THE INTERNATIONAL MAGAZINE OF ARCHITECTURE / OCTOBER 1973

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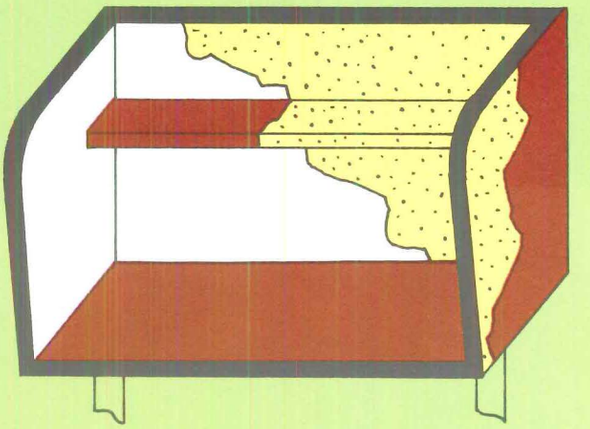

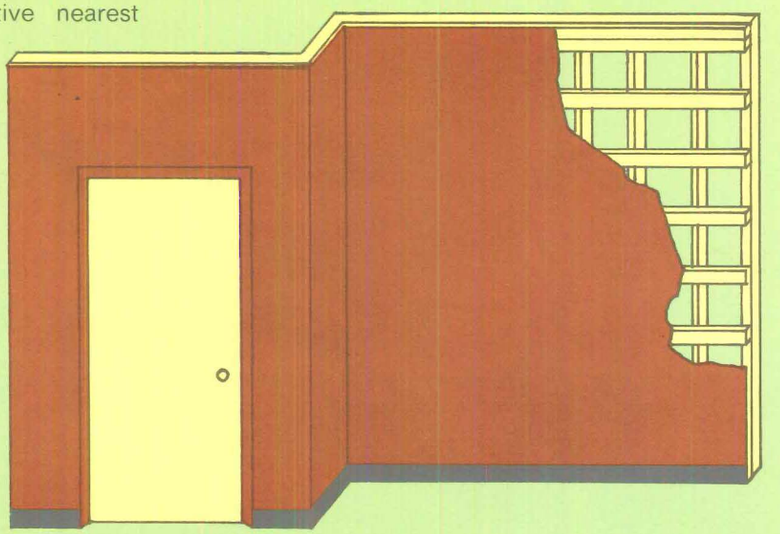

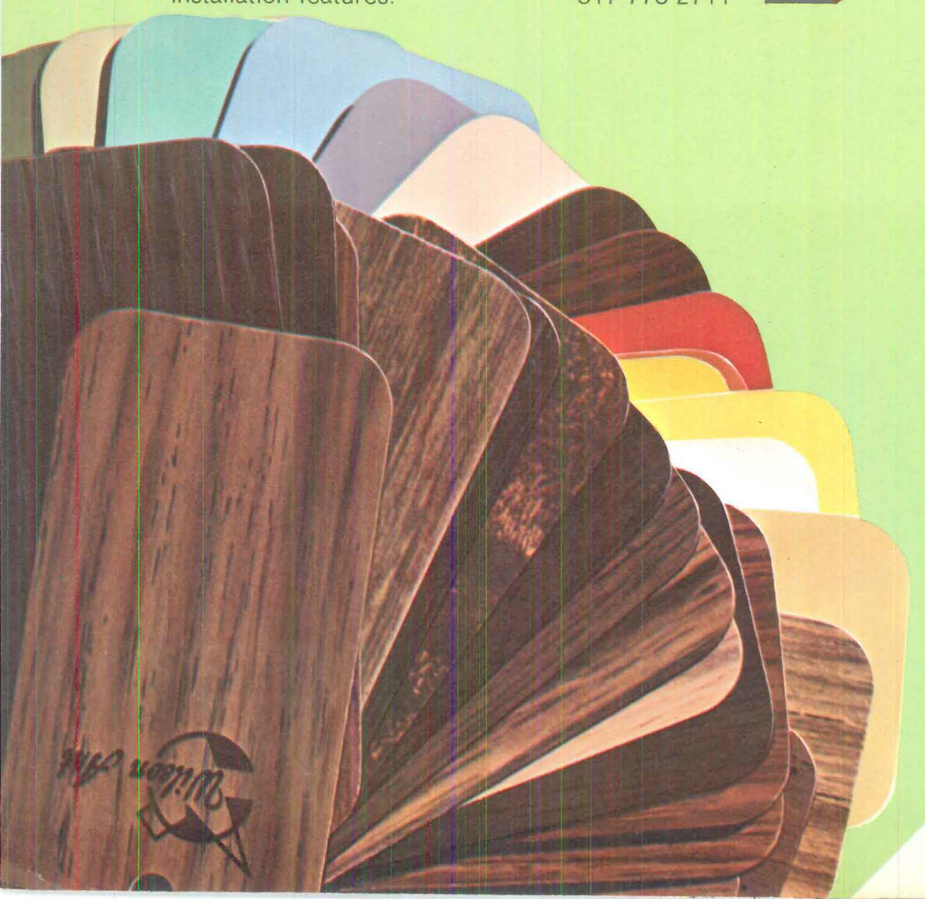

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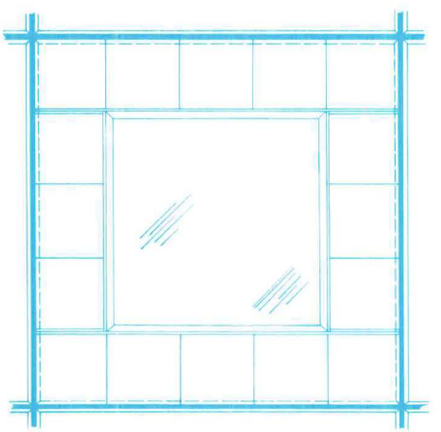
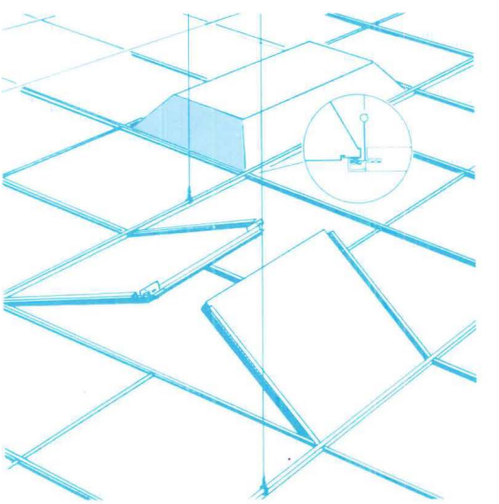
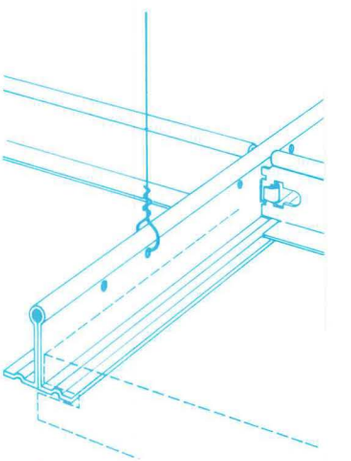


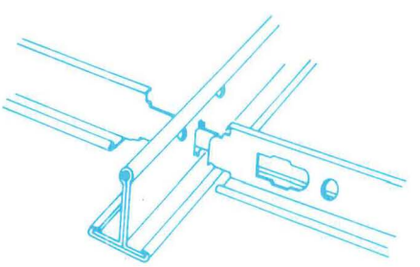
(a) Gemini+Plus, 5X5 module



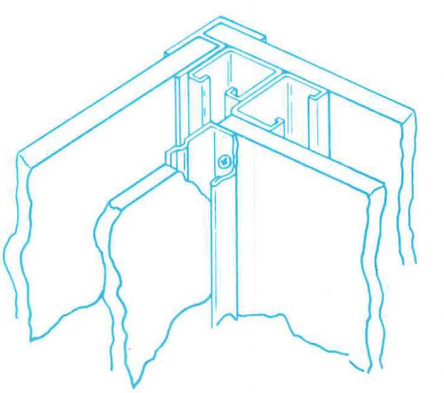
(b) TAB-LOCK 281, showing simplicity of assembly



(d) TAB-LOCK 281, beams suspend by wire directly from structure above



(c) TAB-LOCK, End tabs are secured locking tees in tension.



(f) E/S/P Demountable Wall System, inside/outside corner post assembly

Every one of them has either an E/S/P Demountable Wall System, or a Tab-Lock acoustical grid suspension system as its backbone.

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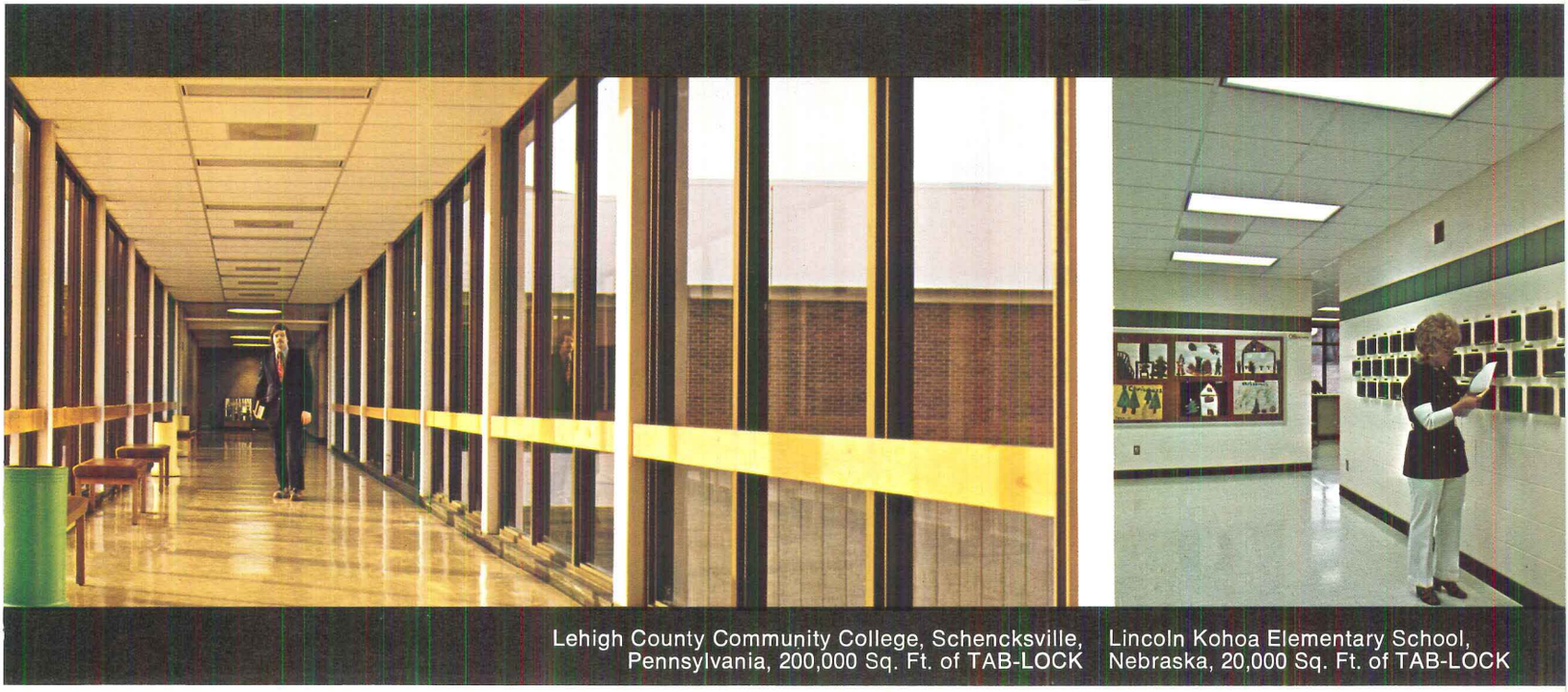
walls there's beautiful engineering.



Lehigh County Community College, Schencksville, Pennsylvania, 200,000 Sq. Ft. of TAB-LOCK

Lincoln Kohoa Elementary School, Nebraska, 20,000 Sq. Ft. of TAB-LOCK

E/S/P Demountable Wall Systems, for instance, are adaptable to practically any non load bearing vertical requirement, whether ceiling height or free standing, and will take any standard wall panels—gypsum boards, wood paneling, vinyl or metal laminates from 3/8" to 5/8". And E/S/P systems are fully compatible with all standard borrowed lites, door frames, electrical circuitry. Best of all, they install easily, and can be dismantled and reassembled. With E/S/P, building interiors stay functionally flexible for decades. Beautiful.

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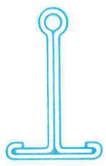

(e) TAB-LOCK FIRESAFE

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ARCHITECTURE plus

The International Magazine of Architecture October 1973

Cover photo of "Les Maradas" school by J.F. Gaudineau; J.P. Pancreac'h, architect.

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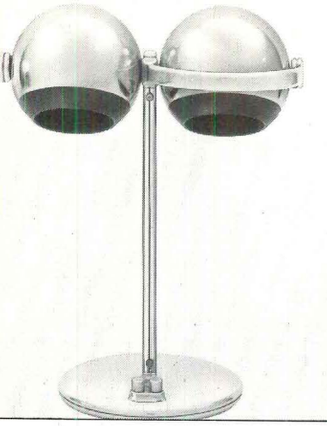
ERCO System Design lighting fittings for interior design



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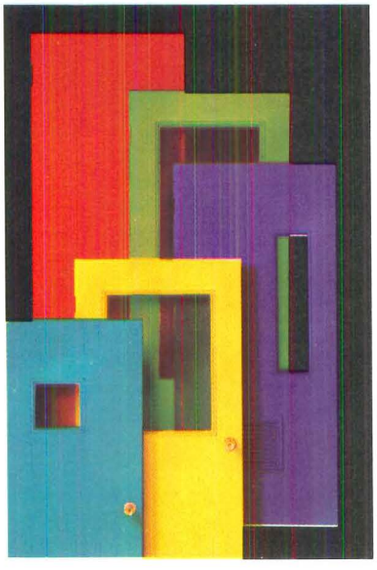

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Letters

Russian delight

We at the Union of Architects of USSR, Armenian section, are delighted with PLUS. It is beautifully arranged, illustrated, and printed. We were waiting for it with great curiosity and were truly satisfied. We look forward with anticipation to your future issues.

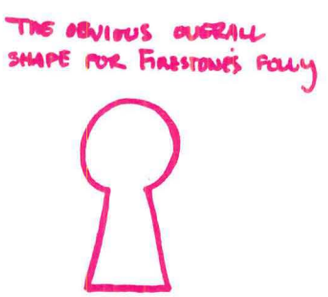
I would hope that you could play a prominent role in the days ahead in bringing the best thinking in the architectural profession.

STEPHEN AKSHIRIAN
Architect, Erivan, USSR

"Mission Impossible"

"Mission Impossible" . . . (July issue) the best editorial comment in the fifteen years I have been reading (sic) architectural mags.

WILLIAM SETH CURLIN
Architect, San Francisco, Ca.



For the first annual Architecture Minus competition, I have no entry; however, I should like to add a few suggestions. Consider a competition in which several architects can give their version of "early California Mission." The Administration could begin now to develop a special pen point to get just the right stipple on the drawings. Perhaps by the time the competition gets under way, the White House Staff will have gotten to the point. Someone at the highest level of the Administration can use this pen to sign the letter announcing the winner. After the drawings are completed, the pen point can go into the museum and the winning architect will probably get the shaft.

As far as the building itself is concerned, each circuit breaker should be wrapped with a miniature copy of the Constitution to define the separation of powers. In deference to the Press, all cabinet details should be revealed. The entire building might be covered with an air structure that could be erected and kept up for years by the inflation remaining at the end of the present Administration.

I hope these suggestions will find their way into the proper channels or be, as they say, deep-sixed!

DAVID VOELTER
Austin, Texas

It's not too late to enter our first annual "Architecture Minus" competition (see p. 13, July issue). Drawings are rolling in, nothing is being shredded, and we look forward to showing you the best of the entries in a future issue.—ED.

Baker House

I wish to compliment Architecture PLUS for the very enjoyable and thoughtful article by Stanley Abercrombie on Alvar Aalto's dormitory (July 1973).

The article illuminated some valid parameters for our work today rather than cliches.

ULRICH FRANZEN
Architect, New York, N.Y.

PLUS is excellent. I particularly enjoyed the July article on Aalto's MIT dormitory, both for its re-evaluation of a great building after a significant time span and because it may discourage further desecration by the MIT Physical Plant Department. Hopefully, it might even encourage future preservation and restoration of our country's major example of a masterwork by the greatest architect of our age. Humanity *is* heroic, survival requires it, and Aalto has always known this. His buildings demonstrate his concern for the human "spirit" by caring about how we "look at a river" and how our "fingers grip a handrail." To me, such caring transcends even exceptional imagination or innovation and can still restrain our inclinations toward architectural cynicism.

GENE WATSON
President, North Architectonics, Inc.
Chicago, Ill.

It was good to see Aalto's Baker House receive the belated but perceptive recognition given it in the July issue. In an era of rapid, perhaps excessive, transformation, Aalto's approach, toward "an architecture without formula, responding freely to the various determinants of given building situations," as Mr. Abercrombie so well phrased it, surely seems appropriate. Yet, paradoxically, in this same era of accelerating change we find the control and funding of building increasingly gravitating toward big government, big industry, big unions, big institutions. How we resolve these conflicting tendencies, how we harness the resources of our corporate democracy to support a flexible approach to architecture so that, unfettered by dogma, partisanship, or outdated preconceptions, we may respond clearly and directly to the opportunities raised by the dynamics of change, is one of the basic issues confronting us this decade. Its positive outcome could well bring forth a new humanism, one befitting our complex age.

EDWARD FRANK
Architect, New York, N.Y.

I have read your July article in Architecture PLUS on Aalto's Baker House on our campus and take strong exception to your unwarranted slur and misrepresentation of certain facts. For the record: 1. The Department of Physical Plant does not maintain dormitories on the MIT campus. This function is the responsibility of the Housing Office. 2. The installation of new windows was handled "sensitively" by Physical Plant, not by the Planning Office. 3. The Planning Office is not responsible for major alterations on the MIT campus.

I invite you to our campus and will personally accompany you on a tour of any of our academic and research facilities. If you still believe that Physical Plant "abuses MIT buildings," you should then feel free to print same. If not, I expect a retraction.

WILLIAM R. DICKSON
Director, Department of Physical Plant
MIT, Cambridge, Mass.

The article did not, in fact, say that M.I.T.'s Physical Plant Department "abuses M.I.T. buildings." It made no reference to the condition of any building other than Baker House. We apologize, however, for misunderstanding the M.I.T. bureaucracy. We understand now that Physical Plant is responsible for the maintenance of all M.I.T. buildings except *housing, and, as far as we know, all those other buildings are sparkling. Checking with Mr. Harry Portnoy, Senior Architect in M.I.T.'s Planning Office, however, confirms our original impression that the esthetic decisions involved in the installation of new windows were made by the Planning Office, although some mechanical aspects of the work were undertaken by Physical Plant. Our understanding also remains that the Planning Office has responsibility for major alterations. At least, the Planning Office thinks it does. The fact also remains that* some *agency at M.I.T. allowed Baker House to be in a state of disgusting neglect early last summer; we hope that condition was temporary.* —ED.

Sydney Opera House

Thank goodness for Eero Saarinen, etc., and/or whoever made Jørn Utzon's magnificent Sydney Opera House possible. As Alvar Aalto has stated, "In order to achieve practical goals and valid esthetic forms in connection with achitecture, one cannot always start from a rational and technical standpoint— perhaps even never. Human imagination must have free room in which to unfold."

Utzon exhibits a rare power of spatial organization, whether it be in the multi-dimensional form of the opera house or the rectilinear modeling of the Fredensborg housing estate in Denmark. He is a master of translating expressions of movement into three dimensional architectural forms.

This "expressionism" of Jørn Utzon's, Alvar Aalto's, Reima Pietila's, and Eero Saarinen's is a very valid and vital statement of today's architectural vision, and not, as Robin Boyd claimed, of a past generation's vision of the '50s. We desperately need a romantic vision today. We have finally realized the

continued on page 85

simplify pool construction eliminate major repairs

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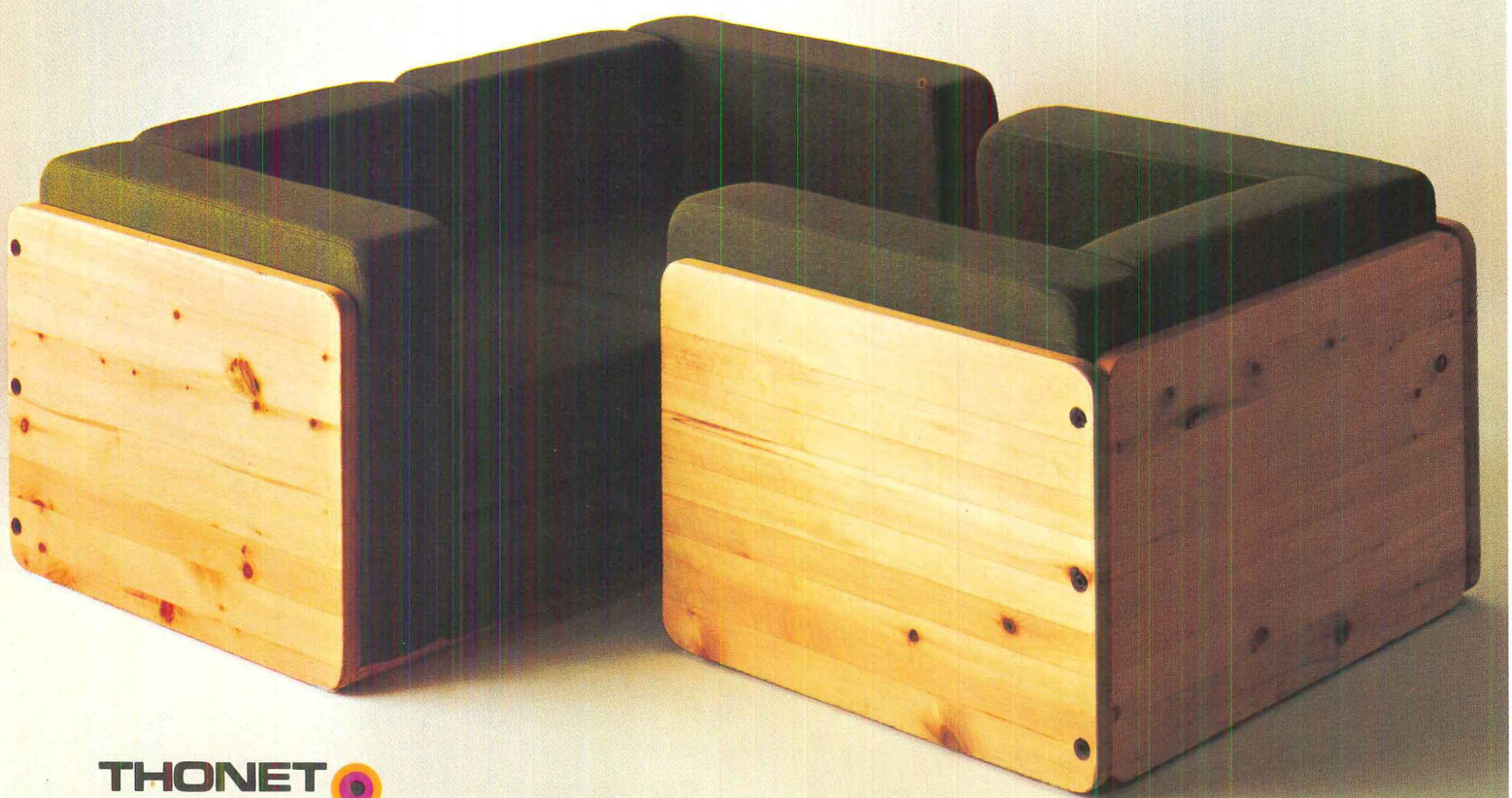


THONET
CENTER OF DESIGN

news+

Last month, the Government of India decided to cut back sharply on the number of foreign scholars who would be permitted to enter and work in that miraculous country. The reason seemed to be that certain Western scholars had practiced what certain Indian intellectuals described as "cultural colonialism"—that is, an attitude of condescension toward ancient traditions.

OK. Let's grant that there were some boorish "scholars" roaming along the shores of the Ganges, inspecting the natives as if they (the natives) were anthropological specimens. So what? There are plenty of U.S. boors similarly engaged in Europe, French boors similarly engaged in the U.S., and Japanese boors similarly engaged (one assumes) in the Middle East. Yet none of the countries thus victimized has enacted anti-boor laws. The way for a civilized nation to treat trespassing vulgarians is, quite obviously, to ignore them.

The Government of India has acted stupidly, and this is unforgivable. For if there is one gift that India has offered to the rest of us it is the gift of intelligence—plus the gift of humanity, civilization, and beauty. The Government of India does not possess the right to withhold its traditions from the rest of the world; and Prime Minister Indira Gandhi, a friend of ours and of all man- and woman-kind, knows this very well. Among the young people of the West, India has become a great and plentiful resource from which to build a new world. The Government of India—heirs to this century's everlasting Superstar—mustn't be allowed to act like all the rest of us idiots.—PETER BLAKE.

The experiment that failed

Last year, when 90 pounds of well-placed dynamite brought down two 11-story buildings in a spectacular display, the event (which lasted only a few seconds) almost got more international press coverage than anything else which has ever happened in St. Louis. Well, they haven't seen anything yet. The St. Louis Housing Authority and the U.S. Department of Housing and Urban Development (HUD) have agreed to blow up another 31 buildings next spring. And thus will end the long sad story of Pruitt-Igoe—that ill-fated group of 33 11-story buildings on a 57-acre tract.

Built by the federal government in 1955-56 at a cost of $36 million, Pruitt-Igoe was hailed as the ultimate achievement in an era of considerable spending on public housing. What went wrong? People will be asking that question for

Many of the news reports and comments are from our regular field editors: John Donat (London), Gilles de Bure (Paris), Detlef Schreiber (Munich), Vanna Becciani (Milan), Charles Correa (Bombay), Neil Clerehan (Melbourne), Yasuo Uesaka (Tokyo), and Leonardo Aizenberg (Buenos Aires). Plus correspondents are identified by their initials; other contributors by their full names. The remainder is contributed by our New York staff.

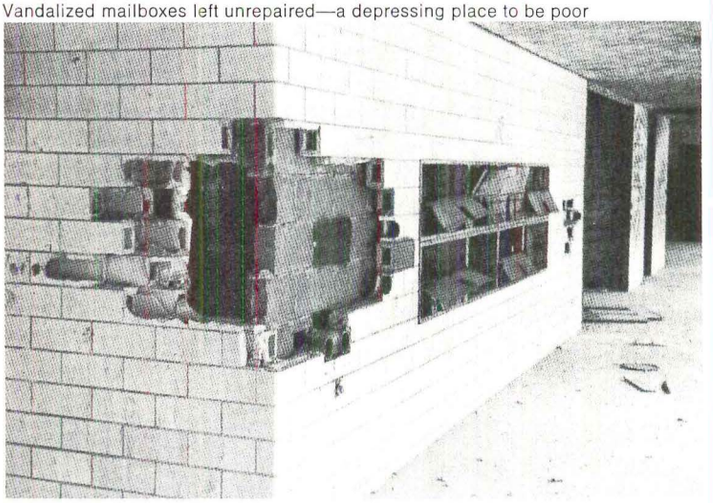
years. The author/sociologist Lee Rainwater, has said, in "Behind Ghetto Walls" (a story of the life of one P-I family), the Pruitt-Igoe project conformed perfectly to the "original logic of federal housing that by removing people from the slums and providing them with decent housing, their other difficulties would begin to disappear and they would be able to take advantage of opportunities to improve themselves." Who, at the time, would have argued with this?

Spacious breezeways provided a haven for muggers. There are no through-streets so police were not able to pursue thieves, who virtually nested in its nooks and niches. The crime rate was high; the tenants were like ducks in a shooting gallery. Maintenance was in some instances non-existent. Broken fixtures were not repaired.

When the tenant screening boards were discontinued, the project became a "dumping ground" for drug addicts. Other later projects in the city for "moderate-income" families lured away those who qualified, leaving Pruitt-Igoe with the poorest of the poor. The buildings which housed 10,000 people ten years ago now hold only 580 families as even the poorest poor have found better places in which to live. Many of these last remaining tenants will be housed by the city in the private sector in spite of opposition from various neighborhood factions. HUD has allocated $300,000 for their relocation. Assistant HUD Secretary H. R. Crawford said, "The reputation, condition, mounting costs—and indeed the stigma which has come to be associated with it—document the case . . . that Pruitt-Igoe should be vacated and razed."

George Kassabaum, co-architect of the project, said, "You had middle class whites like myself designing for an entirely different group." (Many of the families who moved into Pruitt-Igoe came from farms and rural shanty towns, and quite simply didn't know how to cope with life in an urban high-rise—to defrost their refrigerator one family lit a fire in it.) "I think," says Kassabaum, "it was an experiment that failed. . ."

Vandalized mailboxes left unrepaired—a depressing place to be poor



No interest in recycling

After a flurry of controversy that was animated even by Greenwich Village standards, the New York City Board of Estimate voted unanimously last month for the demolition of the former Women's House of Detention, which has loomed up behind the Jefferson Market since 1931 (top, r.). There has been pressure from neighboring block associations to tear the twelve-story building down, especially since the House of Detention was closed as a jail in 1971 and the Jefferson Market (now a branch of the New York Public Library by architect Giorgio Cavaglieri) was made a National Landmark.

The principal force behind those who called for demolition was the fear that the structure could, at any time internment facilities were needed, be reactivated. They did not find at all quaint memories of the shouted conversations held by friends of inmates from the sidewalk at any hour of the night.

Another group, which included Cavaglieri as what one Villager called its "most substantial voice," suggested that the building be converted to housing, perhaps for the elderly which the area needs badly. Five architects, including Cavaglieri, have done schemes over the years to explore the possibility of such a conversion.

One of the protestors against demolition, with a vigor that came close to causing her detention, argued for the building as a significant example of "Art Deco" architecture. The Landmarks Preservation Board, which also held hearings, was not impressed. It recommended demolition.

Prison for women standing foresquare (and empty) behind Jefferson Market tower

Still another argument was that the substantial construction of the jail, still basically sound, would cost "a million dollars" to tear down. The low bid was $380,000 and no one was at all sure what reconstruction costs for housing or other community use would be. At one point the New School of Social Research had been assigned the land on which the House of Detention now stands for expansion.

Even when that proved impossible because the school couldn't raise the money, the neighbors and the Community Planning Board insisted that demolition take place. There is no definite plan for use of the land now. Perhaps it will be used for an extension to the Jefferson Market Library or for a park. How about a debating corner? J.M.

Building with trash

What could you do with 183,000 empty Fresca cans, 124,000 used 7-Up bottles, 8½ tons of newspapers, a whole pile of fly ash, wood scraps and marble quarry tailings? For one thing, you could build a four-bedroom suburban house.

Reynolds Metals Company, with a little help from 30 companies whose construction products are made solely of recycled materials, has built a colonial style, tri-level house in a suburb of Richmond, Va., to prove the feasibility of producing conventional housing constructed almost completely (over 90%) with products that have served other purposes in an earlier life.

According to David P. Reynolds, executive vice president and general manager of Reynolds, "The important point is not that you can build at lower costs with recycled materials, although this may be true, but that we can have enough materials to build the homes we will need in the future. Virtually, no trees had to be cut for this home. No bauxite had to be mined . . . no copper or iron ore."

Practically all of the products used in this house are already available on the market, and the few which aren't soon will be.

No trees were cut to build this house

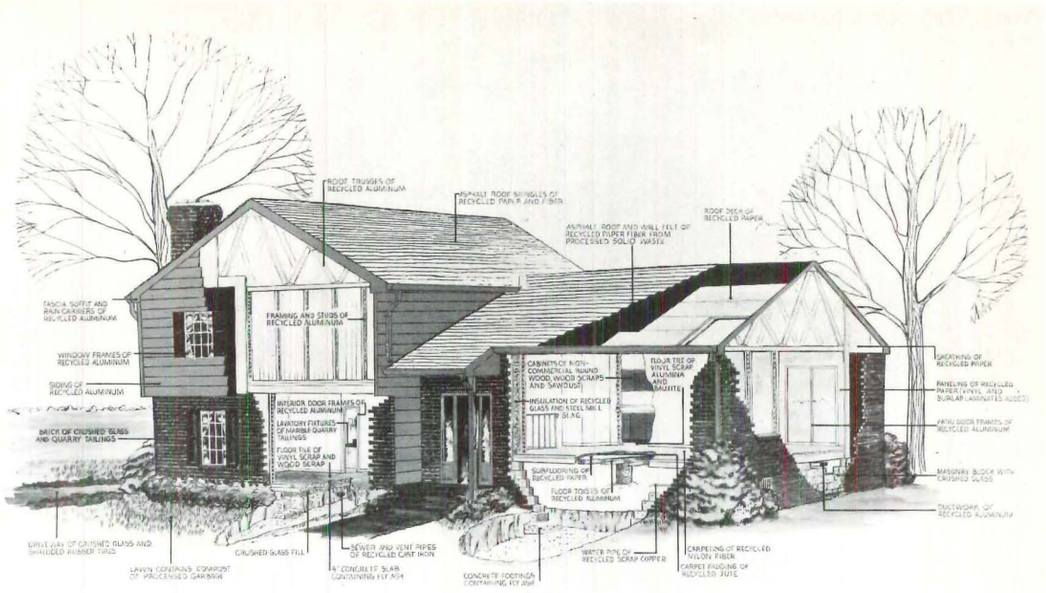
Sam Kornblau, president of Realty Industries, the construction firm which built the house, says, "A few problems are to be expected when working with unfamiliar products, but these were easily resolved. Actually, many of the materials were easier to work with than the ones we have been using." Mr. Kornblau also points out that aluminum "boards" have no knots, do not warp and will not house termites.

Framing, joists and trusses are aluminum from soft-drink cans. The driveway is reclaimed rubber and crushed glass. Glass cullet replaced gravel as fill under the concrete slab, and was used in the composition of the masonry block.

The bricks contain glass cullet and quarry tailings. Insulation is from waste glass wool and steel mill slag. Boards made of recycled newspapers were used for subflooring, sheathing and roof deck. Reclaimed paper fibers form the roof.

The asphalt shingles and cast iron sewer pipe used are recycled products which have been around a long time. The water tube is scrap copper.

The cabinets are scrap wood and sawdust fiberboard with vinyl finish; the carpets are reclaimed nylon fiber and the carpet pad, reclaimed jute sacks.



The fly ash used in the concrete was collected with air pollution control equipment at a coal-burning electric power plant. Bathroom fixtures are reconstituted marble quarry tailings.

Recycled soft-drink cans went into siding, doors, windows, soffit fascia, rain spouts and duct work.

At least one new product was born of this project: a floor tile of scrap vinyl plastic, with wood chips added for effect, was used in the family room, and the same tile with bauxite and *alumina* added was used in the kitchen.

The lawn was fertilized courtesy of New York City garbage, of which there is a bountiful supply.

All of the manufacturers represented contributed their products.

As for the design of the house —well, that too looks a little recycled. It cannot be distinguished by sight from the others in the neighborhood, which, of course, was the whole point.

King Kong in brown astroturf; Fay Wray in pink fiberglass

Island of the apes

Last year, when it became evident to the owners of Manhattan's Empire State Building that they had been or were about to be eclipsed by several new skyscrapers springing up around the world, suggestions to increase the height of the 1931 tower designed by Shreve, Lamb & Harmon were submitted by a number of leading New York architectural firms.

The latest proposal comes from an architect of our acquaintance: it is to add to the Empire State's height by implanting on its present top a 30-story replica, in reinforced concrete, of King Kong. The hairy Giant Ape (its exterior would be finished in brown astroturf) is to be filled with offices and luxury penthouse apartments; its head (which will revolve) is to contain a spectacular skyline nightclub, with the capacity to house 10,000 merrymakers; and the struggling lady clutched in the ape's fist (originally played by Fay Wray) is to be rendered in pink fiberglass, and will be illuminated from within—flashing on and off at two-second intervals in unison with King Kong's eyes—so as to serve as a beacon to alert airplanes as well as other scarecrows. A further precaution to prevent airborne disasters is King Kong's 50,000-decible roar, built into the addition by Muzak. This roar would be emitted at similar two-second intervals, and synchronized with the flashing lights. The roar will act as a foghorn, to warn airplanes when visibility is zero, as it usually is.

Our architect friend reports that New York's Board of Standards and Appeals has taken the proposal under advisement, and is expected to rule favorably before the end of this (or any other) month. The City's Landmarks Commission has already applied for landmark designation for the hairy superstructure—the first time a landmark (or, for that matter, an ape) will have been so designated, prenatally.

New York's Mayor Lindsay was unavailable for comment, but a spokesman at City Hall pointed out that the proposal was further evidence of New York's undimmed vision, vim, vigor, and urban imagination; and that, in keeping with the city's devotion to sexual equality, a similar addition—a 30-story replica of *Queen* Kong, brandishing an illuminated blue scale model of the (male) editor of this magazine—is being considered for the top of the Chrysler Building, hoisted, as it were, on that structure's petard.

Inigo Jones: vanished

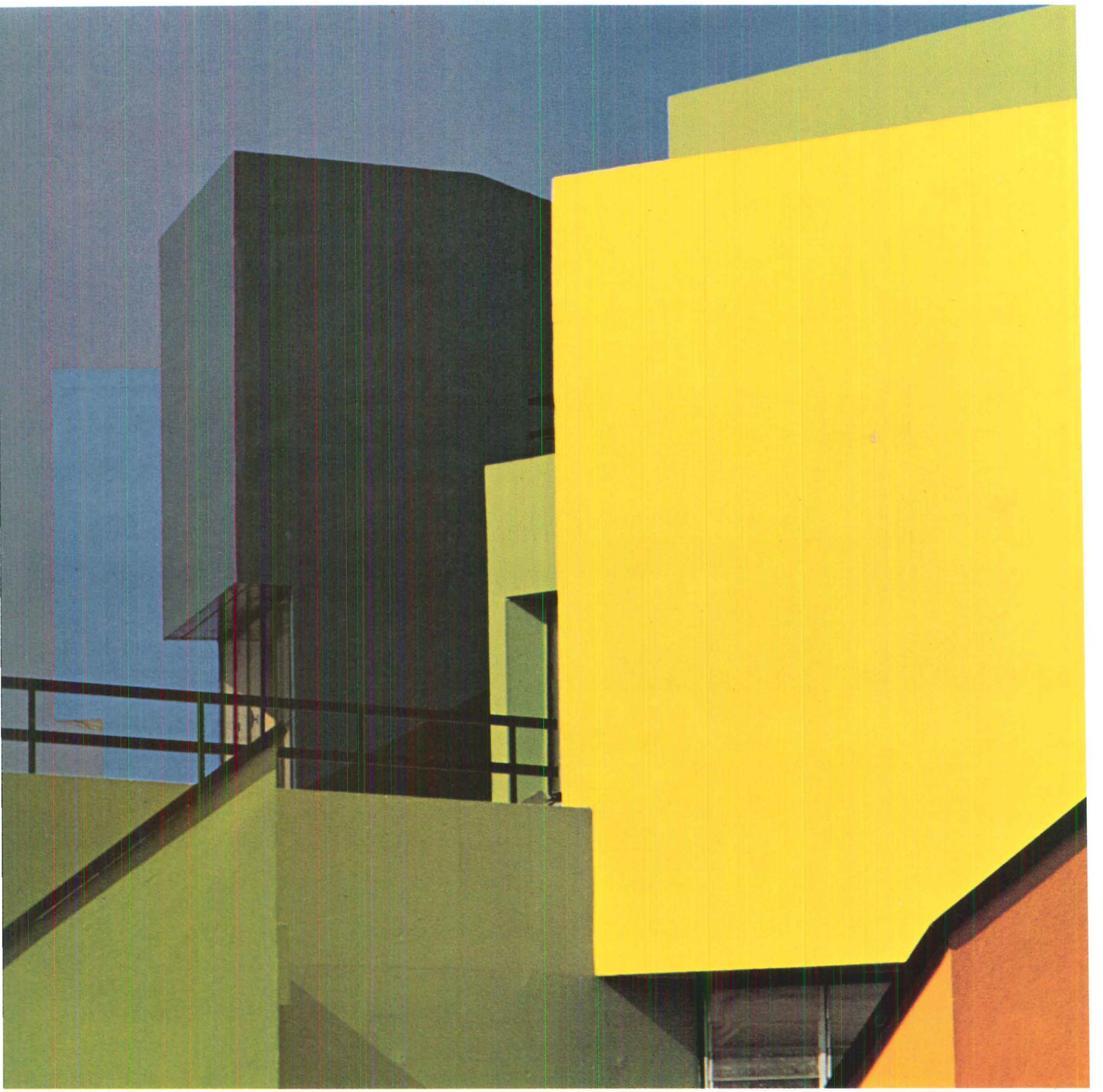
The work of an architect should have a certain permanence. The work of Inigo Jones, the architect who was born in London a few years after Shakespeare and whose 400th birthday is now being celebrated, is represented in that city by only four remaining buildings: the columned Banqueting Hall across from Whitehall; the red-brick St. Paul's; the Queen's House at Greenwich; and a private chapel in St. James' Palace.

The Arts Council of London has mounted an exhibit in the Banqueting House of sketches and books, this being nearly all that is left of the work of a man who was architect and King's Surveyor to both James I and Charles I, and who was master of theatrical revels to the Stuart court (he introduced the proscenium arch to English theater which had been using only Elizabethan theater-in-the-round). He also brought from Renaissance Italy the porticos and pillars of architectural classicism, and thus changed the face of Tudor London.

Inigo Jones (1573-1652) is known as Britain's first architect. "With all due respect," wrote John

continued on page 70

Inigo Jones; a self-portrait



The powerful hum of color

By Gilles de Bure

A school in the new French town of Cergy-Pontoise by architect Jean-Pierre Pancreac'h shows the effects of consultant Jean-Philippe Lenclos' exuberant use of color to boost the visual impact of the area and its architecture. Photograph: Jacques Dirand.

"As early as 1910, I knew about the bracing quality of chalk white. Practice showed me that the joy of white explodes only when surrounded by the powerful hum of color."—Le Corbusier.

To this day, color has been used by architects primarily as punctuation in the architectural vocabulary. This frugal use of color is nothing but the result of a badly digested functionalism, of a rigorous concern with "necessary" architecture and with nothing else. In such a context, color connotes shallowness, decoration, and frivolity. Yet lately one can witness all over Europe (even in France, home of logic and moderation), a return by architects to color, as if to a primordial element. Men such as Emile Aillaud and Barcelona's Ricardo Bofill, trying now to endow the landscape with colored spaces, recognize that color is not only an esthetic force, but also a language. It is this language that Jean-Philippe Lenclos is attempting to codify.

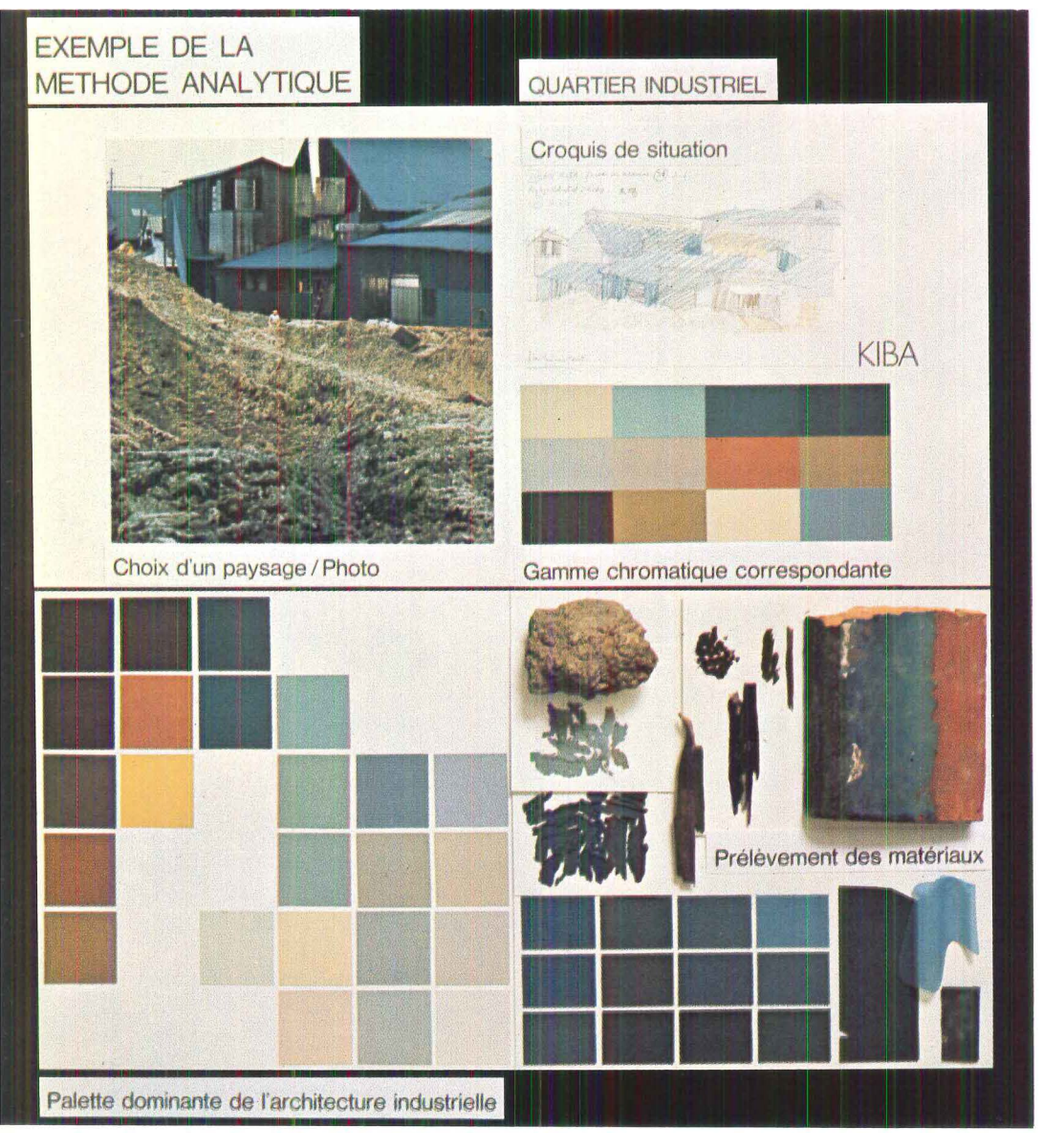
In 1965 Lenclos became Art Director of I.P.A., the first French company producing heavy duty paint. He gave I.P.A. a company image, designing its trademark, its graphics and packaging, as well as its color charts (among the most extensive and diversified ever produced). From this experience with products, Lenclos then directed his color studies towards architecture in France, where there is, of course, an extreme diversity of climates, from Nordic to Mediterranean, and a corresponding diversity of building materials adapted to local weather. In traditional settings, the only important color comes from these materials themselves, with the addition of other colors limited to secondary painted elements such as doors, shutters, and iron work. These added colors have too seldom been chosen with their natural context in mind. "In the last ten years," Lenclos says, "the countryside has been invaded by a slow, new, and totally arbitrary use of color." His aim is "not to produce a stereotyped system to be imposed on the inhabitants, but to help them discover the quality of their visual inheritance, so that their contemporary buildings will not be alienated from the existing beauty."

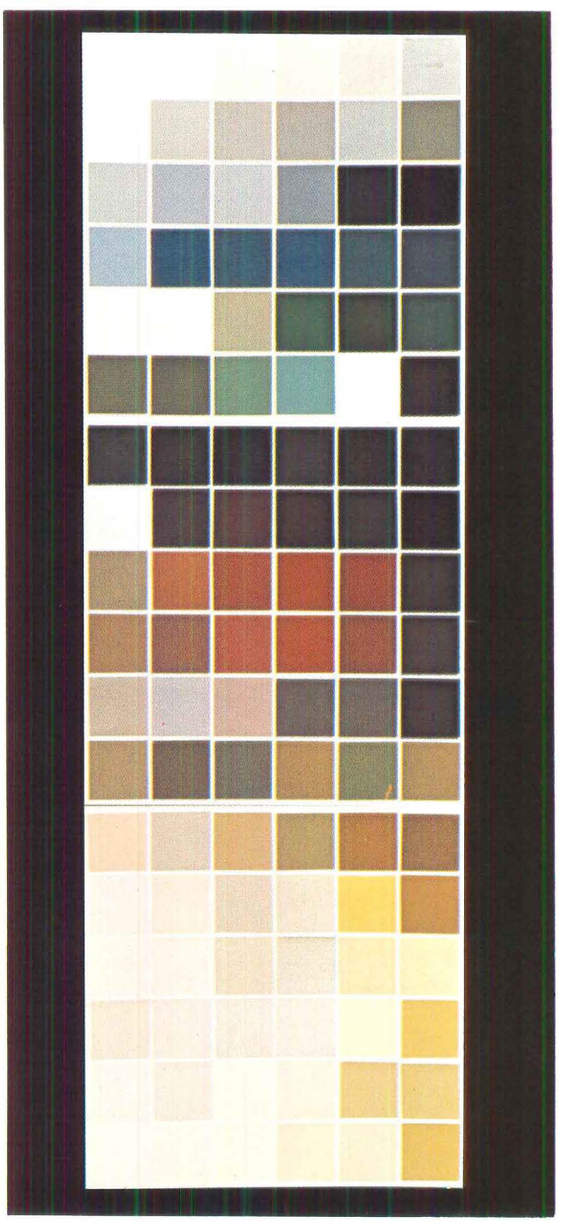
His method of investigation is simple and objective. For a specific site, he chooses the architectural group or the one particular building which seems to exemplify the color of the area. He records his subject with color drawings and color photographs; then, with a palette knife, he carefully lifts material samples directly from the buildings. Back in his studio, this information is translated into sophisticated sheaves of color plates appropriate to the area. They would show, for example, that the north of France favors certain brick reds, while the Loire country, with its stone walls, cherishes soft and mild grays.

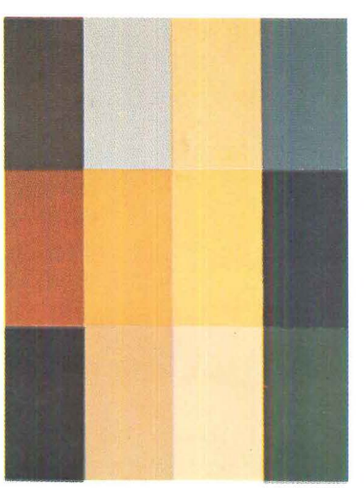
The same method was used by Lenclos in a 1970 color study for Tokyo, for which he divided his subject into four areas: the old city (traditional building); the new district (modern building); mixed, transitional areas; and the industrial zone. Such division demonstrates Lenclos' acknowledgement that, often, buildings are no longer surrounded by nature but by other buildings. In these cases, just as in traditional ones, Lenclos feels the role of color is a vital aid to architectural intent and should be considered at the beginning of any creative program. At work now, in just such a way, on a grammar of color for the new town of Vaudrevil in Normandy, Lenclos insists that, "If color is part of the conception, it cannot but exalt the architect's purpose."

Gilles de Bure is Paris Field Editor for Architecture Plus.

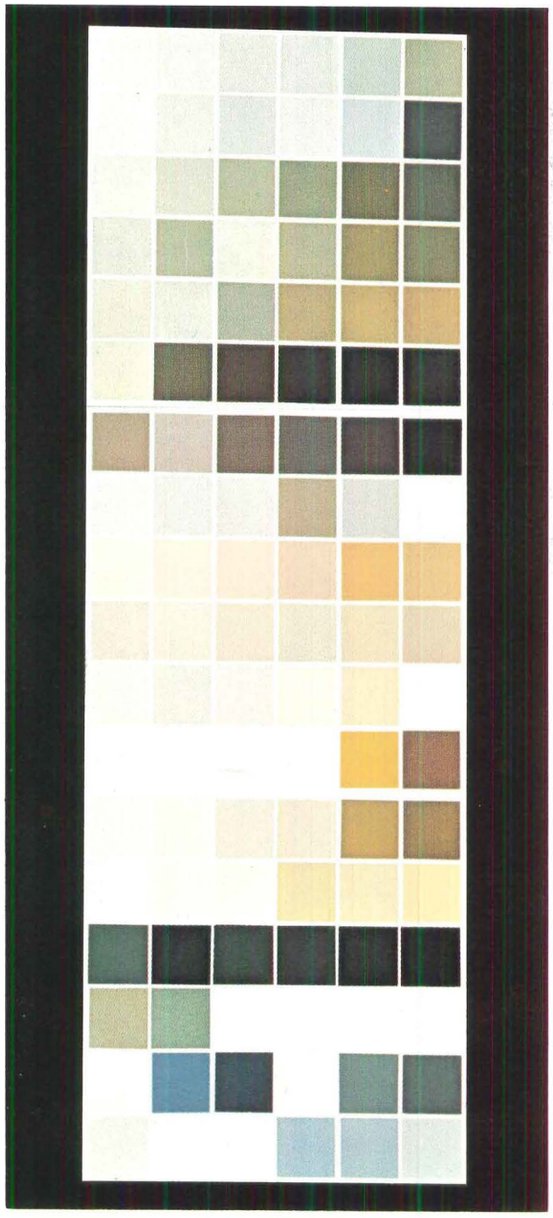
On these two pages, part of Lenclos' Tokyo color study.
A typical board displays photographs, actual
material samples, and predominant colors taken
from one of Tokyo's industrial quarters.
Below, a house in the traditional quarter of Ueno,
and a chart of the color palette derived from it.
At right, a scene in one of Tokyo's areas
in transition, Akasaka Mitsuke, above a panel
of colors Lenclos judged to be dominant in the area.

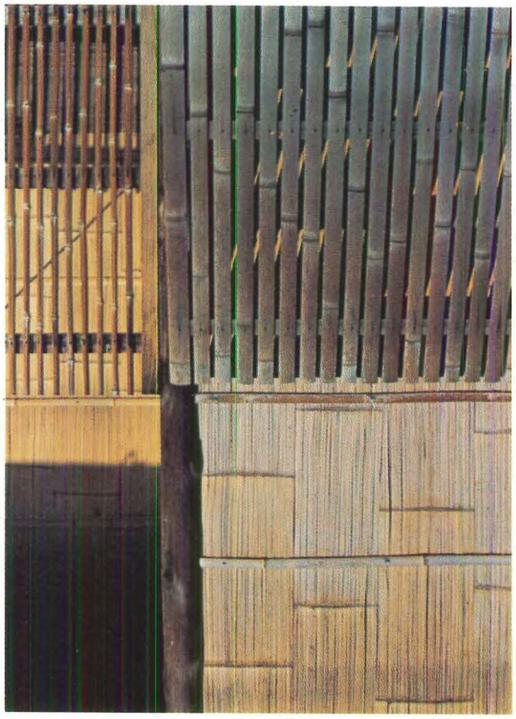


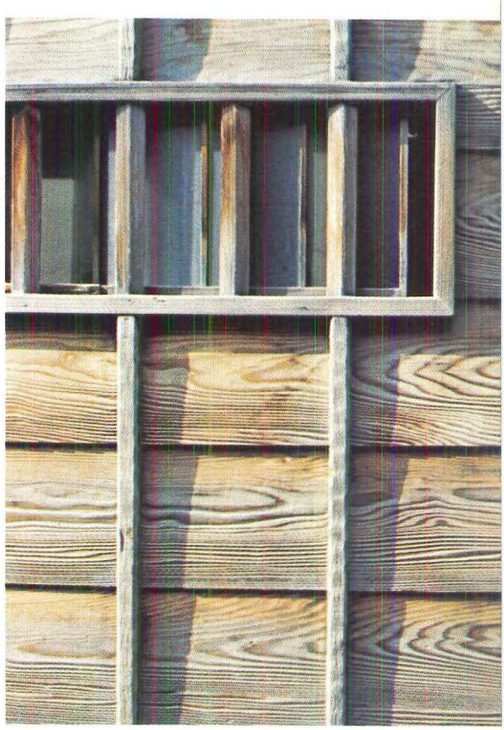


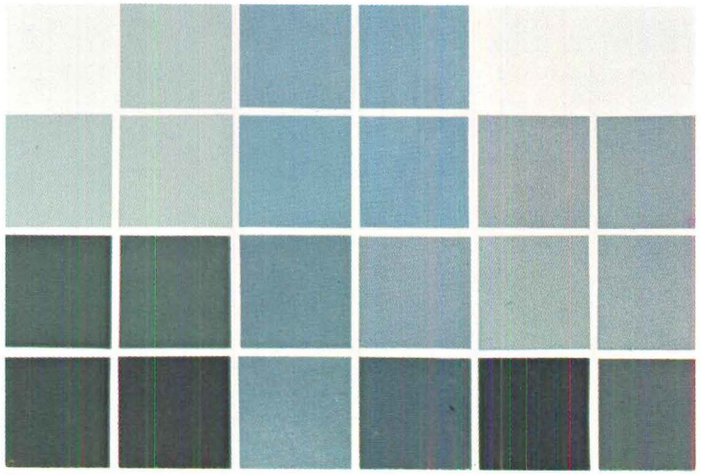


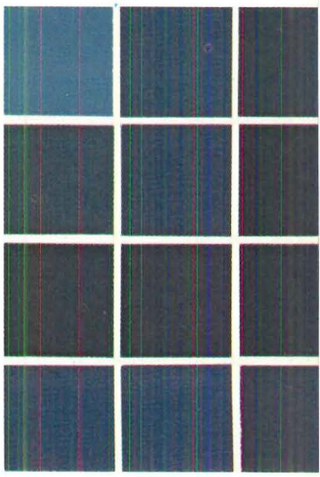
Left, a street in the new area of Tameike, and colors found to be typical of all Tokyo's modern areas. Immediately below, four examples of the photographs of Tokyo building materials taken by Lenclos. Below, two of the 14 color palettes which the study produced as a guide for future building. 333 selected colors, distributed among such palettes, graphically represent Tokyo's color characteristics.





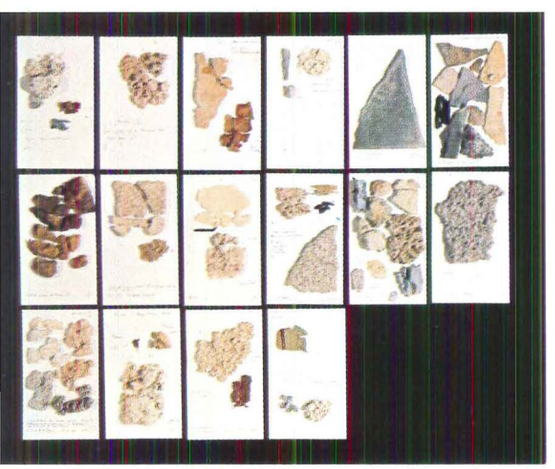


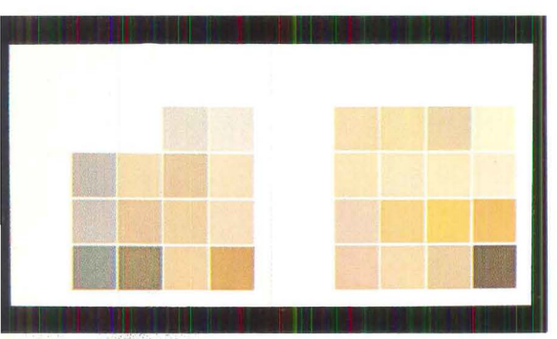


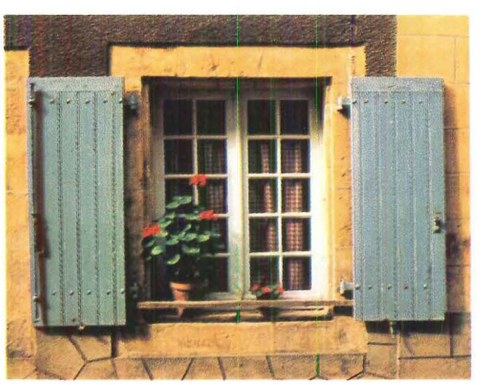


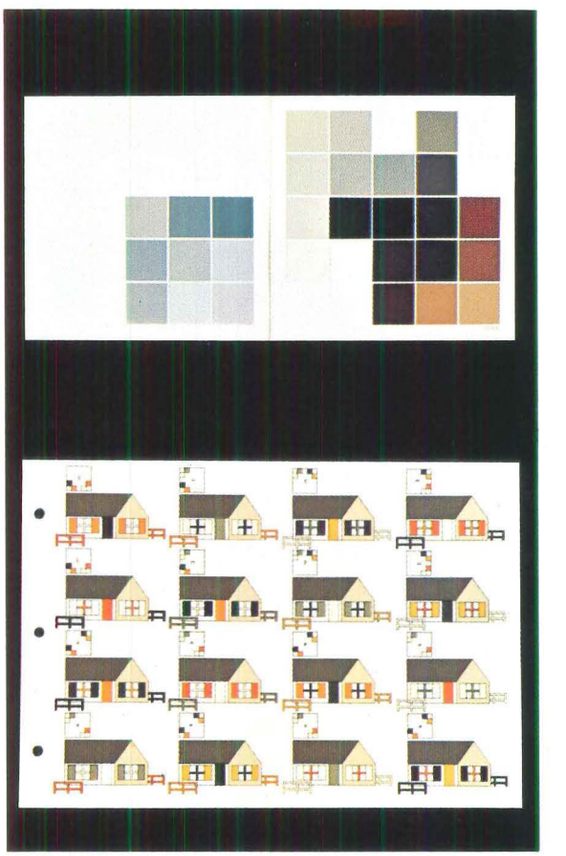
Details of Lenclos' color analysis of French building. Below, the village of Sarlat, one of the locations chosen as typical of France's Dordogne area, material samples lifted from the buildings of Sarlat, and colors taken from the samples to represent colors of Dordogne façades. Below, a photograph used in determining typical roof colors.

Below, walls and shutters in the area, and jars showing the range of color in collected earth samples. Right, a palette of colors typical of those used for painting shutters in the Dordogne, a board of elevation diagrams illustrating a few of the recommended color combinations, and, below, one of the many photographs used to determine the colors most frequently used for window frames. Photographs here and opposite, above: François Puyplat.

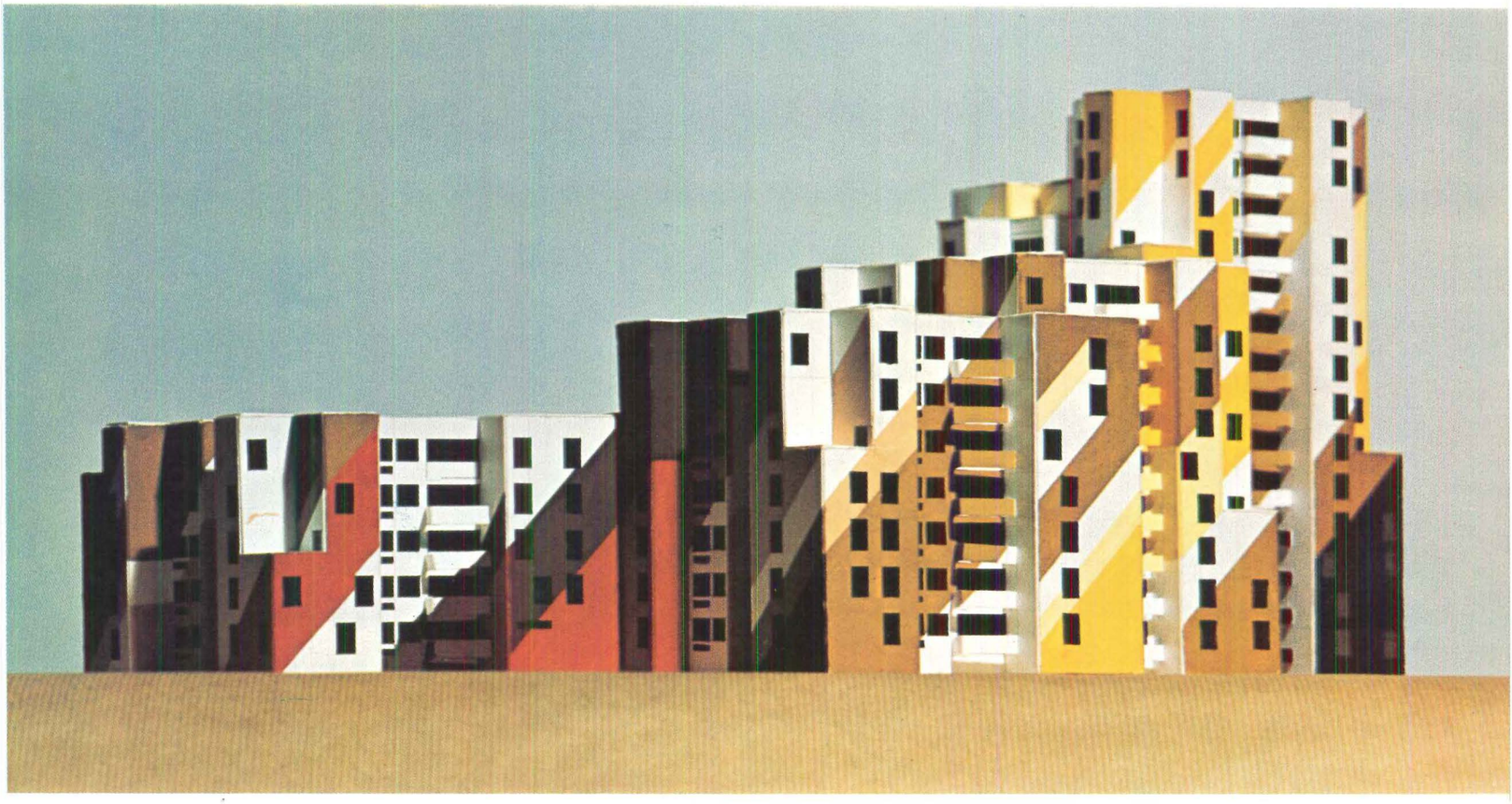


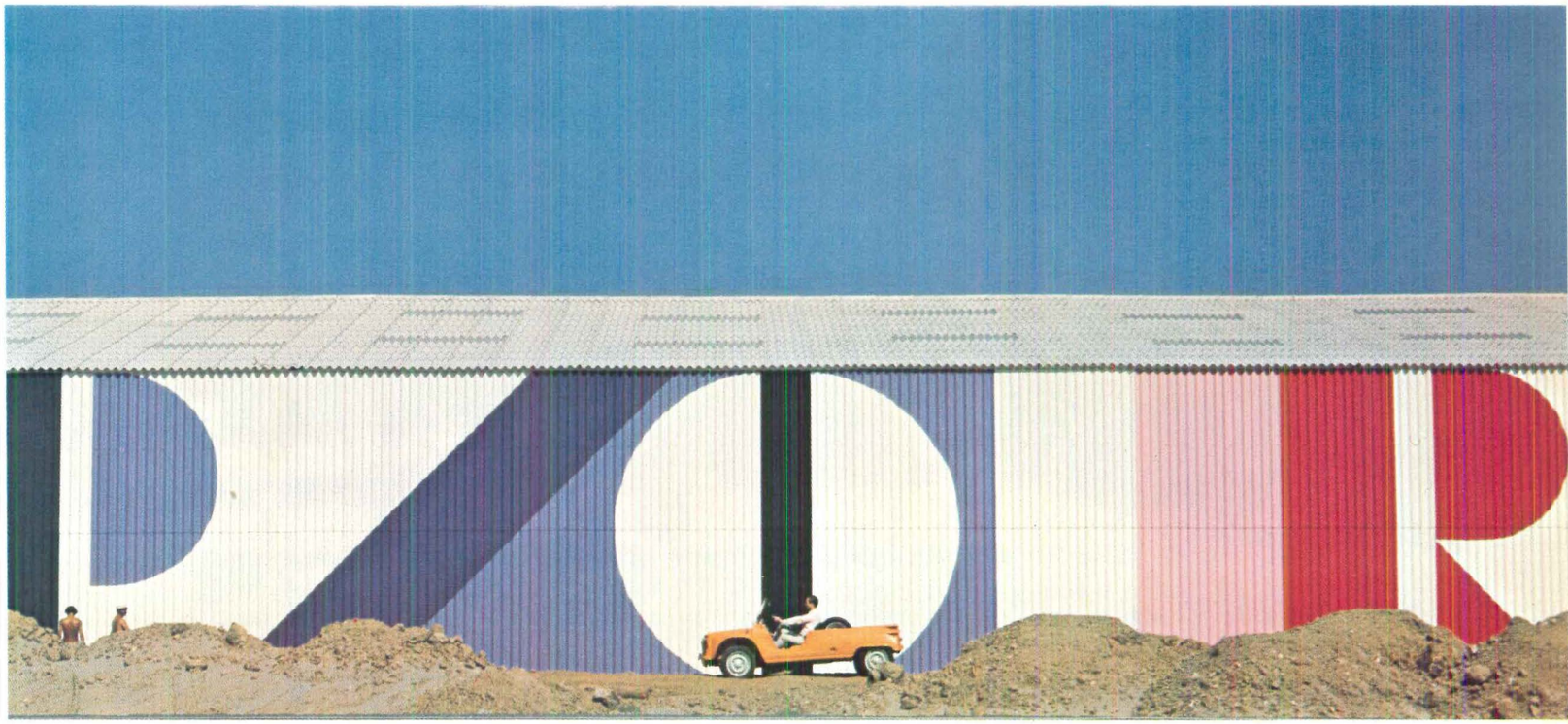






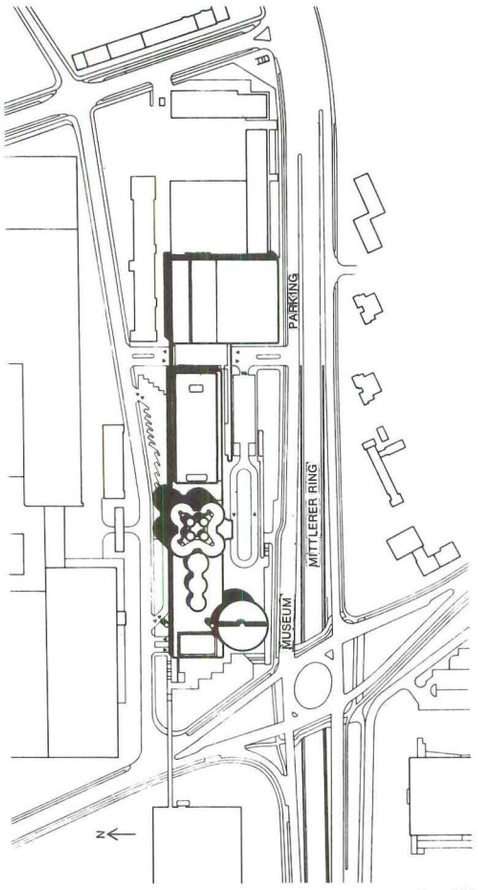
Above, the first model in a series of color studies by Lenclos for apartment buildings in France's new town of Creteil. Architects are Jean-Claude Bernard and Wladimir Mitrofanoff. Below, painted "supergraphics" using Lenclos' color prescriptions on an industrial building at the naval shipyard of Port Barcares. The building façade faces the Mediterranean near the French city of Perpignan.





BMW goes Pop

The 20-story, four-cylinder tower for the Bavarian Motor Works is the world's biggest work of pop sculpture to date, and possibly one of the world's best.



SITE PLAN

When you drive east on the Mittlerer Ring expressway, past Munich's spectacular Olympic Stadium, the apparition shown on these pages suddenly looms on your left. At first it seems to be some super-colossal gasoline pump, plonked down on the edge of the expressway by the sculptor Claes Oldenburg or one of his peers; but as you approach the tower, the image changes: it becomes a sort of four-cylinder engine, cast in aluminum, and even more colossal than you first perceived it. It is, in fact, so massive that it tends to overshadow the neighboring Olympic Center—and that one is a very tough act to overshadow.

The aluminum four-cylinder is, of course, the new administration building for BMW, one of the world's great manufacturers of automobiles, motorcycles, and other related bits of hardware. And the BMW tower, with its four clustered pistons, and its H. G. Wellesian superstructure, is a worthy symbol of what its owner is trying to sell: power, progress, and prestige.

In the days, long ago, when sacred and profane architecture were practiced separately, the BMW four-cylinder tower would have been ruled *hors de concours;* but ever since pop started to shack up with MOMA, there has been a relaxation of tensions, and a new infusion of imagination: any Work of Architecture that also advertises its owners' products is no more an anomaly than the Statue of Liberty (which advertises Democracy, American-Style); and so this four-cylinder piece of hot-rod hardware, 19 stories tall, is entitled to serious, critical evaluation, as a significant work of architecture in the 1970s.

So here we go.

To start with, how did this wonderfully crazy building get under way? After all, General Motors had got Eero Saarinen to do their very distinguished piece of industrial-design packaging for them 20 years earlier; and Mercedes had got Egon Eiermann to do a Miesian pin-stripe job for them. Why didn't BMW just retain someone eminently efficient, like Friedrich Wilhelm Kraemer, to design a Proper Corporate Image?

The ways of corporate action are often mysterious; in any event, BMW decided not to go the proper route, but to invite seven teams of architects, in the summer

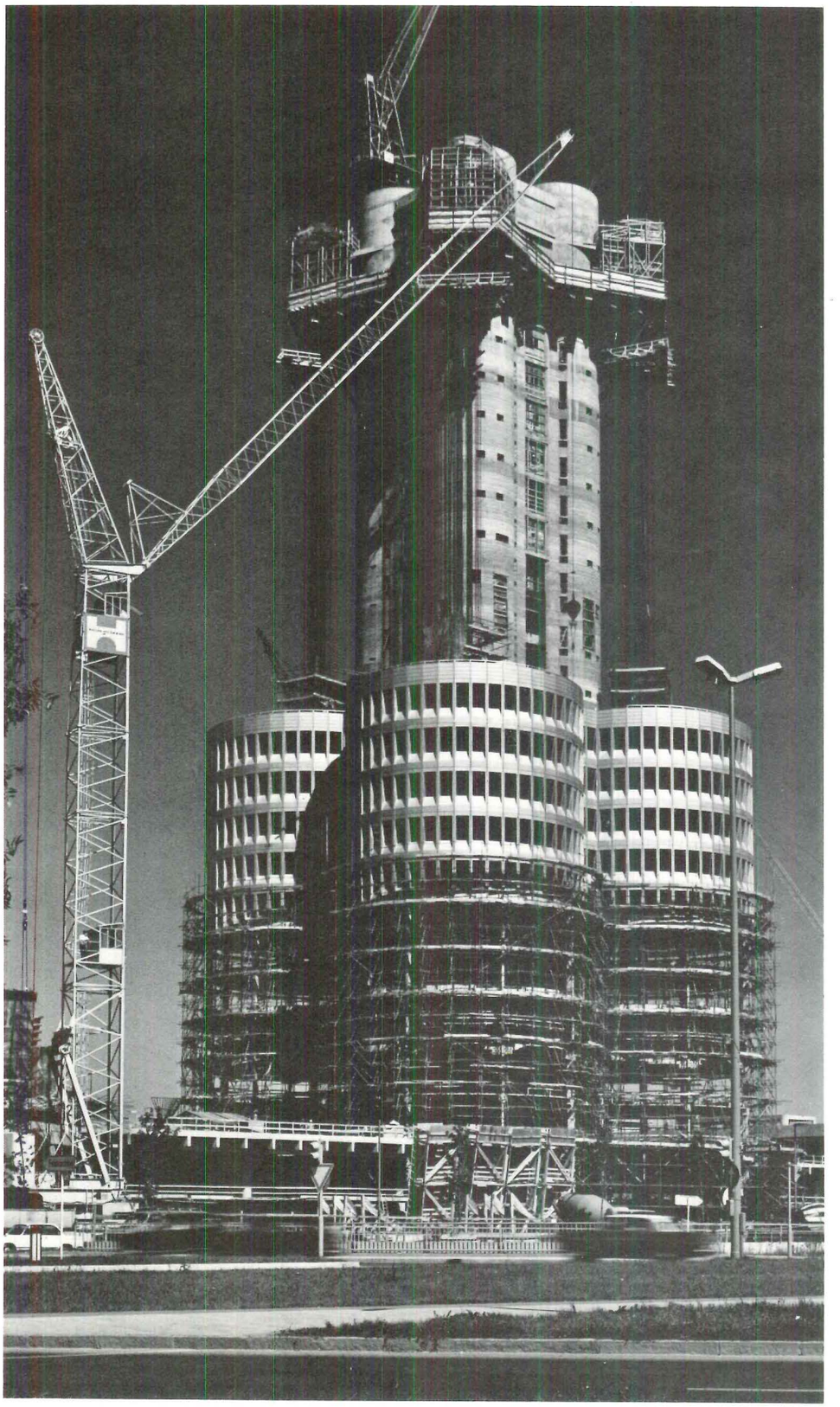
of 1968, to compete for this important commission. Karl Schwanzer, the distinguished Viennese architect, won out; and last May his BMW complex (the four-cylinder, plus the goblet-shaped museum, a 1600-car parking garage, and a 400,000 sq. ft. service facility or podium) was officially opened.

The most interesting of these structures is the four-leaf-clover, or four-cylinder tower. Not only is it a delightful symbol of automotive engineering; it is also an extraordinary piece of adventurous structural design.

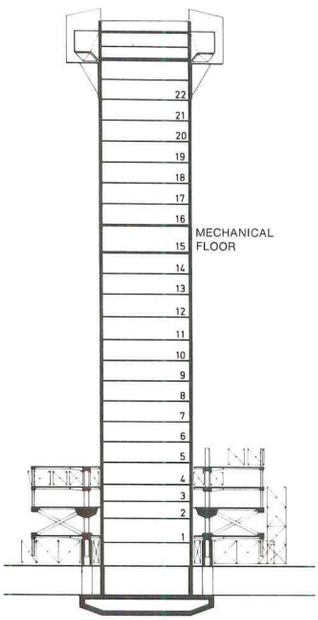
For none of that H. G. Wellesian superstructure is at all fanciful. What Schwanzer and his engineers did here was to design and build a tower with a slip-formed concrete core, from which they then suspended the principal, clover-shaped office floors below. These office floors were cast and assembled at ground level, and then rapidly pulled up on four huge clusters of steel cables attached to giant, overhead "cone nuts," or threaded clamps (see pp. 32-33) —which are, in turn, supported by crosshead beams cantilevered out from the central core. The literally hair-raising procedure is shown in the photograph and documented in the sections at right.

The reason this building was hoisted up on its four clusters of cables is that such a procedure permitted the contractor to apply exterior aluminum cladding (and interior finishes) on the upper floors while the lower ones were still being cast and lifted into place. Normally, of course, exterior cladding and interior finishing are applied from the bottom up, starting with the lowest floors—while upper floors are still being poured. This construction sequence often exposes the finishes on the lowest floors to damage; and contractors therefore prefer to postpone exterior and interior finishing operations until *all* columns and slabs have been poured, all the way up to the roofline. In the BMW tower, there was no such wait: not only were the top floors finished first; they were partly finished even before those top floors had been hoisted into their ultimate positions.

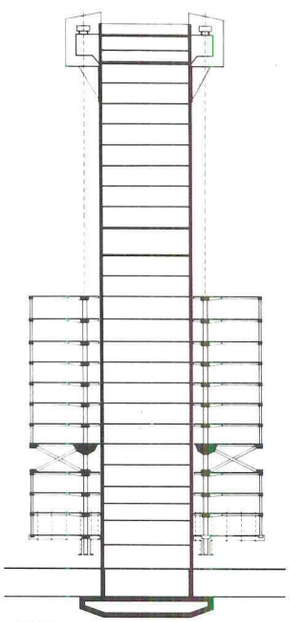
Tensile "columns" have other advantages, too: the four-leaf-clover office plans have only one interior "column" per leaf, so that the office-landscape interiors were able to flow freely without rigid interruptions. Schwanzer had advanced elab-

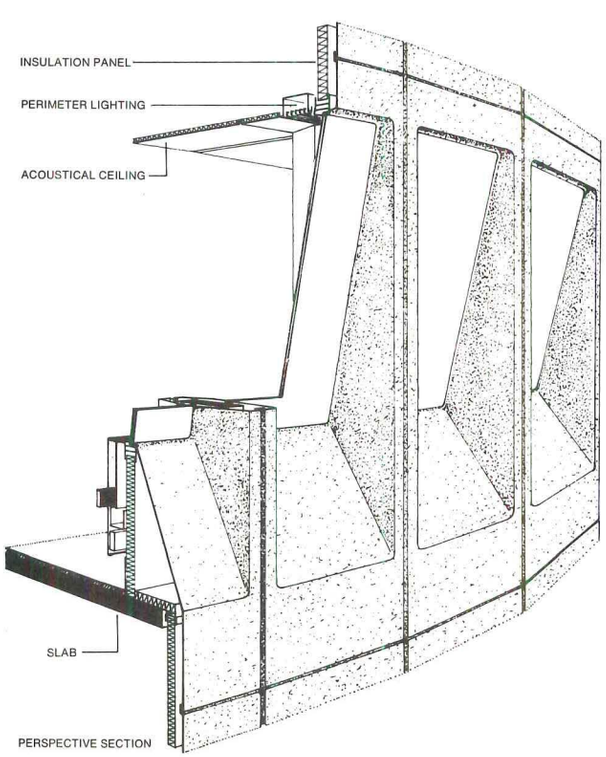


Construction sequence, in which floors are built close to the ground and then hoisted up on four clusters of steel cables, is shown in the photograph (opposite) and the sections below. The mechanical floor (the 12th) transfers all vertical loads, both above and below, into the four "suspension columns," by means of diagonal cross-bracing. The Japanese-developed aluminum curtain wall is shown in the cut-away section and in the close-up on this page. Vertical tracks between panels guide the window cleaning cabs.



CONSTRUCTION SEQUENCE: UPPER FLOORS


CONSTRUCTION SEQUENCE: LOWER FLOORS



PERSPECTIVE SECTION

Open office landscape planning characterizes most of the floors. The single "suspension column" in the middle of each cloverleaf is visible in both interior views below. The acoustic ceiling, with its integral lighting, follows the spoke-like geometry of the plan, as does the layout of the air-supply and exhaust ducts above it. Executive floors have a more conventional layout, with wedge-shaped offices around the perimeter, and conference or secretarial spaces at the center of each cloverleaf. Section and plans on the opposite page explain the relationship of the tower to the computer center in the long 3-story building that forms its base.

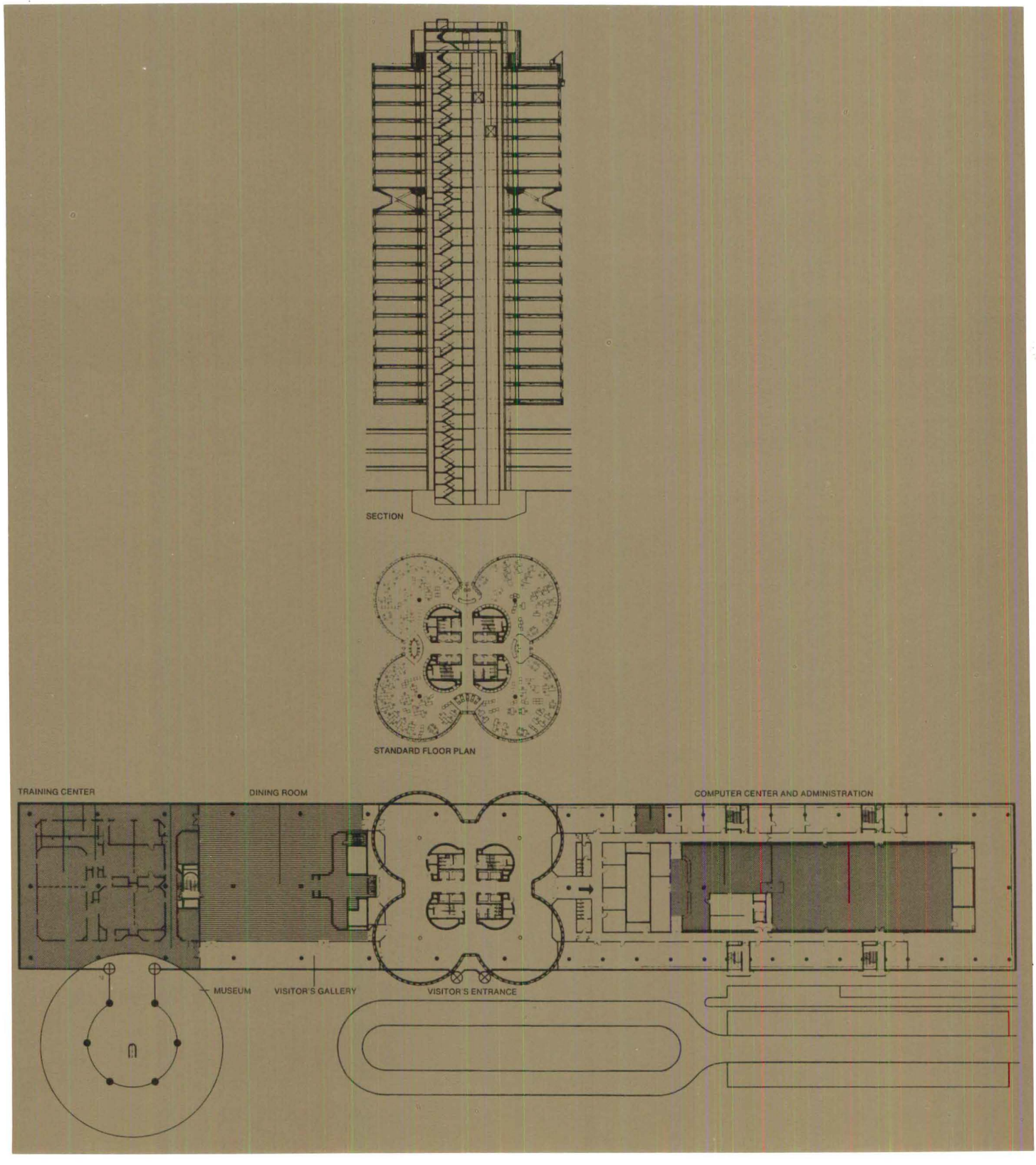
orate and convincing rationalizations for his four-leaf-clover plan; but the fluidity of this sort of plan, as opposed to the rigidity of the conventional rectangle, obviously works exceedingly well for an office-landscape interior.

The impressive innovations to be found in this tower (and in its ancillary structures) seem almost endless; but one of the most intriguing is the aluminum curtain wall, if only because it is the fruit of international, technological cooperation.

The aluminum wall consists of 2,304 identical panels (see previous page), and some 700 edge pieces of various sizes and configurations that join them. The panels are thin-gauge but made rigid through their plastic geometry; they are completely insulated and glazed; and they are a full story in height. They were developed, after many years of research, in Osaka, Japan; they were then marketed in Europe by a Swiss company; and they came in at the lowest bid when the envelopes were opened for the BMW contract. These 150,000 sq. ft. of aluminum and glass are the first of their kind to have been put up in Europe, and they look neat.

The typical office floors seen at right are entirely open in plan, although some of the executive floors have, in fact, been divided into enclosed, pie-shaped offices. "Particular attention was paid to acoustics in the open-plan offices," Schwanzer says. "The angle of inclination of the windows in the aluminum wall panels was chosen for acoustical reasons. They reflect the sound so that it isn't concentrated in the center of each of the cloverleaves. And they also avoid the so-called 'whisper gallery' effect that is commonly associated with round buildings." The lighting pattern designed into the acoustic ceilings makes this building a magic lantern at night.

There are other technological aspects that make the building as interesting as the latest BMW. For example, Karl Schwanzer, who is quite familiar with the aerodynamic problems encountered by high-rise structures in other parts of the world, built a 1:200 scale model of the tower and submitted it to wind tunnel tests in a laboratory in Munich, where different wind velocities were recorded for different surfaces of the tower. The curtain wall detailing was done to respond to those tests.

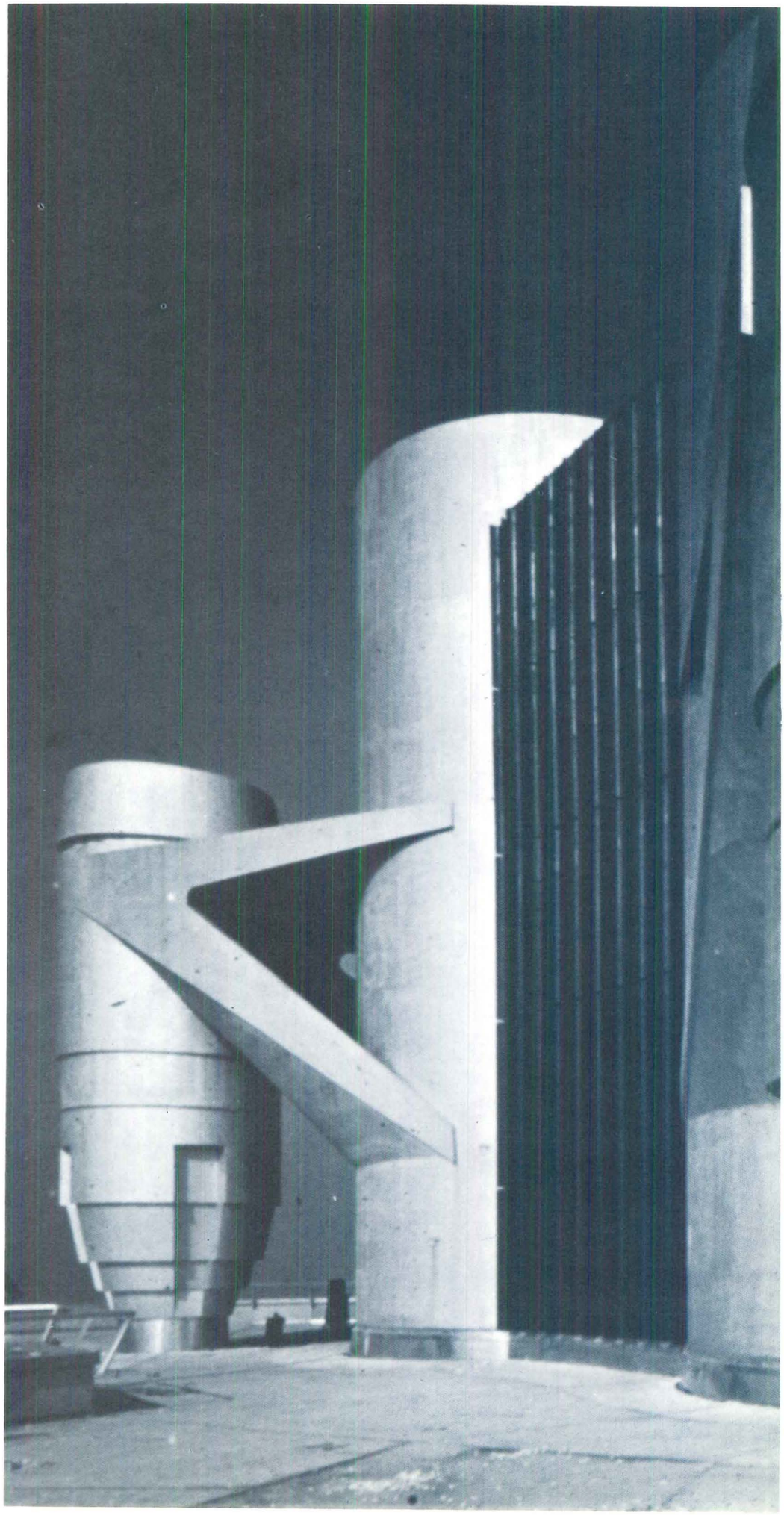

SECTION
STANDARD FLOOR PLAN
TRAINING CENTER
DINING ROOM
COMPUTER CENTER AND ADMINISTRATION
MUSEUM
VISITOR'S GALLERY
VISITOR'S ENTRANCE

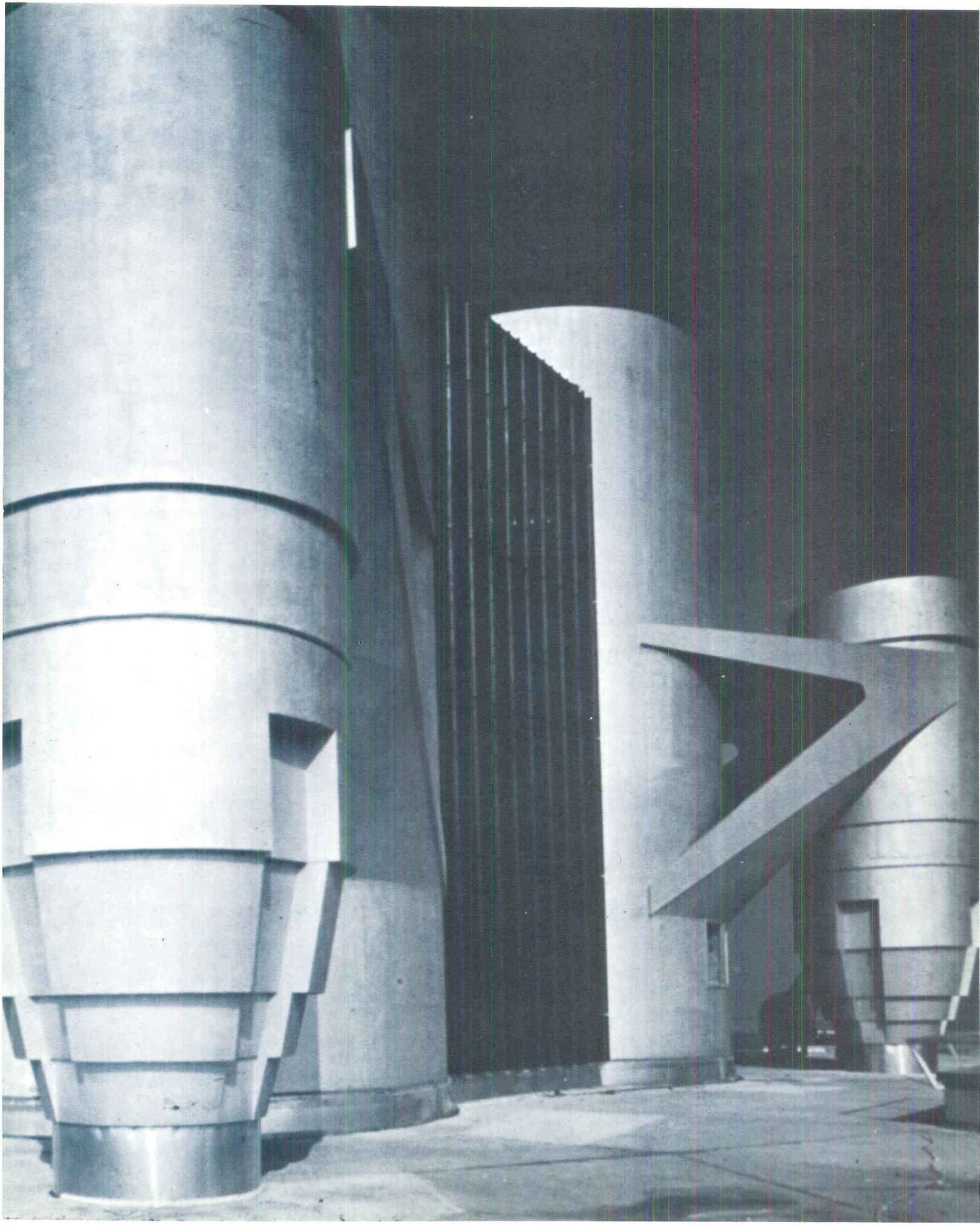
The superstructure on top of the tower consists of elevator penthouses and other core elements, and four gigantic "cone nuts" held up by cross-girders that cantilever from the concrete core. These "cone nuts" hold the four clusters of steel cables which, in turn, support all the office floors below. The compressive and tensile stresses in the exterior walls are transferred to these same four "suspension columns" at the mechanical (12th) floor of the tower. The superstructure is concrete finished with aluminum paint so as to match the rest of the building.

The ancillary office building—a 3-story podium on which the BMW tower stands—contains the entrance lobby, computer rooms, and various staff facilities. This structure is conventionally built. To its east is a 5-story parking garage of precast concrete elements; and at the opposite end of the complex is the goblet-shaped BMW museum, a shell-concrete structure containing exhibits and panoramic projections visible from interior ramps and platforms. The museum, too, is faced with aluminum.

Although each of these secondary structures is of interest in its own right (the museum being an especially fortuitous highway marker at the intersection of two expressways), it is the tower and its extraordinary superstructure (right) that makes the BMW complex so special. And when the steam condensate from the airconditioning cooling tower rises above the four-cylinder tower, the building looks just about ready to take off.

Facts and Figures
BMW Administration Building, Petuelring 130, Munich, Germany. Owner: Petuelring GmbH & Co. KG. Architect: Karl Schwanzer. Engineers: Dyckerhoff & Widmann AG (structural); Brandi Ingenieurgesellschaft (mechanical); BMS Ingenieur-Gesellschaft mbH & Co. KG (electrical). Interior designer: Karl Schwanzer. Contractors: Arbeitsgemeinschaft (joint venture) Verwaltungshochhaus BMW. Building area: 740,000 sq. ft. Garage: Architect: Karl Schwanzer. Engineer: W. Gehm (structural). Traffic Consultant: Rupert Schickl. Building area: 800,000 sq. ft. Photographs: Sigrid Neubert p. 26, 30, 33.





Landmarks take the leap

Selling out can save the past for the future

By Adele Chatfield-Taylor

Louis Sullivan's Chicago Stock Exchange, built in 1893, demolished in 1972.

Imagine an up-and-coming American city in which you can walk down the street and observe a landmark building next to a brand new office tower, and walk right on without wondering when the landmark is coming down. Imagine knowing that because it is part of *progress,* the old building will not disappear in the next search-and-destroy land assembly, and that its very presence is helping a real estate developer build bigger and better elsewhere.

The first city to make this possible may be Chicago, which last year lost one of its most distinguished landmarks (Adler & Sullivan's Old Stock Exchange Building) because it stood in the way of progress. Site of the first skyscrapers in the world, Chicago has a new idea for the transfer of development rights (air-rights) that will save landmarks from being economic liabilities and will turn them into money-making propositions. It is part of a proposal from the United States Department of the Interior that will make the Loop Landmarks —famous works of Adler and Sullivan, Burnham and Root, Jenney, Holabird and Roche, and other pioneers of modern architecture—the nucleus of an expandable national cultural park, the first of its kind in the country. Now in the talking stage, the plan may bring about the most dramatic changes in planning and preservation since these practices were made necessary by the invention of the skyscraper.

The *transfer development rights plan,* as distinct from the *national cultural park,* was developed over several years by a young law professor from the University of Illinois at Urbana-Champaign named John J. Costonis, who was called in by the Chicago AIA to help devise a way to save the Old Stock Exchange Building.

"It was perfectly clear that all the big guns in the development community wanted to see the building come down," says Costonis, who became involved because he was challenged by the legal problem and because he loves old buildings. "There were plenty of people who wanted to see it stay up, but they had nothing to

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The Monadnock Block, Burnham and Root, 1891.

offer in terms of economic realism."

The building fell in 1972 after a bitter local struggle and much national protest. Certain members of the development community said they would do anything to save it "if there were only some way," but preservationists failed to find a way. As Mayor Daley put it, "no one would come up with the money." By that he meant the money to equal projected profit from the forty-story tower that will rise on this site.

After that, Costonis realized that preservationists were approaching the problem from the wrong end. "They are concerned with the inventory, and with describing why the buildings are important. And that's fine. But in Chicago we know what we've got. We now have to admit that the only way to keep it is to deal with the economic and political factors. Where money is concerned —money of this amount—doing the right thing for any other reason becomes very difficult."

Knowing that his tactics had to address money and politics, since appeals to humanity, history and pure reason had failed, he figured out a way to make the real estate system work for and not against landmarks, so that landmarks not only pay for themselves, but compete with any other real estate development in the city.

Costonis says that his plan is really a series of ideas. The legal technicalities are complex, but the key is a sort of 3-D understanding of the word property. If, conventionally, property is seen as a single plot, the landmark owner suffers because the plot which his building occupies is not built up to the volume allowed under current zoning laws. Because he has not made the maximum profit from that plot, and because his taxes have increased according to the maximum profit *potential*, he takes down his five- or fifteen-story structure and builds a bigger one to prevent that potential from going to waste. This is based on the understanding that the property, like a gold mine, must be worked in place in order to bring in a return.

Under the new interpretation, property is not just the plot, or the actual turf on which the building stands, but a prism of potential development that exists no matter what is built on it. Looking at it this way, the owner can saw off and sell the upper part of his property—in effect sell that potential—without disturbing the plot or the small building occupying the plot. Set free, the unused potential can be transferred to some other site, and the entire property fully developed, but in more than one place.

This is not a new idea. For many years it has been known that by manipulating a parcel of land, a developer could amass the density in one way that was more advantageous than another. But the law permitted transfer from only one lot to a second lot, if the two could then be reregistered as one.

The next important step was taken in New York when Grand Central Station was threatened, and the concept was extended to allow the owner of a landmark to transfer density to an *adjacent* lot. This change, an ingenious variation on the existing theme, is attributed to Frank Gilbert, a lawyer who is now executive director of the New York City Landmarks Preservation Commission, and Jaquelin Robertson, then the architect in charge of the Office of Midtown Planning. Their argument precipitated a 1968 amendment to the New York City zoning law, and it was this that Costonis considered when he began to study the Stock Exchange situation, by this time with a grant from the Chicago Chapter Foundation of the AIA.

For New York, the last straw (that forced formation of the Landmarks Preservation Commission) was the loss of Penn Station, so it is symbolic that its most impressive save has been Grand Central Station. In an historic move, the development rights were transferred to the adjacent Biltmore site, and Grand Central stayed where it was. When the new office project fell through, however, the developer decided to sue the Commission for financial hardship claiming that the site itself was essential and not just the density. The case is still in court, and the outcome will be crucial to the future of all New York landmarks.

Pride may save some landmarks in New York, Costonis says, but attitudes are different in Chicago—home of the self-made man, who is notoriously numb to matters of principle.

"I realized that, for two reasons, it could not work here," says John Costonis. "First, if you limit transfers to adjacent lots, you aren't giving a Chicago developer much under the present giveaway zoning laws, so there just is no new incentive. Second, in terms of price, you would still give a monopoly position to the individual who

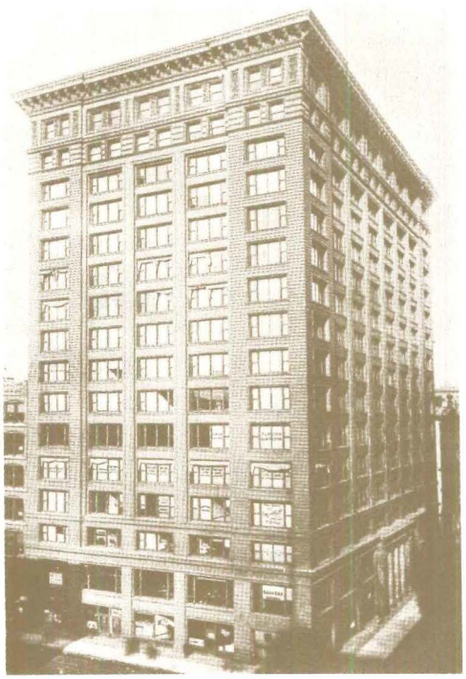
Adler and Sullivan's Schiller (later Garrick) Theater Building, Chicago, 1892.

happened to own the adjacent lot, so the bargaining position of the seller of the unused rights is very weak.

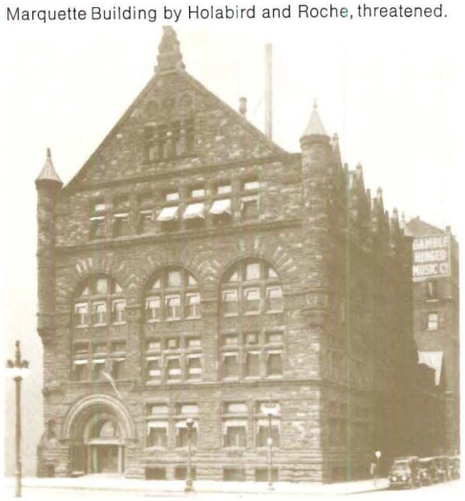
"So I added two things that make the proposal very different: a development rights bank and a district for area-wide transfers." These are the two principal factors that make the Chicago Plan entirely new. "What you do is give a bag of money to the owner of the landmark, representing the forfeited redevelopment opportunities. Therefore he is compensated, and you have solved the legal problem of restrictive regulation of land use. Lawyers in other cities have been able to torture the development rights transfer device into their own existing zoning laws for the good old common law reason that by making it look like something else, they will avoid legal difficulties. That wouldn't work here."

What would work is the development rights bank. It would buy and store the unused development rights (or potential volume) from the landmark owner, and later sell it in pieces to developers for use in the special transfer district, which would be a large downtown area able to sustain the increased density. Sale of the rights at going real estate rates would provide cash for the historic building owner. He would then have funds for restoration and preservation; there would be a letup of development pressure, and a reduction of taxes. Preservation restrictions would then be placed on the building. If the landmark owner refused to cooperate, the city (which owned the bank) could afford to step in and obtain the preservation restriction by purchase or condemnation.

Costonis refined his proposal under a grant from HUD for the National Trust for Historic Preservation, and set it forth in a lengthy, tightly argued piece in the *Harvard Law Review* in January, 1972. This was spotted by Hugh Miller, an architect with the Department of the Interior, who at the time was working on a plan to make twelve Chicago Loop landmarks part of a national cultural park to be administered jointly by the Department of the Interior and the City of Chicago. He felt that the Chicago Plan was the perfect local mechanism for the federal proposal. Secretary of the Interior Stewart Udall had been the first to express concern for the future of Chicago landmarks when Adler & Sullivan's Garrick Theater came down in 1961



Marquette Building by Holabird and Roche, threatened.



Burnham and Root's second Art Institute, destroyed.

to make way for a six-story parking garage; Rogers Morton, the present Secretary of the Interior, was now disturbed by the Stock Exchange disaster, and Miller was commissioned to find a way to combine federal, municipal and private resources and save one of our "richest cultural treasures."

Either project—the Chicago Plan or the national cultural park—could stand by itself. Combined, they are reinforced. Interior's involvement lends to the development rights transfer plan all the prestige and influence of the federal government. Also, if Congress appropriates the required funds, as is expected, the city of Chicago will be able to conduct a low-risk demonstration of the feasibility of development rights transfer.

On the other side, the Department of the Interior need only supply the seed money for the operation, for once established, the revolving bank becomes self-sufficient. The National Parks Service would continue to supply things like visitor centers, tours, exhibitions, and other types of Freedom Trail amenities. As the first of its kind, the urban park would represent the federal government's official recognition of the country's urban cultural resources, and match its longstanding concern for the wilds.

The effects are extraordinary. From an economic standpoint, the entire tax system changes because the landmark owner pays only on the volume he uses and not on potential volume. Accordingly, the taxes of the air-rights purchaser go up, since his alloted volume is up to 20 percent greater.

Also, the air-rights seller is compensated at once. He no longer waits for a buyer and barters over the price.

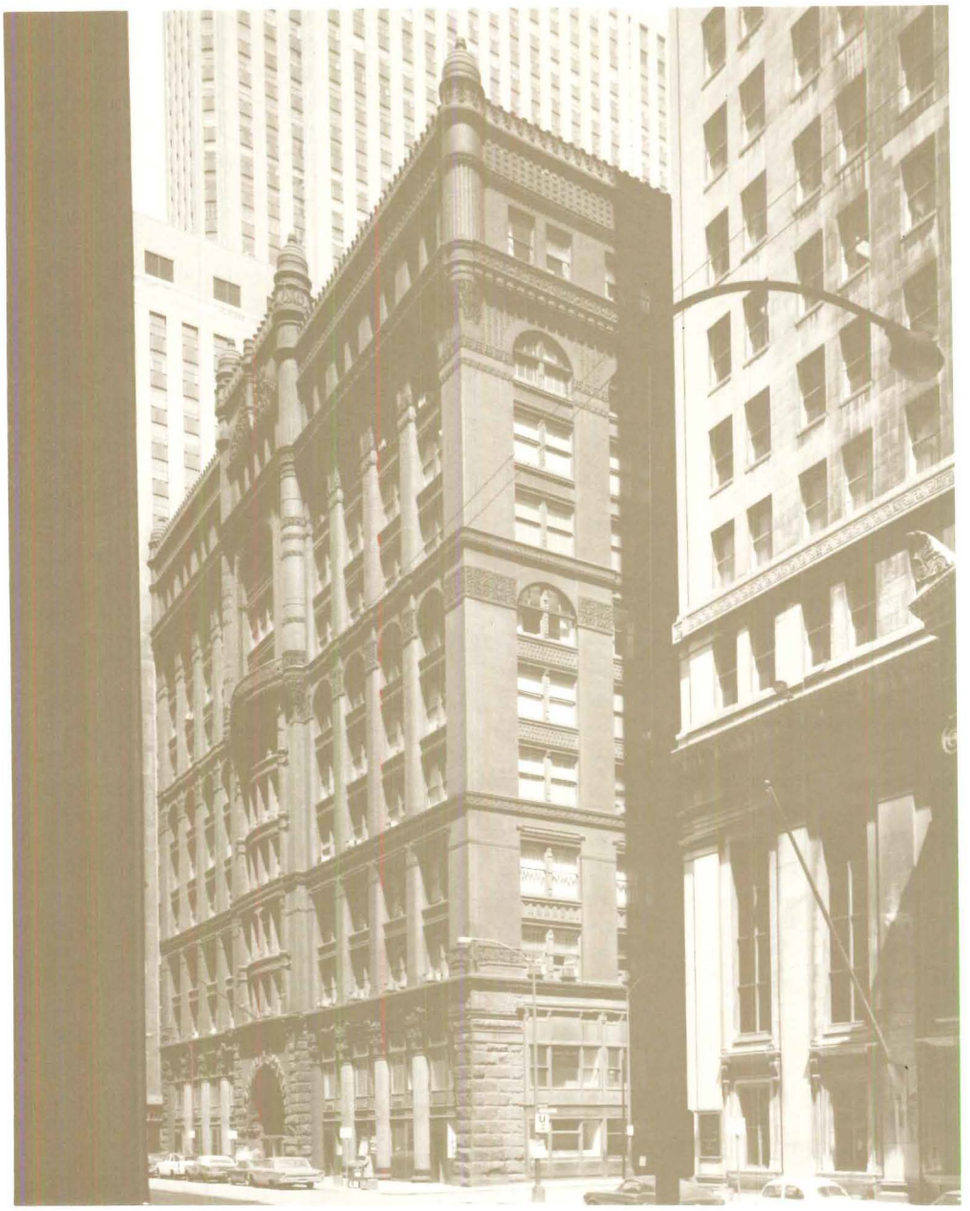
More important (to the future of the landmark if not to the profit-minded), the Chicago Plan does what the landmark designation cannot do: that is, it makes the property inflexible in terms of future use, since even a real estate developer would think twice about demolishing a five- or ten-story building if in its place he could only build another one of the same size. By itself, the landmark designation is an important delaying technique that can extend a crisis for a year or so, allowing the owner to reconsider, or giving the city a chance to buy the building. But if the owner can prove that his building is not earning a "reasonable return" (usually about 6 percent of assessed value), he is lawfully permitted to demolish it.

Most dramatic of all, the Chicago Plan changes urban planning. For the first time, a whole district is seen as one envelope of space entitled to a certain volume of development, which may be distributed in juggled densities. It is no longer a series of properties to be developed one at a time. Consequently, the developer, planner, or private citizen need no longer experience horror of the void when he sees a landmark. He learns to see that it represents a dip in the overall design that will be filled out elsewhere; his first reaction is not to step in and use up the wasted space with a new building, for he knows that the demure structure has airborn offspring somewhere else in town, and that nothing is going to waste.

Already the Chicago Plan has been considered by cities that feel it could be useful to them. It has been studied by Seattle, Kansas City, Cleveland, Cincinnati, Toronto, and Washington, D. C., encouraging Costonis in his belief that it can work anywhere. An even greater response is expected when his book, *Space Adrift: Landmark Preservation and the Marketplace*, is published this fall (by the University of Illinois Press). For Costonis believes that the landmarks concept is only the beginning of a broader trend. "I see in development rights transfer an urban design tool that has enormous implications, and in fields other than landmarks preservation. It seems to me that this would be a terrific laboratory in which to try out the idea of transferring space some distance, and find what the problems are."

Some of the problems are already apparent, in spite of overwhelmingly favorable publicity. On the most fundamental level, the very idea of landmarks preservation is not acceptable to everyone. A letter-writer to the New York Times recently submitted that the Landmarks Preservation Commission was no better than a common thief, denying a man the use and disposal of his property "by divine right of stagnation."

While this view is extreme, it touches on the question of government's involvement, and this is an issue that seems to concern everyone involved. Respect for private property is uniquely built into the American legal system, and the transfer of development rights is a mechanism designed to honor the owner's rights; it is unstated that he will be protected from having those



Burnham and Root's Rookery Building, completed in 1888.

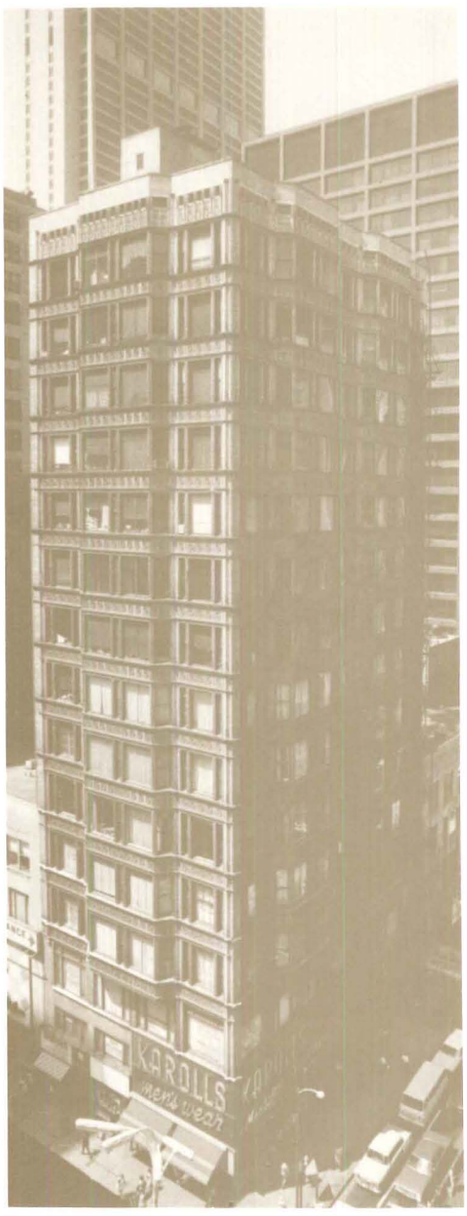
rights taken. Costonis explains that he considers his plan "a solution to the Constitutional problem that arises when drastic limitations are imposed to prevent an individual from using his property. I regard development rights as a way of circumventing the Constitutional problem of uncompensated taking."

What the city of Chicago will do with the banked air-rights is a cause of consternation. Norman Marcus, legal counsel to the New York City Planning Commission and an admirer of the Costonis Plan, says it boils down to the following: either you believe that planners know what they are doing, and that they will judiciously redistribute and design the extra bulk, or you believe that the whole thing is necessarily a question of taste and not up to planners.

Costonis agrees that the city must recognize it as an awesome undertaking; the planners must learn to know what they are doing, and everyone must begin to accept the responsibility. "I believe that the development potential of land is a community resource, which government may properly allocate in the interest of amenity and environmental preservation. We have reached a point in land-use philosophy in this country, with the environmental crisis and a variety of other things, where we ought to limit density within an overall area as a way of creating a market for and avoiding the urban design complications of development rights transfer.

"There is a boldness about what I am saying that city officials may not like, namely, I am making the city responsible. I am saying, look, City, if the owners don't accept the option, step in and contend the preservation restriction, and *you* make the transfers. *You* are credible because you have this revolving fund which will put your money where your mouth is."

For some, it comes to mind that when government is entrusted with funds and authority for something like mass transportation, it builds highways. For this reason, many would like to see the transfers occur within the private sector, which would leave planning and landmarks commissions with simple supervisory roles handling the documents involved in the transactions. They would prefer that the private owners and developers work out everything amongst themselves, so that the city would not have to contend with planning and funding.



Burnham's Reliance Building, 1895.

This sometimes works. Says Frank Gilbert, another expert scrutinizer of the Costonis plan, "It's the sign of a new day that a low building could be preserved in the land assembly for the new Olympia Tower in New York." But this low building is Cartier's, which can afford to hold out for posterity. Such instances are rare. "You try to bring out the best in people—the responsibility of the owners of important buildings," says Gilbert, "but you have to appreciate their economic needs."

Chicago city officials themselves are uneasy about taking such a central role, but for other reasons. They do not want it thought that they are in competition with the private real estate industry, and feel that, in some ways, the Costonis plan goes too far. "If it were limited to five or six or a dozen buildings, that would be one thing," says the Assistant Commissioner for Development from Chicago City Hall. "If it gets to be a technique applied to a variety of places for different reasons, then we're dealing with a much larger system, and its impact on the development plans and zoning would be correspondingly much greater."

There is now before the Chicago City Council a comprehensive amendment to the zoning ordinance. It is not clear how this will affect the climate for the Costonis Plan when it is finally brought forward after negotiations with the city and various study commissions. Under the Historic Sites Act of 1935 the Department of the Interior has the authority to make agreements to preserve nationally significant buildings, and could theoretically go to Congress anytime for funds for the national cultural park. But they will not go until the specifics of the Costonis proposal have been worked out, and this will require cooperation from the city.

Many questions remain. How many buildings? How large a transfer district? How much money? The city is cautious even about the Park Service commitment, and asks "whether they are going to do anything other than encourage us to do it ourselves."

Discussions continue, and planning, economic and design studies are underway. Before an amendment can be adopted, all interested groups must be heard from. Yet Costonis feels that the legislative formalities will not be a problem once the political, economic and planning choices have been made. He feels the process should go slowly, but hopes the system will be in operation by sometime next year.

The people to watch are the developers. The trick to development rights transfer is demand. There must be a market for real estate development, or there is no market for air-rights. And where there is demand, there is danger for landmarks. Chicago is reluctant to impose restraints on the development community, and specifically wary of any proposal that would block land assembly in the Loop, which is where the landmarks are. Ironically, of course, it was in these very buildings that steel frame construction was perfected, forging the way for later models. Now only through ingenious legislation can they be rescued from the syndrome which they began.

Incredibly, the next test may be the Marquette (by Holabird & Roche) or the Monadnock (by Burnham & Root). This time, when the developer says, "if there were only some way," he will know that there is. It is inconceivable that the City of Chicago will not work to make it operable before a crisis arises.

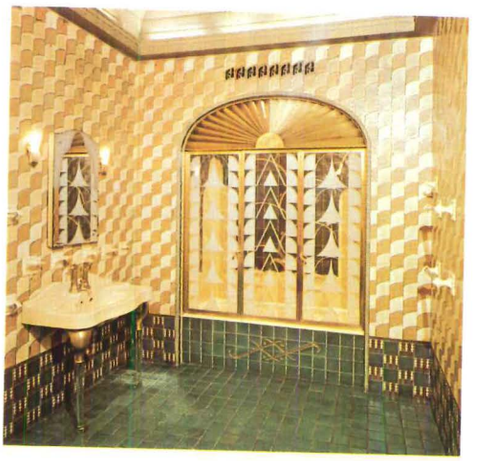
In the end, there is something sad about all this. It is good that the buildings will be saved. But it is disappointing that they will be saved only because they can be made to make money. There is a chance that the point will be missed and that some will see only that the senior citizens of American architecture, like their human counterparts, are being allowed to stay not because they are graceful and interesting and useful and full of experience, but because getting rid of them is uneconomical or illegal.

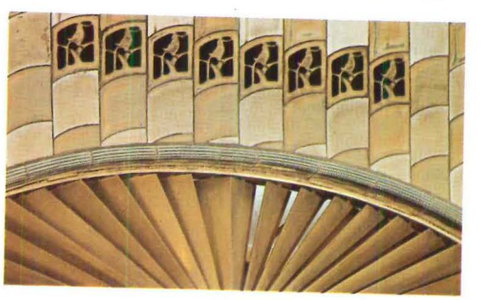
Perhaps, if they survive long enough and our perspectives change, the buildings will be understood as essential to everyday architecture. Thanks to Costonis, the Department of the Interior, and, we hope, Chicago, there is an expedient way to keep them alive, and they will be here if and when America comes to its senses.

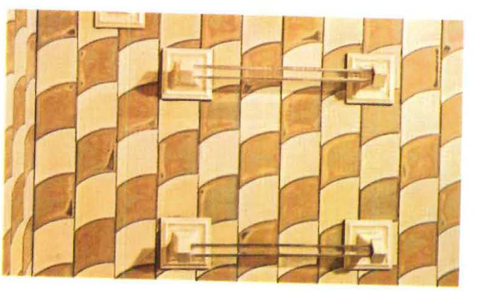
Photographs: pp. 34 and 36, Chicago Historical Society; pp. 35 and 39, Harold A. Nelson; p. 38, Philip Turner.

Splendor in the bath

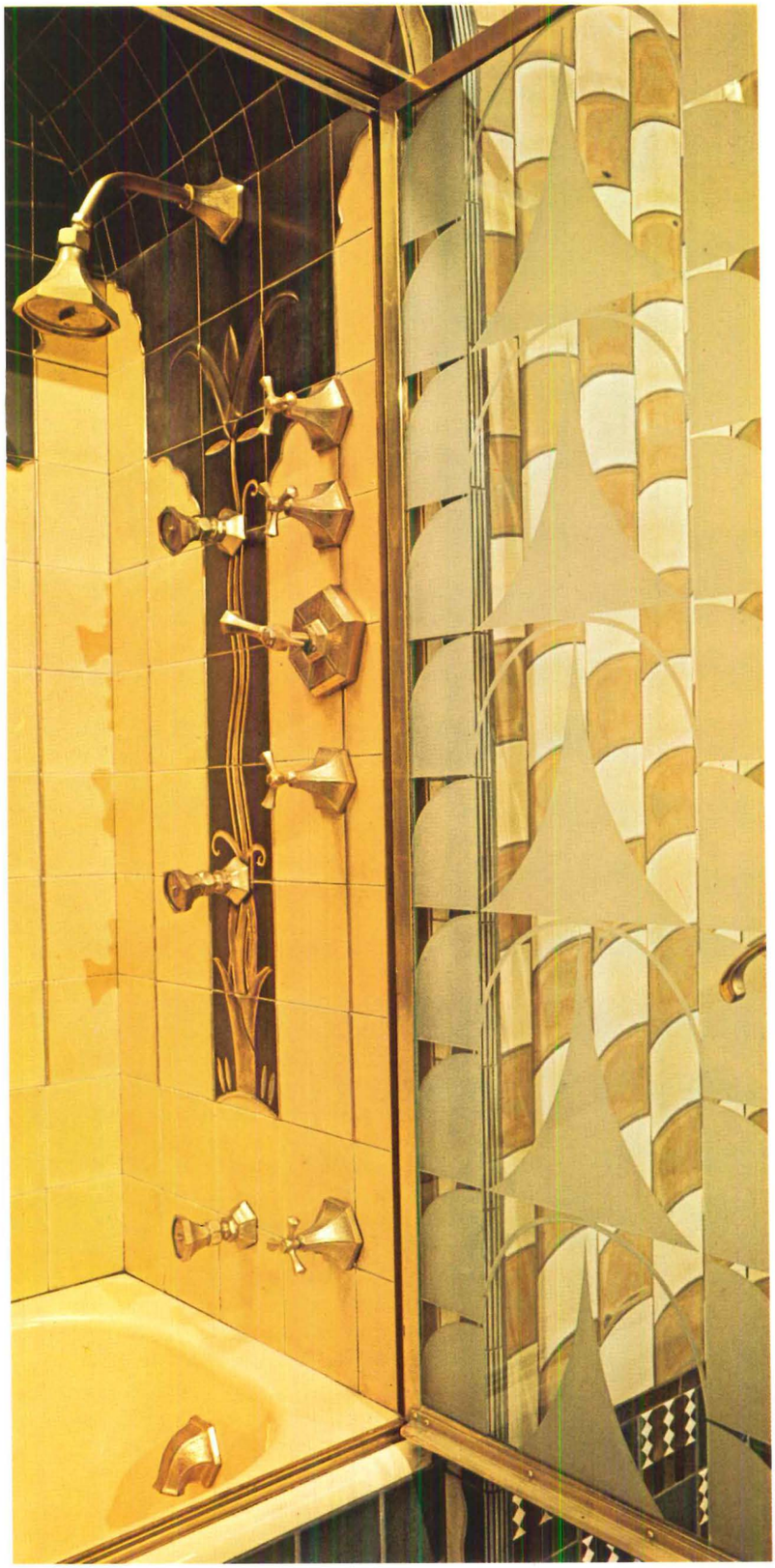
By Dan Klein







Far left, a corner of Mr. Chanin's bathroom; basin supports are of clear glass and gold plate. Center top, a general view looking towards the tub enclosure. Details below: the monumental gold plated faucets on the basin, the frieze of ceramic birds concealing a ventilating duct, the gold plated sunburst over the shower doors, and the towel rails of bakelite and clear glass. On this page, a wealth of decoration inside the etched glass shower doors: tiles in a stylized plant pattern over the bath, gold plated bath and shower controls and a cream colored tub.



"I always think if one can afford to have a really nice bath it is money well spent, and a good excuse for a little extravagance." These words come from a chapter on bathrooms in D.D. Cottingham Taylor's book *Practical Homemaking,* first published in the early '30s. Irwin S. Chanin, who for half a century has been head of the Chanin Construction Company, would endorse such sentiments; the dazzling splendor of his private office bathroom makes it one of the sights of New York at a time when '20s and '30s modernism is much discussed and has swung back into fashion. The bathroom in question is on the 52nd story of the Chanin Building, on Lexington Avenue and 42nd Street, one of the 'Cathedrals of Commerce' completed just before the 1929 crash.

But nothing here suggests pending economic gloom. On the contrary, opulence is the keynote in a scheme where the faucets and the frame of the shower doors are gold plated, and where there is a feeling of extreme spaciousness, regardless of the enormous value of a single cubic foot of space in an office block in mid-Manhattan. The bathroom is still used by Mr. Chanin today: close to the hand basin there is an antiquated mahogany switchboard on which some of the nameplates have remained the same since 1929. From here Mr. Chanin can still call Jacques Delamarre at his offices on the floor below. Mr. Delamarre has hardly had the recognition he deserves. The recognized credits for the Chanin Building go to Sloan and Robertson and the Chanin Construction Company. In fact it was Mr. Delamarre who designed not only the bathroom, but was chief architect and designer for the whole building, including the amazing interior decor of the main lobby with its sculptures, bronze radiator grilles, elevator doors decorated with modernistic birds and walls of Istrian nuage marble.

In the bathroom the design is a mixture of streamlining and traditional grandeur. The geometric shapes on the engraved glass shower doors, and the sunburst pattern above have a distinctly modern feel, while the handbasin, the faucets and most of the patterned ceramic tiles have an old-fashioned splendor about them. There are various reasons for this mixture of styles. The design in the bathroom was governed partly by what sanitary fittings and ceramic tiles were available. It would have been an impossible extravagance to have these specially manufactured, and as far as tiles were concerned the illustrations show that those provided by the Globe Tile Co. Inc. were good enough. Also modernism did not really evolve as a style adopted commercially and for mass production till the '30s. Certainly in the main lobby Jacques Delamarre designed every detail; everything was tailored to fit into the architectural theme of the building, which was 'The City of Opportunity.' Part of the attraction of the then new Chanin Building was its modernity, and this had to be impressed on all who entered its walls. In a private bathroom no such considerations were necessary. The conception here is more in the spirit of a Victorian Folly. Mr. Chanin wanted a hideout; something amusing, with a certain amount of grandeur and maximum comfort. The talented Mr. Delamarre provided him with an enviable retreat from the pressures of a busy business executive's life; somewhere to cool off in style on a hot summer's day, or to lounge in centrally heated magnificence on a depressing winter morning.

Dan Klein is an English admirer of the American past and author of a forthcoming book on Art Deco. Photographs by Angelo Hornak.

A tale of two towers

By James D. Morgan

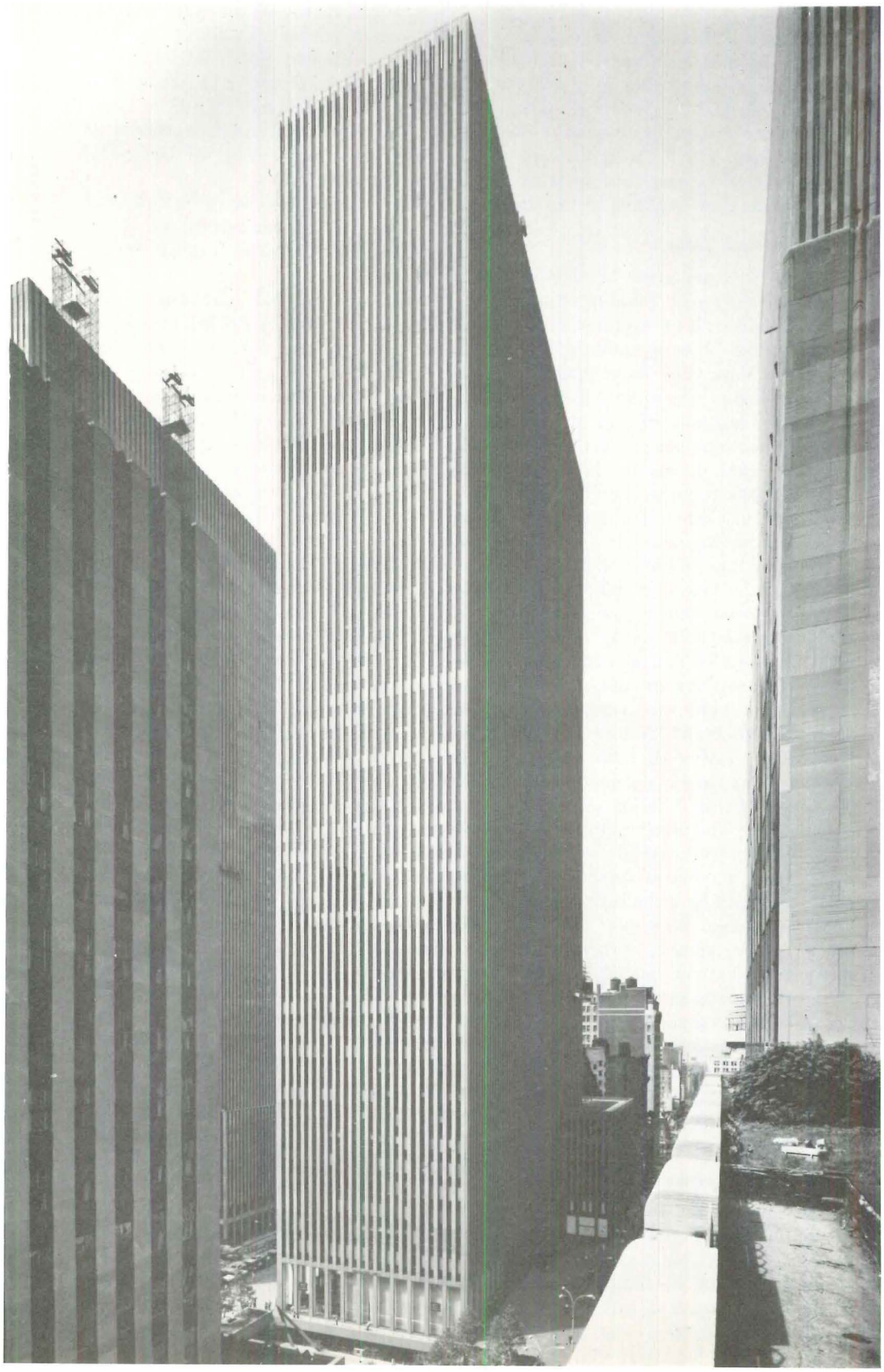
The McGraw-Hill World Headquarters Building in New York is a soaring, fifty-story granite-clad tower completed in 1972. It stands in the midst of many such new buildings on the Avenue of the Americas in Rockefeller Center. In style and form and function it is so commonplace that there is almost no reason to mention its existence in the architectural press.

In 1931, however, when the McGraw-Hill Corporation moved from its first New York building into its strange new green tower on 42nd Street, the response was quite different. It was a major event; one that is still celebrated in every school of architecture when the early American pioneers of the modern movement are discussed. And what is more, when seen on New York's skyline, the 42-year-old building still seems as modern and as provocative as it did when it was opened. How could a corporate client, which commissioned such an outstanding structure in those difficult days of the Great Depression, find itself moving into one that is, in architectural terms, a nonentity?

The answer lies more with the history of the client than it does with the respective buildings and their architects. What has happened to the McGraw-Hill Corporation in the years between its moves is typical of many American corporations: it has grown and prospered so that its image of itself is more engrossing to management than the products and services it sells. Not that the products are in any way inferior to those produced in the '20s and '30s. It's just that in their secure affluence, the giant corporations become narcissistic, self-conscious perhaps, self-serving to be more blunt, in a way that is invariably reflected in the headquarters that they choose to build for themselves.

It will be very tempting to dismiss such charges when they are brought by a former McGraw-Hill employee who is now the staff member of a competing publication. The author's bias is indeed real. It stems however, not from bad feelings but from the experience of having used both buildings daily, each for more than a year. And although the supposition for the inferiority of the newer building to the older one is couched in an analysis of the Corporation's development, the basis for the judgement is derived entirely from architectural evidence.

Having created a unique image with its 1931 building, a landmark in modern architecture, McGraw-Hill has joined the corporate crowd with its eminently forgettable new World Headquarters



One might ask, indeed, how McGraw-Hill got even one great building when the vast majority of American corporations and institutions never manage to transcend mediocrity in their efforts to house themselves. The answer to that question and to much of the background of the Corporation lies in understanding the vision of James H. McGraw (1860-1948), a 19th-century entrepreneur of a 20th-century concept, communications.

The importance of James H. McGraw

When James McGraw left schoolteaching in 1885 for the technical publishing business, he brought a deep concern that publications should "serve man's need for knowledge." More than just a slogan for his company, it was a conviction that the trade papers of his day, mostly collections of advertising, would be substantially more useful if the editorial material conveyed information that truly helped the reader. McGraw is quoted by Roger Burlingame in *Endless Frontiers* (1959), a history of the McGraw-Hill Corporation, as remembering that the industrial editor was considered a liability not an asset by the publisher, ". . . a wholly necessary evil required by the postal authorities to enable the publisher to send his paper through the mail at second-class rates." Even today the feeling persists in some places that business periodicals, including architectural magazines, exist primarily for the advertiser. But it was McGraw's contribution to the field that editors would no longer just sit in their offices pasting up material sent in to them but would independently go out to discover what was new.

Needless to say, this philosophy was one of the reasons the McGraw-Hill Company, founded in a merger with the Hill Publishing Company in 1917, prospered. Yes, James McGraw was in it to make money. But his schoolteacherly values affected his every contact with his associates. By the late '20s, McGraw-Hill was out-growing its quarters at Tenth Avenue and 36th Street, a plant which had been designed to accommodate printing equipment as well as editorial offices. John Hill, for whom it had been built in 1914, had installed a type of air-conditioning system designed to keep dust away from the composing and press-rooms. To assuage the employees' dislike for the sealed windows, Hill provided a

spacious roof garden. A tradition existed, therefore, within the company, for buildings which combined all functions of the publishing business and which contained certain employee amenities.

Raymond Hood's role

It is not clear for what reasons McGraw-Hill chose Raymond Hood to design its new and larger building on 42nd Street. Hood had just designed the New York Daily News Building, of course, and had worked with John Howells a few years earlier on their competition-winning design for the Chicago Tribune Tower. So he was something of an authority on buildings for publishing. He said quite frankly that "architecture is the business of manufacturing shelter." That would certainly have appealed to James McGraw's pragmatism.

But Raymond Hood was also one of the most innovative American architects of his time. He had moved from the Gothic forms of the Tribune Tower to the vertical expression of the Daily News Building and Rockefeller Center (on which his firm, Raymond Hood, Godley and Fouilhoux was associated with Reinhard & Hofmeister and Corbett, Harrison & MacMurray) within half-a-dozen years. Obviously the concurrent work in Europe had captured Hood's attention. In their 1932 book, *The International Style*, Hitchcock and Johnson confirmed that influence by including only one New York City building—McGraw-Hill.

It is entirely possible, then, given the vigor and flair of the design which resulted from the McGraw-Hill commission, to assume that James McGraw and his son James, Jr., who handled the project, gave Hood encouragement to take a radical approach. Any architect knows that to realize a strong design concept, he must have a fully-convinced client behind him. To realize a concept as original and overpowering as the Green Building (as it is fondly known at McGraw-Hill), Hood must have been touched by James McGraw's reputed talent for inspiring creative people, another ingredient of his success. To reexamine the design in today's terms is to recognize that it is a very simple scheme shaped entirely by complicated site and industrial function requirements. Furthermore, it develops much of its esthetic power from very straightforward, innovative detailing. The only architect of large-scale buildings today who approaches that kind of clarity is James Stirling and even he would have trouble simplifying his forms to match the elegance of the McGraw-Hill Building. Needless to say, the budget was rock-bottom. Even with a 25% cost overrun, it came to $6.47 per square foot, little more than the average loft building at the time.

The need for more space

About thirty years after McGraw-Hill had occupied the Green Building, it found itself once again with an overflow of space needs, with parts of its operation scattered all over New York City. Even though the book distribution, accounting and computer departments had all been moved to a campus-like complex of buildings in Hightstown, New Jersey by 1965, there was still too little room in the 42nd Street building. The earliest studies concentrated on expanding it. Raymond Hood had intended that a hundred-foot wide strip of land west of the Green Building be used for another tower. But a post office had been built there in 1952, partly, at least, to expedite McGraw-Hill's huge mailing operation. To the east toward 8th Avenue, a large parcel of land was available. *The New York Times* for January 22, 1965, carried a story saying that the Port Authority was going to expand its operations across 41st Street by building a four-story extension on the land adjacent to the Green Building while McGraw-Hill would build an unspecified number of floors of office space above. Nothing came of it.

The Corporation knew all along that it had to stay in Manhattan because that is where the pool of creative talent it draws upon is found. So there was never serious talk of moving everyone to Hightstown, for instance, or other suburban locations. Several sites in Mid-Town were explored, including one on Park Avenue near Grand Central Station, before the arrangement with Rockefeller Center was announced.

Rockefeller Center expansion

By November, 1966, Rockefeller Center had acquired considerable property on the west side of Sixth Avenue, in the three blocks to the south of the Time-Life Building. Design of at least two identical slabs with vertical fenestration was underway. In August, 1967, Standard Oil of New Jersey, now Exxon, was announced as the major tenant of the one closest to Time-Life. In December, 1967, McGraw-Hill became the major tenant in the second one, and later Celanese took the third.

At least three vital design aspects of its building were fixed when McGraw-Hill entered the picture:

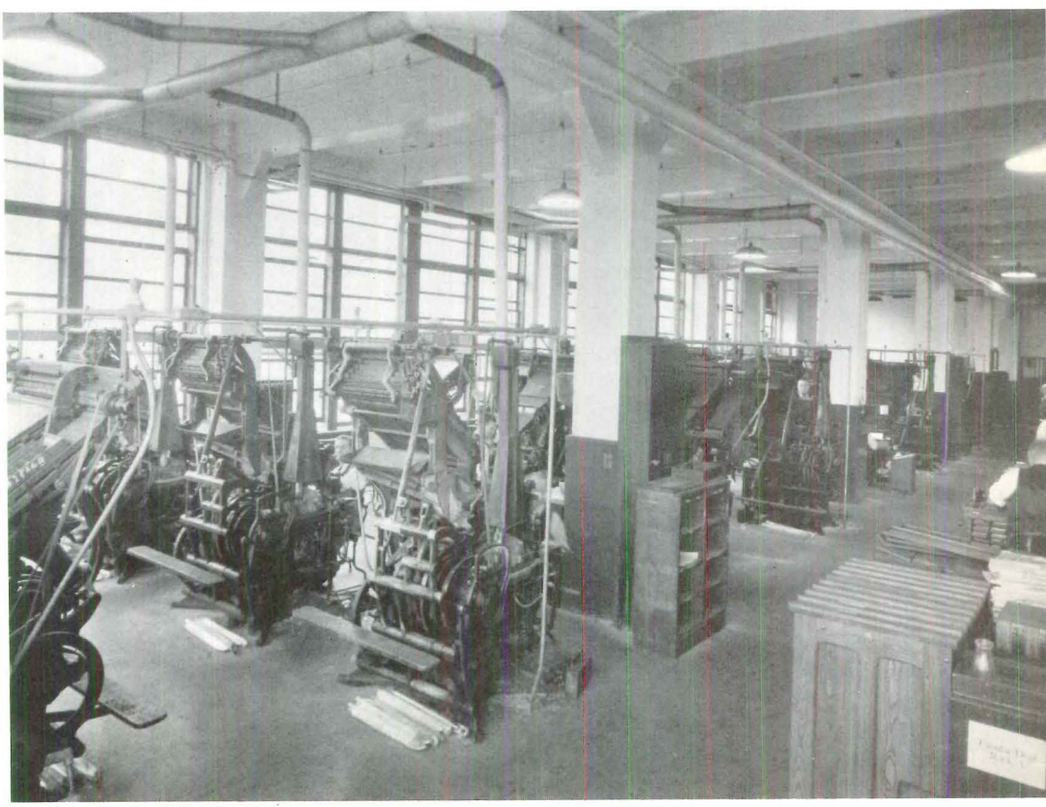
First, the building form, a vertical slab with plaza in front, was encouraged, if not determined by New York's 1961 Zoning Resolution.

Second, the vertical emphasis of the facades was imposed by Rockefeller Center in order to conform with other buildings there. The alternating strips of glass and stone, incidentally, were insisted upon because Time-Life's glassy facades (built in 1959) had seemed out-of-place to the Rockefeller Center people.

And, third, the preliminary structural design of the three buildings was based on a standard elevator and utility core that the Rockefeller Center architects, Harrison & Abramovitz & Harris had developed. When the Office of Alfred Easton Poor (now Poor and Swanke & Partners) was brought in by McGraw-Hill to do their interiors, there apparently was some difficulty, due to restrictions on the width of the "zoning envelope" between 48th and 49th Streets, in adding eight inches to the building width so that five-foot modular panels could be used throughout. In other words, there was very little maneuvering space left for McGraw-Hill's particular needs. One member of the Poor and Swanke team says, "Frankly, McGraw-Hill got a speculative building."

Robert Walters, who is president of Rock-McGraw, the corporation which owns the building and one of the chief McGraw-Hill planners in the project, flatly denies that. "It was designed for us from scratch," he says, "although there were some restrictions imposed by Rockefeller Center in the interest of visual harmony. But we got to choose where we would put the cafeteria, the auditorium and other employee services we wanted to provide. And we got to choose the exterior material." It's a little bit like buying a custom-made suit: you can choose the fabric and whether there are cuffs on the trousers; but don't start asking for wider lapels. Custom-design is another matter, for instance, the way Hood did the Green Building.

Most of the offices in the early days of the Green Building occupied spaces that were finished exactly like those used for printing equipment. Most of those floors (bottom) were eventually used for offices after the presses were sold and removed in 1933. The loft-type floors were extremely flexible and except for untreated acoustical problems worked well as production spaces for magazines and books until the building was vacated in 1972.



How the Green Building was designed

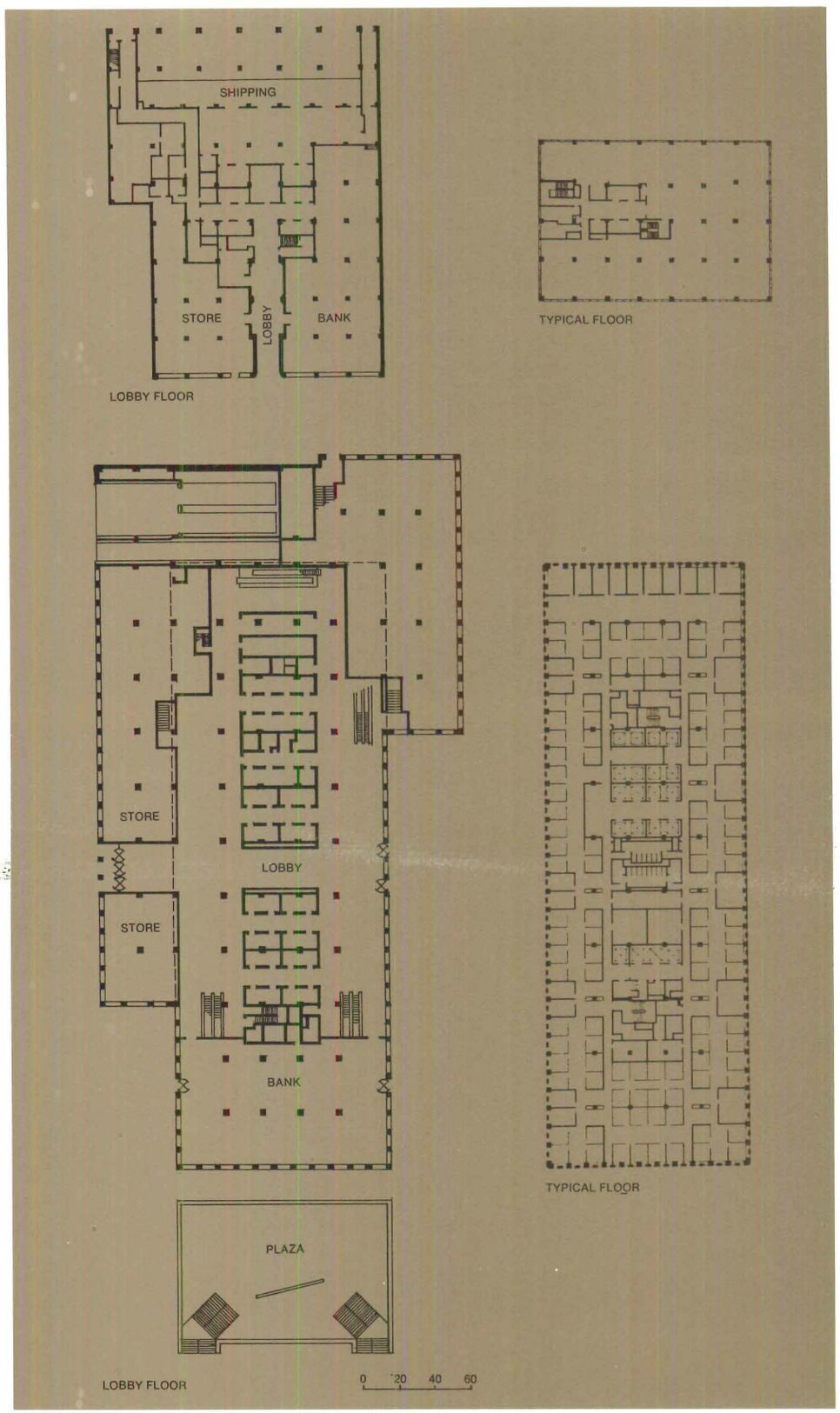
Probably the most satisfying aspect of the old building to an architect is the way that form and function harmonize. In an article for *Engineering News-Record* (October 8, 1931), J. André Fouilhoux, Hood's partner, described how the zoning-law outline met the functional requirements neatly. On the lower, larger floors, the presses and other publishing equipment were easily accommodated; on the tower floors, the editorial offices were flooded with daylight. *Architectural Forum* (May 1931) captured the essence: "No attempt has been made to treat the building as anything other than it is—a series of factory floors, varying in size only to conform to the zoning laws that require setbacks, and superimposed to a height dictated by the economics of the project. The requirements peculiar to a large publishing business have formed the basis for the entire structure—in plan, section, and elevation."

This distribution of functions, and in fact the entire rationale for the building design, was obviated less than two years after the building opened. Although they had had their own presses in the earlier building, McGraw-Hill found that in the depths of the Depression they could not keep them busy enough to justify their presence in the building. So all the equipment was sold and moved out in January, 1933. Gradually, over the next three decades, those floors were filled with other McGraw-Hill functions but during the Depression of the '30s, that space was a liability. In fact, the Corporation as a whole had a very difficult time. A 1939 building appraisal report notes that while McGraw-Hill had occupied 75 percent of the building when it opened in October 1931, within eight years it had reduced its space to 34 percent while doing its best to fill the rest of the floors with tenants.

Open-plan offices

The typical office arrangement of the Green Building's loft-type floors could be loosely called "open planning." As such it was typical of its time when, except for a few offices, little privacy was considered necessary. The various magazine staffs worked out in the open and the art departments looked the way large architectural drafting rooms do today. Except on the two upper floors where the executive of-

Comparative lobby and typical office floor plans of the two buildings illustrate their relative size. Recent changes in fire laws which now limit open unsprinklered office areas to 7500 sq. ft. may lead to a new generation of office structures whose floors will more closely approximate the size of those in the tower of the Green Building (11,700 sq. ft). There, everyone was closer to the windows and had a better sense of the floor as a complete entity.



fices and the employee dining room were located, the structure was exposed throughout the building. Such offices were noisy, sometimes exasperating, but the sense of cooperation, the teamwork necessary to produce magazines and books made it seem a reasonable environment. If an editor needed privacy to write something, he or she worked at home.

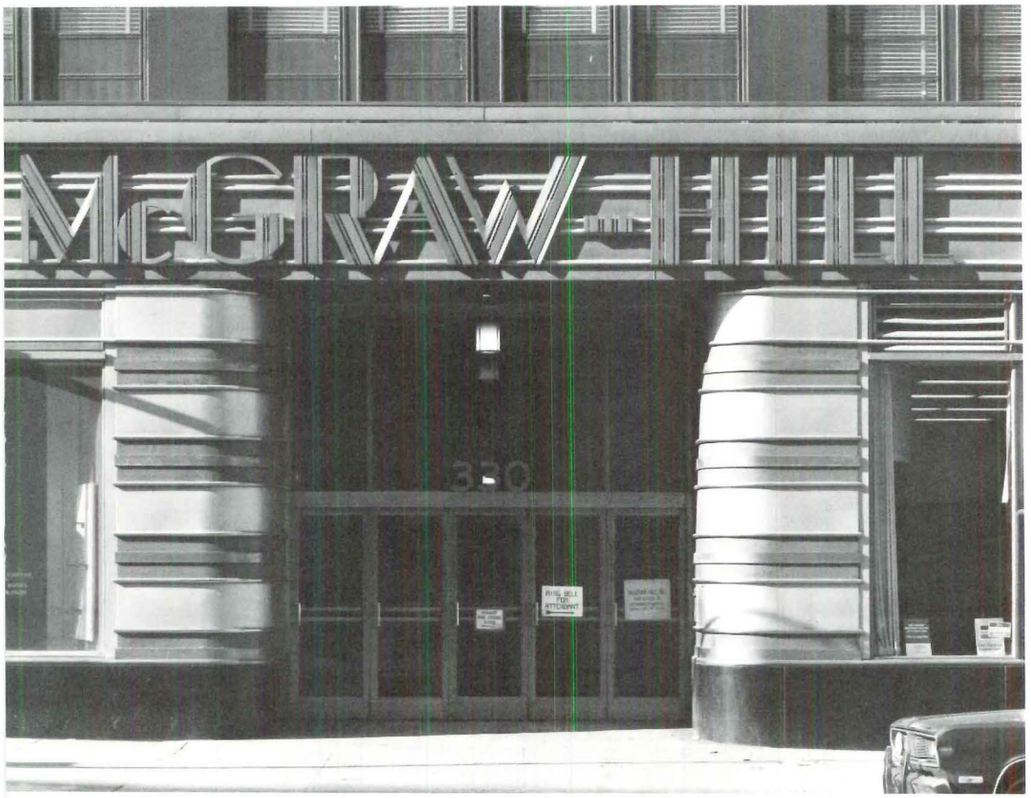
The upper floors were naturally more comfortable, but even they had a spartan quality that gibed with James McGraw's 19th-century ideas. Far from being the "art deco" fantasies one might expect from the building's silhouette, they were furnished in a style that has been called "Raymond Hood Colonial." The entrance and lobby were the places where the modernistic touches were applied. Alternating bands of bronze and enameled metal over plated steel carried out the horizontal theme of the building. The lobby space, from which the bookstore and a bank could be entered as well as the two banks of elevators, was quite small (about 2,650 sq. ft.) but adequate for the building even when it was entirely filled with office workers.

The terra cotta wall section

Nothing about Hood's design shocked the architectural community more than the colored terra cotta cladding. Yet it represented innovative design at its very best. Said Fouilhoux in the article quoted earlier, "the important architectural elements formed by the smooth bands of colored terra cotta spandrels are nothing more than the strict minimum requirement of the building regulations—namely masonry filling between window heads and sills. The resulting simplicity of wall structure, joined to the simplicity of the mass outline, assumed a large economy as compared with the cost of the decorative elements usually thought indispensible in the design of city buildings." The other components of the elevation were equally straight-forward. Painted eighth-inch steel plate was used for column covers and the double-hung steel windows had horizontal mullions because the building code limited glass area severely.

Obviously, though, it was the color that attracted the most comment. In an article in the McGraw-Hill employee newspaper (August, 1931), Hood himself was quoted on the topic: "When we came to painting the building, we did not start out at the

The "Art Deco" design motifs that distinguished the entrance and lobby of the Green Building were not followed through on the executive floor atop the tower. There, as in the new building, page 51, executive tastes seem to have influenced the esthetic purity. The austerity of the reception room (below) was subsequently softened with books and daily bouquets of fresh flowers.



beginning to have blue but tried many different colors, such as yellow, orange, green, gray, red and even Chinese red, before we finally decided on the present coloring of Dutch blue at the base, with sea green window bands, the blue gradually shading off to a lighter tone the higher the building goes, till it finally blends off into the azure blue of the sky. The final effect is a shimmery, satin finish, somewhat on the order of the body of an automobile."

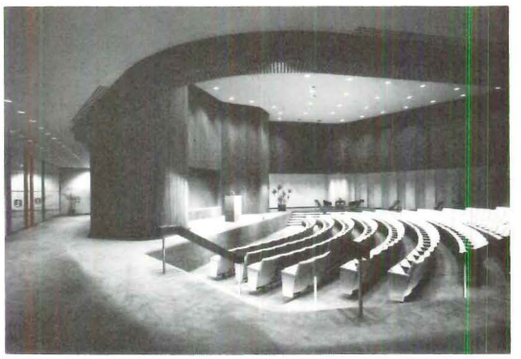
Apparently James McGraw was the one who insisted on a green building, quashing a group who voted for black with orange trim. He was away most of the year when the building was being erected. When he saw it upon his return, notes Roger Burlingame, he was appalled by the color and when he put his sample against the terra cotta, said, "It's awful, perfectly awful. I must have been sick that day." He joined the vanguard of architectural critics of the day. Today, of course, the building looks marvelous and justifies Hood's choice of materials: "After six months or a year," he said in the interview quoted above, "the usual brick or stone facing begins to grow dingy and dank in appearance. Steel and terra cotta are just as durable as brick or other material usually used, and have the advantage of not becoming dingy."

Finally, the construction of the building took only fourteen months from design to occupancy. There are a number of reasons that can be found for what seems an incredible accomplishment to us with our "fast-track" systems and computers. Such speedy work was in fact quite common at that time in New York; the Empire State Building, with two million square feet of net space was designed and erected within eighteen months. Because of the Depression, of course, skilled labor was plentiful and eager to work. Furthermore, planning was simplified because only one tenant had to be consulted. Mechanical systems were much less demanding and there was little interior finish work.

The new World Headquarters

Today, the City of New York has recognized that its Zoning Resolution of 1961, which replaced the one under which the Green Building was built, is not a panacea for every urban problem. In brief, it offered to those who would provide a plaza in front of their office building a bonus of extra

Poor and Swanke provided a number of handsome ancillary spaces in the new World Headquarters. A small auditorium on the second floor and the cafeteria on the concourse level are primarily for McGraw-Hill employees. The bookstore (bottom) opens off the plaza.



floors in the tower. Furthermore, the old system of setbacks was reworked to allow for the building of sheer vertical slabs, an architectural form universally admired at that time. Since then, of course, as Manhattan's Avenue of the Americas has blossomed with endless, empty plazas, attitudes have changed. When the building of which McGraw-Hill later became the major tenant was being designed, the "new" zoning laws were combined with vertical fenestration for the maximum visual effect. The functions to be housed were more homogeneous than in the Green Building. Almost everyone would be doing desk work of one sort or another. No paper delivery, no presses, and no book distribution. Furthermore, the World Headquarters is a very big building. Its program called for 2.2 million square feet of rentable floor space, about four times that of the Green Building.

The principal problem in the design was organizing the various McGraw-Hill companies so that as they grew in size floors above and below could be easily taken over from short-term tenants. Once again, as in 1931, McGraw-Hill took almost 75 percent of the available space and once again between 1969 and 1971, before they could occupy their new building, experienced a "leveling off" of corporate income, as Ted Weber, Executive Vice-President, put it. That meant that the company did not need as much space because a number of publications were sold or other publishing projects curtailed. But the overall effect of it, so far, has been far less drastic than that experienced in the 30's.

The various provisions for employee services and amenities are concentrated in the first two or three floors or below grade. One tower column had to be shifted five feet to allow for an auditorium on the second floor of the seven-story element which surrounds the tower. A large but pleasant cafeteria is on the plaza level along with the bookstore. The plaza itself, twelve feet below the street, is connected to the Rockefeller Center concourse system. It contains a large stainless steel sculpture known as the Solar Triangle. The top and bottom chords of this triangle, which is oriented due north and south, represent the sun angle in New York at noon on the longest and shortest days of the year. One skeptical patron of the arts said it looked more like a reminder for those up on the sidewalk—a

A full-scale building mock-up was constructed to study cladding details and interior arrangements (top left) after an early scheme using Y-shaped partitions (top right) had been discarded. The proposed office, shown in the mock-up, for an editor (middle left) using parallel shelves instead of desks was also discarded. The typical office as built (middle right) has standard furniture which offers minimal flexibility and comfort to its occupant. A traditional arrangement of secretarial desks in the passage adjacent to the window offices (bottom) has been duplicated on all McGraw-Hill floors in the new building.

giant arrow pointing at the door of the McGraw-Hill bookstore.

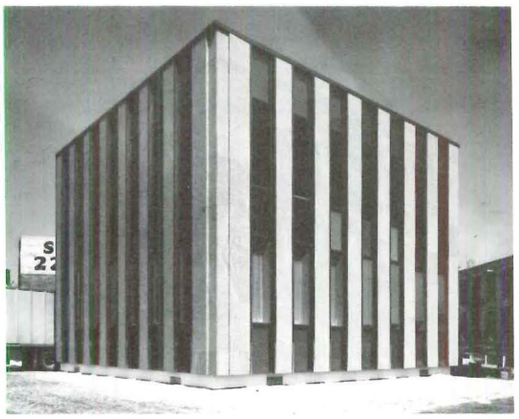
The typical office floor

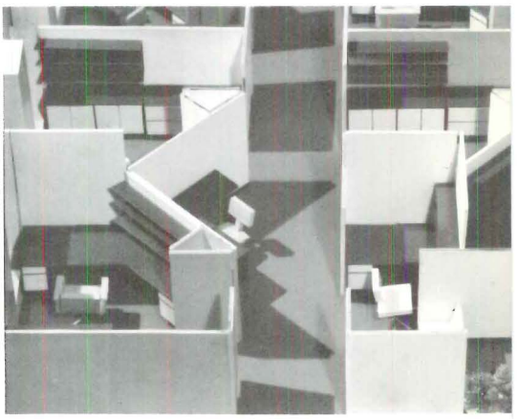
Poor and Swanke proposed, in their earliest interior studies for the McGraw-Hill offices, that a modular partition system, keyed to the five-foot-square ceiling units be used. They also suggested that a Y-shaped partition system be developed that would integrate the secretaries' desks into the design more than their usual placement in an extra-wide corridor does. To study it, a working model of this scheme was built in the Green Building in 1968. A number of editors and their secretaries worked in it for a week or two each and then filled out an evaluation form. Since the diagonal wall could not intersect the ceiling, many of the users felt that their privacy was compromised by the openness. There were also cost problems. Ultimately the scheme was dropped in favor of the more traditional rectilinear approach.

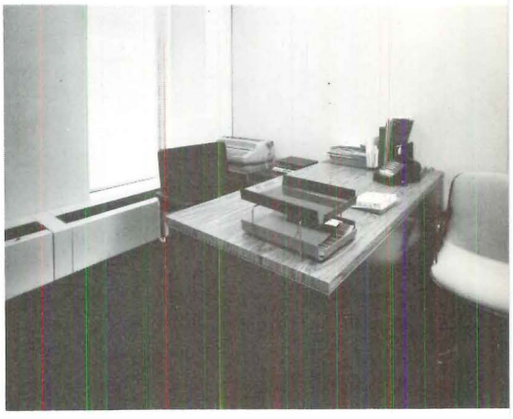
Next, a full-size mock-up of a corner of the building, 35 feet square was constructed in Queens, and various interior arrangements and finishes could be studied there and exterior cladding techniques exposed to weather. The interior conveyed to some, who were used to the unadorned and open offices in the Green Building, too much of the anonymous feeling associated with the standard contemporary corporate office. The doubts were hard to crystalize. After all, there was a carpet on the floor, new furniture, bright orange accessories and nameplates on the beige partitions—everything that architects and interior designers had been pushing for years (although rarely for their own use). There was one nice idea for the ten-foot-square offices that most of the working editors would get. Instead of standard desks and tables, two shelves would run the length of the walls perpendicular to the windows—one desk height, one typewriter stand height. This arrangement had an uncommonly spacious feeling and seemed an economical idea.

The superjanitors

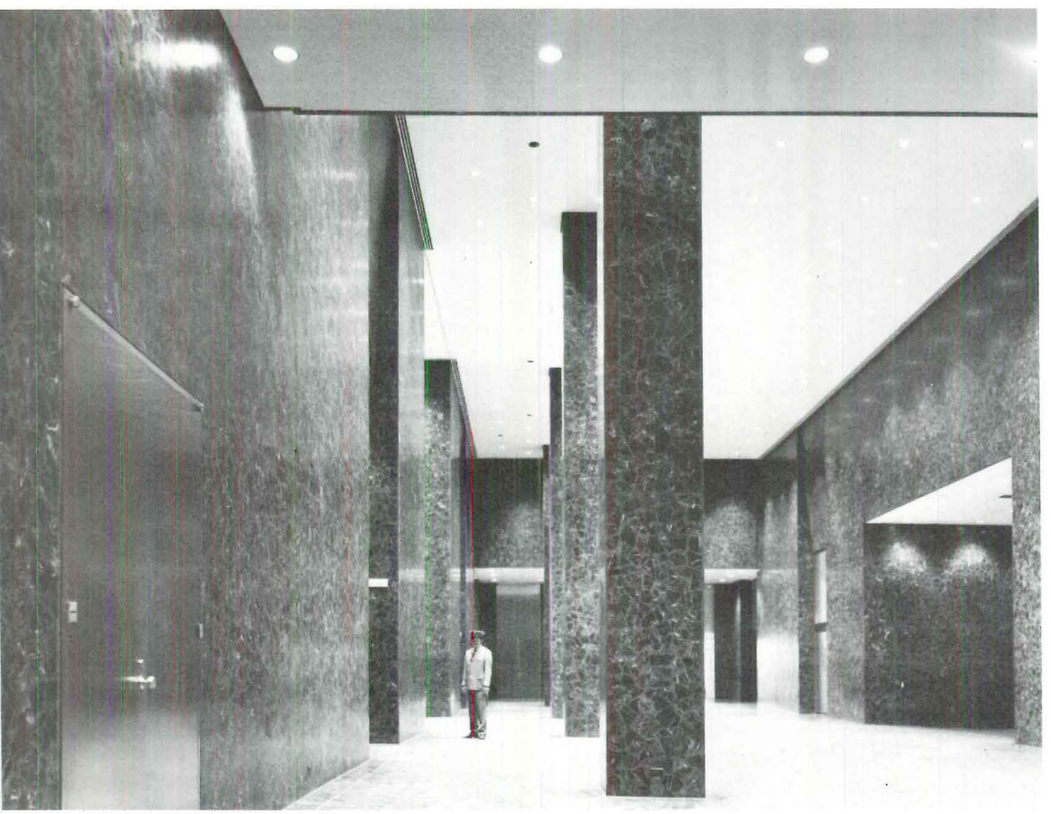
Yet this display, from which McGraw-Hill officials placed orders for twenty-three floors of offices—nearly 750,000 square feet of space—was the harbinger of an installation which if not a disaster, sets a new standard of mediocrity for interior design.







The south lobby (top) of the new building (the smaller of the two on the main floor) illustrates the effect of the Palladian terrazzo specified by Harrison & Abramovitz & Harris for the walls and floors. The well-scaled detail of the Green Building's lobby (bottom) clearly stands out in the comparison.



It is appalling to trace, from the very first, sometimes overly-innovative sketches that Poor and Swanke made for McGraw-Hill, through the "Y" scheme and the mock-up in Queens, to the offices as actually installed, the stultifying effect of the corporate maintenance and security mentality. One McGraw-Hill editor who tried to fight off their influence during the planning stages calls these people the "superjanitors."

As Richard Hayden, partner in charge of the job for Poor and Swanke pointed out, when a man has reached a certain seniority on the McGraw-Hill truck-dock, one of the most likely positions to which he will be promoted is the office planning department since both are part of the General Services section of the corporation. It is people with that kind of expertise, then, who transformed Poor and Swanke's guidelines into the actual material that makes up each office floor. Starting with the endless, enclosed corridors which run along the elevator core, one has premonitions of a Kafkaesque environment. Along one wall, a pathetic imitation of a "super graphic" design leads you to the men's room. Penetrating that corridor wall, the visitor finds himself in a second parallel corridor which is separated from the windows by a series of the two module offices, each with its bright orange nameplate—some floors have blue nameplates to add variety, it's true. But the regularity implied by the sample in Queens is seen here in full bloom. It seems hardly possible that this deadly arrangement is the reason McGraw-Hill "stayed in Manhattan." You know, so it could draw upon that "pool of talented people" who live there.

The typical office

From the corridor the visitor enters one of the ten-foot-square offices. Yes, there are two windows. They give one a clear view, in most cases, of the curtain wall of the office building across the street—no sky, no ground, no vista at all. It is *very* quiet. The brown carpet, found on all floors but those for executives, has become little more than a softer substitute for composition flooring through a series of quality compromises. Instead of the parallel shelves seen in Queens, there is a standard metal desk with a wood-grain formica top. Apparently the maintenance people had objections to the other design and it was

The executive floors of the new World Headquarters are considerably richer than those occupied by the various editorial staffs. For the executives of the subsidiary companies (top two photos), the difference is principally evident in more generous spaces and more elegant materials. On the floor occupied by the top executives (bottom two photos), however, opulence is found that transcends anything McGraw-Hill has seen in the past. Extra-high ceilings transform the "typical" offices there into palatial quarters indeed. The reception room (bottom) is especially interesting when compared to the one in the Green Building (page 47).

dropped. There are standard metal filing cabinets. On one or two panels of the partition there are hanging bookshelves. On the walls there is nothing. When the occupants of these cubicles moved in during July, 1972, they were presented with a memo from the General Services people which said that nothing was to be fastened to the wall that was not in a frame and hung up using a magnetized hook. Furthermore, it said that in order to enforce the rule, teams of inspectors would go around at night and report offenders to their supervisors. That memo, to be sure, has been ignored on a massive scale by the people who use the offices. But it is a tangible index of the degree to which management had allowed the support functions—maintenance, especially—to impinge upon the creative activities of the Corporation.

There is little, in these new office suites, of the sense of cooperative effort that one had in the Green Building.

It is hard to imagine how the magazines, for instance, ever get published because there is no urgency or bustle. When one closes the door to his office in order to use the privacy so thoughtfully imposed upon him, there is a sense of loneliness that is quite opposite to what was intended.

Any criticism must make clear that office arrangements such as these are what seem optimal, from management's point of view, for their creative people. But it is ironic that the imposed privacy is so forbidding that many writers still go home to write when heavy deadlines are upon them. Each of the separate publishing operations now housed in the building, each magazine staff or book division, had relatively little to say about its choices for furnishing its new quarters. Yet none had any choice but to move in and to pay annual rents that increased substantially from the Green Building to the World Headquarters.

The executive floors

It's entirely different on the executive floors, of course. First of all, the carpet actually "gives" under your feet. What regularity there is in the planning is complemented by such spatial generosity that none of the sense of monotony found elsewhere is felt. On the 26th and 37th floors, on which the presidents and various vice-presidents of the two main subsidiary companies of McGraw-Hill are found, the design by Poor and Swanke has a certain architectural restraint.

One is hardly prepared, therefore, for the opulence found on the 49th floor where the top management of the Corporation has its offices. For this floor and the dining rooms on the 50th floor, the firm of Ellen L. McCluskey Associates, interior decorators and designers, was asked to create an ambiance suitable for the giants of the publishing industry that prowl those corridors. It makes the "Raymond Hood Colonial" seem austere indeed. French (bordello) provincial is the prevailing style although each individual office has been designed to suit its occupant. An enormous reception room adjacent to the offices of the principal officers, many of them descendants of James himself, contains every cliche shown in *1001 Decorating Ideas*. The walls of the board room are horizontal pine boards between white Ionic pilasters. But—and this is important—almost no one has his own toilet. So as one walks this corridor on truly plush carpet, on the side opposite the large offices, are frequent doors labeled in script, "men."

What matters is not to make easy fun of all this, but to recognize that if the quality of the average office has been improved somewhat, the quality of the executive offices now bears no relationship to those of the old Green Building. The gap between the working force and management has become enormously wide.

The World Headquarters lobby

The same comparison can be made concerning the lobby of the new building. Except for the elevators, escalators and a candy stand that is completely invisible, it is EMPTY. It is empty and it is huge. Counting only the main floor (and there are lobbies on three adjacent floors as well), it is, at 32,000 square feet, almost twelve times as big as the lobby of the Green Building for about four times as many people. Michael Harris, who was one of the principals on the job for Harrison & Abramovitz & Harris, says that it is planned to put some plants in the north lobby but they are not there now. During most of the day, the only occupant is the platoon of Wackenhut guards who make sure no one walks out with a typewriter.

The walls and floor are made of Palladian terrazzo. Harris explained that the

The Green Building's presence on 42nd Street since 1931 has done little to change the ambiance of that unique thoroughfare which looks today much as it did in 1939 (bottom). On the other hand, the new building's plaza is already a vigorous part of life on the Avenue of the Americas (top), clearly identified by its Solar Triangle sculpture and used for various concerts and other outdoor programs.

McGraw-Hill management wanted something different from the white marble walls of the Exxon Building across the street. So the designers took red Levanto marble slabs, which are rarely available in large sizes without flaws, broke them up and fastened the "chips," many of which are six or eight inches across, to the walls and floor. Then they poured a matching red grout around the chips and polished the surface. A small sample of it is quite interesting—it's dark red, has both glossy and matte areas in its surface and the marble graining is quite rich. But an empty space almost two-thirds of an acre in area with every wall and the floor done in red Levanto Palladian terrazzo is depressing beyond belief. Two lofty quotations about learning from Plato and John Kennedy complete the decor. All in all, it's quite an appealing introduction to a company which still says it is "serving man's need for knowledge."

The World Headquarters facade

Perhaps because so many office towers have been built in recent years whose construction benefited from the kind of thinking that went into the details of the Green Building, there seems little to say about the World Headquarters facade.

Only half of the surface area is glass—and part of that covers the spandrel. The principal technical question in designing the facade was how the stone would be fastened to the structure. Originally it was to be held by continuous metal angles that tied into the window mullions. Then, because some knowledgeable McGraw-Hill people insisted, a second detail which would reveal the edges of the stone by fastening it from the back was developed (both can be seen in the mock-up photo, page 49).

The second was chosen for construction and it was a good choice. When the reveal is hidden on a stone veneer, the material loses much of its character. As they did in choosing the material for the lobby, the McGraw-Hill executives asked that a facade material different from the limestone of the neighboring Exxon Building be used. The red granite selected gives the overall building a warmth that is very welcome.

One final technical comparison with the Green Building that is instructive is the length of the construction period. In the case of the new World Headquarters, planning began early in 1967; substantial occupancy took place in July, 1972—a period of more than sixty months and nearly five times the Green Building's gestation.

The primary cause for the difference, probably, was the extremely active office building construction scene in New York in the late '60s. That made it hard for Rockefeller Center to find a general contractor large enough to do the job. Strikes of all sorts (not a problem in 1930) slowed work during the period. The size of the building (although it is only slightly larger in area than the Empire State Building), the problems of coordinating multiple tenants, the Building Department bureaucracy, and the more sophisticated communications installations are other reasons.

But one that specifically did slow down work had to do with the air conditioning system. The sheet metal workers in New York have successfully limited the membership in their union so that during the tall building boom, there were simply not enough people to install the ducting—and this, in turn held up the interior finishing.

The financing of the two buildings

Naturally the extended construction period plays havoc with building costs: interest on construction loans must be paid while future tenants, waiting to move in, pay no rent. That of course was the main reason why the owners of the Green Building, and the others built so quickly in the '30s, planned their projects around the most pragmatic construction techniques.

One of these was the negotiated contract. In an article which accompanied Fouilhoux's in *Engineering News-Record* (October 8, 1931), Andrew J. Eken of Starrett Brothers & Eken, the builders, set out the advantages: "1. low costs; 2. favorable purchasing and sub-contracting; 3. rapid construction and avoidance of delays; 4. a satisfactory structure." Such contracts were apparently a new idea at that time although today it is very common on large work—the World Headquarters was built under a negotiated contract by the Turner Construction Company, which, parenthetically, had been an unsuccessful bidder for the Green Building.

But negotiated contracts still make architects nervous. In a letter to James McGraw, Jr., written on June 5, 1930, as McGraw-Hill was arranging a package deal with Eken's company, Raymond Hood expressed doubts that sound very up-to-date: "The impression I have gathered is that in this deal, your business will be only a secondary consideration, and that the first will be to put through the real estate and building deal. After all, a clever salesman may sell a man a suit of clothes that does not fit; but if he sells a business as complicated as yours a building that does not fit, it may be a costly bargain in the end."

It was no doubt this advice that made McGraw, Jr. question Starrett and Eken, as the contract was being signed, about the lack of a clause which would allow the owner to fire the builder if cost estimates ran too high. Col. Starrett wrote a long and fancy letter as to why such a clause was unimportant and urged McGraw to sign immediately so he would have the building without delay.

The building was finished on time but Hood was right: on a building that was estimated to cost $2.7 million, there were $642,000 in approved extras, a 25 percent cost overrun. That wouldn't surprise us today but in the '30s it was quite a shock to McGraw-Hill. Thanks to Isabel Loughlin, McGraw-Hill archivist, it was possible to learn much more about financial matters from the '30s than about those associated with the new building. This is about it: Rockefeller Center owns 55 percent of the building and McGraw-Hill 45 percent; the overall cost figure given out by McGraw-Hill is $175 million for land and building.

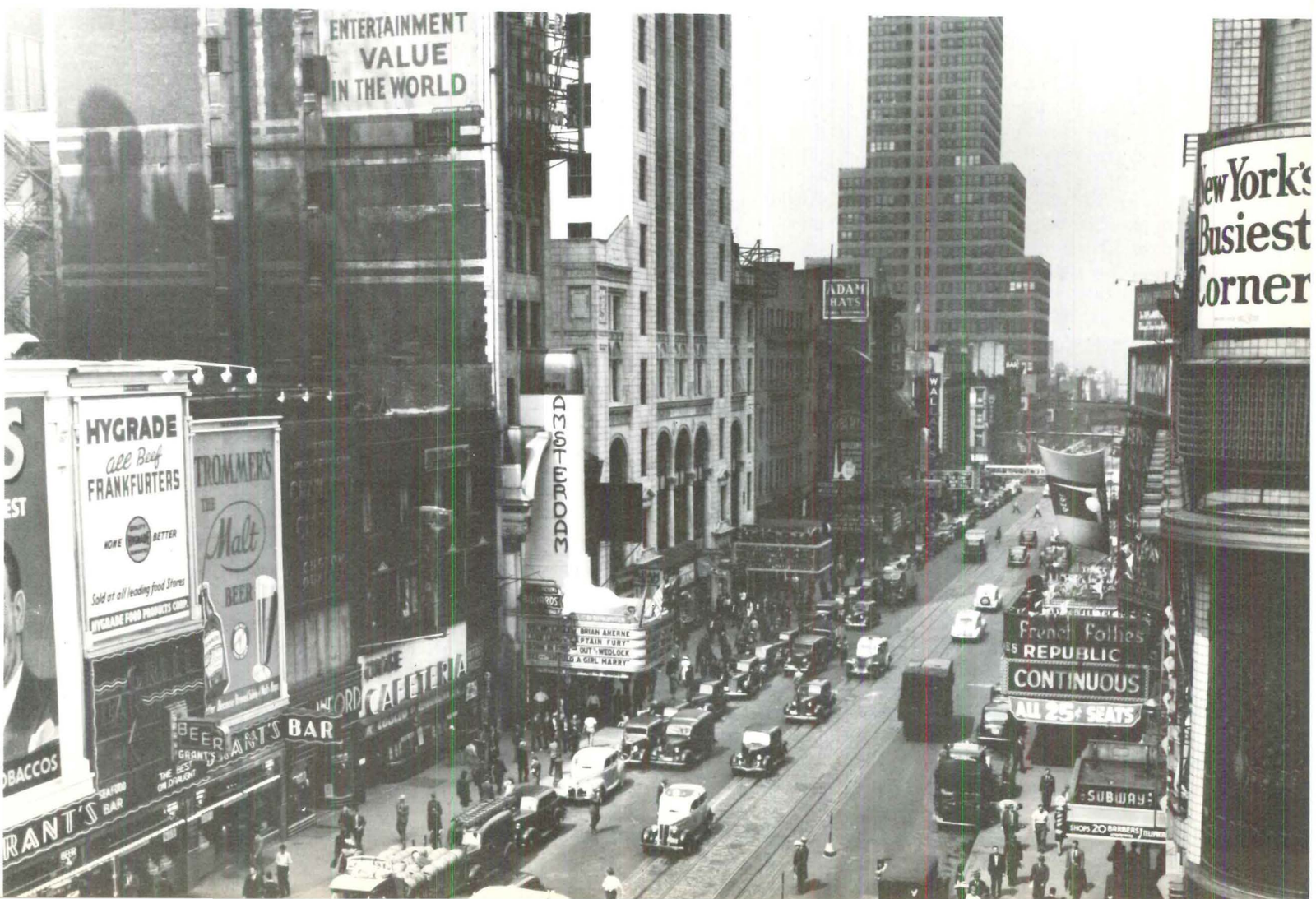
An interesting financial sidelight is that McGraw-Hill sold the Green Building to C. Russell Feldman in October, 1970 for about $15 million. In January, 1973 McGraw-Hill resumed ownership with an unpaid balance of $11 million. McGraw-Hill apparently made about $4 million on the deal—which is exactly what the Green Building cost in 1931—and intends to try to sell it again.

The two buildings and the city

It's in the area of urban amenity that the World Headquarters wins hands down. The plaza at McGraw-Hill may be the nicest one of all those that have appeared in Manhattan in the last few years. Not only does it have, like its neighbor Exxon, trees in size and quantity enough to count against the towering buildings but it has, in its depressed portions, an arena which is proving a marvelous stage for all kinds

continued on page 82


IRVING TRUST COMPANY
IRVING TRUST COMPANY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Fabric structures grow up

The tent has come of age. Since Japan's Expo '70, in Osaka, new enthusiasm and new technology have led to more sophistication in fabric structures themselves and in our understanding of them. No longer are they relegated to the role of temporary or display structures exclusively.

Japan was by far the most prolific exhibitor of fabric structures at Expo '70 and the color and whimsy of her myriad structures continues to dominate memories of the fair. But the air-supported U.S. pavilion, despite the fact that it was almost invisible, was probably the most significant structure. Its low-profile design opened the door to long structural spans that could thereafter be designed at little cost premium.

The article that follows examines some major developments in U.S. and Japan since the fair.

Fabric structures have proliferated throughout the world in the past several years, but in the U.S., a new trend towards permanent, large-scale structures has dominated. And the most enthusiastic clients for these structures have been educational institutions. Fabric structures have become serious competitors for the school construction dollar and are considered alternatives, in some cases, to conventional, rigid construction, particularly popular where large spans are desired. Sports arenas and convocation halls are typical applications.

As early as 1960, the Forman School, in Litchfield, Conn., put an athletic field under cloth for about one quarter the cost of a conventional fieldhouse. But it is only since Expo '70 that fabric structures have been considered more "buildings" than "covers."

The Educational Facilities Laboratories (EFL) in New York has become involved in this effort by providing seed money to campuses seriously investigating the possibility of an air or tensile fabric structure. Eight are currently in the works and they range from rejuvenating an aging stadium in Minnesota with an air-supported roof, to housing now-scattered recreational and sports activities under an air roof nestled in the hills of Tennessee, to putting theaters and double-decker gymnasiums under multi-peaked tents in California.

Antioch College (see p. 68) has already completed an air-supported fabric structure that houses a whole campus. Students study and play in the structure, which shelters a terrain now littered with all kinds of mini-buildings that are used as classrooms, lounges and other specialized areas.

The air structure holds a special attraction for many students who see it as a release from the rigid bounds of conventional architecture. The freedom and openness suggested by the air structure reflect the parallel appeal of freer life styles. For this, many, though certainly not all, students seem willing to overlook those days when the bubble's temperature soars well above 100 F (the result of cutting costs on mechanical systems).

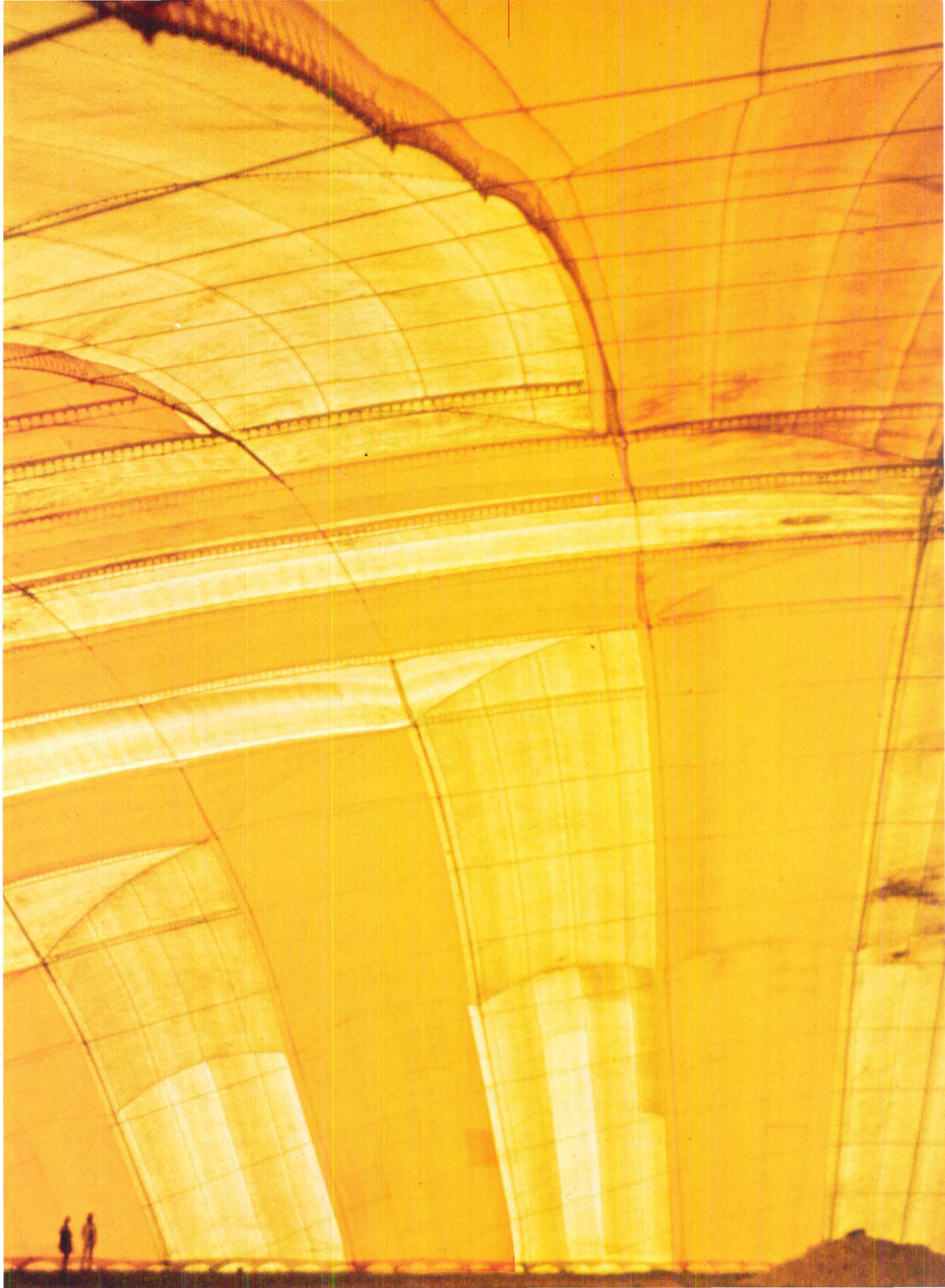
Design professionals seem equally attracted by the space race—some are fascinated by their increasing ability to enclose more and more volumes of space for longer periods of time. Others are fascinated by what they can do with that space after it is enveloped.

The Research and Design Institute (REDE), a non-profit, multidisciplinary research agency in Providence, R.I., has become particularly involved with the challenge of creating satisfactory interior environments, especially in large-span air-supported structures. Says REDE's Ron Beckman, "Whether or not the fabric structures are permanent is not the important issue because they can always be replaced. What is important is how and whether we make livable environments inside them." REDE did the interior planning for Antioch and for La Verne, a tensile structure in California (p. 66) also supported by EFL. A tentative combination of both indoors and outdoors pervades both layouts. The scale is outdoor and so the interiors include "micro-environments" made of geodesic domes, tents and other normally "outdoor" structures, as well as more conventional interior accoutrements.

Aside from the fascination large interior spaces exert, the prospect of structures of such scale that they can enclose whole cities or regions is raising new questions about how man can adapt. The largest scheme planned so far is a proposed city in Alaska, and there is a park proposed near Indianapolis with a 1400-ft. span; but structures far larger than that are already feasible. They may be so large that people may stay "indoors" for days or even months.

There may be real danger for man in these situations and, so far, we know very

Opposite: Interior of giant air-supported structure designed by French engineer Laurent Kaltenbach.



little about either the physiological or psychological impact of nearly permanent indoor living. Separation from the sun, wind and rain may be comfortable, but is it good for man? Preliminary research suggests that it is not.

Sean Wellesley-Miller, of the Massachusetts Institute of Technology, recently lectured to professionals attending an air structures conference about the physical hazards people may face. The most devastating was a deficiency of vitamin D, which we normally get from the sun. Without it, our bones disintegrate.

On the psychological side, we know that some people feel slightly disoriented in large spaces and that fabric structures, particularly air structures, can be both attractive and disturbing because of their so-called ethereal atmosphere. When a couple tried living in an air structure at Princeton University, they reported a kind of "reverse claustrophobia" from too little enclosure, as well as a "lack of privacy." These are areas that must be studied before we get too carried away with our technical abilities in enclosing space.

Fabric structures generally are simple in concept, but tend to be complex in their design considerations. At least two basic rules apply, regardless of the type of fabric structure under consideration. First, it is important that the architect work closely with a fabricator and engineer from the beginning of his design work. How the structure will be made, transported and erected is intrinsic to its design. Most damage, in fact, occurs during erection and shows up in the first several months of the structure's life. Second, it is important in design to adhere to the "soap bubble" principle, which stipulates that all membrane stresses must be equal. In a soap bubble, flow equalizes stresses; in a fabric membrane, man must accomplish this through manipulation of tension and compression forces.

At this point, then, it is relevant to consider the different types of fabric structures that exist and the special properties of each. There are basically two kinds: air and tensile structures.

Within the category of tensile structures there are open and closed systems. In a closed system (Fig.1) the compression edge member acts on the periphery of the system, the tension membrane acts within that boundary, and the two forces equalize each other. Figure 2 shows a chair (plan) designed by architect Ching-Yu Chang, a specialist in fabric structure design practicing in New York. The same plan could be used for a full-scale structure with a fabric membrane. Figure 3 shows another closed system design by Chang (who is also a consultant to the Taiyo Kogyo Co., the largest producer of Japanese fabric structures). This design, developed with students of Temple University, has a double membrane separated by compression elements at each cable juncture. Tensioning the cables will raise the center of the structure, resulting in a clear span beneath.

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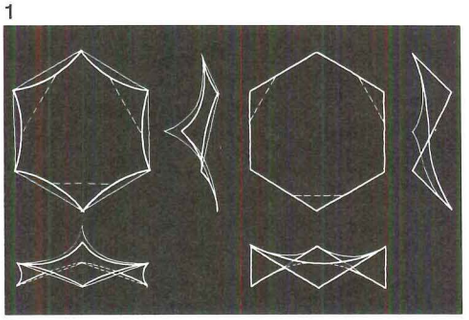

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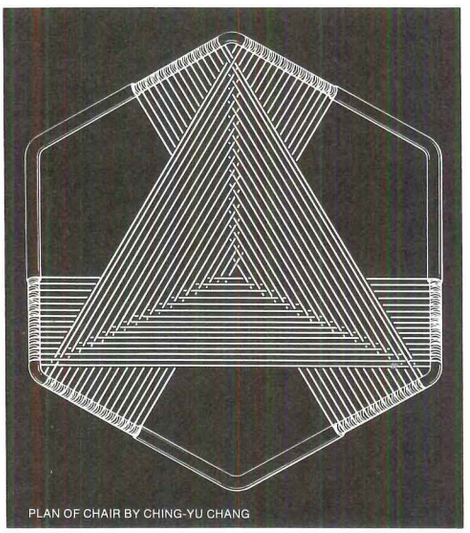

PLAN OF CHAIR BY CHING-YU CHANG

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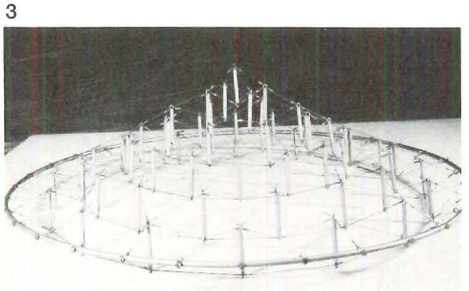

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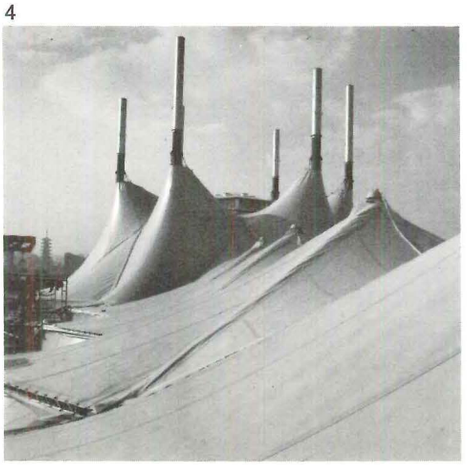

An open system structure brings all forces into the ground for resolution instead of balancing them within the structure and so generally requires much more foundation work. It has its membrane and cables in tension and in addition, has a compression element, such as a mast, anchored to the ground. The Olympic stadium for last year's Olympics in Munich was such a structure, as is Figure 4.

There are also structures that combine elements of open and closed systems. In these, the perimeter compression member is placed inside the tension edges. A series of masts so placed, for example, acts as a compression ring.

Within the category of air structures there are also two basic types: the air-supported and the air beam structure. The first and simpler is an air-supported structure with either a simple or reinforced membrane. A reinforced membrane is relieved of some primary forces by a web or cables, which may also reshape or stabilize the envelope. In all cases, the structure (Fig. 5) is designed primarily to resist external wind forces. Figure 6 illustrates the net forces on an air structure in which internal pressure is equal to maximum wind pressure.

Another kind of air-supported structure (Fig. 7) uses a berm or other solid structure to carry the positive wind forces and so reduces the load on the membrane. This is a low-rise structure with an optimum rise of about 20 percent of the span, with the fabric portion rising only 5 to 7 percent. The primary force exerted on the membrane by wind is suction, or lift (Fig. 8). It is *this* structure that can be expanded almost indefinitely.

In an air beam structure, structural form is achieved by an inflated beam, column or

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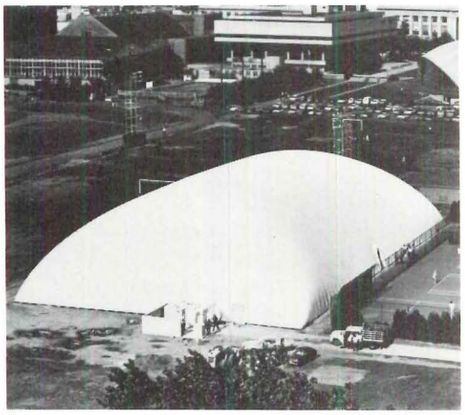

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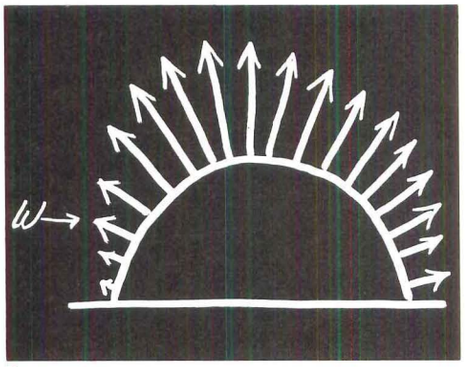

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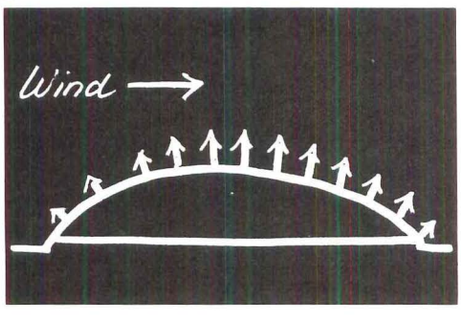

arch member, which then supports an enclosing membrane. The first such structure in Japan was a tent (Fig. 9) produced in 1929, where the supporting members were air-inflated tubes. Expo '70 (Fig. 10) saw a quantum leap in the sophistication of such structures, which are now a primary object of Japanese research on fabric structures.

In the area of technological research on fabric structures, the most exciting U.S. work is being done on materials, and it is development in this area primarily that has made permanent fabric structures possible.

Most U.S. structures have used primarily vinyl-coated nylon, fiberglass or polyester, which normally lasts about 5 years. Even more fragile are vinyl films that last only a few years. Neoprene or hypalon-coated nylon, polyester or glass will last 12 to 15 years if painted every four or five years.

Japan has had a similar tradition of "temporary" structures. The most common fabrics there are a base of PVA Vinylon fabric (PVA is an innovation that is cheap and resembles cotton) and other synthetics, such as polyester tetron and polyamind nylon fabrics. Coatings have included PVC resin, chlorosulfonated polyethylene hypalon rubber and chloroprene neoprene rubber.

Recently, however, a product called Teflon (a trademark of the E.I. Dupont de Nemours & Co., Inc.) has become available. It can be guaranteed for 20 years, and it alone will not deteriorate under ultraviolet light and will qualify as a permanent structural material under most building codes. Static tests, in fact, indicate that Teflon-coated fiberglass can last 100 to 1000 years, but the actual material is subject to weather abrasion and flex. Teflon is also self-cleaning; pollutants will not attack it; and its ignition point is over 1000 F., making it qualify as an incombustible material under fire codes.

Teflon generally costs 4 or 5 times as much as the more common vinyl (which is subject to ultraviolet degradation and melts at 250 F.), but it can be made in much greater widths than vinyl and so fabrication savings may offset some of the added cost. The cost differential now, however, does prompt some designers to recommend vinyl even where a client wants a permanent structure, on the supposition that Teflon will cost less in the future or

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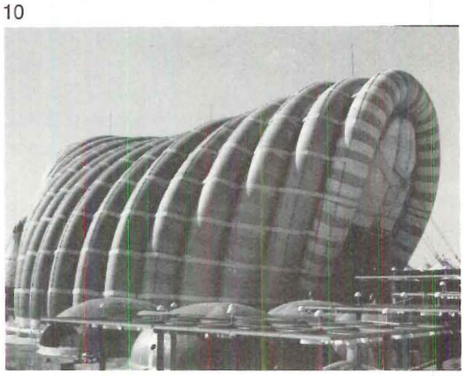

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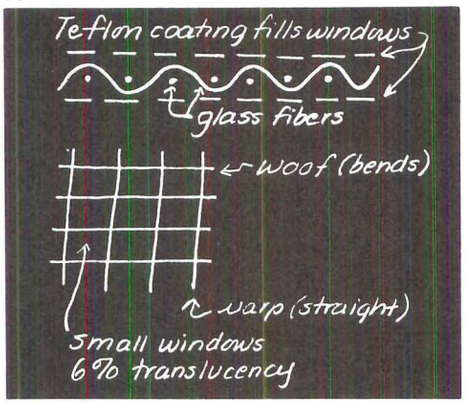

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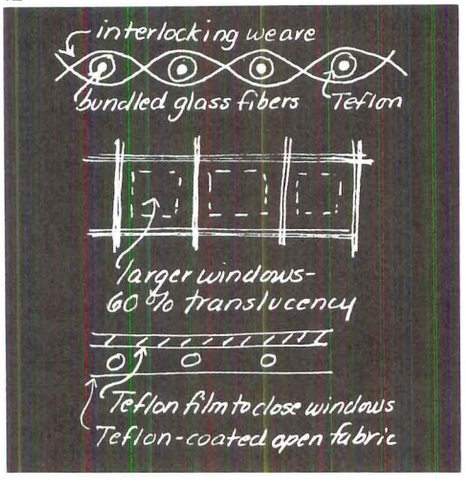
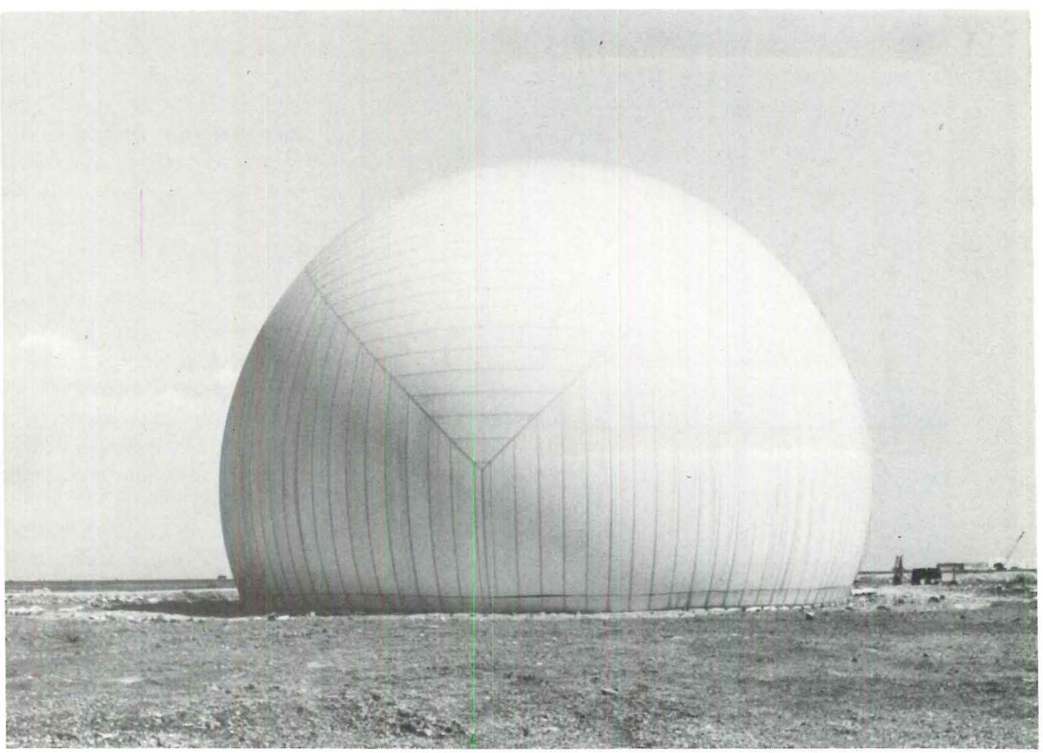


Among the most recent projects of Japan's Taiyo Kogyo Co. is a tensile exhibition structure (upper left); an airplane maintenance hangar (middle); and a construction site shelter (bottom). Opposite page: a tensile demonstration building (top); reception pavilions (left) and a new theater (right).



that there will be other new developments available by the time the vinyl must be replaced.

Another development associated with Teflon is a Teflon film that can be metallized (vacuum-coated with metal, such as aluminum) to make a reflective surface. Much like reflective sunglasses, this film will stop heat, but let light through.

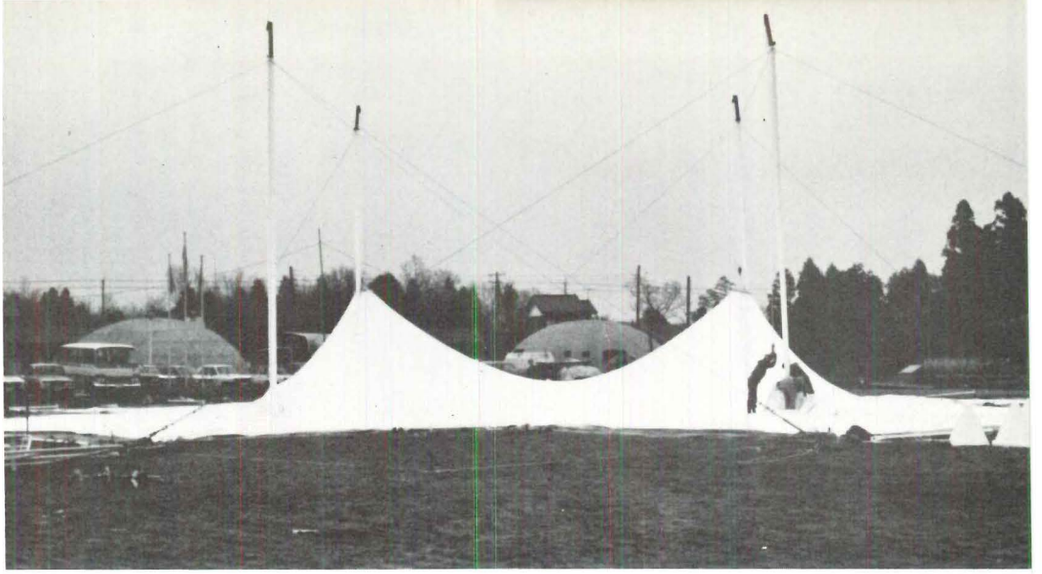
An even newer material than Teflon is a fabric, also developed by Dupont, that cannot be cut (except by a high-speed rotating diamond blade). Today, the price is still too high for the product to be practical for structures, but the tire industry is already working to reduce the price so that it can replace the steel and glass it now uses in tires. When the price comes down, the material is an obvious antidote to vandalism.

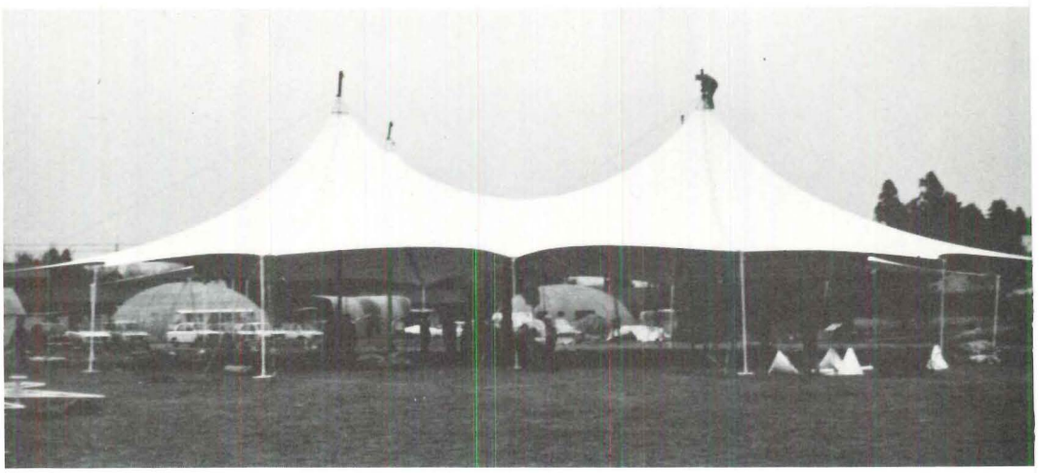
Another new material (patent pending) has been developed by engineer David Geiger (of Geiger Berger Associates) that is 60 percent translucent, compared to the U.S. pavilion's 5 percent. It uses an interlocking weave (Fig. 12, p. 57) to eliminate the warp and woof (Fig. 11) characteristics of fabric, where fibers lengthwise are straight and cross-fibers are kinked. The fibers in the new material are bundled and protected by Teflon, making them difficult to cut. The bundled fibers allow larger weave and so greater translucency.

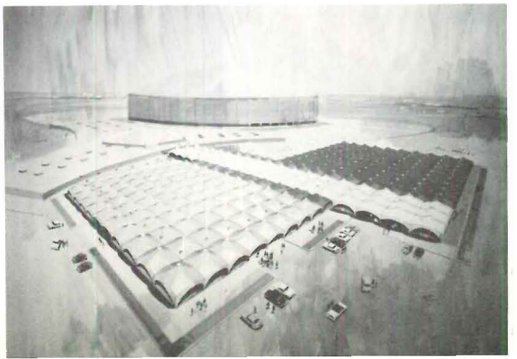
Other areas of needed technological research include a study of fabric structures in relation to energy conservation. This extends not only to the operation of mechanical equipment in the structure, but to fabrication and erection as well. (It is interesting to note, however, that recent cost comparisons made by Geiger Berger Associates, engineers for the U.S. pavilion, indicate that an air-supported structure can save up to 30 or 40 percent in operating costs for heating and air conditioning. This is because such large, relatively flat structures tend to act as thermal storage reservoirs, much like the ground beneath them. It takes longer for them to heat up on a hot day or to cool off on cold days.)

Other technological frontiers are suggested by reports that air-supported structures can be used as evaporators for desalinization or to irrigate deserts by condensing the cool night air on their interior and shedding it as rain. Robert Engelbrecht, an architect who served as consultant on

Taiyo Kogyo prototype (top) for Transpo '72 (middle) at Washington D.C.'s Dulles Airport. Prototype (bottom left) for Astrohall '72 exposition in Houston, Tex. (right) includes elevated compression member at center span. Opposite: Ching-Yu Chang design for floating city (top right) uses air-beam compression ring; anchorage is illustrated left. Chang's air-beam design for indoor tennis (bottom right) is a rectangle for side-by-side court expansion, but two squares per court for end-to-end additions. Taiyo Kogyo's air-beam proposal, Bubble of the Pacific, for Okinawa's 1975 Oceanographic Exposition (left) spans 250 meters over water.







the Princeton experiment, has said that since air structures are essentially sealed environments, they can be used to contain or resist air pollution, to reflect or attract sunlight, to contain or muffle sound and to collect water for demand storage. Albert Dietz of MIT has done substantial research on using air structures as solar heat collectors for heating and cooling systems.

There is also agreement that we do not know enough about the phenomenon of rising heat to fully utilize it. One application is as a preventive measure against snow accumulations—a relevant subject in both the U.S. and Japan. Most codes require buildings to withstand up to 40 lb. per sq. ft. of snow loads. But this is an invalid concept for air structures because they alone are able to deflect temporarily under loading without suffering any structural damage. Obeying the standard codes would mean overdesign in an air structure or, at best, enough extra mechanical equipment to keep the roof up under a load. It would be far easier to prevent the snow load by heating the roof.

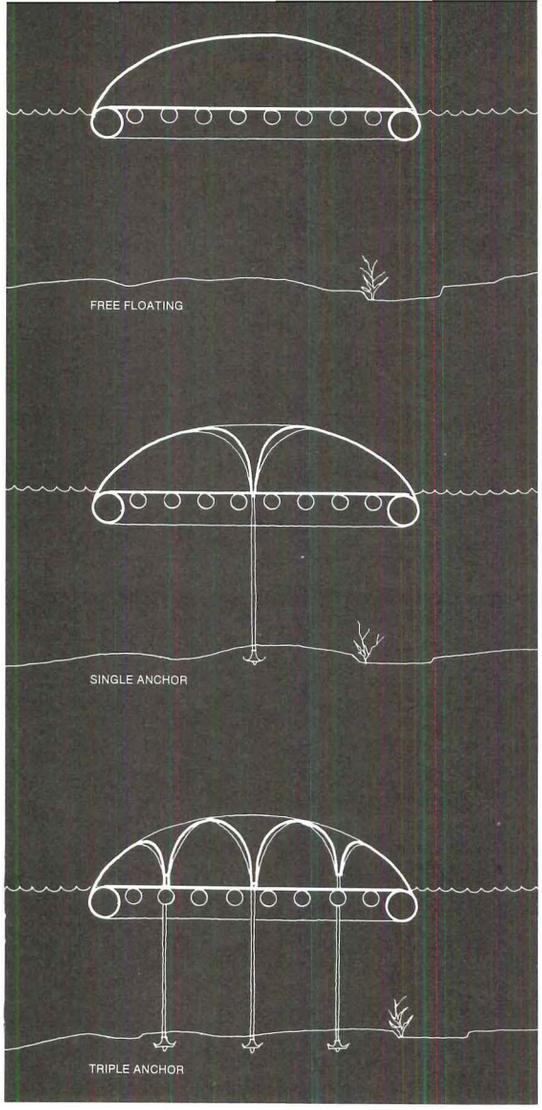
Besides research concerning the materials and uses of fabric structures, there is also a great deal of research being done on the structural forms themselves. Japan, in particular, is investigating the use of air beams (instead of rigid steel or concrete rings and earth berms) as compression rings for air-supported structures. Not only could the "soft" compression ring save money, but it could mean that structures of almost limitless spans could be built on virtually any site, including water.

Illustrated at right are some of the newest designs by Japan's Taiyo Kogyo Co., which now has plans for a U.S. factory, and by Ching-Yu Chang. Chang notes that were Expo '70 to be restaged, the whole exposition site could be covered by a single air structure. Or, with new developments in air-beam compression rings, Chang foresees floating expositions that can move around the island of Japan or even to different countries.

Obviously, the fabric structure can no longer be considered a toy. The possibility that we may all live under, or at least with, such a structure becomes more real every day, on land and sea.

The pages following this spread are a review of new fabric structures in the U.S.

—MARGUERITE VILLECCO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SINGLE ANCHOR
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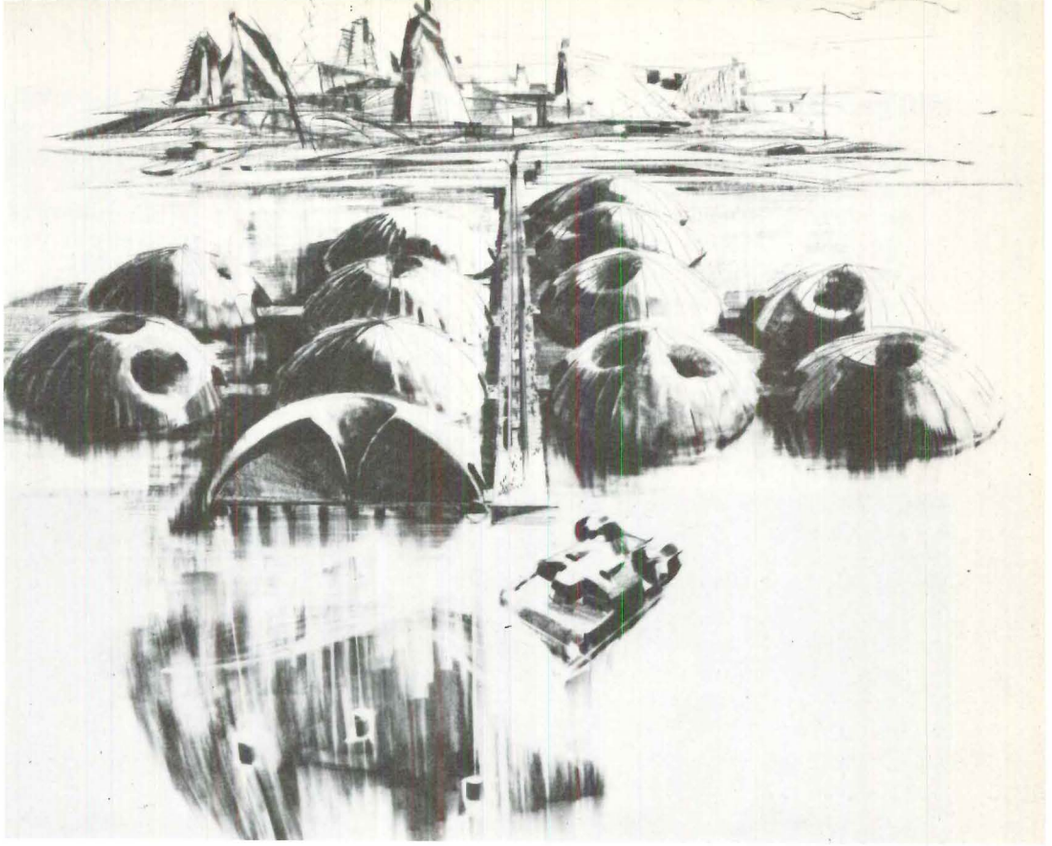
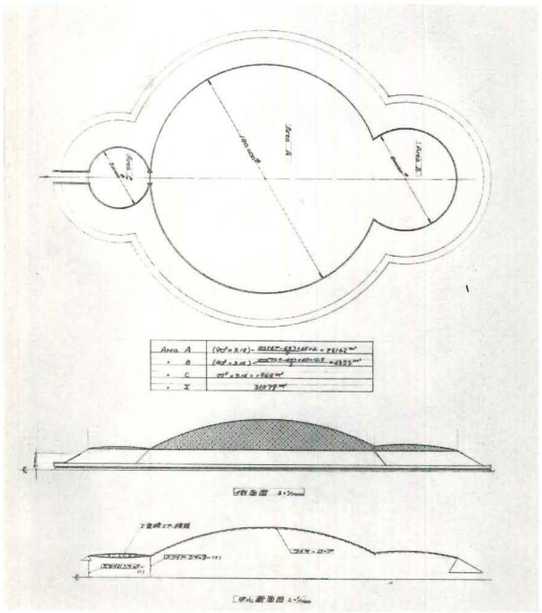




Milligan College

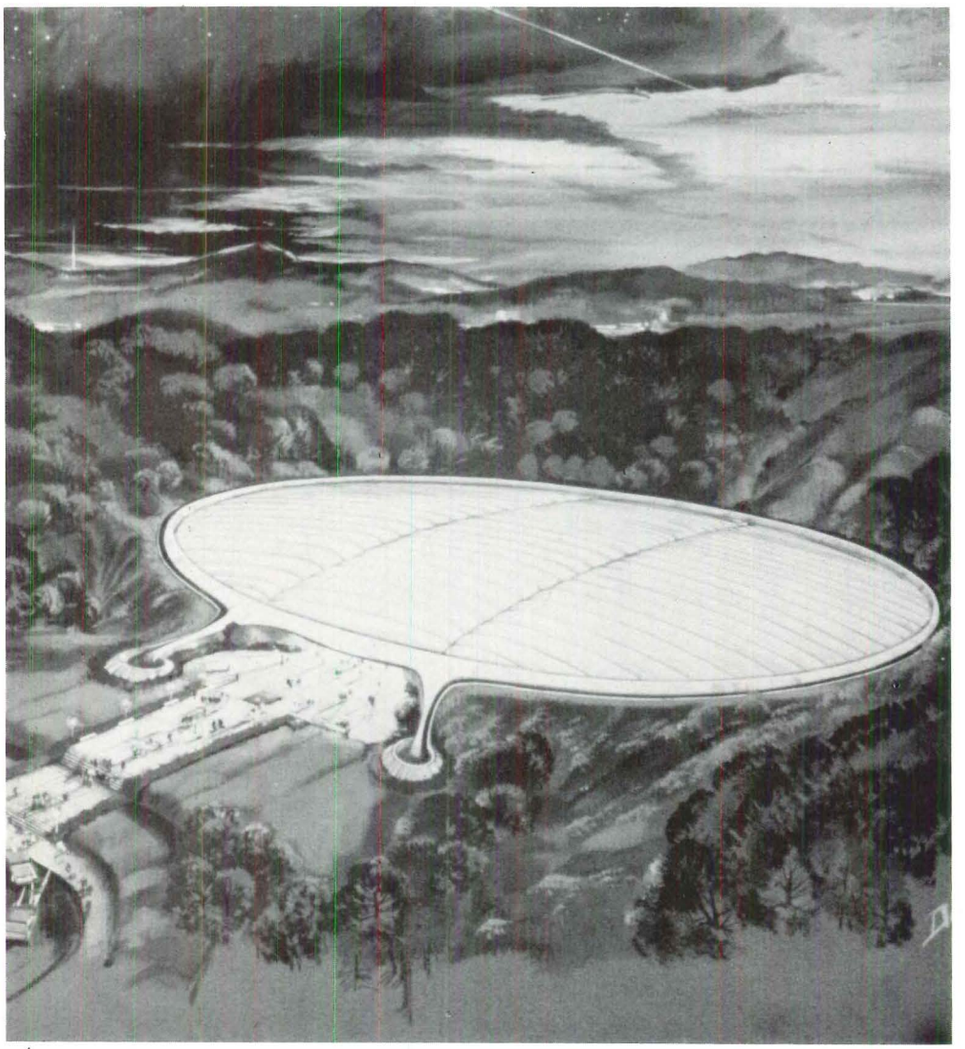
This small, private college in Tennessee took a bold step last year, when it began constructing the largest permanent air structure in the U.S. The clear-span structure encloses 45,000 sq. ft. for $1.5 million.

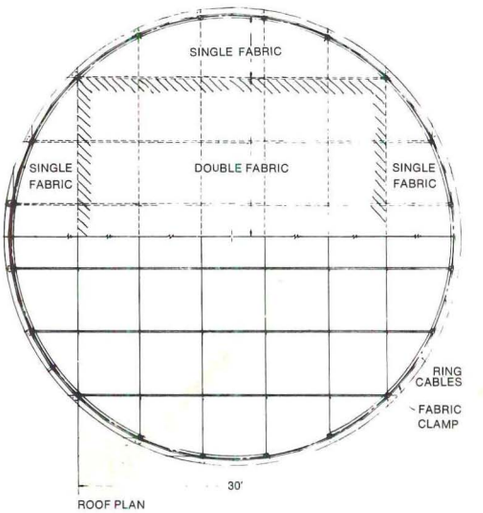
The project is a two-level fieldhouse and it seems sure to become a true student mecca. Designed by the Shaver Partnership, architects, with Geiger Berger Associates, P.C., engineers, it will house academic, intramural and inter-collegiate programs and serve as a community center. Basketball, track and lifetime sports are located on the top level. A pool, lounge, locker and training rooms, and offices are below.

Milligan was the first privately-financed air-supported structure to receive a permanent building classification in the U.S. It is a 212-ft. clear span structure with a Teflon-coated fiberglass skin. A steel cable network is attached to the top of the fabric as reinforcement. The lower level of the fieldhouse provides the base for the concrete compression ring.

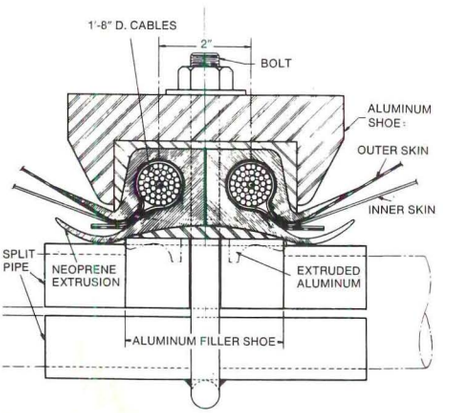
The structure takes full advantage of the natural land forms around it and lies low in a natural bowl. Two ends were dammed to form an earth berm.

The Educational Facilities Laboratories provided seed money for the feasibility studies on this and many of the structures following. It will follow through by working with the National Bureau of Standards to instrument several buildings, including Milligan, for feedback on thermal conditions, structural and wind loads, acoustics, light, maintenance and climate control.

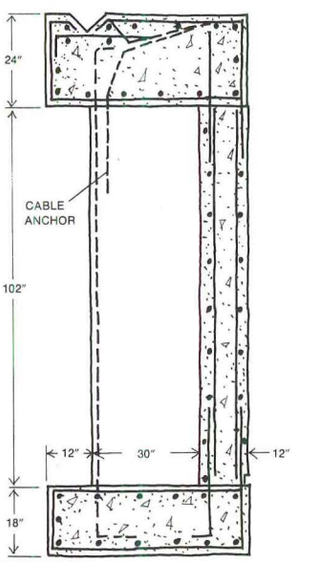




ROOF PLAN



CABLE CLAMP AT INTERSECTING CABLES



RIB AND CABLE ANCHORAGE

University of Santa Clara

The most recent reports are optimistic that this plan for a pair of air structures at the University of Santa Clara (Calif.) will be built. When it is, it will be one of the more interesting projects in the U.S.

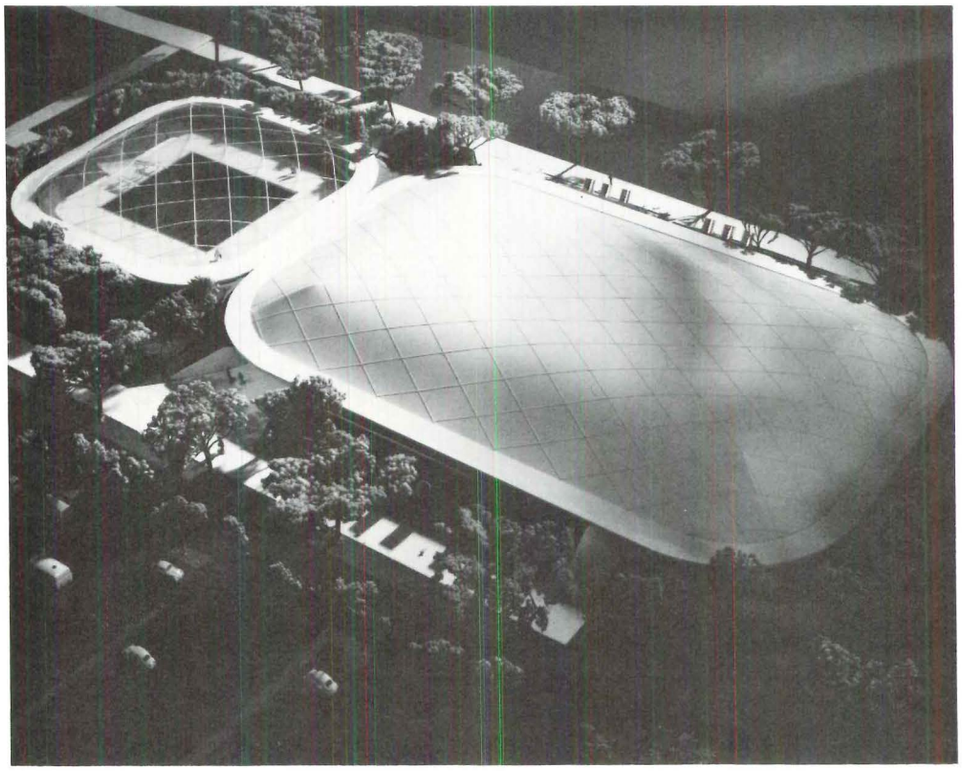
The plans call for a Teflon-coated air-supported structure that will span a student center and a vinyl version for an adjacent pool area. The college turned to an air structure for several reasons, including a low budget, poor soil conditions, the low-profile of surrounding buildings and the possibility of earthquake.

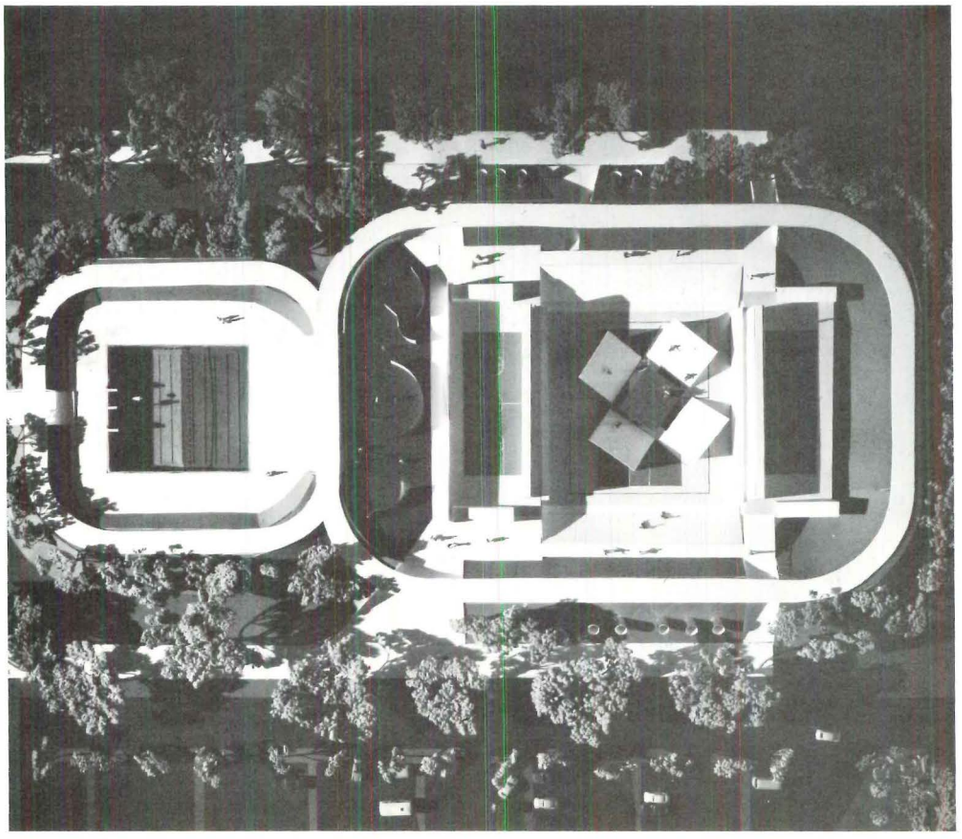
The main structure will house one main and two smaller arenas for sports from basketball to karate. There will also be seating for up to 6,000 persons and accommodations for lectures and other non-sporting events. On a lower level, there are changing rooms and shower areas that connect to the adjacent pool.

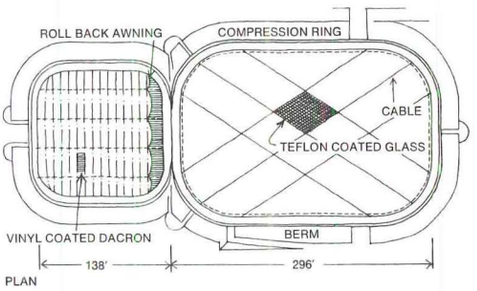
The pool's roof is a "plug-on"dome that can be inflated during the several months of inclement weather and removed in the summer. The deflated structure will roll along support cables and, in a folded position, form the canopy for an outdoor dining area.

Earth berms will be formed around both structure areas and a concrete ring on the top of the berms will connect the two bubbles. Both will have cable-reinforced membranes. Fastrack scheduling will speed construction.

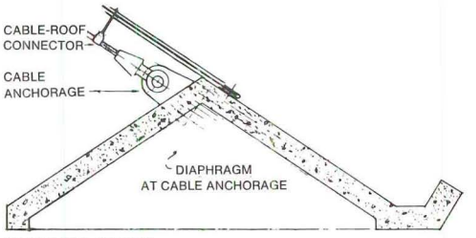
Caudill Rowlett Scott were the architects on the project, with engineers Geiger Berger Associates among the consultants.



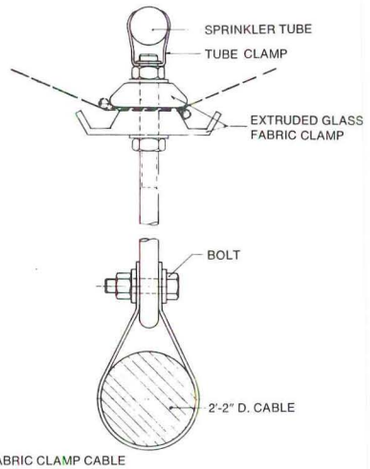




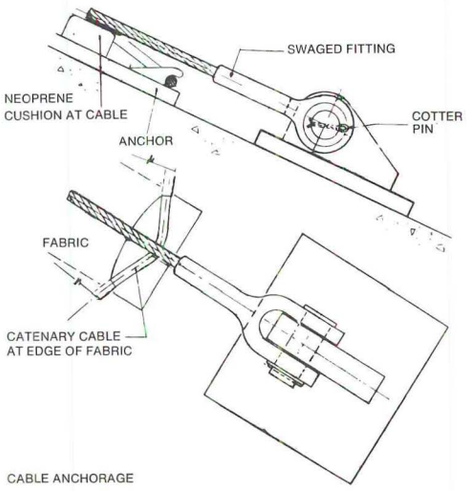
PLAN



TYPICAL RING SECTION



HANGER/FABRIC CLAMP CABLE



CABLE ANCHORAGE

Charles Wright Academy

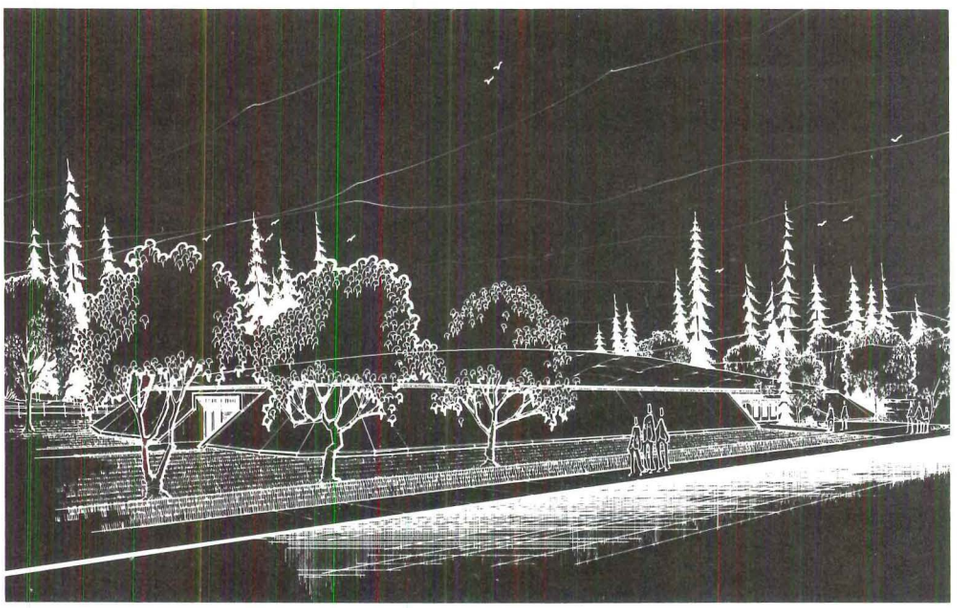
Because the scheme for the Charles Wright Academy, in Tacoma, Wash., is so simple, EFL has called it one of the best demonstrations yet of the economies of air structures for education. The structure is designed to house a variety of sports activities and support facilities, plus assemblies, graduations, concerts and even some learning activities. The community will also have access to the facility for exhibitions, meetings, tennis clubs and other functions.

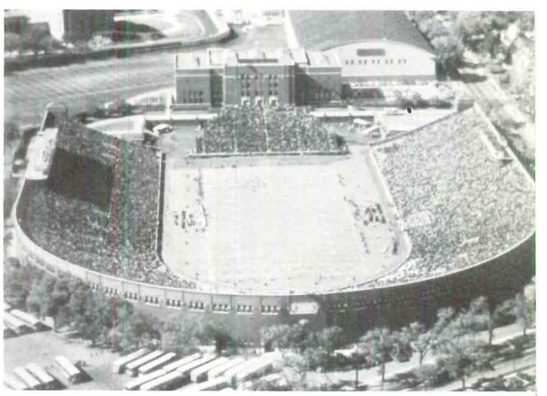
The structure, designed by Donald F. Burr & Associates, will be an air-supported membrane structure anchored to a concrete ring supported by an earth berm. Teflon-coated fiberglass was chosen for its long life and it will be reinforced by coated steel cables placed inside the structure and extending through the berm into the earth.

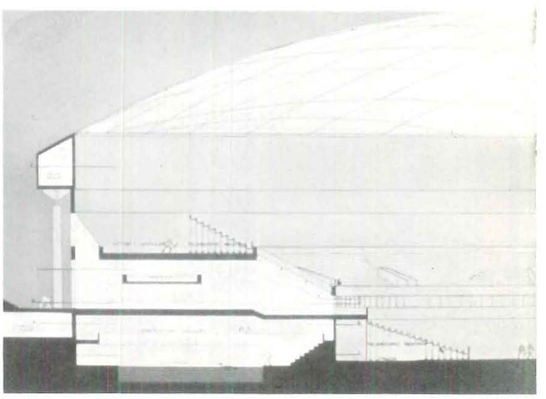
The structure has some particularly appealing details. The roof will have a special "gutter" designed to prevent kids from climbing upon the roof. And the concrete wall will be made of inclined panels, set on columns 20 ft. at centers, that allow sports and other equipment to be stored under their slope.

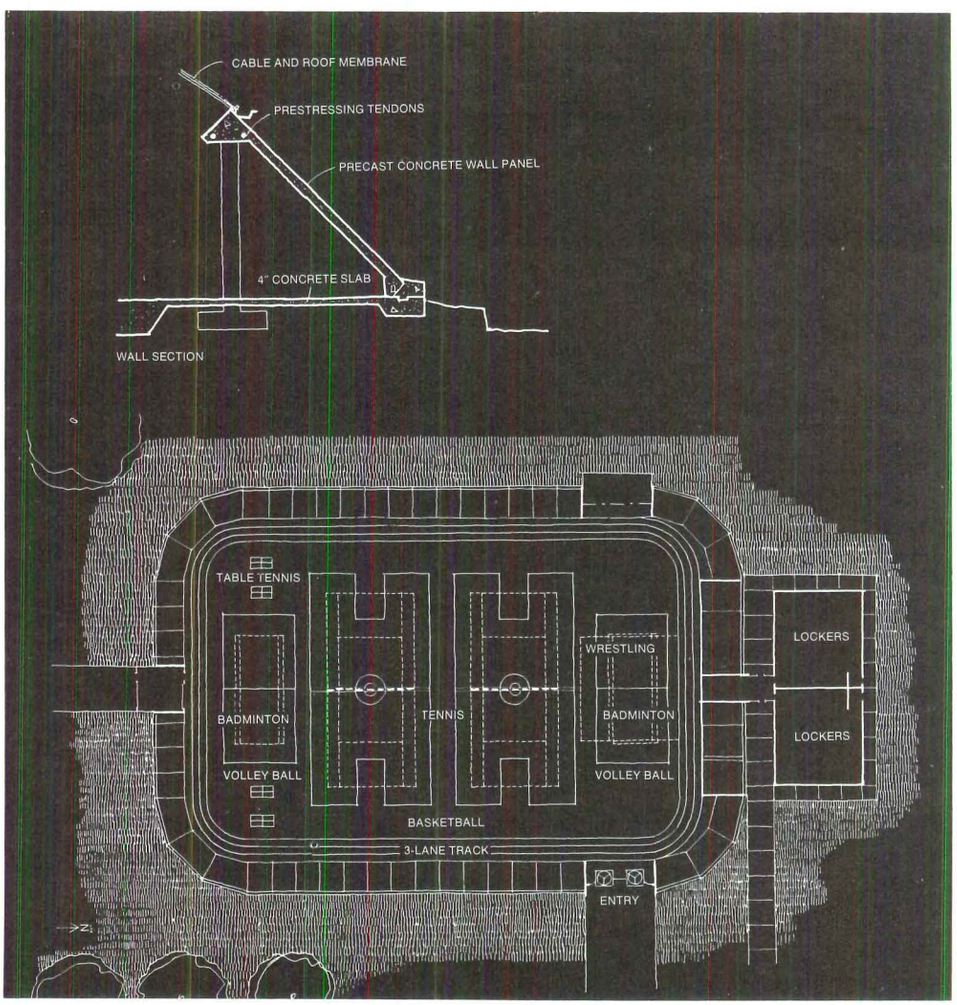
The arena area will be about 30,000 sq. ft. of clear span space with a clearance of 34 ft. above. The project will use off-the-shelf heating and air conditioning equipment, mounted in the berm. The structure's costs are estimated at about $12 per sq. ft.

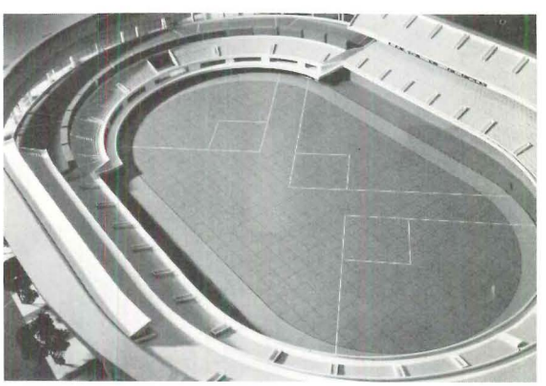
The air structure will not house the locker room areas. These will be located in a small conventional structure connected to the bubble.

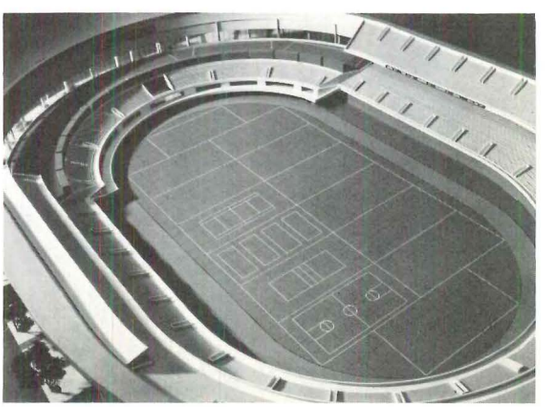












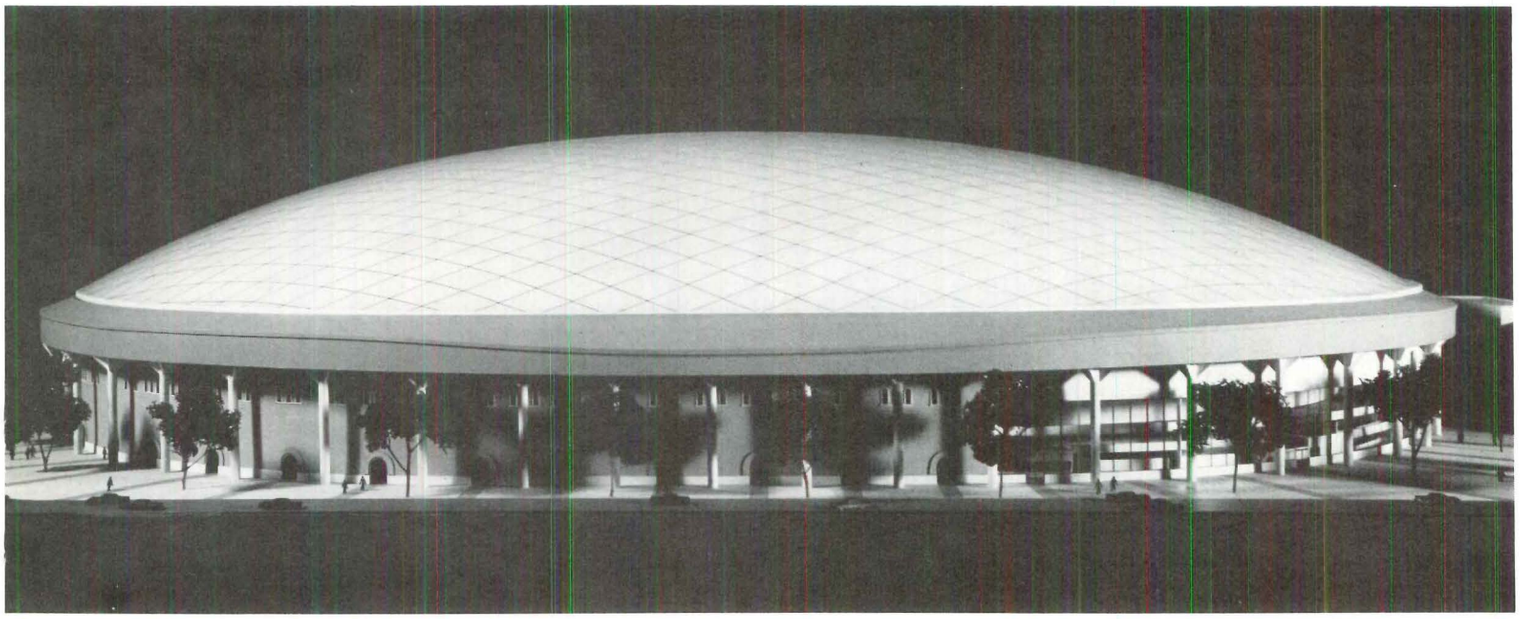
University of Minnesota

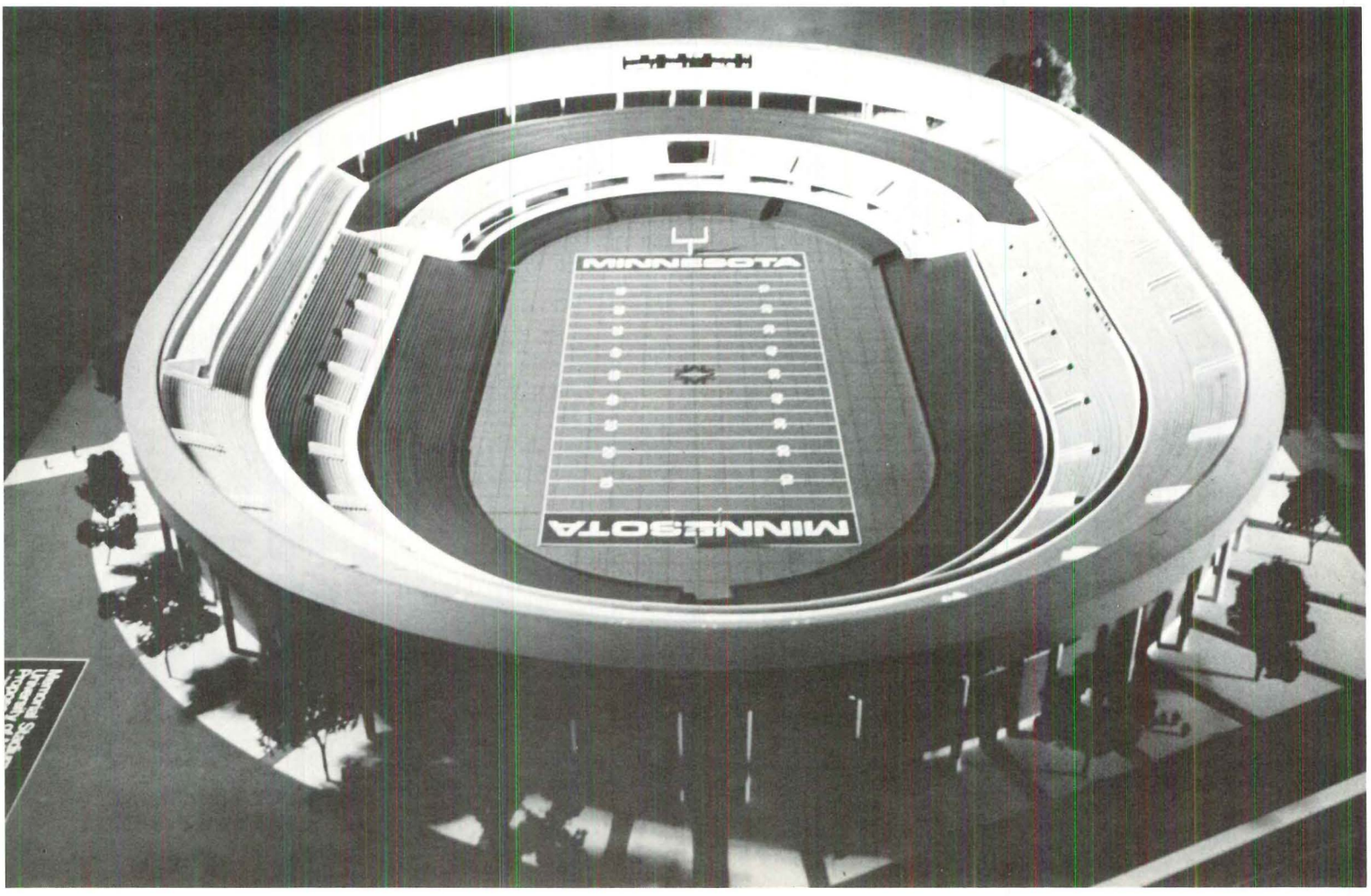
An air-supported roof may make an almost unusable stadium into an all-year-around sports center at the University of Minnesota. The original stadium was built in 1924 to seat 57,000 persons. They have to cope with poor sight lines and backless wooden benches, but there was little incentive for change because the stadium was filled only five or six times a year for football games. The stadium can accommodate other sports, but bad weather and lack of proper lighting severely limit such uses.

Now a plan has been completed that will turn the stadium from an open horseshoe plan into an enclosed ring. The roof will be a double fabric membrane of Teflon-coated fiberglass attached to a network of steel cables. The cables will be fastened to a concrete compression ring around the perimeter of the enlarged stadium. The ring will also support new tiers of seating, a press box, and concession stands.

The proposed changes will make the stadium into the largest air-supported structure in the world, with a total seating capacity of 65,000 persons. It will accommodate such sports as hockey, football, basketball, softball (three games at a time), touch football (also three games) and baseball. As many as fourteen 60 ft. by 120-ft. "activity modules" can be used at one time —each for a different sport.

The design team included Geiger Berger Associates, engineers; Gassner/Nathan/Browne, architects; Oliver D. Billing & Associates, engineers; and Robert Brantingham, architect.





La Verne College

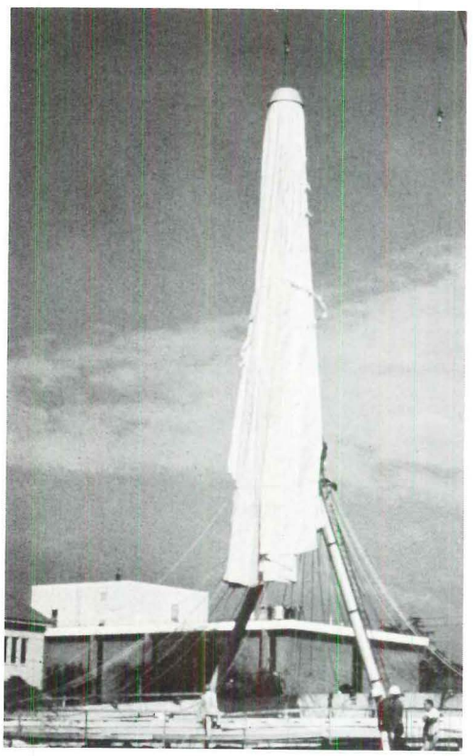
For sheer visual impact, La Verne (Calif.) College is hard to beat. Consisting of two structures (one with four peaks), the 1.4-acre project version is now nearing completion. It will cost about $2.1 million.

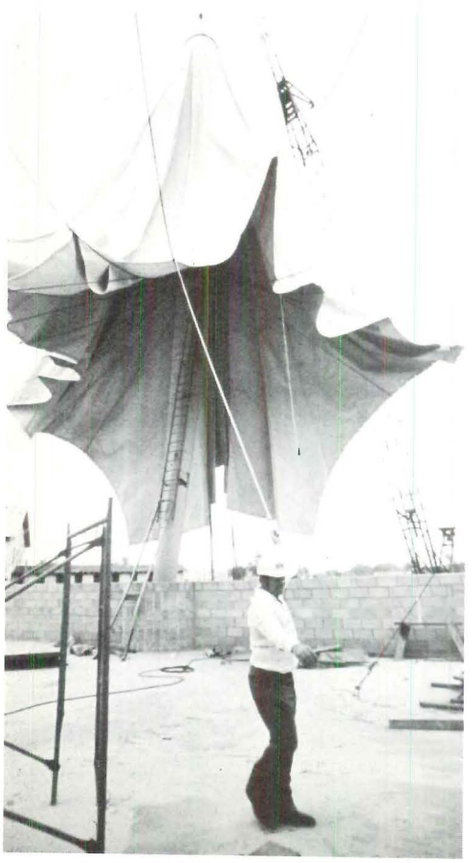
The smaller structure is the Drama Lab, with a theater, rehearsal rooms and scene shops. The four-coned tent is the Student Center, and it boasts a central two-level area with a fieldhouse above and locker rooms, darkrooms, radio and other project areas and offices below. The peripheral, single-story areas will have off-the-shelf furnishings designed to create "micro-environments" connected by a "village street." There will be colored tents, geodesic domes and groups of fiberglass ski hut modules.

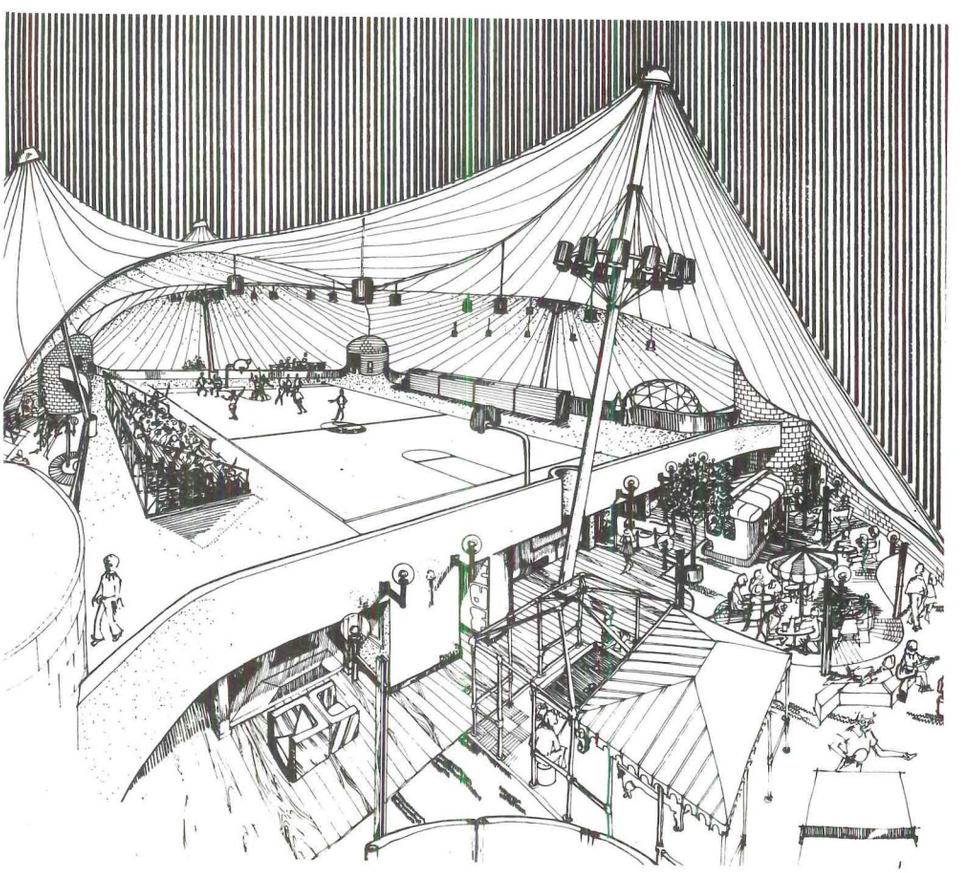
La Verne's are tensile structures with long-span lightweight cables covered by Teflon-coated fiberglass fabric. The roof line has a series of cones, with columns similar to circus tent poles. The four-coned version is joined on a vertical section line equidistant and part way up each cone. Cables pull down at the intersections.

The columns and cables are erected before the fabric is delivered; then the fabric is connected to the column cones, lifted and slipped over the column tops. When the skin is fully positioned, the main column is jacked up, tensioning the membrane.

The architects were the Shaver Partnership; its engineers, Bob D. Campbell & Co. and T.Y. Lin, Kulka, Yang & Associates; its fabricators, Birdair Structures Inc.; and interior designer, Research & Design Institute.







Tennis prototype

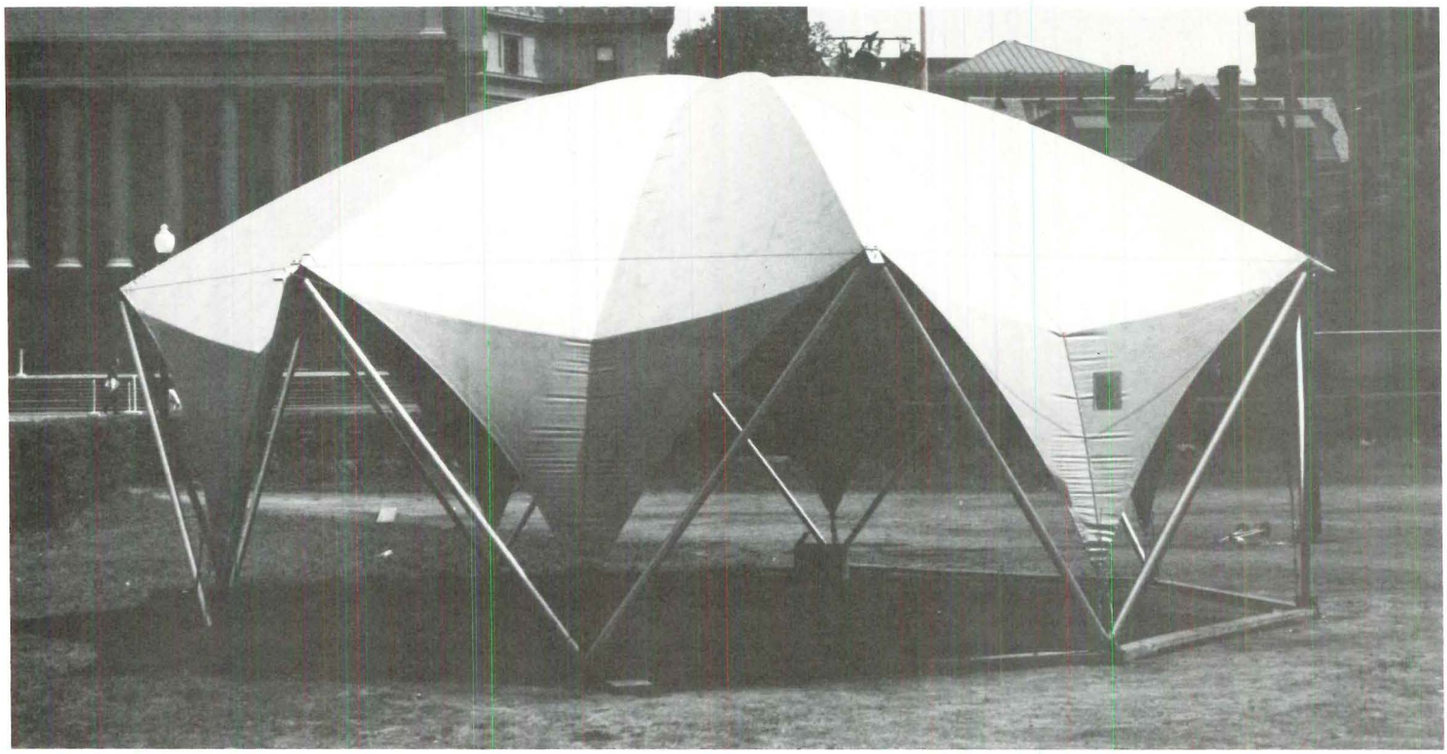
The octagon below is deceptive in its simplicity. It is the prototype for a sophisticated closed system tensile structure designed by Geiger Berger Associates. The octagon is composed of eight triangular elements and has a diameter of 30 ft. Its successor (lower right) is a proposed tennis structure that combines the triangular with diamond forms.

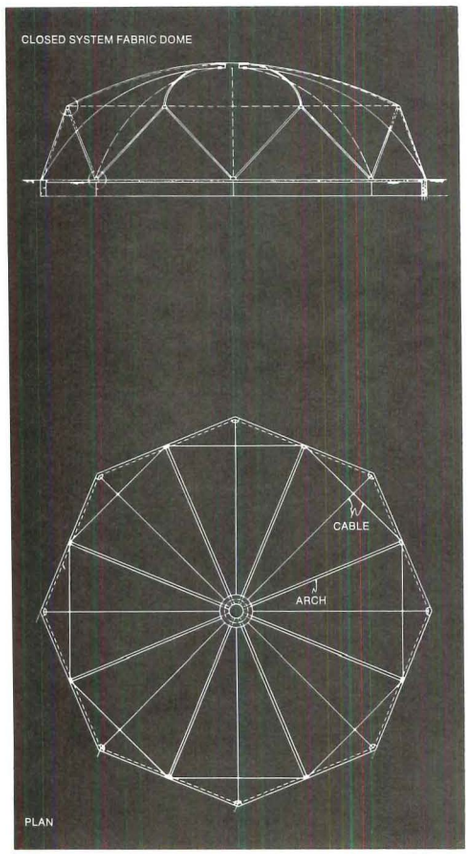
The significance of both these structures is that they are closed systems and so resolve all of the prestressing factors within themselves. They therefore require minimal foundations, and the ground need bear only the dead weight of the materials used.

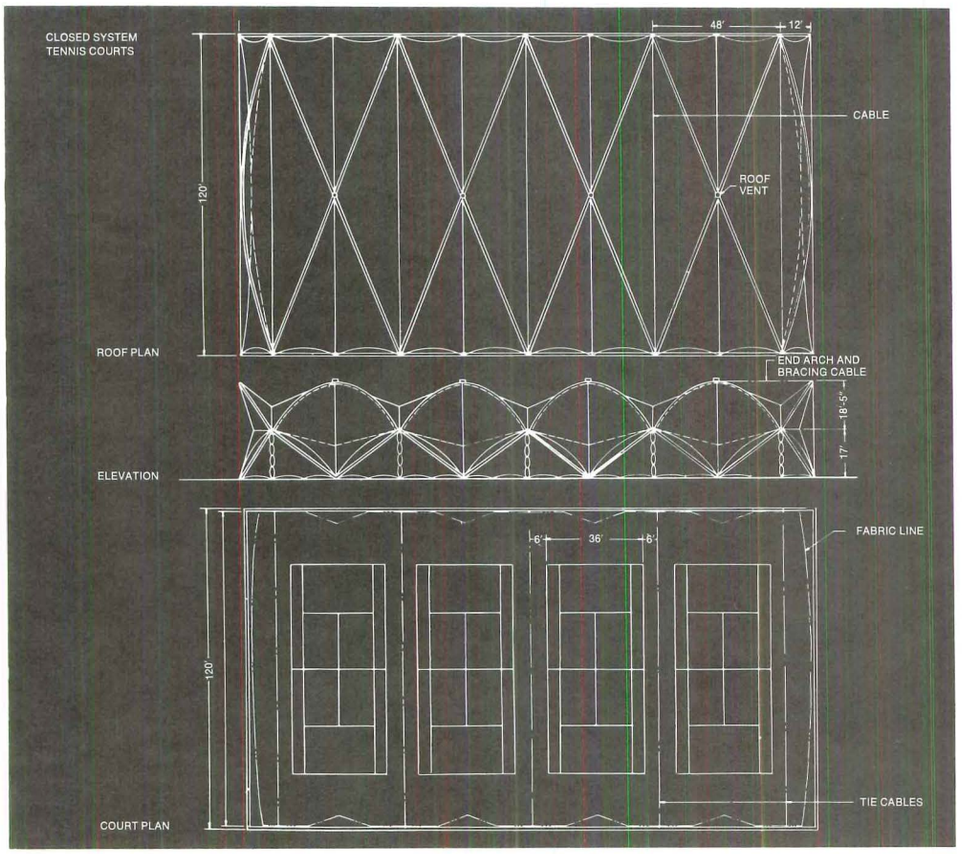
The octagon was built last year by Columbia University students to test erection procedures. Often fabric structures present difficulties in attaching the skin, but here the arches are laid out flat on the ground and the material is attached there. The structure is then hoisted by pulley up a central pole. As the center rises, the arches assume their proper shape, similar to the way a person unfolds an umbrella.

When the structure reaches full height, the arches are attached to the tops of vertical perimeter pipe supports and a tension ring is placed at each support point. Then the center erection pole is removed, leaving a clear span. The fabric and the valley cables are prestressed by pulling them downward.

When the structure is completed, the push from the arches down the octagon's pipe supports is balanced by the upward pull of the fabric and valley cables.







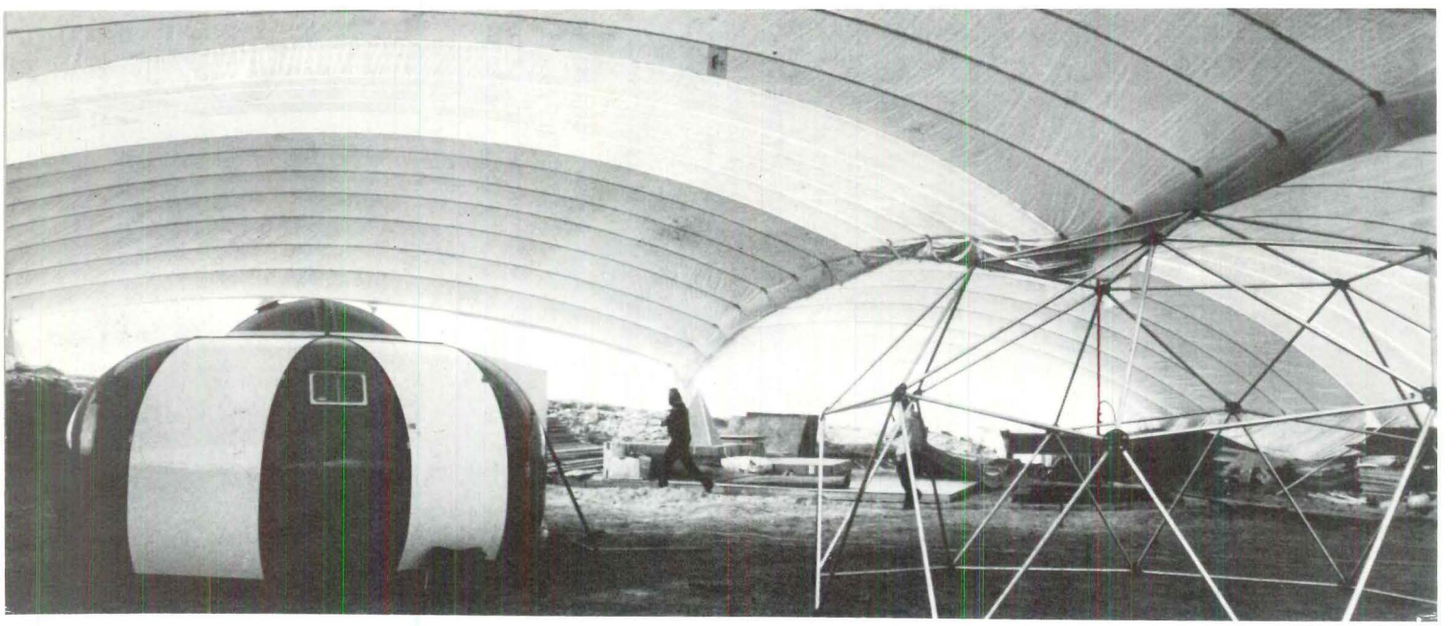
Antioch College

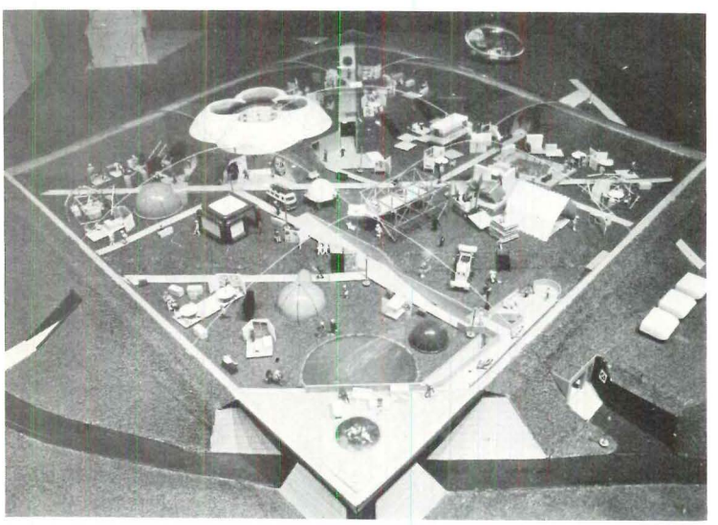
Antioch's bubble has an aura about it; people seem to either hate or love what has been called the first "nomadic, pneumatic" campus in the U.S. To those that hate it, the bubble is "vague," terribly hot, "like crawling into the belly of a stranded whale," and forces the user to adapt entirely to *its* whims. But those who love the bubble dismiss such notions as "unimportant" compared to the experience for the students it provided. To them, the campus is not a mere structure, but a new concept of enclosure and space. When the structure is removed, they say, the meadows will be left without a trace of man's work on them.

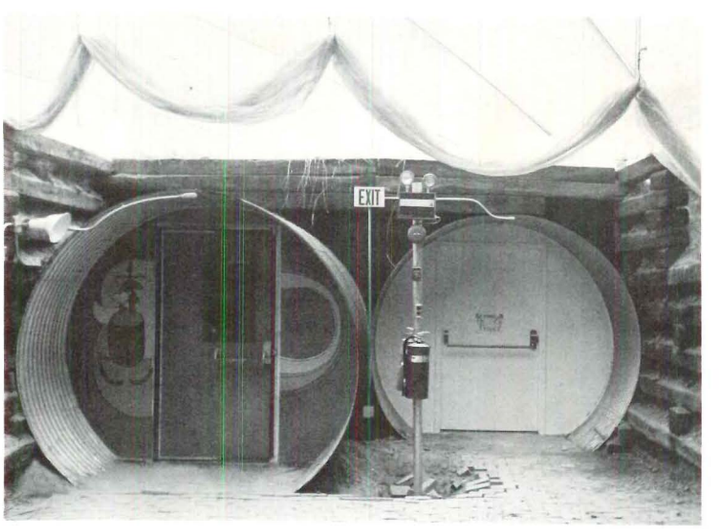
The physical reality of Antioch is a nine-bay striped polyvinyl air structure (made by Goodyear Tire & Rubber Co.) that is translucent enough for grass to grow inside. It was designed by Antioch students and architect Rurik Ekstrom and first took shape as a model (lower right) that the students inflated by a hairdryer.

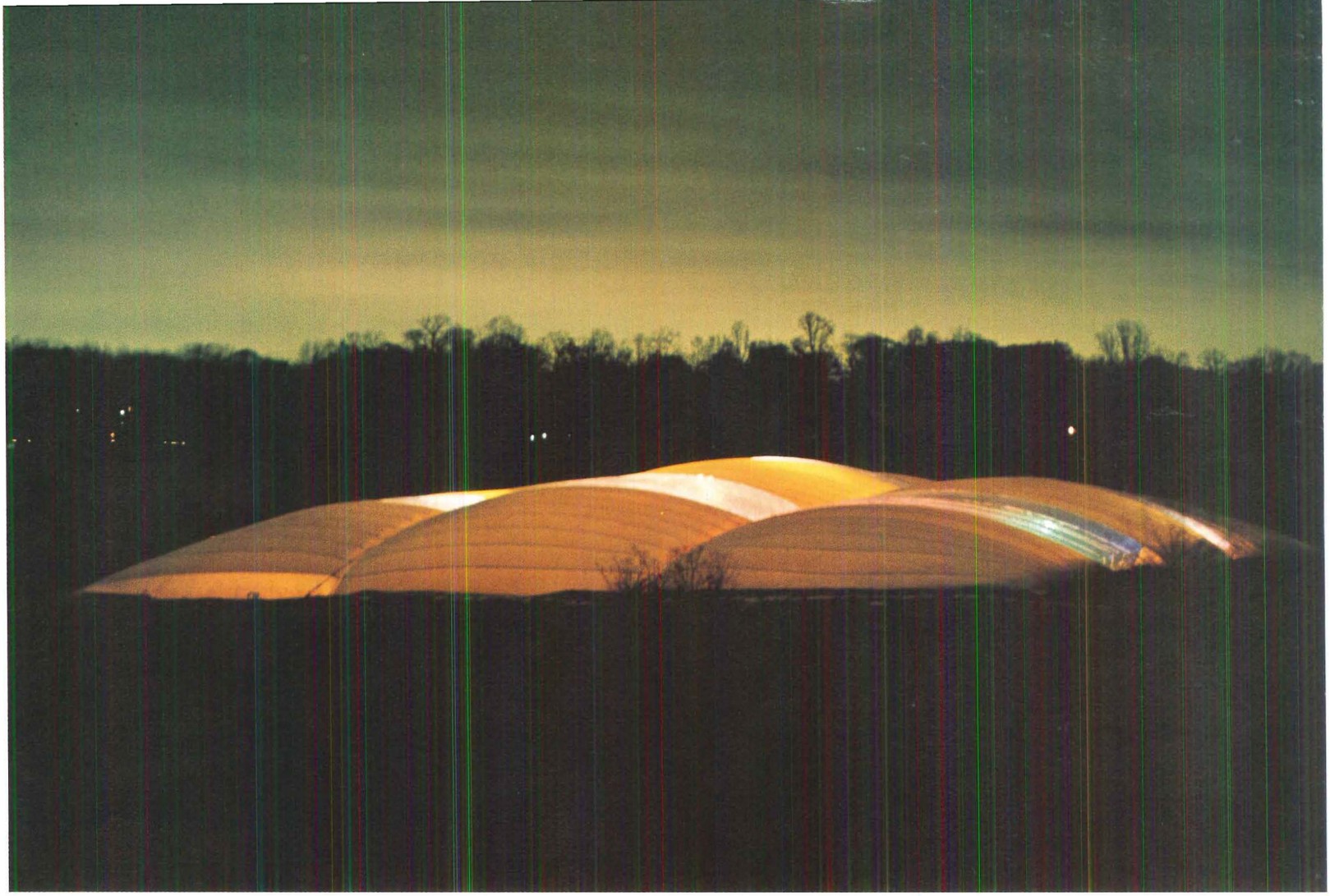
Soon fantasy became reality and the Columbia, Md., Antioch campus became the first enclosed by an air structure. The interior, designed by the Research and Design Institute uses "found" (i.e. off-the-shelf) objects in its efforts to make a large (180 ft. sq.) span area into a livable space.

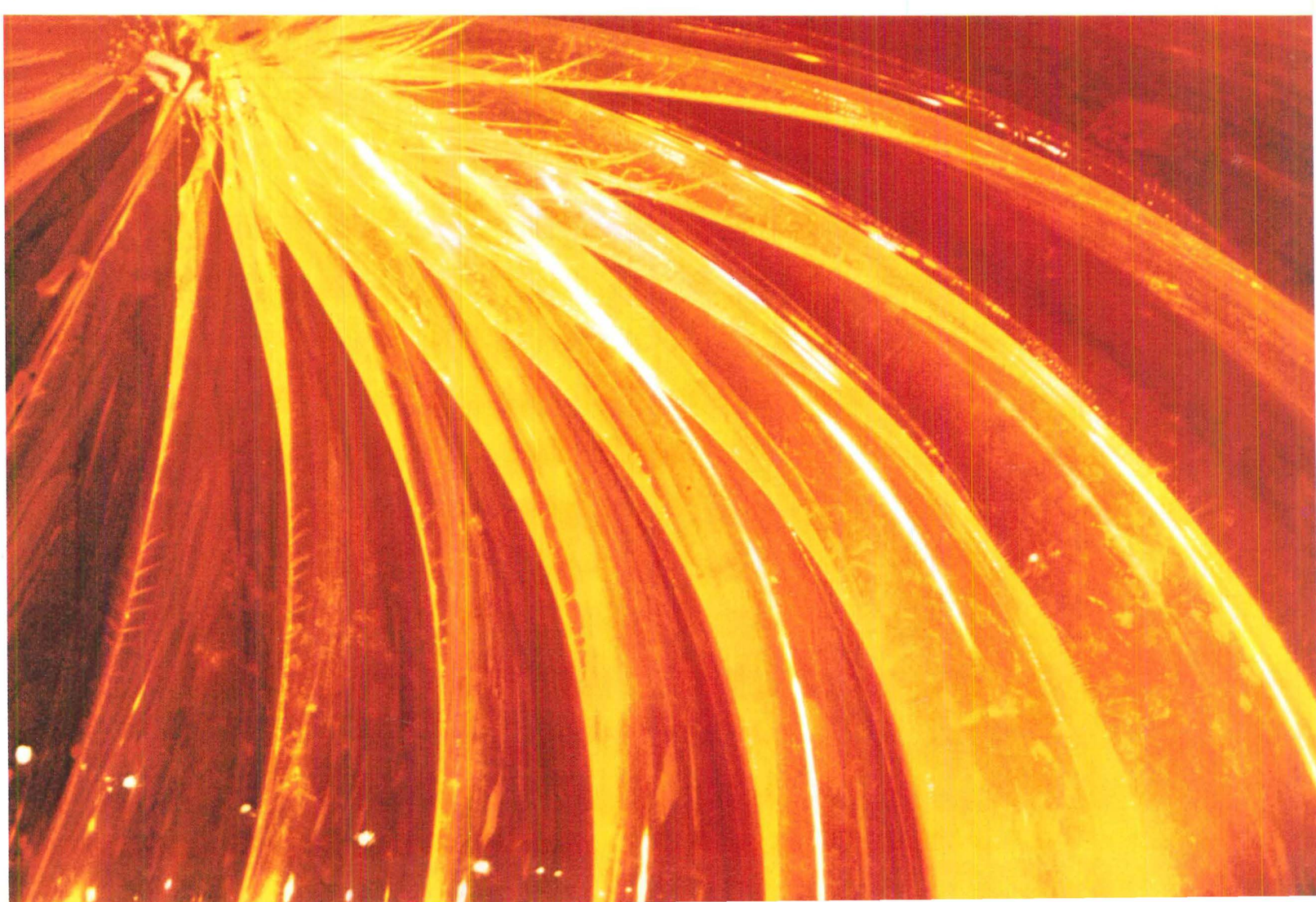
The bubble's promise remains unfulfilled now as political problems within Antioch (Ohio) College force the administration to cut costs on satellite campuses. At last report, the bubble will be dismantled and its skin replaced, only to rise again at Brown University (R.I.).











news+

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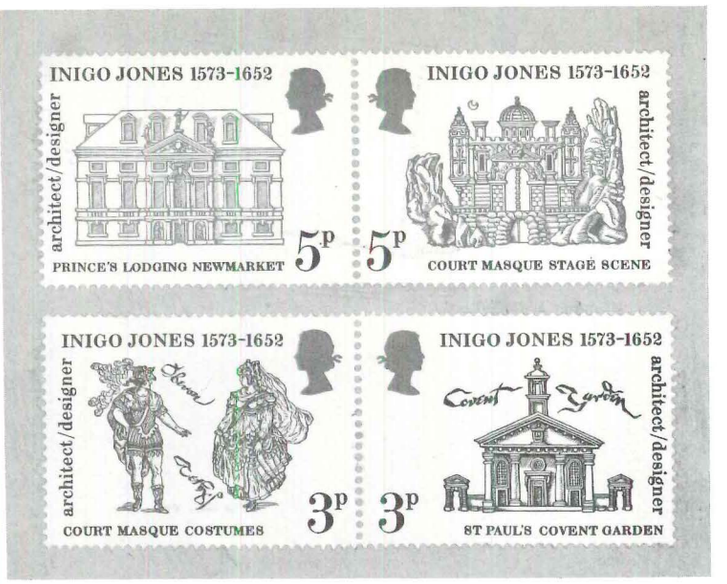
Harris in the *Times* of London, "Christopher Wren and Robert Adams pale into insignificance beside him." Inigo Jones' many buildings were not destroyed by bombs, but crumbled by bits and parts, neglected, giving way to taller and anonymous blocks.

He designed Covent Garden as a lovely and graceful green expanse, with the Roman St. Paul's church at one end. Covent Garden was the first part of London to be built as the result of "town planning," designed and supervised by Jones for the Duke of Bedford. St. Paul's is now completely surrounded by featureless houses, and drunks lie among beer cans around the columns. The formal green was slowly erased by the produce sheds, which are, in turn, being replaced by "development."

The interior of the Banqueting Hall has just been refurbished. This building is a good example of Jones' conviction that the architect should work alone, without benefit of committees and advisors.

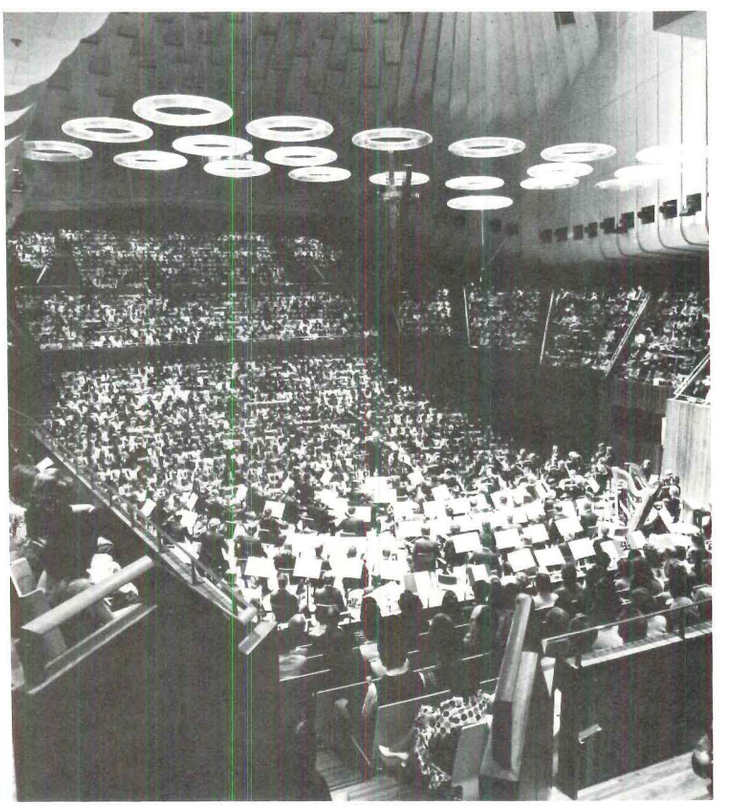
Commemorative stamps have been issued showing the Prince's Lodging at Newmarket, St. Paul's, a stage setting, and masque costumes for the theater.—J. D.



Plastic rings, tin pipes

Those strange hovering white circles shown here may look like supercolossal doughnuts; but they are actually acoustic rings suspended above the heads of the performers at a recent test in the Sydney Opera House (August issue).

Other tests were made on the world's biggest mechanical-action pipe organ—9,600 pipes and 113 stops—designed by Australia's Ron Sharp for the concert hall. The pipes, imported from Holland, are made of pure tin. The organist sits at the console jutting out in the air 30 ft. above the orchestral stage. The official opening of the Opera House by Her Majesty is set for this month.



Plastic doughnuts float above the audience and improve the sound

Plastered, don't drive

In Brazil, where people drive as though driven, with unseemly haste and total disregard for the laws of probability, a campaign of road safety signs has been called off by the government and the signs ordered taken down—the reason being that the wording is judged to be "detrimental to the public's education." A sampling of the unpopular slogans: "Don't drive plastered," "Not everyone wants to go to hell," "Don't make the devil your co-pilot."

Any safety signs are useless there anyway since everyone knows that nobody in Brazil drives slowly enough to read any signs.

HUNCH bunch out to lunch

Nicholas Negroponte, associate professor of architecture at the Massachusetts Institute of Technology, and Paris-based Yona Friedman, are currently working with an elaborate computer system that will, hopefully, put architects out of business. One input into the architecture computer (a program for recognizing hand-drawn sketches, according to MIT's publication, *Tech Talk*) is known as HUNCH, and one gathers that HUNCH allows the computer "to recognize and interpret house plans or other drawings executed on its special computer-sensitive pen and paper system."

Negroponte, Friedman and HUNCH have encountered certain problems in letting the computers define what clients really want or need. For one thing, HUNCH at first didn't understand anything but straight lines, intersections, and simple geometric curves—which immediately eliminated Paolo Soleri, Frei Otto, Antoni Gaudí, the Baroque, Haus Rucker Co. (and other inflators), and Pancho Guedes. So much for them. Negroponte and Friedman are trying to fix this, however, by "giving the computer more sophistication in recognizing the higher meaning of drawings, in sensing three-dimen-

sionality, and in recognizing such features as doors and windows." (*Doors and windows?* What else *is* there to recognize, for God's sake?)

We think HUNCH is a fascinating project doomed (like all other fascinating projects) to failure. The reason is not that anybody particularly wishes to preserve the architectural profession in its present, atrophied state; the reason is that computers are exceedingly mortal. This past summer, during the ghastly heat waves that plagued much of the Northern Hemisphere, power reductions played spectacular havoc with computers everywhere: the slightest cutback in delivered voltage made computers the world over go berserk. In Manhattan, the Federal Reserve's computerized economic prognosticators went bananas, and so the U.S. had its worst inflation in 25 years. In Tokyo, Berlin, London and Montreal, computers flipped their lids and had to be switched off so they could calm down.

Supposing HUNCH came face-to-face with the Energy Crisis—what do Negroponte & Friedman suppose would happen then? Answer: mouse houses, or single-family skyscrapers, or both—and probably located on off-shore land.

The poor, suffering human designer may black out briefly in the midday sun; but there will always be a window, a door, and maybe a squiggly line connecting the two, indicating cross-ventilation.

Competition

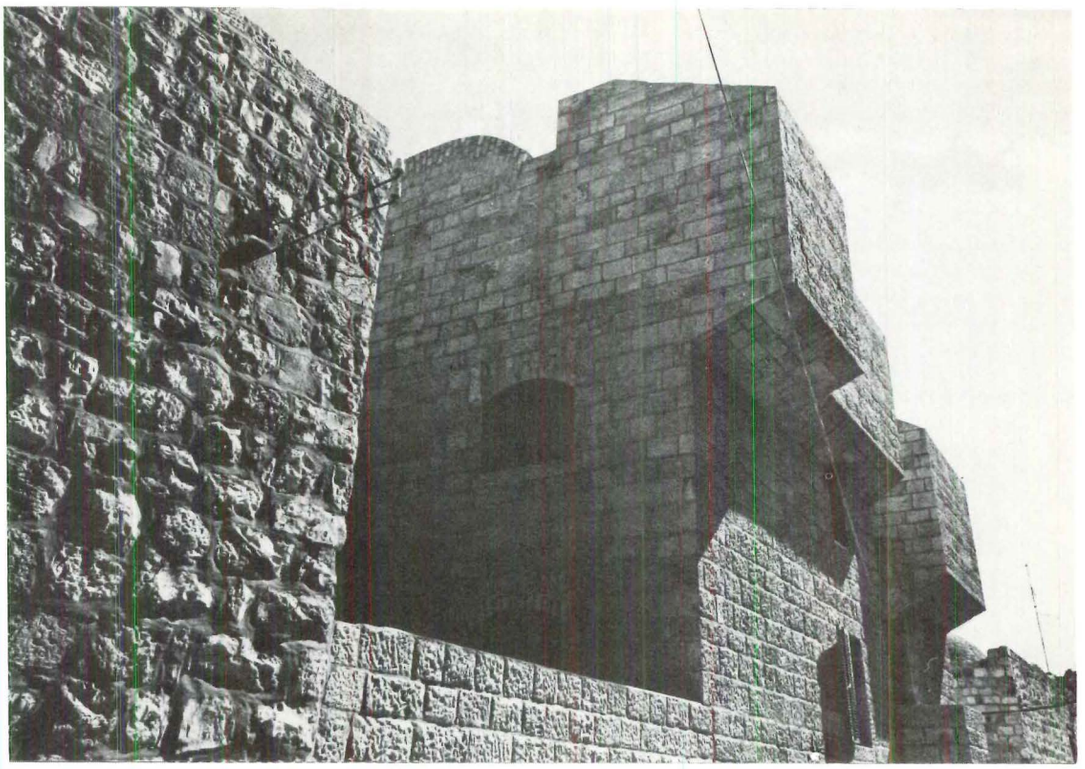
A design competition for a "neighborhood health care center" has been announced by the National Institute of Architectural Education (NIAE) with the support of the Hospitals and Health Committee of the New York Chapter of the American Institute of Architects.

All persons of any nationality in the architectural field, under 35 years of age on January 1, 1974, and who are not enrolled in a "full time" architectural academic program are eligible to enter.

The competition is set up to encourage the young architectural professional while offering an opportunity to work on a contemporary design problem.

This competition, which is called the Hirons Prize, offers $1,500 first prize and $500 second prize. Entries will be accepted between November 1, 1973 and April 1, 1974.

The jury, a group composed of NIAE and AIA officials, will meet in May 1974. Write for details to Byron Bell, Chairman of the Committee on Scholarships and Awards, National Institute of Architectural Education, 20 West 40th Street, New York, N.Y. 10018.



Tel Aviv architect Frenkel's apartment block for the Old City of Jerusalem

Jerusalem

New structures in ancient and revered districts are among the most interesting (and the most potentially destructive) of all architectural tasks. This building, by Tel Aviv architect Eliezer Frenkel, provides six duplex apartments near the Armenian quarter of the Old City of Jerusalem, and is an example of how well such new structures can respond to their contexts.

The rough Jerusalem stone of the exterior walls was required by law for this part of the city; so, in this rare case, the building's success is due to enlightened government policy as well as to its architect's design. Because of the building density and confined streets of the Old City, Frenkel has made each apartment as private as possible, with emphasis on interior spaces and views to enclosed patios.

Called the Ha'Ari Building, it is located on a small piazza reputedly the birthplace of the Ha'Ari (Isaac Ben Solomon Luria, 1534-1572), mystic and founder of the "new Cabala."

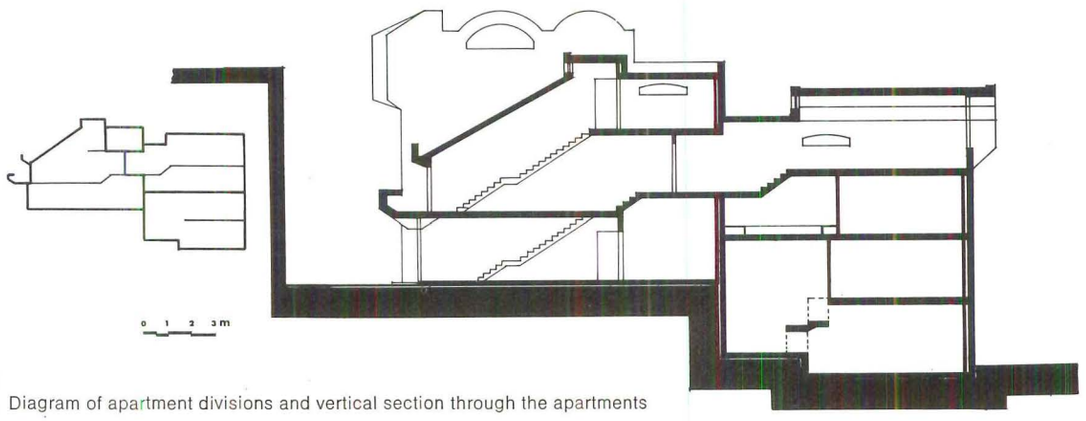
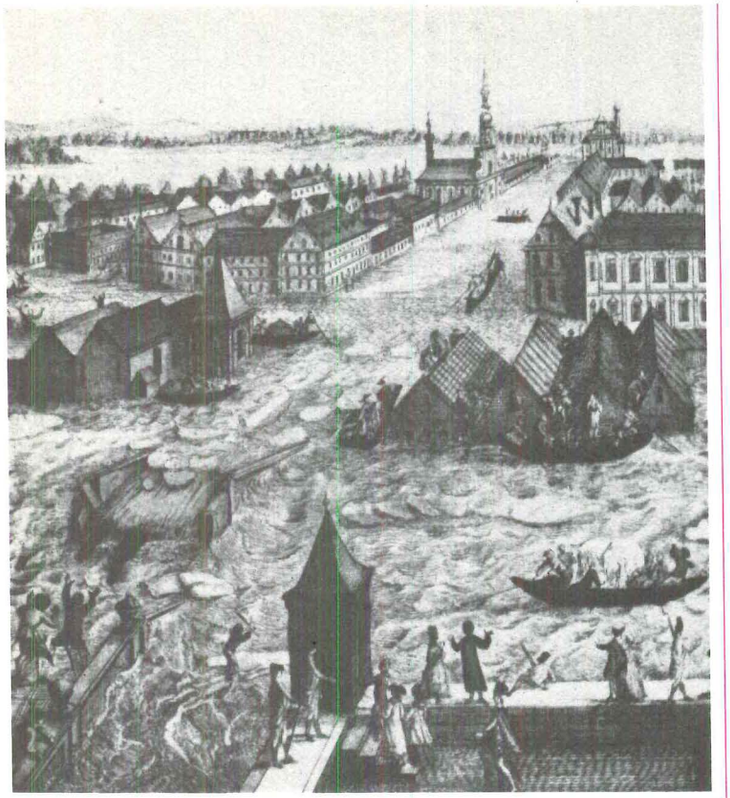
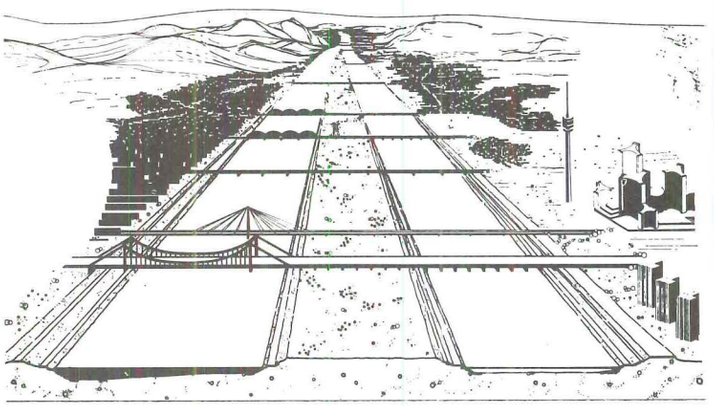


Diagram of apartment divisions and vertical section through the apartments



The Danube, 1784, flooding Vienna (above); the solution—another Danube (below)



Double Danube

For centuries, the city of Vienna has been plagued by disastrous floods, in which the River Danube would overflow its banks and inundate large parts of the town.

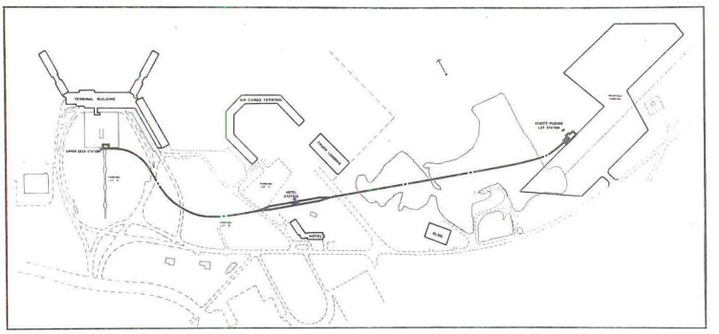
Now the Viennese are doing something about it: they are about to start digging an artificial river, parallel to the real Danube, 14 miles long and 600 feet wide. This "Second Danube" will be dug in the so-called inundation area north and east of the city; and the fill thus generated will be used to create a recreation island between the two rivers about 1,000 acres in size.

The project includes the creation of new sewage treatment plants that are expected to make the Danube as blue as it has always been cracked up to be. The illustrations show the flood of 1784, as depicted in a contemporary etching; and a diagrammatic section through the proposed Double Danube, prepared by Viennese civil engineers. The project will stabilize the Danube far into Czechoslovakia and Hungary.

More on the Bicentennial

Some Americans have found intriguing the news that Great Britain is going to help them celebrate their Bicentennial in 1976. There is a British Bicentennial Liaison Committee which is making forward strides in planning its country's contribution to the U.S. independence (from Britain) celebration.

Perhaps they will re-enact in full period costume various scenes from the war, where no one shoots "until he sees the whites of their eyes," or say, the Boston Tea Party. It could all be very friendly even if the Americans do have to come out on top. (Or, come to think of it, did they? Could it be that the British will be celebrating Good Riddance three years from now?)



Two driverless vehicles shuttle on a single track, with a bypass loop midway

The ACT of Ford

A fully automatic people-mover system has been bought by the Connecticut Department of Transportation from the Ford Motor Company for use at Bradley International Airport near Hartford. The system will connect the airport terminal with a proposed 1,500-car parking lot ¾ of a mile away, with a halfway stop at the airport hotel.

Basically, Ford's Automatically Controlled Transportation (ACT) system will be composed of two driverless vehicles which will shuttle from one end of the system to the other on a single lane guideway with a bypass near the midpoint.

According to Ford, each ACT vehicle will be air conditioned, have wall-to-wall carpeting and programmed music. (Silence is golden and about as hard to come by.)

The cars will travel at 30 mph on rubber wheels along a concrete and aluminum track. The system is expected to cost $4.4 million, with operation scheduled for summer, 1975.

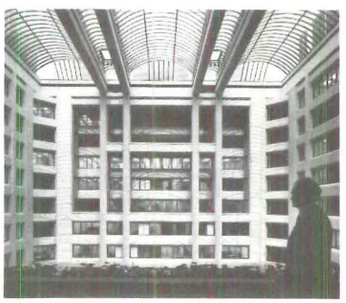
Ford has also announced plans to install the ACT system in Dearborn, Michigan in a "new town," Fairlane. Fairlane is a 2,360-acre "prestige community" (whatever that is) being developed by Ford to include office buildings, apartments and townhouses, and cultural and recreational facilities.

And it will have Muzak wherever it goes

Hole in one

A twelve-story court, lit by glazed barrel vaults, sets the new International Monetary Fund Headquarters apart from its neighbors in Washington, D.C. Located among the ponderous new financial buildings on G Street between 17th and 19th, the IMF building betrays no hint of its interior volume until the visitor has passed through a low entrance lobby. The resulting effect is, needless to say, spectacular.

Vincent G. Kling and Partners (Dan Peter Kopple, partner-in-charge) has also designed another structure that will be built adjacent to the present building when space needs require it. Five floors of parking and services below grade support the one million square feet of office space that was packed into the doughnut under Washington's overall height limitation of 130 feet. But thanks to the enclosed court, almost every office has a window. Unlike most office buildings, it may be that those in the inside offices here have a better deal than those that merely look across the street at another concrete facade.



USSR at the Kimbell

The Impressionist and Post-Impressionist paintings from the USSR, the show of 41 paintings which has been traveling around the U.S., arrived in August at the Kimbell Art Museum in Fort Worth, Texas, designed by Louis Kahn. The show had already been to Washington, D.C., New York, Los Angeles and Chicago.

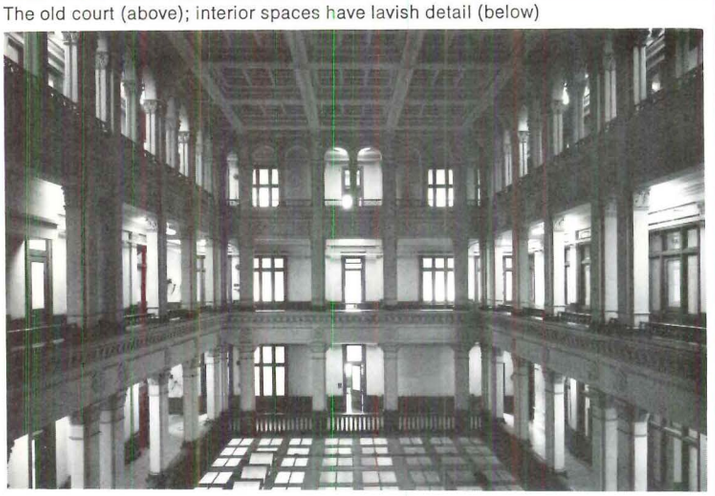
Most of the works shown were acquired in the early 20th century by two wealthy Muscovites, Sergei Shchukin and Ivan Morozov. Shchukin at one time had assembled the greatest collection of 20th-century paintings in the world, including 37 Matisses and 50 Picassos. After the October Revolution of 1917, the collections were nationalized and housed in the Moscow State Museum of Western Art. In 1948 the paintings were transferred to the Pushkin Museum in Moscow, and later, some were exchanged with old masters from the Hermitage in Leningrad.

One painting shown there is Van Gogh's 1889 "Portrait of Dr. Rey." Felix Rey was the young surgeon who attended Van Gogh after his famous argument with Gauguin, which resulted in the mutilation of his ear. Dr. Rey befriended Van Gogh and was repaid with a portrait of himself.

This is the first time Western paintings have been loaned to the U.S. by the Soviet Union. The artists represented in the exhibition (in addition to Van Gogh) are Georges Braque, Paul Cezanne, Andre Derain, Paul Gauguin, Fernand Leger, Henri Matisse, Claude-Oscar Monet, Pablo Picasso, Camille Pissarro, Pierre-Auguste Renoir, Henri Rousseau, Alfred Sisley, and Maurice de Vlaminck.

The $6.5 million Kimbell museum is a series of cycloid vaults—parallel open porches with connectors. Each vault is a self-supporting concrete shell 100 ft. long, creating a row of interior streets unobstructed by supports. The skylight is a double curve of highly reflective perforated aluminum.

The old court (above); interior spaces have lavish detail (below)



From courts to concerts

The Old Federal Courts Building in St. Paul, Minnesota, empty and unused since 1969, will become the new home of the St. Paul Council of the Arts & Sciences. The elegant old Neo-Romanesque court house was designed either by W. J. Edbrooke, who was the supervising architect of the U.S. Treasury at the time, or by the Architect James Knox Taylor. The drawings in the U.S. Archives in Washington, D.C., are signed by Edbrooke, but there remains a doubt as to who actually did the designs.

The building was finished in 1901 at a cost of $2.5 million. With its 20-ft. ceilings, turrets, various gables, lavish use of hand-carved mahogany, it should do very nicely as a home for art galleries, theaters and concert halls. Four of the courtrooms have already been successfully recycled as concert halls.

The City of St. Paul holds the title and will maintain the building. The St. Paul Council of the Arts & Sciences is responsible for raising the funds for the restoration. A federal law passed in August 1972 enables the General Services Administration (GSA) to transfer federal surplus buildings of historic and architectural merit without charge to state and local bodies for "revenue producing activities."

Rate of Pay by Trade or Profession (Bay Area)

Trade or Profession	*Annual Rate*	*Source*
Window Washer, City of S.F.	10,441	S.F. Chronicle 4/10/73
Fireman, Policeman, City of S.F.	16,535	
Driver, Med. Size Truck, City of S.F.	16,022	
Carpenter, City of S.F.	16,535	
Graduate C.E.	11,024	ENR 6/14/73
Beginning Internist at Kaiser	26,500	Kaiser Hospital
Beginning Attorney N.Y. Public Defender	12,000	N.Y. Times 7/8/73
Graduate Architect (Northern Calif.)	3,820	This PROFILE
Average Architectural Employee, Northern California with 5.6 years of college with 9.9 years of working experience	11,835	This PROFILE

From 1973 survey of California architecture employees' salaries, a report from OAE

Sullivan in the board room

The sculpture below was commissioned for their Chicago board room by officers of the U.S. Gypsum Company. Designed by Samuel Gallo of Brooklyn, it is based on a single decorative panel by Louis Sullivan, saved from its original setting in Chicago's Auditorium Building when a part of that building was stripped. Sullivan's square panel is reproduced exactly by the plaster cast just right of center. All the other sections of the mural were sawed from similar plaster casts or made from rubber molds of small segments of the original panel. Raised and incised hemispherical shapes, rather freely derived from the central boss of the original, are further elaborations by Gallo.

After Brasilia, Argentinia?

Argentina's recently elected Frente Justicialista de Liberacion, the party of Dr. Héctor Cámpora who became the president on May 25, has pledged to correct a national housing shortage estimated at three million units, to establish a system of new urban centers and agricultural settlements, and to relocate the Federal capital on a new site in the interior of the country.—L. A.

Errata

In our August issue on page 70 we inadvertently scrambled several of the photographs accompanying the names of the RIBA award winners, which we regret. Test your skill—try to match them up correctly.

Louis Sullivan panel is basis for mural by Samuel Gallo

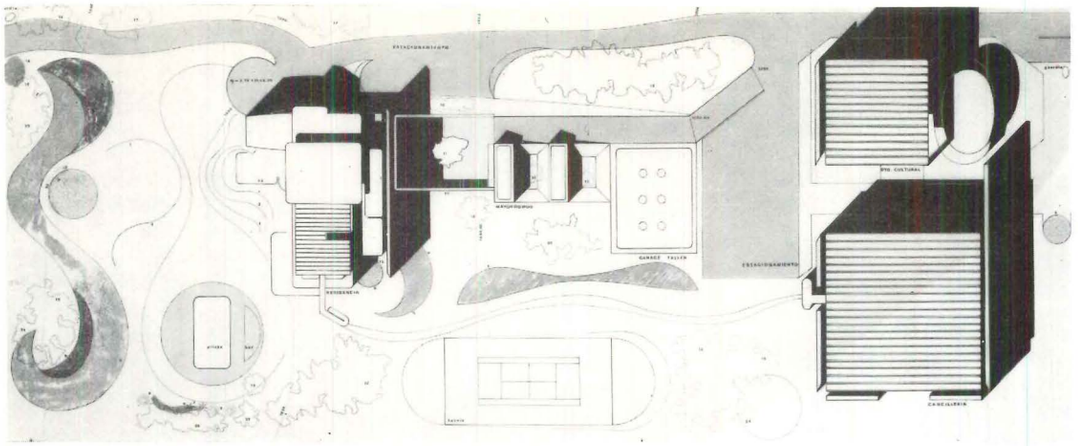
La Plata, Argentina

The Government of the Province of Buenos Aires, whose capital is in the city of La Plata, held a recent meeting of city planners to discuss the establishment of an Administration Center that will unify the various government offices and departments that are now spread out among a large number of inadequate buildings. The planners decided upon two identical towers flanking the existing municipality building which faces the great Cathedral of La Plata, across a large plaza.

Several prominent architects are among the planners in the group: A. Antonini, J. M. Llauró, G. Schon, J. A. Urgell and E. Zemborain.

These two large very plain towers are proposed with floor plans that are free to be subdivided and transformed according to administrative needs. This flexibility is achieved by a wide column-spacing (9.40 m. on centers). The exteriors will be covered by a curtainwall composed of anodized aluminum sunshades.—L. A.

Two identical towers face the Cathedral across the plaza—a plan for La Plata



Argentine Embassy, Brasilia

Architect Francisco Bullrich has just won first prize in the competition to design the Argentine Embassy in Brasilia. The design is for two separate wings, one for the Ambassador's residence, the other for Embassy offices.

The simple but rich volume of the buildings is enhanced by the strong incidence of sunlight in the region. Important elements of the design are freestanding brises-soleil that will protect the facades of the buildings against that strong sunlight.—L. A.

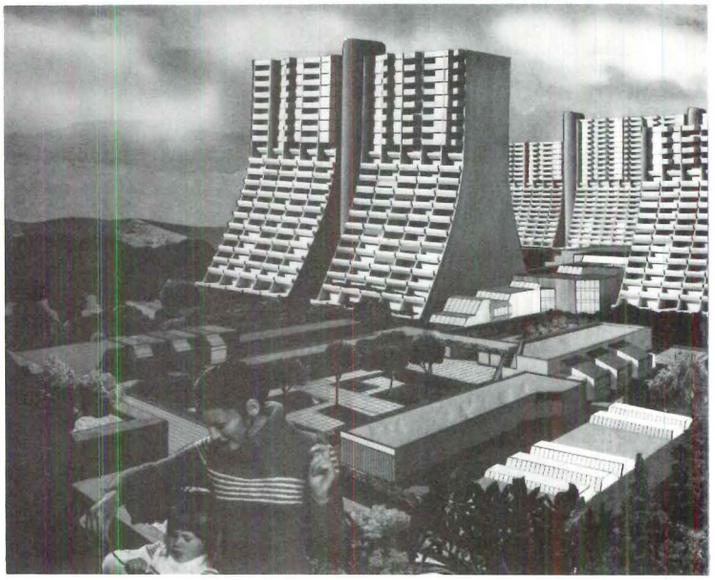
Melbourne's needle

This will be, believe it or not, the latest stage of Melbourne's Victorian Arts Centre, across the River Yarra from the business district of Australia's second largest (2,500,000) city. I would describe it as a personal statement by Australia's grand old man of architecture, Sir Roy Grounds. But citizens (and architects) of every other city of the world except Melbourne will ponder the relevance to Melbourne and 1973 of a 400-ft., gold-tipped spire over a complex of theaters.

This section of the Centre will cost an impressive $27 million and contain three auditoria—a 2000-seat opera/ballet theater, an 800-seat drama theater and a 400-seat studio. The halls will be set below ground level (for acoustical reasons) and the only part of the Centre which will be visible above ground will be that spire—which has no function.

The time-hallowed rivalry between Melbourne and Sydney will be intensified this year with the opening this month of Jørn Utzon's Sydney Opera House. The curious Victorian Arts Centre will certainly focus architectural attention on the southern city but in a rather different way.—N. C.

Vienna: past (above) and future (below)



The old and the new

Vienna used to look, roughly, like this (top); but it is about to start looking like that (lower): here is a model of a new-town-in-town planned for Alt-Ecrla, in the Austrian capital, and it will accommodate 9,500 inhabitants in 2,900 dwelling units. There will also be garage spaces for 2,800 cars, and 135 sq. ft. of outdoor space per inhabitant. In addition, there will be schools, nursery schools, churches, cultural facilities, a medical center, post office, restaurant, and pharmacy. The architects are Kurt Hlawenitzka, Harry Glueck, and a design team, Requat-Reinthaller; they have done a neat job. Whether or not the environment they have created is likely to inspire any of its inhabitants to great flights of anything much—least of all flights of imagination—remains to be seen.

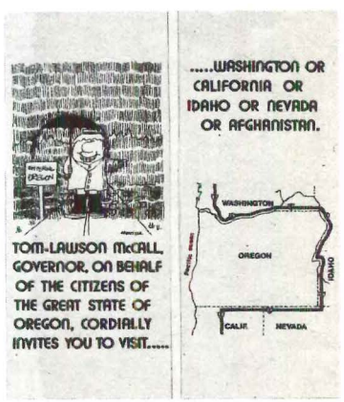
Photographs: Page 17 UPI. Page 18 (left) Oscar Newman in "Defensible Space." Page 70 Australian Information Service. Page 72 (left) Austrian Information Service, N.Y. Page 73, (right) Tom Crane. Page 74 (middle left) Paul Kuiper; (middle right) Samuel E. Gallo; (bottom right) Alejandro Leveratto. Page 75 (middle) Bilderdienst; (lower middle) Anton Nitsche, Austrian Inf. Ser.

The unfriendly state

This ungreeting card does not carry your ordinary "do-come—now-you-know-the-way" type message. For 35 cents, Oregonians can now send something more sincere to an out-of-state friend or ex-friend.

Oregon's Governor McCall is concerned about his beloved state being overrun by new residents, and has been actively discouraging people who might like to settle there.

Lumber dealer Frank Beeson and Artist James Cloutier designed the card: in three months they've sold more than 50,000 of them.

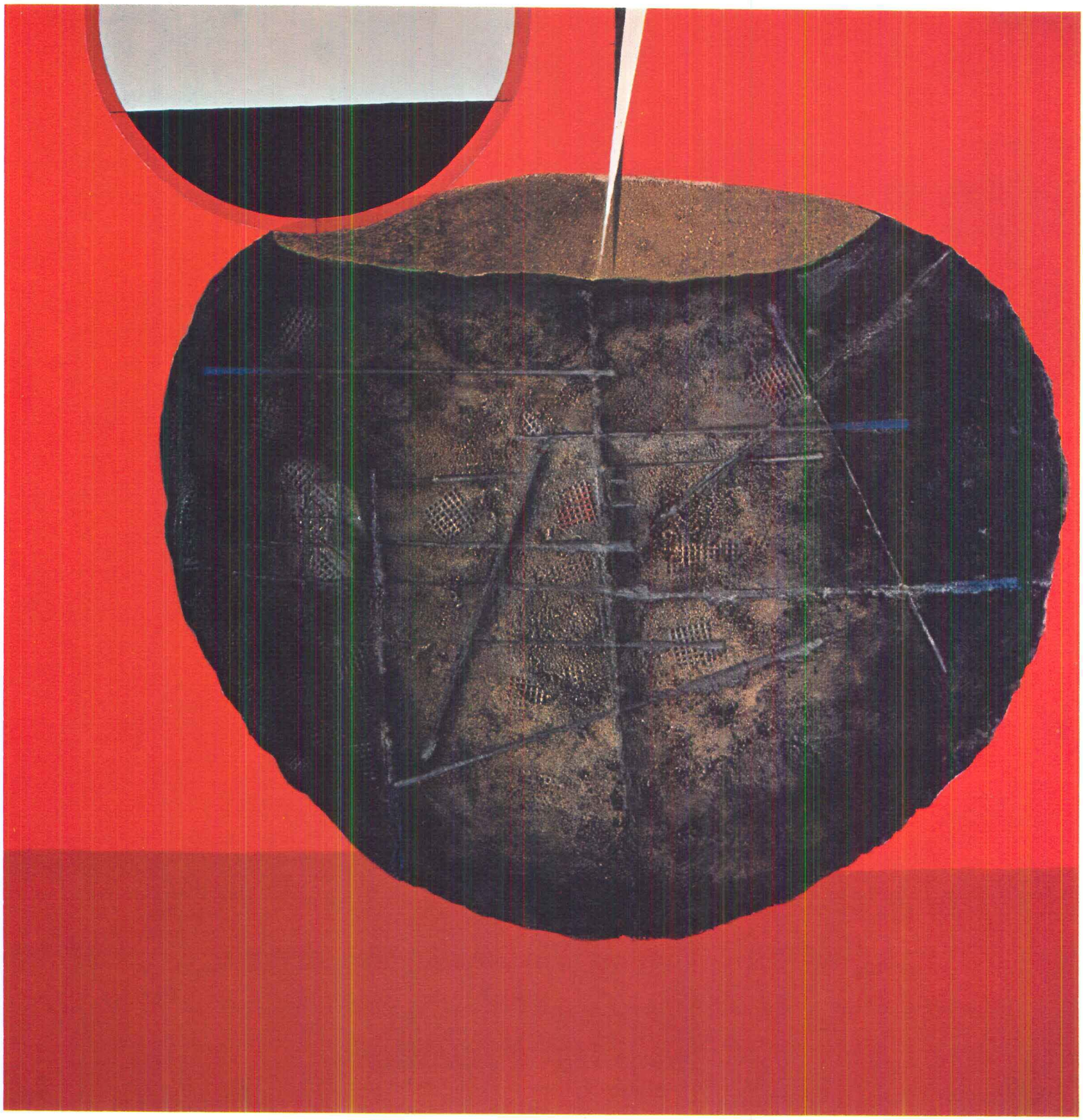


Obit

Robert W. Dowling, though not an architect or an engineer, was during his lifetime extremely influential in major city planning decisions in the U.S. and other countries. He had the means to follow through on his ideas: his grandfather, Robert Whittle Dowling, immigrated to America from Ireland and found a gold mine in California.

Robert Dowling was involved in major city planning projects in Toledo, Ohio, and Pittsburgh, Pennsylvania. He planned a new town in Arizona, and also in Sterling Forest, a 20,000-acre residential, scientific and cultural center north of New York City. His specialty was turning blighted neighborhoods into sunny enclaves—tall, slender buildings on spacious grounds. He died in New York City in August at the age of 77.

FOOTNOTE
The pear-shaped bat shown here is, actually, a Japanese lady encapsuled in a stretch fabric; and what she is doing is advertising an International Canvas Furniture Design Competition that has been organized by the Taiyo Kogyo Co. of 22-1, Higashiyama 3-chome, Meguro-ku, Tokyo 153, Japan. Anybody wishing to communicate with the lady may reach her at this address. Anybody wishing to find out more about the competition can ask her.



POINT ZERO II, 1969, 60 x 60", COLLECTION U.S. STEEL

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Book Review

Modern Movements in Architecture by Charles Jencks. Anchor Press/Doubleday, New York, 1973. 432 pp., 223 illus., $10.00 hardcover; $4.95 paperback.

Adhocism: The Case for Improvisation by Charles Jencks and Nathan Silver. Doubleday, Garden City, N.Y., 1972. 216 pp., 244 illus., $10.00, hardcover; $4.95 paperback.

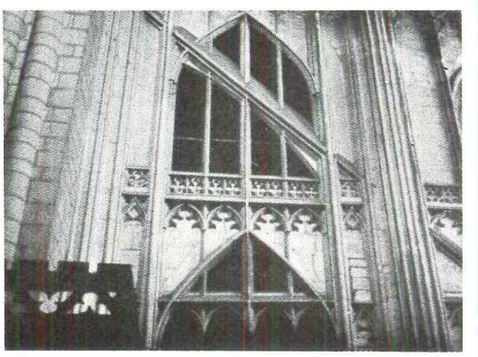
Reviewed by Stanley Abercrombie

This is an *ad hoc* combination of petulant personal remarks and the reviews of two new books by the prolific Charles Jencks, an American-born architect now living in England. One book is Jencks' catalog of recent architectural movements; the other (written with Nathan Silver, the author of *Lost New York*) is an exegesis of one such movement, "adhocism."

Modern Movements is spiritedly iconoclastic. After some general introduction, we find a chapter titled "The Problem of Mies." Those of us who consider Mies a blessing rather than a problem are immediately on guard. The problem turns out to be not with Mies' buildings, however, but with Mies' ideology: he believed in "the Platonic universe," and Jencks doesn't. Indeed, in writing about Mies and other architects, Jencks dwells mainly on their personalities, their philosophies, and their politics—all of rather peripheral interest, like Einstein's violin-playing and Mark Spitz's moustache. Jencks believes that such personal attitudes affect (or even dictate) the architects' buildings; he says of Le Corbusier: "The face is . . . at times deeply tragic. So are his buildings." And Jencks' interests are made quite clear in a curious statement about Philip Johnson: ". . . the particular contribution of Johnson lies more in his candid approach than his building." Nor am I convinced that "Frank Lloyd Wright . . . conceived of his architecture *first* [my italics] as a polemic towards cultural integration . . ."

When Jencks does write about buildings, his main criterion for judging them is a vague principle of "univalence." He finds, for example, Mies' Crown Hall at I.I.T. "univalent" (bad), but Mies' Farnsworth house "multivalent" (good). These judgements seem to be based on the way Jencks thinks the buildings function. At Crown Hall ". . . the space is too noisy and public for the architectural students to work in. . . . When form as beautiful as this turns out to be univalent and not functional, one can only enjoy it as farce—a beautiful fairyland." But the Farnsworth house "will stand up to technical and functional analysis as well," and provides "the delight in finding an ambiguity or multivalence of determining meanings." Opposite conclusions could have been reached just as easily. I have *seen* (and envied) students working in Crown Hall, and we remember Dr. Farnsworth's having a few doubts about her house's function.

An *ad hoc* auto grille/planter.



Tower buttress in Gloucester Cathedral, 14th century.

Nathan Silver's chair assembled from diverse parts.

After "The Problem of Mies," Jencks devotes a single chapter to an odd couple, Gropius and Wright. What the great catalyst-collaborator and the arch individualist shared, it seems, was a "collapse into formalism" at the ends of their careers. Musings about Le Corbusier's psyche come next, then a chapter on Aalto (with some serious and very welcome examination of his buildings). The heroes thus out of the way, Jencks is free to turn to New Brutalism, Camp, Pop, Archigram, Metabolism, etc.—a genuinely useful guide to recent architectural trends.

One trend, "adhocism," must be Jencks' own favorite of these, for, with Silver, he has devoted a whole book to it. We learn what the authors mean by "adhocism" through aphorism and example rather than through definition. The primary qualities of adhocist action are "speed and purpose," they tell us. "Sex is *the* mode of social adhocism," and "promiscuity is practical adhocism." Rapunzel's hair was an adhocist ladder, and Heloise's hint to cover a waffle iron with a shower cap is adhocist. Jim Dine was adhocking when he stuck a lawn mower to his canvas, and Jane Jacobs adhocked when she advocated mixed uses for cities. The book itself is an adhoction because it is made from two distinct halves, one written by each author.

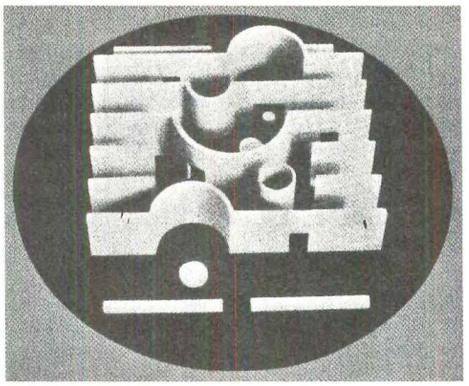
Adhocism in architecture allows "approximate solutions rather than perfect ones," and whereas "Mies van der Rohe's purist architecture needed joints, adhocist architecture only needs junctions." But adhocism doesn't really need architecture at all: "From . . . an adhocist sensibility, a successful renovation is more impressive than a new building."

Jencks' half of *Adhocism* closes with remarks on adhocism in politics, and *Modern Movements in Architecture* closes in a similar, and even more incongruous way. Either Doubleday has made the unprecedented error of including the final chapter of another book altogether, or Jencks has a bad case of what Geoffrey Scott called "the ethical fallacy." The concluding slogan (a substitution for Le Corbusier's "Architecture or Revolution") is "Architecture *and* revolution." What Jencks is calling for, to be more exact, is architecture *for* a revolution. After quoting Hannah Arendt's description of how the Hungarian Councils of 1956 were organized along lines of common endeavor, and after reminding us of such popular revolutionary councils as the French societies of 1793, the Paris Commune of 1871, the 1936 Syndicates in Spain, and the recent *barrio* groups in Santo Domingo (none of which, by the way, brings to mind any image of architectural distinction), Jencks asks what

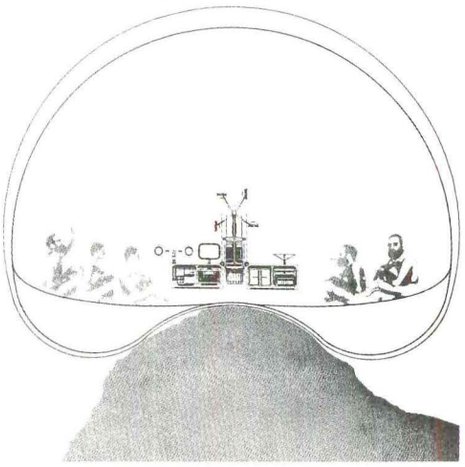
we should be doing while awaiting a similar (but more broadly successful) movement:

"Meanwhile in architectural terms what can be done? At the very least, the architect can continue to offer ideal alternatives such as Bruno Taut's Community Centre or Tony Garnier's Industrial City. . . . One can see that unless a live architectural tradition exists at the time of upheaval, the cultural alternatives [for the revolution] are radically limited. . . . If architecture concretizes the public realm and if that realm has lost its credibility because it is founded on a false idea of what allows men to govern themselves, then its whole expressive nature, and therefore its essence, is thrown into doubt. In that situation all the architect can do is clarify the situation theoretically, design dissenting buildings for the system, provide alternative models and wait for the propitious moment."

Aside from a personal doubt that such a "propitious moment" will soon provide us with a radically improved society, and aside from the mundane consideration that you can't keep a practice going on sketches which may or may not turn out to be appropriate for such a society, the real trouble is that Jencks is thinking of architects in extra-professional terms. The majority of situations for which architects design—a family having breakfast, a man looking, in public, at a Raphael, a vehicle full of commuters entering a city—will (I hope) remain despite any governmental upheavals, and the "dissenting buildings" now designed are not generally dissents against



Arnheim Pavilion by Aldo van Eyck, 1966.



Banham and Dallegret's Un-house bubble.

government but against other buildings. It seems pretty clear that the Venturis dislike Paul Rudolph's esthetic, but whether or not they favor representative democracy, we haven't the slightest idea.

Some of the architects catalogued by Jencks dissent from both Rudolph and Venturi, of course—their architecture goes underground or underwater, is constantly in process, or is assembled from stock parts by its users. Potentially valuable as some of these experiments may be, the problem of building buildings has not gone away and, in the foreseeable future, will not.

Let us pluck one small part of *Adhocism* from its context and use it in an *ad hoc* manner: "Whenever a new problem arises that doesn't fit within accepted solutions, the first, natural reaction is to deny its very existence. This is essentially the ostrich method of solving problems. . . ." The "new problem" that has arisen for architecture is that none of the movements of the last generation seems to have kept its validity for the present generation, and the "first, natural reaction" for some is to deny that architecture still exists. Thus Jencks ". . . accepts everyone [and, therefore, no one] as an architect." The architect as "relevant" sociologist, as anonymous advocate, as non-architect or as anti-architect is, in great part, the architect as ostrich.

The proper focus for architects is neither "Architecture or Revolution" nor "Architecture *and* revolution," but—you guessed it—architecture.

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A tale of two towers

continued from page 52

of events—from band concerts to sheep-shearing demonstrations.

Under the plaza, where a planetarium had been planned (McGraw-Hill lost all interest in stargazing after they sold their planetarium company last year), a special theater is being built. It will present a "multisensory entertainment" called "The New York Experience." Special effects such as fog and subway noises will be combined with 30 slide projectors and seven film projectors to produce the show. The World Headquarters and theater are tied into Rockefeller Center's underground passage system, a very nice convenience during New York's rainy winters.

The site of the Green Building was chosen because it permitted industrial zoning and the man who sold the 47,300 sq. ft. parcel to McGraw-Hill in 1930 had four years earlier announced his plan to build a 110-story building on that spot *(New York Times,* May 30, 1930). The Green Building has always been an anachronism in its neighborhood, especially after land values dropped there during the Depression and never really recovered. The particularly earthy character of 42nd Street between Times Square and the Green Building has always been one of the less attractive aspects of working there; the location of the World Headquarters, on the other hand, is one thing everyone likes about it.

The image of the Green Building

A final and important, though less factual, area of comparison lies in the esthetics and image of the two buildings. The controversy over the Green Building centered around the emerging International Style. In a short but thoroughly negative critique, *The New Yorker* magazine (August 25, 1931) noted that the horizontal emphasis of the spandrels was borrowed from Germany. "While any building is a series of superimposed floors," wrote the reviewer, "the fact remains that a tall building, considered as a mass, goes up, not sidewise." The Daily News and Empire State Buildings seemed more beautiful to him.

Today, however, it seems particularly important to point out that the horizontal treatment, which expresses human use so well, allowed daylight to enter those offices in a way that the vertical windows of the new World Headquarters cannot. It is the easily perceived floor-to-floor relationship of the Green Building that gives a scale index no vertically-oriented building has.

One of the most prominent critiques that appeared was entitled, "But . . . Is It Architecture?" *(American Architect,* January, 1932). Arthur T. North, AIA, seemed especially concerned over the coloring but managed to avoid any firm judgements. His final remark stands as a model for future architectural critics: "It is undoubtedly a decided step in a direction which we cannot clearly distinguish at this time . . . " Although Hitchcock and Johnson included the Green Building in *The International Style,* they also had reservations. "The regularity approaches monotony except for the set-backs which are determined by legal requirements rather than considerations of design. The heavy ornamental crown is an illogical and unhappy break in the general system of regularity and weighs down the whole design."

Yet it is that very feature, with McGraw-Hill permanently spelled out in eleven-foot-high letters, that helps make the image of the building so powerful. It somehow expressed the technical nature of the activities within and was the very paradigm for the skylines of the "Cities of Tomorrow" so popular at the time. George Finnegan, McGraw-Hill vice-president for public affairs said recently that the Green Building had always seemed to him something from another planet. And how strange it is to see it surrounded by the street life of the 30's looking exactly as it does today.

The image of the World Headquarters

There is no such mystery about the new building. It is impressive because it simply overwhelms the viewer. The Rockefeller Center verticals suppress all scale-giving elements. It is a huge building with no differentiation, one side from another. The graphics are so minimal and the entries on the sidestreets so restrained that many first-time visitors can't find the doors.

But the image of the new building is no more accidental than that of the Green Building. The new World Headquarters of McGraw-Hill quietly expresses importance and power, a corporate giant among the other giants of Rockefeller Center. It is the standard corporate formula to be sure: enormous restraint and spaciousness in the design of the public spaces, overdone opulence in the executive suite. In some ways it seems inappropriate because there is still a sincere effort made to speak of the McGraw-Hill "family" and the executives themselves are quite unpretentious men. Yet that's the point: the Corporation now has its own identity and creates its own image. There is no James McGraw today. Management is therefore a synergistic creature, far more powerful than the sum of the personal power of the men who work in those lush quarters.

So the image of the new building is, first of all, an expression of centralized authority. Hierarchy is everything, the basis of the design. The editors-in-chief of magazines like *Business Week,* which influence educated opinion all over the world are really on the lowest rung of the Corporate ladder. Above them are six or seven ranks of people whose concern is the same as that in any other corporation—to make a profit for the stockholders.

Second, therefore, because this group produces no tangible product, it needs to have a symbol of its indispensableness. The new building becomes its contribution.

Robert Walters noted proudly that "top management was very involved" in the planning. Why not indeed; they were the only ones who cared whether there was a new building or not.

Third, the building expresses the importance of loyalty to the Corporation. It is far easier to recognize loyalty, in an organization the size of McGraw-Hill, than it is creativity. Where a James McGraw can spot human excellence, a corporation can only seek efficiency and minimal turnover.

The inevitability of the World Headquarters

It is inconceivable to management, on the other hand, that a new building was not necessary. They cannot understand that the decentralization of operations that existed prior to the move into the World Headquarters (from eight separate locations) was in fact a workable and useful arrangement from the users' point of view. When the question is raised, a litany of the accounting benefits of centralization tumbles from the executive lips: reduced telephone and teletype costs, personnel costs, medical costs, mail distribution costs, maintenance costs and security costs.

When it comes to the real business of the Corporation, communicating ideas, the

only advantage mentioned is the "cross-pollenization" of ideas that supposedly takes place. Apparently it occurs in elevators when people who do not know each other are crammed together, or at the long tables in the cafeteria which people share silently because they do not know each other. In fact, about the only fraternization between staffs is based on friendships formed in the Green Building when McGraw-Hill was small enough to have a sense of community.

But the limits of a sense of community are not susceptible to analysis by cost-accounting methods; and it is no wonder that management can not understand what has been lost by moving everyone into one giant container. The possibility of consolidating one of the subsidiary companies, perhaps the Book Company which is sizeable in itself, into the Green Building, while the others were consolidated into smaller buildings was dismissed, according to Robert Walters. One idea that might have been studied is that each of the staffs of the 36 McGraw-Hill magazines, which seldom contain more than forty people apiece, could have functioned by itself in a loft or converted townhouse, complete decentralization. And yet that is exactly how *New York* magazine, probably the most creative and successful one in Manhattan, works. It's how the best architectural offices work. How important are all the peripheral services to a truly creative operation anyway?

Nonetheless, the McGraw-Hill World Headquarters was indeed inevitable. It is important to understand how it (and the other corporate towers) works because there is a hidden symbiosis between form and function. No longer is the building most important as a place where ideas are prepared for communication to the world. These soaring office buildings are, in other words, management's playthings. The McGraw-Hill slogan has imperceptibly changed from "serving man's need for knowledge" to "serving management's need for acknowledgement." That's really too bad because old James McGraw had the right idea.

Photographs: Gottscho-Schleisner, pages 42, 50 (bottom); Jack Horner, pages 48, 49, 51 (top photos); Richard F. Isaacs, pages 43, 50 (top), 51 (bottom photos), 53 (top); McGraw-Hill, pages 45, 47 (bottom), 53 (bottom); Cervin Robinson, page 47 (top).

Product Literature

To obtain the literature described below, circle the corresponding number on the Reader Service Card in the back of this issue, print your name and address and mail. It is necessary to affix proper postage if the card is mailed outside the United States.

BUILDING SYSTEMS
A new report file containing a variety of construction reports pointing up the versatility of Exide Building Systems is offered by Atlas Minerals & Chemicals Division, ESB Incorporated.
Reader Service Number 235.

CABINETS
Mardi Gras, a new, economy-priced line of modular kitchen wall and base cabinets, has been introduced by Excel Wood Products Co., Inc.
Reader Service Number 236.

CERAMIC PRODUCTS
United States Ceramic Tile Co. offers a full-color brochure on Romany-Spartan II, their all-new line of bright and matte glaze ceramic tile.
Reader Service Number 237.

The Refractories and Abrasives Div. of Ferro Electro Corporation has available information on Gem ceramic fireplace logs in standard or custom designs.
Reader Service Number 238.

COATINGS
A new, four-page color card on the Sonneborn new formula Hydrocide Super Colorcoat line of decorative waterproof coatings has been released by Contech, Inc.
Reader Service Number 239.

Three new color top coatings for use with Scotch-Clad Deck Coating Systems for pedestrian and roof areas are now available from the 3M Company.
Reader Service Number 240.

CONCRETE
National Concrete Masonry Association has published a 12-page brochure illustrating ways in which design latitude can be expanded with flexible concrete masonry.
Reader Service Number 241.

COPPER SHEET
Copper Development Association, Inc. is offering a four-page bulletin on a new high-strength copper sheet suitable for a broad range of flashing, fascia, and roofing applications.
Reader Service Number 242.

DOORS
Season-All Industries, Inc. has introduced a combination storm/screen door featuring modern design and a selection of color side lites.
Reader Service Number 243.

EXPANSION JOINTS
Marsten Products Company offers technical data on Flex-a-Deck, the first premanufactured expansion-contraction joint available in various widths for horizontal deck surfaces.
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GLASS
Single glazed reflective glasses—including new Solarcool Bronze and Solarcool Gray glasses—are described in new brochure available from PPG Industries.
Reader Service Number 245.

Safelite Industries has released a new catalog describing its line of laminated architectural glass.
Reader Service Number 246.

GRILLES/REGISTERS
Connor Engineering Corporation offers a 20-page brochure on its expanded grilles and registers line. Drawings and dimensional information on each model are included.
Reader Service Number 247.

HARDWARE
Tubular Structures Corporation of America has available a 24-page brochure featuring pipe clamps for construction of unlimited storage systems.
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HEATING/COOLING SYSTEMS
Three new compact electric furnaces with evaporator coils for cooling systems have been introduced by Friedrich Refrigerators, Inc.
Reader Service Number 249.

LIGHTING
Information on a new vandal-resistant clear prismatic luminaire with maximum output and minimum glare is available from the Art Metal Operation of the ITT Lighting Fixture Division.
Reader Service Number 250.

A 12-page color catalog on their Woodlite outdoor lighting systems has been released by Sterner Lighting Systems, Inc.
Reader Service Number 251.

LOCKERS
Interior Steel Equipment Company has developed the new Quiet Locker featuring a unique unit which eliminates the noise of metal on metal.
Reader Service Number 252.

NOISE CONTROL
Control of noise with laminated architectural glass for windows is described in a 24-page bulletin available from Monsanto Polymers & Petrochemicals Co.
Reader Service Number 253.

PANELING
A combination color chart and technical guide is being offered for the first time by the AllianceWall Corporation, manufacturer of porcelain-on-steel building panels.
Reader Service Number 254.

All product literature on its 1973 line of panels and planks, doors, custom products, and partition systems has been assembled in a specification guide by the Marlite Division of Masonite Corporation.
Reader Service Number 255.

A 22-page color brochure that describes and illustrates the various applications of their interior panels is available from the Gold Bond Building Products Division of National Gypsum Co.
Reader Service Number 256.

Bruce Paneling and Molding, a division of E. L. Bruce Co., Inc., has introduced "Masquerade," a new series of decorator-styled prefinished plywood panels.
Reader Service Number 257.

PARTITION SYSTEMS
Eastern Products Corporation's Architectural Metal Products Division has published a new family of 16-page brochures showing acoustical grid suspension and partition systems by application throughout the United States.
Reader Service Number 258.

SEALING COMPOUND
Application data on their complete line of sealing compounds is available from Revere Chemical Corporation.
Reader Service Number 259.

SEATING
Vecta Contract Company has prepared a complete set of brochures on three new seating systems displayed for the first time at Neocon '73.
Reader Service Number 260.

SECURITY SYSTEMS
A card reading system that restricts access to high-security areas where positive control of coded cards and card holders is required is now available from Cardkey Systems.
Reader Service Number 261.

Details of its Model 70R Alarm Lock have recently been released by Alarm Lock Corporation. Applications include hospitals, universities, libraries, and computer rooms where confidential data is being processed.
Reader Service Number 262.

SOLAR SCREENS
A 16-page catalog giving installation and specification information on solar screens is offered by KoolShade Corp.
Reader Service Number 263.

STEEL FRAMES
Amweld Building Products has just issued a new four-page brochure which features its line of steel adjustable frames for drywall openings and plastered openings.
Reader Service Number 264.

WALL SYSTEMS
The American Plywood Association has revised "Architectural Plywood Walls" to include more joint details plus illustrated sections on curtain walls, plaster channel trim, cross hatch design, and picture framed panels.
Reader Service Number 265.

USG® Area Separation Walls, lightweight gypsum drywall assemblies designed as vertical fire barriers separating occupancies in wood frame apartments, are explained in a new brochure available from U.S. Gypsum Company.
Reader Service Number 266.

WATER COOLERS
A new 12-page, four-color publication from General Electric describes and illustrates the Company's complete line of electric pressure water coolers.
Reader Service Number 267.

WOOD FRAMING
"A New Look at Wood Framing" is the title of a full-color booklet just issued by Western Wood Products Association.
Reader Service Number 268.

Letters

continued from page 8

nature of and the concern for our environment. We need an architecture of human poetic vision with positive attitudes toward humanity.

We have had it with tyrannical industrial production. . . .

We have had it, and are tired of "the ugly and banal is beautiful" fetish and the pop art architects. . . .

We have had it with the "Five" cardboard *de Stijl* revivalists and reconstituted Corbu calligraphists, who should stop making superficial pretty plans and unintelligible "frozen talkings." . . .

Thank goodness for Utzon's observations of nature, and his transformation of the horizontal line of the water, with the surface of mounting clouds above it, into a grand opera house with billowing roof forms hovering over an architectural plateau. He is a "people mover" *par excellence* . . .

MARTIN PRICE
Architect, New York, N.Y.

Edison Price

Your article on Edison Price (August issue) is great.

I am delighted to see Edison finally receiving the recognition he has so justly deserved for years. Keep up the good work.

HARRY C. WOLF
Architect, Charlotte, N.C.

Energy

Fred Dubin's article in the July issue is timely and, no doubt, an early indication of a need to pay much closer attention to energy consumption in architecture.

However, there is one statement in the article that puzzles me and I wonder if there is technical data to back it up. The statement indicates that window shape on an area-for-area basis affects energy use. Also, there is a diagram in the story that talks of a square shape providing less lighting glare than horizontal glazing. Doesn't location in the wall, exposure to sky glare and other factors all affect glare?

PETER G. CHRISTIE
Architect, Baltimore, Md.

Both the diagram and statement were made to point out the kinds of factors architects consider in conserving energy. There are no specific studies on these particular factors that we are aware of, but both conclusions are based on common engineering considerations. As an illustration that shape affects energy use, a vertical window will increase the chances of downdrafts and therefore heat loss; if heat loss is a primary concern, then horizontal windows would minimize this. In the case of the diagram, the point was that the vertical window would reduce glare because there could be large expanses of wall space between windows, whereas the horizontal example would give a nearly continuous band of glazing interrupted by only small strips of wall space, creating a glare condition in those areas. In all cases, the specific problem and all *its variables, of which Mr. Christie mentions a few, must be analyzed to make a valid design decision.—ED.*

In a very timely article: "Energy for Architects," by Fred Dubin, as reported by Margot Villecco, one reads: "The goal is to make a building, like a person, adapt to its environment with a minimum of mechanical aids . . ."

This leads to the principles and systems discussed, but also evokes the "heroic" period of modern architecture, when the "sun, light, and air" became the watchwords of functionalism . . .

It is indeed a happy event to celebrate the 25th Anniversary of MIT Dormitory by pointing out those essential elements of the architectural composition, almost completely forgotten, or neglected in recent years. The most important of them: the site orientation. Fitting the energy considerations, one observes with Stanley Abercrombie: Aalto puts the living quarters on the east, south, and west sides of the building, thus giving the students a maximum of sunlight exposure. He locates the services, like staircases, corridors, bathrooms, on the north side. And the roof space becomes a garden. The last element: the garden in the sky, (unfortunately not built here), dear to all who grew in the realm of the mediterranean culture, has again a tremendous appeal now, when we are thinking in terms of energy to be saved, and our concern is that of ecology.

Perhaps with the energy crisis, seemingly imminent, we will be able to find a new enrichment of our environment, known to our ancestors, rediscovering what the mentors of modern architecture have already foreseen: a total harmony with nature. . . .

ADAM M. KAAS
Architect, Washington, D.C.

Second Avenue plan

"Urban Renewal Goes Underground" (June issue) is a very complicated article, excellently written, in a simple, easy to understand manner.

JOHN B. MCNAMARA
Architect, Rockford, Ill.

Advertisers Index

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