

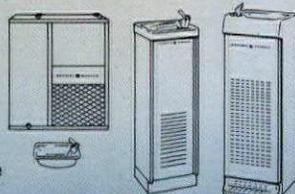
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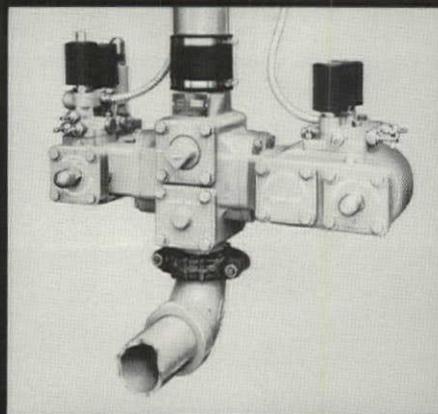
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Asides

Next Month: The term "office landscaping" is bandied about these days without much thought for the basic concepts. As generally used, "It fails to convey any notion of a complex process that involves a forthright and intelligent marshaling of spaces and facilities according to the work relationships of office personnel," says an interior designer-educator in spelling out what it all means to the architect.

Other major features in July include an in-depth look at the National Accelerator Laboratory now under construction in Batavia, Illinois, designed by a joint venture (DUSAF); a down-to-earth report on the planning and design of moon shelters.

About This Issue: The Official Convention Guide is always a special kind of issue — and it means more work than ever, more cooperation from more people, etc.

Two former staffers at the Octagon who both now work in Chicago have given the editors an assist in developing the 32-page Great Lakes section. They are Matthew L. Rockwell, FAIA, director of the Northeastern Illinois Planning Commission, and Robert J. Piper, AIA, associate director, department of planning and urban design, Perkins & Will Partnership.

Another P&W employee who frequently contributed to the AIA JOURNAL as a freelancer before becoming the firm's director of public information has served as our Chicago liaison. So thanks to Betty J. Ritter, AIA. R.E.K.

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Newslines

Program Set for Chicago Convention of AIA/RAIC; With Theme of 'Focus Now'

This month's combined convention of The American Institute of Architects and the Royal Architectural Institute of Canada is certain to be distinctive and might well turn out to be a landmark meeting.

It will be the first joint convention of the two North American organizations. It is expected to be the largest convention gathering for both. It will have a particular emphasis on workshops and tours and a decided involvement of architectural students, and it will be a convention deeply concerned with social and environmental issues.

The program for the Chicago meeting—June 22-26 with the Palmer House as headquarters—was jointly planned by the AIA and RAIC and will have the joint participation of the two professional societies. Business sessions will be held separately and AIA delegates could have a number of significant matters placed before them.

The business agenda was still being firmed up at presstime but one matter of interest, a proposed change in the dates or terms of national officers and directors, was definitely scheduled.

The proposal would have the terms of officers and directors beginning on Jan. 1 of each year in-



Bernstein



Dietz

stead of at mid-year as under current practice. It is aimed at bringing the tenure of officers and directors into phase with budget procedures and with the terms of chapter officers, most of which begin with the calendar year.

If approved, one effect of the change would be a half-year extension of the administration of Rex W. Allen, FAIA, Institute vice president who will move into the

presidency during the convention. The dates change would go into operation with the start of 1971; thus Allen and those fellow officers and directors whose terms would normally expire in mid-1970 would continue in office until the year's end.

Additional Speakers: Besides Daniel Patrick Moynihan, Special Assistant to the President for Urban Affairs, and Dr. Hans Selye, director of the Institute of Experimental Medicine at the University of Montreal, the convention will hear Albert J. H. Dietz, professor of building engineering at MIT, and Marver H. Bernstein, dean of the Woodrow Wilson School of Public and International Affairs, Princeton University. Dietz will address the theme session on technology while Bernstein, consultant to the AIA Task Force on the Study of the Standards of Professional Practice, will speak at the session on professionalism.

The convention, with its slogan of "Focus Now," will have an additional theme session on Design which will hear "Tale of Two Cities" reports from teams making studies of Montreal and Chicago.

Moynihan will keynote the convention and Dr. Selye, an authority on the interaction between human beings and the physical environment, will deliver the Purves Memorial Lecture.

Largest Meeting Yet: The convention is expected to draw some 6,000 US and Canadian architects, their families and guests. This kind of turnout would surpass the 1967 New York convention, largest to date in AIA annals.

There will be a dozen or so workshops, a Frank Lloyd Wright tour, a South Side historical tour, a Chicago School of Architecture and a Chicago High-Rise tour.

AIA delegates will elect new Institute officers. As of presstime, with the deadline for filing nominating petitions still open, Robert F. Hastings, FAIA, of Detroit, remained unopposed for the position of first vice president and president-designate.

Among other candidates was a black architect—the first Negro aspirant for national office in AIA history—for one of three vice presidencies. He is Lorenzo Williams, AIA, of Minneapolis.

Also running for vice presiden-

cies are George M. White, FAIA, of Cleveland; George T. Rockrise, FAIA, of San Francisco; and Francis D. Lethbridge, FAIA, of Washington, D. C.

Rex L. Becker, FAIA, of St. Louis, and Dean F. Hilfinger, FAIA, of Bloomington, Ill., are running for treasurer. This office, like that of secretary (not up this year) carries a two-year term.

TAC Selected to Design AIA's New Headquarters

The Architects' Collaborative will design the AIA's new headquarters. The Cambridge, Mass., firm will bring to the project what was termed a totally new approach, with Norman C. Fletcher, FAIA, as principal in charge.

A new program of space requirements, economic feasibility studies and schematic concepts for planning and design will be undertaken.

TAC's design will have to go before Washington's Fine Arts Commission which in 1967 and 1968 rejected designs of Mitchell/Giurgola, Associates. The firm subsequently withdrew from the project which at the time called for a \$4 million construction budget.

Institute President George E. Kassabaum, FAIA, said TAC was chosen on the basis of "the outstanding buildings they have designed, their sensitivity to the difficult architectural problem of designing a new building that closely relates to the Octagon, the services they have performed for other clients and their capabilities for handling this project."

76 Members Are Elevated To the College of Fellows

Membership in the AIA College of Fellows will rise to 893 during the AIA/RAIC convention with the formal investiture of 76 new Fellows.

The fellowships were given for achievement in one or more of 11 areas. But the category or categories of achievement for which the member was selected are not listed any longer, the program's emphasis having turned to the recognition of "the whole architect."

This year's Fellows (see listing on page 16) were chosen for achieve-

Continued on page 20



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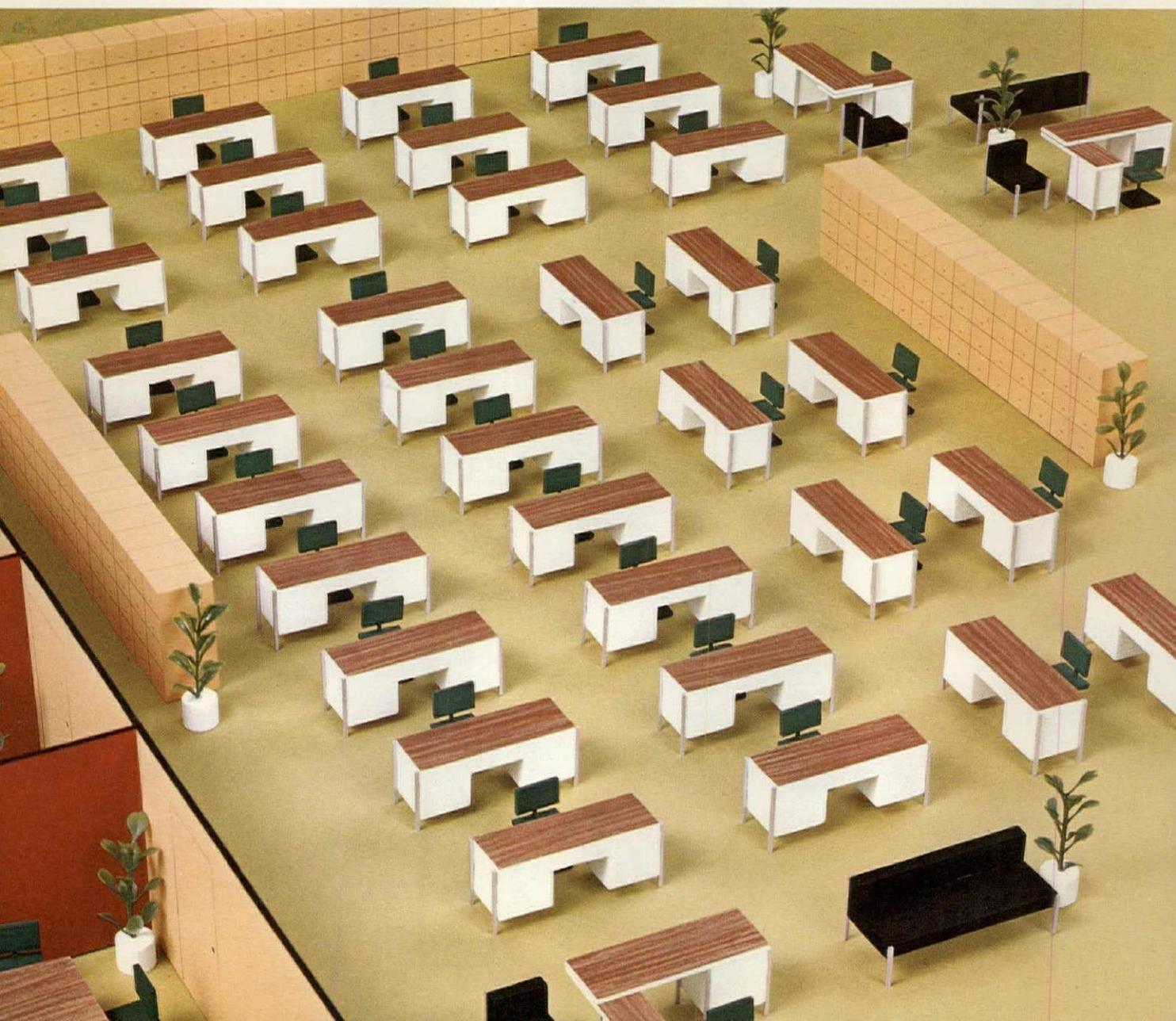
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Opportunities Task Force, Year After Young Charge, Operative in Varied Ways

The AIA Task Force on Equal Opportunities, created in response to Whitney Young's 1968 conven-

tion address, for the past year has been working to increase the number and the advancement of black architects and to improve the environment in black communities.

The task force has been involving the profession and the AIA more effectively in the problems of the central city. It has been trying to bring more members of minority groups into the profession and into more active participation, and it has been seeking to improve the quality of education and the professional opportunities for disadvantaged minorities.

A cursory review of task force/AIA efforts and accomplishments over the year since the Urban

League executive director asserted, "You are not a profession that has distinguished itself in the cause of civil rights," discloses the following:

To help the central city, the task force has distributed guidelines to all AIA chapters on the formation and operation of community design centers. Nine such centers have been created since this action.

The task force has in the works an agreement with VISTA, a branch of the Office of Economic Opportunity, under which VISTA will provide 40 persons as full-time staff for CDCs around the nation. The VISTA personnel will serve principally as communication links between those who need the centers' services and the centers' professionals. This development will greatly expand the CDC movement, it is felt.

In return for the VISTA involvement, the AIA will employ a full-time staff member at headquarters to coordinate the activities of the VISTA workers. A former VISTA volunteer will join the staff in this capacity in the near future.

In addition, the task force has been exhorting chapters to hold continuing education seminars to assist architects in playing a more active role in central city problems and has been exploring possible sources of financial help for the CDCs.

More, and More Active: To bring more minority group members into the profession and into more active participation within the profession, the task force reports that a deliberate effort was made to identify black AIA members and to get them assigned to national committees. A total of eight such committees now have at least one black member. Also, AIA Headquarters now has its first black professional staff member.

Chapters have been asked to examine their membership policies to ensure that all registered architects are encouraged to join the Institute. A survey made to get some idea of the number of black members indicated a total of 145. While some 75 percent of white architects belong to the AIA, the black correspondent is 50 percent, the task force said.

Members of the Institute were urged to hire and train youths from disadvantaged neighborhoods, and AIA regions were asked to conduct scholarship fund-raising campaigns as well as recruiting drives among secondary school pupils. They were

Continued on page 24

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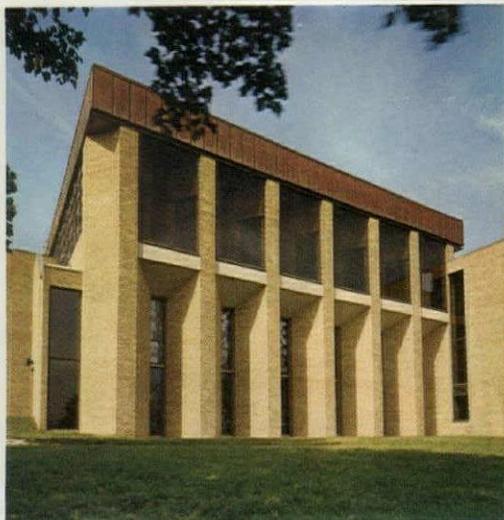
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The functional and highly decorative band which terminates Agudath Sholom Synagogue (left and above) in Stamford, Conn., is an excellent example of a typical copper fascia. Architects: Davis, Brody & Associates.



Hugh Stubbins & Associates counterpoint the smooth, uniform surface of copper roof and fascia against the rugged texture of brick on the Dana Hall School's Senior Residence, Wellesley, Massachusetts.

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also asked to help talented and interested youngsters in getting the basic education needed to enter architectural programs.

Scholarship Program Begun: A scholarship fund was established at the national level and from this a grant was made to the University of Kansas to conduct a pilot program involving a number of ghetto youngsters. This effort is being made in cooperation with the Urban League along with the AIA Scholarship Committee which worked out the program. The Ford Foundation is being asked to give financial support to the venture, which is to provide remedial education to bring the youths up to college-entry level and then to take them through the full architectural program.

Also, efforts are being made to create more on-the-job training and the Office of Economic Opportunity will be asked to help support this program which has as its aim the creation of technicians, technologists and, depending on the ability of the youth, even fully trained professionals.

Task force representatives are in dialogue with a top official of

the Department of Housing and Urban Development in an attempt to get HUD financial assistance for predominantly black architectural schools, for qualified students to obtain training in architecture, and for on-the-job training programs.

The task force met with members of seven black architectural schools — those whose enrollments are predominantly black — and with Urban League officials in a session that resulted in Institute President George E. Kassabaum's calling upon all chapters having such schools in their areas to establish stronger rapport with them. He urged that architects serve the schools as lecturers, visiting critics, jurors, etc.

Summertime Employment: Kassabaum also made a survey of firms capable of employing black school faculty members over the summer. The intent of this effort, proposed by the Urban League, is to give the faculty members both added income and added professional experience. Nine such firms were identified and all faculty members proposed for summer employment have been placed.

In an attempt to improve the professional opportunities of minority

group members, Kassabaum called on the 11 so-called building agencies within the federal government to provide more equitable opportunities for black design firms — firms having black principals — in obtaining government commissions. "For example," Kassabaum told the agencies, "we urge that present emphasis on broad previous experience might be liberalized and the criteria which put a premium on size or number of employees be reconsidered."

Finally, the government has been asked to engage, and the building industry to help, minority group contractors whenever possible.

High Bids Cloud Future Of Madison Auditorium

After more than 30 years of controversy which began when Frank Lloyd Wright unveiled his famous Monona Terrace plan, the future of the Madison, Wis., Civic Auditorium now seems anything but rosy.

The City Council, following an April bid opening which found cost estimates to be at least \$1.5

Continued on page 28

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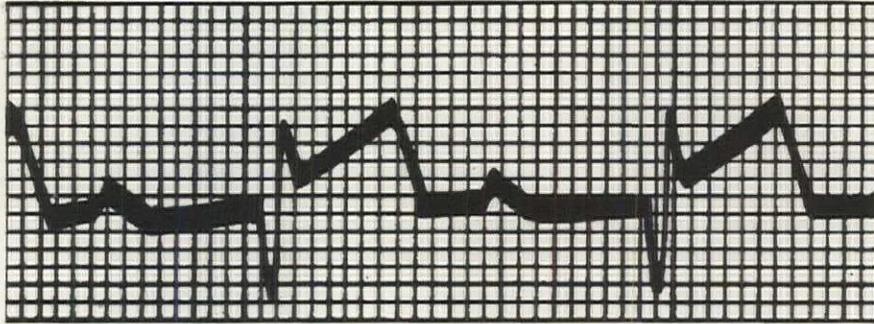


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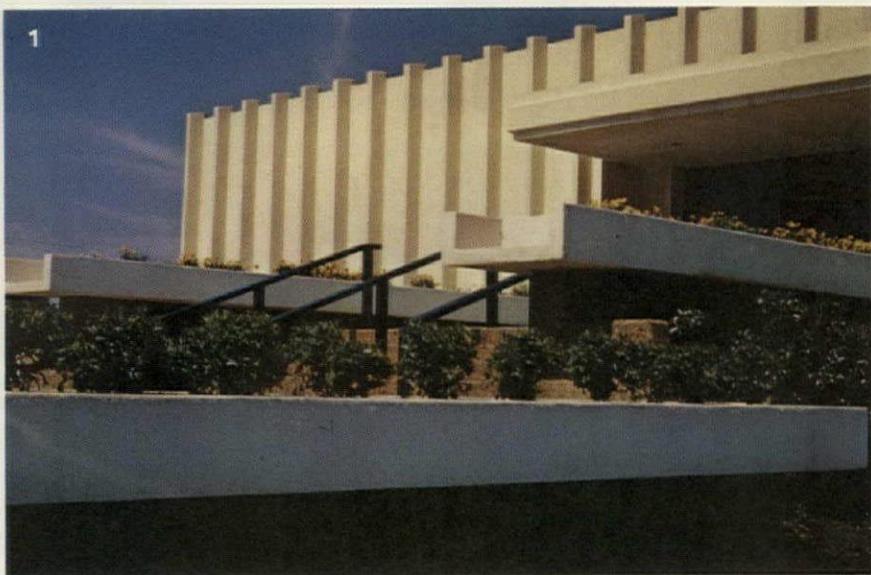
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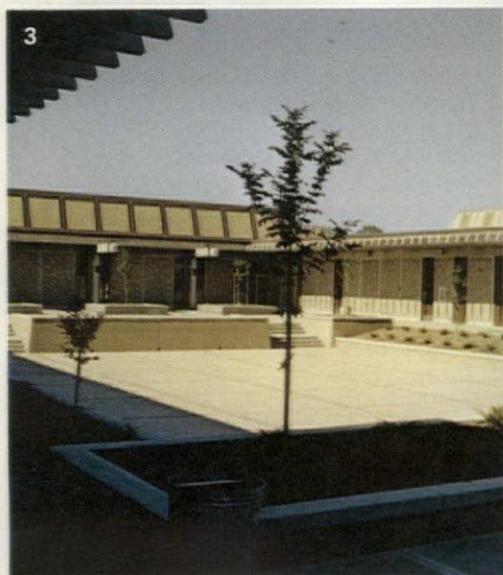
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million over the allocated funds, asked architects of the Frank Lloyd Wright Foundation to modify their drawing and submit the project for rebidding.

The council also rejected a request to provide additional money beyond the \$5.5 million which has been earmarked for the auditorium. Supporters of the project, however, have pledged more than \$100,000 according to Mrs. Joyce Chaplin of the Monona Basin Project Foundation. The immediate goal is for pledges of \$250,000.

People: Burchard Receives Jefferson Medal, \$5,000

John Ely Burchard has been awarded the University of Virginia's Thomas Jefferson Memorial Foundation Medal in Architecture.

The medal, which carries a \$5,000 prize, was established in 1966 to recognize persons who have distinguished themselves in architecture.

Burchard is "an all-around person—a generalist, critic and socially conscious man" and "a consultant to everybody about every-

thing," in the words of Joseph N. Bosserman, AIA, dean of the School of Architecture.

An honorary member of the AIA and dean emeritus of MIT, the current medalist is serving this term at Virginia as Thomas Jefferson Memorial Foundation Professor of Architecture. He is the second person to be named both foundation professor and medal winner. **Marcel Breuer, FAIA**, who taught at the university last year and practices in New York, was the first to achieve this distinction.

Other personalities in the architectural news:

Harry Seidler of Sydney, Australia, has received the 1968 Pan Pacific Architectural Citation established in 1956 by the Hawaii Chapter AIA and now co-sponsored by the Hawaii State Foundation on Culture and the Arts. Seidler, an Honorary Fellow of the Institute, was selected because of "his singular individuality and excellence in design."

Noel Michael McKinnell, English-born principal in the firm of Kallman, McKinnell & Knowles (of the Boston City Hall joint venture), has received the Arnold W. Brunner Award of the National Institute of Arts and Letters. The award is given each year to an architect who shows promise of contributing to architecture as an art.

George E. Kassabaum, FAIA, Institute president, is serving as jury chairman for the 1969 Prestressed Concrete Institute Awards program. The five jurors also include **Robert F. Hasting, FAIA**, of Detroit.

Arthur W. Brown, AIA, of Boston has been elected president of the Construction Specifications Institute.

Max O. Urbahn, FAIA, director of the Institute's New York Region, is the newly named vice president, urban and environmental affairs, for the New York Board of Trade.

Robert W. Kindig, AIA, associate professor of the University of Colorado's School of Architecture, has been elected coordinator of eight Offices of Civil Defense Architecture and Engineering Development Centers throughout the country.

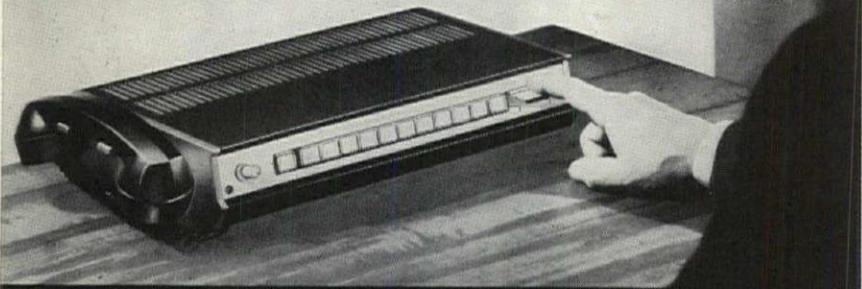
Daniel L. Dworsky, FAIA, is the current chairman of the architects and engineers division, Los Angeles United Jewish Welfare Fund.

Charles E. Schaffner, who was responsible for the \$1 million research project resulting in a new building code for New York City, has received the Distinguished

Continued on page 32

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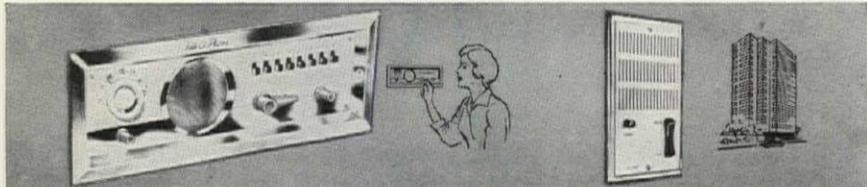


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Alumnus Award from Polytechnic Institute in Brooklyn. He is vice president for administration and professor of civil engineering there.

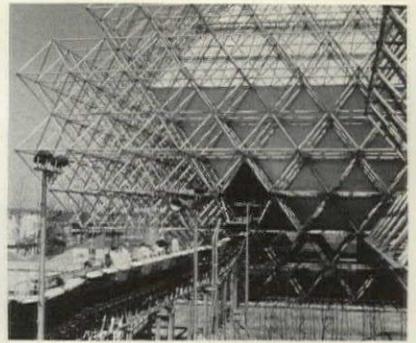
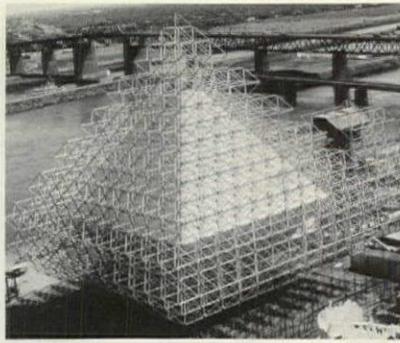
Dr. James M. Thrasher, executive director of the Institute for Educational Management, San Diego, is the new president of the Council of Educational Facility Planners.

The 1,500-member organization, which is dedicated to the propagation of creative school planning and design, also named **Dr. William Dean McClurkin**, professor of educational administration at George Peabody College for Teachers, Nashville, as 1969 "Planner of the Year."

Albert C. Martin, FAIA, partner in the Los Angeles-based firm of Albert C. Martin & Associates, received an Award of Merit at the annual Alumni Awards Luncheon of the University of Southern California.

Montreal's Expo Produces Second Reynolds Prize

For the second year in a row, the R. S. Reynolds Memorial Award Jury has turned to Expo 67 for a



Award-winning Gyrotron's main structure, left, and a view of ride exit.

winning design — this time the Gyrotron structures housing the major entertainment ride for the permanent Man and His World exposition in Montreal.

The 1968 award went to the Netherlands Pavilion.

A London architect, 39-year-old Boyd Auger, with a big assist from the computer, won the \$25,000 prize for what is believed to be the world's largest space frame structure. It is also the architect's first major building project.

The programmed structural analysis took two hours of computer time, the equivalent of the computations that would require the lifetimes of 30,000 men, Auger said. Much of his work is concentrated

on the use of computers in procedures for design of individual buildings and entire communities.

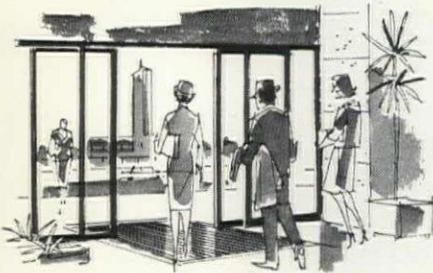
The Gyrotron structures consist of two space frames, basically pyramidal in shape but with inverted bases for minimum ground area, each supporting an envelope.

One is a giant structure supporting within its lacelike exterior a pyramid of almost 1 million cubic feet formed by panels of 4-inch-thick honeycomb sandwiched between aluminum sheet. The second structure is similar in form but much smaller. Tubing is linked by a specially developed joint.

In citing the structural concept as one which "promises significant

Continued on page 36

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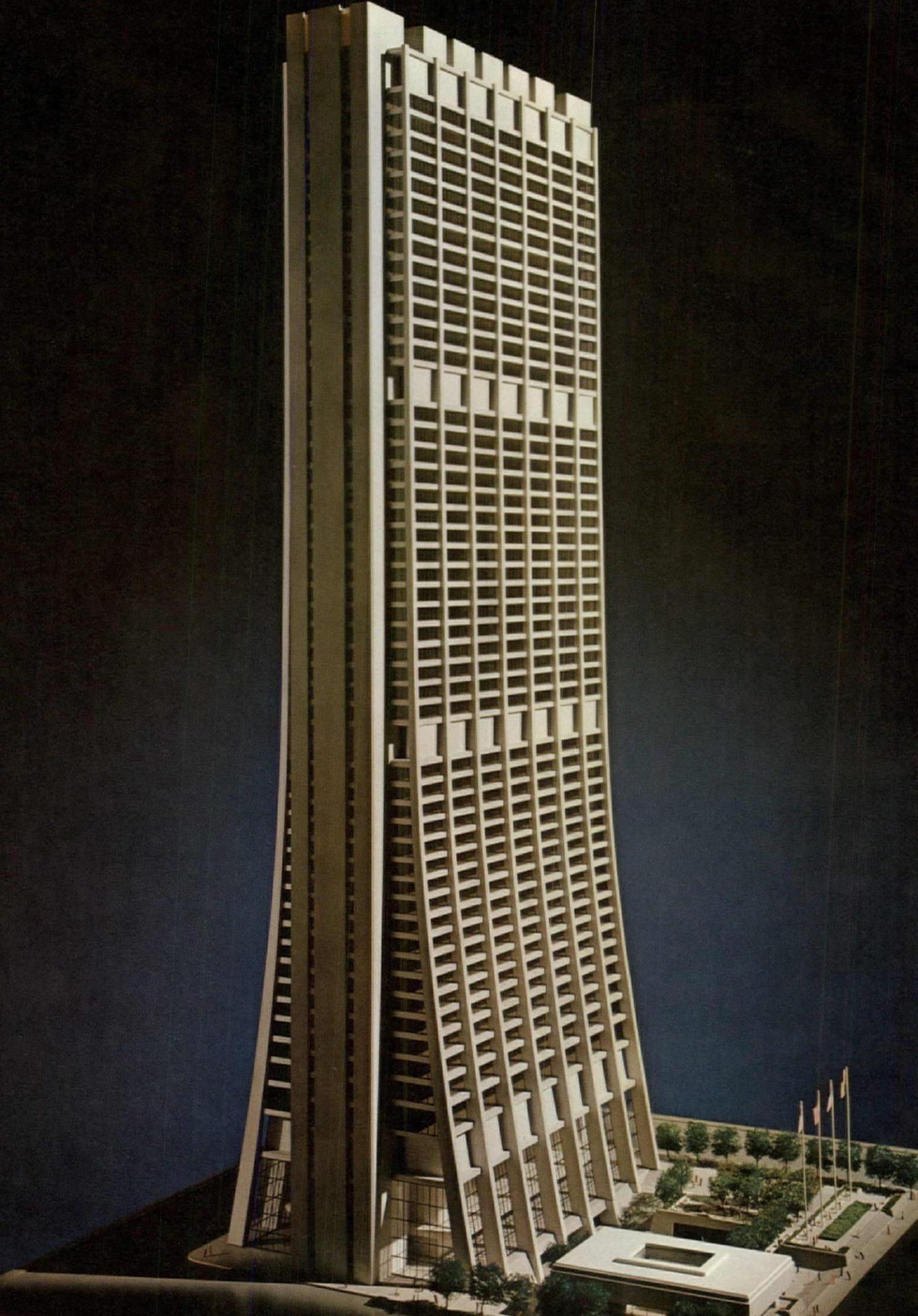
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developments in the future," the jury explained:

"The space frame is here used to support more complex volumes than the cubes and spheres with which it has usually been associated. The inclined planes of the Gyrotron suggest the wide variety of forms which may be developed in conjunction with space frames to meet the needs of the future."

The Gyrotron rides were conceived by Sean Kenny and George Djurkovic, also of London, consultants to Expo 67.

The jurors were David N. Yerkes, FAIA, Washington, D. C. chairman; Max Abramovitz, FAIA, New York; Ralph P. Youngren, AIA, Chicago; and Walther Eijkelenboom, the Netherlands, who shared in last year's award.

Auger will receive his cash award and an original sculpture at the AIA/RAIC convention.

Industrial Design Program Operates at Concept Stage

A program to recognize promising young industrial designers for product innovation has been

initiated by the Aluminum Company of America.

A committee of design educators, on a quarterly basis, will select international designers to develop original concepts which will incorporate aluminum. If the concept is approved by both the committee and the sponsor, the designer will receive a \$2,000 commission, aluminum materials for the execution of the idea, technical data and use of Alcoa's metalworking and finishing facilities.

Called "Ventures in Design," the program replaces the Alcoa Industrial Design Award.

Architectural Magazines Are Indexed For 1968

The 1968 *Architectural Index*, which offers a complete guide to eight periodicals including the AIA JOURNAL, is now off the press.

Entries are cross-indexed under location (state or foreign country), general building type and architect or designer.

Copies are available through its editor-publisher, Ervin J. Bell, AIA, P.O. Box 9277, Berkeley, Calif. 94709, at \$6 each. Back issues to 1959 also are available.

ACSA Involves Students; NCARB Also to Convene

The Association of Collegiate Schools of Architecture will meet from Friday through Sunday noon, June 20-22, with convention headquarters in the Hotel Sheraton-Blackstone but with most sessions held elsewhere in Chicago.

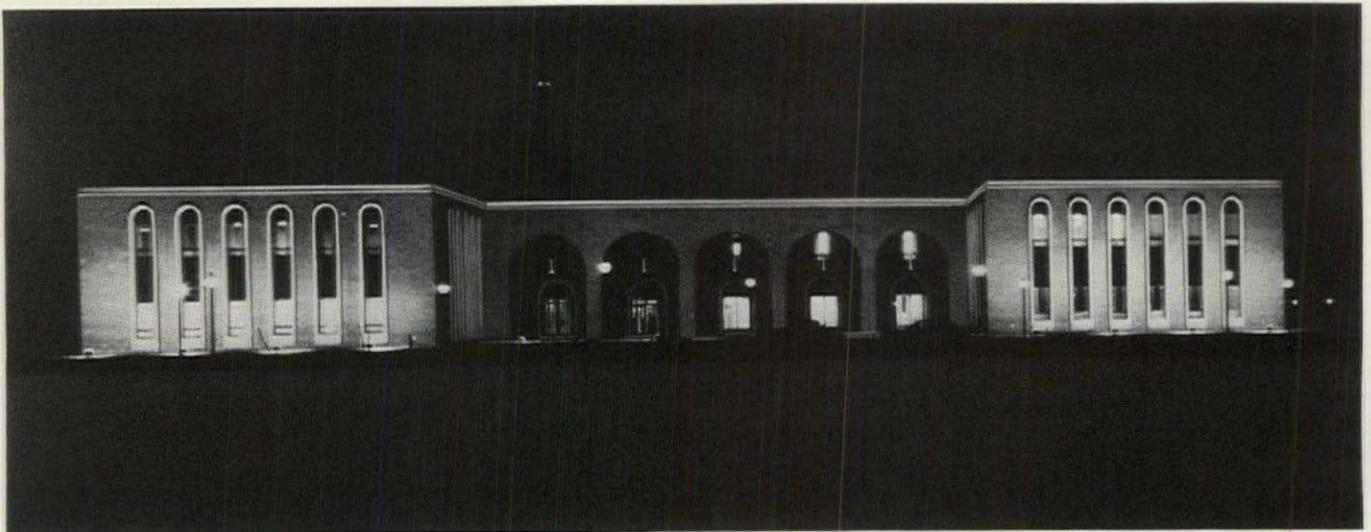
The National Council of Architectural Registration Boards will meet June 18 through mid-day June 21 at the Palmer House, also the headquarters of the joint AIA/RAIC convention June 22-26.

ACSA's program, focusing on the interrelationships between students, educators and practitioners and current urban problems, will take participants to such places as inner-city churches, community study centers, Unity Temple, Glessner House and the campus of the Illinois Institute of Technology and the University of Illinois at Chicago Circle.

It will provide an opportunity for the educators from the rural and small-town schools to savor both the excitement and the despair of the metropolis.

Students from both schools—in particular, members of the Stu-

Continued on page 40



Therm-O-Proof insulating glass goes modern in colonial windows.

Arches are coming back—a colonial feature caught up in a modern design trend.

Proof is in these arched colonial windows framed by a modern Spanish colonnade. This combination creates a unique facade for the Blackstone Valley Electric Company designed by Charles A. Maguire & Associates, architects, Providence, R.I.

The arched windows themselves have been modernized,

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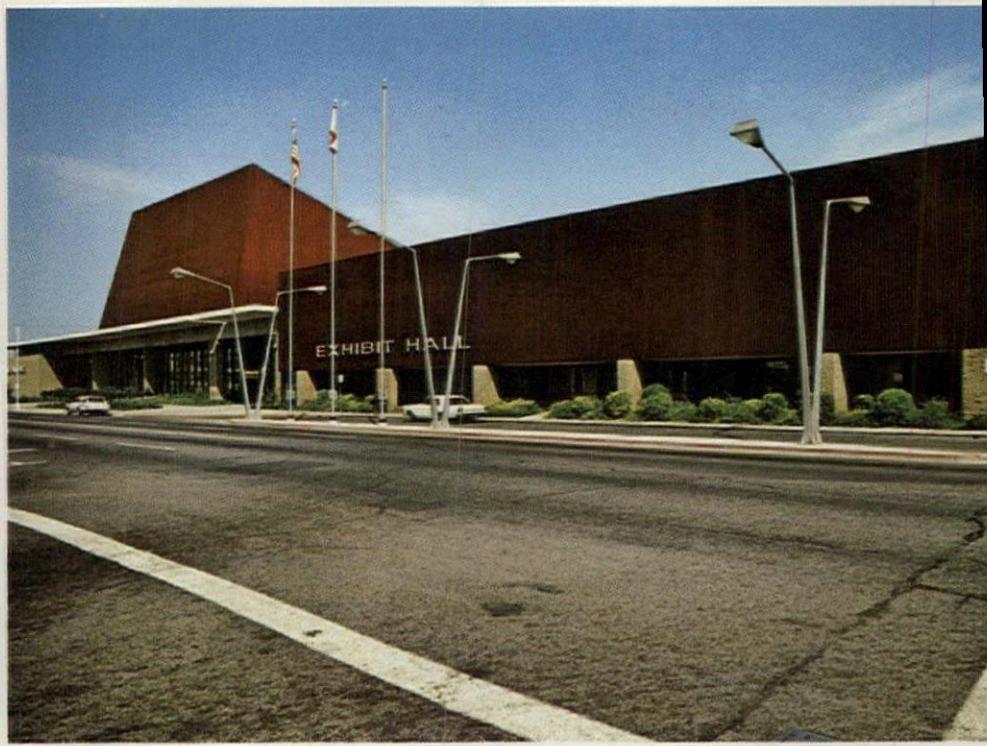


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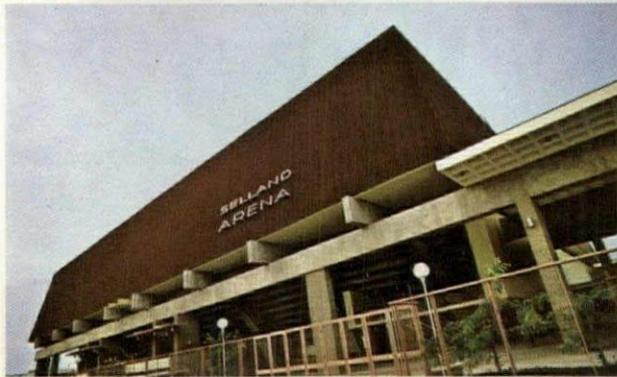
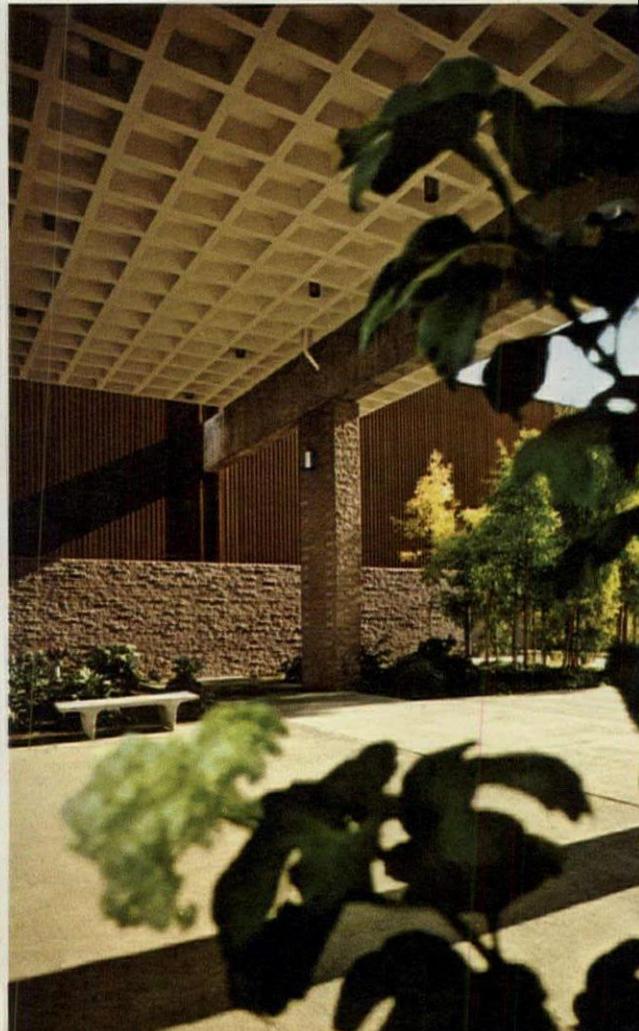
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dents Associated for Restructuring Architecture — have been given a major responsibility for planning, organizing and carrying out the convention, according to Leonard J. Currie of the Chicago Circle, program committee chairman.

The NCARB convention will get underway with regional meetings on Thursday and conclude with a banquet on Saturday.

Former Secretary of the Interior Stewart L. Udall will be the annual luncheon speaker. Others on the program include Archibald C. Rogers, FAIA, of Baltimore.

Bradbury Figured to Regain Its Showplace Status

The Southern California Chapter AIA will become the first major tenant in the 75-year-old Bradbury Building which is undergoing restoration.

Western Management Corp., the owner, said the restoration program is in response to numerous requests from architectural, professional and community groups to see the structure preserved in an area, downtown Los Angeles,

where old buildings all too often become parking lots.

The building is noted for its open central court of balconies and ornamental wrought iron grillwork leading up through five stories to a towering skylight (see AIAJ, Nov. '67, p. 66).

"We feel more like custodians than owners," declared Jerry McKelvey, Western Management vice president. "The uniqueness of this building cries out for its preservation, not as a cold museum but as a fine place to work.

"Tenancy has never fallen below 90 percent," McKelvey continued, "but we feel that with this program the building can once again become 'the' prestige Los Angeles business address."

The owner plans to eventually restore all 50 of the Bradbury's fireplaces, two of which are contained within the 2,000 square feet of office space to be occupied by the 900-member AIA chapter.

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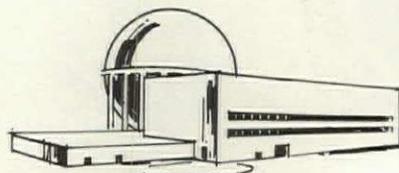
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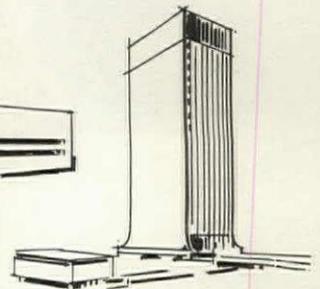


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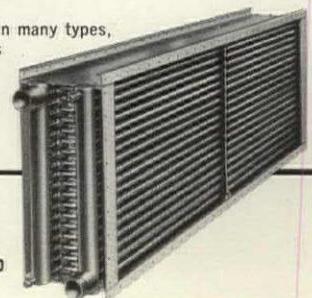


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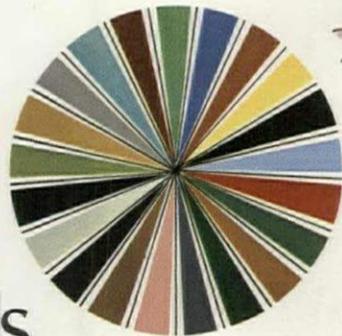


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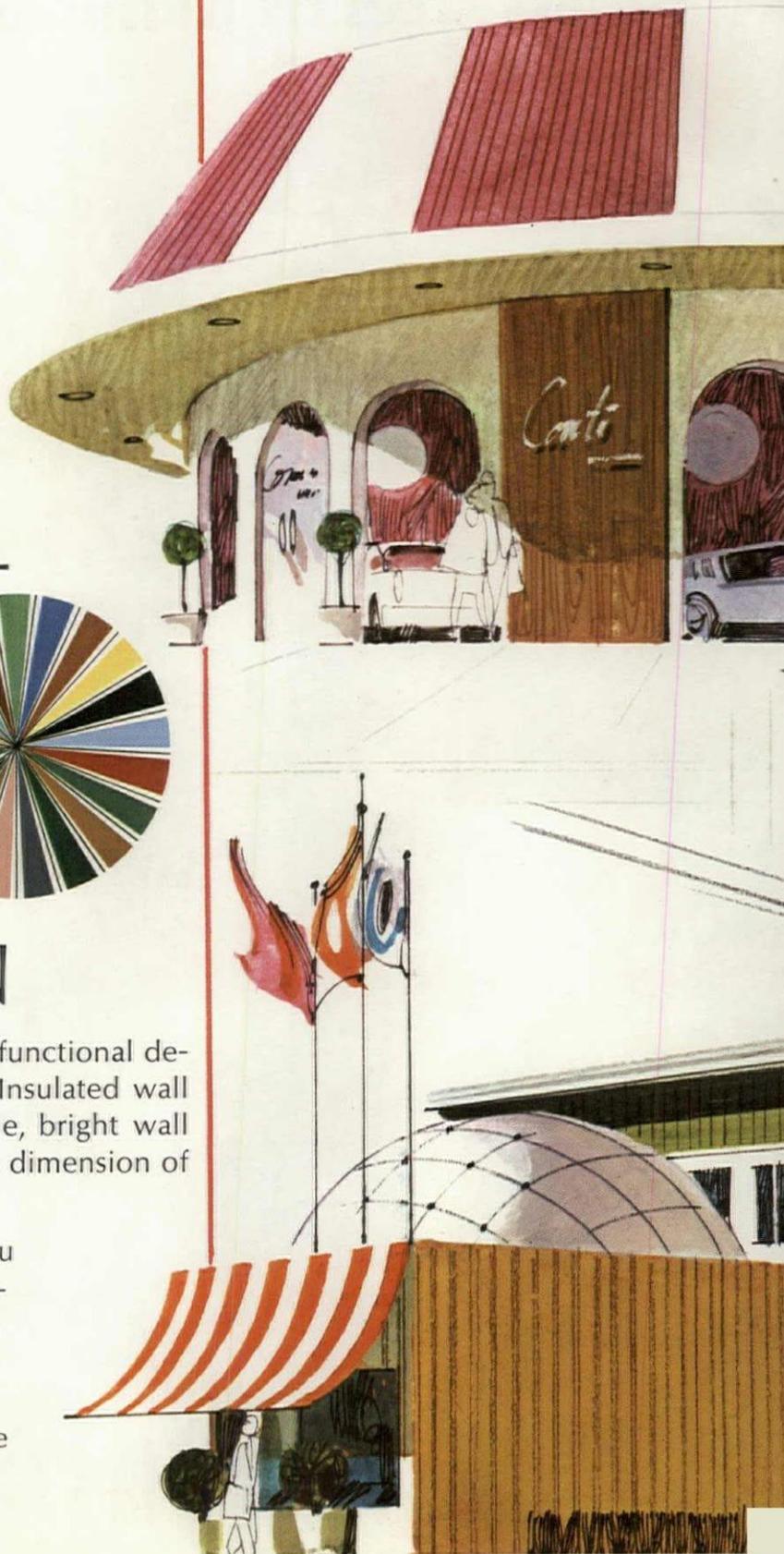
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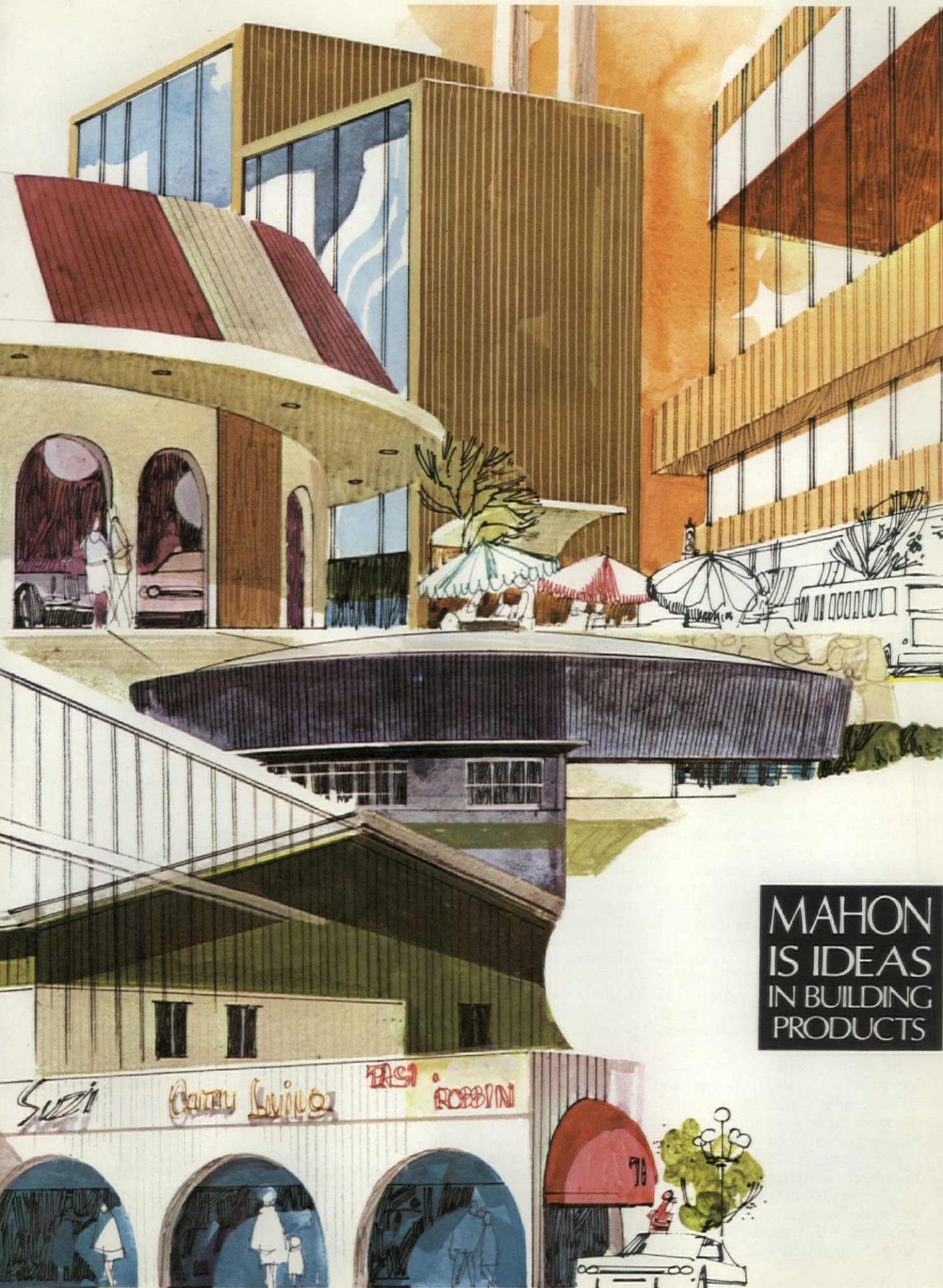
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BY REX W. ALLEN, FAIA
Intitute First Vice President

The Architect—Luxury or Necessity?

To be taking the helm of the Institute at what appears to be a crucial time for the profession of architecture is an awesome responsibility. The responsibility (response-ability?) is, as I see it, an ability to respond constructively and imaginatively to the dynamics of change.

The Institute is currently embarked on many programs, some of which, it is hoped, will bear fruit immediately; others will take longer to mature; and still others, unfortunately, may prove ill-timed and worthless. In addition, there are many new projects under consideration. These must be evaluated as they relate to both immediate and long-range objectives. Despite increased dues, funds are scarce. Therefore, I hope to lighten both controls and administration to avoid waste.

I am fortunate to follow a series of competent presidents who also have seen the need for change and, as a result, established new policies for the Institute. They recognized that in our society professionalism is more than mere expertise and that emphasis must be shifted from self-service to public service if, in fact, the architect is to be considered a necessity.

I like to think that the initials "PR" stand for more than "public relations," that they mean instead our "public responsibility." I see the Institute's public responsibility developing new significance in three broad areas of concern: *design, education and legislation* (if that spells "deal" it is a pure coincidence!).

In design, witness the establishment of the Urban Design and Development Corporation, a semi-autonomous organization to coordinate research on the interface between socioeconomic forces and the physical environment.

Witness also the development of urban design centers for advocacy planning, of design assistance teams to stimulate better urban re-

newal projects, of design concept teams to search for integrated solutions to urban problems (including, sometimes, designing the client to execute them), and urban design workshops and other tools to increase professional competence.

The architect in isolation has too often produced what I would call "archisculpture," the overemphasis of an individual building at the expense of the community. I believe that greater participation at all stages in the processes of production—conception, promotion, financing, design, construction and operation—and renewed responsiveness to human environmental needs will re-establish the architect's relevance to society.

Equally important is the development of educational programs, both public and professional, to create a demand for better design on the one hand and greater competence on the other. No project is successful without a good client.

Public education should start at the elementary level with the introduction into social studies programs of material to stimulate visual awareness. Public education also includes the public relations and institutional advertising programs that are directed not at selling the services of an architect but at demonstrating the architect's awareness of the problems of environmental pollution and at possible solutions.

Professional education is equally important. To adapt readily to change, it should be as broadly based as possible and should include courses in sociology, economics and government. Design ability and technical competence are no longer enough. Postgraduate work in specialized fields may be desirable. Continuing education of the practitioner is essential, if only to keep abreast of new technologies like the computer. The Institute also has an obligation to expand scholarship programs and job

opportunities, especially for heretofore disadvantaged minorities.

Finally, our public responsibility cannot be discharged without recognizing the need for legislative action. This action can take many forms, from assistance in code writing to testifying on Capitol Hill. For example, in building code legislation only the architect can truly represent the public interest; he has an obligation to do so.

On Capitol Hill, or in the state capitols, there are many areas, such as the effect of property taxes on urban development, where the architect's knowledge and experience could be helpful to legislators. It is, therefore, essential that the Institute expand its capabilities for legislative action.

It is said that architects are involved with the design of only 15 percent of building construction. This would make it appear that the public considers architects a luxury, not a necessity. The challenge is there to prove them wrong. If AIA can strengthen the profession to meet this challenge, it will, *ipso facto*, strengthen itself. New social patterns, a new profession, new technologies, perhaps new mosaic communications media—what a spectrum! Certainly there are no single solutions.

Multidirectional efforts are necessary. A period when "design philosophies" as well as "rules of design" have been overthrown creates instability and a sense of irresponsibility when, in fact, increased responsibility is essential. Perhaps it is my prejudice that a concern for truth and honesty is still fundamental to responsive design—or, for that matter, to the survival of the architects and the AIA.

To prove the architect's relevance and that he is in fact a necessity will require the cooperation and dedication of every individual member of the Institute. I hope I have your support. □



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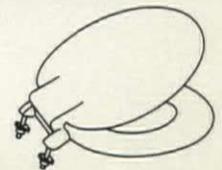
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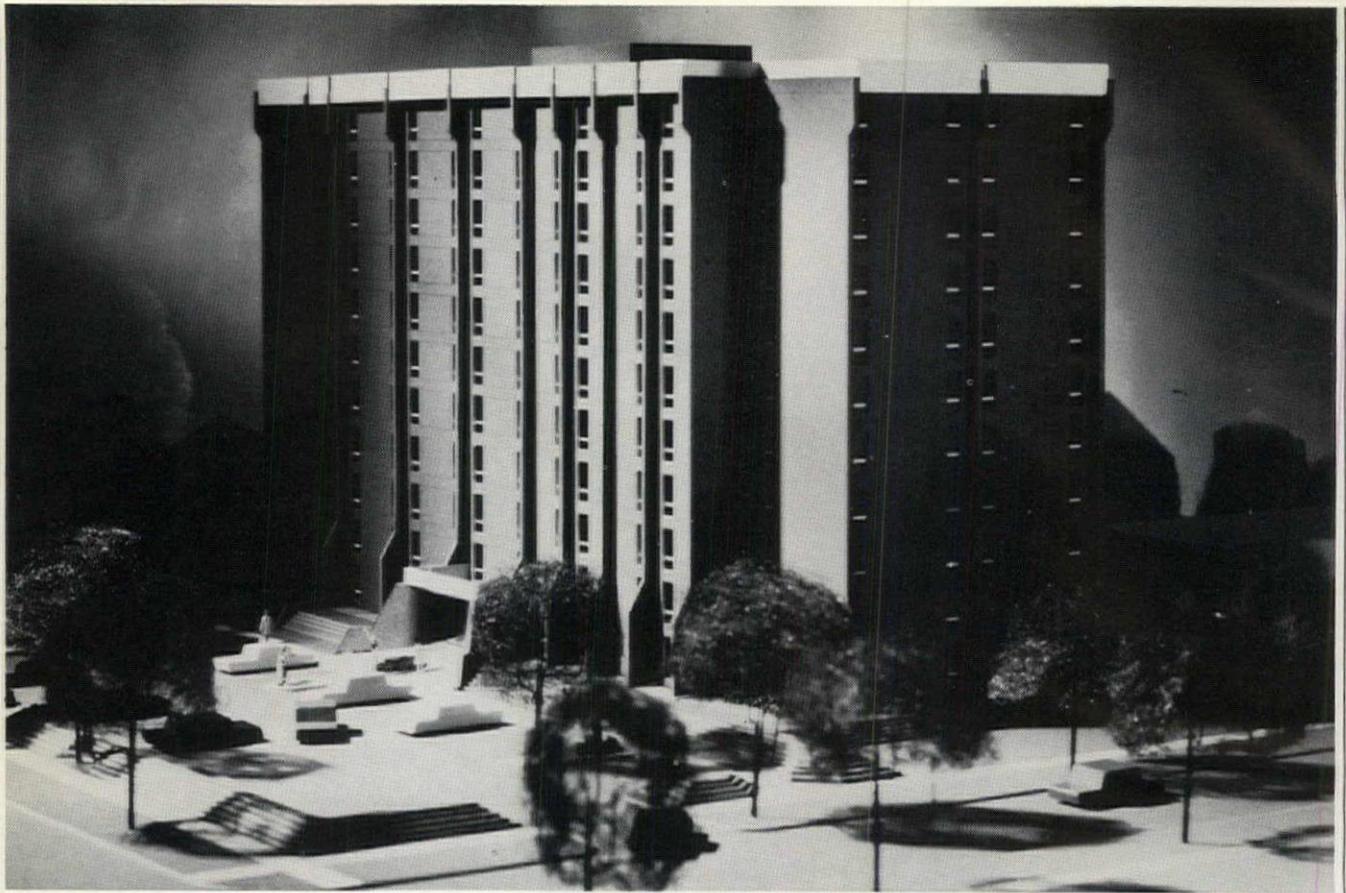
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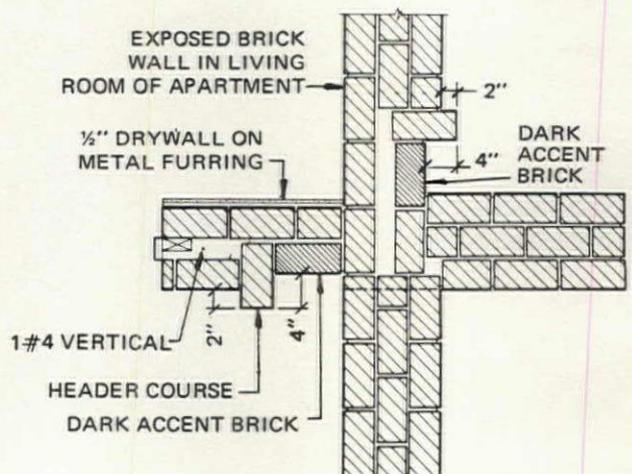
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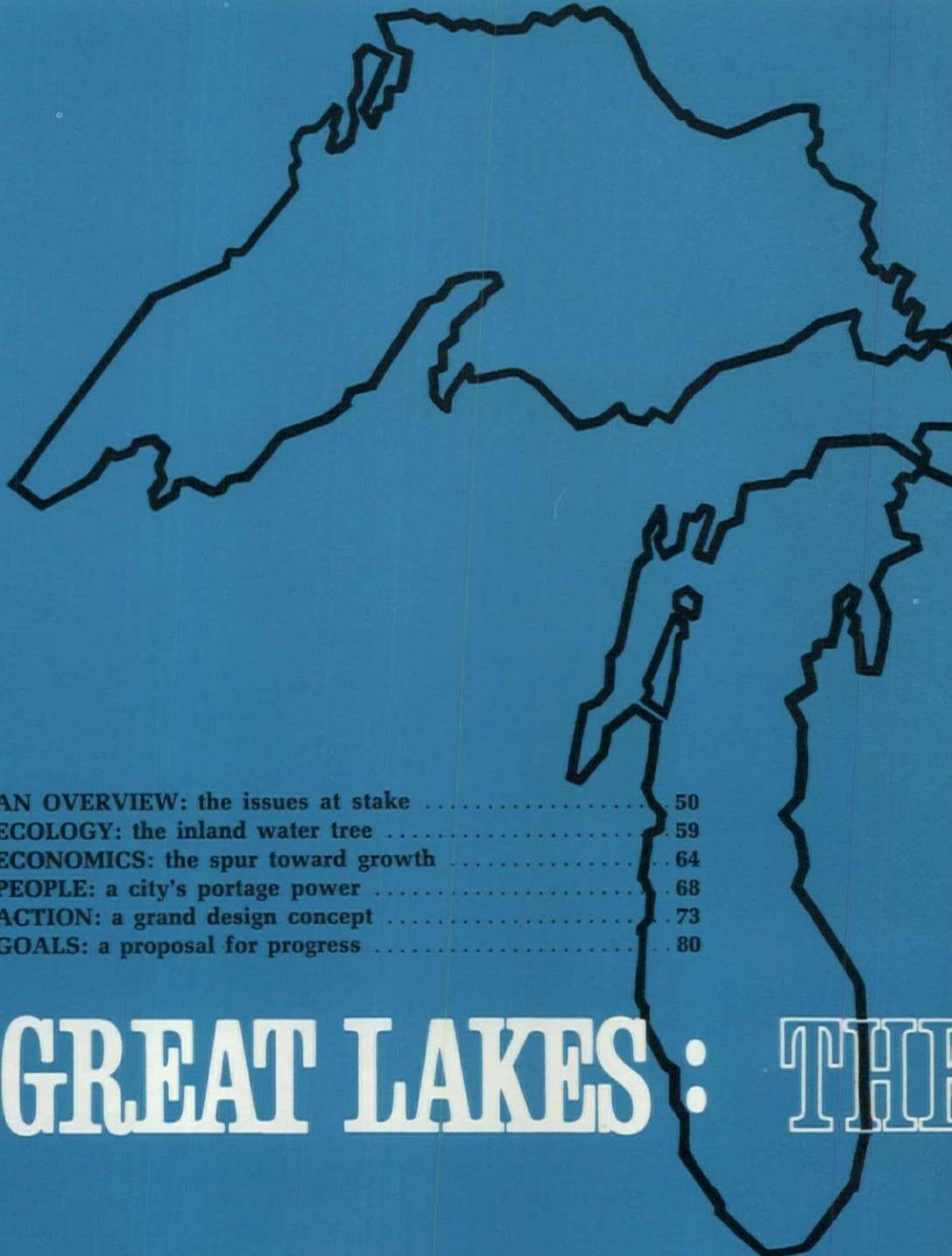
THE
TIE
THAT
BINDS

A map of the Great Lakes suggests the separateness of the two friendly nations which are in reality contiguous neighbors for so large a part of their mutual border. John F. Kennedy with a very few words emphasized not our separateness but our closeness when he said: "Geography has made us neighbors. History has made us friends. Economics has made us partners. And necessity has made us allies."

With this pertinent quotation — called to mind by Matthew L. Rockwell, FAIA, and Robert J. Piper, AIA, advisers to this special section — President Kennedy, with typical preciseness even if for a different day, hinted at the vital meaning of the Great Lakes to both nations. In these 32 pages a geographer, an ecologist, an economist, an architectural historian and a US congressman each draws from his respective discipline to put the world's greatest body of fresh water in its proper perspective. Special attention is given to Chicago's contribution in shaping the basin's development, particularly as to its position as a portage point between transportation systems and as a point of transition between cultures. Finally, the AIA JOURNAL editors attempt to translate the five points of view into realistic guidelines and criteria for the immediate future. For the Lakes are dying, and the pangs of death are not confined to the water's edge.

More than most professionals, the architect is able to discuss the enormity of breakdown if our man-made polluters are not controlled, reduced and, we may even hope, eliminated. Perhaps the messages conveyed here will spark the architect and his design colleagues to do more than merely deplore the unhappy situation. There is still hope, but time has almost run out.

ROBERT E. KOEHLER



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THE GREAT LAKES : THE



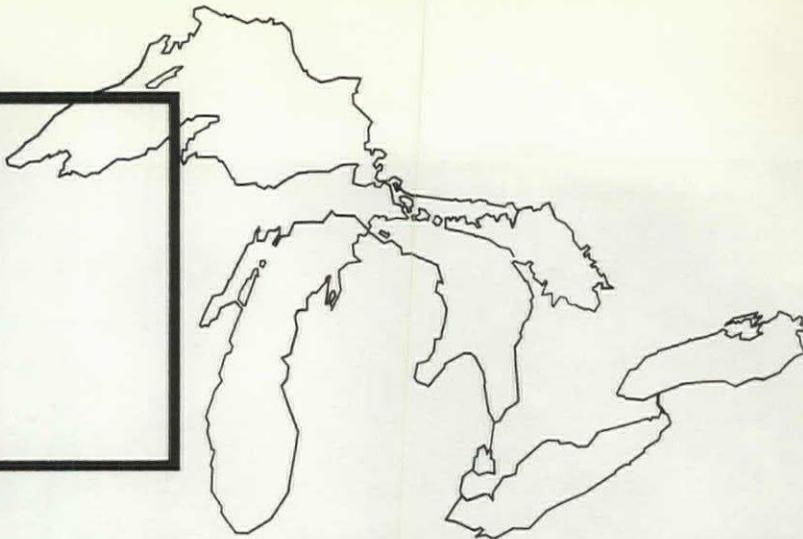
THE THAT BINDS

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AN OVERVIEW:

THE ISSUES AT STAKE



BY HAROLD M. MAYER

The Great Lakes constitute a major set of elements in the geographic structure and economic base of the North American continent. They have been, and continue to be, important attractions for industry, commerce and population growth in the core region of America.

Five of the 25 most populous metropolitan areas of the United States — Chicago, Detroit, Cleveland, Milwaukee and Buffalo — are located directly on the shores of the Great Lakes system, while four others of the 25 are within the immediate hinterland of that system. In Canada, the Great Lakes-St. Lawrence system is, relatively, even more important; five of the 15 largest Canadian metropolitan concentrations, including Montreal and Toronto, the two largest, are directly on that waterway system.

As an artery of commerce, the system carries well over 200 million tons of cargo each year and ranks among the most important inland waterways in the world. It supplies water for the many millions who live along or near its shores, has important commercial fisheries and is a priceless recreational asset. Much of the basic industry of the US and Canada is directly dependent upon the waterway system for movement of bulk commodities and, indirectly, for its major markets in the concentrations of population and industrial activity along and near the shores. During the past decade, the enlargement of the St. Lawrence Seaway has opened the Lakes to medium-sized ocean-going vessels and has thus made the salt-water ports of the world directly accessible.

Iron ore is by far the most important cargo tonnage handled on the Great Lakes, accounting, in 1967, for nearly 81 million of the 192 million tons of bulk cargo carried within the Lakes. The great steel industry of the Chicago, Indiana Harbor, Gary, Detroit, Lorain, Cleveland and Buffalo districts depends on direct access to lake-borne iron ores and limestone shipped by lake

boat from the northern part of Michigan's southern peninsula. The steel industry of inland districts, notably Youngstown and Pittsburgh, is also heavily dependent on Great Lakes ores.

The railroads surrounding Lake Superior and leading to the lake ports carry principally iron ore; south of Lake Erie, iron ore constitutes the major cargo of the main north-south lines to Pittsburgh, Wheeling, Youngstown, Ironton and other inland steel-producing centers, while coal for the electric plants and industries of the Great Lakes region is their major northbound traffic. Toledo has been, and still is, the largest coal-shipping port in the world; substantial tonnages of coal are transferred from rail to lake boats at Cleveland, Sandusky, Chicago and

The author: Dr. Mayer is University Professor of Geography, Kent State University, and Senior Research Fellow of the Center for Urban Regionalism.

other ports along the southern shores of the Lakes. Coal, accounting for over 52 million tons of Great Lakes cargoes in 1967, is, in tonnage, the second most important commodity handled in internal Lakes trade. Substantial movements occur between Lake Erie and Canadian Great Lakes ports.

The stone trade, related principally to the steel and the cement industries of the southern lakes, ranks third in internal Lakes traffic. The basic industry complexes along the shores of Lakes Michigan and Erie depend heavily on lake shipping for their inputs.

Grain is the fourth most important group of commodities in Great Lakes trade. The flour milling industry at Buffalo grew up largely as a result of the location of that city, prior to 1932, as the head of navigation for the large "upper lakers" en route east. Movements of grain at that time were handled mainly with trans-shipment at Buffalo by rail to eastern markets and through eastern seaboard ports, principally Baltimore, for export. At that time, the small size

of the locks in the old Welland Canal, circumventing the Niagara escarpment, limited the size of vessels to specifically built small canallers of not over 3,000 tons, as compared with the upper lake vessels, some of which reached 20,000 tons.

But the new Welland Canal — which is now part of the St. Lawrence Seaway — opened Lake Ontario to the larger lake boats in 1932. The easterly heads of navigation then became Prescott, Ontario and Ogdensburg, New York, where cargoes were transferred to canallers for shipment to the lower St. Lawrence.

This was the pattern until the opening of the enlarged St. Lawrence Seaway in 1959, after which the largest lakers could reach the lower St. Lawrence with eastbound grain, returning with loads of iron ore from the newly opened deposits along the Quebec-Labrador border beyond the North Shore of the Gulf of St. Lawrence. Thus, since 1959, Lake Superior ores and those from eastern Canada are in competition at the iron- and steel-producing centers along and beyond the southern shores of the Great Lakes.

A Region in Growth

To handle these vast tonnages of bulk commodities, special types of vessels have been developed. The lake bulk carriers are long and narrow, with capacious hold, engines aft and high superstructures far forward. The largest of them just fit inside the locks of the St. Lawrence Seaway, the Welland and Soo Canals (the new locks opened in 1968 are larger). The vessels are now built to standard dimensions: The maximum lakers are 730 feet long, have a beam of 75 feet and a draft at full load of 25 feet 9 inches. This allows 15 inches under the keel at the shoalest points in the Seaway-Lakes connecting channels, which have a controlling

depth of 27 feet. Such boats (no matter how large, they are boats within the Lakes rather than ships) can carry up to about 28,000 tons on maximum draft.

Three recent developments in the architecture of lakers are of great interest: The bow-thruster, a device in the bow which creates a jet of water permitting the vessel to turn in short radius, reducing the need for tugs; the conversion of older vessels and construction of new ones as "self-unloaders," independent of shore-based machinery; and new vessels far exceeding the standard maximum lakers in size and capacity.

Self-unloaders have long been used in the coal and stone trades, but the advent of ore concentrates in recent years, notably taconite, has stimulated their development. The direct-shiping ores, notably hematite, have been unsuited to handling in self-unloaders, but two-thirds of all ore tonnage is now shipped as concentrate and the proportion is increasing rapidly.

It is quite probable that, in the next few years, two standard-sized lake vessels will be used as older and smaller ones retire. One will be the present maximum laker, the other a much larger one, two of which are now under construction. A sign of the future is a self-unloader to be placed in operation in 1970 by Bethlehem Steel Company: 1,000 feet long and with a beam of 105 feet, designed to operate on the standard Great Lakes draft of 25 feet 9 inches. On that draft the boat will be able to handle nearly 60,000 tons, about double the capacity of the present maximum lakers, at very little, if any, additional cost per vessel mile. The United States Steel Corporation has a similar vessel under construction, only slightly smaller.

These two boats are made possible by the completion last year of a new lock at the Soo,

Iron ore docks and vessels like these at Duluth are familiar sights on Lake Superior since ore from the surrounding ranges constitute the preponderant tonnage in internal Lakes traffic. Milwaukee's harbor, at right, serves 48 lines.



considerably larger than the other locks. The boats will be landlocked, however, since they will not be able to proceed east of Lake Erie into the Welland or St. Lawrence Canals.

Most of the Great Lakes vessels under US registry are old and inefficient. It is therefore believed that many more of the larger size will be placed under construction in the next few years. New and expanded shipyards are now in operation at Erie, Pennsylvania, Lorain, Ohio, and elsewhere around the Lakes to construct and repair such large craft. Since the enlargement of the Seaway, these yards can also build moderate sized ocean-going merchant and naval ships.

The steel industry, dependent upon Great Lakes transportation, is in the midst of rapid expansion. Bethlehem Steel is building a huge complex at Burns Harbor east of Gary, where a new harbor is to be completed in 1970. The new plant may eventually develop into one of the largest in the world. Across the new harbor, Midwest Steel is expanding its relatively new plant. In South Chicago, Indiana Harbor and Gary, several large expansions of steel plants are underway, while between the Detroit and Niagara Rivers similar expansions are taking place or are in prospect.

On the Canadian shore of Lake Erie, at Nanticoke, another large steel plant is under construction, to utilize the ores of both Lake Superior and eastern Canada as well as the coal of

Pennsylvania and West Virginia shipped across the lake without transiting the Welland Canal.

The catalytic effect of these developments in attracting industries and in creating employment and hence population, can be tremendous. Although the Great Lakes region, in common with other "mature" areas, has witnessed a slowing up in the rate of population growth in recent years compared to newly developing parts of the Pacific and Gulf coasts, the actual population growth is still great, with prospects for continued rapid growth with the largest expansion within, but on the fringes of, the existing large metropolitan areas. The spreading tentacles of urbanization are coalescing along the shores of the Lakes and connecting rivers. Eventually the Great Lakes Megalopolis will be continuous from west of Lake Michigan to the lower St. Lawrence.

A Link with the World

Complementing the internal shipping is the direct Great Lakes-overseas trade, carried on in "salties" or ocean-going ships. A few small vessels occasionally traversed the small canals that Canada had built in the 19th century around the St. Lawrence rapids and over the Niagara escarpment, and during World War I a few ships, limited in dimensions by the early canals, were built within the Lakes for ocean service. An occasional tramp would enter the Lakes during the summer.





Great Lakes-overseas cargo ships line up at Chicago's Navy Pier. These cargo services, as well as the number and sizes of the vessels, were enormously increased following the enlargement of the St. Lawrence Seaway in 1959.

In 1933, scheduled cargo service with very small vessels began between Great Lakes and European ports. After World War II a number of the world's leading ship operators pioneered in direct Great Lakes-overseas trade. In 1958, the last year prior to the opening of the enlarged Seaway, 502 trips were made directly between the Great Lakes and overseas ports by vessels able to transit the obsolete canals.

With the Seaway, the overseas trade expanded greatly. In recent years it has reached 6 million tons annually. The total Seaway traffic is just under 50 million tons, the balance consisting of domestic US and Canadian traffic between the Great Lakes and lower St. Lawrence ports. The principal outbound cargoes consist of grains and other agricultural produce; inbound, the major single item in recent years has been steel. In spite of the tremendous capacity for steel production in the region, over 3 million tons of steel were imported last year. Producers in the US and Canada, in spite of benefitting from the ores available from eastern Canada, do not regard the Seaway as an unmixed blessing!

The Seaway and the connecting channels of the Great Lakes represent the modifications of a route provided by nature. The Great Lakes owe their origin to the great pleistocene continental glaciation when, more than 10,000 years ago, a sheet of ice covered the Great Lakes basin, much as Greenland and Antarctica are covered today. The advancing glaciers scoured out the basins which later became the Great Lakes, and as they retreated, the meltwaters filled the basins to levels higher than now. The drainage through the St. Lawrence was blocked for thousands of years by the ice sheet. Outlets for the excess waters were the Mississippi Valley, the Maumee and Miami Rivers and the Chicago, Des Plaines and Illinois Rivers.

Paralleling the shores of Lakes Erie and Michigan today can be seen a series of terraces or beach ridges which marked the lake levels 20, 40 and 60 feet, respectively, above the present levels, when temporary halts in the retreat of the ice impounded the Lakes at relatively stable levels for a few hundred years at a time. Many of the present roads follow these ridges in the vicinities of Chicago and Cleveland, an inheritance from the Indian trails and early wagon roads which followed the elevated, and hence relatively well drained, ridges marking the postglacial beaches.

The Many Growing Pains

At present, the drainage basin of the Great Lakes is surprisingly small considering the extent of these inland seas, the largest bodies of fresh water in the world. Although the surface of the Lakes covers 95,000 square miles, the total land area of the drainage basin is only about 200,000 square miles. Most of the rivers entering the Lakes are therefore short, but in spite of that many of them are bordered by intensive urban and industrial development producing waste, a high proportion of which is untreated. Consequently pollution has become a major problem, especially in the southern portions of all the Lakes except Superior.

Most of the Lakes are relatively shallow. The average depth ranges from 487 feet in Lake Superior to 58 feet in Lake Erie. Maximum depths in the five Great Lakes range from 1,333 feet in Superior to 210 feet in Erie. These shallow depths make the lakes treacherous. Frequent storms can produce turbulence very quickly; many are the vessels which have left port never to arrive at their destinations. The turbulence also produces shore erosion problems. Along the south shore of Lake Erie, for ex-

ample, houses have been undermined and fallen into the lake as recently as this year. The preservation of beaches is a major challenge, particularly in and near the large metropolitan centers where recreational demands are greatest.

The many conflicts among the potential uses of the lakeshores constitute challenges throughout the region. Urbanization and industrialization have increased the pressures to alienate much of the lake shoreline from public access, particularly from southeastern Wisconsin to northwestern New York. The recent creation of a National Lakeshore in the Indiana Dunes area, to forestall further industrial development as typified by the Bethlehem and Midwest steel plants at Burns Harbor, represents only a partial cease fire in the continuing battle to preserve some of the recreational amenities of one of the few remaining untouched areas within easy reach of a metropolitan population.

Appropriations for land acquisition are small and slow in coming from year to year; there is, on the other hand, continuing pressure for encroachments by industry, railroads and residential developments upon the lands designated for inclusion within the National Lakeshore. The Sleeping Bear National Lakeshore on the northeastern shore of Lake Michigan, similarly, has not yet been fully won and the pressures there are somewhat the same, if less intensive, as those in Indiana.

Even within the cities, constant battles must be fought by the advocates of public recreational and conservational uses of the lakeshores. In Chicago, such public uses of the lakefront as a water filtration plant and an exhibition hall met with violent and protracted — but unsuccessful — objections and litigation. The proposed island airport in Lake Michigan faces the same kind of battle, although a somewhat similar proposal for an offshore island airport in Lake Erie opposite downtown Cleveland has, so far, met with less vigorous opposition.

It is interesting, and perhaps significant, to note the difference among Great Lakes cities in their attitudes toward lakeshore development. Chicago has held the lakeshore traditionally for public recreational and park uses; this was affirmed by the Montgomery Ward decision, which saved the downtown lakefront as Grant Park, and the Burnham Plan of 1909, which proposed a nearly continuous park development for 20 miles, most of which was subsequently carried out. In Chicago, however, even the Burnham Plan did not preclude industrial and port development in the vicinities of the Chicago and Calumet River entrances

Milwaukee, unlike Chicago, has primarily industrial development, including a major port,



Allocation of shoreline among conflicting uses is a major challenge facing Cleveland and every metropolis on the Lakes. Ore-carrying vessel on Lake Erie has Buffalo's grain terminals in the background.

near the downtown area, but it has noteworthy lakefront parks to the north and south of the shores immediately contiguous to downtown. Detroit has proceeded with a massive urban renewal program to reclaim its downtown riverfront as a civic asset although most of its riverfront is devoted to industry. Nevertheless, Belle Isle Park is a fine spot for recreational use. Cleveland has very little lakefront park or recreational development; its lakeshore is largely occupied by port terminals, private residences and an easy to reach but space-taking downtown airport.

In each city and metropolitan area the conflicts are eternal among the potential users of that scarce commodity, lakefront land. They should be solved in the light of local attitudes and traditions. The demands, of course, are for recreational, industrial and residential uses, sometimes with conflicts within the user groups, as for instance between advocates of active recreation serving dense populations and those who want passive low density recreation and conservation.

There are many other unresolved issues involving the Great Lakes. Although an uneasy

truce has been reached on the amount of water to be diverted from Lake Michigan over the drainage divide into the Mississippi Basin in order to flush out the sewage of metropolitan Chicago, there is no way of knowing when that issue may come up again; it is more a political than a hydrological matter. The Great Lakes cities and shipping interests want maximum depths in the harbors and connecting channels for most economic use of the shipping capacity; the City of Chicago and the inland waterway barge industry want maximum flow in the diversion canals through Chicago and across the divide.

At present the diversion is limited to 1,500 cubic feet per second on an annual average, plus an approximately equal volume for local use. With this diversion, the levels of Lake Michigan and Lake Huron, which are the same, are lowered 2½ inches at most over roughly an 11-year period, as contrasted to an irregular cyclical fluctuation of more than 6 feet. Actually, the diversion of two rivers north of Lake Superior into that lake supplies the Great Lakes system with considerably more water than is diverted out at Chicago.

Another pending issue is the future of the St. Lawrence Seaway: Should tolls be continued, increased or eliminated? At present, the Canadian and US Seaway authorities, the latter responsible for only 28 percent of the benefits and receiving 28 percent of the tolls, are increasing the rates gradually.

The Welland Canal, entirely within Canada and a part of the Seaway system, has similarly increasing tolls, much to the consternation of the shippers on the short coal run between Lake Erie and Lake Ontario ports, for whom the canal transit represents a disproportionately high part of the voyage cost. The Seaway proper, although traffic is now approaching the optimistic preopening projections, is barely paying its current operating expenses and is not meeting its long-term obligations.

The Threats from Other Quarters

Many quarters in both Canada and the US favor complete refinancing and elimination of toll charges in line with the traditional tollfree policy for domestic waterways within the US. They point out that use of the connecting channels between the Great Lakes is free of charge, even though the US has hundreds of millions of dollars invested in those improvements.

The Seaway itself requires improvement if it is to remain important. Its 27-foot channel depth was inadequate from the beginning: An ever decreasing proportion of the world's fleet can navigate it as the average size of vessels

increases. Now, most ocean ships cannot enter the Great Lakes, or, if they do, cannot carry full cargoes. Already, the US and Canada have authorized studies of possible parallel waterways, both at the Niagara escarpment and along the St. Lawrence. Technological and economic developments, both in maritime and in land transportation, demand that decisions relative to the Seaway, the connecting channels and the Great Lakes ports cannot long be deferred if this waterway system is to keep its importance.

The bulk commodity traffic is seriously threatened by unit trains, which offer rates competitive with those for water transportation. Already, unit trains compete with lake/rail shipments between the coal fields of West Virginia and the utility plants and industries of the Great Lakes, bypassing the lake shipping and threatening the coal traffic through the ports of Cleveland, Sandusky and especially Toledo. Similarly, all-rail unit train rates between Illinois and Kentucky coal fields and destinations on the shores of Lake Michigan challenge the coal traffic through the Port of Chicago. Grain traffic from the Great Lakes' hinterland to both eastern and overseas destinations is also vulnerable to the competition of unit train export rates by all-rail routes.

In the long run, the coal traffic itself will meet competition from solids pipeline movements, now technically available, and from increased adoption of atomic fuels instead of coal. The iron ore traffic is challenged by new technologies, including more efficient use of plant inputs and concentration of the ores, such as taconite, at or near the sources. The significant increase of iron content per ton of ore shipped on the Lakes may proportionately reduce the tonnage to be transported — though this may possibly be overcome by a general expansion of the iron and steel production in the region. The Great Lakes grain traffic is influenced by changes in foreign aid policies and by increasing demands in the domestic markets, particularly in the West.

The general cargo overseas traffic of the Great Lakes-St. Lawrence route may also suffer from technological and economic changes. A good part of this traffic is imported steel, which is subject to competition from increasing US production and also is in increasing demand overseas, closer to the producing areas. Changes in tariffs could conceivably greatly reduce or even terminate this traffic. Manufactured goods, moving in both directions, face changes in international trade policies and also in transport technology and rates. Already, containerization looms as a major threat.

The high-speed container ships seek the fast-

est possible turnaround and their operators are unwilling to place them on the much slower runs into the Lakes. Most such vessels, in fact, are too large, and ships small enough to enter the Lakes would lose some of the essential efficiency. Some of the few major lake ports with substantial general cargo traffic — among them Chicago, Milwaukee, Cleveland and Toronto — are beginning to make vigorous efforts to supplement the container traffic on general cargo vessels with provision for more efficient handling of containers at the ports, but there is considerable doubt that full-container vessels will ever be significant in the St. Lawrence Seaway trade.

The Challenge to Winter

Winter imposes limitations on the use of the waterways. The Lakes rarely freeze over but the rivers, connecting channels and ports are closed for about four months each year. All interlake movements terminate; only a few services are maintained, such as the Lake Michigan car ferry services connecting the west shore ports in Wisconsin with the eastern railroad network, thereby enabling rail shipments to bypass the congested Chicago terminal area. Also, during some winters, coal continues to be transported between Toledo and the ports along the Detroit and St. Clair Rivers.

But for the most part winter is a period of inactivity: a time for vacations for the crews

and for maintenance and repairs of the vessels, which keeps the Great Lakes shipyards busy. The bulk fleets lay up in the Cuyahoga, Calumet, Kinickinnic and other rivers around the Lakes. Some boats are used for winter storage of grain, thus getting an early start in the spring and augmenting the many elevators which are distinctive features of many of the Great Lakes ports. Huge stockpiles of ore, coal and limestone characterize the landscape of the lower Lakes' industrial areas in early winter; by spring they are consumed.

Interlake shipping has adapted well to the seasonality, but for the salties the situation is different. These can operate elsewhere during the winter. Many of the cargo liners are assigned to other routes, others are chartered out for worldwide tramping. The same freighters that in late summer and fall load wheat at Duluth, Fort William or Port Arthur may be seen some months later loading in the River Plate in South America or the Spencer Gulf in Australia. Since the opening of the enlarged Seaway, marine architects have developed the "hermaphrodite," which combines some of the features of Great Lakes bulk carriers and ocean vessels, making them efficient within the Lakes and on the oceans as well.

There is currently great interest in extending the season on the Lakes. The Port of Montreal, until a few years ago closed during the winter, now has all-year service by ocean-going ships.

A CAPSULE HISTORY

Years of struggle, including war, lie behind the giant efforts that went into making the Great Lakes part of a world traffic system.

The early explorers of the lower St. Lawrence and the interior of North America — Cartier, La Salle, Du Luth, Marquette, Jolliet, among others — were French, hence the interior of North America was under French regime.

The British had a hold on the Atlantic Seaboard but could not expand westward without conflict with the French. However, in 1759 the British cut the French hold in the St. Lawrence Valley in the battle on the Plains of Abraham, within sight of Quebec.

Following the American Revolution, the British evacuated the forts in the Lakes region, finally giving up Mackinac in 1796. The previous

year the Indians had surrendered much of their territory.

Shortly thereafter, claims to much of the land west of the Alleghenies were given up by the American states, with the exception of the Connecticut Western Reserve in northeastern Ohio. This was divided into square-mile townships by surveying parties under Moses Cleaveland, who was sent out by the Connecticut Company. The idea was to use revenue from sales of the Western Reserve lands for support of the schools in the home state. Cleaveland founded the city which bears his name.

The Northwest Territories ordinance of 1787 extended the federal land survey system of 1785 to the Great Lakes region and beyond. Square-mile sections were platted and organized into townships 6 miles on each side, with easements for roads bordering each square-mile section. In many areas of the five states subsequently formed

in the Northwest — Ohio, Indiana, Michigan, Illinois and Wisconsin — the present road pattern and field boundaries stem from this survey system; so does the rectangular grid pattern of major cities such as Detroit, Toledo, Columbus, Indianapolis, Chicago and Milwaukee.

Soon after the adoption of the land survey, the nuclei of the present great cities around the Lakes were developed — Cincinnati and Louisville were then already thriving metropolises. Chicago began as a military outpost in the early 19th century; several settlements were established at this time.

With the end of the Blackhawk War in 1832 and the evacuation of the Indians from northern Illinois and southern Wisconsin, the way was clear for the development of cities, among them Chicago and Milwaukee.

But the principal axis of the westward movement beyond the

This is made possible by a combination of vessels especially strengthened for ice navigation and improved methods of reporting ice conditions in the lower river and Gulf, including the use of pictures from orbiting satellites. More efficient icebreakers may help prolong the season; the Coast Guard has been bringing in some each spring and fall which normally operate in the Polar regions. In the future, artificially created turbulence to prevent formation of ice at critical places may be possible.

Already, the season has been extended by as much as 10 days at each end; in the early years of the Seaway it was open between April 15 and December 1; now it opens at least a week earlier and closes as late as December 15 in some years. Transatlantic freighters thus can often get an additional round trip during the season. But above Montreal, the locks are still drained for repairs during the winter.

There Are Problems; There Are Prospects

The enlargement of the St. Lawrence Seaway, having more or less effectively converted the Great Lakes from a continental to an international waterway, has also created a number of international issues and intensified existing ones. Following the War of 1812, international agreements relative to the Great Lakes were entered into. One such normally prohibits armed naval craft within the Lakes except for Lake Michigan, the only one entirely within the US; others

relate to the location of the international boundary (there is a Boundary Commission), fishing rights and navigation practices.

Between US Great Lakes ports, as between our coastal ports, revenue traffic is limited to vessels of US registry. Between Canadian ports, on the other hand, traffic is open to vessels registered anywhere in the British Commonwealth. Since low cost operation by crews based overseas can compete with higher cost Canadian vessels, there has long been controversy within Canada as to whether internal traffic should be limited to vessels of Canadian registry. Between US and Canadian ports, trade is international, hence legally open to vessels registered anywhere. Each season, a few salties enter the Lakes in spring, trade internationally across the Lakes and leave in the fall.

Bills have been introduced in Congress and in Parliament from time to time to limit US and Canadian internal Lakes trade to vessels registered in these two countries only. Such enactment would, at least in the short run, be of greater benefit to Canadian than to US craft, for the overwhelming proportion of this internal traffic is carried in Canadian vessels. The reason for this is the somewhat lower costs of construction and operation in Canada and also because of the more generous policy of the Canadian government in subsidizing the building of lake boats. US shipping and steel companies in the area have built and registered many vessels

Alleghanies had been the Ohio River. The settlers moved downstream by flatboats from Pittsburgh, Wheeling, Marietta and other ports; after 1811 the steamboat became their principal means of transport. The Ohio River was the settlers' link with the rest of the world; consequently they lived on its banks.

The axis of settlement and of the westward movement shifted northward from the Ohio to the Great Lakes after completion, in 1825, of the original Erie Canal. The cost of shipping agricultural produce from the territory bordering the Lakes was cut to about 5 percent of its previous level, and the accessibility of the region was enormously improved.

A number of canals were planned; among those constructed were the Ohio & Erie, the Illinois & Michigan, and one linking Lake Erie and the Ohio River via the Maumee and Miami Valleys. One

of the most important events in the commercial history of the Lakes was the opening in 1855 of the canal circumventing the 22-foot drop in the St. Mary's River between Lakes Superior and Huron at Sault Ste. Marie, thereby opening Lake Superior to the mainstream of the Great Lakes vessel traffic.

Most of the railroads in the region were originally planned as feeders to the water routes. A series of end-to-end lines through the Mohawk Valley and south of Lake Ontario connected the Hudson River with Lake Erie at Buffalo, paralleling the Erie Canal, and, in 1851, by connecting with the newly completed Hudson River Railroad, furnished a through route between the Atlantic Seaboard and the eastern end of Lake Erie. That year also, the Erie Railroad connected the Hudson River 15 miles above New York City with Lake Erie at Dunkirk, New York. It was

said at the time to be the longest railroad in the world.

The first rail to tap the hinterland beyond the Lakes was the Mad River & Lake Erie, which by 1840 extended 30 miles inland from Sandusky, Ohio, and eventually supplanted the canal between Lake Erie and the Ohio River. Chicago opened its first 15 miles of rail in 1848; by 1852 two railroads reached that city from Lake Erie. Thus the latter was a water link between railroads to the east and west until the main trunk lines paralleling the Lakes were completed.

By 1869 the main lines of what became the New York Central and the Pennsylvania systems—merged in 1968 to form the Penn Central—provided through-service between Great Lakes cities and the East, thereby eliminating the need to use the Lakes as a connection. From then on, the principal vessel traffic on the Great Lakes has been heavy bulk commodities.

in Canada in order to get a share of the relatively lucrative ore and grain trades, but of course, their vessels are barred from carrying cargo between US ports. The largest and newest Great Lakes bulk carriers are almost all Canadian registered, while most of the US boats are obsolete.

Commercial fisheries on the Great Lakes, long threatened by the decline of desirable species due both to pollution and the inroads of the lamprey, which entered the Lakes from salt water through the former St. Lawrence and Welland Canal system, has a somewhat brighter future today than it did a few years ago. The current interest and activity in pollution control promise some results, and new species of fish have recently been introduced with at least short-run success. Most spectacular of these is the coho salmon which seems to be thriving in the Lakes and has, among other things, stimulated sports fishing, especially in Lake Michigan. The commercial catch of other species has ceased to decline in recent years and is even increasing in some instances.

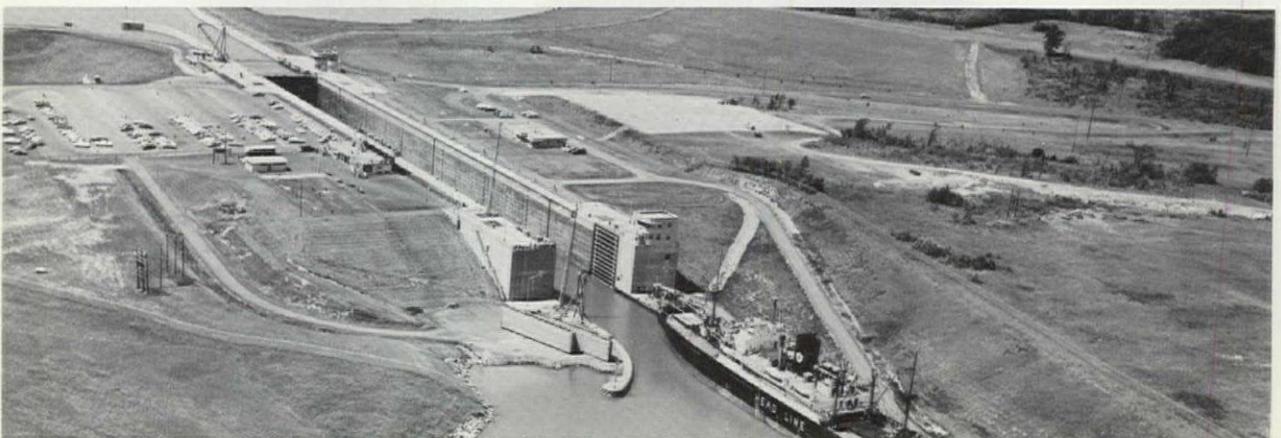
The problems of the Great Lakes are many, but there is growing interest in and support of research, hopefully leading toward solution of at least some of them. Several major universities on both sides of the border have established centers or institutes for study of these problems,

among them Michigan State University, the University of Toronto and the University of Wisconsin-Milwaukee. The Great Lakes Commission, an interstate organization based at Ann Arbor, issues newsletters and bibliographies relative to Great Lakes activities and research; a new periodical, *Limnos*, is devoted to the subject of research on Great Lakes problems.

The Great Lakes continue to form the main axis of the nodal region of the northeastern US and southeastern Canada: the belt containing the greatest concentration of population and commercial/industrial activity in each of the two countries. Furthermore, the US and Canada are each other's best customers, with tremendous movements of iron ore, coal, paper and manufactured goods of great variety across and around the Lakes. The Seaway, together with improved overland transportation by highway, rail and both in combination, offers rapid access to world markets; the Illinois Lakes-to-Gulf waterway, connecting with the Lakes at Chicago, offers low cost barge transportation, thereby lowering the overland transport costs between the Lakes and the continental interior.

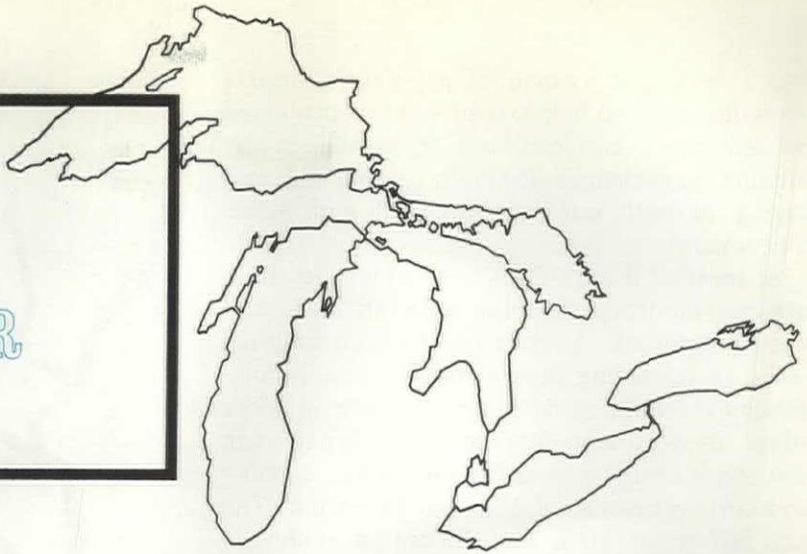
The prospects for growth and for an improved environment in the Lakes region are great, but so are the problems. Their solutions are urgently necessary if the potentials of the region are to be realized. □

One of the principal structures on the Seaway is the Robert Moses-Robert H. Saunders Power Dam at Massena, New York. It is circumvented on the US side by the Eisenhower Lock, one of two locks on the Wiley-Dondero Canal.



ECOLOGY:

THE INLAND WATER TREE



BY PHILIP H. LEWIS JR.

The inland sea now serving as an international boundary between the United States and Canada forms the largest group of lakes in the world.

Although once crystal clear, this Great Lakes canopy has recently shown signs of severe illness brought about by such pollutants as acids, oils, cyanides, phenols, farm insecticides, fertilizers and weed killers, not to mention human sewage. While major programs to reverse this in-lake water quality trend have been initiated, little has been done by the design professions to create new three-dimensional guidelines for shoreline development.

The author: Professor Lewis, chairman of the Department of Landscape Architecture and director of the Environmental Awareness Center, School of Natural Resources, University of Wisconsin, presently is a member of the American Right of Way Association Committee. A panelist on the White House Conference on Natural Beauty, he also served as co-chairman of the Wisconsin Governor's Conference on Natural Beauty.

Therefore, we may restore the water surface quality and at the same time allow the three-dimensional quality of the 7,870 shoreline miles to be destroyed.

Looking beneath the Great Lake canopy, it is apparent that the elements and glacial action through the ages have etched a treelike design pattern on the face of the landscape. The flat prairie farmlands, driftless hills and expansive northern forests have their share of beauty, but it is the stream valleys, bluffs, ridges, roaring and quiet waters, mellow wetlands and sandy soils combined in elongated patterns that provide outstanding diversity, tying the landscape together in regional and statewide corridors.

In my statewide studies I have called these patterns "environmental corridors" which, on a regional scale, are the branches of the mid-America water tree and offer rich opportunities: Once inventoried and mapped, they suggest a frame-

work for total environmental design. If protected and enhanced, the system provides a source of strength, spiritual and physical health and wisdom for the individual, in addition to open space for recreation and enjoyment.

By mapping the water tree over the past 15 years and identifying many of its precise values, the first goal has been to make the people of mid-America clearly aware that such a pattern does exist and that, if protected, it can and must serve as a regional form-giver for all future land uses.

In my regional studies, 200 additional natural and cultural features have been inventoried and mapped with the help of farm agents and soil conservation agents. In turn, these local, state and federal representatives have worked closely with the local inhabitants, the voting public whose awareness of regional design values are critical to design implementation.

Perhaps the most rewarding result of these regional resource inventories has been not so much the success of working with local people (the mere fact of involving them develops a greater appreciation of landscape values); rather, by plotting water, wetlands and slopes on a county-by-county basis, we have discovered that more than 90 percent of all the individual resources held in high esteem by the local population also lie within the corridor patterns.

Concentrated patterns of such diversity have been called resource nodes, which offer the greatest flexibility in assuring options for the future for both environmental desires and needs of the midwesterner. Protected and developed wisely, these nodes, like fruit on the water tree, offer an environmental system as a basis for a variety of human experiences.

As critical as is the task of preserving the water tree and its resource nodes as major form determinants, the studies have identified numerous other landscape patterns that can be placed in the category of where not to build. These are outlined on the following pages.

Quite simply stated, certain resource patterns,

even if developed by man, offer potential threats to his life and well being, while others, protected and enhanced, can continue to provide many valuable experiences for living, working and playing in both our rural-regional and urban environment.

For most of the US-Canadian landscape, these patterns, contrary to public opinion, have not been inventoried. A second look at our national record in providing developers with such comprehensive resource data is very much in order today. If we are to fit human development in harmony with these landscape patterns, we must have certain resource data at our fingertips. The past failure of state and federal agencies to develop the support and the programs to provide this critical information for planning is just short of an international disgrace.

In an age of explosive population, a second look must consider these form determinants if we are to protect and create a balanced natural and human habitat for tomorrow. As a nation we have been too prone to develop without an



A CHECKLIST OF LANDSCAPE PATTERNS

(Environmental corridors and resource nodes in earlier text.)

ABOVE SURFACE PATTERNS

1. Weather: By understanding the various patterns of weather, we may shortly, with extreme accuracy, predict paths of storms, forewarning farmers and urbanites of potential crop and property losses. Today, we still build some of our highways within snow belts when a different alignment but a few miles away would save people from the hazards of slippery driving, loss of life and limb and the cost of extensive snow removal.

2. Toxic: By a combination of predictable wind and land form patterns, we can suggest where temperature inversion layers are most probable. When concentration of internal combustion machines pour carbon monoxide, carbon dioxide and other poisonous gases into inversion layers, they become a most serious health problem.

3. Odor: Even if the pattern is not deadly, it can be quite offensive and suggests building elsewhere.

4. Noise: The peace and quiet of a countryside retreat can be obliterated by injecting new interstate highway patterns close by.

SURFACE PATTERNS

5. Fire Hazards: It is relatively simple to identify textural landscape patterns that in a dry season become highly inflammable and threaten all forms of life within their boundaries. Forest and grass fires destroy millions of homes each year because man through ignorance or gamble still chooses to build within these scenic but dangerous patterns.

6. Floods: High water marks graphically portray the fringe areas of past water patterns created by early thaws and spring rains or the raving water of hurricanes and tidal waves. To build within such patterns invites certain loss of property and possible loss of life.

7. Disease Vectors: Certain landscape patterns serve as habitat for disease-carrying insects that transmit sickness to man. An increasing effort to study and understand these habitats will furnish additional guidelines for human habitation patterns.

8. Cropland: The soil scientist has identified patterns of soil that in their present state, or with the addition of fertilizers, offer the best opportunity for food and fiber production. As populations explode around the world, many more areas will face famine and starvation within the next five to ten years. As

responsible citizens, we should protect these most productive soils from human encroachment and see that they are maintained for even higher production through new agricultural technology.

9. Natural Areas: In the analysis of various landscapes, it is apparent that we have small remaining areas as yet relatively untouched by the ax and the plow. Science needs these natural areas as check points. Medicine and agriculture may still find in these natural patterns new drugs and crops; and mankind can always profit in the relief these many natural textures afford from the brick, steel, glass and asphalt of our cities. These areawide patterns might vary from one-tenth of an acre to many thousands in various parts of the country.

10. Landscape Personality: Aside from what remains of these relatively untouched patterns, we can further identify the varied forms and combinations of man-modified natural resources in different parts of the landscape that give each area its distinguishing characteristic. The visual sum or result of these combined patterns of water, topography, wetlands or forests results in a unique series of regional personalities. The various three-dimensional visual patterns of agricultural production, urbanization (townscape) and transporta-

adequate understanding of the landscape. Detailed topographic and soil mapping, to mention but two critical planning resources, are still not available for major sections of the continent.

Through our regional studies I believe we can protect these major patterns and still have ample areas for development. Areas outside these critical environmental patterns have been found to be less favored by accidents of nature and already are reflecting a heavier impact by man, thus making them more conducive to alterations for economic and commercial exploitation, transportation, urban development, farming and similar activities.

I would at least say that once the form determinants are known, we are in a much better position to make wise compromises if we are forced to build within their boundaries. Entirely too much human impact is occurring with little or no understanding of the carrying capacity of the given site.

If we are to preserve the inland water tree and the landscape values between its branches, we

must go even further in developing new two- and three-dimensional guidelines for directing human impact within their fringe area. It is one thing to identify the outstanding water systems and to develop water pollution programs for their protection, and quite another to guide three-dimensional design on the shoreline that refrains from being visual-functional pollution.

As designers we must convince the growing body of citizens interested in stiff water pollution laws that it is going to take a greater task than merely preserving water quality; that one cannot separate the water surface from shoreline uses and expect to have a three-dimensional water corridor reflecting environmental quality.

This then becomes a major challenge to all designers, form-giving environmentalists or whatever we choose to call ourselves.

How can you design an environmental system that permits a cow to drink from the stream without creating serious shoreline impact and erosion that destroys water quality? How can we as form givers review the full range of land

tion also have their unique personality patterns and add to the perceptual patchwork that is our environment.

Contemporary construction reflecting local qualities of texture, color and pattern, and not a uniform, so-called modern style, should be encouraged. The landscape heritage is worthy of expression through varied architecture in harmony with this heritage

11. Ethnic: Several other kinds of patterns are important in guiding the human development. Studies have indicated the variety of ethnic patterns; an extensive variety of local architecture, handicrafts, museums, cooking, customs and holidays exist within cultural patterns. This variety is important to environmental quality and needs continued recognition if it is not to be submerged in the current tendency toward conformity.

The ethnic heritage serves not only as a valuable environmental quality and as a tie with the past but also as an important recreational and tourist attraction. It is a heritage not to be exploited but to be protected and valued. It can continue to help make life interesting and pleasant to both residents and visitors.

12. Potential Reservoirs: Water supplies have become extremely limited in many parts of the world

and will depend on new reservoir systems. In planning new reservoirs we consider land forms that create natural bowls and can easily be developed. These patterns must be identified and protected from urban encroachment if they are to serve as new sources of water.

13. Utility and Transportation Corridors: Environmental and functional factors can suggest the most logical patterns for future utility lines, street extensions and highway alignment. These corridors must be identified and protected from other urban uses if we are to develop these systems in a comprehensive way for the future.

14. Human Waste and Disposal: Few people today, if asked, could identify where in a university or industrial community waste from chemistry and research laboratories has been disposed. Some of it, no doubt, has been unwisely located in patterns above geological formations, making it possible for seepage to pollute underground water supplies. Offensive odors from such areas can also make human occupation impossible, or at least undesirable.

SUBSURFACE PATTERNS

15. Aquifer Recharge: Within many of our landscapes we find the basically porous patterns that permit our surface waters to penetrate the

surface of the landscape and refill our natural underground storage systems. Protected from high-density development, and assuming that we will have a normal rainfall, our underground storage systems will keep providing drinking water.

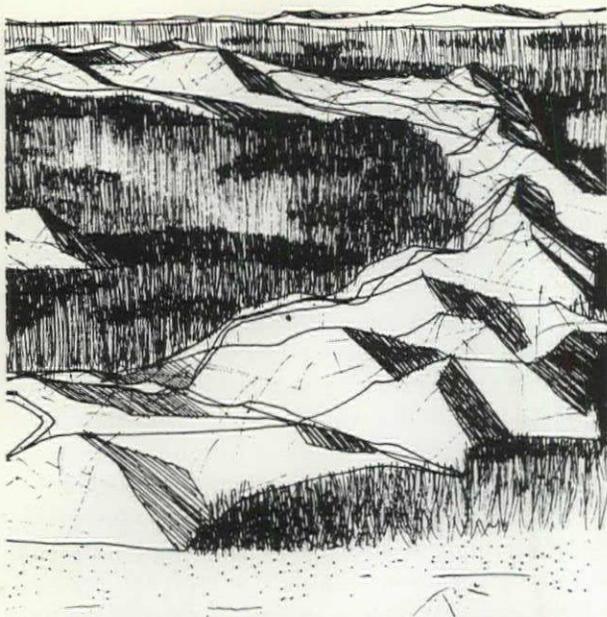
16. Ground Water: Geologic processes have created beneath the land's surface underground water storage systems. Since they contain much of our future water supply, it is vitally important to know where these patterns are located.

17. Building Materials: In many landscapes the geologist has identified patterns of sand, gravel, limestone and other minerals, all necessary for the construction and reconstruction of our expanding cities and transportation networks. Human encroachment should be prevented above these deposits if we are to have an economic supply near expected development.

18. Volcanic-Earthquake Potential: Each year we read of loss of life and property because man located his use patterns in the paths of potential lava flows or straddles unstable fault lines.

19. Underground Excavation: Removal of minerals can leave surface patterns unstable.

20. Mudslides: Recent news from California clearly illustrates the folly of building on certain unstable soil patterns.



A birdseye view of the landscape quickly identifies important patterns. Here, two closely related slopes produce a ridge and land-form corridor.



Water-oriented corridors play a significant role in the overall Great Lakes ecological picture.

uses from wilderness, recreational, historical, farming, industrial, commercial, residential, institutional and civic to movement systems such as highways, hiking trails, utility lines, etc.?

At a conference that I attended in London entitled "Countryside 1970," it was discovered that, although the English have not inventoried their natural and cultural values as one would expect, they have classified their human impacts on the rural scene. Dr. E. M. Nicholson and A. W. Colling in an earlier meeting suggested that while many discussions and analyses have been made of various parts of the problem of human impacts on the countryside, it appeared that no really comprehensive list and description

were available. Then they proceeded to create a chart identifying all activities and operations having impact on the landscape, area or land type affected, nature of effects arising, incidence time, space, degree, parties interested and examples of problems and possible solutions.

In conclusion, the two men pointed out that the chart was a tool for overall survey, for tracing relationships and for putting particular impacts or other factors in perspective. One of the broad points which seemed to emerge from all this was the heterogeneous nature of the activities and operations responsible for impacts on the countryside and the apparent lack of awareness among those concerned.

To seek an optimum environment through awareness programs, then, requires not only a better understanding of the diverse landscape patterns and the nature of human impacts but also a much better understanding of man's environmental needs. Our Environmental Awareness Center at the University of Wisconsin stresses that research findings have identified relationships between the physical environment and human performance; that physiological health and psychological well being are affected by environmental variables; and that social behavior is influenced by enabling elements of the physical environment. Much still remains to be done in giving design interpretation to these many physiological and psychological factors.

Recognizing that the time, talent and funds needed to obtain such comprehensive environmental data by traditional means is inconsistent with practical situations demanding integrated development at various scales and that there is the added problem of keeping current such project inventories, it is time we seriously consider solutions to these critical problems.

Aerial photography has been investigated sufficiently to indicate that, although far from

Careless use of streams destroys them as habitats for the fish and as recreation areas for the fisherman.



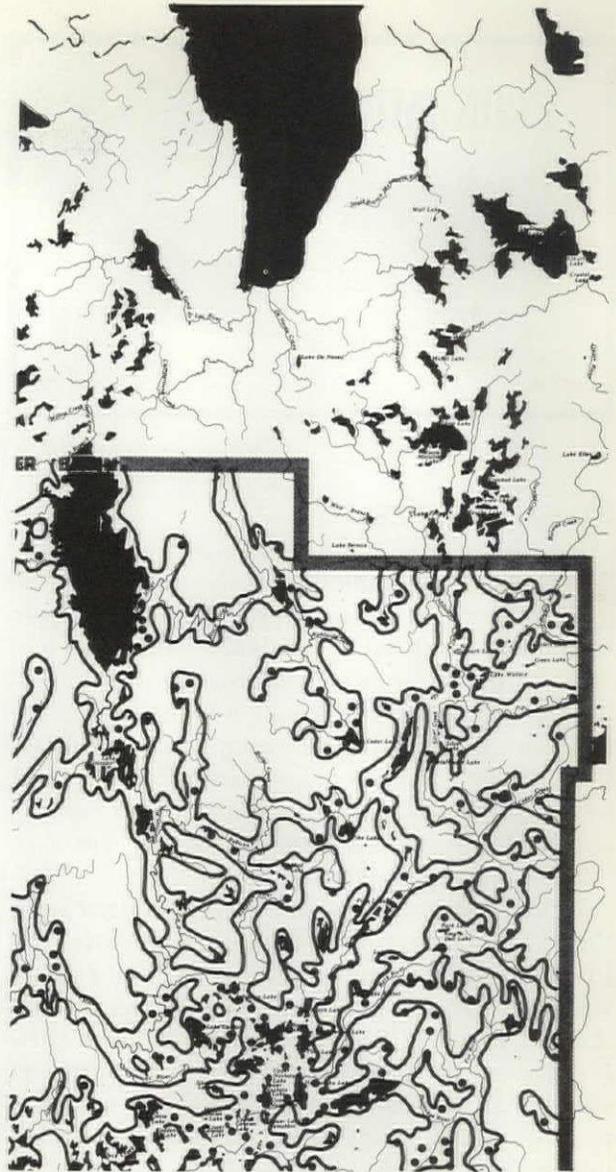
ideal, it clearly offers one of the best hopes for efficient data collection. It promises results in a realistic time span at a cost that is in proper proportion to each inventory phase. An even more promising inventory tool is the nonconventional airborne sensor. Such a system placed in a stationary satellite might provide not only current data but, linked to a regional computer graphic system, offers new and changing patterns as they evolve.

Identifying in any manner the most outstanding natural and human values does not, of course, assure their protection and wise development. Techniques must be developed for presenting these environmental studies to the general public in conceptual and pictorial form.

Until clear pictures and concepts about man and his environment, the problems, potentials and casual relationships are disseminated and become part of the common stock of knowledge, there can be little progress in guiding human impact in harmony with identified natural and cultural value patterns.

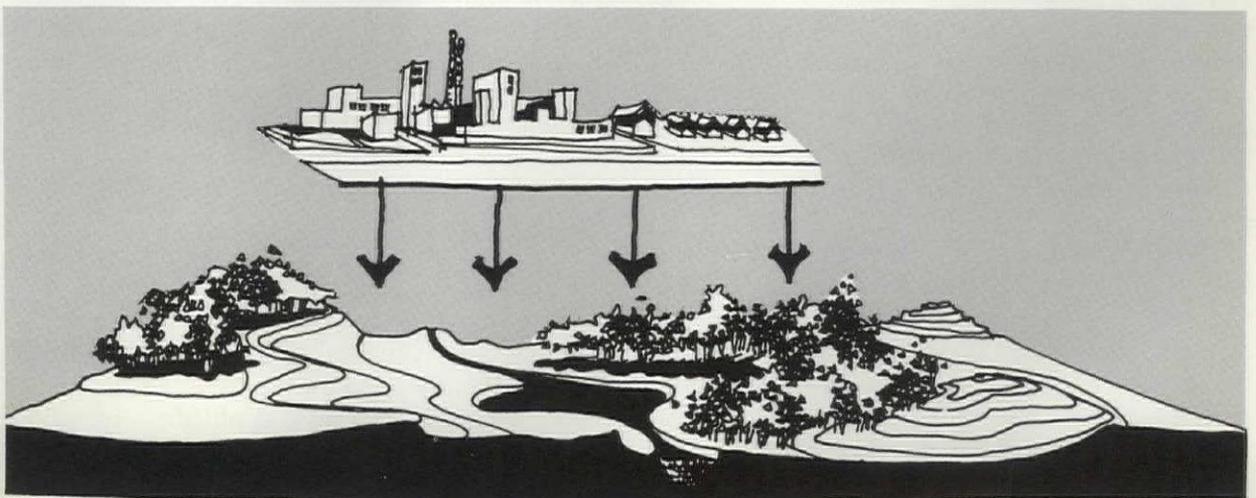
Recent advances in audio-visual presentation have developed a more direct relationship between the subject and educational materials. Nothing short of exploring these new dioramas, three-dimensional movies, computer-programmed slides and think tanks will do if we are to develop environmental awareness.

By integrating a broad scientific and perceptual understanding of our midwestern landscapes, human impacts and needs, new inventory tools and imaginative regional awareness centers with social, economic, political and legal planning concepts, much can be done to create a new design form. The form which will evolve from this deeper understanding will not likely be arbitrary or preconceived; rather, it will be a functional expression consistent with the inherent needs of man and his environment. □



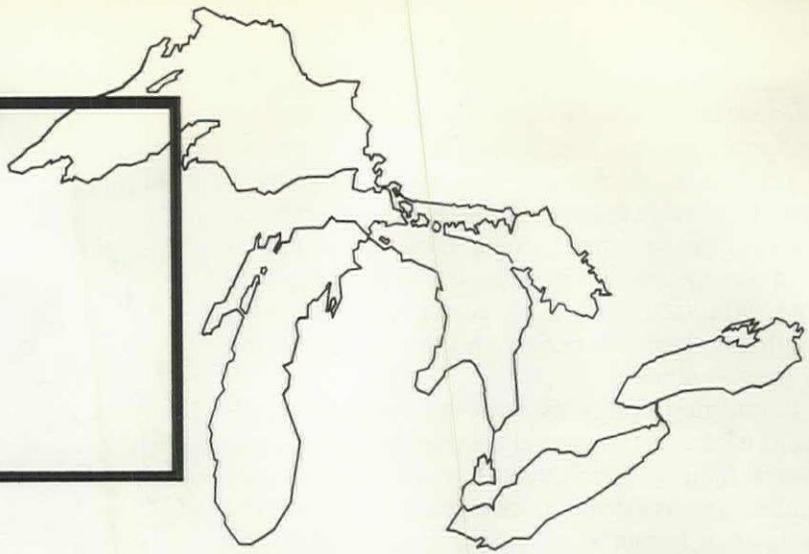
In Iowa County, a typical county within the upper Mississippi Valley watershed, the author has attempted to identify many perceptive values. All artwork on these two pages is from Regional Design for Human Impact by Philip H. Lewis Jr., Kaukauna, Wis.: Thomas Publishing Co., 1969.

The extent of human impact the landscape can tolerate without being destroyed must be understood by all environmentalists involved: designers, ecologists, geologists, geographers, soil scientists, meteorologists, to name a few.



ECONOMICS:

THE SPUR TOWARD GROWTH



BY PAUL W. BEERS

The motivations behind, and the nature of, the multifaceted development of the Great Lakes region have shifted extensively with time and space. The emphasis was alternately on exploration, religion, militarization, politics (including geopolitics), colonization, commerce, exploitation, settlement and combinations thereof. Each of these phases was accompanied by varying degrees of economic development of the area and its resource base.

Little of the region's resources was used from the time of the wanderings of Marquette and Jolliet through the mid-continent colonial maneuverings of France and England and well on into the 19th century. The chief assets of the colonial times seemed to be its waterway transportation system, with the continuing hope for a northwest passage, and just the sheer amount of land belonging to a far-off throne.

The resources of the region went virtually untapped until full-scale settlement began and farming became more than a scattered subsistence operation on the frontier. In some cases mining preceded other types of development such as in the copper areas of Upper Michigan and the lead and zinc mines of northwest Illinois and southwest Wisconsin. However, they were the exceptions, and the scale of even these activities was minor when compared with what was to come as the region became America's agricultural-industrial heartland, with a rail transportation system complementing the natural waterways of the Great Lakes and regional rivers.

The early settlers going beyond the hills and valleys of New York, Pennsylvania and Virginia imposed the Jeffersonian geometrics on the plains of the Middle West and began cultivating the staple wheat. Neither the form nor the function was ideal, but each provided a base on which the region could develop rapidly in intensity and extent.

Farms producing more than could be consumed within the family spurred the development of railroads, bulk transfer points, Great Lakes shipping and an agricultural implement industry. All of these served as a basis for the integrated economic specialization that characterized the early prosperity and continuing viability of the region.

Minneapolis-St. Paul, Chicago and Buffalo grew as urban centers serving their agricultural hinterlands through the shipment and trans-shipment of farm produce on the Great Lakes and its

The author: Mr. Beers is director of urban studies of Economic Research Associates, has just completed six years as a planner-economist in the Chicago area, and is past director of the Metropolitan Chicago Section, American Institute of Planners.

waterways. Chicago not only served its hinterland but the region and the world through its early start in the agricultural machinery manufacture. While the Windy City was a leader in the field, it was the talents developed in area blacksmith shops, combined with the skills from Europe, that also brought about the early manufacturing pre-eminence of Milwaukee, Gary, Detroit, Pittsburgh, among others.

Fortunately, nature had provided the ores and fuels within the region to permit the basic industrial growth, and the Great Lakes the means of bringing these bulky products together. Duluth is a prime, unencumbered example of an urban community which was established and grew through the shipment of the agricultural (grain) and industrial raw materials (iron ore) which so typify the region.

The economic base of the region today is a creature of its past but not of the past. Agriculture remains fundamental, although wheat has long since departed to the west. Heavy industry still builds its power-generating equipment here; earthmovers are assembled in quantities and with skills unmatched elsewhere; and automobiles and Detroit remain synonymous.

Other regions have now arrived at economic specialization that is intraregional as well as interregional. Thus Green Bay paper and Toledo glass are seen everywhere, but they may be manufactured, packaged and/or assembled into units in Georgia. Modern processing and transportation have wiped out some of the early economic advantages of resources location and access which the Great Lakes had previously enjoyed.

Economic projections for the region are optimistic. Nevertheless, future growth is not likely to happen in the proportions attainable in the newly developing economic frontiers of this country, especially in many of the types of manufacturing previously unique to the Great Lakes. Sales and service industries and occupations continue to increase in relative importance in the region as elsewhere in the nation. Continuing growth remains the likely prospect; however, dramatic upturns would seem to be dependent on regional reassessment and reallocation of resources.

With its pioneer beginnings, beautiful — but not spectacular — surroundings and a wide-open frontier available to the west, the people of the Great Lakes region were not conditioned early to the conservation of their natural environment. This heritage, plus the area's function as the nation's agricultural and industrial backbone through two World Wars and continuing conflicts since, have introduced practices that have depleted and exhausted resources, increased costs and threatened the health and welfare of its population.

This is not a new phenomenon for the region. The cutover of the northern Great Lakes forests had been completed by 1910. Enlightened self-interest has restored these forests for paper and pulp usage; however, the extensive hardwoods

stands and related furniture industries have not been restored. The original rich ores of the Mesabi Iron Range have been exhausted, necessitating the use of a more expensive taconite beneficiation process or the import of ores from Labrador and Venezuela.

These are well-known examples of resource depletion, renewal and relatively reasonable substitution. Yet resource depletion for short-run economic gain continues.

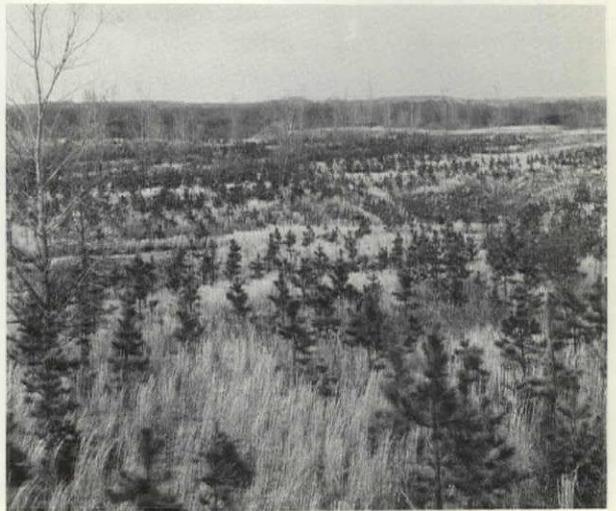
Abuses of air, land and water resources abound throughout the region. The air pollution of northeastern Illinois-northwestern Indiana is all too typical also of such cities as Detroit, Cleveland and Pittsburgh. The strip mines and quarries without restorative requirements cannot be justified in light of present and projected public and private land needs. Pollution exists in most of the area's water bodies. Lake Erie and the Fox and Maumee Rivers are among the most obvious of this short-sighted approach to resource use. Industries and municipalities which require a supply of fresh water often are the most blatant polluters of the lakes and streams.

Not all such relations are as obvious. The accompanying sketches show how over time the ecology and availability of a Great Lakes dunes area can be destroyed. The message reads loud and clear: Industrial, residential, recreational and commercial fishing usages and the environment all suffer in such an unplanned situation.

Nevertheless, the alternative to abuse and misuse is not "no use." The growth and the prosperity of the Great Lakes region did not, and will not, occur in a vacuum. The alternative to abuse and misuse is "better use."

The key to a "new" economic base for the Great Lakes region is not that the components must be new but the approach must be. For example, the dunes sketches illustrate the all-

Abuse of land is just as serious as that of water and air. Before and after views in Illinois dramatically demonstrate what can happen when strip mines are reclaimed by reforestation. Such areas often are turned into lakes.



too-typical orientation that views recreational sites as land which is waiting for some kind of economic development. Recreation and related transportation facilities serving the region and the nation are big business. And anyone who doesn't believe that these components are part of our new economic base is 20 years behind the times.

How does a region take advantage of its assets? The preceding article describing an environmental inventory is an example of a beginning in one area. We will need professional efforts of this sort in many other disciplines.

After inventory, timed implementation must follow. In this case priority establishment, acquisition (or other control devices), development (or nondevelopment) and management are the follow-through steps. The State of Wisconsin has made such an inventory and formulated a follow-through program. The benefits, short and long range, are accruing to private entrepreneurs and the present and future residents of that state. Such resource inventory and management principles have equal application in other areas of the physical, economic and social spectrum.

These inventories are the primary responsibilities of the public sector. But there are no multi-state or multicounty governments — the levels at which inventories of the various resources should most frequently be conducted. New levels of government are not necessary, but new levels of governmental cooperation are.

Involvement of the private sector is essential to achieve this in at least the inventory and priority establishment phases. Such involvement is in keeping with current national policy and provides the representation needed to resolve the long-existing economic and resource base conflicts.

The new economic base for the Great Lakes region must go beyond the agricultural and mineral orientation of the past. The area contains a budding megalopolis stretching from Buffalo across Lake Erie's south shore and Michigan to Green Bay and possibly the Twin Cities. The inhabitants must be served with jobs, housing and recreation — all elements going beyond the basic heavy industrial concept of the past.

New land allocations with enforceable controls will be necessary to successfully operate such a megalopolis. These land allocations will have to be based on land suitability, location relationships and regional determination of functions. Regionwide determination will necessarily be based on inventories and an analysis of what the region can do best internally and what products and services should be imported. Within the region, further analysis will determine logical specialization by subregion.

All this is nothing more than the recommendation of a proper allocation of resources. However, little has been done — much less implemented — within a regional scope. Again, the stress must be on a multidiscipline professional approach to employ such inventories and allocations.

Developing a new economic base to spur the future growth of the Great Lakes region can start with the better resource understanding furnished by the previously mentioned inventories, conducted by the best professional talent available. We have inventoried in the past, and this may be a substitute for action. However, we have not performed regional inventories well since the "make-work" projects of the 1930s when we lacked the analytical methodologies we possess today.

These new inventories should create regional balance (or disbalance) sheets considering the costs and benefits of existing and proposed economic, social and physical elements and serve as the basis for planning and implementation.

The new inventories followed by analysis, priority establishment and presentation of alternative futures based on costs and benefits must also emphasize the social values now so important to our mid-continent megalopolis and its related rural hinterland. People can no longer be left out of the equation, nor can environmental preservation and improvement. But the key variables of such an equation are frequently not quantifiable or assessable. Still, there is no need to tolerate the dehumanization and technical moribundity that result from lengthy debates over the precise definition of levels of poverty, substandard housing units and the eligibility requirements of a welfare recipient. Flexibility is needed to attain action and response.

Human needs should not only be considered in inventorying and planning phases; more citizens should be concerned with the planning process itself. Again, this concept is old, but we have generally performed the process badly. Only recently have we begun to truly involve the private business sector and representatives of minorities and/or poor people. We have made weak efforts of presenting alternative plans to the public at large for their consideration.

The facts behind alternative plans are usually gross quantifications. The plans ignore the presentation of basic costs and benefits, especially those including unresolved, unquantifiable but nevertheless comparative social values. In other words, the rational emotion needed for continuing interest and logical decision making by the public has been excluded from the planning process, too often leaving the disinterested and the irrational extremist.

Lastly, these alternative plans have typically been presented to appointed commissions who are unresponsive to the wishes of the electorate — sometimes further complicated by the fact that there is no government at the level at which the commission operates.

The answer to this nationwide problem does not seem to be in asking our scientists and technicians for new technology to cope with our current difficulties. The ever-widening knowledge gap between scientific and social values is a significant part of the root problem.

Rather, what is needed is a complete exposure of all the regional assets and liabilities presented in living and understandable forms which will evoke rational emotion from the citizenry and give elected officials meaningful mandates for action. Informed officials are the only ones who can be made responsible to properly weigh all the costs and benefits, to decide what is "good."

We have elected officials now, and they are not fulfilling these needs. First, these officials are victims of poor and incomplete information, simplified and quantified too soon by their advisers before the public can build a rational reaction to guide them. Second, we are only beginning to explore the council of governments idea wherein elected officials are meeting together at metropolitan and multicounty levels. We need more of this type of council, including the multi-state level with legislation that permits commitment of resources by these officials, subject to ratification.

In a representative democracy only these officials can provide the "how" in response to the public's need to pursue the "good" in our society. The real burden of helping them over the present impasse lies with the professionals and their ability to communicate their ideas.

Joint participation by elected officials interacting at new levels, armed with better implementing powers, better informed citizens and newly responsible professionals can be a new generative force. Quantum leaps are not made by projectors of current trends. We do not need more canned alternatives, nor should budding pockets of anarchy be encouraged by continuing inaction.

At the end of a wish-list, the inevitable "who pays?" must be considered. Obviously, we all do through our governments and the products we buy. However, the improved allocation of resources and priorities derived from a better understanding of the regional assets and liabilities can eliminate some diseconomies.

In fact, cost-benefit analysis can be performed on the planning process itself. Exposure of alternative priorities and systems suggests not only how much should be paid but who must pay, thereby establishing a secondary level of priori-



The conflict between the economic and the resource base is well illustrated in these sketches of a dunes area as envisioned by Saul H. Klibanow. What is proposed is a "new" economic base that realistically analyzes and evaluates land allocations on a regional scale.

ties. By fostering more participation and response, the climate for joint ventures of public and private capital is encouraged.

The realization of a new economic base for the Great Lakes region cannot be conceived as only an improved cattle feeder or a new smoke stack or, better, an industry without a smokestack. The new economic base must be derived from a supply and demand study on the fulfillment of all of society's needs. From this market analysis and its recommendations will come new products, new methods, a new environment — and a new spur to growth. □

PEOPLE:

A CITY'S PORTAGE POWER



BY WILLIAM MARLIN

As a portage linking the people, places and problems of the Great Lakes, Chicago is a focus of men's use and abuse of nature and each other. While man is the only creature capable of contemplating its own origin and destiny, his cities suggest he has contemplated neither.

What's wrong? Says new-towner James Rouse, "I don't really believe that many of us expect the cities will ever be livable. We have revealed our disbelief by failing to calculate what victory would mean. We can solve any problem we define, but we have never really tried to define the problem of the city."

Chicago is an arrogant town built by arrogant men: speculators — some seeking, most evading that definition. "Make no little plans," "Form follows function," "Less is more," these are noble slogans. But in a city where open space, green trees, clean water and fresh air are dispensable commodities, such slogans have been used to justify, and to sell, much that is bold and bad in the city.

Lake Shore Drive has been "developed" as a "big plan," with its share of "less is more," "form following financier," walling off Burnham's sacred lake from the people and city which desperately need it. Are men, materials and money still passing through this portage so fast that we would purchase the survival of our city and society — a common fate — so cheaply and expediently? What's wrong here?

One group finding out is the advocacy planners like Rod Wright of Chicago's Uptown. "First of all," Wright explains, "it helps to take off your tie. Things loosen up when people understand that I want to plan *with* them, not just for them."

For self-trained Wright, this team includes migrants from the Kentucky mountains, Puerto Ricans, Mexican Americans, nisei, Indians, blacks and WASPS. It also includes politicians, professors, corporations. A neighborhood meet-

ing usually ends with one interest telling another interest off. But the goal is common: "How do we make this home of ours work?"

Desolate and dispassionate, on the Model Cities agenda, Uptown has been a port of entry for rootless ruralites who arrive uncertain of their place, purpose or options. But the rootless ones have decided to become certain and to rebuild this half-way house of a community, where the remnants of a rural nation cold-turkey their way into the urban mainstream.

Chicago has always been a take-off-your-tie kind of town. Built at a portage where the old Illinois-Michigan Canal, begun in 1836, linked the south branch of the Chicago River with the upper reaches of the Illinois, settlers passed through on their way to farm new land.

Canal surveyors laid out the first streets; canal commissioners sold the first plats of land; canal workers built the first houses on them. Chicago and the canal happened together — and the rural Midwest happened because of them.

Long before incorporation in 1837, a federal commission (yes, they had them then too) reported, "The realization of a ship canal from Lake Michigan to the Mississippi is the great

The author: Mr. Marlin, who is associated with the Perkins & Will Partnership in its public relations program, is also a freelance writer with a particular interest in architectural preservation and urban planning of Chicago neighborhoods.

work of the age. In effect, commercially, it turns the Mississippi into Lake Michigan, makes an outlet for the Great Lakes at New Orleans, and for the Mississippi at New York. It brings together the two great water systems of water communication of our country: the Great Lakes, the St. Lawrence and the canals connecting the Lakes with the oceans of the east; and the Mississippi and the Missouri with their tributaries on the west and south."

The promise of such a regional system spawned heavy immigration and wild specula-

tion, not unlike that of today. Men came in wagons, up the Mississippi in river boats, through the Erie Canal, sailing steamers from Buffalo, for this "great work of the age."

Chicago flourished as a refitting station where provisions could be had at 29 drygood stores, 5 hardware stores and 45 grocers; refreshments from 10 or so taverns; and subsequent assistance from 19 lawyers.

Cargo on incoming ships was snatched up in exchange for provisions. Those moving on to farm could buy Asahel Pierce's "Prairie Plows" and later sell their grain back to the city, where shipments of it to Erie County, New York, by the late 1830s were already fulfilling the promise of the Chicago-based markets.

The newcomers found work easily, but there was never enough room for them. These pioneers needed houses fast and had no time to work with wood in the old way. Without a thought for architectural tradition, they pioneered the balloon frame house. With the advent of the steam-powered sawmill and the mass-produced nail, schooners arrived regularly laden with Michigan pine: 30,000 board feet in 1833, over 10 million 10 years later. By 1840, 10 lumberyards lined the river. Built in a few days by a few men, these balloon frame houses were so dependable that Irish canal workers just knotted them to trees so they wouldn't float away when the river flooded!

John Wellborn Root remarked, "This early type of dwelling made the growth of the West possible. No expert carpenter was needed. No mortise nor tenon or other mystery of carpentry interfered. A keg of nails, some 2x4 studs, a few cedar posts for foundations and lots of clapboards, with two strong arms to wield the hammer and saw — these were always to be had."

The balloon was a simple, spontaneous, almost self-evident solution for men who had neither the time nor the disposition to notice, as Sigfried Giedion later did, that the balloon

frame marked the point at which industrialization penetrated housing. As modest as the 2x4 stud and nail must have seemed, seldom have improved resources been more efficiently applied to meet necessity; then, as now, the need for lots of housing — fast.

Chicago was not only a portage point for people and goods. With the advent of the railroad in the early 1850s, another dimension was added to the industrialization of housing. *Great Industries of the US* recorded in 1872, "With the application of machinery, the labor of house building has been greatly lessened, and the western prairies are dotted all over with houses which have been shipped there all made and the various pieces numbered." All these old "new towns" needed was a nearby railroad spur and some wagons.

This application of machinery, which we call prefabrication, began in Chicago with Lyman Bridges in the 1850s. His work and advertising dominate the field until the Great Fire of 1871, when the tinderbox neighborhoods ignited, ending Chicago as an exclusively "wooden affair."

Bridges wrote, "I have noted the value of some agency by which comfortable, cheap and easily constructed houses can be procured (sic) at short notice." (The Douglas Commission talking?) "Having in Chicago the best and largest market for all kinds of building material, and the most complete of railroad connections, we several years since commenced shipping ready-made houses."

These were ordered from Bridges' brochure and included one-room houses at \$175-250; one-story houses at \$300-1,000; two-story houses at \$825-900; and two-story multiple-bedroom houses at \$1,000-4,000. A one-story, one-room store sold for \$400-800. Schools, churches and railroad depots also were available. For the customer's convenience, a breakdown of the number of railroad cars required for shipment was given too. For instance, two of the smaller

"Built at a portage point where the old Illinois-Michigan Canal . . . linked the south branch of the Chicago River."



"Lake Shore Drive . . . walling off Burnham's sacred lake from the people and city which desperately need it."



houses could be shipped on one car; the bigger houses and the school each required three cars; and the church five cars.

The nail, the mill and the railroad thus consolidated the conquest of the wilderness where, as Thomas Tallmadge put it, "the forests died in giving birth to the cities." This is a portage power of special importance to the architectural profession as legislators, minority leaders, the aerospace industry — where is the architect? — grapple with consciences and contracts to build 26 million housing units in the coming decade.

When Chicago fed the settlers and shipped the produce of the rural Midwest, it broke ground for a regional pattern of settlement, that "nowhere yet everywhere" kind of city Frank Lloyd Wright dreamed about. Today, we are facing "nowhere yet everywhere" kind of problems. And the test of this old portage — Chicago — will be how well it facilitates solving these problems. This does not mean replacing the social insulation of the old slum with the social insulation of public housing. This does not mean giving children who grow up in interim housing a split-shift education in an interim school. It means giving people stability in a time whose forces defy stability. It means giving people roots in a time when social thinkers are seriously asking, "Can you have roots in the 20th century?"

We must understand two basic, seemingly opposed, forces. One, the dispersal of our population and the overkill of our open space by suburban sprawl. The other, the dramatization of this by convulsions in the inner city where the Harlems, Newarks, Watts and Uptowns take revenge on the society that left them behind.

As our list of urban pathologies grows longer, partially because the incoming ruralites bring their own problems with them, what portage power does Chicago have up its sinewy sleeve to equip these new passers-through or stayers-on? In fact, what does it mean anymore to say, "I'm from Chicago"?

The one thing Americans seek is roots, notwithstanding the sage social thinkers. On the go in more automobiles and high-speed trains, using O'Hare Field (looking more like a crop dusters' free-for-all than the world's busiest airport) as casually as the telephone, we are all nomads in search of some place to go home to. And we seem uncertain about which direction to follow.

The city is still suspect, presumed guilty of manifold crimes against humanity until proved, or made, innocent. With sentinel fires burning as fiercely in Chicago and Washington, D.C. last year as in Vietnam, Americans attach little romanticism to the struggle to make our cities work. They prefer the memory of Scott Fitzgerald's "wheat or prairie or lost Swedish towns"



"On the go in more automobiles and high-speed trains, using O'Hare Field as casually as the telephone, we are all nomads in search of a place to go home to."

and those "thrilling, returning trains" to places "where dwellings are still called through the decades by a family's name."

But, like it or not, America cannot go home again — at least not that way. Though our trains will be faster and our cities where the "lost Swedish towns" once were, our people must reorient themselves to new scales of time and distance. Working, playing, learning in one area, improved communication and transportation will let people belong to and use many other areas.

Our mobility enables both the city and the country to aspire to the advantages one has to offer. The ruralite whose soil gave out comes to the city for a job. The educated professional aspires to his suburban "strawberry fields forever." Though the former may be an act of desperation and the latter an act of escape, both the farmer and the professional want a way of life with all the advantages of the city and the country without the disadvantages of either.

This utopia doesn't seem so unrealistic when the alternative is what the Douglas Commission called the crude and ugly jungle of our cities.

Urbane life has nothing to do with its location. The Bauhaus-bred city planner, Ludwig Hilberseimer, once said, "If I had to name a truly urbane place, it would be Wright's Taliesin," located 40 miles west of Madison on the Wisconsin River. One Italian student was moved to say recently, "It's the only place I've seen in your country which shows you have developed a culture as well as a civilization."

As the forces of technology tear down the urban vortex, they make our society and settlements more colloidal. The Ernie Pyles of the coming century will still have a "home country" to report about, but the "folks" will use their city, their whole region, as America once used its back fences — for communication. The city

will survive as a receiving and sending station, a synapse in a giant switchboard.

We have come a long way from the time, 70 years ago, when the majority of Americans farmed; and a long way since 1940, when the majority was industrial workers. By the late 1979s, the US Census Bureau reports, the majority will be doing "professional, managerial and technical" work. This revolution in how people earn their money and spend their time has been chiefly responsible for the urbanization of your landscape. We find it hard to even think of a rural problem.

Only when the ruralites move in from the farm do their problems surface. Then we see



them and study them as part of the larger urban problem, which shows the direction in which we are moving. For the fact is that urban people are not confined to the city limits, and rural people are not confined to the hills.

The left-behinders, be they rural or urban people, are the ones who cluster in our dense metropolitan centers, where physical confinement compounds the anguish of economic confinement; where rehabilitation of old housing most benefits those who can already afford to live well in the city; and where well-intentioned urban renewal projects renew the wrong things.

Although clustering makes it easier for the urban pathologist to study this surplus of scars and sensitivity which is the inner city, the left-behinders are tired of being studied. As one Kentucky man confided — and he says "I'm from Kentucky" and not "I'm from Chicago" — "I'm tired of being chewed up and spit out."

No wonder Rod Wright is taking off his tie to work with these people for housing, in communities where they can care where they come from and go to. These city-billies could tell you what's wrong with their city: crime, the car (too many), poverty (of the spirit), drug misuse, mental illness, broken families, plumbing (none), pollution (of the senses as well as water supply) and, that US Senate "laughing matter," rats. They could also tell you about the pathologies afflicting the other, i.e., affluent America — pathologies like apathy, self-interest, suspicion and, just maybe, a little too much do-goodering.

It would be more meaningful to talk about

the self-help projects underway in American communities. The dispossessed are taking possession in Jessie Jackson's "Operation Breadbasket," in Chicago's Black Architects' Collaborative, the Watts Workshop, the pioneer advocacy architects, New York City's ARCH and offsprings of the "black capitalism" concept.

The take-off-your-tie, pitch-in approach must necessarily affect our institutions as well as our sentiments. Improved communication and transportation have quickened the distribution of material benefits. They also have quickened the distribution of social burdens: supplying housing that alleviates the pressure of people from poverty areas, eliminating pollution. These problems know no city limits or county seat. And, like it or not, America must regear its institutions, taxation, zoning laws, building codes and systems of authority so scattered interest in scattered communities can do their proportionate share.

For now, we must concentrate on the shared problems of cities and states. The frightening scope of those problems suggests that the city as a political unit may be phased out as our major urban settlements demand a reconstitution of our representative bodies to give more equitable political identity to such regions and their interdependent people and problems. How many senators, say, for a settlement reaching from Detroit to Chicago?

In this "interurbia," as economist Richardson Wood calls it, "Chicago's portage power will be as a communications break, just as it was once a transportation break. The difference is that we are going to be consciously transporting concepts as well as commodities. Our greatest industry will be the gathering, interpreting, exchange and application of knowledge.

Already, teachers make up the largest single work force. "Professional students" are becoming high-level consultants to corporations and governments. Their universities are becoming whole towns. As Daniel Bell noted, "Perhaps it is not too much to say that if the business firm were the key institution of the last 100 years because of its role in organizing production for the mass creation of products, the university will become the central institution of the next 100 years because of its role as the new source of innovation and knowledge."

The old city wall is being scaled by such change and by the computer-quick exchanges of a COMSAT and SST world.

The single-family dwelling, historically the locus of social life, will be revitalized as it becomes a man's castle and his cultural center as well. With computerized programming of education, improved television and the inexpensive video-taped concerts and plays just now being

developed, the urban man will be digging ever deeper roots with his ever longer antenna.

Already, preserving old streets and buildings is becoming a popular investment. Old houses are being bought, scraped, painted.

Unfortunately, whether a good old building is saved or replaced by a good new one depends more on property values than human ones and whether a developer (what a euphemism!) thinks that good architecture is profitable. It also depends on architects. And it will be interesting to note which ones after bemoaning the imminent loss of Adler and Sullivan's caisson-anchored Chicago Stock Exchange built in 1894 will rush in for the new job.

It may be, after all, the nature of a portage to be slightly tentative about everything, whether it passes men, materials or messages from one place (and time?) to another. As Chicago spreads itself all over the prairie grass, Nelson Algren observed, "the caissons below the towers somehow never secure a strong natural grip."

And what of the people in this old portage, coming, staying, going, spreading themselves all over the prairie grass?

If we fail to give them — hell, ourselves — the strong natural grip we need in society, it will not be a failure of means. As ARCH founder C. Richard Hatch has said, "it will be a failure of moral imagination."

The national will to make our cities work must be mobilized as deliberately as our resources and technology. After only 10 years, we are poised for a lunar landing. Within the next 10, we must create guidance systems for this earthbound effort. The readiness is all. The readings of our success on earth will not come from the indifferent stars but the back streets of our cities. The readiness is there.

Chicago wheezingly inhales the last breath of a rural national and exhales an urban spirit. This is its portage power—more than big planes,

fast cars and the ganglia of freeways and telephone wires. For the newcomer, this old refitting station may be a place to stock up, as it always was for newcomers. But for America, it is a place to take stock — of what we have been, of what we can be and of the gap in-between.

For new, it means working a day here or there, and a man's wife making more than he does on her short-order restaurant route to retirement. It means being refitted for jobs that require specialization. It means social adaptation in neighborhoods synonymous with social regression. It means the mobility — the rusting old car leaning against the Uptown curb — which got them here but which has too often impaled them in a dubious kind of martyrdom. They, too, find that once here, they can't go home again. In this jet and computer-set society, where doors are still shut, it's tough to know that the old car is the only hinge on which your life turns.

The Appalachian white, whose mines petered out; the 14-year-old black who moved from being some white man's "boy" in Arkansas to a Black Disciple in Chicago; an Indian girl helping earn the bread and butter by drafting in Rod Wright's office — these are people seeking roots in a tentative time.

Salvation may be too high-sounding a word for what they're after. But it's not too high-sounding a word for what we as a society can give them, if we care enough to work, and build, *with* them to get it.

Perhaps, as Algren wrote of this old portage, "there is no true season for salvation here." Yet, not long ago, the rural refugees wanted to lose these accents, get trained and get back out. And they have been doing so in great numbers since World War II. Today, they are a little less tentative in their desire to make a go of it — here. If only by way of television, they know that their wretched city is not just a place to be, but a way to be — *their* way. □

"And what of the people in this old portage, coming, staying, going, spreading themselves all over the prairie grass"?



ACTION:

A GRAND DESIGN CONCEPT



BY JOHN A. BLATNIK

Two hundred years ago, two towns, Chicago and Grand Portage, epitomized the height of an era—the fur trading industry of the Great Lakes. The existence of these two towns, and of the industry that supported them, sprung from the unique trade potential of the contiguous bodies of water offering direct access to the heart of the country.

One of those towns, Chicago, has prospered and grown: from a population of 4,500 in 1840 to some 3½ million in 1969; from a town based on a single industry to a multimillion dollar industrial and business complex. The other town, Grand Portage, declined as the fur trade declined, and remains now an historical site at the western tip of Lake Superior.

The fate of these two portages symbolizes the divergent trends in the development of the upper and lower regions of the Great Lakes. The lower region, lying at the door to the great midwest, has prospered in such cities as Toronto, Cleveland, Detroit-Windsor, Milwaukee and Chicago. The upper region, however, experienced over a century of decline as a center of trade because customs duties imposed on pelts passing through American territories and the introduction of steamboats and railroads rendered fur trade by the "voyageurs" in their birch-bark canoes uneconomical. Yet it is ironical that the very same steamboats and railroads which put the fur trade to rest should, in the late 19th century, account for the economic resurgence of the upper region by providing low cost transportation for the area's vast reserves of natural resources.

Despite the apparent divergence between the two areas — economic, physical, political — there is great potential for economic and social unity between them. The Great Lakes offer unique possibilities for a unified system of transportation, taking advantage of the scenic routes already in use around the Canadian and US shores, as well as of the Lakes themselves for water and air transportation; for all kinds of

outdoor recreation, for tourism, for a plentiful supply of fresh, clean water for industrial and domestic use and for mutual use of power.

Nearly 35 million people now live in the Great Lakes Basin. By the end of this century, there will be 80 million, with nearly 17 million in Ontario alone, composing a megalopolis extending from Toronto and southern Ontario to Chicago.

In short, the Great Lakes challenges both countries contingent to them to create a "grand design" for mutual economic progress — and in a few years that challenge will demand an answer.

So far, joint planning has been limited to spasmodic responses to common problems as they arise. The Great Lakes Fishery Commission,

The author: The Honorable Mr. Blatnik, a Democrat, has served Minnesota as a US congressman since 1946. He is chairman of two subcommittees of the House Committee on Public Works: Rivers and Harbors, which has jurisdiction over the Federal Water Pollution Control Administration, and Federal-Aid Highway Programs. In addition, he is chairman of the Executive and Legislative Reorganization Subcommittee of the House Committee on Government Operations.

the International Joint Commission, the Great Lakes Study Group and the Quetico-Superior Committee, to name four, have been created within rather narrow limits of jurisdiction to deal with specific problems.

The International Joint Commission, for example, was created by the Boundary Waters Treaty of 1909 to deal with problems having to do with the Great Lakes referred to the commission by government or private citizens. Such problems as water and air pollution in the boundary waters area and the preservation of water levels fall within its jurisdiction, although it was given no authority to enforce its recommendations. Since establishment of this commission, it has distinguished itself for the care and thoroughness of its investigations — if not for speed. The IJC has not been, nor was it meant to be,

an executive commission, although clearly its international structure would lend itself to such a function. Just as clearly, a commission with such a function is needed today, and will be needed even more in the coming years.

The US Government, too, has attempted to solve some of the problems associated with the Great Lakes unilaterally, by the creation of federal, rather than international, commissions. An example of this kind of agency is the Upper Great Lakes Regional Commission, created under the 1965 Public Works and Economic Development Act and directed to the preparation of long-range economic development programs, consisting of public investments, demonstration projects and legislative recommendations to accelerate economic growth in northern Minnesota, Wisconsin and Michigan. So far, the commission has funded a research and demonstration project to establish economic marketing processes and develop new uses for low grade timber not now being harvested in the three-state area.

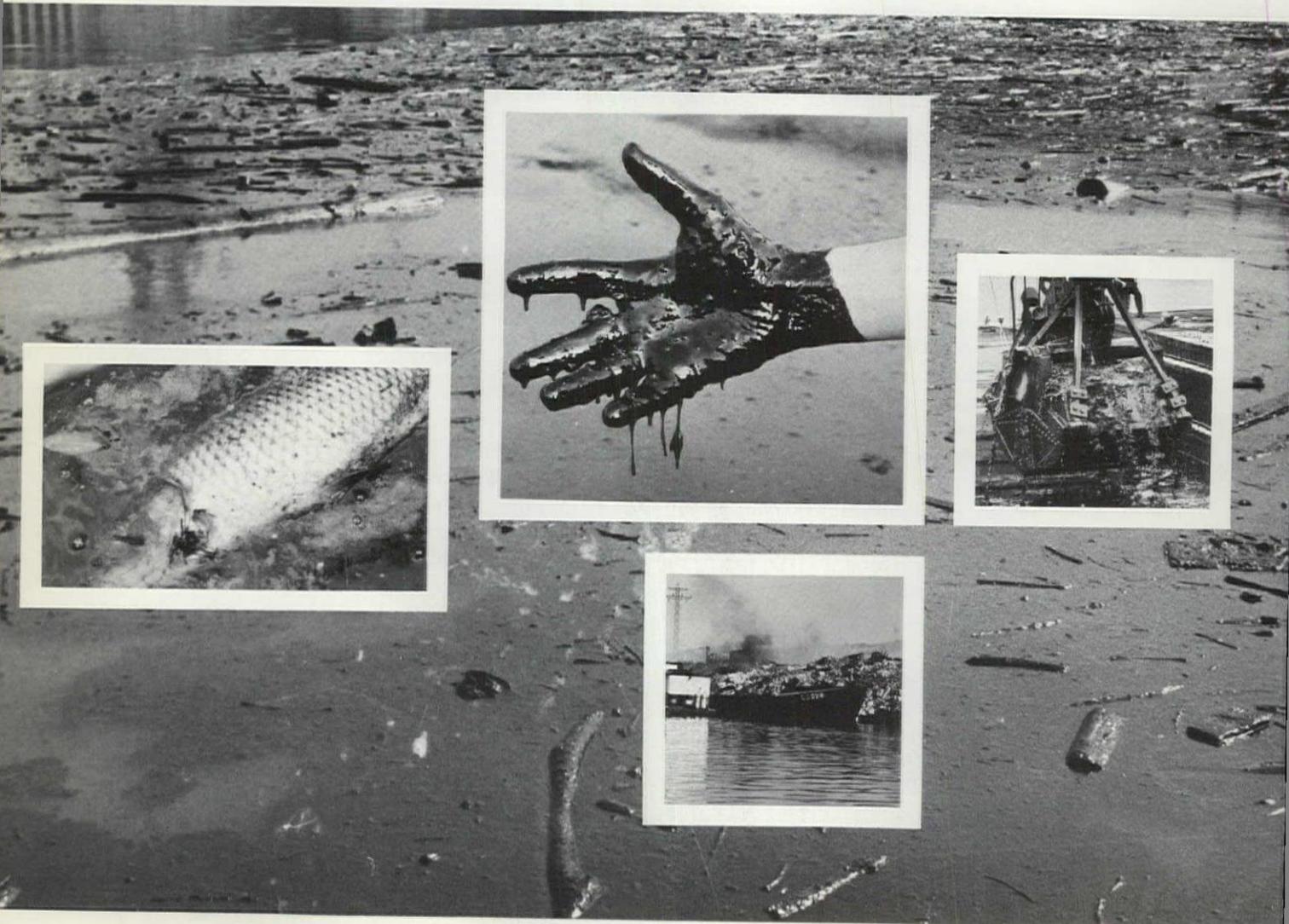
Again, the Inland Lake Renewal and Management Demonstration project has shown ways

and means to renew and to assure the continued attractiveness of the region's greatest assets — its inland lakes, many of which are being overgrown with vegetation and becoming polluted.

Plans for 1970 include construction of access highways to the scenic spots inland; restoration of depleted fisheries resources, a lake renewal program and a business and industrial development program.

We can see, from this cursory outline, that the elements for coordinated planning exist and that the areas where planning is needed are already recognized. They are coordinated transportation systems, recreation areas, tourism, water pollution abatement and coordinated electric power. All that remains, really, is the will to get together, to implement the plans already developed and move ahead with additional planning necessary for our mutual benefit.

Most east-west travel in the northern United States now goes through Ohio, Indiana and the Chicago area. These are acknowledged routes of congestion, and, as the population grows and touring travel increases, congestion will grow



too. The Congress is aware of the inevitable demands to be made on future highways, and I was privileged in 1956 to co-author the 41,000 mile Interstate Highway Program, 77 percent of which is now under construction or open to traffic. Legislation proposed in 1959 to increase gasoline taxes to offset deficits in the Highway Trust Fund brought demands for greater Congressional oversight on the uses to which these funds were being put. As a result, the Special Subcommittee on the Federal-Aid Highway Program, of which I am chairman, was formed to inquire into the policies, practices and procedures involved in the administration of the program.

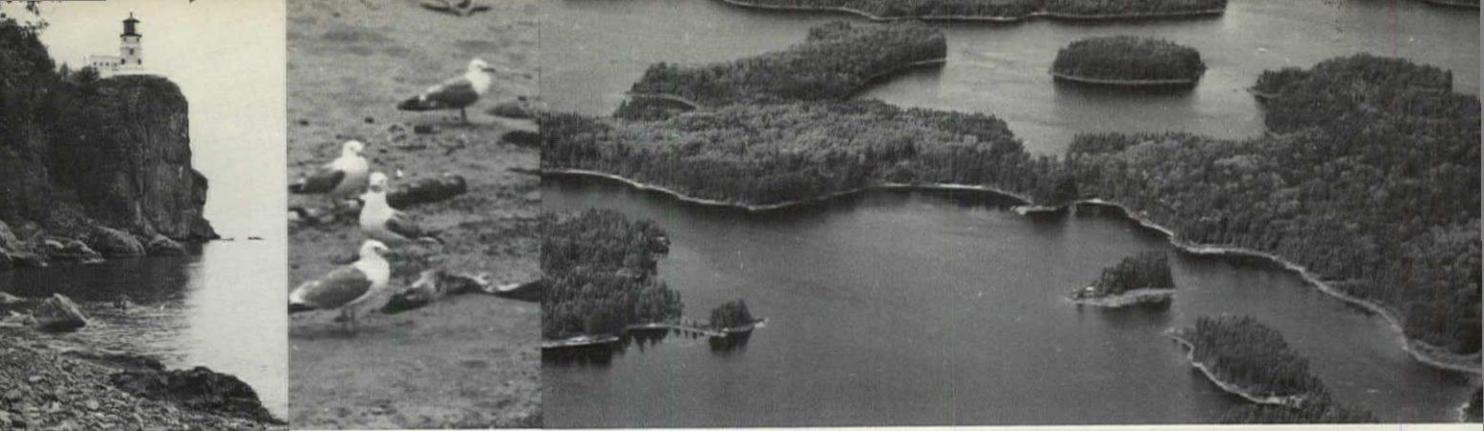
One of the byproducts of the subcommittee's investigations has been my increasing awareness of the possibilities for cooperation between this country and Canada, to link our federal interstate highways with the Canadian highway network and to ensure on these Canadian roads the safety and architectural features that have been built into US highways.

A further thought convinces me that a cooperative effort with the Canadians would be to both

countries' advantages: the additional tourism which would be generated by an alternate scenic route through Ontario and along the north and south shores of Lake Superior. The connections with eastern feeders for routes traversing the upper Great Lakes area are already in use. These are the east-west I-90 and other roads crossing New England and the north-south I-81 and I-95 extending the length of the Appalachians. Northern connections across the Great Lakes and southern Ontario would offer the traveler a welcome choice of scenery and, in the future, the necessary communications link between the east and the developing industrial centers in the Great Lakes region. These highway interconnectors between countries offer a second area for cooperation between countries — architectural design of these highways, so that the traveler has an unbroken experience of good highway and safe conditions.

The alternate east-west routes which would be designed by both nations' architectural talent would receive the eastern flow of travelers at the St. Lawrence, north of Ontario and at Niagara





How long the northern shores of Lake Superior will remain relatively unmolested and unpolluted is anyone's guess.

Falls. From those points the motorist could drive north of the Georgian Bay, electing at the Soo Canal to follow the Great Circle Route either along the northern shore of Lake Superior through Canada or along the southern shore through Duluth. These alternate routes would be longer in distance but shorter in time.

For example, the New York City tourist planning a trip to Yellowstone faces a 2,275 mile, 48-hour drive over the congested Pennsylvania, Ohio and Indiana turnpikes. With appropriate highway improvements between Fargo and the Soo, and on Queens Highway 17 between Montreal and Port Arthur, travel time could be cut to 45 hours though adding 100 miles.

Providing safe highways and beautiful vistas, however, is only one domain where international planning is essential to success. In this country and in Canada we are faced with a problem that with lack of coordinated planning can only grow more serious: pollution of the Lakes. The Great Lakes constitute the world's largest reservoir, containing about 20 percent of the fresh water on the face of the earth, and are the principal source of water for the entire Great Lakes basin. Industrial and municipal water-use in 1960 totaled over 4,000 billion gallons and is expected to triple in 50 years. Water from the Great Lakes now serves 15 million people — in less than 50 years the population of the area is expected to exceed 50 million, with consequent increased demands on the water supply.

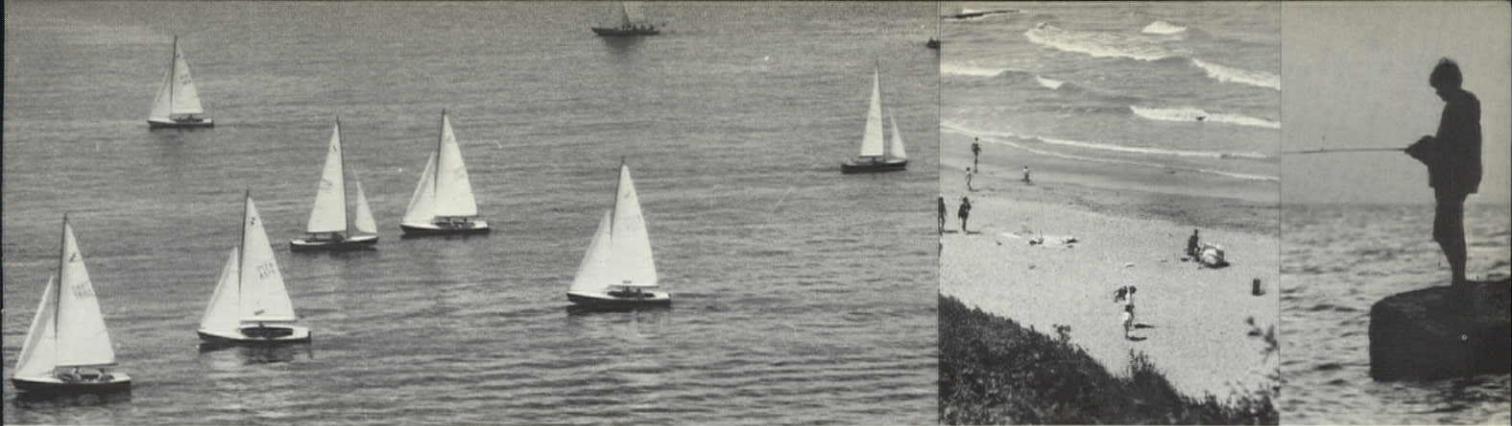
Nevertheless, in spite of these figures, the International Joint Commission estimates that the flow of industrial pollutants from Lake Superior to Lake Huron is in hundreds of millions of gallons a year, and the contamination grows rapidly worse as one moves eastward from Lake Michigan to Lake Erie. Even Lake Ontario is now endangered. What is alarming about these figures is that water supply is a constant, yet our population and use of water continue to soar almost inexorably. In the next two decades we will be using as much water as is now available, and the question is: How can we assure that water supply will keep pace with user demand?

In the Chicago area, six major polluters at Lake Michigan's southern end pour 7 billion gallons of waste a day into the lake; at Detroit, 20 million pounds of contaminant materials are dumped into Lake Erie every day; around the US shore of Lake Erie, around 200 municipal treatment plants discharge 1,470 million gallons of partially treated wastes into lake waters every day; further, 360 industries discharge oxygen consuming waste into the Lake, less than 50 percent of them have adequate treatment facilities.

Such astronomical figures are a source of grave concern for both Canada and the US, and we have undertaken to control this appalling flow of filth into our nation's chief water resource. The Federal Water Pollution Control Act of 1956 created the Federal Water Pollution Control Administration. The basic act, as amended in 1961, authorized certain water pollution control activities, including development of comprehensive water pollution control programs, research, technical assistance, training grants for state programs and the construction of sewage treatment facilities and pollution control from federal installations.

Two recent amendments, in 1961 and 1965, established a new FWPCA, removed dollar ceilings on sewage treatment construction grants, provided for increased federal participation if states enacted grant programs and adopted water quality standards, and authorized an additional 10 percent for any grant conforming with metropolitan or regional master development plans. The new provisions of the act were also designed to strengthen and expand the collective effort in attaining adequate pollution control throughout the country. However, as one wearied expert put it, "You can't clean up half of a lake."

Unilateral efforts are simply not enough. The Lake Erie Report, published in August 1968, indicates that the IJC is presently conducting a study of Lake Erie pollution, to be completed sometime in 1969. It may be hoped that the conditions in Lake Erie will give notice to the commission that the other lakes stand in danger of these same troubles and that unless a program of interna-



Amenities must be protected—sometimes can be created, as with a beach where waves build up sand behind groins.

tional cooperation is undertaken to halt the flow of wastes into all the Great Lakes, both countries will suffer the loss of their chief source of industrial and recreational benefit.

Among the industries based on the water resources of the Lakes, the hydro-, thermal- and nuclear electric industries offer one more area for Canadian-US cooperation. *Public Utilities Fortnightly* stated recently that power imports from Canada could add 7 million kilowatts to the United States power pool, and that 4 million may be acquired by 1980. The objectives of the Canadian policy are to encourage the development of Canadian low cost power sources, and to encourage power exports to the US through grid interties with American utilities. In line with this, efforts are being made in this country to establish regional power pools, thereby providing reliable and plentiful electric power to large areas of both countries at the lowest possible cost.

An example of coordinated planning is Mid-Continent Area Power Planners (MAPP), which numbers 54 member utilities in 10 states and the Canadian province of Manitoba. MAPP states its objectives: "to provide a framework in which electric power suppliers can work together in meeting the tremendous power needs of the future with maximum effectiveness and the best use of human, financial and natural resources." Ultimately, MAPP hopes that this program of coordinated power supply will open opportunities for industrial development by making large quantities of low priced reliable electric power available virtually anywhere in the region.

MAPP's objectives have already proved attainable. In five years, MAPP's membership has grown from 22 power suppliers to 54, who serve the 3,750,000 consumers a combined demand of 12.5 million kilowatts. By 1980 the maximum demand is expected to reach 30 million kilowatts. Manitoba, a hydro-electric power source, is now being integrated into the thermal-electric systems to the south. Manitoba Hydro, the principal power supplier in Manitoba, and three US power suppliers in MAPP have announced plans for

building a 140-mile, 23,000-kilowatt transmission line from Winnipeg to Grand Forks, North Dakota, as the first stage in US-Manitoba power systems integration.

Investor-owned cooperatives have proved successful throughout the US since MAPP's first pilot project. There is every indication that with the development of the Great Lakes area as an industrial and tourist center, similar cooperation between states around the Great Lakes and Canadian provinces bordering on the Lakes could provide the increased power needs for the doubled population and the tripled consumption forecast for the Great Lakes basin of the 21st century.

The names Chicago and Grand Portage were once synonymous with commerce and with a seemingly inexhaustible supply of wealth. The source of that wealth has changed and new sources grew as the flow of beaver pelts ebbed away. In another 50 years, the Great Lakes area will be a vast megalopolis supplying a large number of the demands of civilized America.

But in return the area also demands from us — now. If it is to fulfill its promise, we must see that the Great Lakes are connected to the rest of the continent by an adequate transportation network, not only for commercial use but for the growing number of tourists who will want — indeed need — to get away from the cities, to relax and to return to America's past. It must have water, clean, cool, free from contaminants. Finally, the area will continually demand more electric power, both for the increasing industrial uses that the Great Lakes will attract and for the expanding population which comes with increased industry.

None of these needs can be provided for the megalopolis of the future by this country alone. I can foresee that in the not-too-distant future a body similar in structure to the IJC will function as a planning unit to coordinate programs in this country and in Canada for the mutual economic benefit of both. When that day comes, the "grand design" I have outlined here, will begin to emerge into reality. □

GOALS:

A PROPOSAL FOR PROGRESS



BY THE AIA JOURNAL EDITORS

The Great Lakes, one of the world's outstanding resources, are in grave danger by man's misuse of their waters and shorelines. Indeed, they are endangered to the extent that some authorities admit that the Lakes may be lost forever unless we assess our obligations — right now — to the preservation and enhancement of this resource shared by the United States and Canada.

Perhaps Cleveland's Mayor Carl B. Stokes recited more truth than poetry when he said that Lake Erie, considered to be the most contaminated of the five, "deservedly has the reputation of being the only body of water in the world that constitutes a fire hazard." Speaking to the issue of Erie's cleanup, the Federal Water Pollution Control Administration last fall reported that "it is less a problem of engineering than it is a

problem of diverse, inadequate and unwieldy changing governmental policies, funding and management. The technical engineering methods of waste control are known or close at hand, with the main requirement being only their coordinated application."

As our authors have pointed out, the concern here is much more than the pollution problem. There has been plenty said on the subject in all kinds of media; it is our sincere hope that this presentation, rather than simply adding to the verbiage, has focused on a new dimension to the overall picture.

It is time that the words be translated into deeds, and so the big question arises: How is this to be done? No one has all the answers, of course, but certain guidelines and criteria seem to emerge that could serve as the basis for a program of implementation.

1. Design professionals are among those who share the responsibility of educating the public to an awareness of the resource values of the Great Lakes region.
2. Once aroused, the citizenry can demand action of its elected officials, especially members of Congress, to get a cleanup campaign underway.
3. A concerted effort should be made at all levels of authority to attack, first of all, the problems of the Lakes themselves.
4. The "councils of governments" concept should be utilized more extensively in the region.
5. Any cleanup campaign should involve an

- international commitment for which some workable machinery must be established. (To repeat one author: "You can't clean up half of a lake.")
6. The water itself and shoreline usage have to be dealt with as a total package if environmental quality is to be achieved.
 7. An inventory of resources is a valuable tool for every region, similar to the one undertaken in Wisconsin.
 8. All disciplines involved have an obligation to pool their knowledge and experience if the growing human impact is to be kept in harmony with existing resources. □

PHOTO CREDITS FOR GREAT LAKES SECTION: 51 left — Bureau of Mines, courtesy Great Northern Railway Co.; right — Clair J. Wilson, courtesy Milwaukee Board of Harbor Commissioners; 53 — Chicago Association of Commerce and Industry; 54 above — Cleveland Chamber of Commerce; below — Robert J. Koch, courtesy Buffalo Area Chamber of Commerce; 58 above — Herb Nott & Co., courtesy Perini Corp.; below — U.S. Army; 65 — State of Illinois Dept. of Conservation; 69 left — Nancy Campbell Hays; right — Federal Water Pollution Control Administration, U.S. Dept. of Interior; 70 left — Perkins & Will Partnership; right, 71 — Chicago

Association of Commerce and Industry; 72 — Orlando Cabanban; 74 background, above center, right — Chicago Tribune; left — George Koshollek, Milwaukee Journal; center below — Federal Water Pollution Control Admin.; 75 background — Chicago Tribune; left, center — George Koshollek, Milwaukee Journal; right — Federal Water Pollution Control Admin.; 76 left, center — Upper Great Lakes Regional Commission; right — U.S. Forest Service; 77 left — Buffalo Area Chamber of Commerce; center — Bureau of Outdoor Recreation, U.S. Dept. of Interior; right — George Koshollek, Milwaukee Journal.

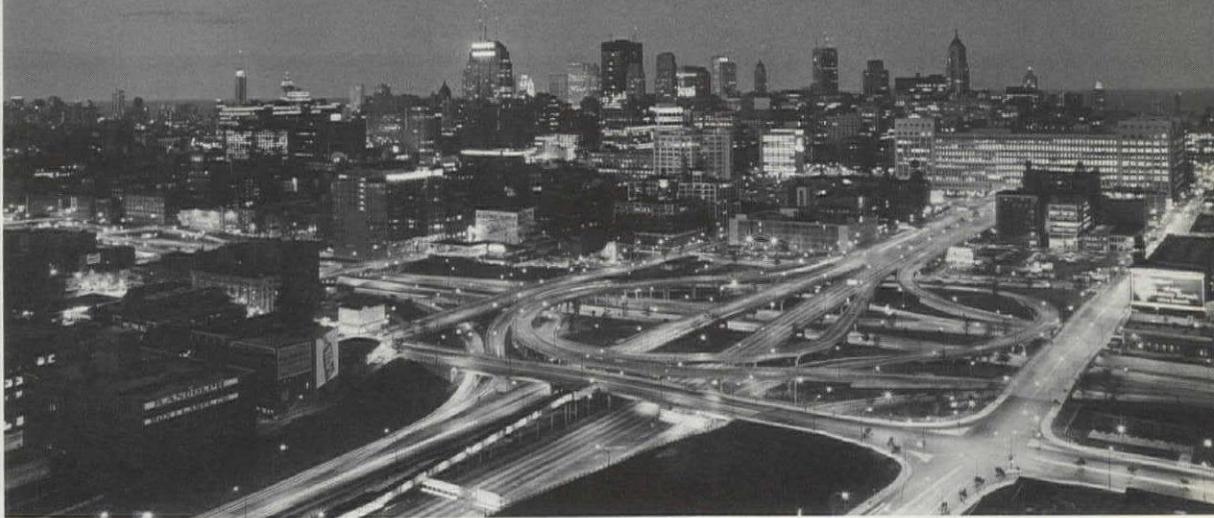


The significance of this convention lies in where and when it is happening and in its potential for action toward change. It is taking place at the crossroads of our continent. It is taking place at a time when the future for architecture in terms of professionalism and technology never were more uncertain. It is taking place at a high point in international concern over changing values and the need for drastic social and other reforms. The convention has been planned and designed to FOCUS attention on cities, on practice, on technology and history, and on architectural/social problems, all in need of solution NOW. If the convention stimulates immediate constructive action for drastic change where it is found necessary, it will achieve its greatest significance.

N. H. McMURRICH, FRAIC
President

Royal Architectural Institute of Canada

Chicago '69



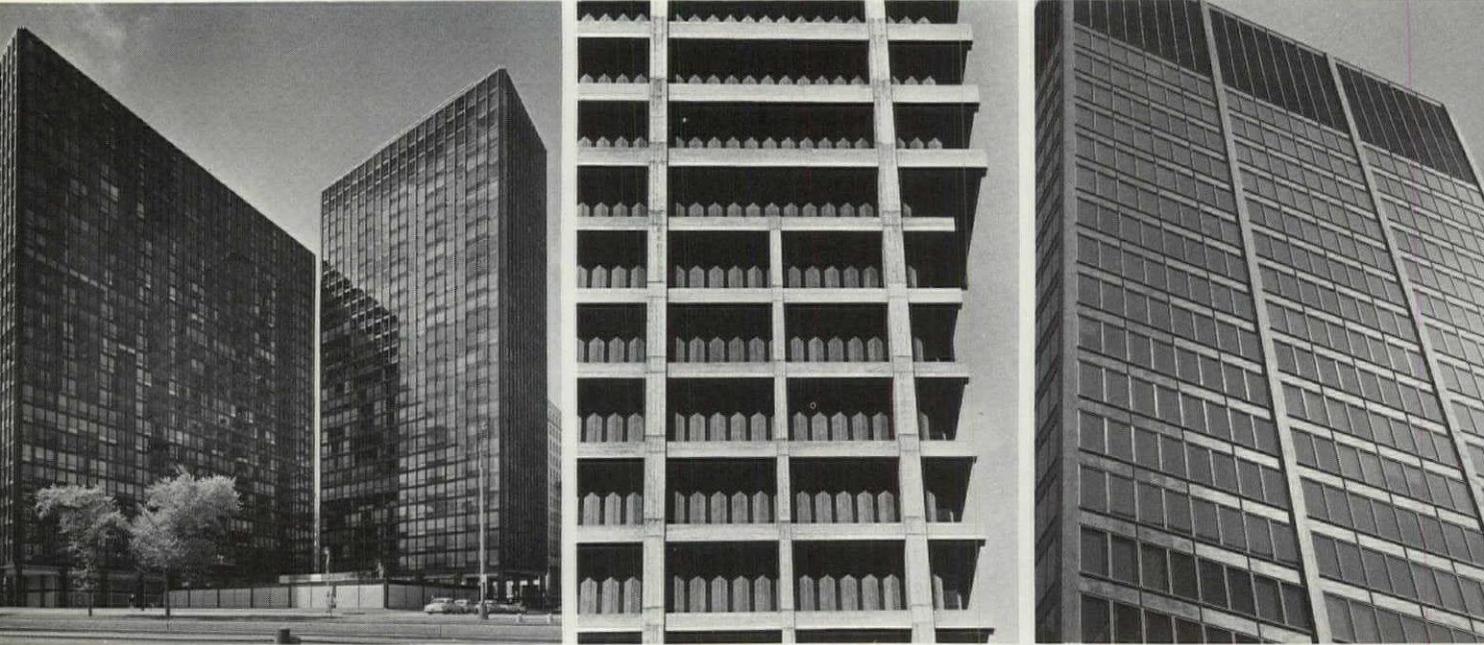
The Great Lakes tie our two countries together and provide an opportunity for concerted action in saving and improving them for future generations. It is most appropriate that the RAIC and AIA hold their first joint convention on the shores of one of its Lakes. Today, any political boundary, whether lake, river, county, city, state or nation, does not stop traffic congestion, air and water pollution and other environmental problems. Fortunately, it is increasingly possible to look at an entire area and find solutions rather than, as formerly, to be restricted to political jurisdictions and arrive at piecemeal cures. This joint convention is welcomed as a step toward mutual concern and action in strengthening and improving this vast inland waterway so vital to both countries.

GEORGE E. KASSABAUM, FAIA
President

The American Institute of Architects



New Chicago School: Old Principles Renewed



BY CARL W. CONDIT

As all the building world must know today, Chicago created modern urban architecture well before the turn of the century, and for three decades the architects explored the functional and esthetic possibilities of their own creation so thoroughly that they ultimately developed a new architectural style. The underlying principles of the Chicago movement were broad enough to give the architect great

The author: Mr. Condit, one of Chicago's most respected historians, is professor of art and history of science, Northwestern University. His book titles include *The Chicago School of Architecture* (1964) and *American Buildings: Materials and Techniques from the Rise of the First Colonial Settlements to the Present* (1968).

latitude in the design of individual buildings, but they were also precise enough to give rise to a coherent body of work clearly expressing the philosophy from which it grew.

The first principle was the most important: A building had to be designed in such a way as to satisfy all the economic, utilitarian and environmental requirements of the completed functioning structure. Given the space available, the

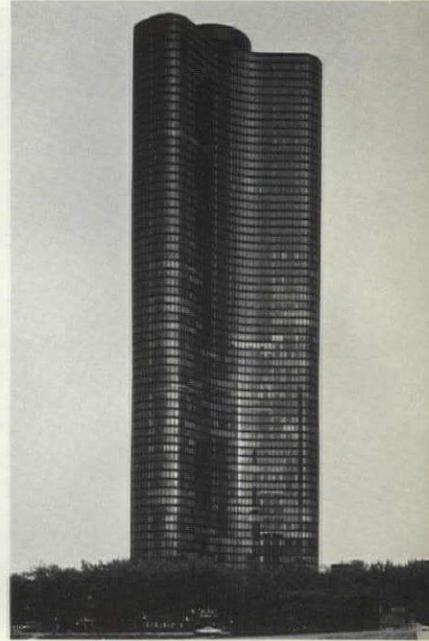
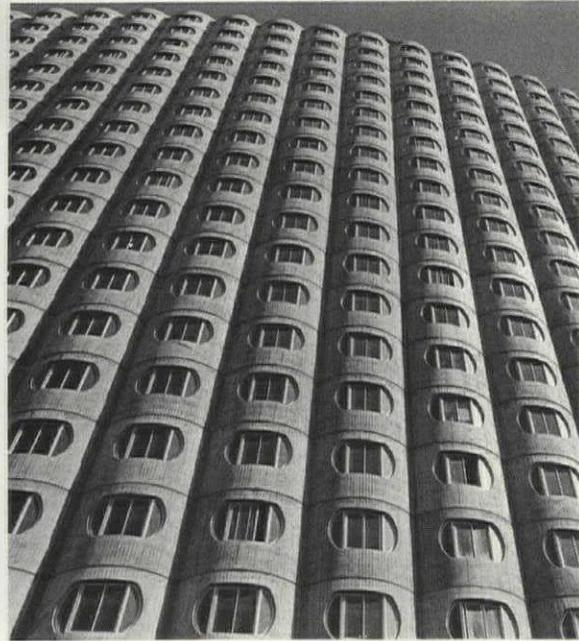
location, the needs and resources of the owner, the architect's task was to plan the building so as to secure these results to the fullest possible degree and with the utmost economy. His engineering associate, at the same time, had to design a supporting structure that would embody most efficiently, safely and durably all the features of the plan and all the uses to which it would be put. For a high building, this structure would most naturally be a steel or reinforced concrete frame carrying all gravity loads and adequately braced against the wind. The last step in the process was the design of an external form which was to grow organically out of the functional demands and the structural solutions, and to express these characteristics in its overall appearance and in the detailed pattern of its elevations.

Out of this organic approach imaginative architects like Root, Sullivan and Wright, concerned with esthetic and emotional possibilities as much as functional, could create an astonishingly rich vocabulary of forms. But even the sober designers of office towers and apartment buildings, working within a strictly empirical tradition, could produce a remarkable range of variations on the essential theme of functional and structural expression.

The original Chicago School was temporarily forgotten following its death about the time of World War I, but by that date similar movements had begun to grow in Germany, Holland and France. The architectural forms that emerged from them, imported into the United States beginning about 1930, became the basis of what we always think of as modern architecture in this country. The combination of depression and war delayed the renewal of building on an adequate scale both in Europe and America until about 1950. Since then, under the impetus of the long postwar building boom, contemporary architecture has passed through such a bewildering succession of formal experiments as to leave us in nearly as much chaos as we knew during the final phase of eclecticism in the 1920s. As both the volume of building and its diversity increased, however, certain dominant tendencies began to emerge.

The most clearly discernible of these new movements — and the most impressive for the high quality of its work — is the revitalization of the Chicago School in the city of its origin. The new Chicago School began to flourish about 20 years ago and has gathered momentum ever since. Moreover, of all the currents and countercurrents that characterize the archi-

The only renaissance "that has grown directly out of a native American building tradition, out of the mainstream of high-rise structural technology."



ecture of our time, the Chicago renaissance is the only one that has grown directly out of a native American building tradition and hence out of the mainstream of high-rise structural technology. The new Chicago School represents a renewal of the principles of the old school in ways that are appropriate to contemporary urban needs and that reflect the technical progress of the past half century.

The renaissance began in 1938, when Henry Heald, the president of Armour Institute of Technology, invited Ludwig Mies van der Rohe to become chairman of the Department of Architecture at what was shortly to be the Illinois Institute of Technology. By the end of World War II, Mies had created the original campus plan of 17 units (unfortunately disfigured by later unplanned expansions) and had designed three research buildings, of which the Alumni Memorial Hall (1945-46) is the best. Certain characteristics of this building, most notably the exact rectangular geometry of welded steel set against glass, were to appear with variations in every subsequent design. Many more buildings were to follow at IIT before Mies's retirement in 1958, but by this date he had embarked on a prolific career that was to transform the skyline of Chicago.

Under the sponsorship of Sam-

uel Katzin and the late Herbert Greenwald, Mies became the chief designing architect of a long series of apartment towers scattered along the lakefront parks and boulevards from Diversey Parkway to Jackson Park. The first of these is Promontory Apartments (1948-49), on South Lake Shore Drive near 56th Street, which is least in the Miesian character but most prophetic of the revival to come.

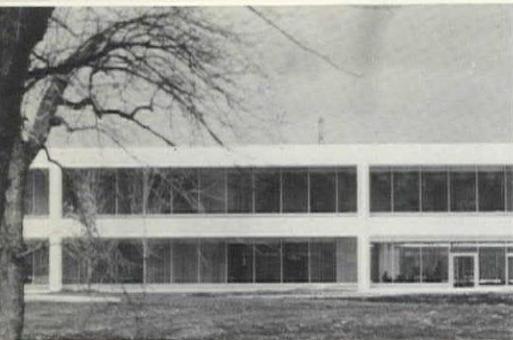
The 22-story Promontory is carried on a reinforced concrete frame, with the outer columns and girders exposed in all elevations. In the facade the columns stand out from the main wall plane, providing a continuous upward movement that overlies the horizontal bands formed by the windows, the narrow brick spandrels and the peripheral girders. The articulated or cellular wall provides an exact and carefully proportioned revelation of the basic structure and of the major elements in the protective curtain of brick and glass enclosing the building. Walls of this kind, made up of rectangular cells defined by the outermost columns and girders of the frame, constitute the distinguishing visual feature of many buildings of the original Chicago School.

But Mies has found the sharp-edged clarity of steel framing more congenial than the heavier forms of concrete, and he has seldom been

Part of a renaissance: Esplanade Apartments; University Hall, Illinois' Circle Campus; Continental Center; Marina City towers; Hilliard Center; Lake Point Tower.

satisfied with the unadorned structural statement of the Promontory building. In his most famous commission, the glass towers at 860-880 North Lake Shore Drive (1949-52), he first used the finely drawn vertical tracery of steel (sometimes in aluminum in later work) that has been the hallmark of most of his buildings since. The two at 860 Lake Shore are constructed with a welded steel frame, the outer steel covering of which appears in all four elevations of both buildings. Overlying this structural revelation is a vertical pattern composed of steel I-beams welded to the steel plate and rising continuously up the height of the building. These vertical elements serve as mullions and to provide rigidity to the prefabricated wall elements during construction, but otherwise they have no structural function. Their esthetic purpose is to provide on a smaller scale a more delicate expression of the spatial geometry and the mathematical rigor of scientifically calculated steel framing. This simple device adds an element of visual drama to the sober elegance of these buildings.

The vertical division of glass



Old School revived: UAL Center

walls combined with direct structural expression reached its greatest clarity in Crown Hall at IIT (1955-56), designed by Mies to house the university's departments of architecture, planning and design. The primary structural elements of this building are four welded rigid frames prominently exposed outside the walls and roof of the enclosure. There are no interior columns: Crown Hall is a single undivided room in the form of a transparent prism. The surfaces are rhythmically divided by the mullions that lie between the true bearing members of the supporting frames.

For subsequent apartment and office skyscrapers, however, Mies has relied for visual effect on the simple pattern of vertical tracery overlying the narrow horizontal bands that mark the lines of the peripheral girders. The largest and most impressive work is the Federal Center, now being constructed in slow stages on both sides of Dearborn Street between Adams and Jackson. Associated with Mies on this huge project are three of the largest architectural firms of Chicago: C. F. Murphy Associates, A. Epstein & Sons and Schmidt, Garden & Erickson. The 30-story courthouse was opened in 1964, but the General Services Administration has delayed the construction of the 45-story office building and the low post office structure.

Among the architects of steel-framed buildings, Skidmore, Owings & Merrill have been most influenced by Mies while they have at the same time retained the mark of their own particular abilities. The first of their big Chicago commissions is the Inland Steel Building (1955-57) at Monroe and Dearborn Streets, one of the earliest steps in the postwar revitalization of the Loop. The main supporting members of the Inland building are seven pairs of columns lying wholly outside the planes of the long elevations. Extending between

them by means of welded connections are the 58-foot girders that carry the beams and the concrete slabs of the individual floors. This primary structural system can be clearly read in the end elevations of the building, although we see only the stainless steel sheathing surrounding the fireproof cladding of the supporting members themselves. Over the green-tinted glass and the narrow steel panels at the floor lines is the Miesian tracery that expresses in its finely drawn pattern the essential geometry of this massive welded steel frame.

Two recent buildings by SOM reveal the same combination of structural statement and vertical tracery in a more conventional system of column-and-girder framing: the Equitable Building (1963-65), on Michigan Avenue at the River, and the two Gateway Center buildings, over the Union Station tracks between Madison and Adams (1963-65, 1966-68). The sharp-edged clarity of these articulated walls of glass and metal again expresses the mathematical exactitude of the underlying steel frame.

The spirit that Mies brought to Chicago also flourishes in the work of a new generation of his IIT students. Most conspicuous in this category is Lake Point Tower, the curving three-lobed, glass-sheathed skyscraper on East Grand Avenue designed by Schipporeit-Heinrich, Inc. as the world's highest reinforced concrete building. More modest but equally impressive is David Haid's Abraham Lincoln Oasis, spanning the Tri-State Tollway near South Holland, an amber-glass prism carried over the expressway by a weathering steel frame. Both these structures were opened in 1968, a very productive year for building in Chicago.

Pure articulation, in which the external walls take their form directly from the underlying steel or concrete frame, is closer to the original Chicago tradition. This feature is best exemplified by Sullivan's Carson Pirie Scott Store, the classic of the Chicago School and America's greatest work of commercial architecture. Its modern counterparts in steel construction are the Continental Center (1961-62) at Wabash and Jackson, and the great Civic Center (1963-65) on the block immediately east of City Hall. C. F. Murphy Associates were the architects of both buildings, but associated with them on the latter project were Skidmore, Owings & Merrill and Loeb, Schlossman & Bennett.

The Continental is another building without interior columns, made possible in this case by the U-shaped plan around the utility core and by the unprecedented column spacing of 42 feet in both directions. These wide bays are presented to us in full sweep in the street elevations. The inherent power of this big-framed building, so expressive of the Chicago spirit, is intensified by the flat black paint on the outer steel covering and by the rough-textured granite of the lobby floor and the sheathing on the elevator bays.

The Civic Center is a unique building in so many ways that one can hardly do justice to it short of an extended treatise. It is the first municipal building to be designed in the modern style and the first, at the same time, to spring from the local building tradition. The overwhelming visual feature of the tower is the great size of the individual parts: base height, columns, windows, bay span. Their size is so much greater than what we are used to even in a skyscraper that our ideas of scale is revolutionized.

The chief problem in planning the center was the need to accommodate courtrooms, hearing rooms and other large public enclosures throughout the height of the building. These necessitated a maximum open interior space and a very generous ceiling height. Instead of trying to hide these awkward necessities, the architects boldly accepted them as the primary motif in their design. They fixed the ceiling height at 12 feet and planned to carry all floor and roof loads, except those at the elevator shafts, on 16 columns. These factors established the distance between successive floors at 18 feet and the bay span of 48 feet on the short elevations and an unheard-of 87 feet on the long ones.

This vast cage of columns, floor trusses and spandrel panels, with the broad bands of amber-tinted glass, is presented to us with the quiet assurance, the simplicity and the dignity that characterize the greatest works of architecture.

Except for Promontory Apartments and Lake Point Tower, all the buildings so far described are of steel-framed construction, a fact that is clearly indicated in their external appearance. The architects of the new Chicago revival, however, have worked equally effectively in reinforced concrete, producing in it their most novel and spectacular forms. In the rectilinear geometry of framed con-

struction the field has been dominated by SOM. The Hartford Building (1959-61) at the southwest corner of Monroe Street and Wacker Drive, offers a forceful revelation of column-and-flat slab framing. The thin-edged slabs and the haunches that take the high shearing stresses at the columns stand out with maximum clarity because of the functional and esthetic device of setting the glass curtain wall well back from the granite-sheathed surfaces of the outer structural members.

One of the few examples in the Chicago area of prestressed concrete framing is the Administrative Center of United Air Lines (1960-61, 1966-67) on Algonquin Road in Elk Grove Township. Another product of SOM, the center consists of a pair of two-story buildings with 66-foot bays and an eight-story training center built to the same module. Without the increased strength derived from prestressing, girders of this span would have had to be cast in an unmanageable depth. Again, the device of setting the glass plane back from the outer structural members has the effect of combining the massive quality of the deep concrete girders with the open, sharp-edged rectangularity of framed construction. The great horizontal elongation of the UAL buildings is appropriate to the level sweep of their prairie setting.

By far the largest and most complex work of reinforced concrete construction in the Chicago area is the Chicago Circle Campus of the University of Illinois. Designed by the SOM staff, Phase 2 of this vast project is currently under construction, the first having been completed in 1965. Although buildings are separated by function and hence by form, they are brought into a harmonious relationship by a number of factors: the elevated walkway that ties the campus together from end to end, the use of a uniform strength of concrete throughout and the geometric discipline imposed by the column-and-girder framing.

Within the general structural system there are many variations. The small classroom buildings are constructed according to a traditional system of framing in columns and beams. The library and the student union (the latter by C. F. Murphy Associates) are built with long spans requiring deep, massive girders. The lecture rooms, which are in the shape of circular sectors under the elevated

plaza, are supported by radial girders because of their peculiar form. This structural pattern is repeated in the radial bands of concrete marked off in the plaza surface by means of a change in the texture of the material.

The Science and Engineering Laboratory is the unique structure. The roof is carried on a steel grid without intermediate supports, in turn resting on 60-foot high columns of concrete set outside the brick walls of the long elevations. With 28 floors, University Hall, the faculty and administrative center, is the most conspicuous building on the site. Again the structural system is clearly visible, but it reveals a novel variation on the traditional form: Instead of increasing the size of the column to take the increasing load from top to bottom, the architects increased the number of columns. At the 16th floor the bay is split and another column is introduced at the midpoint; at the eighth floor the halves are split again and two more columns inserted in the half bays. At the third floor the whole system comes to rest on a rigid rectangular framework of simple and massive construction.

Everywhere on the Chicago Circle Campus materials, colors and textures have been chosen with the closest attention to scale and harmonization. The entire group may seem bewildering in its size and complexity and many details have made it highly controversial; yet it represents a heroic effort to use structural science and the most exact detailing to impose harmony on the necessary diversity of shape and function.

The leading American invention in recent concrete construction is the load-bearing screen wall, developed in 1959 by the office of I. M. Pei and the structural engineer August Komendant. The initial use of this densely patterned framework — the modern counterpart in concrete of the cast-iron fronts of a century ago — came in two apartment projects, the Kips Bay Plaza Apartments in New York and the University Apartments on 55th Street near Harper Avenue in Chicago (both 1959-61). The Chicago architects Loewenberg & Loewenberg were associated with the Pei firm on the Chicago project. The bearing-screen wall offers a number of advantages: uniformity of openings and column spacing in the elevations; the combination of a bearing structure with the openness of the curtain wall; and the



Old Town updated: W. Eugenie St.

inherent economy of concrete construction in which the repetitive pattern of small elements makes possible the repetitive use of easily handled forms.

In the University Apartments the concrete structure is directly presented in all the elevations, the high-density concrete itself providing the finished surface. The external walls obviously bear on the widely spaced columns of the base and are combined with a conventional system of interior columns designed to take the inner floor loads. The esthetic virtues of the bearing-screen wall are apparent in the long narrow blocks of the University Apartments. The lightness and openness of the glass curtain are associated with a strong pattern of light and shadow made by setting the windows deeply in their concrete embrasures, while the concrete members themselves, through their substantial material forms, add a sense of strength and durability to the otherwise brittle curtain.

The structural system offering the maximum efficiency and open space is the one in which all floor, roof and wind loads are divided between the relatively light external frame and a concrete core of solid shear walls. This combination of hollow box and open cage first appeared in the Brunswick Building (1963-65) facing the Civic Center Plaza at Dearborn and Washington streets. Another creation of the prolific SOM office, the Brunswick compels attention even in the brilliant architectural display that marks the downtown length of Dearborn Street. The rigid cagelike frames of concrete carry their load down to a gigantic distributing girder that extends entirely around the building at the level of the second and third floors. This girder in turn carries the load of the cage walls to the 10 massive columns at the base of the building. The distributing girder was required by the decision to open

the base to the maximum possible degree in order to balance the open sweep of the Civic Center on the north side of the plaza and by the need to minimize the number of caissons. Again, faced with the necessity of drastically altering the traditional building scale, the architects made no attempt to hide the fact but boldly displayed these huge structural forms where everyone can see them.

Of all the buildings recently erected in Chicago — or any other city, for that matter — none has captured the popular imagination more completely than the towers of Bertrand Goldberg's Marina City (1960-64; the entire project opened in 1967). The sheer novelty of the forms, thrown up against the sky on a scale that was scarcely thought possible a decade ago, provides a vivid demonstration of Chicago's great building tradition at its best.

The individual tower consists essentially of a solid-wall cylindrical core surrounded by two rings of columns, the core and columns together carrying the helical ramp of the garage and the level apartment floors above it. Goldberg originally planned to build the towers in the core-and-cantilever form, but for buildings of this size the radial girders would have been so deep as to require a prohibitively expensive addition to the vertical space at each floor. The consulting engineer, Fred Severud, recommended the addition of the two rings of columns in order to reduce the size of the girders and to provide a more uniform distribution of loads on the caissons. The columns, the radial girders and the archlike beams that carry the slabs between the girders are all visible at the garage levels, while above them the structural system recedes behind the repetitive flower-petal forms that add to the cylindrical envelope a rhythmically changing sequence of semicircular shapes.

Goldberg's imagination and his enthusiasm for cylindrical structures found further expression in the novel forms of the Chicago Housing Authority's Raymond Hilliard Center at State Street and Cermak Road (1964-66). Two of the four buildings are complete cylinders in overall outline, and two are segments of a much larger cylinder. However similar in shape to the Marina City towers, the Hilliard buildings are nearly the opposite in construction. In the CHA group the solid external walls are

the primary bearing elements, supporting the girders that carry the interior floor loads and poured with the oval window openings in place. The scalloped shape of the walls is dictated more by structural necessity than by esthetic choice, although it adds considerably to the visual interest. The repetitive curves impart the rigidity that the thin wall sections would otherwise lack.

A body of work that seems far removed from the ruling style of the big commercial and public buildings, but which springs from long-established Chicago principles, is that of Harry Weese Associates. The Weese commissions have been smaller than the great towers and blocks of the Loop, and they have been marked by a warmth of texture and an intimacy of form that show great sensitivity to the occupant's feelings. Apartment houses and schools particularly witness this special talent.

One of the most pleasing features of the apartments and hotels of the original Chicago School was the projecting bay or oriel window, designed to admit the maximum amount of air and light to the individual rooms. Harry Weese revived the principle most skillfully in the design of the small apartment building at 227 East Walton Street (1954-55) and again in Fewkes Tower, an apartment building for retired school teachers at 838 North Dearborn Street (1965-67). The problem in both cases was to open the wall as much as possible on narrow lots and streets while preserving the scale and privacy of the densely built neighborhoods. The most ingeniously planned of the Weese apartments grew out of the need to adapt contemporary architecture to the Victorian charms of the Old Town environment. In the building at 235 West Eugenie Street (1961-62), the architects combined town houses and apartments in a single structure, preserving and even enhancing the quality of the community in a thoroughly modern and functional design of brick bearing walls and bay-wide windows.

Two skyscrapers still under construction in the city's core will literally carry Chicago building to its highest point and reveal its greatest constructive power. The First National Bank Building stands at the exact geometric center of the Loop. The product of a collaborative effort by C. F. Murphy Associates and the Perkins & Will Partnership, the vast building towers

850 feet above the south side of Madison Street between Dearborn and Clark.

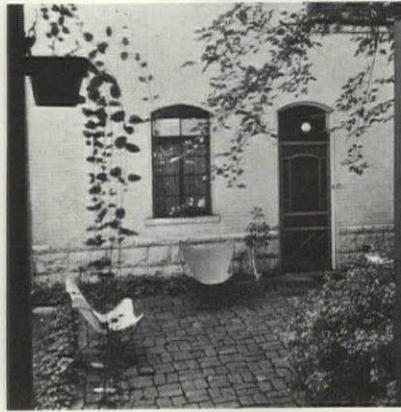
The main columns of the frame stand outside the wall planes of the long elevations, where they curve gently inward from the base to the 42nd floor as the floor area gradually contracts from the public banking space at the lower levels to the leased office space on the upper. As one of the designing architects points out, the inward-curving form, the external columns, the vigorously articulated walls and the separation of servant areas in the end wings express both function and structure in a single unified design. The external form of the First National places it squarely in the main Chicago tradition, since its primary visual impact is derived from the steel frame that underlies its sweeping curves and subordinate pattern of horizontal spandrels.

Higher still than the First National is the Hancock Center, going up on North Michigan Avenue at Delaware, where its 1,104-foot height dwarfs the once proud Palmolive Building. Unique in its shape, its planning and its prominently displayed structural system, the Hancock is another creation of the experimental spirit pervading the SOM office. The building is a megastructure (or microcity, from the opposite perspective) and the first to combine office, store, recreation and apartment space in a single enclosure. The need for greater floor area at the base than in the upper stories accounts for the tapered form, but in the Hancock the outer columns lie on straight lines rather than curves. The most striking feature is the location of the bracing members of the steel frame outside the glass envelope of the shaft. The long diagonals, like a row of huge X's, represent a revival of the braced iron-frame tower developed for bridge supports, particularly the form created by Gustave Eiffel, which became the chief antecedent of his celebrated tower in Paris.

The finished Hancock Center will be Chicago's most potent example of how the laws of structural science and hence of nature itself may constitute the fundamental principle of architectural form. And so we come to the fresh realization of an idea that was born in Chicago 80 years ago when the first masterpieces of a new architecture began to emerge from the chaos and confusion of 19th century building. □

Old Chicago Charm: New Values Found

Old Town has gone through several waves of construction, but its quaint atmosphere has weathered them all.



BY WILLIAM T. SPOONER

As long as you're within hearing distance of the bells of St. Michael's Church on the corner of Cleveland and Eugenie, you're in Chicago's Old Town. Or so the saying goes.

Just north of the Loop, abutting Lincoln Park and the Lake, Old Town was settled by German farmers in the middle of last century. During the 1850s and '60s the area was known as Cabbage Patch. Along with other land extending from North to Fullerton Avenues and from the north branch of the Chicago River to Lincoln Park, it was annexed to the city in 1851.

After the big Chicago fire, Old Town was soon re-established as a respected neighborhood. Balloon-framed cottages sprang up right away to house distressed families, but along with them, practically on the hot ashes, rose the Victorian two- or three-story attached or semiattached masonry houses that give Old Town its atmosphere. Even a wave of construction during the first quarter of our century — mostly of nondescript apartment hotels and garages — could not

ruin the quaint quality of Old Town.

But shoddiness began to creep in, and in 1948 a group of North Side Chicagoans formed the Triangle Association, an organization dedicated to improvement of the neighborhood. Its name and turf derived from a World War II unit of the Chicago Civil Defense System that was responsible for a triangular area of land bounded by North Avenue, Clark Street and Ogden Avenue.

Soon after its formation, the association began to sponsor annual summer art fairs to raise funds. The fairs became so successful that the members, feeling obligated to gussie up the association's identity, added the words Old Town to its name — and the process was started that was to transform a deteriorating piece of North Side real estate into a nationally recognized and accepted urban myth.

The sensitive, ingenious and talented residents of Old Town —

Triangle Association holds annual art fairs in Old Town; shops, restaurants and galleries abound.

among them painters, sculptors, writers, architects and professors — rehabilitated their homes, planted their streets with flowering trees and set in motion the political vibrations that initiated the first phase of one of Chicago's most successful urban renewal programs.

The superb quality of Old Town — of its architecture, that is — is that mix of building techniques, skills and styles categorized as Victorian. It was brought to the midwest and Chicago in the form of row houses and French flats by way of a historic national route that meanders in space and time

The author: Mr. Spooner, an architect who practices in Chicago, is an enthusiastic Old Town resident.

across the old Northwest Territory to the older eastern cities, Boston, New York, Philadelphia, Baltimore and, still earlier, to the English Renaissance, to the Gothic and to the French.

Old Town architecture was constructed of brick and northern white pine by immigrant masons and carpenters who took pride in their skill and craftsmanship. They had a talent for creating good urban architecture.

Their talent was related both to economics and tradition. Land was dear and lots were narrow, so buildings were attached to each other or built with only minimum spaces in between. The ordered blocks in Old Town are unified, coherent elements. Vertical surfaces are high enough to read as facades, low enough to permit a view of the sun and the sky; their proportions and forms indigenous and traditional at the time. Building scale is well related to the tree-lined streets and the small green or paved front yards, admirably proportioned to man. There is about Old Town a sense of community which has much to do with the scale of its buildings.

Old Town Victorian houses not only provide physical shelter; they nurture the spirit. There are high, narrow living rooms with views to the street through tall, slender windows; white pine shutters for privacy; fetching wood details such as in window hoods; marble and iron fireplaces; wrought iron entrance doors and stair balustrades; secluded terraces; mellow brick; carved stone window details. There is intimate charm; there is quiet dignity.

Victorian builders used common materials and details and thus es-

tablished an enviable architectural coherence. Almost all Old Town Victorian buildings are wood, brick or Joliet stone with combinations of stone, iron, large sheets of glass and, occasionally, stucco. Though unified by similarities of height, width, window and door dimensions and of coping, subtle, inventive, decorative and, sometimes flamboyant, variations differentiate one structure from another.

In one place, a porch is protected by a low pipe rail; in another, by a uniquely wrought balustrade. Here, elegant tall paneled doors support carved wood figures; there, delicately cut scrollwork edges the roof of a sheltering entrance porch. Still another place, handsomely curved brackets support a gallery.

Old Town is enhanced by its many dead end, one- and two-block streets which provide ever changing views and give dimension to the streetscape. Also, they cut down auto traffic. (Way back when, one Old Town street was blocked to horse trolleys when residents found them too noisy.)

In spite of the efforts of Triangle Association, a number of buildings in Old Town have been injured by stylistic razzmatazz. The destroyers of wood and brick houses have often been thoughtless commercial adventurers who, in their attempt to one-up the Victorian builders, have introduced awkwardly tall street numbers, colonial shutters, multipaned windows, grossly sized gas lamps, shutters à la thatched roof cottages and simulated New Orleans ironwork. Of new construction there is little.

Talented and ingenious — but not always sensitive — realtors have recognized the fruits to be picked from the plantings of the renovators and, as a consequence, values have soared. Prices that the Triangle Association once would have thought shocking are now usual.

Economic diversity and diversity of use, once two of the vitalizing elements of the Old Town, have all but disappeared. Commercial Victorianism (manufactured from aluminum and plastic) and go-go styles on Wells Street have produced one of the most wildly improbable street scenes and combinations of commercial uses in the city.

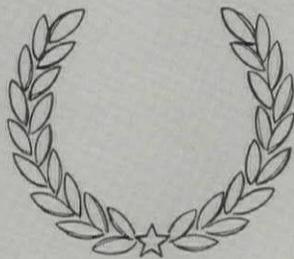
But fortunately, many Old Town buildings have been well maintained and retain their original character. Many property owners have learned — and mastered — the art of long-term care of worthwhile buildings. □



The wrought iron door above is attributed by some to Louis Sullivan; the doors below have wood carvings.



The 1969 Honor Awards



Report of the Jury

Arch R. Winter, FAIA, Chairman
Ray D. Crites, AIA
Archibald C. Rogers, FAIA
Hugh Stubbins, FAIA
William Turnbull Jr., AIA

Despite the somewhat smaller proportion of the 1969 Honor Awards (16 out of 465 submissions this year as compared with 20 out of 377 last year), one conclusion came through most emphatically to the jury: The quality of the submissions is higher than it has been for many a year. This is true from almost any point of view. Typical comments by jurors:

• "In a substantial number of entries, there is clearly seen a vigilant awareness that a building must intelligently reckon with its surroundings."

• "I was impressed by what should be a basic necessity of architectural work: quality."

• "Among the large number of entries this year, there was much more pervasive excellence, the highest level of competence."

Although the Honor Awards program in recent years has been open to buildings of all types, this year a special effort was made to encourage the entry of urban design projects and historic preservation or restoration projects. Admittedly, results were uneven, but those that were good were very, very good: There were 27 preservation or restoration entries (against only one last year) and approximately 20 that might be cataloged as "urban design."

The charge to the jury — to evaluate each entry on its own merits, the decision to be based on how well it answers its own problem rather than by comparison with other entries — was followed faithfully. Examination and analysis of each entry was necessarily limited to the material submitted. One member of the jury observed that often "the entries are selling themselves short by not presenting material that is as good as the buildings themselves." The jury also considered it within its province to take into account the social, often public, value of a building, as well as its response to the programmatic requirements.

This year, for the first time, the "visitations" recommended

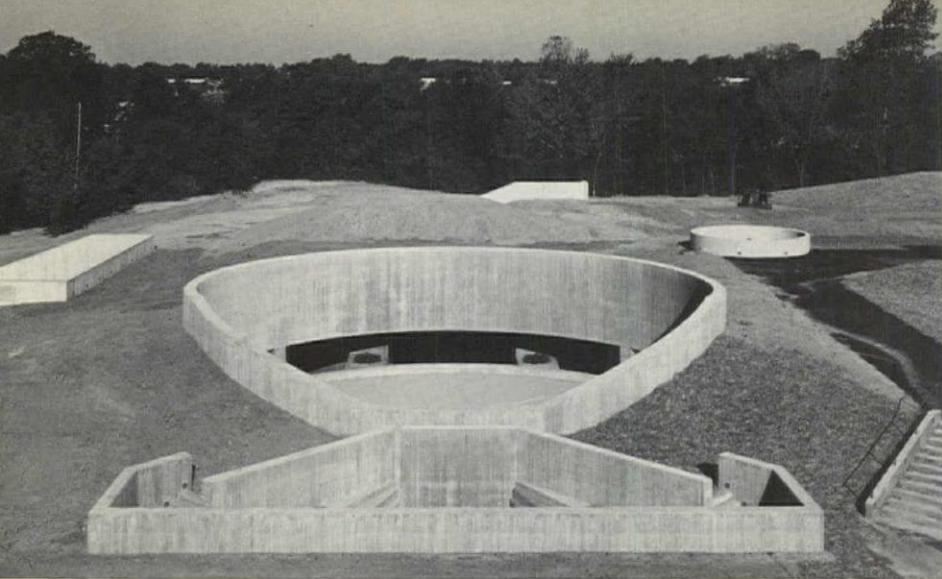
by the AIA Committee on Design were employed. In the past, various attempts were made to insure that an entry lived up to its presentation. But this year, prior to final selection, every building not already personally known to at least one member of the jury was actually visited by a member of the jury. A report was then made as to whether the project had been pictured accurately and whether the actual "experiencing" of it had been conveyed. It is hoped that this practice can be extended in future Honor Awards programs to include inspection of all near-award projects as well as those tentatively selected.

Certain changes in the Honor Awards program requirements are anticipated. The suggested changes flow from the experience of the 1969 jury which, in turn, reinforces previously made suggestions of the Committee on Design. In the main, these deal with the mechanics of preparing entries (i.e., that the immediate surroundings *must* be pictured and that any entry which does not contain a photograph of the neighborhood or a "view from the front door" will not be accepted).

Such changes have compelling reasons. Knowledge of a building's milieu is vital, the jury felt, in judging the way in which the project fits into its environment. This does not mean that an entry will be downgraded because it has humdrum, claptrap surroundings, but rather, that it must enhance and not offend the environment of which it is a part.

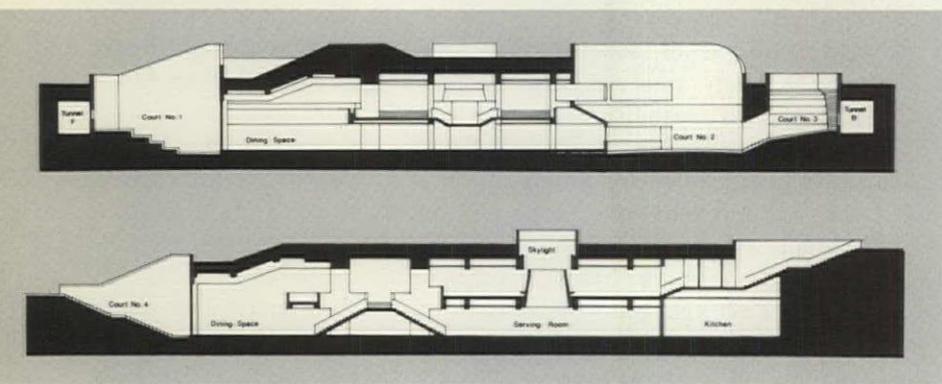
One other increasingly important issue is that of urban design: The nature of an entry, by whom the entry is made (architect, team or other) and the time limitation for execution are considerations. While the individual views of the members of the jury varied, it was the consensus that it is the design, considered in conjunction with the planning or social characteristics of an entry, that is the central point.

Here lies the heart of the issue.

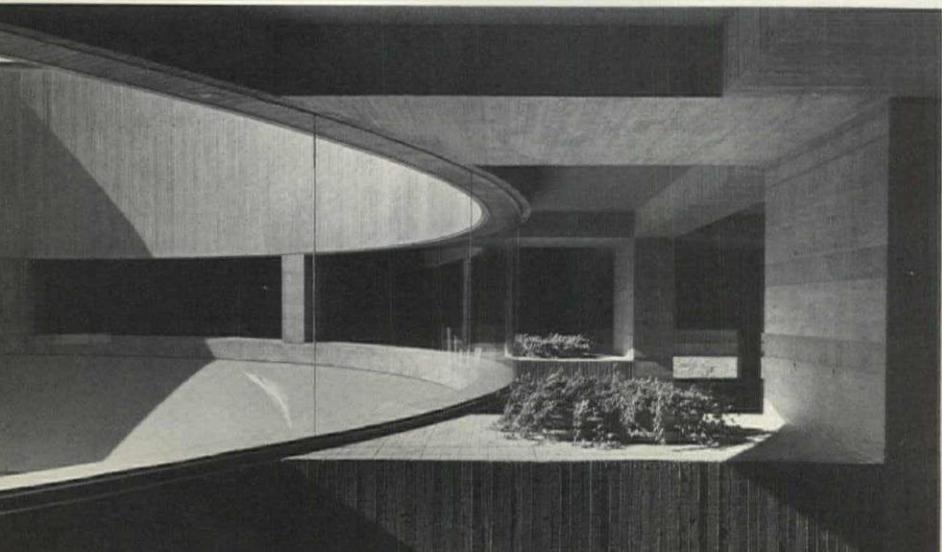


Vincent G. Kling & Associates

**Monsanto Company Cafeteria
St. Louis, Missouri**



The problem: to create an employee cafeteria of 35,000 square feet while preserving open space and a courtyard formed by a complex of new office buildings; to complement the formal symmetry of the surrounding buildings and to take advantage of a network of subsurface passageways. Said the jury: "This below-grade building is well detailed and shows a considered use of color and material. Natural light is introduced into the interior in a delightful way through a central skylight and sunken window walls protected by landscaped earth slopes. The exposed concrete structure is bold and exciting in concept and execution and is used adroitly to create both grand and intimate spaces. Original in execution, it significantly sustains an ancient principle: contrast."

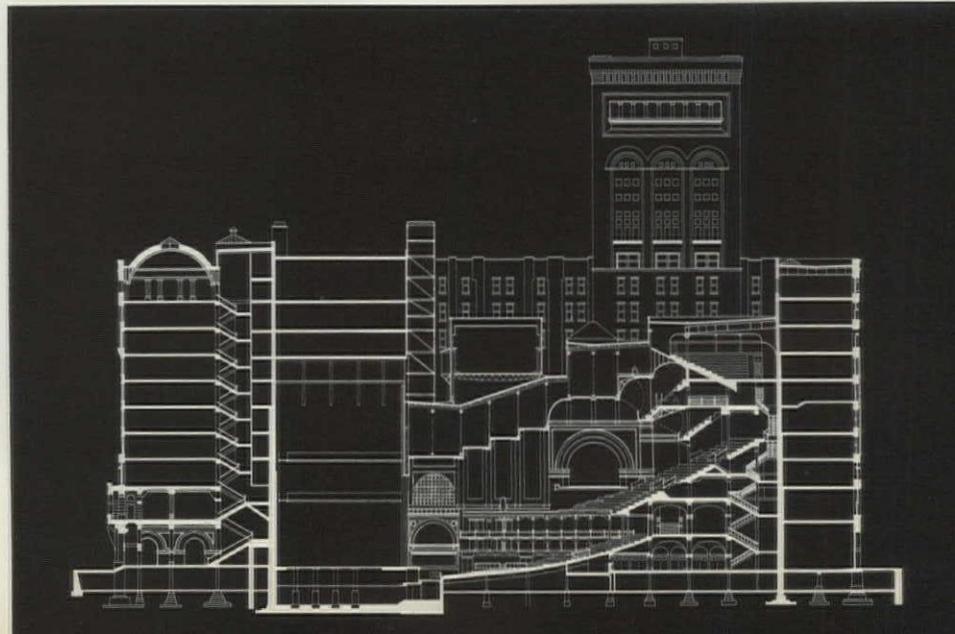


Structural Engineer: F. Ray Martin;
Mechanical and Electrical Engineers:
Ferris & Hamig, Inc.; **General Contractor:** William H. & Nelson Cunliff Co.

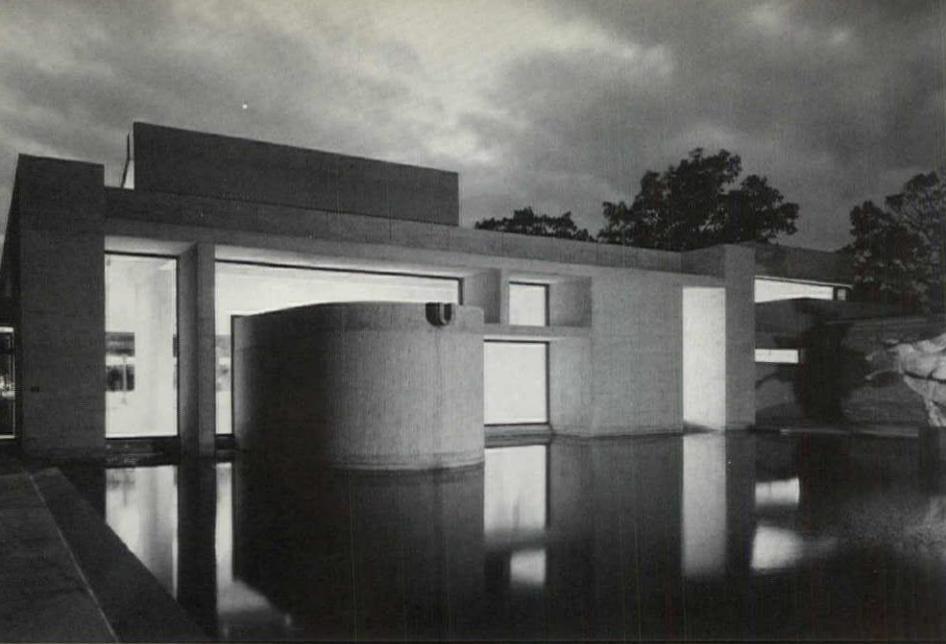
Harry Weese & Associates

Auditorium Theatre Restoration Chicago, Illinois

The problem: to return a historically important theater, unused as such since 1941 and badly maintained, to its original form and to recreate as much of the original decor as a tight budget would allow while providing for further restoration in the future. Said the jury: "Architectural restoration is usually as anonymous as architectural preservation. And, like urban design, restoration is the result of concerted rather than individual effort. To honor Louis Sullivan for the original design of this building would be superfluous; the restoration itself is the homage paid to him. But let the restorers not remain anonymous today. Credit is shared by the group of Chicago citizens who fought for and gained financing for the restoration and by the architects, engineers and artisans who understood, with such fine perception, the aims and performance of Sullivan."

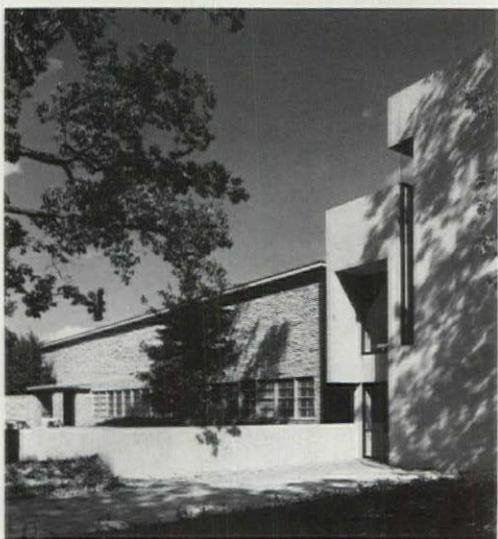
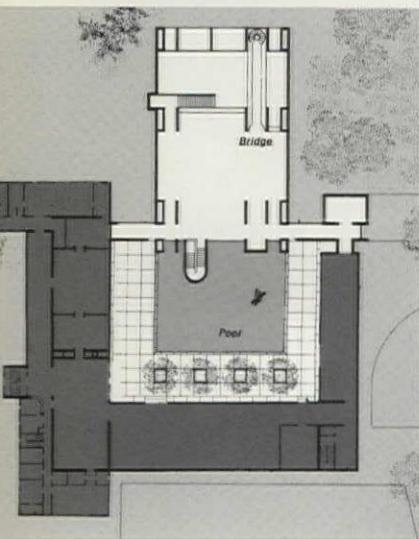
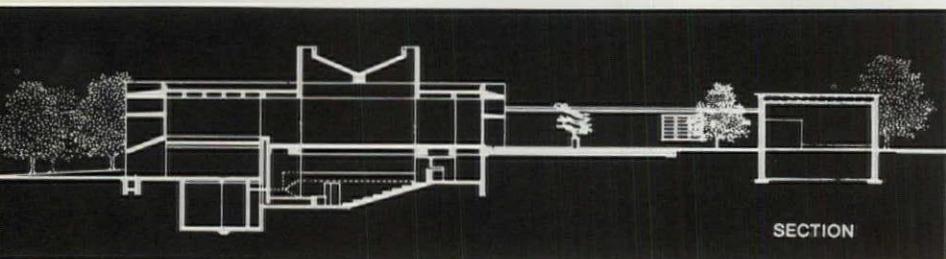


Consulting Architect: Crombie Taylor, AIA; **Theater Consultant:** George Izenour; **Interiors Consultant:** Dolores Miller & Associates; **General Contractor:** J. W. Snyder Construction Co.



I. M. Pei & Partners

Des Moines Art Center Addition
Des Moines, Iowa



The problem: to design a sculpture wing for an art museum designed by Eliel Saarinen in 1947; the new wing to bridge the old and new architecturally and to provide a stimulating architectural environment for a variety of sculpture in which public appreciation would extend to the mixed disciplines of art and architecture. Said the jury: "The addition—which is virtually an independent building, having only two small connections to Saarinen's museum—is effectively sited. The dramatic quality of the sculptural form is heightened by the reflecting pool between the old and new buildings and by the play of sunlight on the boldly contrived concrete masses. Inside, natural light has not been shut out but comes through windows and skylights to liven the exhibition space. The building works well as a gallery. There is also a further functional quality: Its graceful massiveness suggests protection of that which it contains."

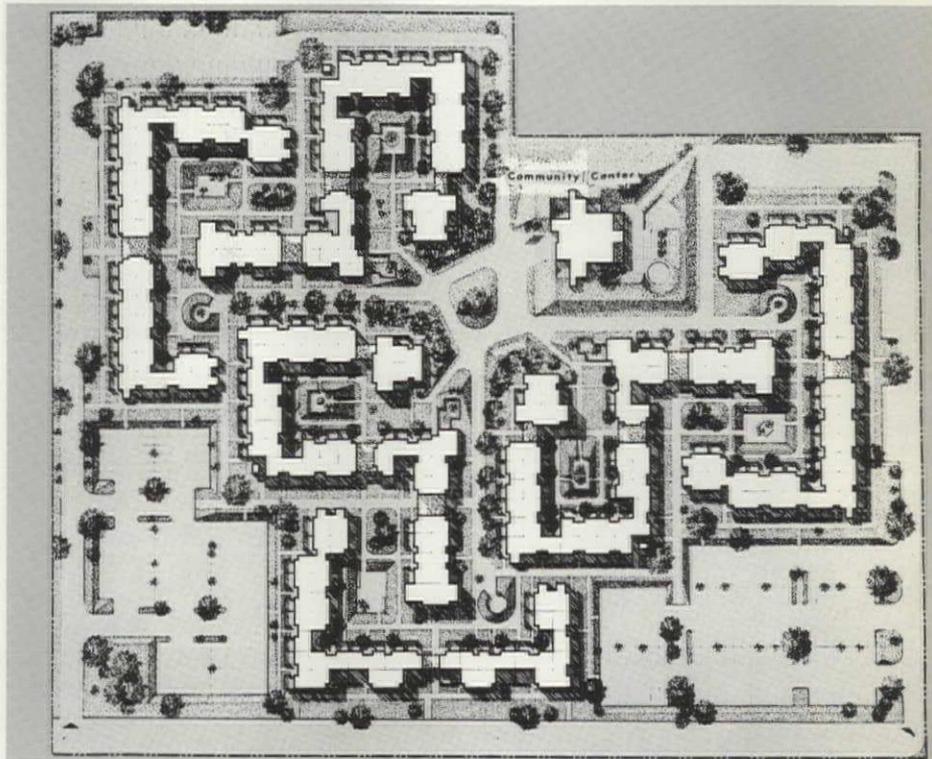


Architects in Charge: Richards M. Nixon and Graeme A. Whitelaw;
Structural Engineers: Weiskopf & Pickworth; **Mechanical and Electrical Engineers:** Robson & Woese;
General Contractor: Weitz Company.

Neill Smith & Associates

Collegetown Phase I
Sacramento, California

The problem: to provide at low cost townhouses for married students in a community emphasizing open spaces for people while subjugating the auto; to achieve variety, despite the use of an identical 20x20-square-foot plan for all apartments. Said the jury: "A pleasant, direct response to low income student housing. The site planning provides a sense of community, and the materials reinforce domestic scale. Formal variations are a reflection of orientation: enclosed bays on the north; partial bays east and west; overhangs and a screen wall on the south. Spaces for study rooms and laundries add variety. Units planned as townhouses (with attendant gardens) give the residents a proprietary sense they could never have with garden apartments. A quality of simple, pleasing appropriateness permeates the project."



Project Architect: Brendan O'Hare; **Designer:** Douglas Barker Sr.; **Supervising Architects:** Dreyfuss & Blackford; **Structural Engineers:** GFDS Engineers; **Mechanical and Electrical Engineer:** Alexander Boome; **Landscape Architects:** Lawrence Halprin & Associates; **Graphics Designer:** Marshall Roath; **General Contractor:** Nielsen-Nickles.

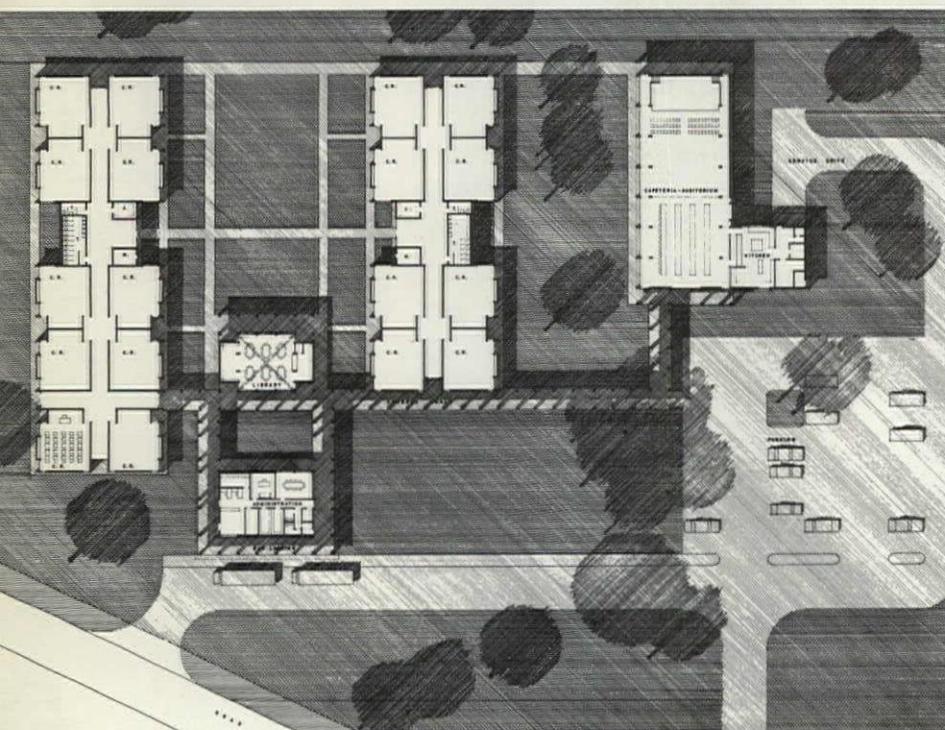




Desmond-Miremont-Burks'

**D. C. Reeves Elementary School
Ponchatoula, Louisiana**

The problem: to design on a budget of \$309,000 a rural school requiring some 37,000 square feet; to preserve existing tree clumps on the site and to use the most modest materials and structural means while at the same time seeking to create contrasting spatial experiences. Said the jury: "An extremely limited budget—which resulted in a square-foot cost of only \$8.41—contributed to what was termed a 'childlike' solution to this architectural problem. Also, the simplicity of traditional forms of the bayou country and the frank modesty of native materials perhaps played their parts. The result is an honest architectural understatement. Plainly, the measure of this school is the simple, sympathetic background it creates for the children who use it."

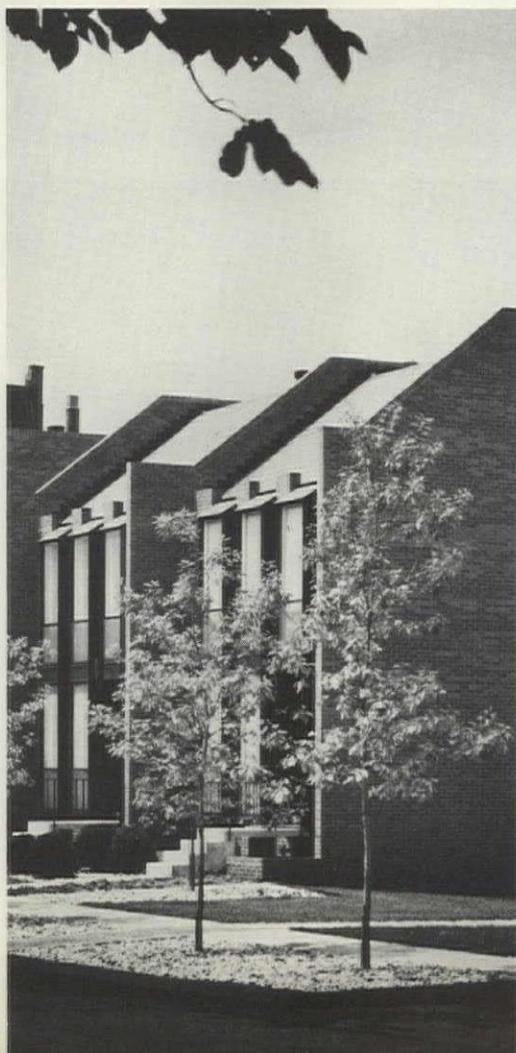
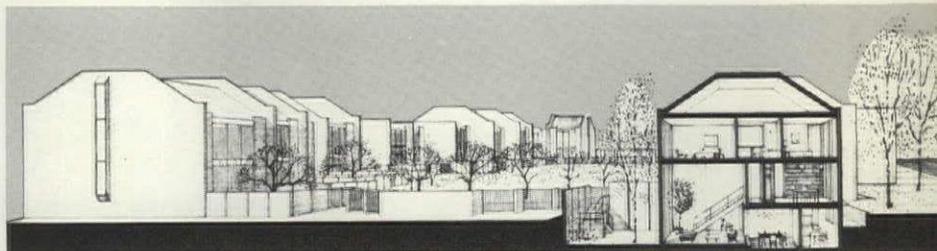
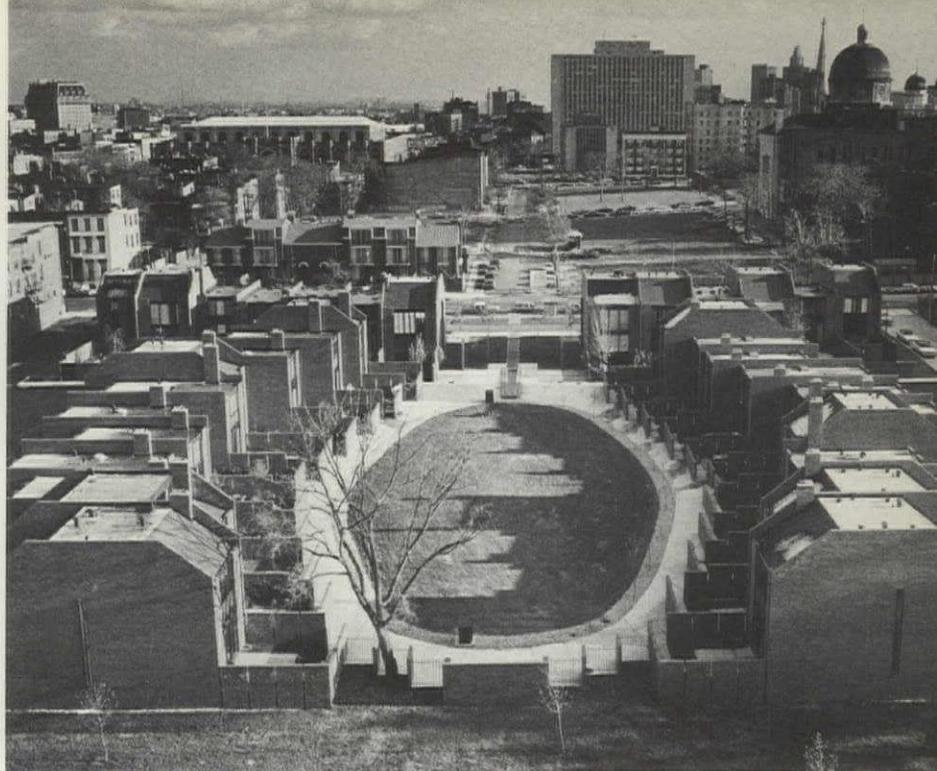


Project Architect: Andrew Gasaway; **General Contractor:** Ragusa Brothers, Inc.

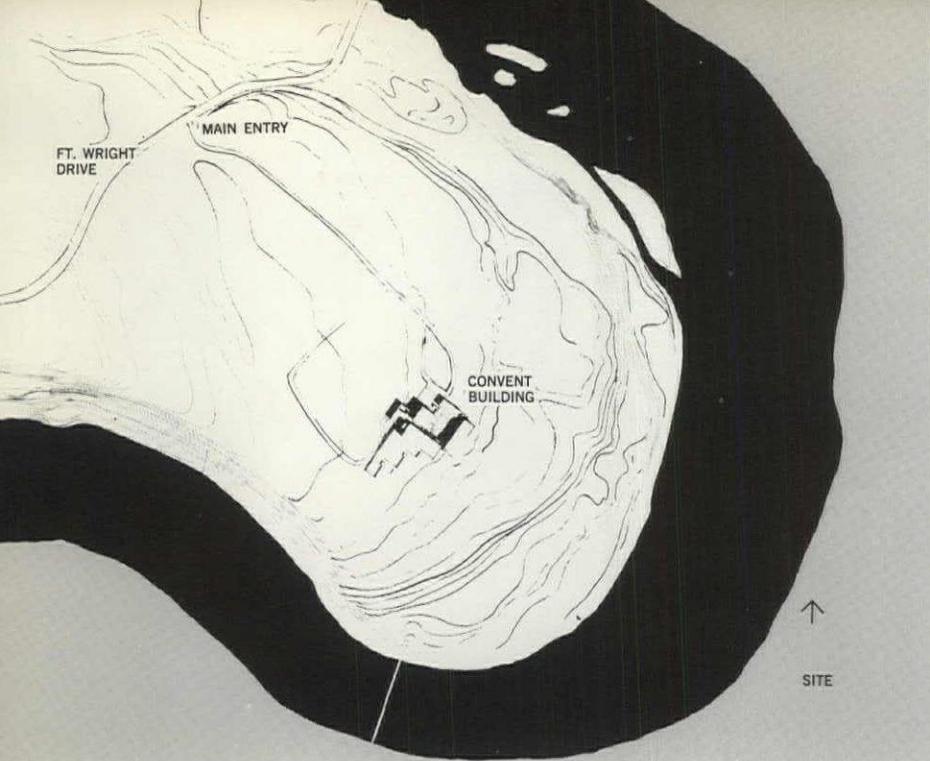
Hugh Newell Jacobsen, AIA

**Bolton Square
Baltimore, Maryland**

The problem: to create 37 townhouses for a two-block area acquired by the Baltimore Urban Renewal Authority to cut off the encroachment of blight upon a handsome residential area, Bolton Square; to recognize the architectural traditions of both the neighborhood and the city and to provide on-site parking. Said the jury: "The indented parking provisions along three sides of the periphery and the strong, stylish, vertical lines of the fenestration place these distinguished townhouses in the 1960s. But the small, landscaped front yards and the rear courtyards giving onto a larger inner open space that is like a meadow recall the durable scheme of Clarence Stein's design for Sunnyside in the 1920s. Thus, in a time of jagged change, there is a graceful insinuation of evolution. Urban renewal furnished the means for replacing blighted dwellings that formally occupied the site. Now Bolton Square has become part of the renaissance of a 19th century neighborhood near the center of the city."

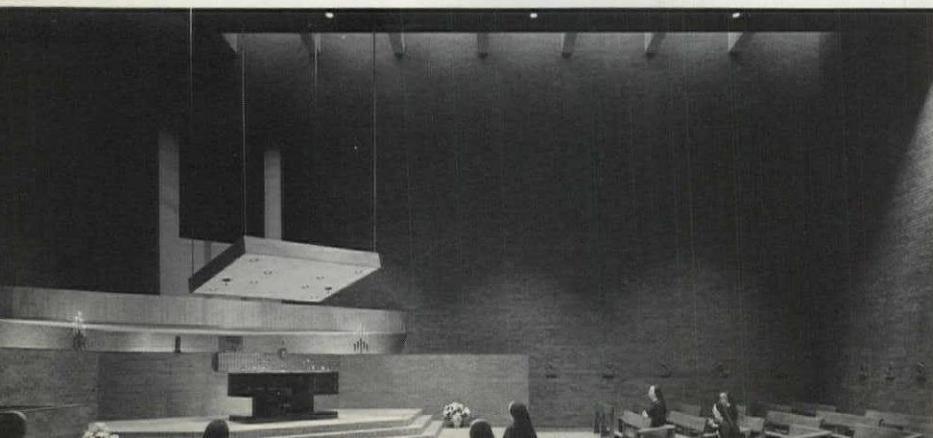
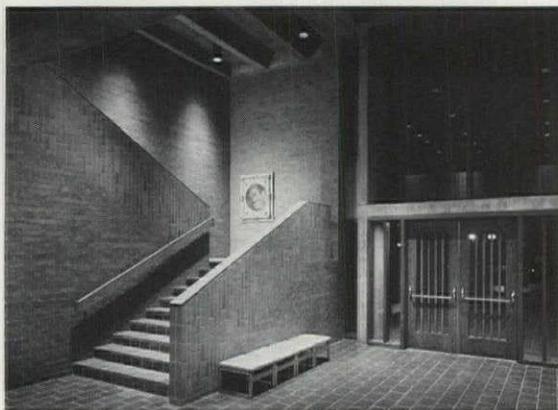


Structural Engineer: Carl Hansen;
General Contractor: Ames Ennis Inc.



**Walker/McGough/
Foltz, Architects •
Lyerla/Peden,
Engineers**

**Convent of the Holy Names
Spokane, Washington**



The problem: to create a convent serving as a Mother House for the Washington Province and furnishing housing, education and hospital facilities for the province staff, novice sisters and the retired and infirm, placing special emphasis on the chapel as a center of highest significance. Said the jury: "Maintaining a happy balance between community and privacy, the triple functions of the convent—scholasticism, nursing and worship—are divided in plan with the elements closing around a central courtyard. The dual structural system of reinforced concrete and bearing brick walls use materials and color to clarify movement patterns and the main public spaces. The common rooms are very successful, well-lit spaces; and the character of contemporary monasticism can be described as cheerfully nonoppressive. Budget restrictions have eliminated the curse of "overdetail." A marvelous characteristic is the contemplative quality of the place that comes from its siting amid the pine woods on a bend of the Spokane River."

Mechanical and Electrical Engineers: Marque, Clerc & Riley; **General Contractor:** Eric Plath Inc.

Frank L. Hope & Associates

San Diego Stadium
San Diego, California

The problem: to provide an economic, structurally clear architectural statement of San Diego; to provide efficient circulation facilities, a configuration yielding the best sightlines for two noncompatible sports, baseball and football, and an atmosphere contributing to the excitement of a sports arena. Said the jury: "This mammoth project has a plan of diagrammatic simplicity and a structural system that is monumental. The contest for dominance between the vertical and the horizontal reaches a truce: visually, it is the horizontals that are strong, but there is an equally strong impression that the verticals are doing the work. Considering all the people that have to be shuffled in and out, circulation is skillfully handled. The expression of the round elevators is good; the ramping is direct; and there is a nice spatial surprise in the center of the ramps. The siting, with the ground sloping up on all sides to the harmoniously complicated structure, is easy on the foot as well as on the eye. Altogether, a remarkable job."

Principal in Charge of Architecture: Frank L. Hope Jr., AIA; **Principal in Charge of Engineering:** Charles B. Hope; **Project Designer:** R. Gary Allen, AIA; **Project Architect:** Ernest R. Lord, AIA; **Civil Engineers:** City of San Diego; **Landscape Architects:** Wimmer & Yamada; **Acoustical Consultants:** Bolt, Beranek & Newman, Inc.; **Wind Consultants:** General Dynamics; **General Contractor:** Robertson-Larsen-Donovan.

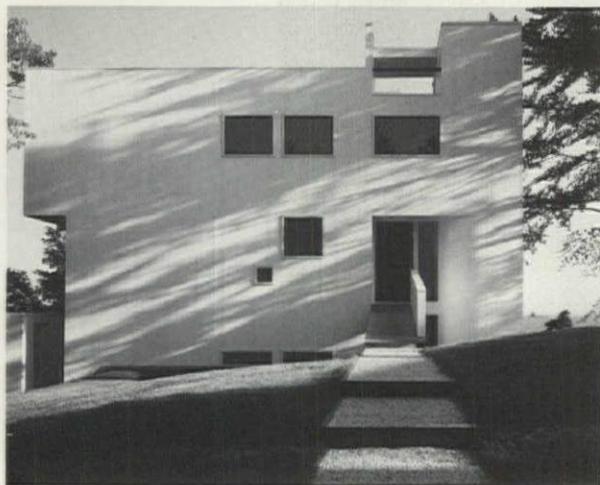
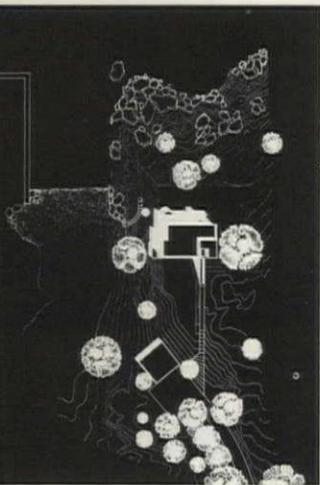




Richard Meier

Smith House
Darien, Connecticut

The problem: to design a house for a family with two children on a site of 1½ acres of rocky, rolling land that culminates at the Long Island Sound; to capitalize on magnificent views and to create a series of visual experiences in which there is an expression of direction and movement as well as a clearly defined distinction between enclosure and openness. Said the jury: "This apparently simple piece of domestic geometry subtly plays off the rocks and uses its naturalistic setting as a foil for hard, unwavering line. The house itself is varied within an overall, unifying pattern. Its clean consistency extends from outside to inside and the uncurtained glass frames views from within and without."

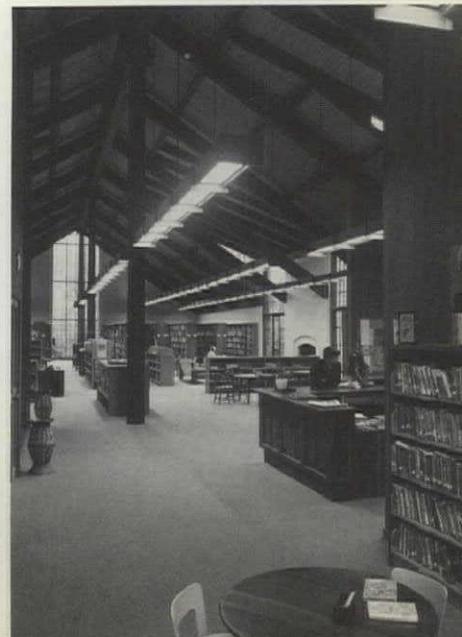
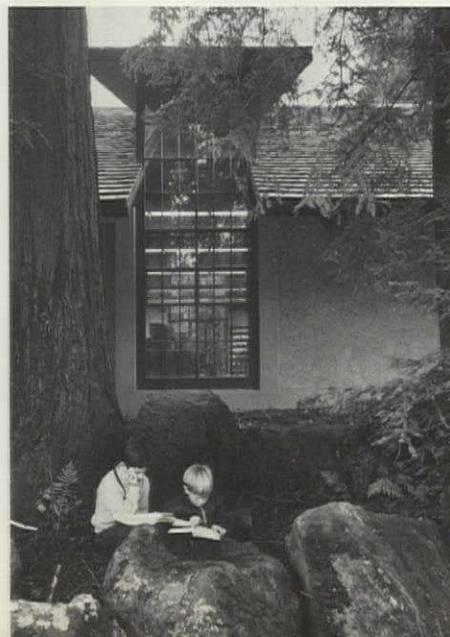
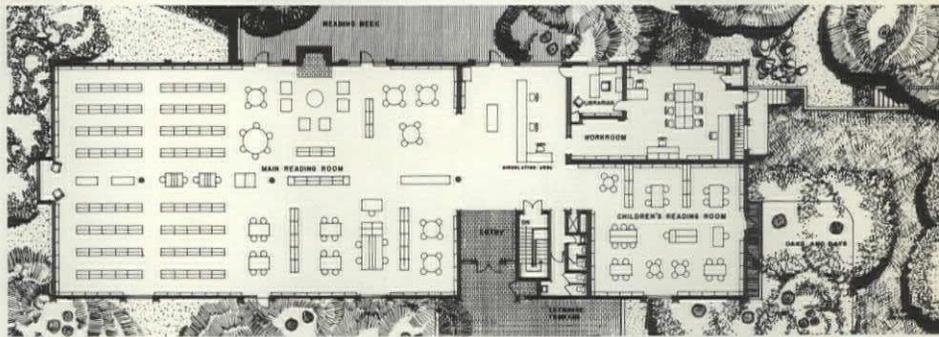


Structural Engineer: William Atlas;
General Contractor: Ernest Rau.

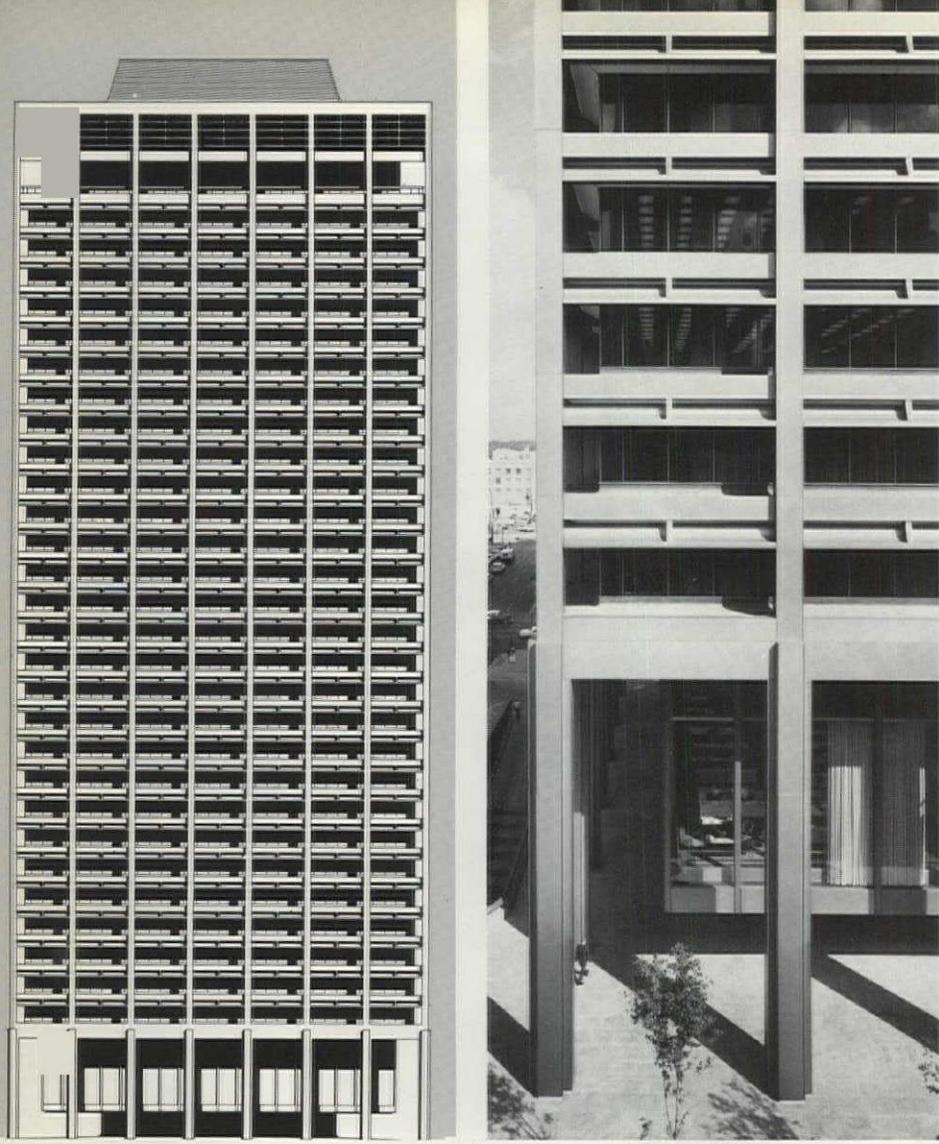
Wurster, Bernardi & Emmons, Inc.

Mill Valley Library
Mill Valley, California

The problem: to fit a building among the trees of a redwooded site and to achieve an economic design that would complement and indeed enhance its beautiful natural surroundings. Said the jury: "Indigenous" is an out-of-fashion term. Yet a building that can manage straightforwardly and unaffectedly to fill its purpose, at the same time becoming a part of its natural setting, can never be out of fashion. 'Gentle architecture,' one jury member termed the library. Sited among the redwoods the preservation of which was a condition of its design, the library is appealing and inviting from any point of view. In the best sense of the word, and like the redwoods and rocks, it is 'indigenous.'"



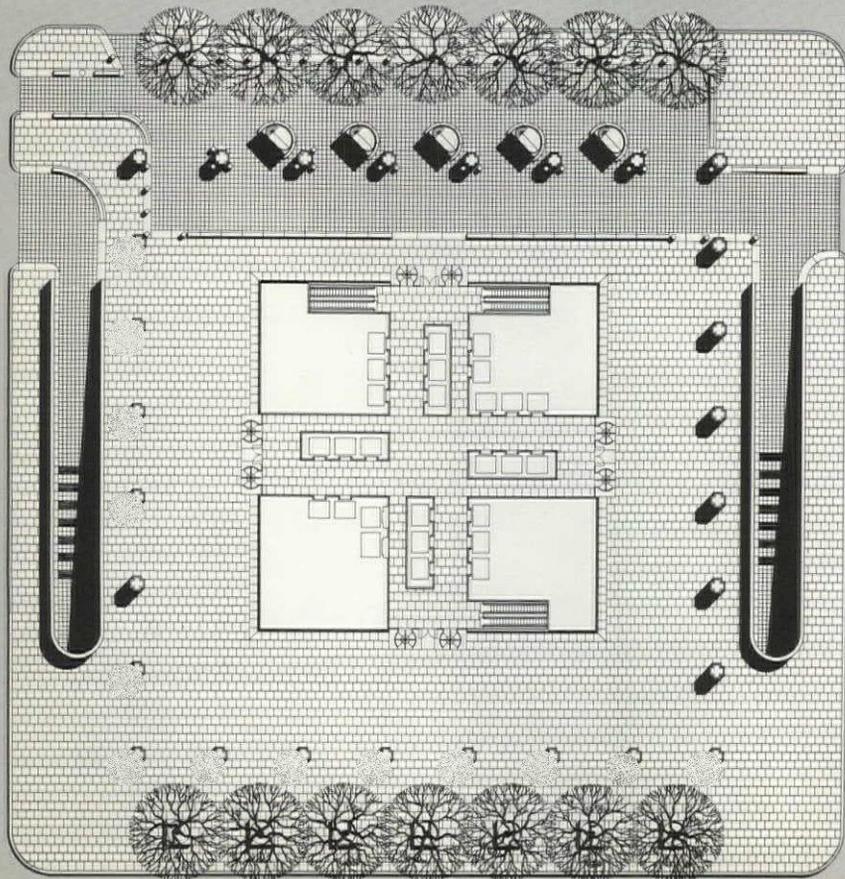
Structural Engineers: Gilbert-Forsberg-Diekmann-Schmidt; **Mechanical and Electrical Engineers:** Gayer Engineers; **Landscape Architects:** Lawrence Halprin & Associates; **General Contractor:** Ira W. Coburn, Inc.



**Skidmore, Owings
& Merrill**
(San Francisco Office)

Tenneco Building
Houston, Texas

The problem: to create 900,000 square feet of usable space which, because of the rapid growth and change within the client company, was to yield to easy manipulation; to meet the client's complex needs by the use of the most advanced planning and building techniques and to obtain a building whose inherent qualities would make it an important contribution to an urban scene. Said the jury: "The wide street setback on four sides of the square office structure is extended beneath suspended banking quarters. This has provided an opportunity for the architects to create pedestrian entrance-ways that are somewhere between pleasant and grand. The four identical sunshaded facades, with the glass walls set in four or five feet, make a clear declaration of the structure. They have scale and dark warmth and they are simple; there is no fussiness. The plan is likewise simple: a core of vertical circulation and services surrounded by partitionable office space with completely flexible and adjustable utilities. A handsome, 'nonfinicky' building of striking appearance."

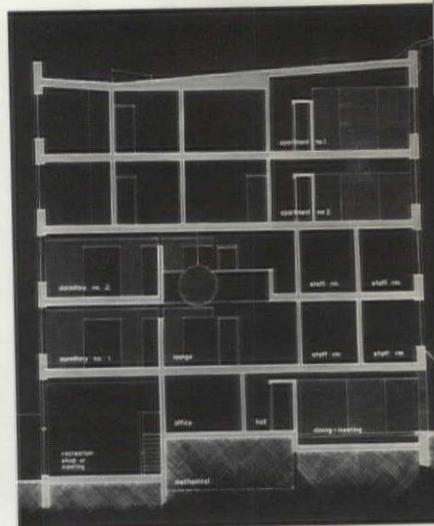
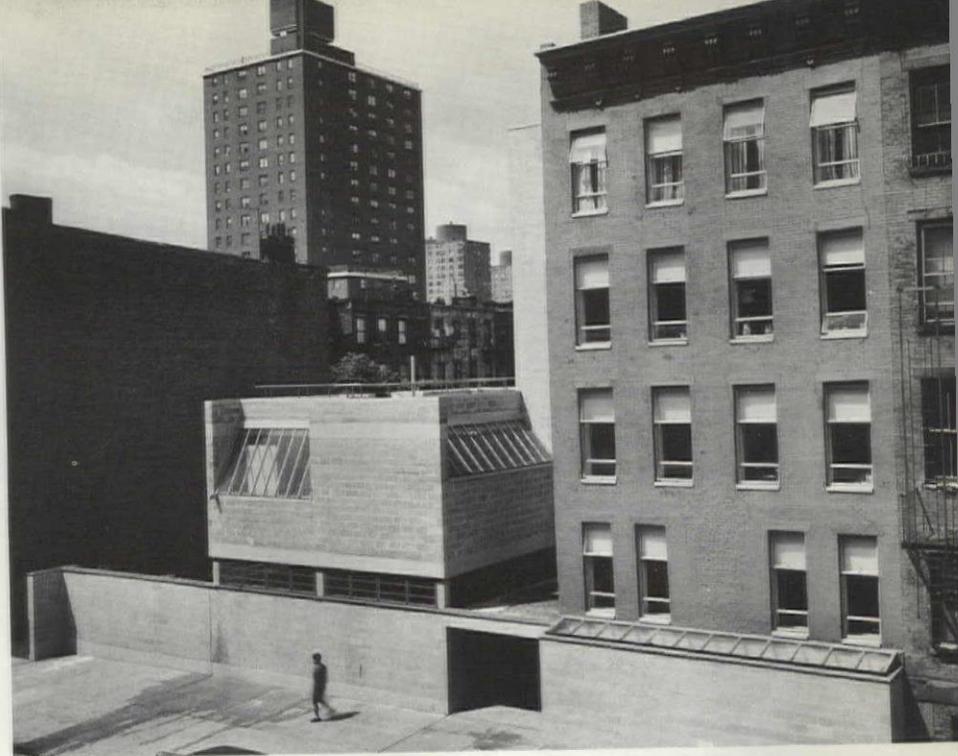


Structural, Mechanical and Electrical Engineers: Skidmore, Owings & Merrill; **General Contractor:** W. S. Bellows Construction Corp.

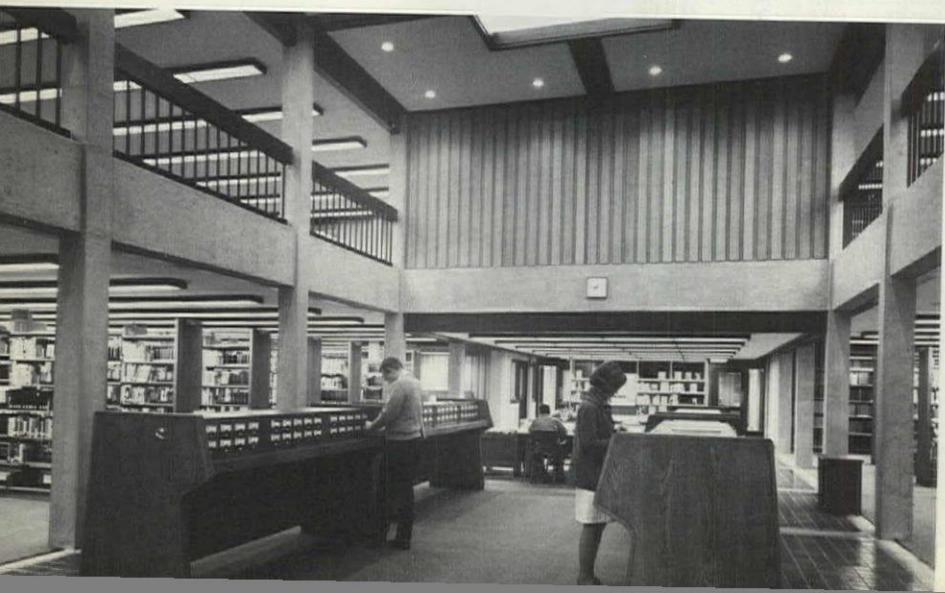
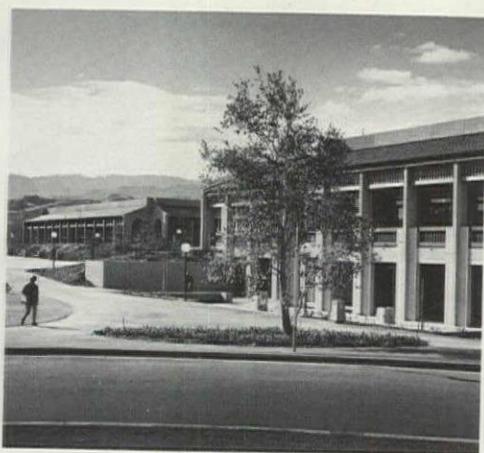
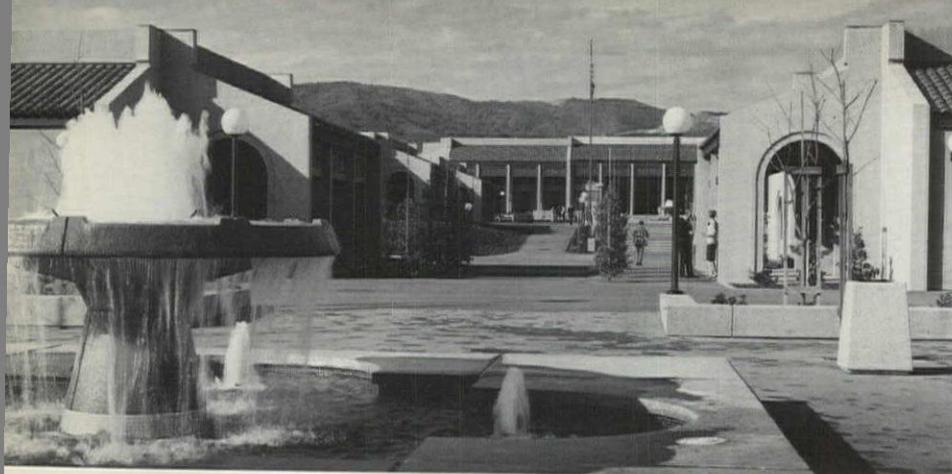
Smotrich & Platt

Exodus House
New York, New York

The problem: To provide a rehabilitation facility for ex-addicts, incorporating the complete renovation of an existing building, the construction of a shop building and the organization of outdoor areas; to create a noninstitutional and indeed homelike environment which itself would be an essential tool in rehabilitation efforts and finally to create a composition that would respect the existing pattern and character of a neighborhood undergoing tenement rehabilitation. Said the jury: "A small project with a tight budget involving not only the design of new facilities but the remodeling of the adjacent tenement. The interior spaces in both buildings seem deliberately designed for purposes of therapy. On this point, the director expresses enthusiasm for the therapeutic effect of the building upon the patients who live there and terms it 'a building that fits into surroundings to which the patients are accustomed.' Architecturally and thematically, Exodus House gives its neighborhood a point."



Project Coordinator: Richard D. Saraway; **Structural Engineer:** William Atlas; **Mechanical and Electrical Engineers:** Wald & Zigas; **General Contractor:** Graphic Construction Corp.



**Ernest J. Kump
Associates**
**Office of
Masten & Hurd**

**DeAnza College
Cupertino, California**

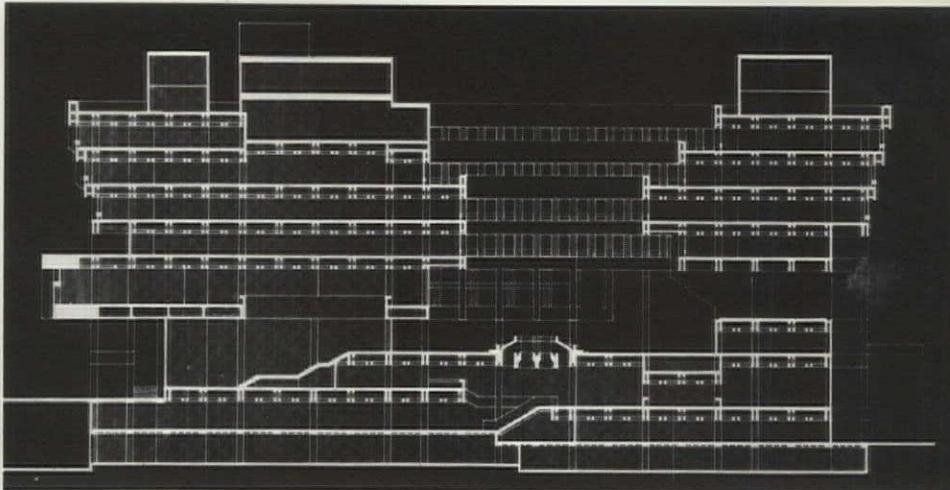
The problem: to design a day-and-night community college of friendly informality between students and faculty without sacrificing the dignity and feel of higher education; to preserve trees, a garden and century-old winery on the site; to provide sizeable physical education fields and parking areas and to achieve the highest possible segregation of pedestrian and vehicular traffic. Said the jury: "The organization of the activities of a community college and the circulation that links them are basic urban design considerations. Here, automobile circulation is confined to a peripheral road that feeds the large parking areas concentrated mainly on two sides of the campus. Within the building enclave there are only pedestrian walks and spaces. The motif of the concrete structural members and the grouping of the buildings by discipline around courts combine to create an unpretentious atmosphere conducive to pleasant college and community life. Simple beauty sustains a role here, too — as in the many contrasts of a fountain playing against staunch, immobile backgrounds."

Structural Engineers: Earl & Wright, Inc.; **Mechanical Engineers:** T. M. & G. M. Simonson; **Electrical Engineers:** Smith & Garthorne; **Landscape Architects:** Royston, Hanamoto, Beck & Abey; **General Contractor:** Barnhart-Dillingham Construction Co.

**Kallmann, McKinnell
& Knowles
Campbell,
Aldrich & Nulty**

**Boston City Hall
Boston, Massachusetts**

The problem: to design a building whose basic theme is one of openness and accessibility to the public, a structure through which the life of the city passes and in which the elements of city government are articulated so well as to become readily identifiable. Said the jury: "Sited in a space that has been opened up among tall new buildings and small old ones, Boston's 'Great House' achieves its civic purpose not by size nor by height but by its rich, expressive form. Interior spaces are sensitively scaled and appropriately expressive where their nature is symbolic. The facade of the building is especially noteworthy; an impressively solid horizontal base is contrasted with an upper horizontal treatment that is lightened by vertical lines. Strong vertical lines effectively connect these to other aspects of the structure. Here is a building that understandingly plays its necessarily stellar role among neighbors."



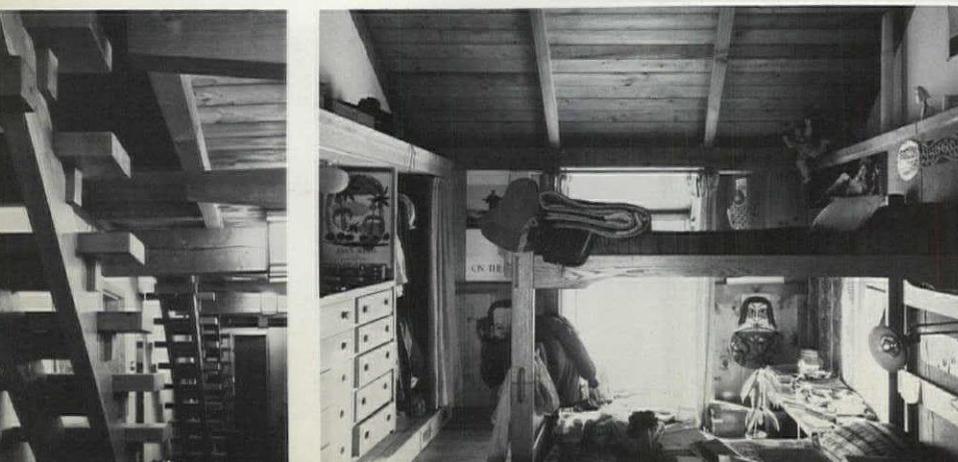
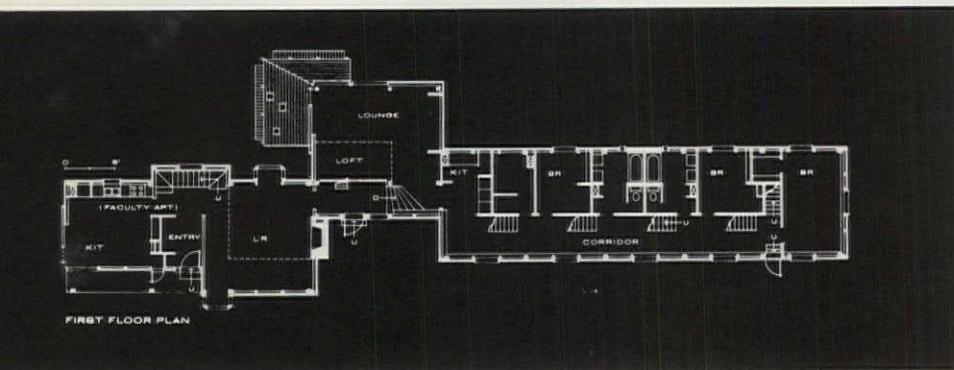
Structural Engineers: LeMessurier Associates, Inc.; **Mechanical Engineers:** Greenleaf Associates, Inc.; **Electrical Engineers:** Cleverdon, Varney & Pike; **General Contractor:** J. W. Bateson Company, Inc.



John B. Rogers

**Girls' Dormitory,
Putney School
Putney, Vermont**

The problem: to create a girls' dormitory and faculty house for a co-educational preparatory school that would have an arrangement of public and private spaces conducive of social interaction, especially between faculty and students; to execute the design in a manner making extensive use of student labor, in this way imparting architectural knowledge. Said the jury: "The noninstitutional character and strong sense of structure overcome any lack of skillful finish or small inconveniences. Outside, one of the particularly delightful features is integration of building with landscape and an awareness of line: their fine, upstanding exterior effort, their harmony with the thin lines of trees and the thin winter shadows cast by the trees in wintry country."



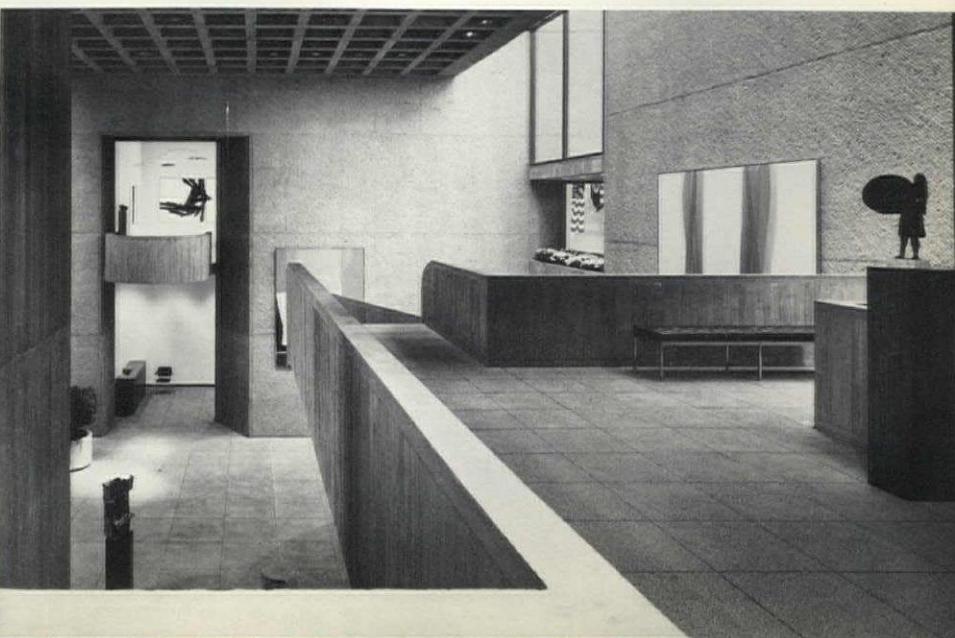
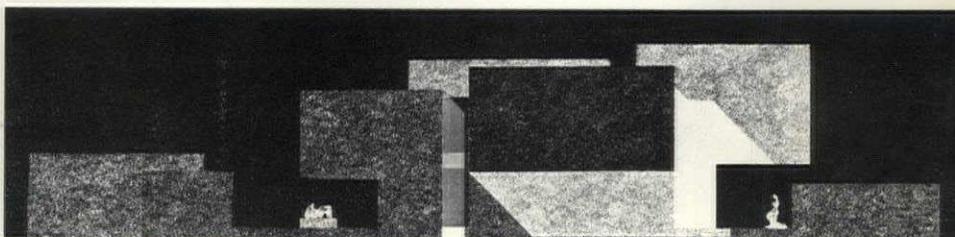
Structural Engineers: Souza & True.

**I. M. Pei
& Partners**
**Pederson, Hueber,
Hares & Glavin**

**Everson Museum of Art
Syracuse, New York**

The problem: to design a museum of art, located in an urban renewal area now cluttered with a heterogeneous assemblage of buildings, for a city that has a small permanent collection; thus a museum which will have a number of exhibitions of varying types mounted at the same time. Said the jury: "The freestanding sculptural form is well scaled to the plaza upon which it stands and to the surrounding urban mass. The detail is first-rate, and the whole thing comes off as a fine work of architecture. On the inside, the spaces are quite neutral and serve as a backdrop for the shifting exhibits, primarily in contemporary art, that are the purpose of the museum. Altogether, a firm but sympathetic habitation for quiet water and restless art."

Associate in Charge: Kellogg Wong, AIA, with William Henderson and Reginald Hough of the Pei firm, and with Murray Hueber, AIA, and Robert Majewski, AIA, of Pederson, Hueber, Hares & Glavin; **Structural Engineers:** R. R. Nicolet & Associates; **Mechanical and Electrical Engineers:** Robson & Woese; **General Contractors:** Wm. C. Pahl Construction Co., Inc.



30,000 SQUARE FEET OF UNIFORM COLOR... WITH ATLAS WHITE CEMENT

Air Force Academy Field House, Colorado Springs, Colorado. These days, you can find terrazzo just about anywhere. This floor, made with Texas blue and raven black chips, blue marine coloring, and ATLAS White Cement, combines beauty with function: it serves as the spectator concourse providing access to a basketball arena, the adjacent ice hockey rink and the multi-purpose area. The contractors used ATLAS White Cement because "... it works better at this high altitude, dries evenly, and brings out the true color of the aggre-

gate." Terrazzo Contractor: Ace Tile & Terrazzo, Inc., Denver, Colorado. Architect: Sverdrup & Parcel and Associates, Inc., St. Louis, Missouri. General Contractor: Frank Briscoe Company, Inc., Newark, New Jersey. Design and Construction Agency: U. S. Corps of Engineers, Colorado Springs, Colorado. For our new "White Concrete in Architecture" brochure, write Universal Atlas Cement Division of U. S. Steel, Room 6163, Chatham Center, Pittsburgh, Pa. 15230. ATLAS is a registered trademark.



Atlas

WHITE CEMENT



136,000 SQUARE FEET OF UNIFORM COLOR... WITH ATLAS WHITE CEMENT

Fordham University, The Leon Lowenstein Center at Lincoln Center, New York City. Here are 1,800 window-wall units and end-wall panels, all the same uniform shade. They were cast with a local New England gravel aggregate and ATLAS White Cement. The elements have exposed aggregate finish. The white precast in this new classroom building will be uniform for years to come because ATLAS White Cement has uniform physical prop-

erties as well as uniform color. Precast Contractor: Eastern Schockbeton Corp., Fort Lee, New Jersey. Architect: The Perkins and Will Partnership, White Plains, New York. General Contractor: Corbetta Construction Co., New York, New York. For our new "White Concrete in Architecture" brochure, write Universal Atlas Cement Division of U.S. Steel, Room 6163, Chatham Center, Pittsburgh, Pa. 15230. ATLAS is a registered trademark.



Atlas

WHITE CEMENT



Prospecting the Sub-Arctic

A bold plan to make room in mid-Canada for the growing Canadian population is now being studied by our neighbors to the north.

Within a century, Canada will have an additional 100,000,000 people to house and feed. Which doesn't sound very alarming considering the fact that there are presently about 5 persons to every square mile of the rich-in-resources Canadian soil.

However, Canada's present population is strung along a narrow belt hugging the US border from the Atlantic to the Pacific oceans. If the expected newcomers keep close to this belt, Canada's large cities will soon be victims of the usual overpopulation problems.

So, why not plan ahead for the 100,000,000 and provide them with a livable, pleasurable environment, while keeping sprawl away from already established communities?

Richard Rohmer is one Canadian who harbors the thought that such planning should be undertaken. What's more, he has formed his thoughts into a specific plan and is using it as the basis for a Canada-wide conference.

His plan? To take advantage of the wide open spaces in the near north and develop a corridor of settlements across the mid-Canadian continent, much as the present corridor to the south.

Only scattered settlements are found today in these supposedly frigid regions—due possibly to ignorance about what the climate is really like. The fact is that living conditions there would not be too different from those further

south in Canada; the summers are short, but pleasant; the winters are cold, but not constantly so.

The corridor plan, 200 to 500 miles wide, would span from Newfoundland to Alberta, where it would split in three, one arm going north to the Arctic Ocean, one into the Yukon and one into British Columbia, following territory where there is a maximum opportunity for a diversified economic base. Of this, there is no shortage: mid-Canada has a wealth of resources such as minerals, fuels, forests and water. Tourism is a great potential.

First step to establish the corridor might be to penetrate the land with 4,000 miles of railroad (700 miles are already there). Other means of movement would follow: roads, pipelines, water and air transport. Hovercraft, cargo submarines and track vehicles might well fit into the picture when they are further developed and can perform more economically.

With improved transportation and communication, people would move in and settle along the corridor to take advantage of the vast, untapped treasure chest that mid-Canada is. Major growth points would become permanent or long-cycle; those dependent on the life and distribution of a particular resource would be temporary or short-cycle towns.

The settlements would be planned according to the core principle, in defense against the elements, with highly concentrated activity areas and high density, following the pattern of new towns in the northern regions of Russia

and Sweden, where living conditions are much the same. (The Swedish town of Svappavaara is designed to get reflections from the limited winter sun, shade from the midnight sun and protection from the winds.)

Housing units in the permanent settlements could be attached to the central city areas by all-weather pedestrian and utility ways connecting systems. In fact, entire communities could be totally enclosed in plastic domes to get the benefit of the sun.

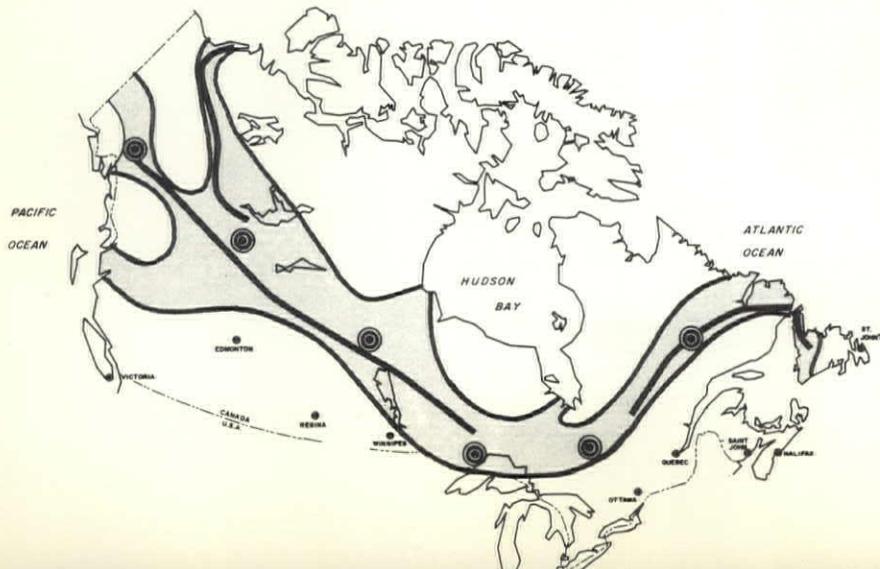
Rohmer, a corporation lawyer and land development expert, suggested his approach to planned development of mid-Canada in 1967. Soon after, he formed the nonprofit Mid-Canada Development Corridor Foundation, Inc., aim of which is to examine the advantages of establishing a nation-wide policy and plan for mid-Canada. Before this, however, Rohmer had let Acres Research and Planning, Ltd. study his concept.

Before long, interest in Rohmer's plan cropped up in various quarters and it now has among its supporters 11 universities and such prominent Canadians as the Governor General of Canada and Lester B. Pearson. The Toronto-based foundation depends on donations; all its officers serve without remuneration.

Two conferences are now planned by the foundation. The first, to be held in August this year, will deal with resources, industrialization, urbanization, transportation, communications, financing and trade implications. This session will be followed by field trips to corridor sites. An international research tour to northern Scandinavia and Siberia is planned in the spring of 1970.

The second conference session will be held in August 1970, when recommendations will be given and courses of action suggested.

Money and time—perhaps \$200 million over a period of 20 to 25 years—are required to realize the plan. But indications are that the costs of a mid-Canada development corridor will be far outweighed by the gains from optimum use of Canada's resources. □



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between the Sundberg Chair
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The structure of the Sundberg Chair achieves its "agelessness" through the sculpturing of a superb new seating material, Cast Nylon. This versatile and durable material resists cracking, chipping, scratching. (And it won't attract dirt because it is static-free.)

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There's nothing like a hard maple gym floor to bring out the best in a basketball team



says Lawrence J. Weise — Coach, St. Bonaventure Basketball Team

"Basketball's a fast-action, quick-decision, tough, hard-driving sport and a hard maple gym floor is vital to the game. It promotes team confidence — natural floor brightness and contrast of lines sharpens a player's peripheral vision . . . its tight-grained, non-slip, smooth surface minimizes skin burns . . . its true resilience reduces shin splints. And, here at St. Bonaventure, only routine floor maintenance costing about 7c per square foot per year is required to keep our gym in perfect condition."

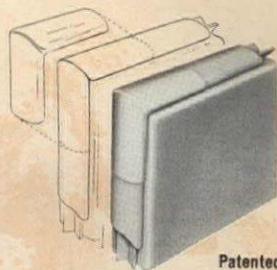
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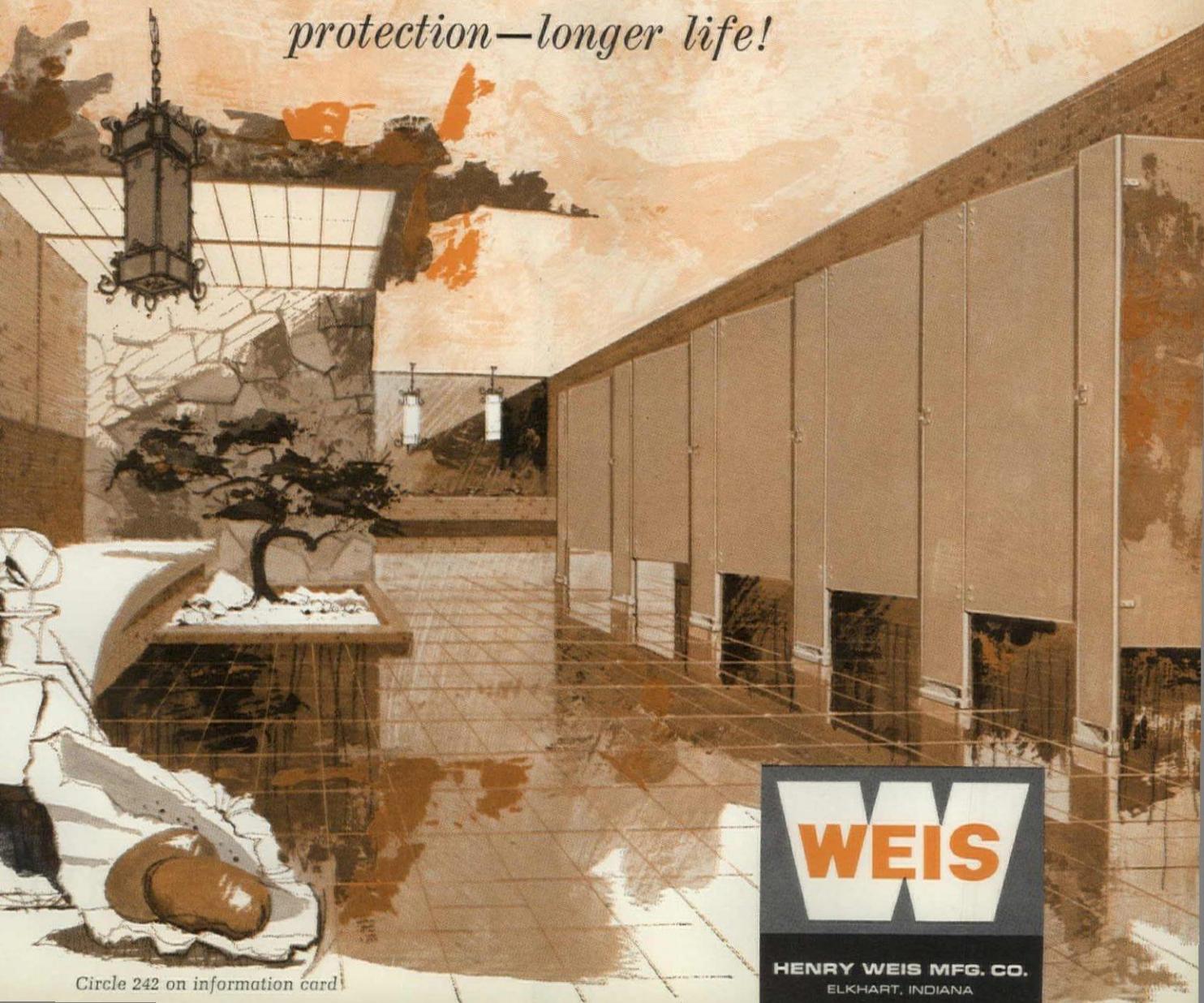
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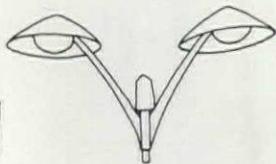


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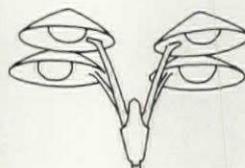




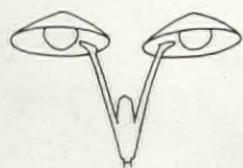
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With styled area lighting, the only thing better than the evening performance is the matinee

The only time you really see outdoor luminaires is in the daytime. They surround your building, so they also create one of the first impressions. Sometimes that first impression can be pretty dreadful. "Gas-station" lighting hardware can turn off all the effects you've worked for in your building design.

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Edison

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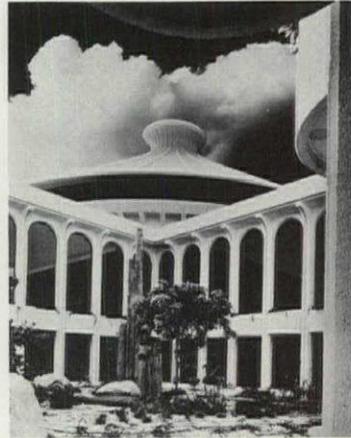
AIA JOURNAL/JUNE 1969 119

Canada Builds

Canada is building more than ever before and the rate of construction is ever rising. The reason for this is not only that Canada is trying to keep in step with her population boom and to meet her social obligations, but that she is also exploiting her vast natural riches at a steadily increasing pace. Shown here are some random examples of various Canadian projects just completed or under construction.



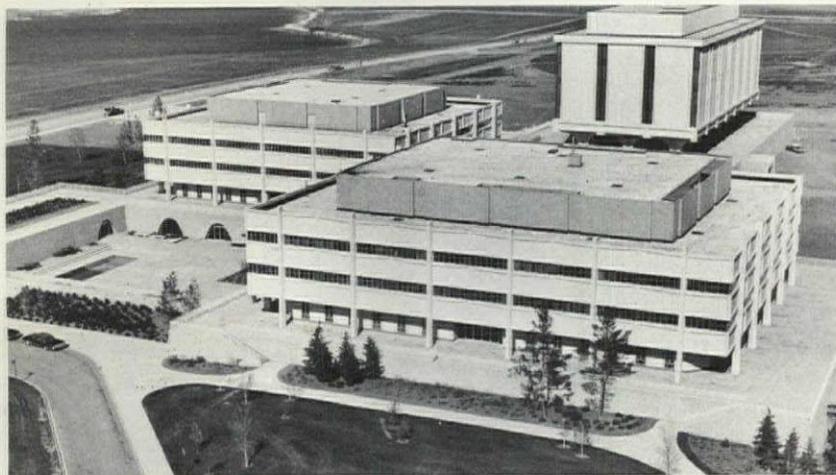
Portage Mountain Project and, below right, its underground powerhouse



Centennial Museum and H. R. MacMillan Planetarium



Regina Pioneer Village



The University of Saskatchewan Regina Campus

In the mountainous, wooded terrain of northern British Columbia is nestled in an earthfill dam the \$800-million Portage Mountain Hydro Electric Project. Its powerhouse is a 500-foot long cavern hollowed out of the rock, 400 feet under the Control Building.

The architects, Rhone & Iredale, used the engineering and structural form as the basis for their design — which throws open the drama of the plant to staff and visitors. A route between all facilities has been laid out for visitors, with recreation areas both in the forest and by the lake.

In Vancouver, B.C., is the Centennial Museum and H. R. MacMillan Planetarium, a \$3.5-million structure of which half was the city's centennial grant from the Federal Government of Canada, the other half a donation by Vancouver industrialist H. R. MacMillan. It is located on the beach front.

The circular planetarium is surrounded by three interconnected museums (covering the subjects of science and history of man), each with rectangular galleries around a square courtyard. There is a spe-

Continued on page 128



LCN

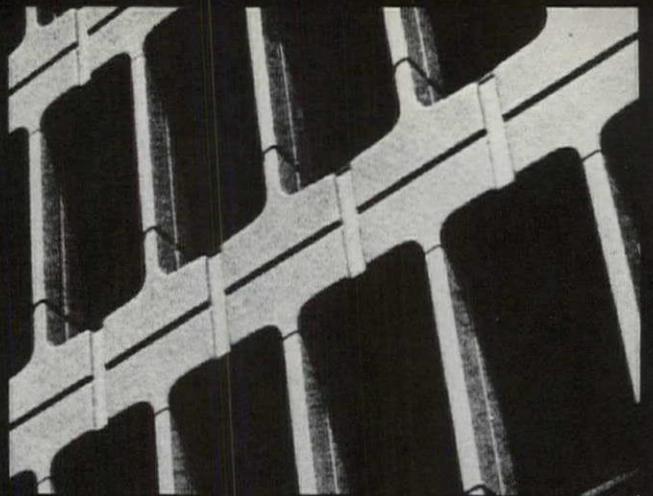
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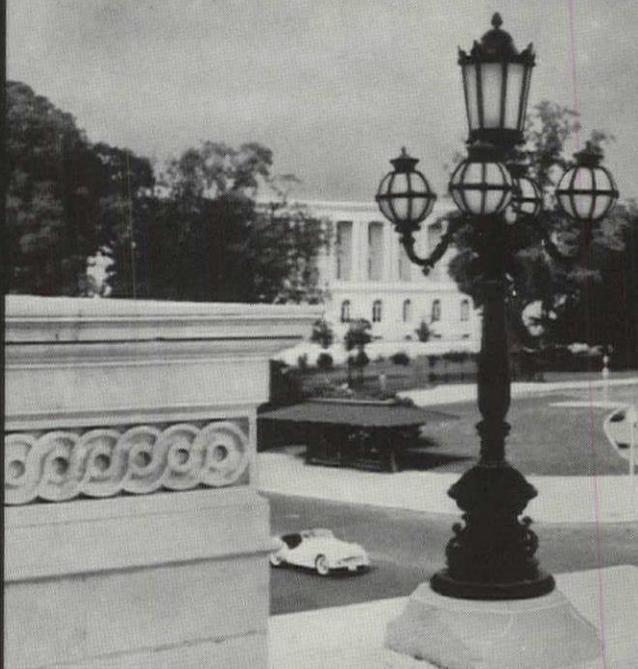
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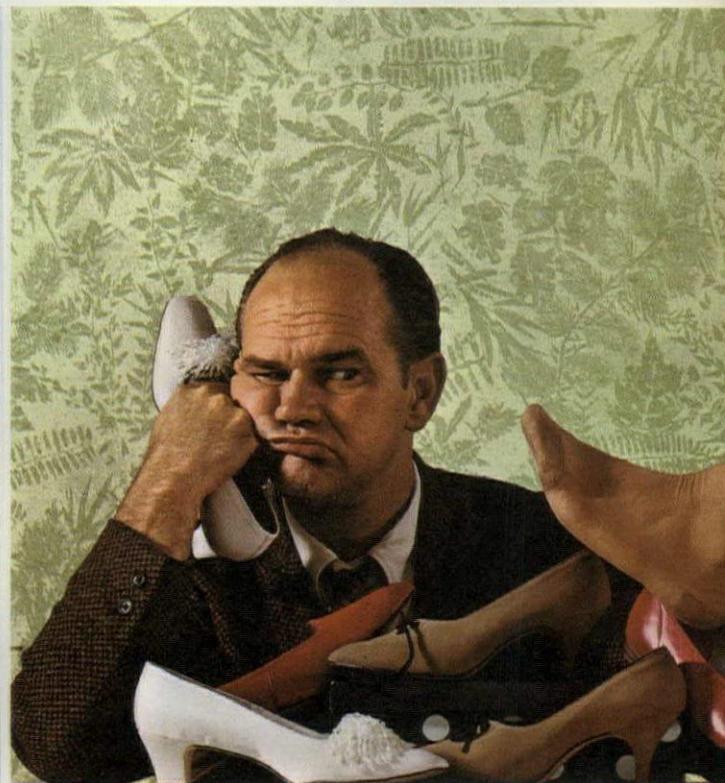
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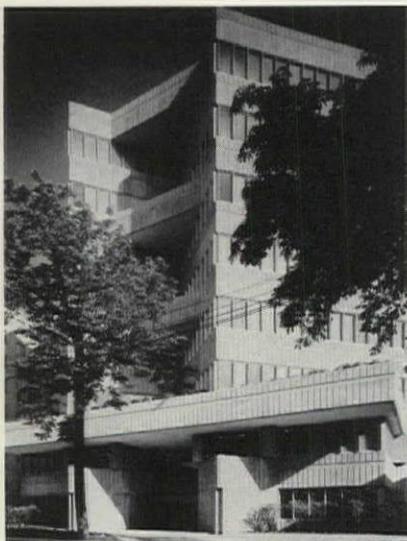
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Manitoba Centennial Centre



Taylor-Woodrow Office Building



Ste. Anne Hospital



Esso automotive service center

Canada from page 120

cial museum for children and also a courtyard for exhibits that become part of a playground. Architect is the firm of Gerald Hamilton & Associates.

Regina Pioneer Village is a complex for senior citizens in the Saskatchewan capital. Though Regina has not quite 150,000 inhabitants, the complex is the largest such in Canada, housing some 500 persons in bungalows and high risers. An extension for another 300 people is now being planned.

The high risers contain kitchens, dining and lounge areas, banking facilities, barber shop and beauty parlor. For safety and ease, there are handrails, grabrails, carpeting in the corridors, etc. Architects are the D. H. Stock Partnership, who have specialized in senior citizens housing and nursing homes.

Also in Regina is the University of Saskatchewan Regina Campus, on a 330-acre site in the city's outskirts. It is part of Wascana Centre, a 1,500-acre development sponsored by the Canadian Government, the City of Regina and the university for the purpose of integrating government and university facilities with community, cultural and recreational activities.

All academic buildings of the university are built on a common base podium with hallways underneath, making it possible to walk between buildings indoors.

Planned to accommodate 8,000 students by 1974, the university was master planned by Minoru Yamasaki, FAIA, who also designed its library. Other participating architects are Gardiner, Thornton, Gathe & Associates; Joseph Pettick; D. H. Stock Partnership; and Cliff Wiens.

The Manitoba Centennial Centre

in Winnipeg (for Canada's 1967 and Manitoba's 1970 centennials) will, when completed in 1970, consist of a concert hall, a planetarium, a man and nature museum and a theater center. The concert hall, finished last year, seats 2,250. Winnipeg's population is just under 300,000.

The center is designed by Associated Architects, a joint venture consisting of the firms Green Blankstein Russell Associates, Moody Moore & Partners; and Smith Carter Searle Associates.

The Taylor-Woodrow Office Building, on a lightly traveled side street in Toronto, has the six upper floors turned 45 degrees in order to lighten its presence in the street, while the two first floors are aligned with the street to fortify its quality.

The turned upper block reduces the necessity to face neighboring buildings, while at the same time leaving light and air for them. It provides for eight corner offices on each level. Balconies are thrown across alternate floor levels to bring the landscape up. Architects are Fairfield & Dubois — with offices in the building.

Ste. Anne Hospital near Montreal, to be completed in late 1970, is a chronic-care veterans' hospital. The \$14.3-million facility will provide a total of 1,000 beds — 680 of them in a new structure, the rest in a renovated infirmary.

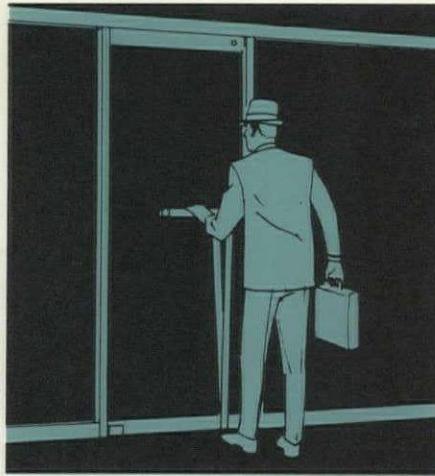
The new building, with sawtoothed walls, resembling the edge of a sawblade in profile, has wards which offer each patient a private space with built-in wardrobe, the possibility of sealing off his area with a curtain, and a window.

The first floor is planned on the principle of a village square, with a canteen as center for recreational facilities. Architects are St. Jacques Mongenais Blankstein Russell.

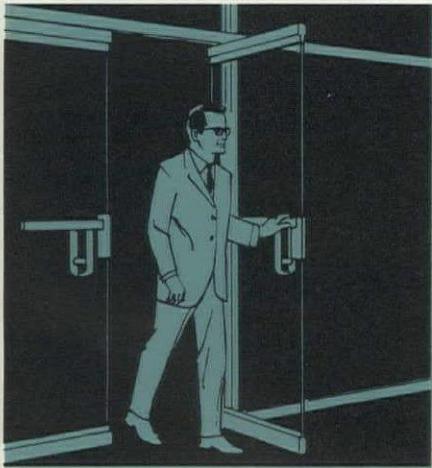
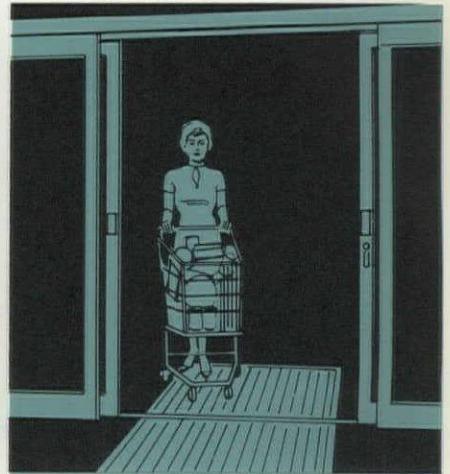
The Esso automotive service center at Nuns' Island, Montreal, is designed to fit into the overall concept of this new town now under development.

The steel and glass, drive-through station has a customers' lounge with easy chairs and coffee tables, telephones and a travel center. Its only advertising is a ground-level Esso sign; its pumps are of stainless steel.

Architect is Paul H. Lapointe; design consultant is Ludwig Mies van der Rohe, FAIA, who also serves as consultant to the \$350-million Nuns' Island project which will house some 50,000 persons when completed by 1980. □



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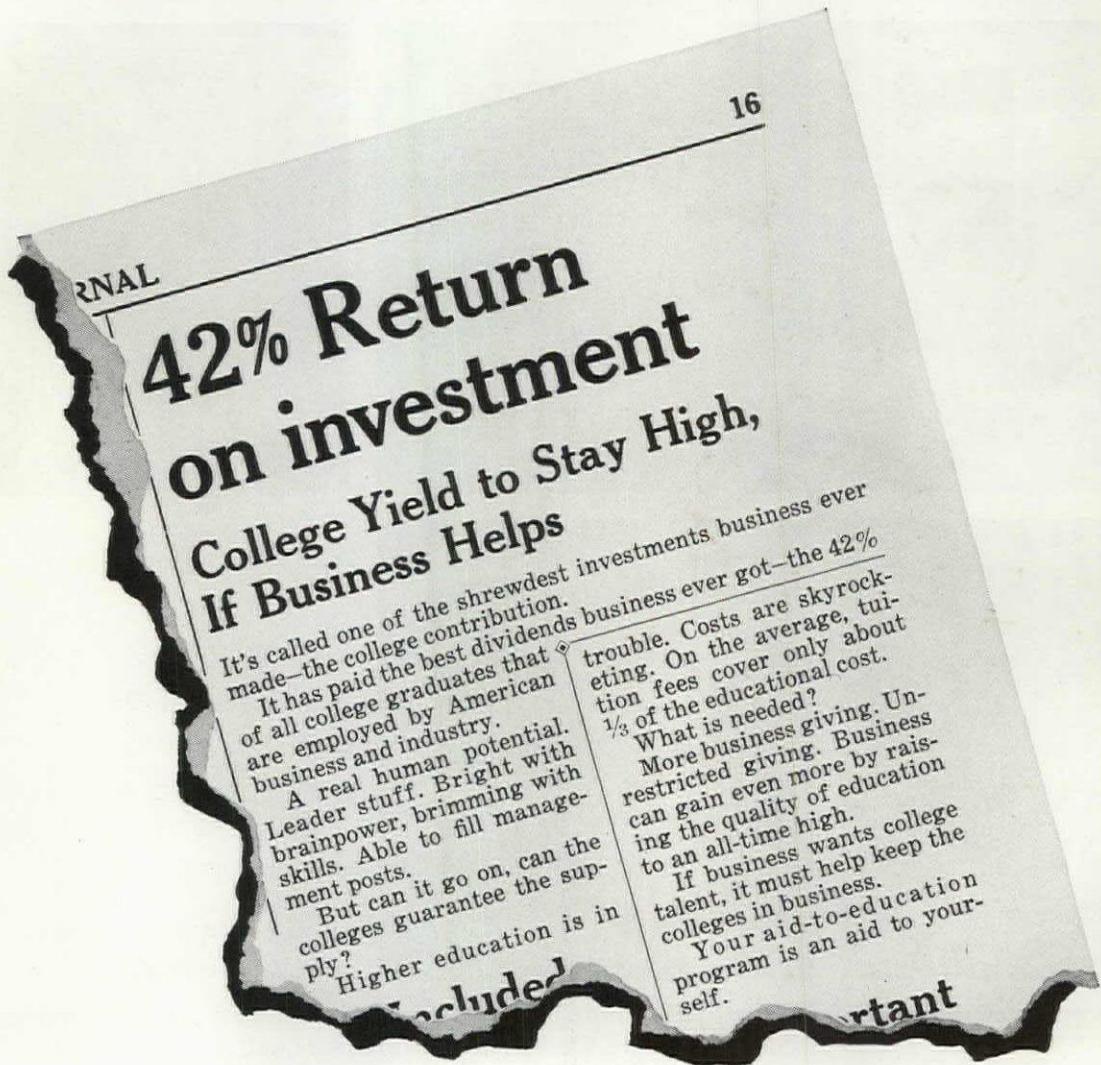


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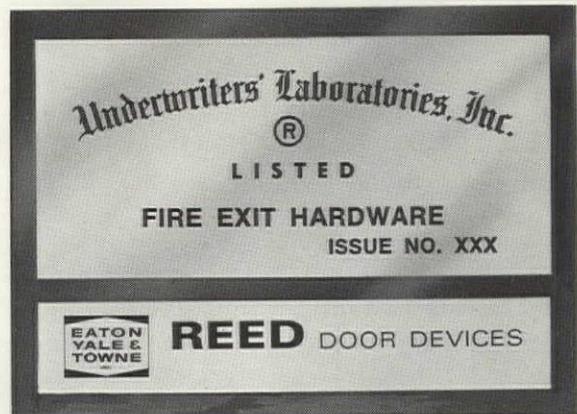


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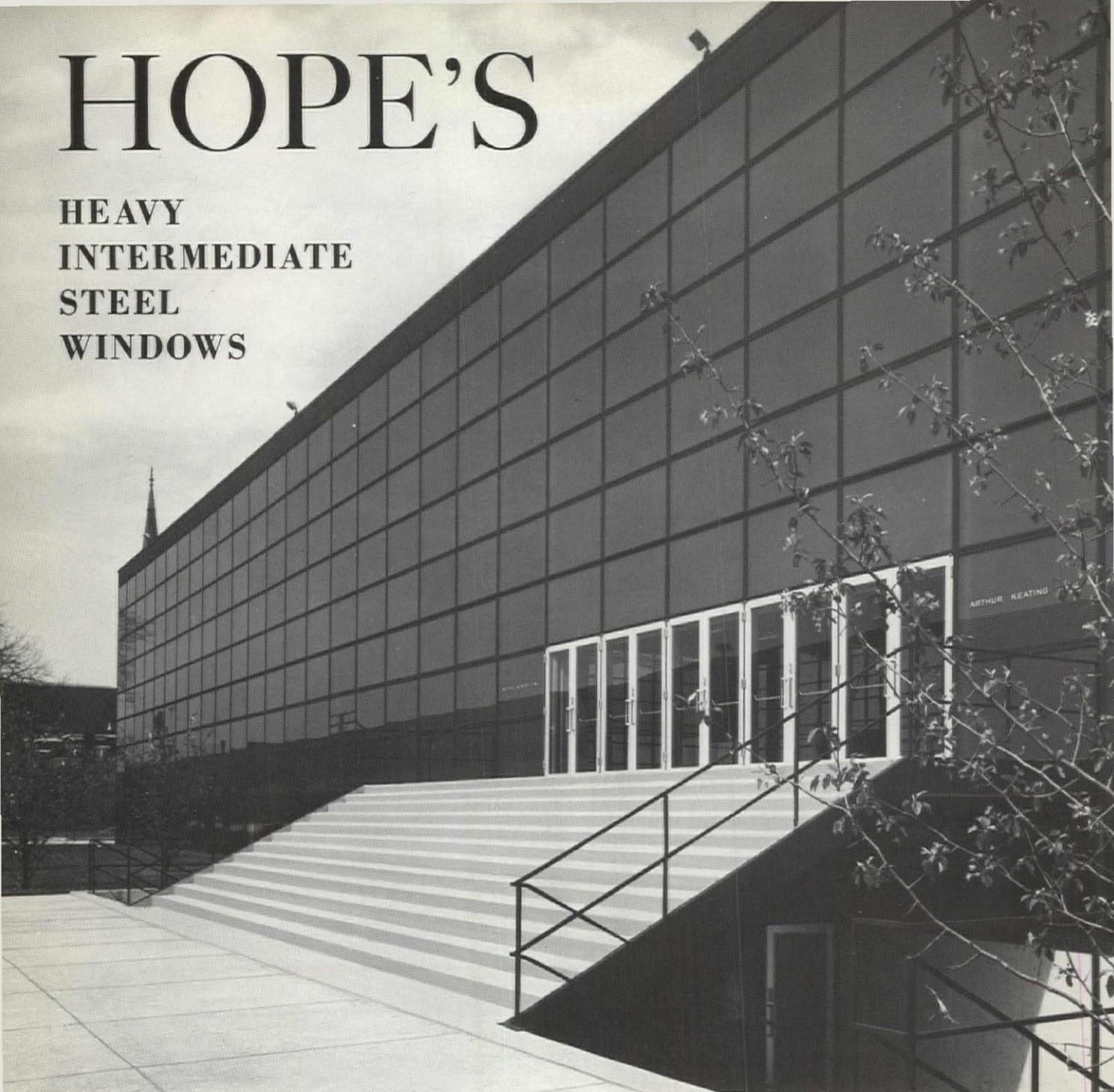


Photo by ©Ezra Stoller (ES)

GYMNASIUM (Arthur Keating Hall), ILLINOIS INSTITUTE OF TECHNOLOGY—CHICAGO, ILLINOIS

Architects: Skidmore Owings & Merrill

General Contractor: A. J. Maggio

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Today's audiences still marvel at its well-preserved original beauty.

Yet, for many years, the great House was plagued by the spectre of disaster. It was forced to close, once during the Depression, again during World War II, and once more as late as 1946. Each time,

new backers came forward with financial aid, new supporters with fund-raising plans, to reopen it.

It's interesting how people with taste and talent and ability always seem to spring into action when a treasure of the past is threatened. But what about the treasures of the future? The future of kids like Pat and Maggie. Kids who are threatened by Chicago's encroaching slum conditions, substandard housing, population increase, decreasing opportunity.

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like you. That's why we've established the Eaton Yale & Towne Urban Design Fellowship. The award, administered by the A.I.A., provides for one year of graduate study in urban design at an American university and a follow-up tour of urban developments abroad.

Sure, the Opera must go on. But as long as we're saving the past, shouldn't we save the future? The Pats and Maggies.

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The Spaces Inside

Among the groups participating in Architects' Day to be held at the Merchandise Mart will be the American Institute of Interior Designers, which is encouraging excellence in its field through an annual awards program.

"I don't think we can successfully ignore the complete interaction of structure and the space it encloses. All too often we have a great structure and a dreary, colorless or unfinished interior space—or, at the other end, an 'overdecorated' box. Neither solves our needs."

So states John Carden Campbell, whose residence was among the

four projects premiated in the first Honor Awards program of the American Institute of Interior Designers. The other three involved public areas or "contract" jobs.

Campbell, who heads the interior design division of Campbell & Wong, architects for the prize-winning house in Sausalito, California, says further:

"As vast numbers of interior spaces become more and more impersonal, we create a greater and more intense need for the individualizing and humanizing influence of color, textures, etc., to relate to the people who use these spaces. This deep psychological

need is not met by the underdone or the overdone but more hopefully by an earnest attempt to work for a unified relation of space and structure, with full feeling for the people who use the spaces."

Kurt Meyer, AIA, whose firm, Kurt Meyer & Associates, was architect for the Lytton Savings & Loan branch in Canyon Park, California, makes this comment: "In German, interior design is called *Innenarchitektur*, and that is what we are striving for: to have interior architecture that provides the environment suitable to the client and its function of the spaces."

Adele Faulkner, interior designer for Meyer's building, explains her role this way: "Ours is a professional service to help the client achieve beauty and order.

"Our utmost consideration is the image the client wishes to project; our goal is to achieve a proper distinction for the user in a world so filled with rubber-stamp interiors, style trims and sameness."

Mary Louise Schum and Eileen Siemens of Mary Louise Schum Interiors, Inc., who worked with architects C. F. Murphy Associates and consultants Gordon A. Friesen International, Inc., on Chicago's Mercy Hospital, list four questions which interior designers ask:

1. What will the psychological effect of specific color and pattern in each area have on the users?
2. Does the arrangement and color solve the specific problem?
3. Are the colors, fabrics and furniture serviceable and as maintenance free as possible?
4. How can it all be tied in with the architecture, and each element with the others, to create one functional, pleasing interior?

Mildred English likes to work with architects from the very first preliminary drawings, consulting on the selection of interior building materials and serving as color coordinator. Such was the case in the Phillips Petroleum Building, Bartlesville, Oklahoma, designed by Welton Becket & Associates.

In commenting on the awards, the four jurors—among them, John Conron, AIA, who is also an AID member—noted "the careful integration of art and architecture with interior design." □

AID winners include a residence, Mercy Hospital (chapel shown), Phillips Petroleum Building (board room), Lytton Savings & Loan (hospitality center).





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Meandering to the Mart

Chicago's Merchandise Mart is a special kind of place, but it will be even more so during the first National Exposition of Contract Interior Furnishings, June 22-27, with opening day devoted especially to architects.

Called "the marketplace of information for all who create, specify, supply or purchase interior furnishings for commercial and industrial use," NEOCON was planned to coincide with the first combined AIA/RAIC convention.

More than 745 exhibitors of the Mart will be displaying their full lines of contract furniture.

All of the exhibitors, who will be utilizing a record 2 million square feet, are planning to key their presentations to the specific needs of the contract specifier. For example, one home furnishings maker which has a large public seating division will convert his showroom from its usual residen-

tial displays to show all of its public seating line.

Architects Day at the Mart on Sunday will feature a brunch in the Merchants and Manufacturers Club from 11:30 a.m. to 1 p.m., followed by an address by Dr. Bruno Bettelheim, director of the Orthogenic School of the University of Chicago. His talk will be entitled "How the Interior Environment Affects People."



Presented by the Midwest Chapter of the National Society of Interior Designers and the Illinois Chapter of the American Institute of Designers, the program will conclude at 3 p.m., after which all the showrooms will be open. The Friday Architects Workshop is being offered as a special post-convention feature.

Participating in the day-long program will be three internationally recognized architects: Gio Ponti, director of *Domus* magazine, Milan; Sergio Bernardes, city planner of Rio de Janeiro; and Harry Seidler, Sydney.

The Mart programs and services are being offered without charge to AIA and RAIC members, but advance registration is required, according to W. O. Ollman, general manager. Reservation forms may be obtained by writing NEOCON, 830 Merchandise Mart, Chicago, Ill. 60654. □

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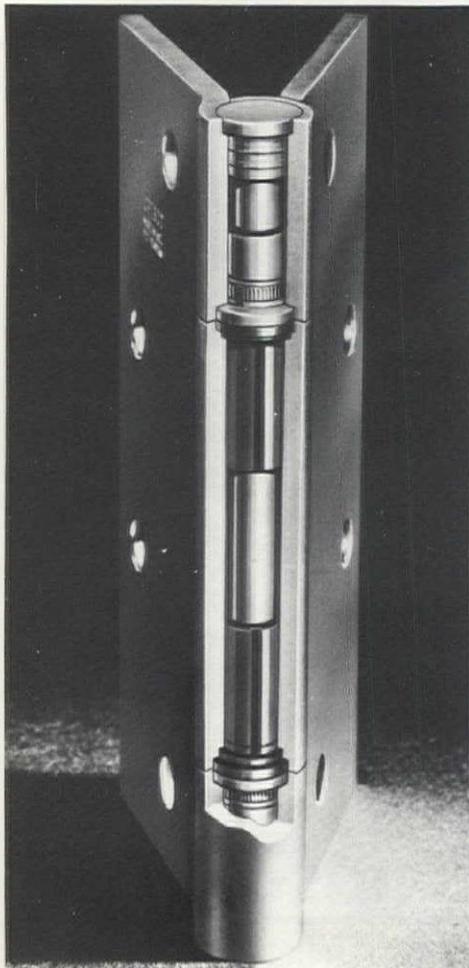
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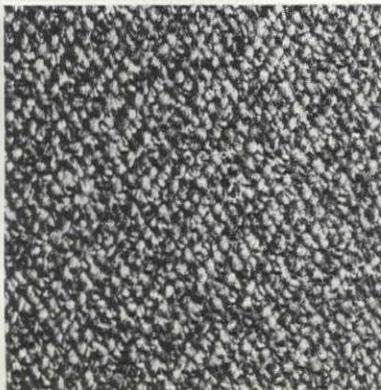


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Books

The Robie House: Frank Lloyd Wright. Historic American Buildings Survey. Palos Park, Ill.: Prairie School Press, 1968. Unpagged. \$2.50 (5 copies for \$10).

Any student of Frank Lloyd Wright in general and of the Robie House in particular will find this document an essential addition to his library. It consists of 14 sheets of drawings, ranging from elevation to furniture details.

The drawings were done as a part of several recent projects under the sponsorship of the Chicago Chapter AIA and the late Earl H. Reed, FAIA, working in cooperation with local historical and preservation groups.

Frank Lloyd Wright: The Early Work. New York: Horizon Press, 1968. 143 pp. No price given.

This is strictly a picture book with the text taking no more than 10 pages. While it is handsomely laid out in a 10¼x13-inch format with a generous use of white space, many of the photographs suffer through poor reproduction. A handful of plans also are included.

As Edgar Kaufmann Jr. points out in the introduction, "Here is a reissue of *Ausgeführte Bauten*, originally published in Berlin by the firm of Ernst Wasmuth in 1911. The year before, Wasmuth's had published a great portfolio of Frank Lloyd Wright's buildings and projects; it held a sheath of lavishly reproduced drawings, very personal in style, accompanied by the architect's comments."

In a later version, from which the US edition is reissued, a foreword was written by C. R. Ashbee, a leader in the English Arts and Crafts Movement who had known Wright for a decade.

Why reissue the book a half century later? Again, Kaufmann comments: "It will be welcomed of course by those who love Wright's work and by those who like to document tides of cultural influence. But a more profound result could be hoped for, too; this book may now in some ways affect American architects and their art. In the right hands it may be grafted onto current practice as a sprig of rich, cultivated olive is spliced into a wild stock rooted in the soil. One element supplies survival, the other adds quality. This book might be such a cion."

Shaping an Urban Future: Essays in Memory of Catherine Bauer Wurster. Edited by Bernard J. Frieden and William W. Nash Jr. Cambridge: MIT Press, 1969. 222 pp. \$7.50.

The seven essays collected in this book honor the memory of Catherine Bauer Wurster, whose achievements as teacher, author, urban strategist and adviser to Presidents and nations made her one of the most noted planners of her time. The papers do not review



her own pioneering work, although one is pleased to have the bibliography of books and articles by her. (She is shown here with her husband, William W. Wurster, FAIA, the Institute's 1969 Gold Medalist and the subject of an analysis in AIAJ last month, p. 72.)

The papers have the common purpose of probing the areas of urban crisis in order that we may plan and build intelligently.

The contributors are Lisa Peattie, Charles Abrams, Thomas F. Pettigrew, Edward P. Eichler, Lowdon Wingo Jr., Norman Beckman and Britton Harris. Mrs. Peattie and Abrams are concerned with housing policies. Pettigrew's attention focuses on racial problems. Eichler's interest is on new communities. Wingo's theme is urbanization in Latin America. Beckman's paper is about the changing structure of government in urban areas of the United States. And, finally, Harris intrigues the reader with his paper on "Inventing the Future Metropolis."

Architecture: A Short History. Joseph Watterson. Revised Edition. New York: Norton, 1968. 402 pp. \$10.

Readers of the AIA JOURNAL know Watterson's prose to have verve, enthusiasm and fresh charm. The first edition of this work was published in 1950. Watterson has

completely rewritten the last chapter of the book and added many new illustrations to reflect the many changes in architecture that have taken place meanwhile.

It is hard to think of a better one-volume history of western architecture. If you want to make a gift to a school or public library, this would be an excellent selection. Meanwhile, any architect who has not reviewed the past in recent years will find this book an easy one to read, with great profit to himself. Watterson, a Fellow of the Institute and recipient in 1965 of the Kemper Award for distinguished service to the Institute, is, as everyone knows, a former editor of the AIA JOURNAL. (1957-1965).

A History of Architecture in England. T. W. West. New York: David McKay Co., 1966. 176 pp. \$4.95.

This is the second edition of a work first published in England in 1963. It covers the development of architecture in England from prehistoric and Roman times to the 20th century. There is a glossary of terms, and a bibliography is supplied for each period covered, as well as a list of representative buildings. The text of the second edition has been considerably revised and new materials have been added.

Legal Pitfalls in Architecture, Engineering and Building Construction. Nathan Walker and Theodor K. Rohdenburg. New York: McGraw-Hill, 1968. 260 pp. \$11.95.

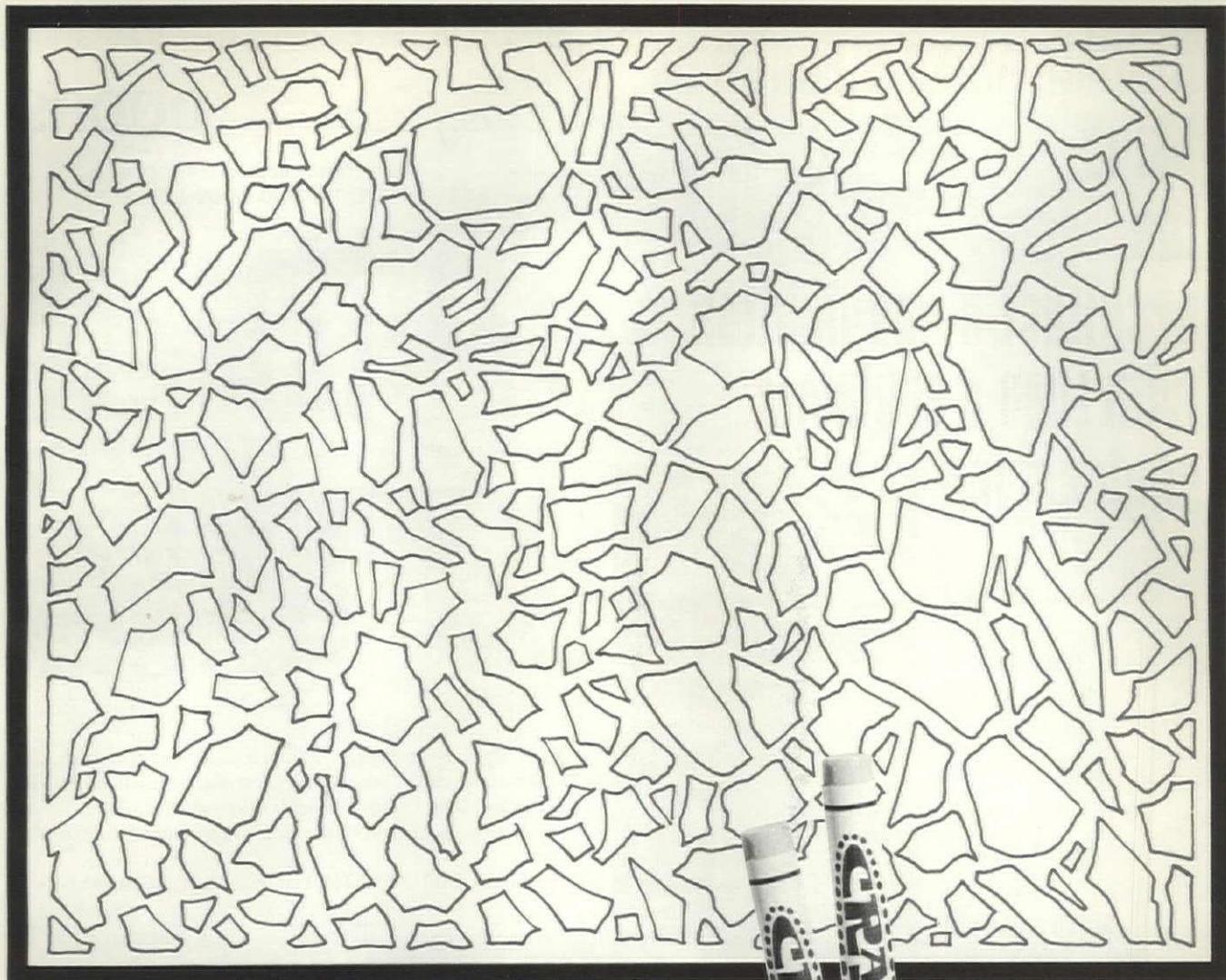
The legal climate in which the construction industry operates might suggest an alternate title of *Legal Pratfalls* as a more appropriate descriptive term.

The author, however, remains true to his promise in the preface "to make them (i.e., all those engaged in designing or erecting buildings) aware of certain legal pitfalls so that they may recognize danger in sufficient time to procure legal advice." Unfortunately, many of the pitfalls presented are situations that seldom recur, others are so ancient as to be historical in character, and most are confined to one area of the United States.

Of the 123 reported cases cited, approximately 50 percent are from New York State. Many fact situations are presented that are apparently from the author's personal experiences in unreported cases, presumably also from New York.

Except for the section on liens,

Continued on page 144



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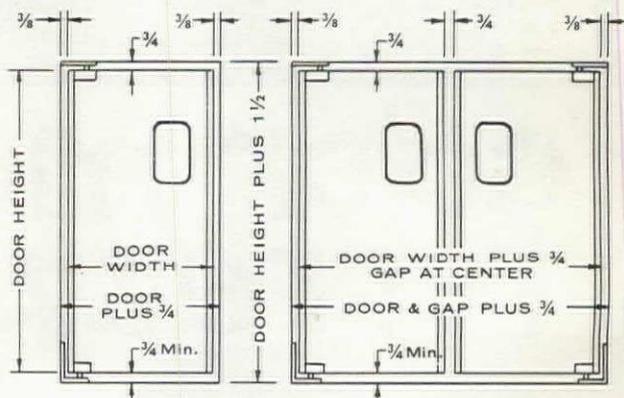
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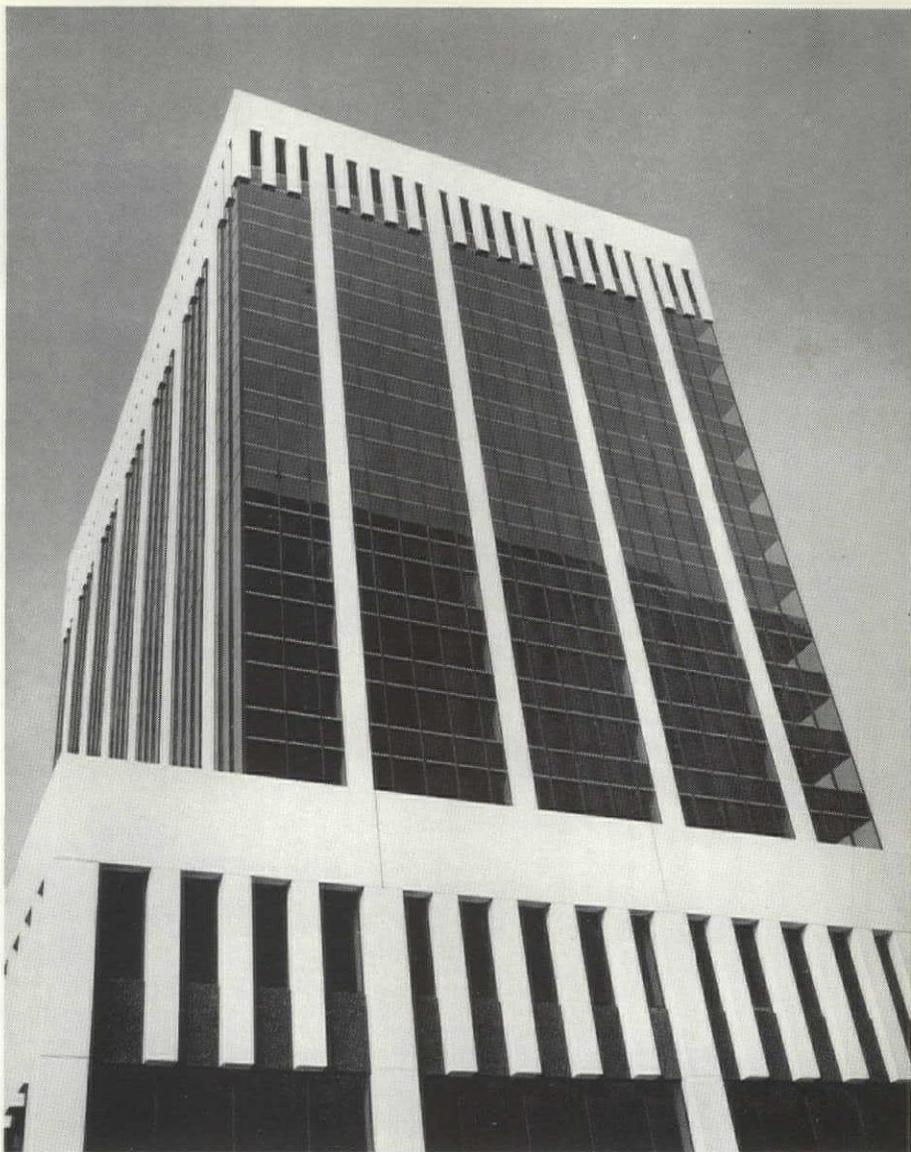
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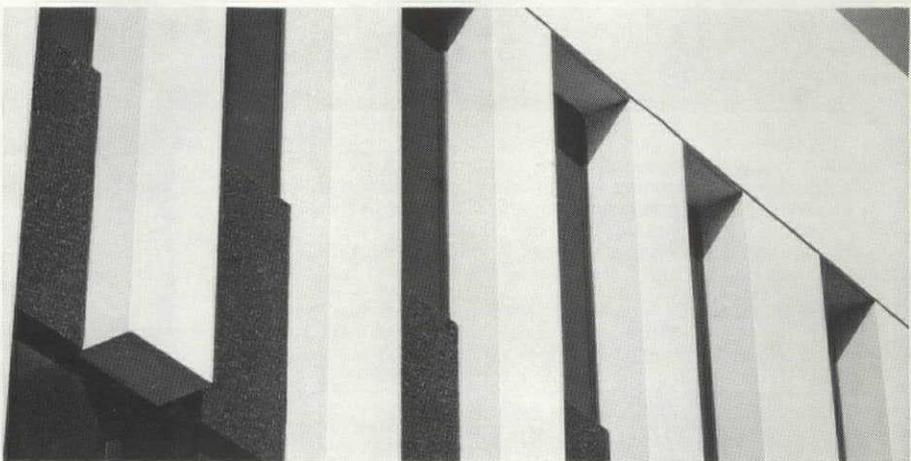


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Books from page 140

which occupies about 12 percent of the book and is executed in a scholarly manner, the majority of the text is written in a rather folksy style, more in the fashion of a persuasive trial lawyer rather than as an academician presenting a legal treatise. As such, it is very readable and interesting, with case examples spaced through the material. A lay reader could, however, easily be confused by the bouncing between negligence law and contract law without an adequate foundation for understanding on the reader's part.

The lien laws of 12 states (California, Connecticut, Florida, Illinois, Massachusetts, Michigan, Minnesota, Missouri, New Jersey, New York, Ohio and Pennsylvania) are discussed in some detail. Readers from those states will find this a good reference source for clear understanding of their lien laws.

A chapter on provisions for professional partnership agreements and another on joint venture agreements will add some valuable information to the library of the design practitioner. Only about one-third of the text (84 pages) is devoted to architect-owner and architect-public legal relationships. Twenty percent of the book is devoted to suggested contract provisions, many of which are highly specialized and not of general interest or capacity for use.

The book suffers from an attempt to cover too much legal territory in a short volume, and thus treats many extremely important areas very superficially. Arbitration, for example, is treated in seven pages; the entire subject of bonding, i.e., suretyship, is treated in six; and third party liability is given about two. The book is good reading for one interested in general information about the law in the construction industry, especially since its many case examples will enable the legally untrained reader to become aware of the legal thicket in which the industry operates. It would have been helpful if some of the many more recent case examples were used and if the subject matter regarding professional liability could have been dealt with in greater depth. The reader may easily be left with a confused picture of a complex legal situation, but at least he would be frightened enough by the examples given to seek out professional guidance in the legal aspects of his activities in the construction industry.

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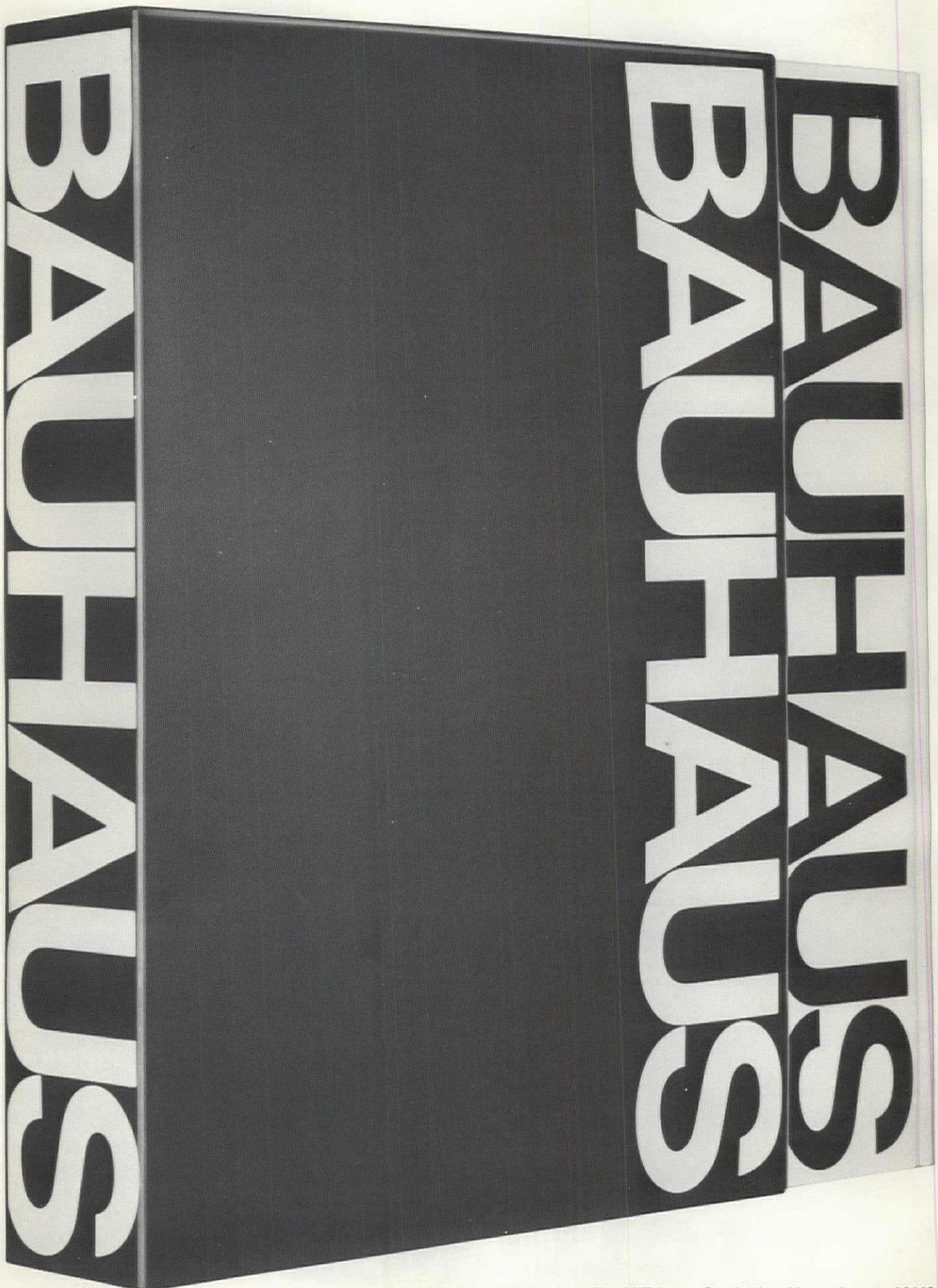
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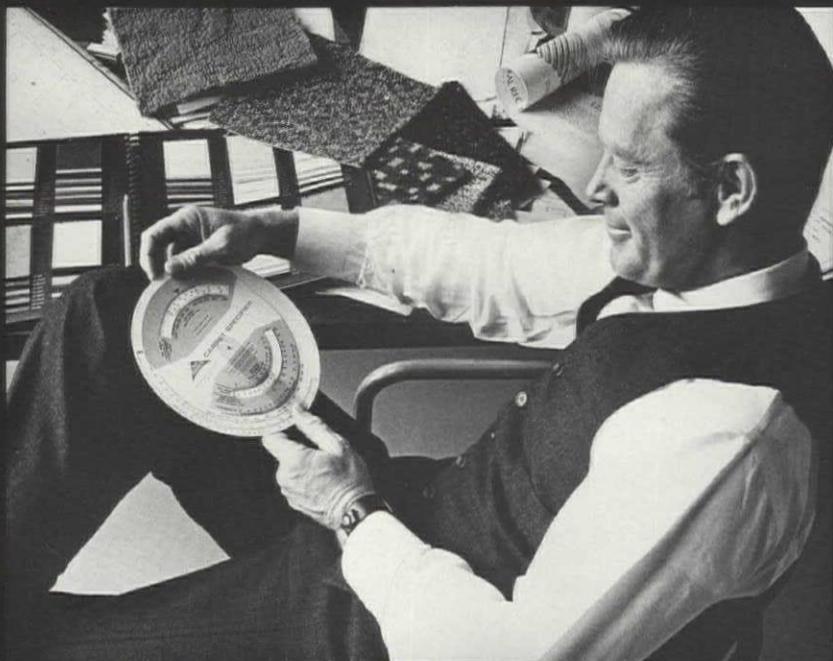
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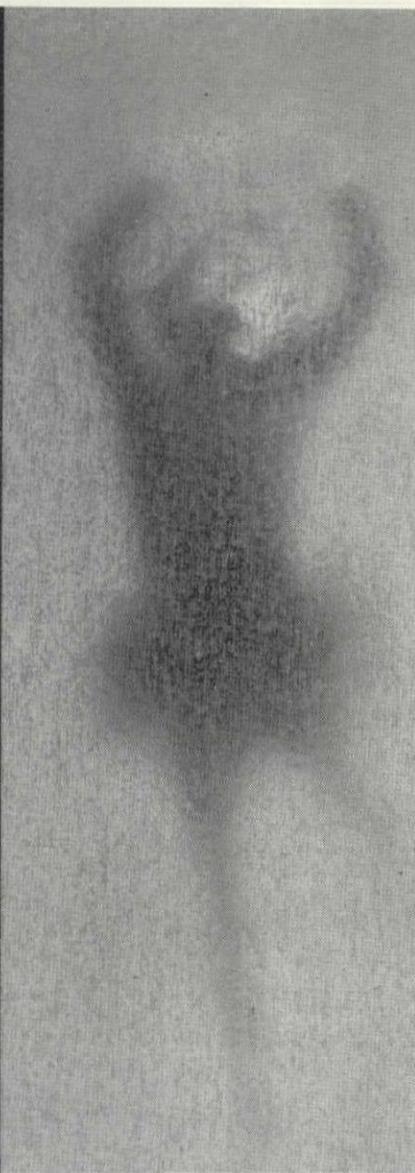
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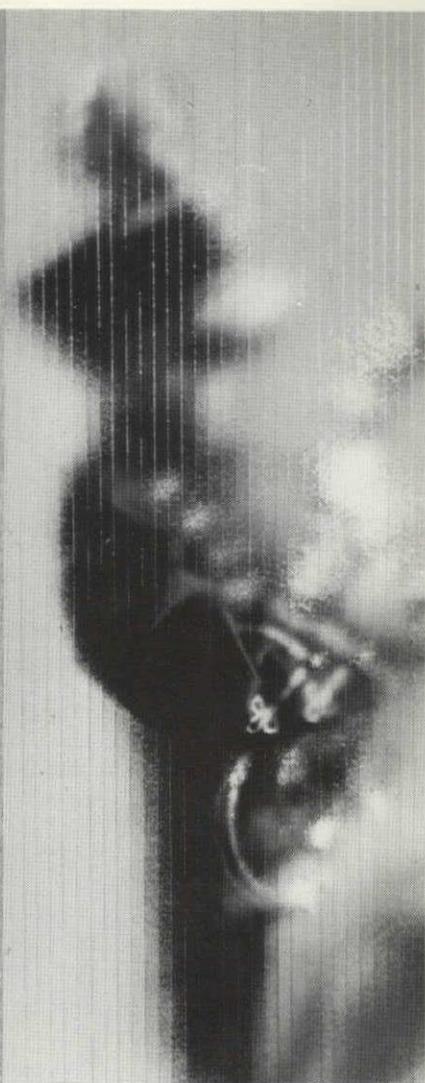
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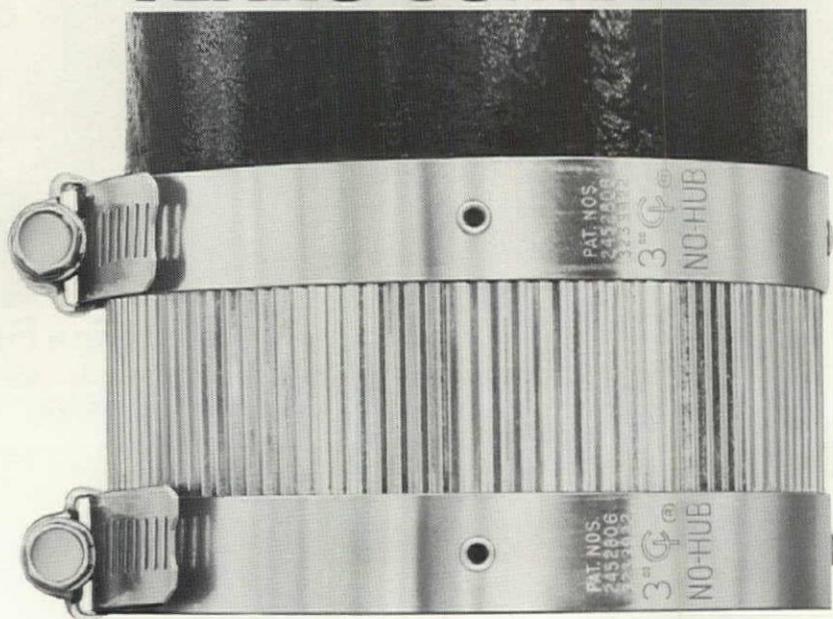
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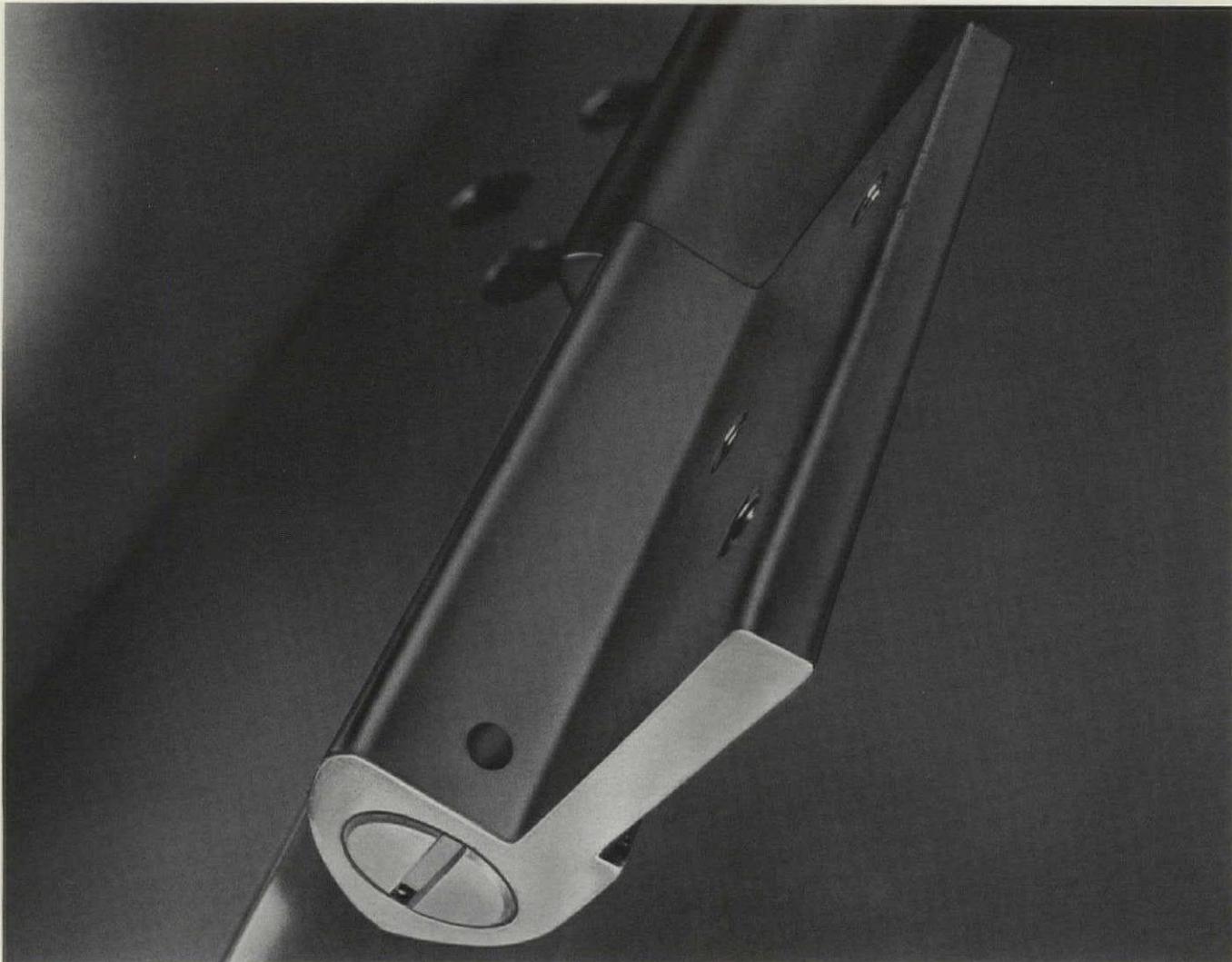
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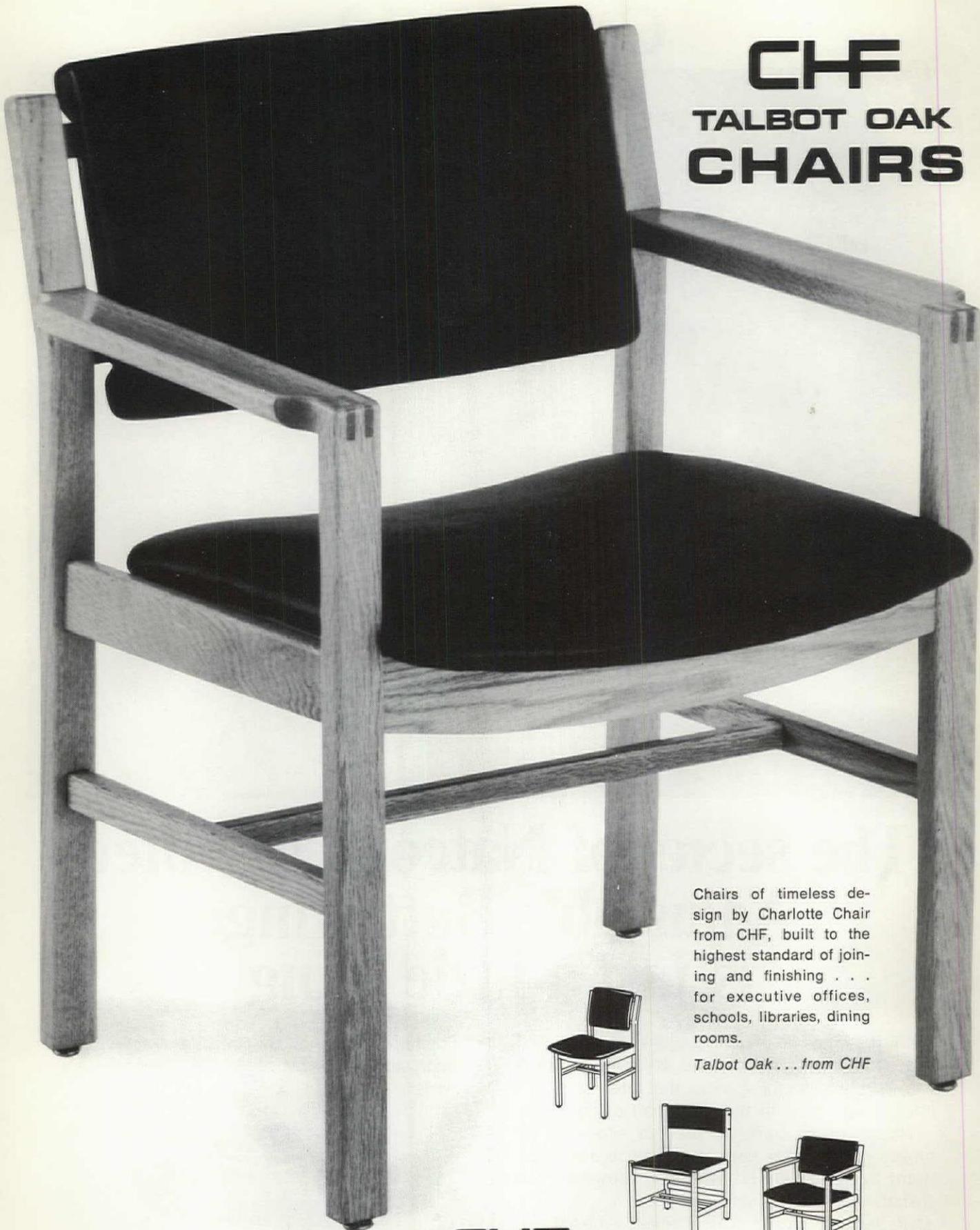
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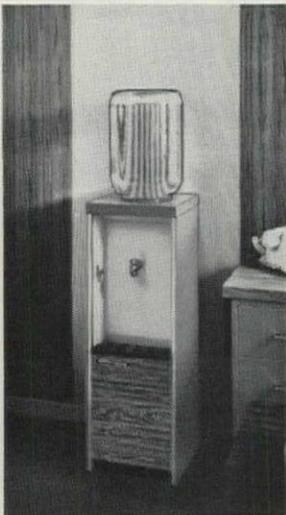
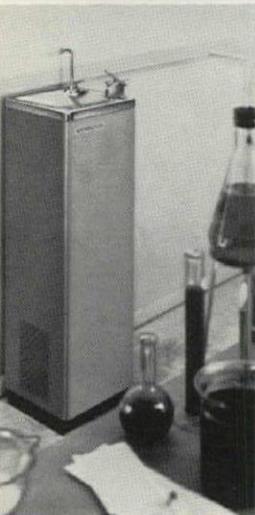
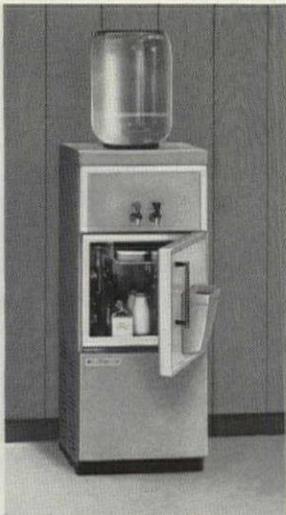
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Letters from page 152

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From Little Acorns

EDITOR:

When the Institute awarded me an honorary membership at the Portland convention last year, I was reminded of a letter which appeared in the AIA JOURNAL for May 1927 and which I again came across just the other day. Signed by "A Benedictine, AIA," it led to the formation of what was to be the Liturgical Arts Society and its quarterly *Liturgical Arts*. The contents follow.

"A letter published in the February JOURNAL said that artists and architects were 'characterized by one trait—a desire for fame; and were filled with but one ideal—to flood the world with beauty.' I wonder if there are not a few—especially those interested in ecclesiastical art and architecture—who (as so many medieval artists were) are interested only in the latter ideal? There are a number in the old world in various monasteries who are unselfishly trying in this manner to help revive the vitality of ecclesiastical art, but next to nothing has been done either at home or abroad, in this instance, for architecture.

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At the time the letter was written, I was working as a draftsman in the Boston office of Maginnis & Walsh. As you know, those were the days of "derivative" architecture, and, this firm, in the context of the times, produced many fine churches, seminaries, etc. As I was not a "facile" designer, I was spared the fascination of paper architecture, but I became progressively more and more disturbed at the costly imitation of past styles—the more so

Continued on page 162

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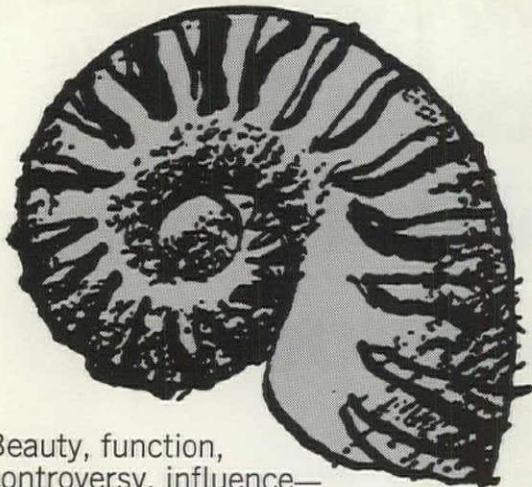


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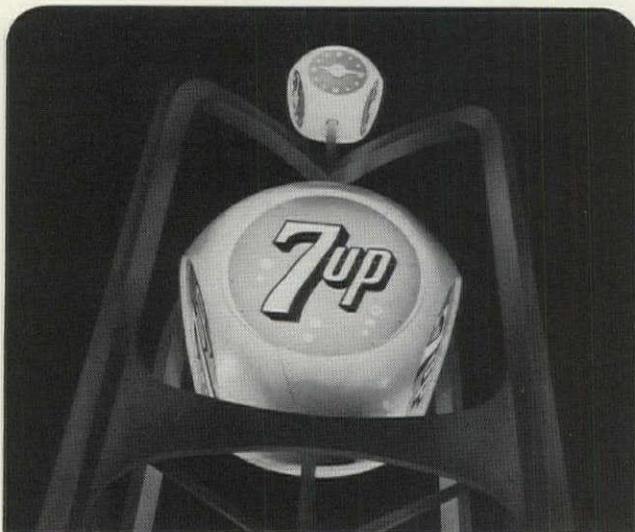
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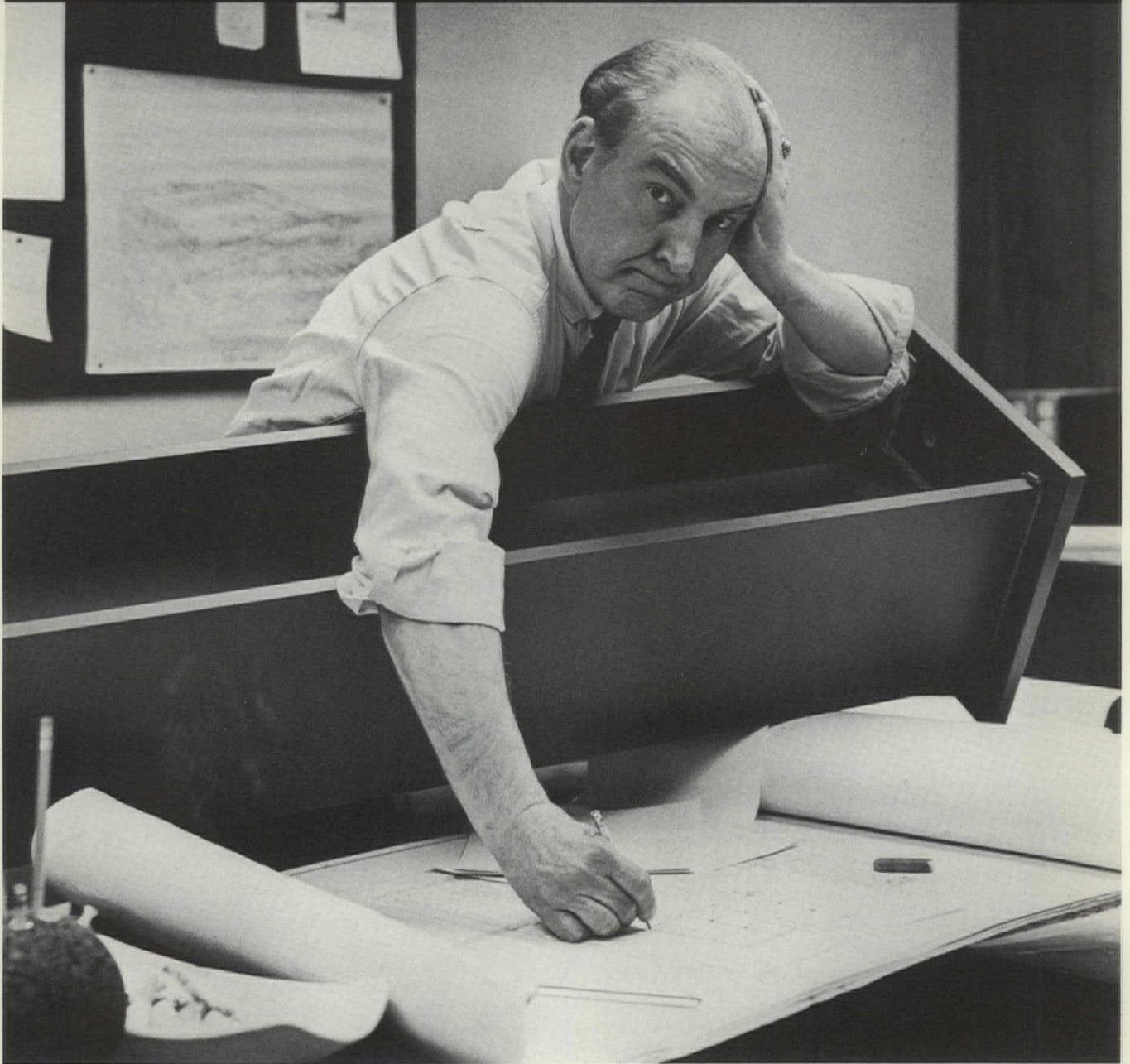
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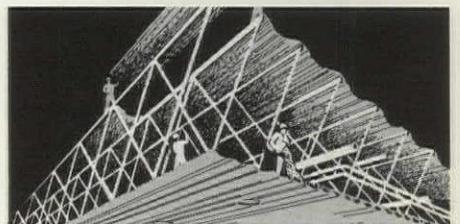
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166 AIA JOURNAL/JUNE 1969

Calendar

National

- June 15-20:** American Society of Landscape Architects Annual Meeting, Chase-Park Plaza Hotel, St. Louis
- June 19-21:** National Council of Architectural Registration Boards Annual Meeting, Palmer House, Chicago
- June 20-22:** Association of Collegiate Schools of Architects Annual Meeting, Blackstone Hotel, Chicago
- June 22-26:** AIA/RAIC Joint Annual Convention, Palmer House, Chicago
- June 22-27:** American Society for Testing and Materials Annual Meeting, Chalfonte-Haddon Hall, Atlantic City, N. J.
- Aug. 17-20:** Society for College and University Planning Annual Conference, Rice Hotel, Houston

AIA Regional and State Conventions

- Sept. 18-20:** Central States, Cornhusker Hotel, Lincoln, Neb.
- Oct. 1-3:** East Central States, Ramada Inn, Evansville, Ind.

International

- June 15-20:** International Design Conference in Aspen, Colo.
- Aug. 9-24:** Symposium at Stockholm (to be repeated in Sept. and Oct.) Contact: Symposium at Stockholm, Box 9137, 10272 Stockholm 9, Sweden.

Continuing Education

- June 17-27:** Computer Aided Urban Design course at Massachusetts Institute of Technology. Contact: Director of Summer Sessions, Room E 19-356 MIT, Cambridge, Mass. 02139.
- June 23-27:** Summer program on Multistory Steel Building Technology. Contact: Director of the Summer Session, Room E-19-356, MIT, Cambridge, Mass. 02139.
- July 1:** Applications due, Cintas Fellowship. Contact: Cintas Fellowship Program, Institute of International Education, 809 United Nations Plaza, New York, N. Y. 10017.
- July 6-7:** Late registration due (subject to space), summer session, School Planning Institute. Contact: Coordinator, 19th Annual Institute, School Planning Laboratory, School of Education, Stanford University, Stanford, Calif. 94305.
- July 28-Aug. 1:** Coatings Course for Painting Contractors, Maintenance Engineers, Architects. Contact: Dean Wouter Bosch, Graduate School, University of Missouri-Rolla, Rolla, Mo. 65401.

Awards Programs

- July 1:** Submissions due, commercial/industrial interiors in seven categories. Contact: Contract '69, National Expositions Co., 14 W. 40th St., New York, N. Y. 10018.

Tours

- June-Aug.:** Special Travel programs departing from New York, for AIA members. Contact: Travel Wholesalers International, 1707 L St. N.W., Washington, D. C. 20036. □

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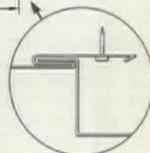
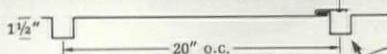
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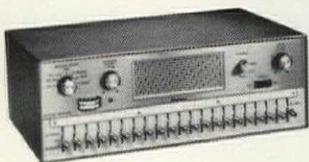
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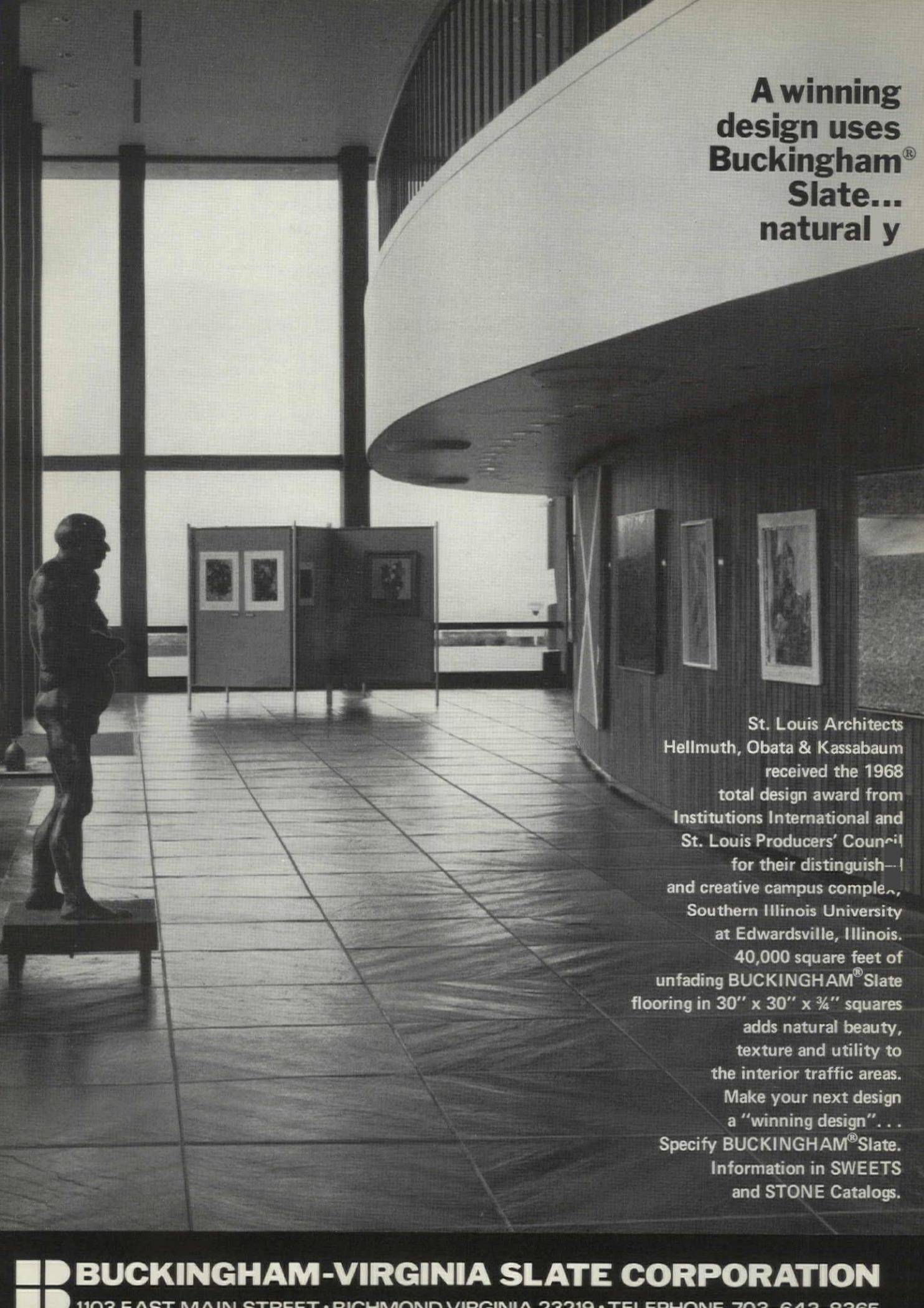
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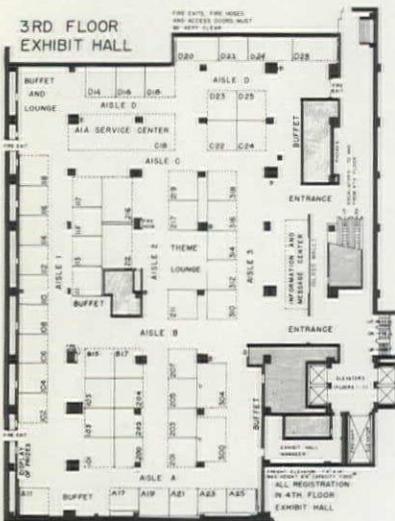
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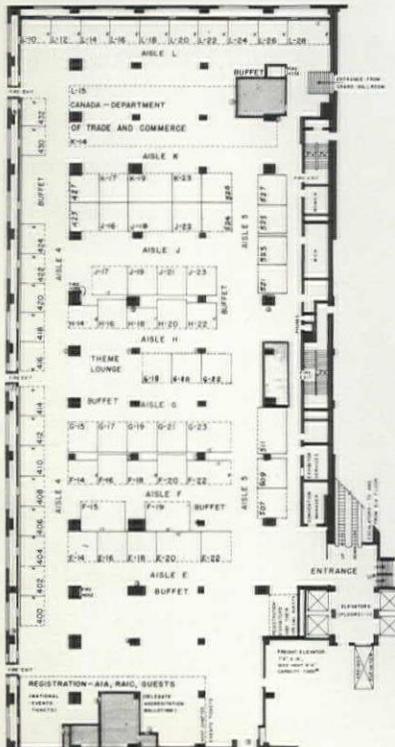
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