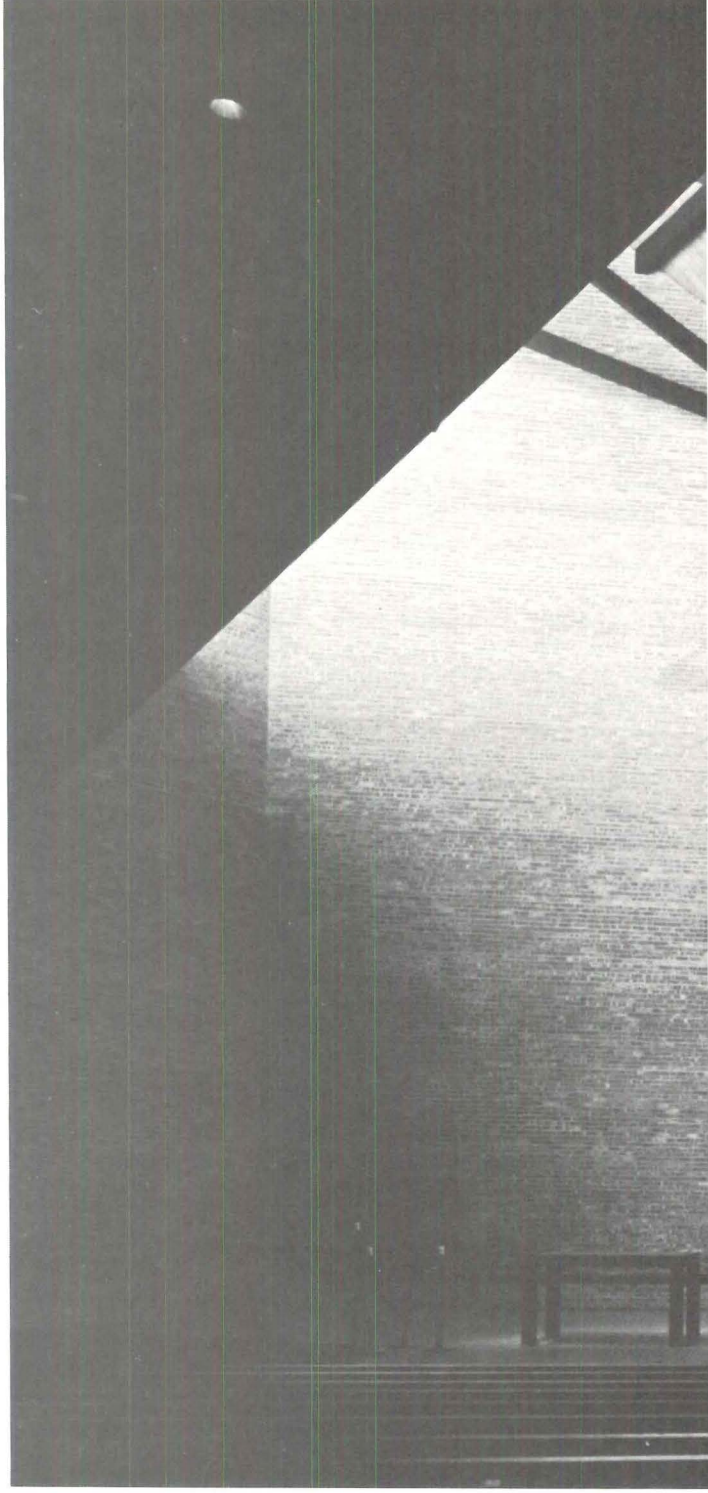
The abbey needs no symbols. Its religious values are apparent in faithfulness to site and simple materials; in direct design, and in careful craftsmanship under supervision of the Pepper Construction Co.

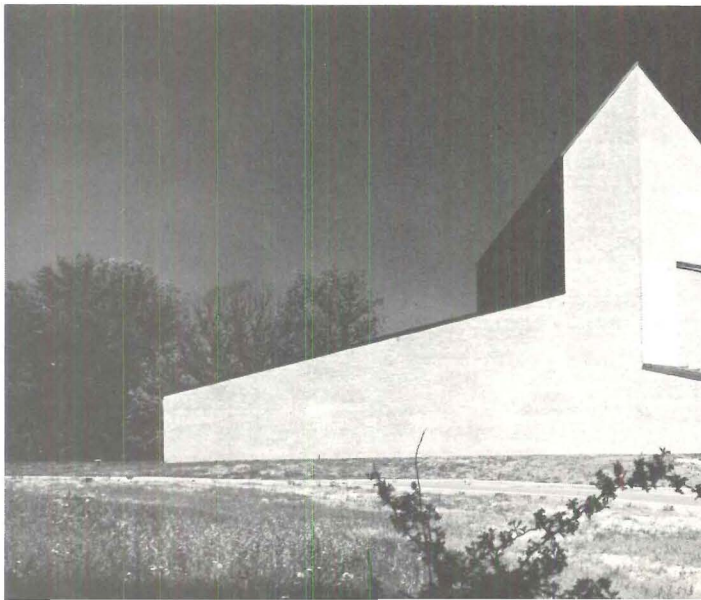
For Dart and his associates in the firm of Loebl, Schlossman, Bennett & Dart, it was a once-in-a-lifetime opportunity. "How many monasteries do you get to design these days?" he asks. He gave the job a tremendous store of personal attention, and it required it to make the monks' $2.8 million dream a reality.

Dart conceived the 100,000-square foot, wood-framed structure as a volute, with the worship center at the top of the sloping site. The monks' private rooms (studies, really) wind around a traditional garden. And, also in the monastic tradition, there are well-defined separate spaces for worship, offices, living quarters. In effect, St. Procopius is a series of linked buildings and shaped, processional spaces spiraling under one roof (or, rather, many roofs) of zinc alloy.

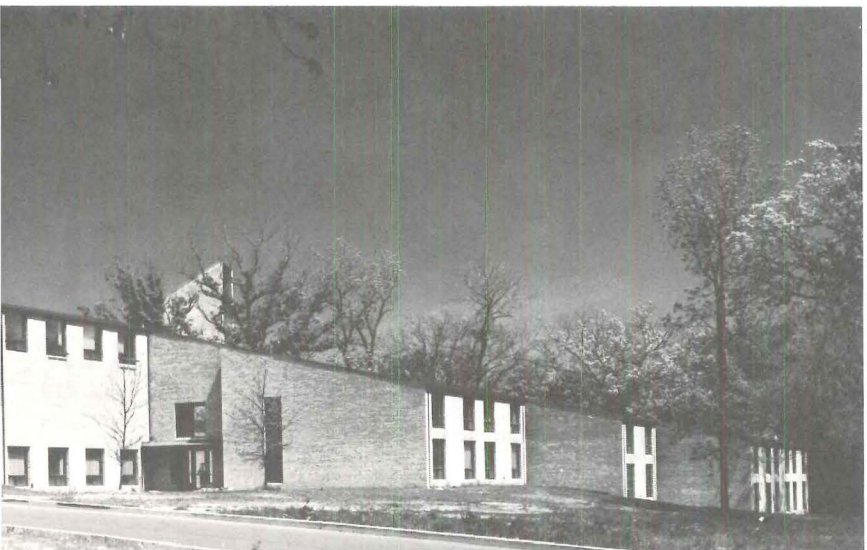
It all came to fruition slowly, with a scrupulous intelligence that says much for the client, an independent community of 106 monks under the leadership of Abbot Thomas J. Havlik. Many of them teach across the road at nearby Illinois Benedictine College (formerly St. Procopius) and Benet Academy; some work in the inner city.

The college is expanding, but



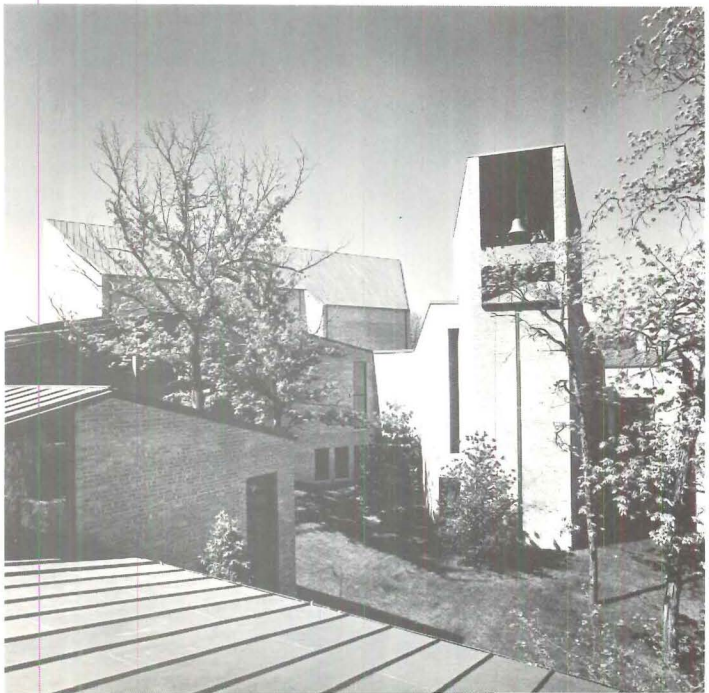


Mr. Newman is Book Editor of The Chicago Daily News, Chicago Correspondent of Forum, and Executive Editor of Inland Architect, from which this article is adapted.



Chiaroscuro-like, the monks pray in the nave of the main sanctuary (above) which is illuminated by a generous, trussed clerestory. On the exterior, the sanctuary anchors the Abbey complex to the rolling terrain (opposite).

The Blessed Virgin Chapel (above) is an enclosed, contemplative space whose simplicity is strengthened by discreet light. The monk's private rooms cluster around a richly planted garden, enhanced by the austere bell tower (right).



since 1901 the monks had lived in its administration building and had only a small chapel for their use. Their own home and their own church was a long dream. And when the time came to realize it, their localized tradition came into play. The designer preferably had to be a Chicagoan and use native materials as much as possible.

The first architect called in, a dozen years ago, was the late Barry Byrne. He came up with a design for a big, heavy building and tower, clumped beside the existing campus buildings, which also are big. The project was put off until the young Abbot Daniel W. Kucera took over. (He now is president of the college.) With Father Michael co-ordinating enthusiastically, a committee then was turned loose to find an architect.

Father Michael consulted many Chicagoans; he even went to the summit by sounding out Mies van der Rohe's office. The master was interested, yes, but he had a big backlog of work. The monks invited architects to the site, and their choice was narrowed to five.

The first one to be eliminated, interestingly, was known for a muscled, virtuoso mode of design. But the monks didn't want anything fashionable or startlingly new, for that matter. Their home was to be restrained and quiet in architecture and siting. By vote of the community, they settled on Dart, whose gift for strong, clean design of churches and homes was precisely what they needed.

So they got an eminent local man using a Chicagoan material: the warm-looking, pinkish brick known as Chicago Common. You see it often on the backs and sides of buildings, a humble material. Dart has employed it at the abbey with a consistent artistry. About 1,250,000 bricks were laid on the interior and exterior, and they bind everything together.

The monks find the setting properly masculine, and yet the brick relates quite closely to the nearby Four Lakes Village housing complex. St. Procopius fits into an obviously suburban setting while retaining its cloistered, canonical aspect. It is off by itself but still relates to the college campus. And it will be in a position to serve the growing communities of DuPage County, which is expected to

have 1,000,000 population in another 10 years.

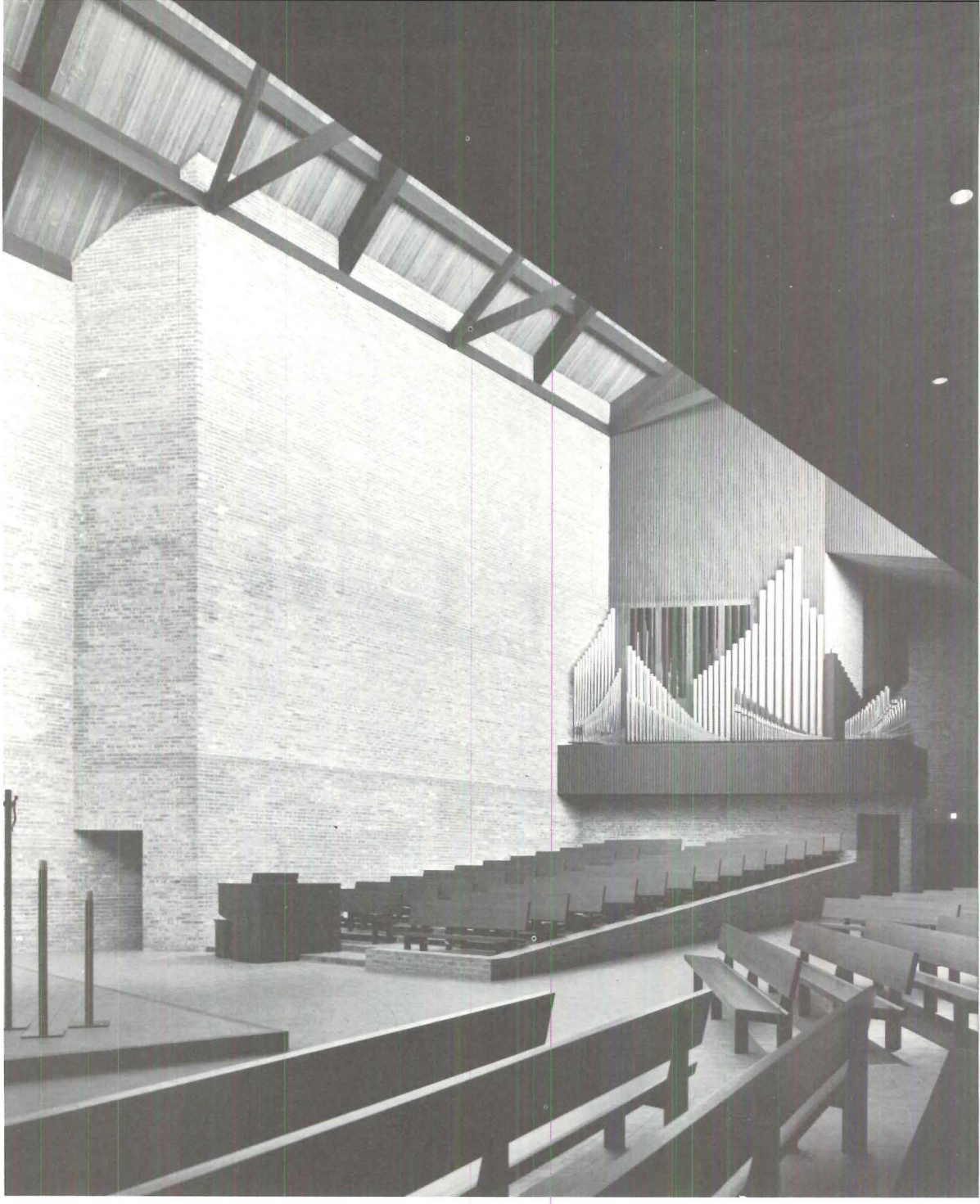
The abbey's centerpiece, of course, is the church—seven stories high and seating 700 persons. Everyone in it can see everyone else. There also are two devotional chapels as well as eight tiny chapels for the monks who still prefer to celebrate mass privately. Natural light streams into the church through a north lantern 90 x 13 feet in clear glass. This is a church without stained glass or kneelers, with no statuary or conventional symbolism. Some of the more tradition-minded monks admittedly felt uneasy when confronted by the austere, unadorned room. The altar is simply a massive, movable oaken table.

The church space itself is complex (being, essentially, two churches in one, with one set of pews for the monks' own use and a larger area for the public). Dart here has brought together spaces, massing and angles in a difficult struggle for a certain grandeur and unity. Overhead are 5-foot-deep beams (the largest spanning 120 feet) that support a sloping roof of Douglas fir decking. A 13-ton, x-shaped steel truss, 20 feet high and 120 feet long, supports the lantern roof and braces the giant window. This great room seems to strain for some effect that Dart settles for more modestly elsewhere, in the intimately scaled parts of the abbey.

There also may be a touch of the heroic in a set of cantilevered concrete stairs that dominate a central areaway. But generally the architect has used concrete deftly at St. Procopius; there are some fine passages where the cedar wood framing patterns are picked up beautifully. (Dart even saved the framing for use as a bulletin board for the monks.) And the processional spaces make impressive use of light and shadow.

St. Procopius' spiral form and diverse massings make it impossible for the visitor to stand in any one place and say: This is it, this sums it up. At one point the structure rises from the hill; at another it rambles along engagingly; and altogether it is a community rooted to its setting.

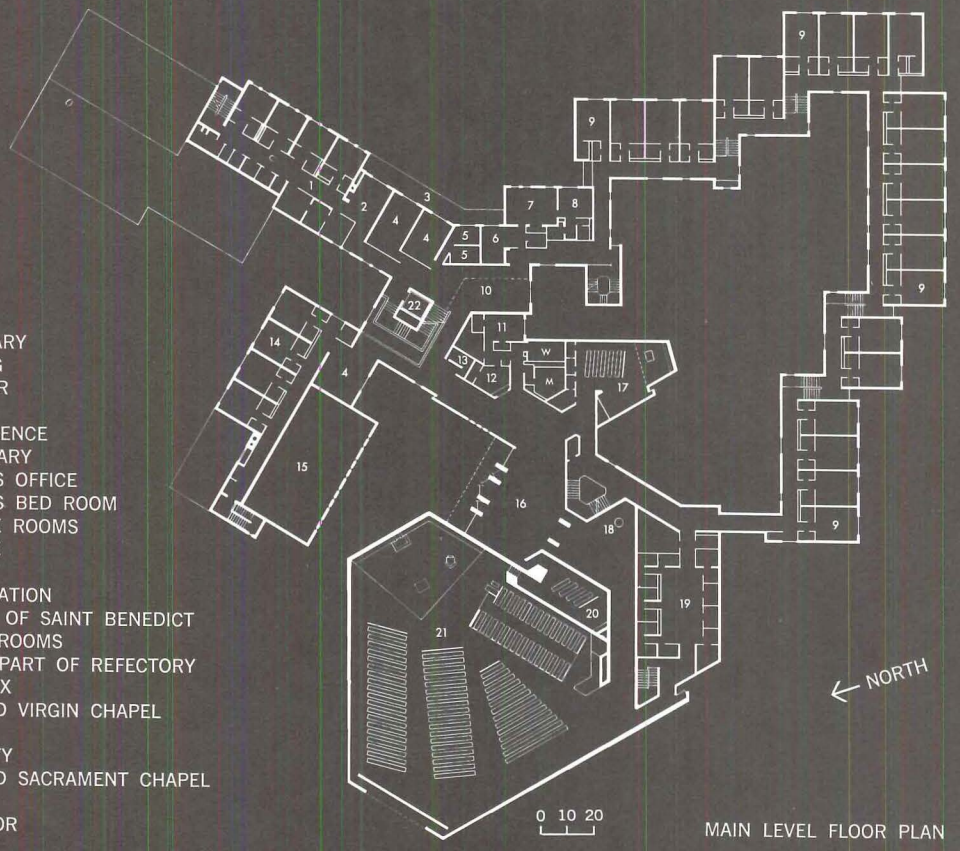
The double-paned windows are varied (all are ample, some of them 6 feet wide), and many are floor-to-ceiling. There are



The nave (above and left) has a subtle strength. Severe massing is softened by gradual changes in level and in light.

1 GARAGE
2 LAUNDRY
3 TAILOR SHOP
4 MAIL ROOM
5 LOUNGE
6 ABBEY DEVELOPMENT
7 PROCURATOR
8 ACCOUNTANT
9 CONFERENCE
10 COMMUNITY ROOM
11 PATIO
12 ARCHIVES & WORK ROOM
13 READING ROOM
14 RECREATION ROOM
15 AUDIO-VISUAL ROOM
16 MUSIC ROOM
17 ELEVATOR
18 DINING
19 KITCHEN
20 REFECTORY
21 CHAPTER ROOM
22 PROJECTION ROOM
23 PRIVATE ROOMS
24 DIRECTOR OF JUNIORATE
25 CLOISTER GARDEN
26 UNEXCAVATED

LOWER LEVEL FLOOR PLAN



1 INFIRMARY
2 WAITING
3 PLANTER
4 PARLOR
5 CONFERENCE
6 SECRETARY
7 ABBOT'S OFFICE
8 ABBOT'S BED ROOM
9 PRIVATE ROOMS
10 LOUNGE
11 PORTER
12 INFORMATION
13 SHRINE OF SAINT BENEDICT
14 GUEST ROOMS
15 UPPER PART OF REFECTORY
16 NARTHEX
17 BLESSED VIRGIN CHAPEL
18 FONT
19 SACRISTY
20 BLESSED SACRAMENT CHAPEL
21 NAVE
22 ELEVATOR

MAIN LEVEL FLOOR PLAN

graceful see-throughs, linking inside and outside.

Probably the best vistas are in the garden. Dart's characteristic roof angles and perspectives come together there so that as your eye moves along, the view is ever-changing. Passing monks in the corridors are framed fleetingly through the narrow panes, in stop motion. And at night the whole place lights up. As Father Michael discreetly puts it, "The young people in particular like it."

St. Procopius, obviously, was conceived generously. Gone is the stark monkish cell. The cloister is handsomely horizontal, with rooms with a view on one side and ample corridors on the other.

This is air-conditioned home for about 65 monks (plans are to expand the quarters to accommodate 100). Each man has a comfortable 13 x 17-foot study and his own bathroom in quarters of extreme quiet. Unusual care was taken to avoid noise leaks through walls: there are no back-to-back electrical outlets or penetrating sounds of plumbing. It is a place of meditation—decent although simply furnished accommodations.

Dart designed the large dining room, a very successful space, with acoustics in mind. Traditionally, the monks dine at night silently, listening to readings. The building also has a large living room, recreation and music rooms, a library, auditorium, infirmary, offices—even a barber shop. Paul Straka was consulting architect and furnishings co-ordinator. Frank Kacmarcik was consultant in programming and design.

So the Benedictines have their dream home. And it has moved Archabbot Rembert Weakland to describe it as the finest new church and monastery he has seen as Abbot Primate of the International Benedictine Federation.

"The concrete and brick give the building a noble and masculine tone," said the archabbot. "Its architect learned much from the other monasteries built in recent years in the United States. He incorporated what was best from them all into a single cohesive unit."

And that tribute surely is a suitable way to end this story of the monks and their search for an architect, and architecture, of quiet distinction.

Wood, brick and concrete are combined in such a way that the materials, like the spaces, suggest depth, thought and response (above). The refectory (left) is a focus of communion, expressing the optimistic attitude of the Benedictine Order.

FACTS AND FIGURES

St. Procopius Abbey Church and Monastery, Lisle, Illinois. Architects: Loebl Schlossman Bennett & Dart. Partner-in-charge: Edward D. Dart. Associate Architect: Paul Straka. Engineers: Eugene A. Dubin & Assc. (structural); Willima T. Brookman & Assc. (mechanical). Interior: Edward D. Dart & Paul Straka. Consultants: Frank Kacmarcik, Lyle Yerges. Contractors: Pepper Construction Co. (General); McCarty Brothers Inc. (mechanical); Wigdahl Electric Co. (electrical). BUILDING AREA: Approximately 100,000 sq. ft.

(For a listing of key products used in this building, see p. 69.)

PHOTOGRAPHS: Balthazar Korab.

SHOCK ABSORBER

A view of urban society based on everyday events

A shirt-sleeved John Naisbitt sorts Saturday mail.

Urbanologist John Naisbitt has an interesting kind of poll.

It's called the daily newspaper. While other polls try to get a reading on what people are saying, Mr. Naisbitt gets a reading on what they are actually *doing*—at every level of society.

To get at the facts, he set up the Urban Research Corporation four years ago. A staff of 12 analysts sort, clip, categorize, cross-index and microfiche over 200 daily newspapers. In the process, compact packages of insight are put together, covering education, health care, employment, welfare and poverty, housing and urban renewal, environment, transportation, economics, government organization, and political developments.

More importantly, these packages produce some very instructive patterns about how seemingly isolated events and experiences interrelate.

Mr. Naisbitt, a member of FORUM's Board of Contributors, notes, "A newspaper reader, say in Dallas, rarely reads about what is happening in San Diego, Seattle, Tampa, Des Moines or Boston—unless, of course, some catastrophe hits. Yet, changes in education, housing, transportation and law enforcement are reported everyday in those cities. When these developments are compared with daily reports from a hundred other cities, important trends begin to show up. And it is these trends, not only the single episodes which comprise them, which are vital to an understanding of what makes us tick."

When the mail comes in at the firm's Chicago headquarters, located just off the lakefront within walking distance of the University of Chicago, newspapers from 105 cities in all 50 states inundate the tables

and floor. After processing, the micro-fiche clippings become Newsbank and, as it turns out, a very marketable resource for people making decisions about the urban future.

As a result, Mr. Naisbitt has forged a remarkable alliance with the nation's business community, where he himself had solid exposure as special assistant to the late Lyle Spenser, President of Science Research Associates, an IBM subsidiary.

Twice a month, Urban Research teams sally forth to brief the top and middle-management personnel of blue-chip companies, those with vested interests in improving the urban condition. The monthly Urban Print-Out (which is geared for urban specialists) and Urban Read-Out (a biweekly to just keep executives up to date) are also available.

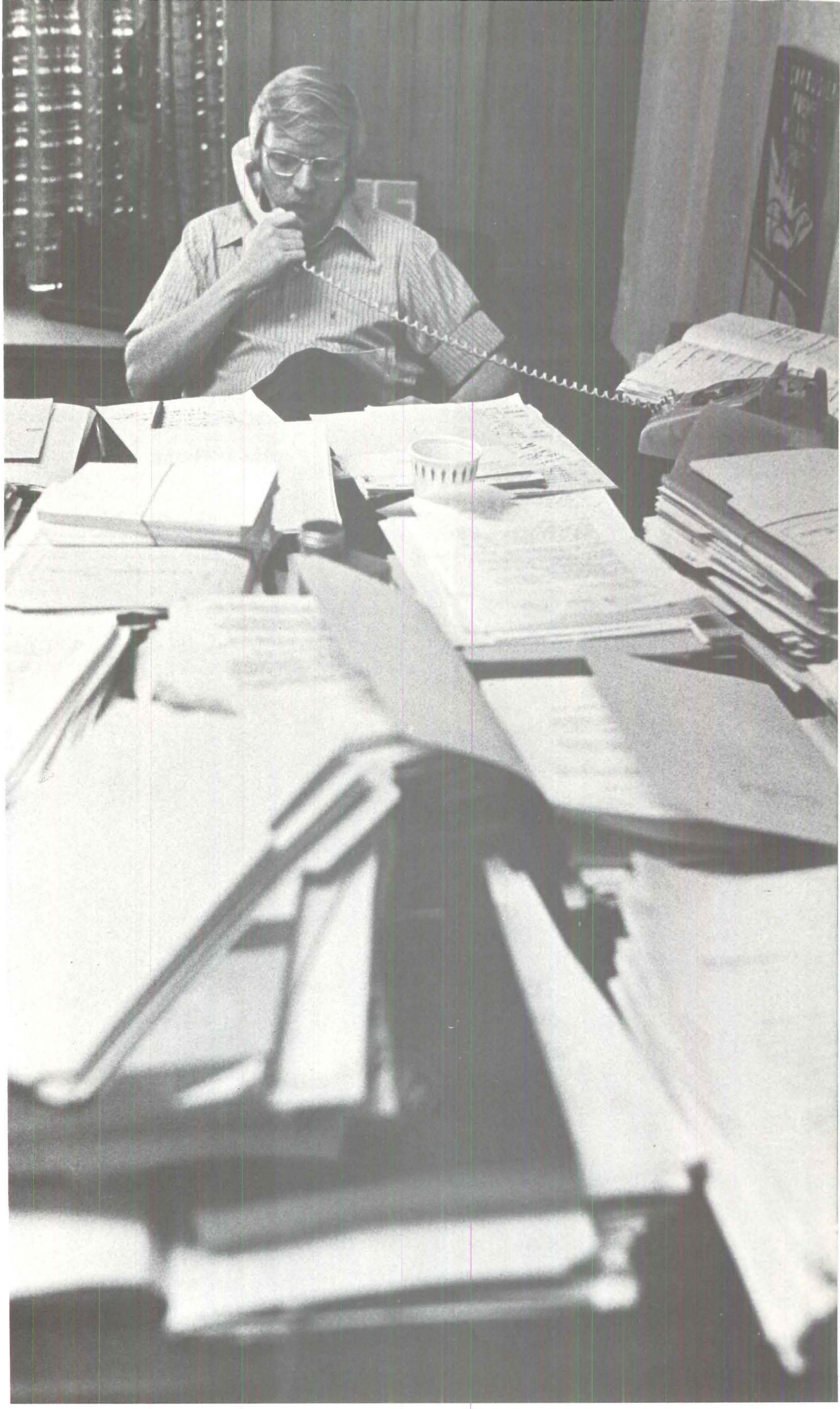
Subscribers to such services include Harvard University, the Chase Manhattan Bank, Eastman Kodak, the University of Houston, Texas Instruments, Hill & Knowlton, Reader's Digest, Michigan Blue Cross, the Whirlpool Corporation, the Harlem Hospital Center, General Electric, Standard Oil of Indiana, and Quaker Oats.

Mr. Naisbitt's clientele is not restricted to big business, however. A one-time aide to John Gardner, during the latter's tenure as HEW chief, Mr. Naisbitt has found ready entree into government and related circles.

Non-business subscribers include the Illinois Department of Labor, HUD, the Ford and Rockefeller Foundations — and author Alvin Toffler (who subscribed *after* writing his best-selling "Future Shock").

Interestingly, a number of architectural firms and planning agencies have also become aware of Urban Research, which is good news considering that the planning and design of our physical environment might be more accommodating to human needs were they done in a better-informed perspective.

Understanding this perspective is, according to Mr. Naisbitt, imperative for social progress. Whether you are talking about government or corporate policy, or about the parameters of city planning, all must begin to *anticipate* needs, not just answer those which now exist. Although he agrees with plan-



Evidence of society's trends build up daily.

ner Albert Mayer that "trend is not destiny" Mr. Naisbitt says, "The point is that to control or manage a trend, you have to anticipate its impact. And you can have no way of doing that until you are in constant touch with the facts, the events and the experiences which *build* a trend."

In many ways, then, he approaches the contemporary newpaper in the same way that an historian of the 19th century would. It is common practice for scholars of times past to comb the copy of his period, ferreting out important patterns of development, whether socially, culturally or technologically oriented. Mr. Naisbitt does the same thing, except that his coverage and the resulting patterns are much more comprehensive.

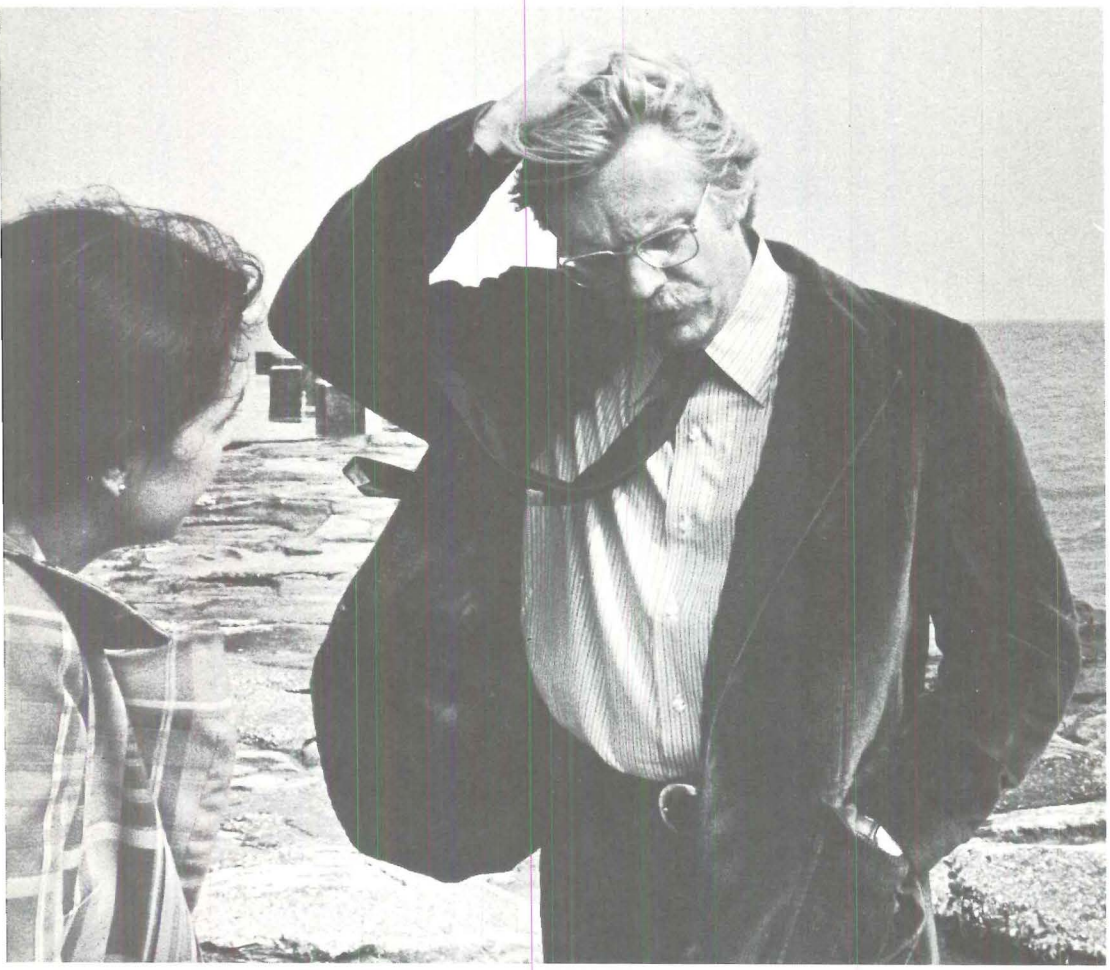
Assessing the news, he suggests some rather interesting trends in the offing:

- Whether Detroit likes it or not, cars will be banned from many urban centers by the end of the 1970's; and not long after that, public transportation will be free. Clippings report that automakers are already anticipating this, and are working hard to research and develop their own rapid-transit systems. Atlanta, Akron, and Indianapolis already have cut fares; pollution and congestion are choking downtowns; San Francisco, Philadelphia, Boston, Memphis, San Antonio, Washington, Cleveland and Baltimore are resisting new highway construction; and, within a year or two, the sancrosant Highway Trust Fund will be diverted to the support of rapid transit (Congress came close to this earlier this year). Most interestingly, Mr. Naisbitt's reading of the news indicates that the auto has lost ground as a status symbol.
- The present, overburdened health care system is on the way out.

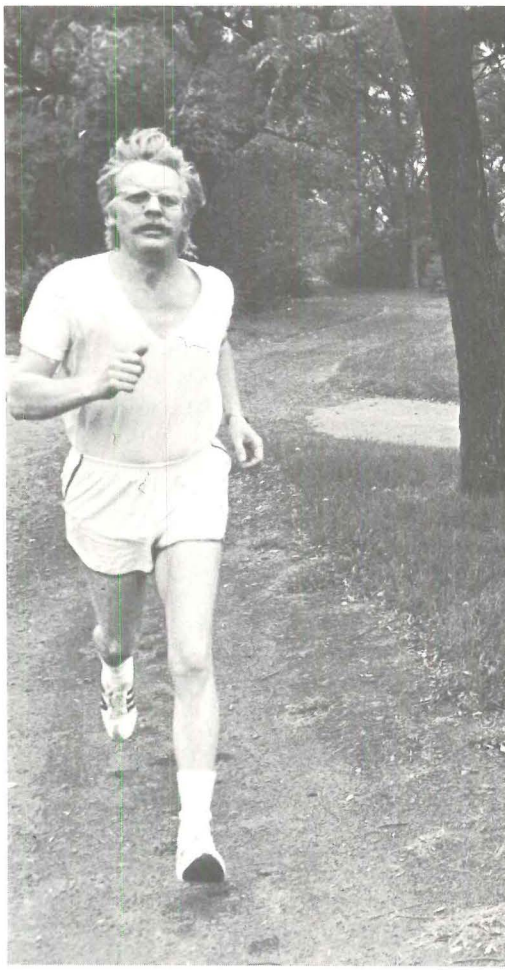
"Except for major things, like brain surgery and heart transplants," says Mr. Naisbitt, "the big hospitals with their bewildered out-patient staffs will be relieved by an array of alternatives that will make health care more accessible—especially community and neighborhood clinics which will be linked by telecommunications to the larger, regional health centers. By the end of the 1970's" he continues, "prepaid health plans will be the rule. Some eight million people are now covered by such programs, and their numbers are leaping month by month. Emphasis is going to be on prevention, not just cure; in effect, Americans are going to be paying doctors to keep them well. And that means an increased need for facilities that are closer to the people."

- By 1980, the population of our big prisons will be reduced by at least 40 percent. Smaller penal facilities (400-500 inmates) will be more closely woven with communities. Looking over the vast amount of material on prison reform underway in almost every part of the country, Mr. Naisbitt sees the day when it will be routine to have open visiting by family and friends, and when many occupational and educational courses will be pursued by inmates outside prison walls. Such innovations, with facilities to match them, are already occuring, and indication that society has begun to realize that prisons are, perhaps, our most counterproductive institution.
- "Schools without walls" and the "campusless college" will become the rule, not the exception, says Mr. Naisbitt. He points to the increasing demand for community and junior colleges, open admissions procedures, and the emphasis now being given at all levels to individualized curricula.

Urban Research was instrumental in setting up one of the first "schools without walls"—Chicago's Public High School for Metropolitan Studies. It has attracted eager enrollees from all over the city. Civic, cultural, business and industrial resources have been made available. And the students literally use the city as their classroom. A course in sociology, for ex-



A quick lakefront conference.



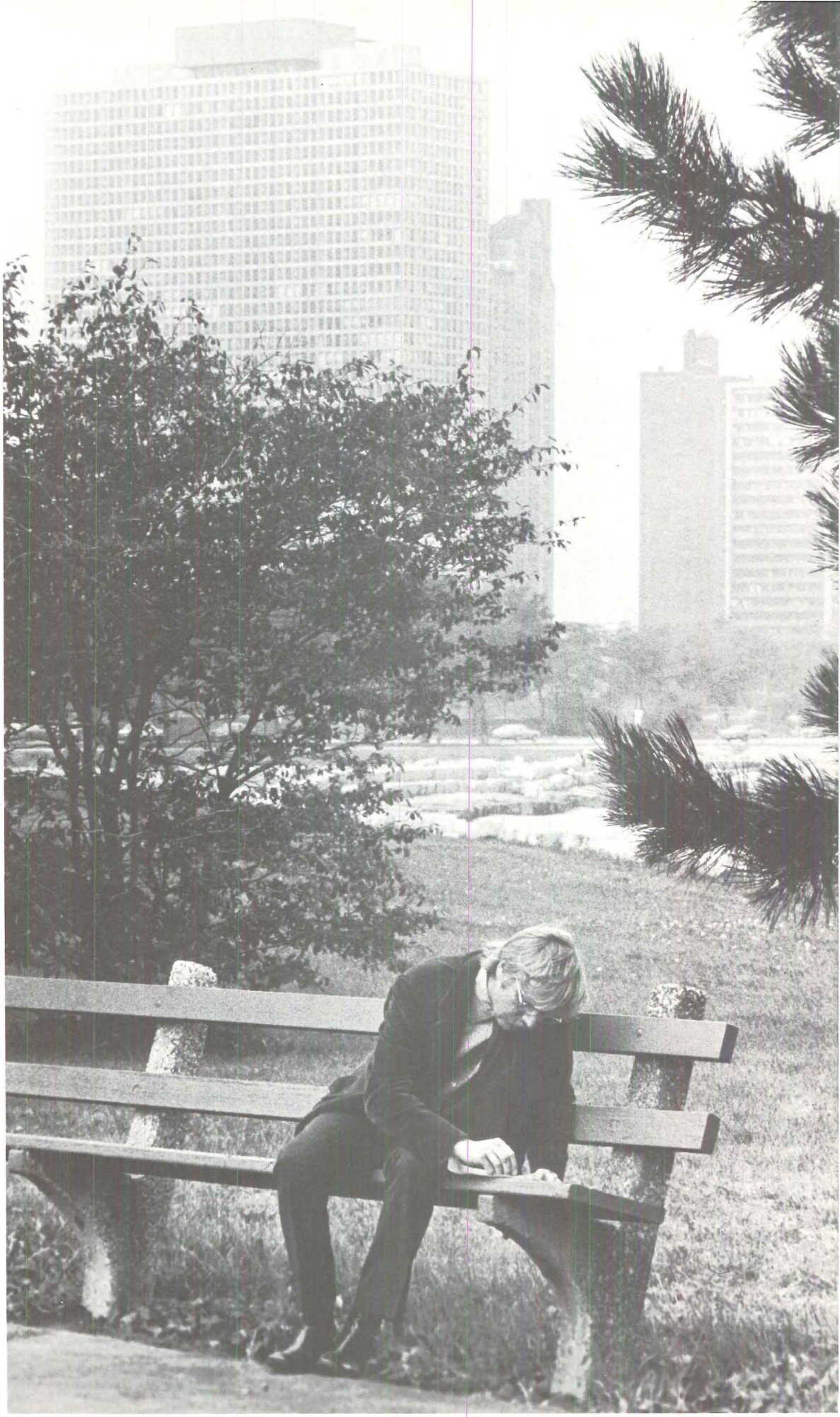
The morning ten-mile jog.

ample, becomes a series of documented field trips to old Halstead Street; they practice Spanish by studying living conditions in the Puerto Rican section of the city; they learn about architecture and planning by regular sessions in various firms.

In other words, students learn to deal with problems and people by experiencing them firsthand, and Mr. Naisbitt knows that what they are doing locally is part of a healthy trend nationally.

John Naisbitt's "turf" is the ordinary street corner, the park bench, the corporate planning session, the backstairs of Congress. What form the future of urban society will take is nowhere as much a mystery to him as it is to those in charge of shaping it. After all, he sees its foundations building every day on his desk. For the rest of us, it's back to the drawing board. But, taking a hint from Mr. Naisbitt, try reading that morning paper first. It's one way of *keeping* in charge.

PHOTOGRAPHS: James Biery.



Some quiet before a speech.

HARVARD'S NEW HALL

A stunning sawtooth structure bites into some sensitive academic nerves

George Gund Hall opened in October. For the first time in years, the Graduate School of Design is under one roof. And how!

Actually, the roof is an immense sawtooth skylight, carried by a truss of tubular, pipe-like elements, spanning 125 feet over expansive studio space. Its underside resembles a ship's boiler room.

The studio consists of four stair-step slabs or "trays," as they are called. Slid onto these are the departments of architecture, landscape architecture, city planning and urban design. Stairs connect them.

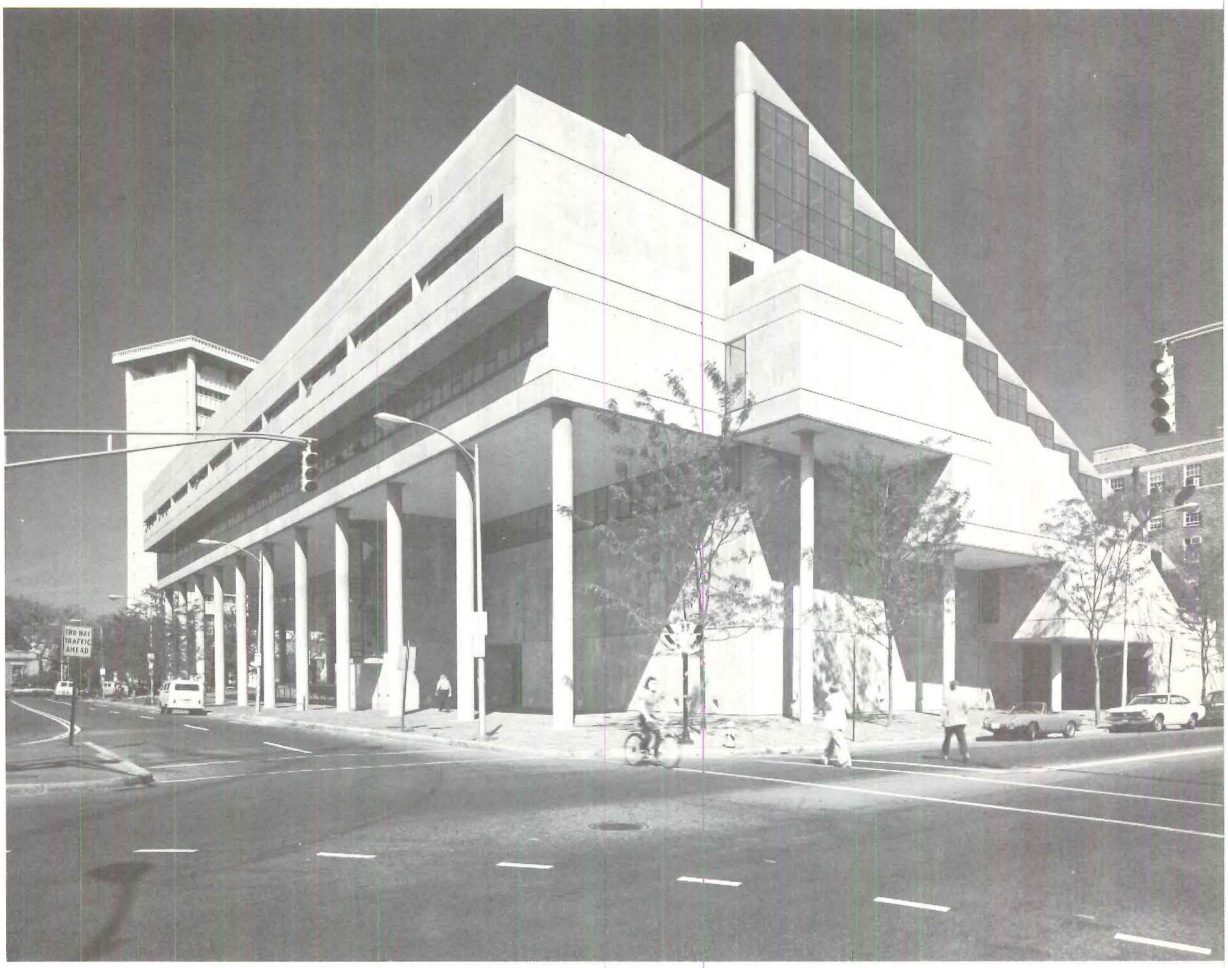
Halls, classrooms and faculty offices wrap around the studio on two sides. Common lounge areas mark the juncture on every level.

The 400-seat W.T. Piper Auditorium, the 200,000-volume Francis Loeb Library, and a technology workshop are tucked under the studio.

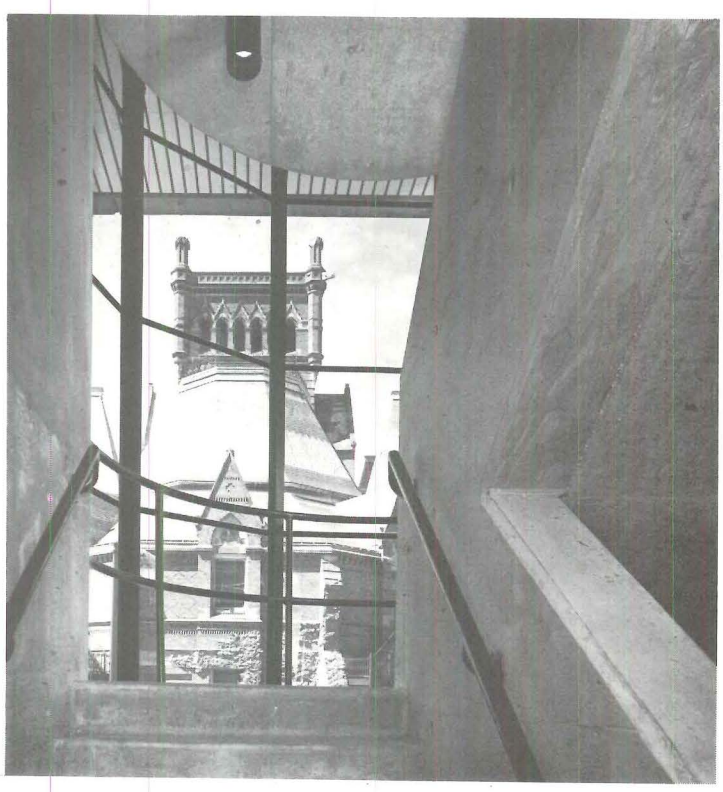
Designed by the brash, brilliant Toronto firm of John Andrews, Anderson, Baldwin, Gund Hall is a flawed success. You can think of it, as John Andrews does, as the last of the great train sheds. Or you can think of it as a pressure cooker. There is no escaping the controversy rife beneath the roof.

Reason is, there are built-in hazards in asking an architect to design a working school for his younger peers which must also double as an alumni center for an ideologically divided alumni. There was quite a constellation of talent waiting to get this job.

In 1965, former Harvard President Nathan Pusey decided to pick Gund Hall's architect from the students of former Dean Jose Luis Sert. Dean Sert tried to demolish the barriers between design disciplines, and he wanted a building to symbolize and service the dialogue he envisioned. John Andrews was



George Gund Hall steps up gently from the Cambridge streetscape (above left). The sloping roof, covering studio space, is wrapped with classrooms, faculty offices and halls on two sides of the building (right).



Outside, Gund Hall keeps to the street (above); a sheltered, brick-clad walkway connects the building with curbside. Moving about within (right), the texture of the new is enhanced by frequent glimpses of the surrounding campus.

chosen as one of Sert's more stellar offspring—an Australian expatriate, then living in Toronto. A host of big-name colleagues cringed from coast to coast.

A running battle soon erupted. Collisions came over the building's looks, its relation to design education, cost overruns, even the color of the beige blackboards. But the real rub had to do with program—or a lack of one. The faculty-student committee assigned to oversee program and project development was in a constant state of frantic flux. Some students campaigned for places on the committee, promising to "do in" the architects' scheme. Faculty members, indulging insular instincts, could not decide whether to accept Sert's dream of a wall-less, open studio or not. They wanted their departments; they wanted their tenured privileges; they wanted their sanctums, furnished to "taste." The architects gave them sanctum—offices which are frightfully forgettable, tight, just right for the claustrophilic mind.

In contrast, the open studio space is spectacular. There is a sense of sharing about it; a sense that *this* is what study should be. There are all sorts of ways to get even with professors who prefer isolation to communication. First you give them offices to flee from; then you give them a fun, sun-filled studio to flee to. Out in the open, with the students, the revenge is redeemed. People communicate; hang-ups get shelved; radios are turned down; roguish behavior goes on elsewhere; territorial imperatives translate to common courtesy; inadvertently, as much is said about sociology as about architecture.

Outside, Gund Hall says a lot to the streetscape. The building belongs as much to the campus as to itself. The city of Cambridge waived the normal 30-foot setback, so curbside becomes a real occasion. The tiers of studio space overhang a generous, brick-clad walkway which is paced by the building's cylindrical concrete columns. As a result, design elements become integral to campus experience; they embrace non-designers. There is no such thing as just walking by this building. What was once esoteric, hidden away in five separate buildings, has now been synthesized in a sin-

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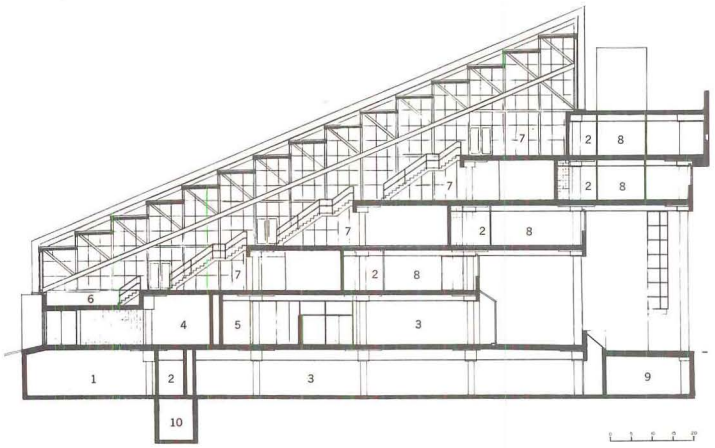

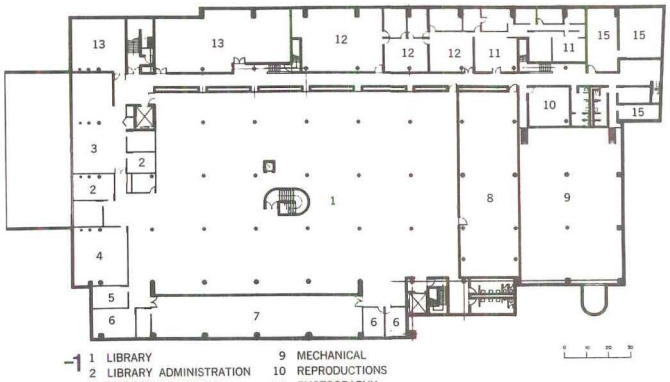

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1 LIBRARY
2 LIBRARY ADMINISTRATION
3 TECHNICAL SERVICES
4 RARE BOOKS
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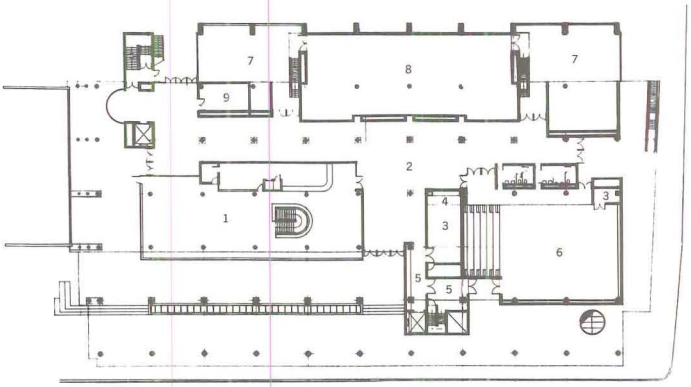

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1 LIBRARY
2 EXHIBITION
3 STORAGE
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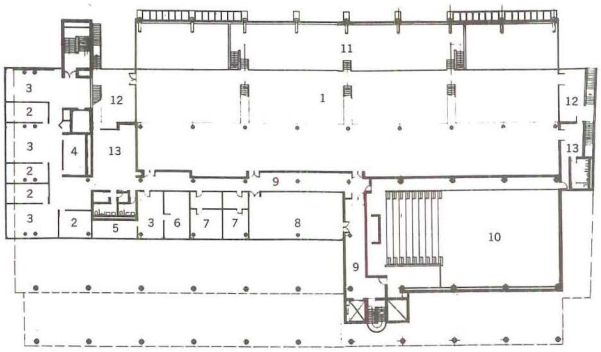
5 CIRCULATION
6 LECTURE HALL
7 STUDIO
8 TECHNOLOGY WORKSHOP
9 JANITOR



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1 STUDIO
2 CHAIRMAN
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7 ADMINISTRATION OFFICE
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10 LECTURE HALL—UPPER LEVEL
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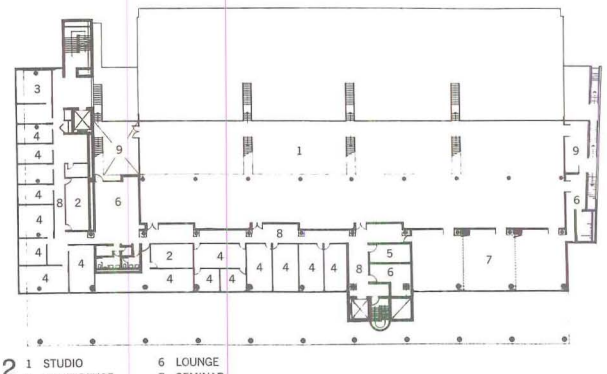
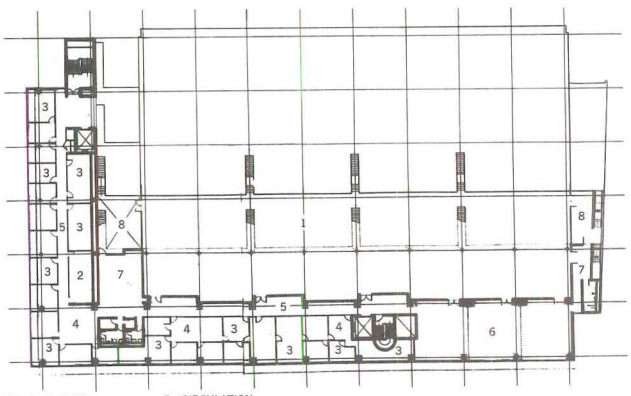
12 TERRACE
13 LOUNGE



2

1 STUDIO
2 CONFERENCE
3 DIRECTOR
4 FACULTY OFFICE
5 ELECTRICAL
6 LOUNGE
7 SEMINAR
8 CIRCULATION
9 TERRACE



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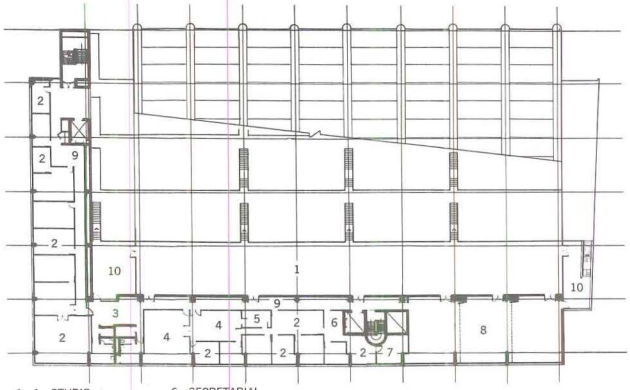
1 STUDIO
2 CONFERENCE
3 FACULTY OFFICES
4 SECRETARIAL
5 CIRCULATION
6 SEMINAR
7 LOUNGE
8 TERRACE



4

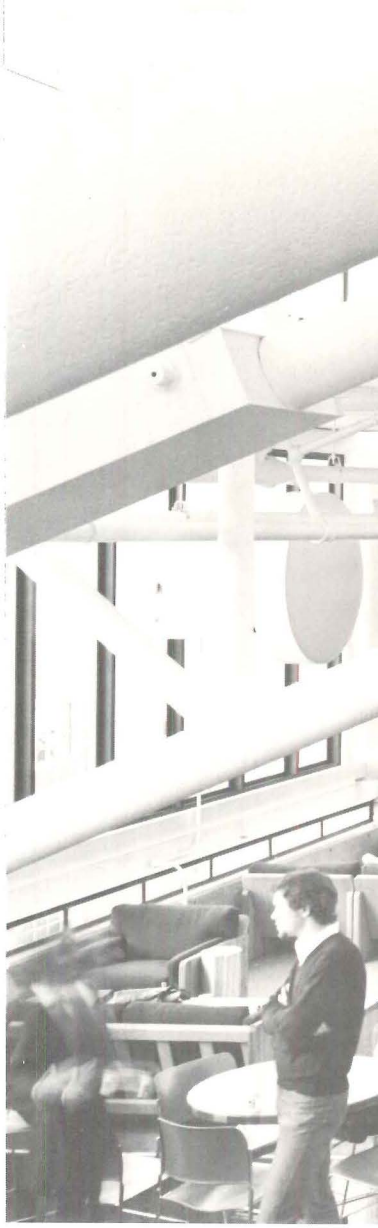
1 STUDIO
2 FACULTY OFFICES
3 LOUNGE
4 COMPUTER
5 STORAGE
6 SECRETARIAL
7 DIRECTOR
8 SEMINAR
9 CIRCULATION
10 TERRACE

gle, cohesive structure which says that design is not apart from life but essential to its sustenance. It remains to be seen whether similar cohesion will characterize GSD.

Even Sert's successor, Dean Maurice Kilbridge, was not all pessimistic recently. On one hand, he calls the building truly great. On the other, he feels its $8-million price a shameful extravagance. Kilbridge is an economist, not a designer. And asked whether he would call Gund Hall a Malthusian or Keynesian building, he replied wryly, "Thorstein Veblen," whose economic theories concerned conspicuous consumption. So much for charting creativity on a curve.

If Gund Hall gets its not-too-subtle message across, there could be a marvelous chemistry at GSD. Gone now are physical barriers to interdisciplinary pursuits. Gone, or going, are the separate, tenured identities which academia has long been given to. Gone too are any excuses to ignore the problems posed by this building. The architects have all the exits covered. Their boiler-pipe truss, impeccably detailed, is much more than structure, it is a call to self-assessment and shared effort. While architects and faculty let off steam, students are getting it together in the studio — not at the barricades, but at the boards.

—WILLIAM MARLIN



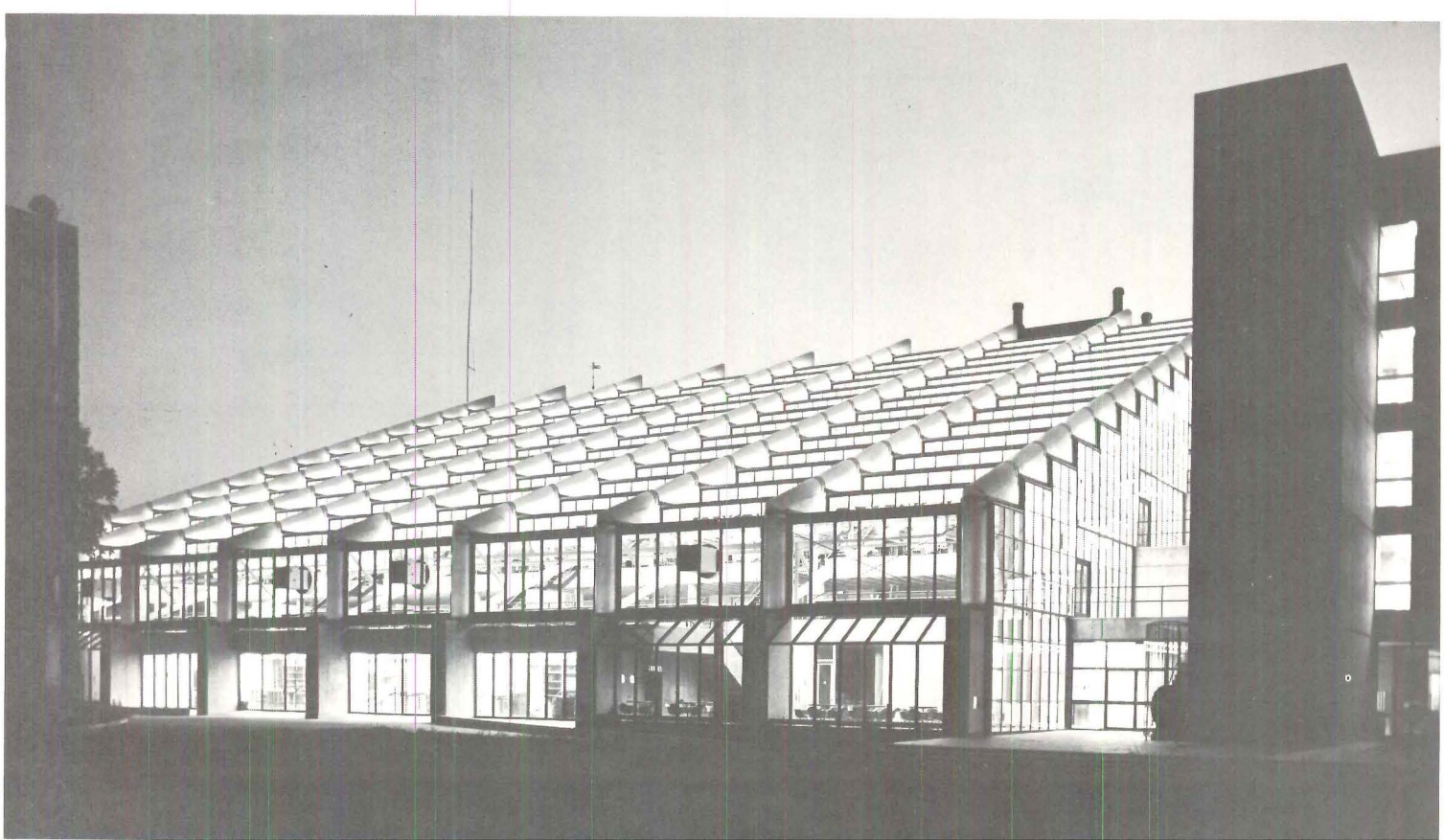
The immense stair-step studio interconnects departments (above), mixing spaces for leisure and study. Above it, a truss of tubular steel elements, resembling boiler pipes, spans 125 feet (opposite left). Connecting the studio levels with the classroom and office wing are common lounge areas (opposite right).

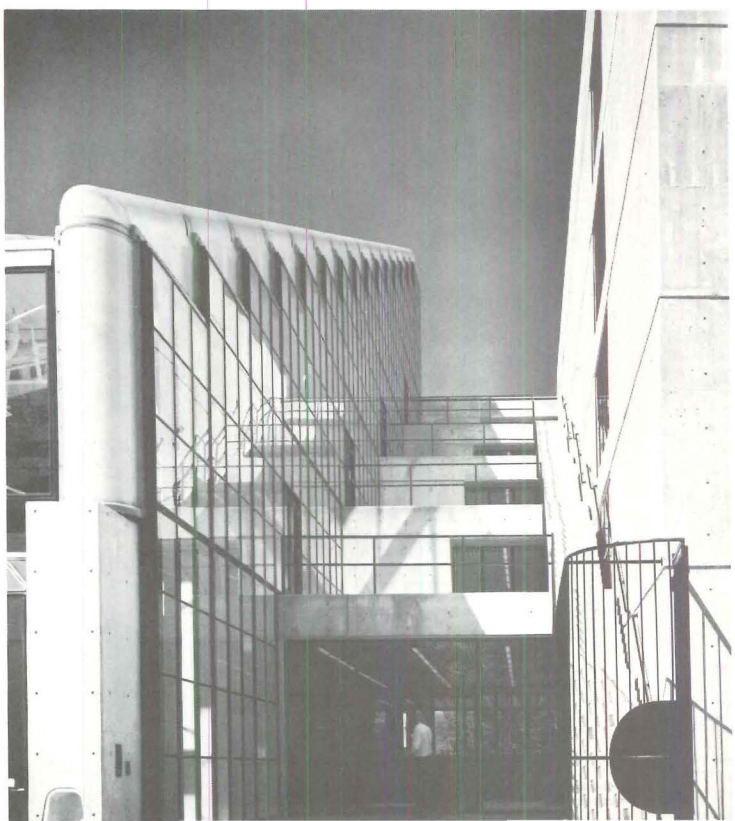
FACTS AND FIGURES

George Gund Hall, Graduate School of Design, Harvard University. Architect: John Andrews, Anderson, Baldwin (Edward R. Baldwin, partner in charge). Engineers: Le Messurier Associates (structural); G. Granek & Associates, Ltd. (mechanical); Jack Chisvin (electrical). Landscape architect: Strong, Moorhead, Sigsbes. Interior designer: John Gallop & Associates. Consultants: Harold Mull and Louis Bell Associates (acoustics); Rolf Jensen (fire). General contractor: J. Slotnik Co. Building area: 154,000 sq. ft. Building cost: $830,000 (sitework); $6,500,000 (construction); $270,000 (furnishings, equipment).

(For a list of key products used in this building, see p. 69.)

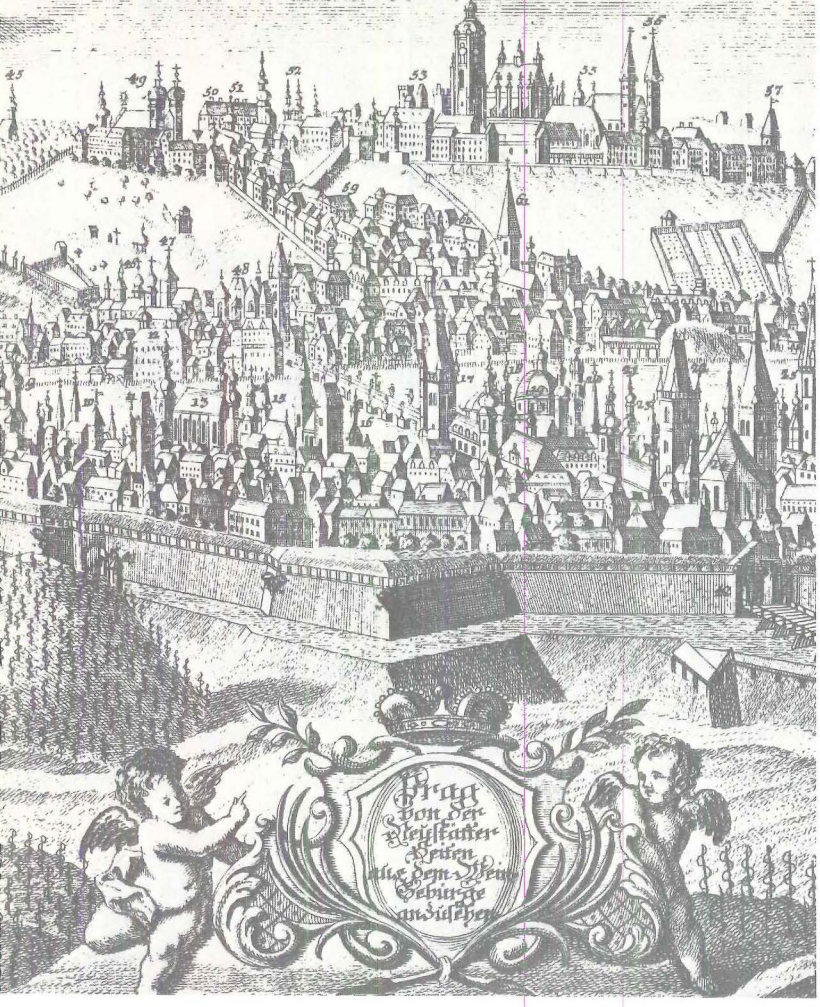
PHOTOGRAPHS: Steve Rosenthal.





PRAGUE LETTER

PHOTOS AND TEXT
BY FRAN P. HOSKEN



Prague as it looked in 1740.

Art Nouveau sculptures such as these decorate many doorways.

Prague, that most beautiful of all baroque cities, seen from a distance, looked as dignified as ever under a fair midsummer sky. The Hradcin, the imposing historic castle, still used as the government center, overlooks the historic town with its many patina-covered domes, church spires and monuments. The Moldow river is spanned by one of the most beautifully decorated old stone bridges, the Charles Bridge. Ever since medieval times it has carried the traffic between the two banks on which historic Prague was built.

But Prague today when you look closely is full of contradictions and ambiguities. There is the magnificent historic architecture which has been allowed to deteriorate: many old buildings are now finally being restored. Five years ago, the last time I was in Prague, the old Charles Bridge was closed to traffic and under construction, and it is still closed and under construction now. There are the new systems-built suburbs full of monotonous repetitive highrise apartments, many of them poorly built; yet modern architecture was first successfully pursued in Czechoslovakia where Mies van der Rohe built his first classic—the Tugendhat house—well before World War II. There is a broadly established, highly educated, democratic middle class which now lives in a planned economy that stands for government ownership and centralized bureaucratic control. There is 100% employment; indeed everyone must work. Yet productivity lags in every area. There is a great deal of new housing, and more is under construction. But the housing shortage is one of the great problems for all people despite the fact that there is practically no population increase. And the closer one looks the more obvious the contradictions become.

The last time I visited Prague —which I have known most of my life—was the summer before the Russian invasion and the tightening of centralized rule. On the surface Prague then looked not very different, but as I soon discovered, things have changed. Prague today is also very different from its

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Ms. Hosken is Forum's Correspondent-at-Large.

neighboring Vienna and most other Western European cities. Most visible is that there are far fewer cars. This could be an advantage—if other means of transportation, mostly electric two-car trolleys—were efficient. But they are at best terribly slow. Taxis are almost impossible to find and even if one is lucky, it often happens that their drivers are simply not interested in going anywhere. So whenever possible I walked—as I found many other people do.

But to the hard facts of an account that I must introduce as purely subjective and personal—tempered to be sure, by a good deal of experience. First I must state that I enjoyed no official status and I had no "clearances" which, I discovered too late, are needed to have official entry into the bureauracy. All enterprises, which include professional architectural practices are run by the government and work for the public and are subject to the all controlling bureaucracy. It takes time to understand the "system" by which things are organized.

Architects, it appears, work in various government offices concerned with housing, physical planning, public works, and more. Besides that there are "ateliers" which function like design studios where new projects are planned. These ateliers are identified by Greek letters and are in different buildings all over Prague. I visited two such ateliers and saw some of their work—all concerned with building housing and planning new communities. One of them had produced the design and plans for "Etarea," a new town that was shown in model form at Expo '67 in Montreal. It was designed for an actual site on the outskirts of Prague, incorporating many new imaginative ideas: as a result it was too expensive to build in the tightly controlled economy.

The other atelier I saw was just finishing the apartment designs for a new community of 30,000 people including all shopping, schools and services. The housing is all built by the same system and consists in a variety of combinations of apartments of exactly the same floor area and space with different interior layouts that could be fitted into high-rise and walk-up buildings. That afternoon the health inspectors, who had to approve the layouts, were expected. Besides that, plans must be approved by fire inspectors; safety and structural OKs and other approvals must be sought. One result is that to get something built takes a very long time—even though the system used has been simplified and reduced to a limited number of combinations. Exactly the same buildings and apartments are built all over the country, using the same system everywhere. Recently the system dimensions of the precast concrete panels were slightly changed for greater flexibility. But throughout the country each family knows exactly how all other families of the same size live.

There are three basic methods by which a family and individuals can obtain housing. They can form a cooperative, which is used mainly by middle income people as this requires regular payments in advance until a certain amount of down payment is achieved. With this the cooperative then acquires the housing (built by the government). In return the cooperative has some flexibility in obtaining the type of apartments its members wish to have. The cooperatives also function as apartment managers.

Another method is to rent government built and owned flats, which most workers do. This requires usually a very long waiting period (several years) and much like in other countries, hardship cases have preference. In certain sections of the country, for instance, in the industrial north (Ostrava) where workers are needed, whole new communities are being built and new housing is more readily available as a means to attract workers. But the individual apartments are exactly the same as anywhere else.

Finally there are some privately owned family houses or flats which have certain space limitations in order to qualify for subsidies. The planners of a new community of course decide where the apartments are built including the individual houses and all other facilities and schools.

The Atelier "Eta" which I visited specializes in housing and employs some 105 architects. It is one of six ateliers where some 500 architects in total are employed. They take

Hradcin Castle as seen across the Moldow River.

St. Nikolaus Church and dome.

Vaclav Square, the business center of Prague.

A view of Prague's new and old housing.

The monotonous Dejvice housing development.

Dejvice: common, system's built highrise apartments.

care of most of the design of all the buildings all over the country, right from Prague. All housing is built with the participation of professional architects, and housing is a major concern of the profession.

The architectural ateliers which are in charge of all design of new projects are coordinated and under the office of the chief architect, which in turn is under the Ministry for Construction and Engineering. The Institute for Regional Planning (Terplan) and the office in charge of the development of building types (typical housing plans, typical schools, typical shopping, etc.) also reports to the chief architect's office, as well as to an office of building research. In turn the chief architect of a specific community reports to the architectural ateliers in Prague. Competitions for new development projects may be undertaken by groups of architects on their own initiative in the ateliers with the permission of the head of the atelier. These competitions often produce some interesting and imaginative innovations—for instance the New Community shown at the Montreal World's Fair was created that way.

Architects, as in other countries in Europe, have a strong professional organization or union to which every professional belongs. These unions differ from the AIA in that they have much more political clout. It is a necessity for every architect in Czechoslovakia to join this organization if he wants to practice the profession; so in fact it functions as a licensing organization as well. After the 1968 centralization, I was told, membership was reorganized (under a new head or president) and each former member had to resubmit his credentials. These accreditations are still being processed and reviewed—those who are not accredited cannot continue to practice. The offices of the organization are located in a handsome old baroque palace at the foot of the Hradcin in a most attractive historic environment and have offices, all kinds of meeting rooms and library.

I was received—as a fellow professional—by the leading architects of two of the ateliers. I also had the opportunity to meet with an expert in the Institute for Regional Planning who is well acquainted with international developments in his field. But I could not get the official clearances to go to the ministries, which I discovered take months to obtain through official channels and often are indefinitely delayed for U.S. citizens. That is, visits, even of a purely professional nature, have to be cleared through the ministry of information and in turn through the information department of each ministry.

Similar arrangements exist in other countries, of course. For instance I went to the Netherlands after leaving Prague where the public information department attached to the National Planning and Housing Ministry organized my entire schedule to see experts in every area I was interested in. But in Prague security clearances are needed for all visitors especially where construction and planning are involved. In some instances members of one department cannot visit offices of another.

The problem was finally solved in part by meeting some of the professionals I could not visit in their offices in the coffee houses which are everywhere. They were most interested to talk to me as many are entirely prevented from travelling outside the country. While many speak English, I also used French, though the lingua franca in Prague today is mostly German—which especially the older generation still all speak.

The tourists, who thronged Prague this summer to the point that it was very difficult to find any hotel space, are mostly from East Germany but also from the wealthy West. This is an ironic situation—considering that Czechoslovakia expelled two million ethnic Germans after the War as undesirables (after six years of German occupation). Now Germans are back often with lots of money buying up scarce consumer goods that many Czechs cannot afford and eating up the food in many restaurants that are often short of meat.

In Prague itself, the historic environment is systematically being restored—after whole sections of the old town were beginning to collapse for lack of repairs since before World War II. All real property was nationalized in the late 1940s and

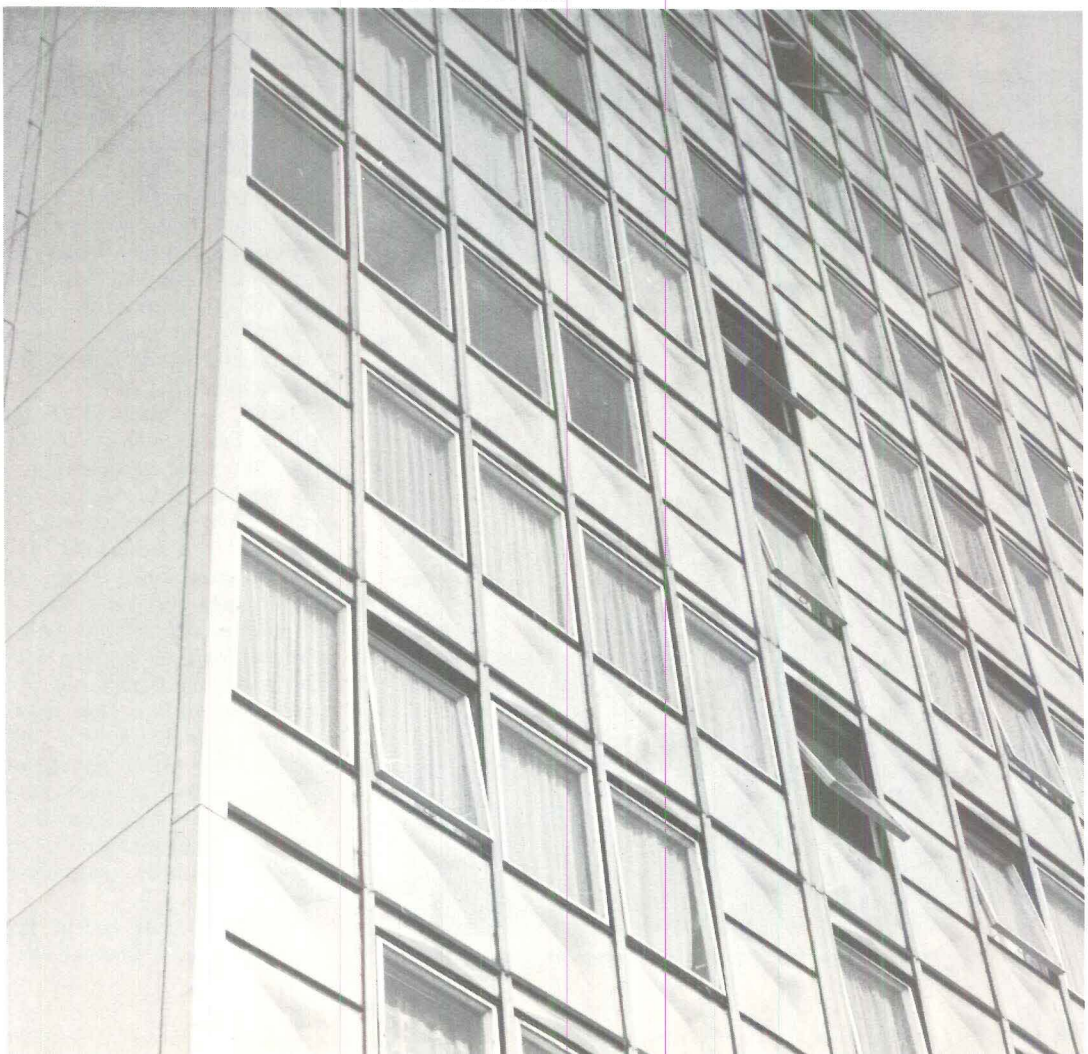
rents are controlled. Consequently houses and apartments have not been modernized or repaired for decades as there were no public funds. When a few years ago a woman was killed by a balcony which fell from an old building, the city belatedly began to undertake massive restorations under the guidance of architects. They are by now showing some very good results especially around the Hradcin and the old City Hall Square.

The housing conditions in the older areas of the city however continue to be very poor. The majority of this housing consists of the traditional nineteenth century flats whereby the apartments of a whole floor share one water tap and one toilet located on an unheated corridor. Few apartment buildings have been modernized because all private ownership of buildings stopped with the Communist party take-over in 1948 and there was no money or incentive for renewal. However, there are also some well built apartments left from the early part of this century when "Art Nouveau" fluorished. Whole streets of Prague were built at that time and one can find some of the most handsome examples of the "Jugendstil" in these blocks.

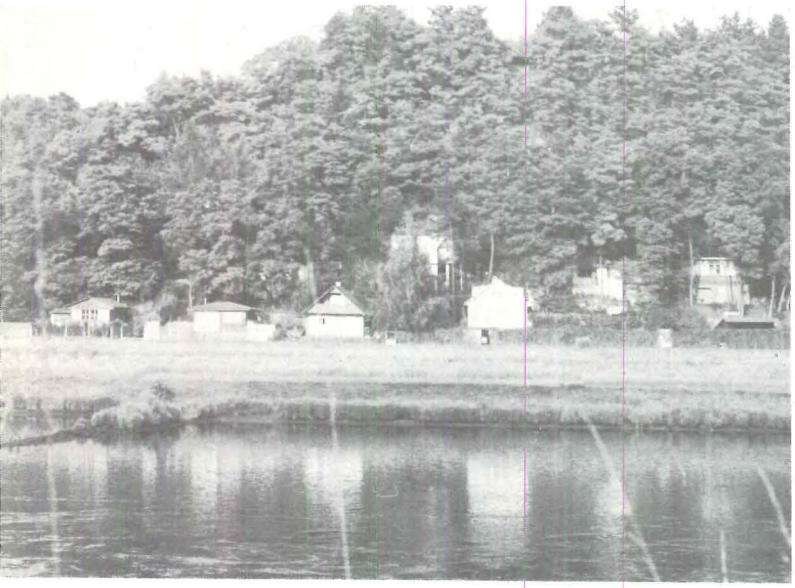
However most young families are trying to get a new apartment in one of the new communities that are being built all over the outskirts of Prague. These communities consist almost entirely of high rise concrete apartment buildings of systems construction — which I discussed above. There are many complete communities especially north and south of Prague that have their own shopping centers, schools, and services of all kinds. Some of the older ones appear quite pleasant, with green spaces, playgrounds and trees, while others, especially the more recently built ones, are utterly drab, repetitive with monotonous site plans and poor workmanship despite the systems construction. I was told over and over that the typical windows that both tilt and hinge leak badly. Yet they continue to be used. The workmanship is generally poor. Like similar communities in other parts of the world these huge rows of monotonous apartment blocks seem without any life or any

Typical Art Nouveau apartments.

A typical systems facade with windows that tilt and also leak.



"Invalidovna" Housing Development on the outskirts of Prague. Built before 1967, it is one of the most attractive projects.



Weekend houses on the Moldow River Banks near Prague. They are larger and more elegant than most.

One of the newest developments in Pankrac, a metropolitan area of Prague.

activity. Public transportation connects these satellite communities with the city. The distance involved—considering that Prague today has just over one million inhabitants—is manageable and not as great as in most U.S. metropolitan areas.

I tried to go to Ostrava which has the largest number of new satellite communities built recently and partly still under construction; but I could not get the "clearances" which meant that I would not be officially received or given a tour—so in the end I had to give it up. A young sociologist whom I met outside his office and was involved in the planning of these communities, assured me I was not missing anything. "We are building the slums of tomorrow, these towns are terrible. I would not think of living in such a place—besides if you have seen the ones around Prague you have seen them all. Whatever we plan it is all exactly the same." The astonishing thing is that I was given stacks of literature with detailed documentation of careful research including social planning of these communities. Nothing was left to chance. Experts on every subject worked on the rationale of these planned communities. Czechoslovakia has as good academics as any country in Europe with much more experience in planning than their U.S. counterparts. But after seeing this bureaucracy in action I could not help but feel that centralized planning simply cannot deal with human needs, least of all with those on the community level or those concerned with the quality of architectural design.

Other countries in Europe, notably France, are getting away from this kind of planning and are trying to establish open ended flexible development systems that are responsive to individual community needs. One cannot help but note that the government offices in Prague decide not only how each family and person shall live but every screw and fixture that is used on every building just about everywhere. After seeing more of the housing I began to get some notion of the horrors of centralized systems and a completely one-sided unresponsive bureaucracy.

Why do people accept these apartments and planned living environments that permit not the slightest self-expression or variety, I asked? Well, they have no choice—anyone who gets any new apartment is so happy to have a place to live that they ask no questions. Today the greatest struggle of each family still is to secure a place to live.

To this it must be added that while the initial housing that was built some years ago totally neglected services, schools and shopping, a lot of progress has been made. Each community not only has some very well designed new schools following all kinds of innovative education methods but child care centers for pre-school children are part of every community as well as health care centers and recreation facilities. That is, the social service component has been carefully organized and is built simultaneously with the housing. Women, along with everyone else are required to work, therefore child care is an essential community service provided by the government.

The only major new building I saw in Prague is the handsome new airport which did not exist five years ago. Despite the prolific bureaucracy their many offices are housed in old buildings scattered all over town. I was shown the new Hilton Hotel which has been under construction for quite some time. It was started already in 1968 and progress is very slow —but then building anything in Prague seems to take a very long time. The story goes that shortly after construction began the American firm in charge—using local labor of course—had some movies made at the construction-site. At the end of the week the workers were shown the films and given the option to return the next week and do some real work or quit. The wages were high for Prague so they worked and thereafter the building progressed a bit faster. But even now it is only half done after four years!

This in essence is the problem, though everyone has a job and must work or be branded a parasite (studying is considered work and students are paid) very little gets done. Government-owned firms and operations are holding on to their workers for fear of not being able to find more. It is the hardest thing to get a release

(continued on page 63)

FORUM

(continued from page 19)

an almost equally brief slide presentation familiarized the players with the computer printouts they'd be working with. Then one became, willy nilly, one of three town groups having three administrators, politicians and speculators each. Suddenly all of us had to assume one of the three roles, begin to imagine the other two, and answer questions on a computer printout. The players' answers were fed into the computer which came out with a public opinion poll rating. Before assimilating these results, one was taking a stand on issues such as a low income housing project for the aged, or the formation of committees on the aged and the distribution of smut.

One of the most significant aspects of gaming is the way it breaks right into the monopoly of one's own viewpoint. There are so very few people capable of understanding or imagining what's going on with the other guy. But that's exactly what the role playing in gaming/simulations requires. It is good exercise for exerybody, for without such imagination there can only be cheap, mercenary I'll-scratch-your-back-if-you'll-scratch-mine compromise; and certainly no coming to terms from opposite poles for common, humane purposes.

It was amusing to be told by Dr. Duke that the sophistication of this group retarded the progress of the game. They were so concerned about what they were doing that it took them two hours to do one cycle (representing a year) which the game planners expected to take half an hour.

Dr. Duke says there are several thousand games dealing with urban subject matter and *Metropolis* is a very rudimentary one. It is nevertheless fascinating and suggestive. As pointed out several years ago in a comprehensive article on urban gaming in FORUM (December 1968), "In a game situation, the player can see how his decisions affect both the responses of the system and the actions of other players. And in the process of making decisions, he can learn about decision-making—how to separate the important decisions from the unimportant; how to make decisions when there is either too much information, or too little; how to seek more—or more relevant— information."

In playing *Metropolis* one is pressured to make hasty and ill informed decisions. It was almost too much like life, and left one imagining millions of playful or lazy lapses from conscientiousness due to over- or under-loading taking place in city halls across the nation. It is just such lapses which cause irredeemable discontinuities, not to mention contradictions, in planning. And it is interesting to see how the computer can digest and flexibly display information to help prevent such lapses.

Dr. Duke thinks of gaming/simulation as "the most intricate communication form available . . . often being more efficient than reality itself." Of course there may be some misleading optimism about politics engendered by such efficiency.

There are plans afoot for a more sophisticated game, METRO-APEX, to be held this winter and played by the same group. This game has 28 (instead of *Metropolis'* three) separate roles, each much more intricate. It includes seven developers who buy, sell, build and can run for public office. Its normal cycle time is four hours.

Let's hope this series will effectively spread the word about gaming and help set the grass roots ablaze with better-informed participation at all levels.

LIMBO NEWS

OH GIVE ME A DOME

Last summer, Robert Hayden, a scrap metal dealer from Marstons Mills, Massachusetts bought a 20-year-old, five-ton, fiberglass, geodesic dome at a Cape Cod National Seashore auction.

40 feet tall and 55 feet in diameter, there are only three of this type, the prototype for the DEW-line early warning systems stations. One of Bucky Fuller's first, it was made by Geometrics Inc. of Cambridge who sell comparable new ones for $20,000 and told Hayden they'd give him all the help he needed putting it back together again after dismantling its 300 numbered panels. Hayden said it comes apart easily and he doesn't anticipate trouble. It is structurally sound, and only two of its panels are torn.

This dome got phased out as a MIT communications research center because it was too thick-skinned. According to Hayden, higher frequencies are used now in electronic communications and they would be broken up by the thickness of the skin.

Hayden, who is said to turn everything from frisbees to freight cars into money, is a little like a father overcome with the latest rocket he's bought for his son. One of the first things he did after buying it was take his family on an outing to the site to figure out

For Sale

what someone could do with the thing. He brought along a French horn to try the acoustics, which were terrible. Even with part of the top removed, they were so bad that it was impossible to carry on a conversation with someone 10-feet away. Hayden thinks it would make a good church sanctuary; it's perfect for quiet meditation. He also suggests it could be used as a store or as a swimming pool cover or as an exercise ring for horses. He says it could be insulated and have partitions; and all it takes is a bosun's chair and some caulking compound to make it waterproof. He considered the possibility that it could make a nice house, preferably on top of a high hill.

He thought of moving the dome by helicopter, and Sikorsky said they had one that could do the job, "*but* if the wind got up more than four miles an hour and started the thing swinging, they'd just cut it loose and that would be that." So if you want it, Hayden says it would fit on a large platform truck and could be moved in one trip.

Hayden has put a $10,000 price tag on it. This does not include the base. You might add a little if a long haul were involved. And he's been quoted

PHOTOGRAPHS: Wainwright Building, George McCue; Empire State Building Model, Raymond Egan; Oak Park home, MOMA.

as saying, "If I'm crazy enough to buy it from them, someone is going to be crazy enough to but it from me." Who knows? Before long, there may be more than one man tooting his French horn somewhere in the vicinity of Truro.

PRESERVATION

WRECKING DECIBELS

Word out of St. Louis has it that Adler & Sullivan's Wainwright Building of 1892 may soon bite the dust in favor of (you guessed it) "progress."

Their masterwork was, really, the *first* modern skyscraper. It made the connection between construction and expression in terms of steel. And it embodied a concept which too many subsequent skyscrapers have not—specifically, that *social* significance is ultimately the skyscraper's most important phase.

It is the height of irony that St. Louis, which has taken to tearing down its architectural tragedies (Pruitt-Igoe, for example), should let things get out of hand by tearing down its architectural triumphs.

The Wainwright brought cultural and economic values in line with one deft stroke. Reportedly, Sullivan worked out the design in a matter of hours. We have a matter of months to make sure that the remnants of his finest work are not consigned to museum collections.

In some ways, this crisis comes at an opportune time. St. Louis developers, bankers and architects are moving ahead to adapt the Second Empire-style Post Office for commercial and hotel functions. Leases are being signed even before restoration begins. Similar incentives could also keep the Wainwright intact. The Post Office battle was a long one; and no one in St. Louis is fooling himself that this battle will be any easier.

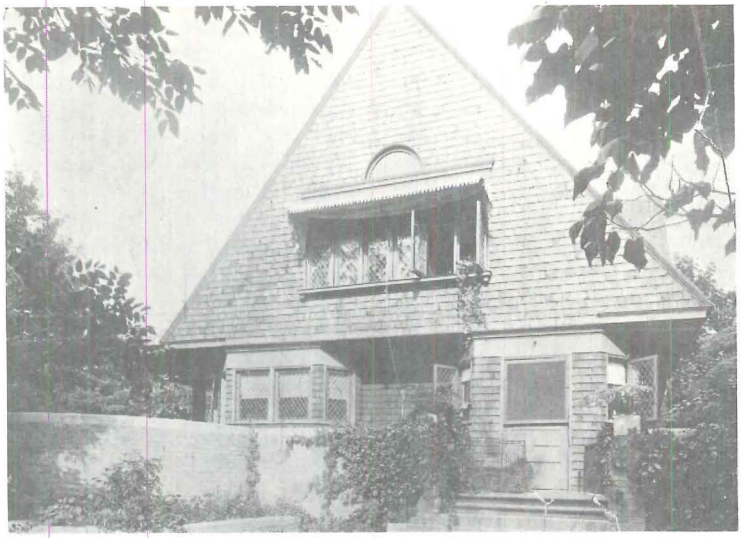
The Wainwright Building

For one thing, the Wainwright was recently damaged by the explosion of an ammonia pipe in the basement. Street floor windows were blown out and, though no structural damage occurred, the owners lost their usual "cool," and let it be known they had about had it with low rents and high maintenance costs. They have expressed a refreshing willingness to work out a way to make the Wainwright self-supporting, and it will take a determined coalition of architects and businessmen to act in time. At least one federal agency has expressed keen, confidential interest in leasing space in the landmark once it is restored, and we hope other responsible groups will move in that direction.

FIRST PRAIRIE HOUSE

Frank Lloyd Wright's Oak Park home and studio are for sale. The 25-room complex (including seven bedrooms and seven baths) was, of course, the locus of Wright's first "golden age," as Grant Manson described the Prairie House period.

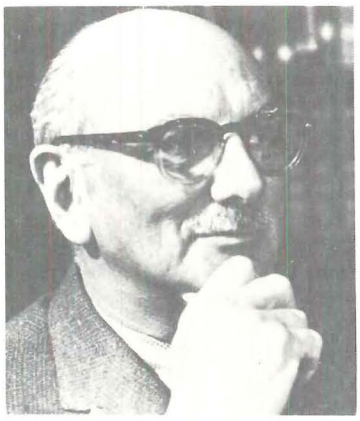
Over the past 25 years, much restoration work has been done (some of it supervised by Wright himself during the 1950's). The owners, Mrs. Clyde Nooker and her late husband, were determined to put the house and studio in working order; in the process, they raised a family and preserved one of the central landmarks of America's cultural emergence.



Frank Lloyd Wright's Oak Park home

Now that Oak Park has designated a mile square historic district surrounding Wright's home, it would make sense to see it used for educational and cultural purposes; or, just perhaps, these combined with galleries, book stores and small professional offices. This would be one way of putting it in the public domain where, in spirit, it has been from the start.

AWARDS



Lewis Mumford received the National Medal for Literature in a ceremony at the Ford Foundation on December 13.

The $5,000 prize and bronze medallion were given in recognition of his overall contribution to the world of letters and, we might add, in recognition of his place as a 20th century conscience.

His works, so familiar to FORUM's readers, include "Art and Technics," "The City in History," and "The Myth of the Machine." His activities over the years have included early appreciations of the New England Shingle Style, a biography of Herman Melville, and architectural criticism for *The New Yorker*.

In 1969, Mr. Mumford wrote his friend, the planner Frederic J. Osborn, "I cannot share your optimism about our present state or our future prospects, unless we undergo a far more swift and radical change than seems—barring a miracle — possible. What keeps us within speaking distance is that I have always granted the scientific possibility of miracles; and in some sense, the growing cries of dismay and alarm, not merely from the young people but from a growing body of their elders, there is perhaps a hint that the miracle is already at work."

CITYSCAPE

THE GREENING OF SAN PEDRO

What do you say about $50,000 worth of plastic trees that died? What kind of condolences should be given to the Los Angeles County Parks and Recreation Department who installed the trees just three short years ago in suburban San Pedro? A pat on the back, a few consoling words? "It was a good idea, a real tribute to the community. Think of the costs you saved on water and maintenance. No leaves to rake, no branches disturbing the power lines."

"They looked good on movie sets, the best special effects man in the world wouldn't have expected them to melt."

Holding back tears, County Supervisor James A. Hayes, broke the news to his men. He gave it to them right on the chin: "They weren't durable enough," he told them, "they'll have to be replaced."

Los Angeles, however, hasn't given up on instant foliage. Already there are rumors circulating that another $50,000 of road department funds are slated for the installation of more trees, this time made of a much tougher material. Though no one is saying what the new vegetation will be, Supervisor Hayes has been overhead saying: "I'm going to take the 'sh' out of shrubbery."

PRAGUE LETTER

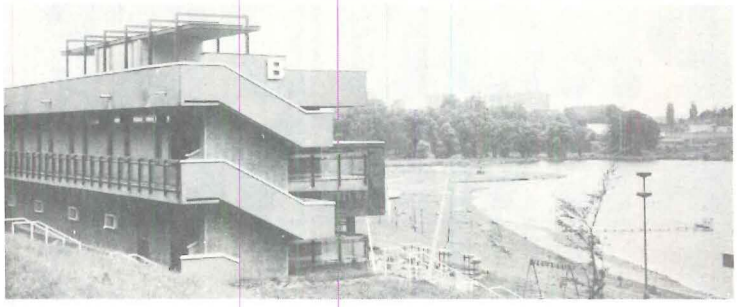
(continued from page 60)

even if you find a better job. Progress is slow and productivity is sagging despite long hours. But nowhere is it as visible as in building where a huge bureaucracy is involved before anything gets started on an actual site.

One astonishing answer to the obvious unhappiness over the housing situation has been recently developed by the people themselves—while the bureaucracy apparently closes its watchful eyes. All over the farmland and woods surrounding Prague a lot of little mostly self-built weekend huts are growing like mushrooms. Everyone who can possibly manage has such a weekend escape.

Land is publicly owned. There is no land speculation, which is of course a major advantage when it comes to planning and building new communities. Private individuals are permitted to own small pieces of land for a house and small garden, strictly for one's own family. Since land is very cheap—in the absence of speculation—everyone can afford to buy such a small piece. A veritable rash of weekend houses has been built, for instance along the Moldow river or in some of the attractive recreation areas near Prague. After such an area is covered with hundreds of little self-built shacks with gardens (much like the Victory Gardens promoted in World War II) it is neither attractive nor can it be used any longer for recreation. Some people, I was told, remodel for themselves old unused farm buildings—as farming has been collectivized and many houses, especially, were no longer used. It seems that some architects have busy practices of their own, designing small weekend houses for private clients—such is the drive for home ownership even in a collective society.

It is hard to tell what the future holds for those in the environmental professions and especially architects. Czechoslovakia many years ago prior to World War II was in the forefront of the modern movement in Europe, and the innovative ideas by its professionals are documented in many buildings in Prague and Brno whose architects have taught the present generation of professionals. At the present time there is little chance for innovation except in housing and community planning—yet even there restrictive economics mitigate against all but the simplest building forms. Though there is some ongoing research within the system—it appears that the needs of the entire nation or some 14½ million people can be taken care of from a few architectural ateliers in Prague.

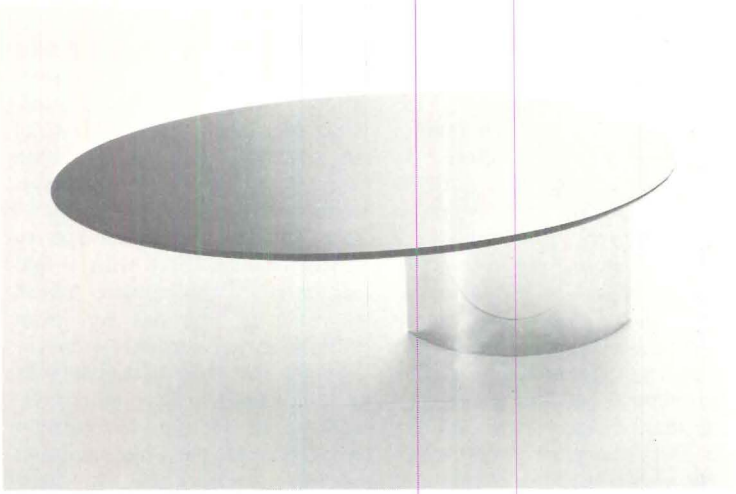


A recreation center in Dejvice.

Similar questions as to the use and future of architecture in terms of vanishing clients and lack of commissions are plaguing the profession in capitalist societies right now, especially in the U.S. Architects and building are closely tied into economic conditions under all systems of government. The traditional client-architect relationship does not exist at all today in Czechoslovakia or in state run and planned economies, therefore the role and commitment of the profession has to vastly change. But with a few exceptions architecture, which is a social art, has not been able to make worthwhile contributions for lack of support in a controlled, utility dominated, centralized society. In turn in what we call our free capitalist system, architecture is used mostly to express the one-sided aspirations of corporations and rarely those of society at large.

PRODUCT REVIEW

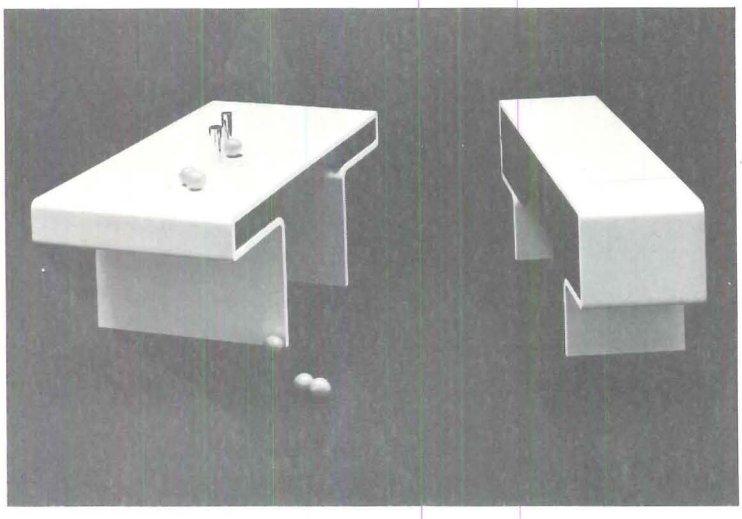
This month's Product Review concentrates on furniture for offices and public spaces.



OVAL-ESCENCE

The Lunario tables are designed by the Milanese architect and industrial designer Cini Boeri for Knoll International Inc. Polished steel bases give rise to cantilevered oval or round tops in glass or white or black plastic laminate. Available in heights of 11″, 15¾″, and 27½″, the table boasts a diameter of 59″. What could be more regal?

On Reader Service Card, circle 101.



PLASTIC PERFECT

Fiberglass reinforced plastic has come into its own with the help of William Sklaroff who created the Uniplane collection for Vecta Contract, a division of Vecta Group Inc. The desk and credenza shown here are hand-layed, utilizing Owens-Corning chopped strand mat for reinforcement and polyester resin, on specially developed six-part epoxy molds. The flexibility of the laminated construction enables the desk top to extend far out over the leg supports so that the top sweeps under to become the legs in a flowing flourish.

On Reader Service Card, circle 102.

COMFY

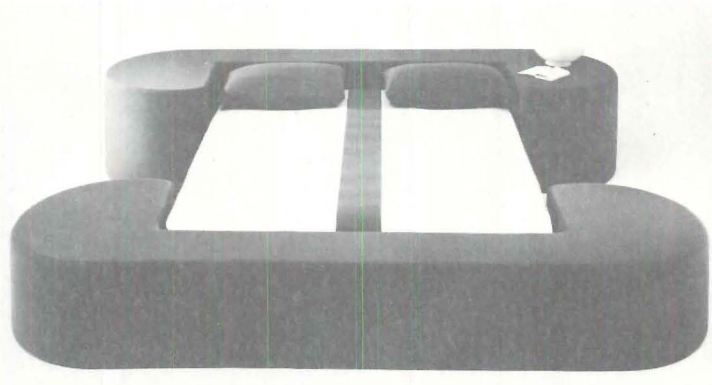
The American Seating Company offers a high-back chair available with or without arms as part of their Leif Blodee Lounge Group. It is of chrome and all-steel construction, with soft back, zipper covered pillows. It can be upholstered in nylon or vinyl and has an open cushion design. The complete line consists of two high-back chairs, one low-back chair, an ottoman, bench and three tables, adapting itself to flexible modular design.

On Reader Service Card, circle 103.

CONCRETELY

The "700" series, designed by Muller & Steward Ltd., is based on a 30″ x 30″ stackable, lightweight, concrete base module. Upholstered seating, benches and tables, display cases, fiberglass planters and map or directory units can be plugged into the module. Besides being durable it can be used in extreme climates and is adaptable to interior and exterior spaces. And concrete, of course, is an economic material.

On Reader Service Card, circle 104.



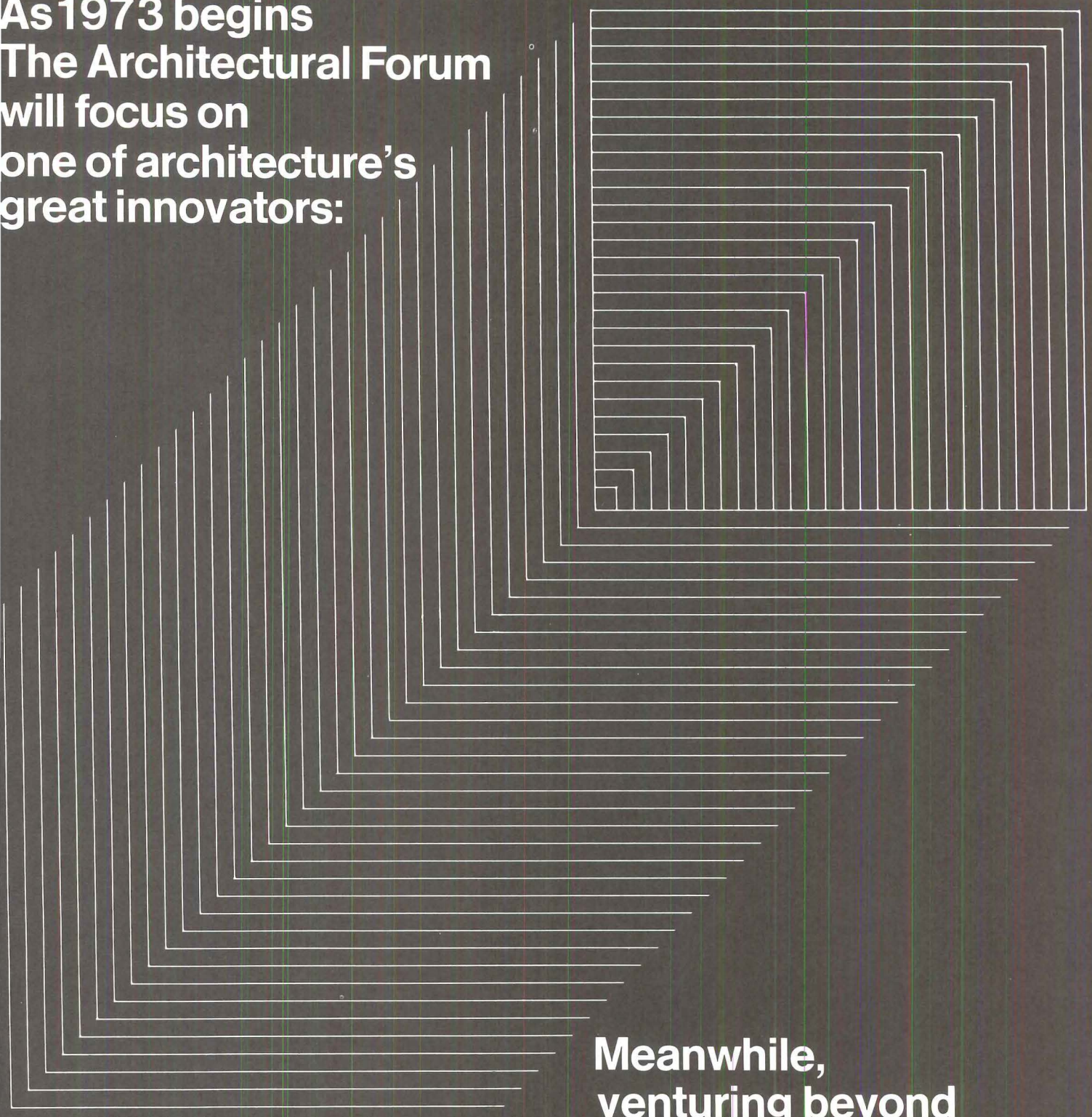
TOGETHERNESS

"Arci" is a bed designed by Ennio Chiggio for Stendig, Inc. Formed of polyurethane with fabric covering, it is complete with upholstered mattresses and pillows. The head and footboards are separate units strong enough to support a lamp, or to sit on, and may be turned around or dispensed with.

On Reader Service Card, circle 105.

(continued on page 68)

As 1973 begins
The Architectural Forum
will focus on
one of architecture's
great innovators:



He worked
within the establishment
which enabled him
to become
the establishment's
most challenging critic...

Meanwhile,
venturing beyond
his early miesian style,
he has evolved
a personal architecture
which expresses
our strongest hope
for 20th century
urban life...

In a special January-February 1973 issue the audience of The Architectural Forum will meet

The Seagram Building may have brought Mies van der Rohe's International Style to its zenith, but the zenith is still ahead for Mies's co-architect. The glass and bronze tower became Philip Johnson's professional home, but also his point of departure. His urbane, independent mind has since ranged far afield in many directions—directions which one can only hope future architecture will pursue. In this hope, the ARCHITECTURAL FORUM will assess Johnson's latest plans and structures in a major January-February issue.

What approach will the FORUM's editors take? Remember those two major publishing events of 1972: "The World of Buckminster Fuller" which celebrated the FORUM's 80th year last January, and "The Mind of Louis Kahn" which appeared in July. The coming Philip Johnson issue will have the same eclat as these, but this double-number of the FORUM will be—as it can *only* be —purely Johnsonian.

A featured writer of this issue will be Johnson himself, speaking out once again with the flair for criticism that marks him as one of the few truly eloquent voices in architecture. In other areas of the issue, the FORUM's editors will cover his latest thrusts towards a more socially oriented and humane environment.

In collaboration with his partner, John Burgee, these elegant new buildings fit into the broad patterns of time and history, but also meet the immediate, desperate needs of modern city life. They have enriched our urban culture with lobbies and parks which complement their surroundings and give the pedestrian public a fresh feeling of expansiveness, indoors and out. Johnson has raised the grammar of masonry and concrete construction to a high level of refinement, and has mapped out some of our finest new city development plans.

He has beaten the box and shown how many workable forms a skyscraper may take. He has given the office building facade strong new textures and compelling rhythms. And meanwhile, though a leader of the establishment, he has criticized, more eloquently than anyone, the prevailing domination of the dollar which often condemns building projects to esthetic bankruptcy.

Johnson's new buildings, seen in the January-February '73 issue of the FORUM, reflect the evolutionary steps which this architect has taken in his mid-sixties:

In Minneapolis, his *IDS Center,* a strong octagonal skyscraper, now dominates the skyline, rising more than 50 stories from its base where a glass honeycomb encloses a lobby that is one of the most exciting public spaces the corporate world has seen.

In Niagara Falls, New York, he has created a convention center where a web of steel supports a magnificent arched roof with a clear span of 385 feet.

For Allentown, Pennsylvania, Corpus Christi, Texas and Purchase, New York, he has designed *art museums* with a strong art of their own, seen in such dramatics as an oval masonry turret, sawtooth skylights, a lobby roofed by a lofty glass gable, a broad masonry wall punctured by narrow windows rhythmically spaced to create a fresh architectural syncopation.

For Boston, Mass., he has designed a *library annex* as an elegant gesture to historic Copley Square.

For Houston, Texas, he has developed a major skyscraper project—a pair of buildings joined at the base by a mutual entrance lobby of crystaline glass and steel.

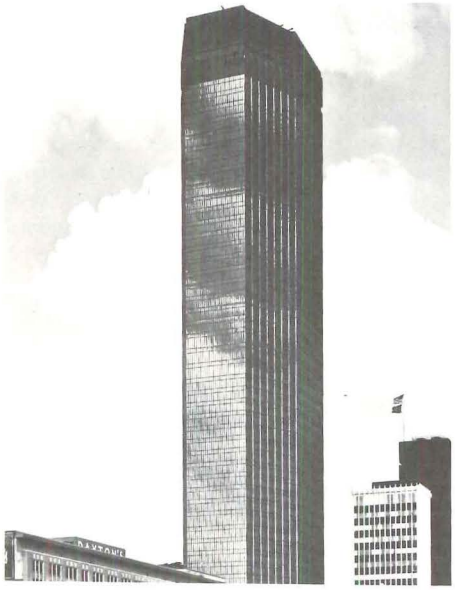
For New York City, he has mapped out new development plans for *Welfare Island* and *Lower Broadway,* designed the *Lehman Brothers* office tower, planned a state office building for *Harlem,* and a heavy masonry contemporary structure that will stand handsomely in the historic repose of *Washington Square.*

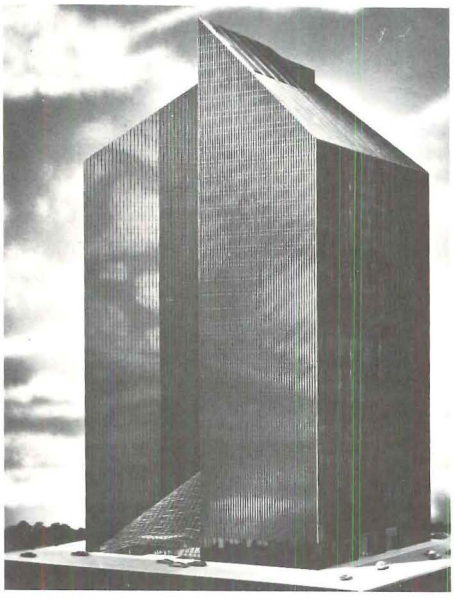
At his own New Canaan, Conn. estate, already an architectural mecca, he has created a timeless cluster of domestic buildings which the FORUM will assess along with a photographic essay in the January-February issue.

The Architectural Forum
Whitney Publications, Inc.
130 East 59th Street
New York, New York 10022

Philip Johnson

I.D.S. Center
Minneapolis, Minnesota
Photo by Nathaniel Lieberman





Pennzoil Place
Houston, Texas
Photo by Ezra Stoller

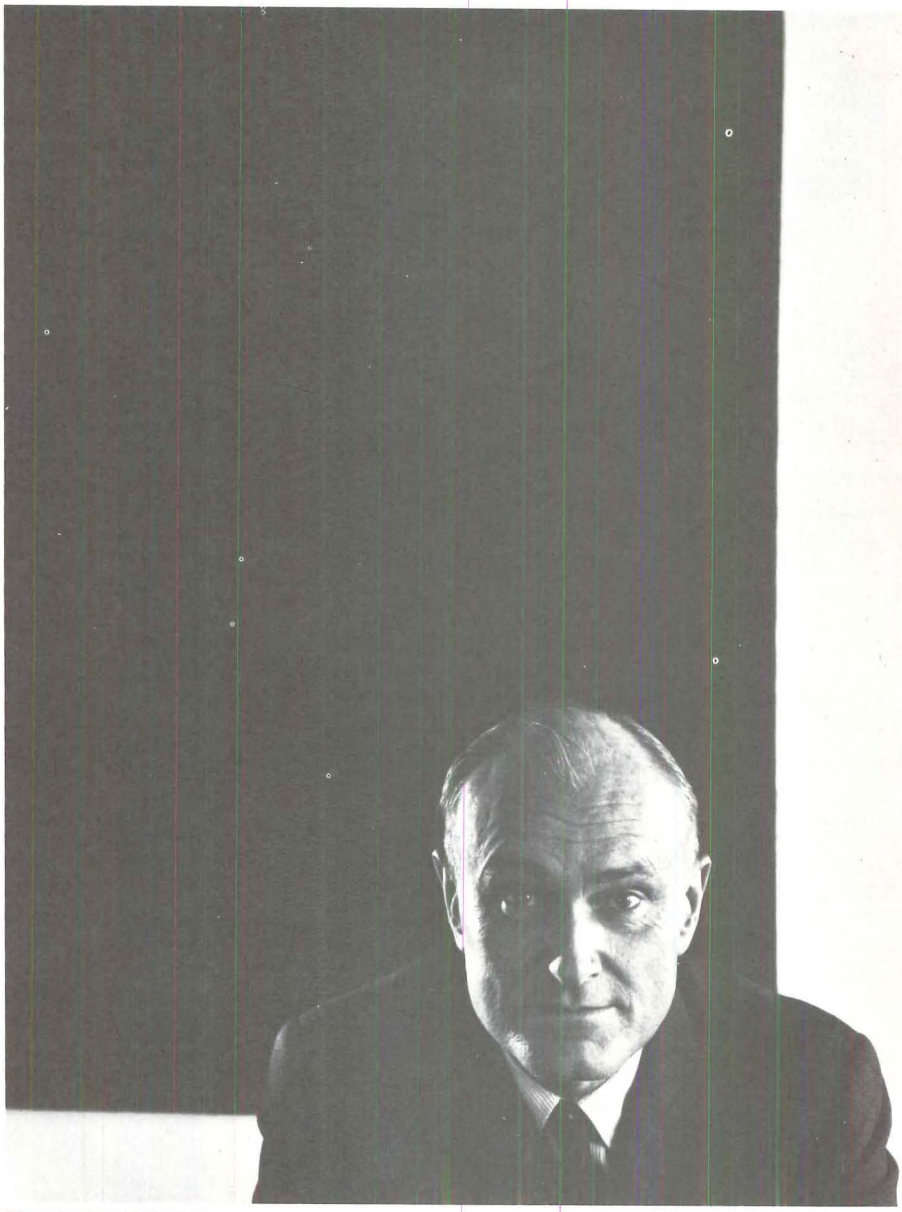


Photo by Arnold Newman

PRODUCT REVIEW

(continued from page 64)

ON THE WAY UP

Thonet Industries, Inc., gives us two seats for the bar. The #4601 Lorenz Barstool (below left) is a 41″ high chrome-plated tubular steel chair with upholstery available in vinyl or soft fabrics. There is also a matching line of armchairs.

The Bauhaus classics are revived in the #4923 "Cantilever Stool", a collection designed by Arthur Umanoff (below right). Seats of natural cane framed in black maple are cantilevered from polished chrome frames, and are 28″ high. Bar stools with a back, an armchair and various tables are available in this line.

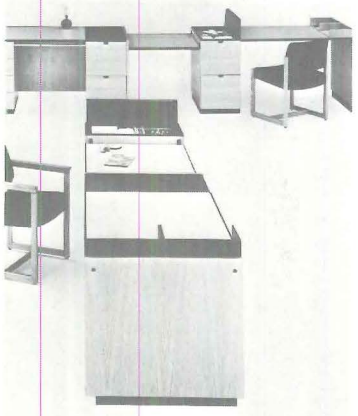
On Reader Service Card, circle 106.

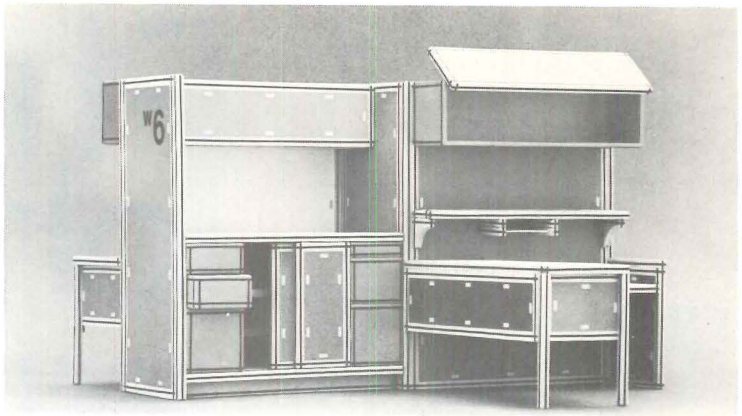
SUNAR SYSTEMS

Sunar Industries Ltd. offers two systems of flexible interchangeable units designed as solutions to office storage problems. The F-System (right), designed by Douglas Ball, is a multiple desk concept comprised of secretarial, clerical and management desk units available in dark or light finish oak. Units have full side panels and pedestals which reach the floor.

Uniwall (below) is composed of a series of cabinet modules available in 30, 36 and 42 inch widths. A storage wall is created with almost any grouping of free-standing and stack-on units. Contoured doors overhang the base of each unit concealing the stacking effect. Available in a standard range of colors, Uniwall is designed to be compatible with the F-system as well as other systems within the Sunar line.

On Reader Service Card, circle 107.

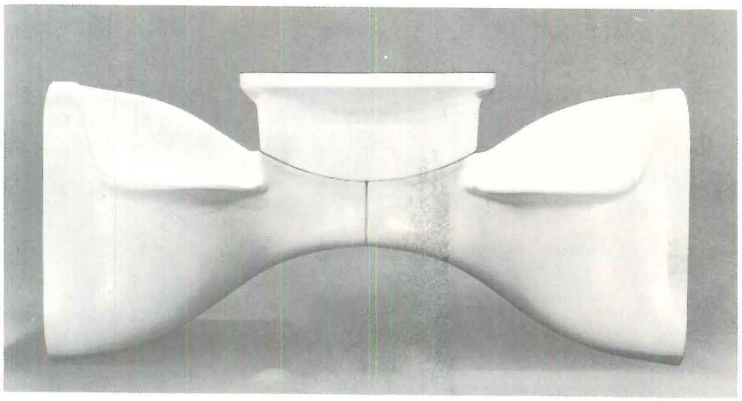




ALLinONE

In the fourteenth annual Student Design Program sponsored by Aluminum Company of America, John C. White was honored for his low-cost furniture system whose components can be arranged as a desk, bookshelf, storage area or room partition. Versatility is integral in the design because of the aluminum connectors which enable the joints of the furniture to hinge, swivel or slide. Besides being portable and requiring minimum maintenance, the unit can be assembled by one person.

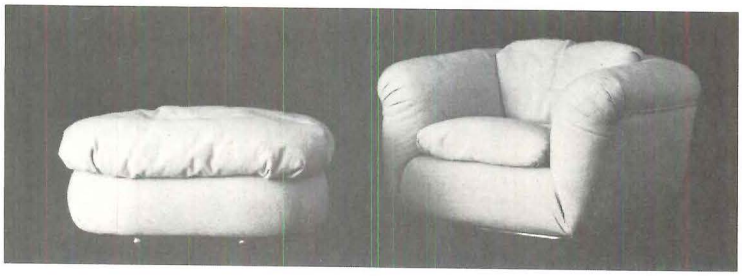
On Reader Service Card, circle 108.



ALLinONE TOO

"Unibloc", a seating group and table for four designed as one unit, was conceived by Roger Landault for Harvey Probber. Occupying a minimum of space, the molded plastic unit consists of two-seaters facing and joined at a central point with a plastic laminate table top. An integral steel frame reinforces the unit and supplies a strong connection for the table top. It is available in black, white, red and yellow. Units can be arranged individually or grouped together. What a way to sit!

On Reader Service Card, circle 109.



WOULD YOU BELIEVE . . .

"The Plump Potato Group" was designed by Jay Steffy for Fortress Incorporated. Supposedly the furniture was designed from an emotional point of view: "a deep, friendly chair without frills that invites surrender . . ." There is total spring construction in the arms, seat, and back of the chair, ottoman and two-or-three-seater couch. Upholstery available in wools and leathers. How's them apples?

On Reader Service Card, circle 110.

(continued on page 69)

PRODUCT REVIEW

(continued from page 68)

REDUCING

To reduce bulk, weight and cost without reducing comfort was the goal of Earl Koepke when he designed the Sling Chair Series for the Harter Corporation. The chairs make use of slim rods and bands of non-stretch fabric. A chrome rod construction extends to the base and is reinforced by flat steel blades. The swivel chairs are available with or without arms and can be covered in any fabric or expanded vinyl. Future models in the series will include both arm and armless pull-up chairs, designed to stack, and ganging and tablet arm versions. *On Reader Service Card, circle* 111.

The following is a listing of the key products incorporated in some of the buildings featured in this issue:

ST. PROCOPIUS ABBEY CHURCH AND MONASTERY. ARCHITECTS: Loebl Schlossman Bennett & Dart. (Materials and manufacturers as submitted by the architects.) CONCRETE AND CEMENT: Medusa Cement, Chicago Elmhurst Stone. BRICK: Brisch Select Hard Burned Common Brick. FLOOR & DECK SYSTEMS: Weyerhaeuser Roof Deck over Main Church, Blessed Virgin Chapel & Refectory. ROOF MATERIALS: Built-up Roof on flat roof; "Titanaloy" on sloping roof. ACOUSTICAL MATERIALS: "Glacier" pattern Acoustic Tile. GLASS: Pella Wood Window Units (generally) & Hope's Metal Windows at Church Clerestory. HARDWARE: Locksets — General Lock; Closers—Doromatic. INTERIOR MATERIALS: Ceramic Tile-American Olean; Mosaic Tile. PAINT: Devoe. PLUMBING FIXTURES, TOILET SEATS: Kohler; Fiat (shower bases). UNIT VENTILATORS, RADIATORS, CONVECTORS: Modine Fan Coil Units. AIR CONDITIONING COMPRESSOR, FAN UNIT: Carrier. FINISH FLOORING: Quarry Tile—Sand Flash by American Olean. CARPETING: Bigelow. DRAPERIES: Oatmeal; Natural Linen; Vernon Draperies. DRAPERY HARDWARE: Kirsch. PEWS: Ossit. WOOD LITURGICAL FURNISHINGS: Rollins Wood Products. METAL LITURGICAL FURNISHINGS: Empire Bronze.

GEORGE GUND HALL, CAMBRIDGE, MASSACHUSETTS. ARCHITECTS: John Andrews / Anderson / Baldwin. (Materials & Manufacturers as submitted by the architects.) FOUNDATION WATERPROOFING: Johns Manville. WATERPROOFING: American Cyanamid. CONCRETE AND CEMENT: Type 2 Portland/Ready-Mix. STRUCTURAL STEEL: Bethlehem. FLOOR & DECK SYSTEMS: Tectum, National Cellulose. ROOF MATERIALS: Johns Manville. THERMAL INSULATION & ACOUSTICAL MATERIALS: Owens-Corning Fiberglas. FENESTRATION: Himmel Bros./ Karas & Karas. GLASS: Libbey Owens Ford. INTERIOR PARTITIONS: U.S. Gypsum. ELEVATORS & ELECTRIC STAIRWAYS: F.S. Payne. DOORS: Himmel Bros. HARDWARE: Russwin/ Stanley/LCN. INTERIOR MATERIALS: Flinkote/American Olcan. PAINT: Glidden. ELECTRICAL DUCTS & WIRING: Walker. ELECTRICAL EQUIP: Westinghouse. STANDBY EMERGENCY POWER: Cummins Diesel. LIGHTING FIXTURES: Prescolite, Tries, Peerless. PLUMBING FIXTURES, TOILET SEATS: Crane. HEATING VALVES, PIPING, CONTROLS: Crane. UNIT AIR CONDITIONERS: Trane. SPRINKLER SYSTEM & FIRE PROTECTION EQUIP: Grinnell. CEILING MATERIALS: Alcan Aluminum. WATER COOLERS: Halsey Taylor. MOVABLE PARTITIONS: Hauserman. MAIL BOXES & CHUTES: Millwork. FINISH FLOORING & CARPETING: Flinkote (All-Wool). FURNITURE: Tech Mfg./Herman Miller. DRAPERY HARDWARE: Kirsch.

RUBIN RESIDENCE, MARTHA'S VINEYARD, MASS. ARCHITECT: Peter Anthony Berman. (Materials and manufacturers as submitted by the architect.) ROOF MATERIALS: GAF Roofing TNA 200. GLASS: sliding doors by Arcadia. HARDWARE: Modric locksets and pulls, Rixson pivot hinges. PANELING: U.S. Plywood Sanspray. ELECTRICAL EQUIPMENT: switches, Leviton Centura. LIGHTING FIXTURES: Lightolier Lytespan and step baffles. PLUMBING FIXTURES: American Standard toilets and fiberglas bath basins; Crane Empress bath tub. UNIT HEATERS: Federal Pacific Electric Heaters. INTERCOM SYSTEMS: Miami-Carey Corp. KITCHEN, LAUNDRY EQUIPMENT: Refrigerator—Sub Zero; Range—Chambers Corp.; Washer and Dryer—General Electric; Dishwasher—Kitchen Aid. FINISH FLOORING AND CARPETING: Buckingham Virginia Slate and Lee Carpeting. FURNITURE AND SEATING: Stendig Dining Table and Chairs; all built in furniture and plexiglas coffee table designed by the architect. Coffee table produced by Just Plastics Inc. FABRICS: American Leather Manufacturing Co., Inc.; Boris Kroll Inc.; Don Karlin Fabrics, Ltd. Inc. DRAPERY HARDWARE: Kirsch Paneltrac.

READER SERVICE FILE

PRODUCT LITERATURE

To order material described, circle indicated number on self-addressed Reader Service Card, facing page

STEEL JOIST

Armco Steel Corporation has just published a new 48-page steel joist catalog, showing dimensions and properties, accessories, and steel joist institute standard load tables. Armco manufactures short-span and deep short-span joists, in 8 through 32 inch depths, with spans up to 64 feet, and long-span and deep long-span joists in 18 through 72 inch depths with spans up to 144 feet. On Reader Service Card, circle 200.

EXECUTIVE FURNITURE

R-Way's latest office furniture creation, the Greenfield Collection, is offered in a 28-page catalog. The Greenfield Collection offers a complete line of traditional Thomas Chippendale ball-and-claw styled office furniture. Along with the executive desk, there is a clasp-front bookcase, sofa, executive swivel chair, file cabinets, the credenza and modular bookcases. On Reader Service Card, circle 201.

FIRE PROTECTION

Construction for Fire Protection is a new 32-page American Plywood Association brochure that offers comprehensive information on wood and plywood systems. It is a quick guide to basics of fire protection, meeting building codes, insurance provisions, and building for fire protection in wall, floor and roof systems. The brochure is illustrated, complete with photographs, tables and construction diagrams. This is offered by the American Plywood Association. On Reader Service Card, circle 202.

PIPE INSTALLATION

A new 4-page folder describing Armstrong Cork Company's new FR/Armaflex and standard Armaflex pipe installation products has just been published. Armstrong Armaflex is a flexible elastomeric thermal insulation in-pipe installation form widely used on liquid cooling and heating lines. Armaflex prevents heat gain, condensation, and frost formation on cold lines and also prevents heat flow for liquid heating and dual temperature piping. The brochure is illustrated with photographs and charts, listing properties and recommended wall thickness for sweat control, among other information. On Reader Service Card, circle 203.

FLUORESCENT LAMPS

Verilux offers a 6-page color brochure describing the Veralux full spectrum fluorescent lamp which is a unique new solution to the color distortions and glare problems of regular fluorescent lighting. This new Verilux lamp reportedly produces illumination with all the visual characteristics of daylight. Colors viewed under Veralux light are truer because the light is a pure white light made up of a balanced blend of all the colors of the spectrum. This highly accurate rendition is important in such applications as laboratories, hospitals, art galleries, printing plants, fabric mills, supermarkets, and department stores. The brochure also points out that good quality, and not quantity, is a key to reducing errors in office work. On Reader Service Card, circle 204.

GRILL SYSTEM

Playground Corporation of America offers a brochure describing their new solid cast aluminum integrille system for indoor and outdoor fencing, curtain walls, enclosures, window openings and other architectural, interior design, and landscape uses. Illustrated are typical integrille applications in outdoor screening, shelter wall design and space dividers. Detailed specifications are given on the available sizes, physical properties, and customizing possibilities of the new structural design system. On Reader Service Card, circle 205.

PRECAST CONCRETE

How the use of firesafe precast concrete floor and roof slabs helps make high-rise, low cost, wall-bearing apartment buildings practical is shown in a 16-page booklet from the Flexicore Company, Inc. It describes the simple construction methods which allow other trades to follow up masonry crews immediately. Diagrams and photographs are used extensively throughout the booklet. On Reader Service Card, circle 206.

DOCK LIGHTS

Expanded line of Kelley Dock Lights with a size and configuration for every application is described in a new bulletin issued by Kelley Company, Inc. Specifically designed for loading dock applications, the lights are available with single, double or triple arms up to 90 inches in length. A new suspended model is also included. The lights feature spring-mounted housings which deflect on impact, protecting the bulbs and housing when struck by fork trucks or loads. Dual pivot elbows permit light arms to fall back on themselves without pinching the cord. Light cords are completely enclosed inside the arms to prevent being hooked or snagged by material-handling equipment. On Reader Service Card, circle 207.

PARKING LOT EQUIPMENT

Blueprints for Parking is a 16-page booklet by Kean Corporation's Coin Handling Division. According to Kean, the booklet will contain all the essential information needed to establish and operate a successful parking lot, either private or municipal, large or small. Included in the brochure are tested and proven designs for parking lots, as well as advanced equipment available. Solid state parking gates, magnetic card key entry and exit devices, and automatic ray computing ticket equipment are examples of the products described and illustrated. On Reader Service Card, circle 208.

PE VE CLAIR SHEETING

A new four-page color brochure from Sonobat features applications of corrugated and thermoformed Pe Ve Clair Rigid PVC sheeting. There are illustrations of a number of structures using transparent, translucent and opaque sheeting. Major applications pictures such as roofing for Equestrian Stadium at the '72 Olympic Games and the Ice Palace in Berne, Switzerland. Pe Ve Clair sheeting was developed specifically for outdoor applications. On Reader Service Card, circle 216.

U-SHAPED LAMPS

A new catalog describing the Endon® line of fluorescent U-Shaped lamps is offered by Voltarc Tubes, Inc. The catalog fully describes the labor, installation, and electrical component savings to be realized from the use of U-shaped lamps for many types of signs plus building fascia displays. Specifications for the complete line are given along with typical mounting data. On Reader Service Card, circle 217.

COLD STORAGE DOOR

A new bulletin describing the Clark Single Vertical Sliding Cold Storage Door is available from Clark Door Co., Inc. Included with the descriptive details are specifications, drawings and photographs. Designed in three thicknesses of urethane insulation to meet wide temperature variations, the door is recommended for use where loadout doors are required or there is insufficient space for horizontal doors. On Reader Service Card, circle 218.

QUARTZLINE LAMP

A 16-page publication contains a series of concepts in the form of drawings and brief descriptive captions, dealing with a wide variety of potential uses for the lamp. G. E.'s 250-watt PAR-38 Quartzline® lamp can be used to advantage in industrial, office, merchandising, school and museum lighting applications. On Reader Service Card, circle 219.

CONTROL SYSTEMS

An illustrated brochure describing the MLS 400, MLS 200 and MLS 50 control systems for building automation is available from Robertshaw Controls Co. It describes the major capabilities and functions available in each of the systems. On Reader Service Card, circle 220.

EXHAUST SYSTEM

Kent-Moore Corp. has an eight-page brochure outlining the Monoxivent Exhaust Eliminating Systems. Covered are such topics as basic factors, engineering and layout service. Under and above floor systems are covered. On Reader Service Card, circle 221.

DRAFTING TABLES

Dietzen Corp. announces its new comprehensive brochure on its newest drafting table, Radical 1. The four-page brochure describes the features and capabilities of the table. Complete specifications are included. On Reader Service Card, circle 222.

READER SERVICE FILE

Product Literature

PRECAST RESINOUS PANEL

Ar-Lite was introduced by Architectural Research Corporation. It is a lightweight, insulated, precast building panel which is based on the principle of substituting copolymer resins for cement and is used as a wall on new buildings or remodeling of existing structures and facades. Also included in the brochure are specifications data on Ar-Lite aggregate panels, manufacturer and test data, and installation data. On Reader Service Card, circle 209.

SECURITY SYSTEM

Powers Regulator Company offers a 4-page bulletin describing in detail the Sentry 270 for alarm annunciator and status indication. The 270 is a new modular solid state enunciator and command system for monitoring contact detection devices, such as freezestates pressure switches, security or fire detectors. The bulletin describes how the Sentry 270 can safeguard property, conserve manpower, centralize reporting and command equipment. The total system description is given in a 1-page graph, including equipment dimensions and wiring diagram. In addition, specifications and description of operation are also included. On Reader Service Card, circle 210.

URETHANE ROOFING SYSTEM

The Specialty Products Division of Carboline Company announces the release of a new 4-page brochure describing Ruflex Membrane 145. This bulletin details the advantages and usage of this proven one-step, one-coat controlled process elastomeric urethane roofing system. The bulletin lists the unique properties of Ruflex. Illustrated application procedures, specifications, and reference projects are included. The safety and ecology features of this unique roofing system are discussed. On Reader Service Card, circle 211.

SOUND ABSORPTION

Acoustasorba, acoustical space units, is introduced by United States Gypsum Company in a new brochure. This space unit can provide needed industrial sound absorption where other means of reducing plant noise are prohibitively expensive. When suspended over noise-producing equipment, these mineral fiber units absorb the reverberant energy within a space, thus reducing overall noise levels within the plant area. Both sides of the mineral fiber pads are exposed to absorb sound energy. In-plant tests show that Acoustasorba space units reduce noise up to seven decibels, a significant 50% decrease in sound pressure level. These lightweight Acoustisorber space units measure 24 x 20 x 1 inch within metal frames. Each frame is stamped with knockouts that pull up to form hooks for easy handling. The 4-page brochure contains installation directions and data necessary to estimate the number Acoustasorbas needed. Also included is helpful information about sound level requirements of the Occupational Safety and Health Act of 1970. On Reader Service Card, circle 212.

WALL SYSTEMS

Inland Ryerson offers a new brochure on Inryco™ wall systems. Thirteen panel variations for design flexibility are discussed. Also included are the advantages of steel. A summary chart of physical properties is listed, along with typical span data for insulated panels and uninsulated panels. There is a section devoted to performance and test data and suggested architectural specifications. On Reader Service Card, circle 213.

REPRODUCTION EQUIPMENT

Osay-Elliot introduces their comprehensive line of Diazo printers and microfilm ready printers in a 12-page full-color brochure. Diazo equipment shown ranges from high-production, fully automated print, fold and collate systems to low-volume, high efficiency print only machines. All Diazo products utilize a pollution-free developing method, which eliminates odors, fumes and the need for venting. Microfilm printers described are the Model 3600, for processing 35 millimeter microfilm strip, roll or cards and the 3650 microfiche table model with the unique advantage of printing from positive or negative film without changing supplies. Both units employ the electrostatic copying process. All products in the brochure are illustrated and include a description of major features, capabilities, speeds and basic specifications. On Reader Service Card, circle 214.

ROOF DECK

A new 12-page catalog on Zonolite® Insulating Roof Decks has been announced by Construction Products Div., W. R. Grace & Co. It includes "U" factor and load-span tables, sectional illustrations, and technical data and various vermiculite insulating concrete deck assemblies. Primary properties such as slope, nailability, strength, permanence, fire resistance and certification are discussed. Recommended guide specifications are included. On Reader Service Card, circle 215.

On Reader Service Card, Circle 311

ADVERTISING INDEX

On Reader Service Card, Circle 312

On Reader Service Card, Circle 313