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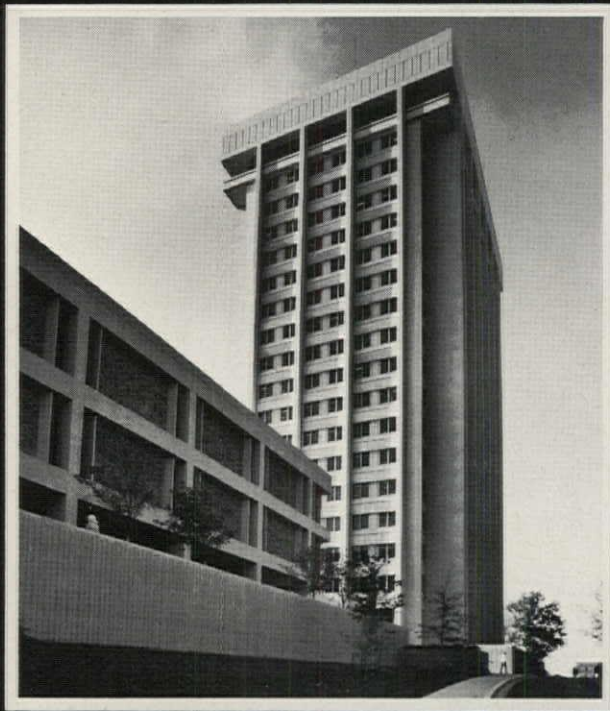
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(Above) Patterson Office Tower and White Classroom Building. Architects: Johnson-Romanowitz, Lexington. General Contractor: Foster & Creighton Company, Lexington. Six Dover gearless traction elevators with Computamatic IV Control.

(Right) Agricultural Science Building One. Architects: McCulloch & Bickel, Louisville. General Contractor: Foster & Creighton Co., Lexington. Two Dover Oildraulic Elevators with Duplex Control.



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AIA JOURNAL

FEBRUARY 1971

Edward Higbee	SOLERI: 'PLUMBER WITH THE MIND OF A ST. AUGUSTINE'	17
	<i>The first attribute stems from the designer himself, the second from the author, a professor of land use.</i>	
Vincent G. Kling Jr.	THE ARCHITECT AS FILM MAKER	23
	<i>With a snorkel camera, it's a snap to give the client a realistic preview of his future building</i>	
	1971 COMMUNITY AND JUNIOR COLLEGE DESIGN AWARDS	26
	<i>The entries in this second annual program bear witness that colleges are becoming community oriented</i>	
Bill N. Lacy, AIA	ON THE HORIZON: NONTEMPLES OF LEARNING	30
	<i>Sure there are new directions in college planning, but students show needs for still further changes</i>	
J. William Curtis	A FUNCTIONAL DEFINITION OF SCALE	33
	<i>Usual ways of judging man/environment relationships are outmoded—here's a suggestion for a new means</i>	
H. L. Sisson	FAIR WEATHER REPORTS FROM THREE SMALL FIRMS	39
	<i>How some small offices have steered from placid and/or difficult seas into waters full of excitement</i>	
Peter D. Nairn	ARCHITECTS: THE RIP VAN WINKLES OF THE ELECTRONIC AGE?	42
	<i>Quite a few of us are guilty of sleeping at the helm while others sail past, using up-to-date equipment</i>	
Howard R. Lane, AIA	THE MANY REWARDS DUE A DOER	45
	<i>Involvement is time consuming, difficult and frustrating at times, but it brings satisfaction indeed</i>	
Cliff Phillips, AIA	A DRAWING METHOD FOR FAST PERSPECTIVES	47
	<i>Look what a microfilm reader can do for you: save time and money, and some dreary routine work too</i>	
Robert Allan Class, AIA	'GET WITH IT OR LOSE OUT'	50
	<i>Say "systems," and this is generally the feeling</i>	

DEPARTMENTS

Comment and Opinion	6	Letters	61
Outlook	7	Events	64
Institute Page	14	Advertisers	64
Books	52		

COVER

Theology — part of Paolo Soleri's concept of a new monastery, a secular city designed for the restoration of man. From *Arcology: The City in the Image of Man*, courtesy MIT Press.

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VOL. 55, NO. 2

comment and opinion

ABOUT AN IMPORTANT APPOINTMENT: The selection of George M. White, AIA, to the position of Architect of the Capitol gives cause to rejoice for several reasons. First and foremost, he is a registered architect and heads his own firm in Cleveland. He is also an engineer and an attorney. Second, he is a vice president of The American Institute of Architects, having been elected to a second consecutive term in 1970. Long active in AIA affairs, he served as chairman of the Documents Review Committee in 1969 and of the Insurance Committee the two previous years. Third, his name was one of five submitted to the White House by the Institute. He is a lifelong Republican who had the backing of Ohio's two senators, Robert Taft Jr. and William B. Saxbe, also of the same political persuasion.

White becomes the ninth man and the fifth professional architect to be named to the post. Early predecessors — William Thornton who won the 1792 competition for a Capitol design and Benjamin Henry Latrobe who became responsible for construction in 1803 and later repaired the building after it was burned by the British — had varied titles. When Charles Bulfinch assumed the job in 1817, he was the first to be called Architect of the Capitol. The position was abolished in 1829, and there was not a successor until 1861 except on a temporary basis. The next in line was Thomas U. Walter, who was the second president of the Institute, being followed by yet another architect, Edward Clark. Elliott Woods, David Lynn and the late J. George Stewart came from other backgrounds.

White holds bachelor's and master's degrees in engineering from the Massachusetts Institute of Technology, a master's in business administration from Harvard University and a bachelor of laws from Case-Western Reserve University.

AIA President Robert F. Hastings, FAIA, commended President Nixon for his selection, commenting upon White's "extensive knowledge and respect for the best in architectural design and tradition."

White, of course, has his work cut out for him. When he takes over the \$38,000-a-year post, he will inherit the West Front controversy which has been waging on Capitol Hill and within AIA ranks for at least six years. A report released in January by the New York architectural/engineering firm of Praeger-Kavanagh-Waterbury says that restoration of the Capitol's 150-year-old sandstone west walls could be accomplished safely without impairing their "inherent beauty" at a cost under \$15 million. The in-depth study, ordered by Congress last year, halted immediate plans for a \$45 million project that would have encased the walls in a marble extension and added about 163,000 square feet of space.

The decision whether to accept the report's recommendations rests initially with the seven-member Commission for the Extension of the Capitol, which led a successful drive a decade ago to extend the East Front and has advocated a similar extension of the West Front. White, who automatically joins the commission when he takes over, would not commit himself for or against the extension at this writing.

Meanwhile, he will assume many other regular assignments. As noted in *We the People* (United States Capitol Historical Society, 1963), "Besides construction, the office's duties today take in repair and maintenance — even statue dusting." Whatever the tasks, George White, we wish you luck.

ROBERT E. KOEHLER

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42, 43, 44 — Suzy Thomas II
45 — Ralph Samuels Valley Photo
46 — Jordan Lagman

NEXT MONTH

Operation Breakthrough is now underway with completion of most prototype sites expected before the end of 1971. Recognizing the interest of the profession in the program, which proposes to double nationwide housing unit production in this decade, the AIA Committee on Housing appointed a special committee to examine the significance of its broader aspects. The seven members met for a three-day review with the Breakthrough staff at the Department of Housing and Urban Development and had numerous contacts with participants before drawing up their report. What they have found will be the subject of the leadoff presentation for March.

Other features: a collection of sketches by Samuel Chamberlain, an honorary member of the Institute; a proposal for the establishment of an AIA Environmental Academy and a US Environmental Development Corporation to help meet the social needs of the profession; two approaches to optimizing the design and cost of highrise office buildings; and a portfolio of the six winners in the 1970 Naval Facilities Award.

ASIDES

Since the cover story this month is devoted to Paolo Soleri, it is only fitting to remind our readers that he will be appearing on both coasts in the weeks ahead. He will be one of five speakers at a seminar sponsored by the American Iron and Steel Institute at the Fairmont Hotel in San Francisco on March 16 and at the Plaza Hotel in New York City on April 1.

The others are Jay Doblin, founding partner of Unimark, international design firm, on a whole new approach to industrial design beyond systems; Alvin Toffler, author of *Future Shock*, on adapting to change positively; Thomas Willson, vice president of AISI, on the steel industry's research into new areas; and Richard S. Wurman, AIA, of Philadelphia, on making the American city comprehensible.

Speaking of seminars, Terry K. McGowan, author of "In the Proper Light" in the December issue, invites architects and city planners to join urban renewal officers, public officials, etc., concerned with the beautification and economic stimulation of cities to the General Electric Lighting Institute at Cleveland's Nela Park, May 12-13. Success with a 1970 "Lighting for the City" conference, of which McGowan is course coordinator, has prompted GE to schedule a second. Guest speakers will explore all phases of the total urban lighting problem: building floodlighting, signs, landscape illumination, parks, sports facilities, safety, area lighting and streetlighting. One evening will be given over to outdoor lighting demonstrations.

Among the products which should particularly interest the architects at Nela Park is a molecular arc lamp which produces light closely matching the color quality of noontime sunlight. Still in the testing stage, the new lamp is said to be four times more efficient than an incandescent lamp—and at 400 watts produces 16 times more light than a 100-watt incandescent household light bulb. □

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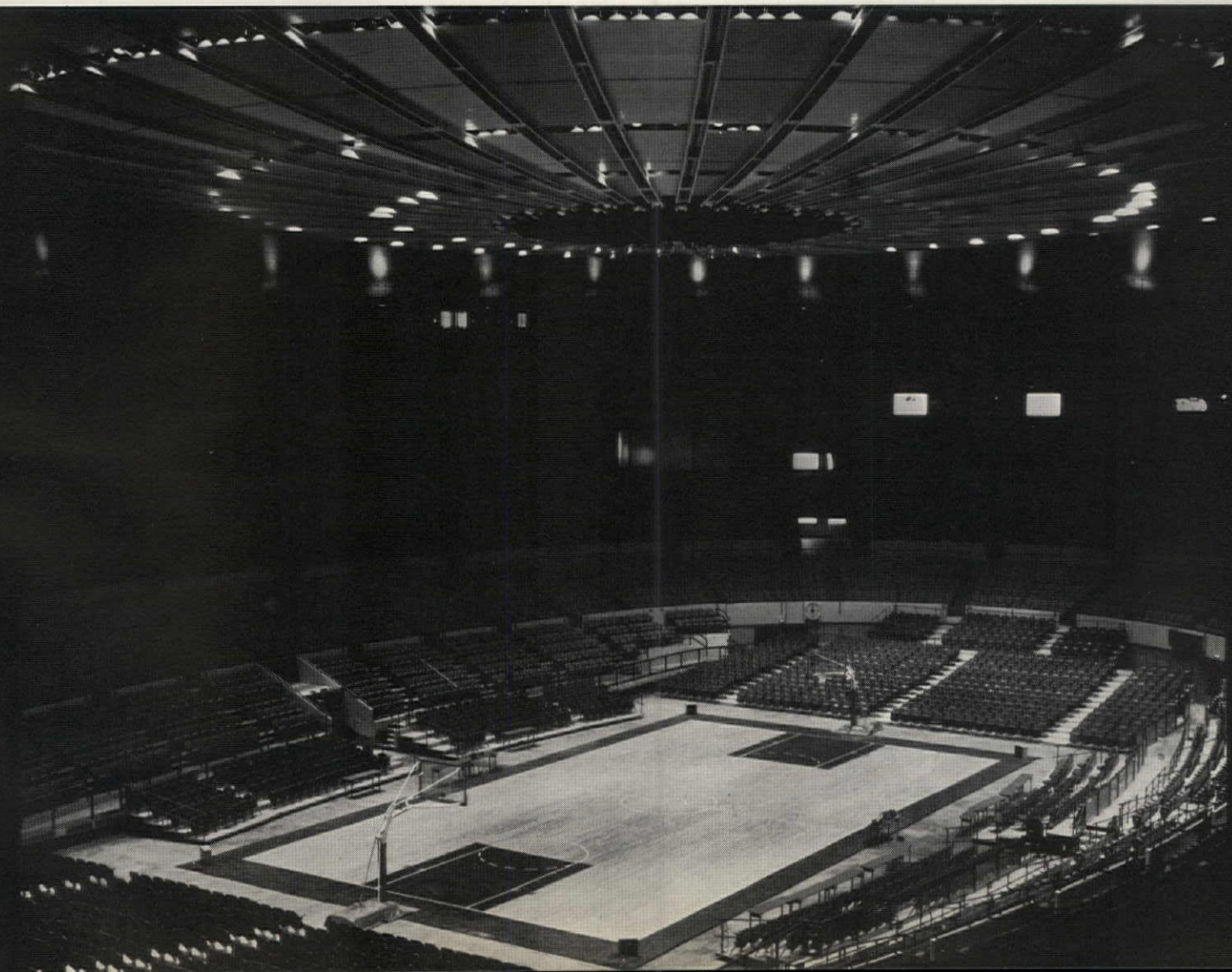
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AIA Eyes Dec. '72 Completion Date as Contract for New Headquarters Is Awarded

A contract to build a new national headquarters building for the 24,000-member American Institute of Architects was awarded on February 8 to the Volpe Construction Company, Inc., it has been announced by President Robert F. Hastings, FAIA. The firm is based in Malden, Massachusetts, with offices in Washington, D.C., and Miami. Bids from five contractors were examined by the AIA Headquarters Committee, headed by First Vice President Max O. Urbahn, FAIA.

Construction of the \$6.2 million structure will begin in March after the site is cleared. Target date for completion is December 1972. The seven-story building will be erected on land occupied by AIA headquarters until January at 1735 New York Avenue N.W.,

Washington, D.C., and the adjacent Lemon Building which served as offices for the AIA JOURNAL. The reinforced concrete structure to be erected is the design of Norman C. Fletcher, FAIA, and John C. Harkness, FAIA, of The Architects' Collaborative, Cambridge, Massachusetts (see JOURNAL, June '70).

Until the new building is completed, the Institute, including the JOURNAL staff, will be housed at 1785 Massachusetts Avenue N.W., Washington, D.C. 20036; telephone: (202) 265-3113.

For a glimpse of the temporary headquarters, see the adjacent photograph; for an insight into the kind of building it is, read the story underneath the view.



New AIA address: 1785 Massachusetts Ave. N.W.

Building That Now Houses the Institute Once Was Home for Treasury's Mellon

Taxi drivers, those peculiarly urban philosophers, often afford insights into the mores of a place. Recently, an elderly one in Washington, D.C., recalled that when he was a child he came to visit the building which has become the temporary headquarters of The American Institute of Architects. He remembered the sparkling marble floors, the carved woodwork and the arrangements of flowers everywhere. He lived nearby, and he said that every day the neighborhood dwellers peeped from behind starched curtains to watch Andrew W. Mellon, one of the tenants of the building, walk by on his way to the Treasury Department.

The building at 1785 Massachusetts Avenue, one block east of Dupont Circle, once contained luxurious apartments for six families, including accommodations for 61 live-in servants, according to a previous owner, the American Council on Education. Sources vary, however, and one states that there were seven units plus quarters for a mere 40 servants. Be that as it may, the substantial and impressive structure was erected in an era when truly gracious living was still possible for those who could pay for it.

Built in 1916 by Stanley McCormick, a relative of the inventor of the McCormick reaper, the building was known as McCormick Hotel. At one time, it was the home of other renowned personages than Mellon, who lived there during the period when he was Secretary of the Treasury under Presidents Harding, Coolidge and Hoover. Joseph Duveen, the noted art dealer, moved in, bringing with him a selection of his art treasures. Mellon was invited to see the art and became so enamored of it that he bought the entire collection for a reputed \$21 million. Much of it is now housed in Washington's National Gallery of Art.

For about 10 years prior to October 1949, the building was leased by the British Purchasing Commission. In 1950, it was bought by the American Council on Education who expended \$150,000 to convert it into 37,000 square feet of usable office space. The council recently built new headquarters at 1 Dupont Circle and sold the building to the Brookings Institution in 1970. Brookings is now landlord to the AIA, who occupies the second, third and fourth floors and much of the basement. Other occupants include the

continued on page 10

South Carolina Project Takes Top Award Among Chief of Engineers Submissions

Highest honors in the Army Chief Engineers 1970 Architectural Design Award Contest go to the J. E. Sirrene Company of Greenville, South Carolina, architects for the Reception and Processing Center for new Army inductees at Fort Jackson, South Carolina.

The judges, all Fellows of the AIA, were Rex Whitaker Allen, San Francisco; Joseph Miller, Washington, D.C.; and O'Neil Ford, San Antonio. They praised the center for its "outstanding design with well organized plan, excellent proportions and good use of materials."

Awards of Merit include Libby Junior High School, Libby Dam and Reservoir, Montana, designed by Taylor, Thon, Schwartz & Kilpatrick of Kalispell, Montana; reservoir manager's headquarters and visitors center, J. Percy Priest Dam, Stones River, Nashville, Tennessee, planned by the Nashville Engineer District; and the Automatic Data Processing Center, Mather Air Force Base, California, designed by Cox, Liske Associates of Sacramento.



Fort Jackson inductee center is No. 1.

AIA Officer Is Architect of Capitol



George M. White, AIA, a vice president of the Institute, has been named Architect of the Capitol as this issue of the AIA JOURNAL goes to press. He succeeds J. George Stewart, who died on May 24, 1970. The 50-year-old appointee, who heads the architectural firm bearing his name in Cleveland, is also an attorney and engineer (see Comment and Opinion for more details).

Awarding of AIA's Critics' Medal Ends Notable Career of Sibyl Moholy-Nagy

The last honor to be bestowed upon Sibyl Moholy-Nagy was the Institute's Architectural Critics' Medal, an honor she was informed about just prior to her death in New York City on January 8 and which she considered the greatest she had ever received (see AIA JOURNAL, Jan., p. 8).

The AIA Board, in selecting the author, educator and lecturer for the medal, cited her as "a penetrating writer of immense integrity with a world-encompassing view of architecture." The fourth such medal to be awarded since its establishment in 1967, it was to have been presented in June during the AIA convention in Detroit.

Mrs. Moholy-Nagy, 68, was the widow of Bauhaus artist and designer László Moholy-Nagy. After his death in 1946, she embarked upon a teaching career which was terminated as a visiting professor at Columbia University in 1969-70. She was to have assumed a similar position at the University of Houston.

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Architectural Record of April 1922 published an article by Frank Chouteau Brown which was one of a series on "Tendencies in Apartment House Design." He described the structure at 1785 Massachusetts Avenue as follows: "The entire floor area is given up to a single apartment on each story, reaching on the upper floors a total of nine principal and seven service rooms to the apartment. A great deal of the total area is also occupied by halls and passageways. The plan is further considerably affected by the fact that the lot is bounded upon the third side by another street, along which most of the principal bedrooms are arranged; so that, actually, the type of plan very nearly conforms to the group of 'rear courtyard' plans enclosed upon three sides."

Brown characterized the building as "de luxe." Evidence of its original grandeur endures: high ceilings, huge fireplaces, ornate carvings — and even safes for family silver.

Country's First Aircraft Noise Research Laboratory Under Construction for NASA

Do you wince when an airplane flies low over your house if you are trying to sleep late on a Sunday morning? The reactions of people will be studied in the nation's first laboratory for fundamental research into aircraft noise at the National Aeronautics and Space Administration's Langley Research Center in Hampton, Virginia.

Designed by Reynolds, Smith & Hills, a Jacksonville, Florida, architectural, engineering and planning firm, the \$4 million facility is scheduled for completion in January 1972. RS&H has accomplished other projects for NASA, including the design of the mobile launchers used for erecting and launching the Apollo-Saturn V space vehicles at the Kennedy Space Center in Florida.

The laboratory will consist of a two-story engineering support area, a four-story applications area and a one-story physics and simulation area. Contained in it will be electronic and acoustic apparatus to study and measure noise generated by aircraft; to simulate aircraft noise patterns and subjectively study the reactions of people in exterior and interior environments; and to test and evaluate noise reduction materials, devices and techniques.



HUD's Finger (top) and GSA's Kunzig (bottom) make their points at the A/E conference.

Federal Contracting Considered in Depth At Conference for Architects/Engineers

If America's public housing goals are to be met, escalated wage settlements by the building trade unions need to be rolled back. So said Harold B. Finger, assistant secretary for Research and Technology at the Department of Housing and Urban Development, in an address before more than 800 architects and engineers who met in New Orleans on January 7-8 at the first national conference on federal contracting.

Finger enumerated other problems, such as shortage of money to finance mortgages, lack of suitable available land, shortage of skilled labor and the number of autonomous units of government.

The conference, co-sponsored by the AIA, Consulting Engineers Council/USA and the National Society of Professional Engineers-Professional Engineers in Private Practice, was addressed by representatives from federal agencies which supervise billions of dollars worth of construction.

Administrator Robert L. Kunzig of the General Services Administration called for "beautiful federal buildings . . . a high quality of design . . . and recognition that time is money." Other major topics discussed were hospitals, schools and health facilities under the Department of Health, Education and Welfare's new Facilities Engineering and Construction Agency; the new airport and airways development program; changes expected under postal reorganization; new regulations and programs for pollution abatement; and construction of Veterans Administration medical facilities.

Lively question-and-answer periods punctuated the two days of meetings, indicating the keen interest of the nation's architects and engineers in the entire matter of federal contracting. What all of this means to these professionals will be explored more fully in a forthcoming issue of the *AIA JOURNAL*.

Common Cause Chairman Gardner to Help Weigh, Make 'Hard Choices' in Detroit

At this time in history, the architect must make some "hard choices" between conflicting alternatives. Thus that has become the theme for the 1971 AIA convention in Detroit, June 20-24, at which time ecological, personal and institutional questions will be examined in a forum to develop public policy.

Three individual theme sessions will focus on patterns of human settlement, use of our resources to meet basic human needs *now* and costs of creating a livable environment. These sessions are scheduled for June 23-24, in order to devote the first two days of the convention to official business, as recommended by many members of the Institute.

A paper to set the stage for each theme session will be made available to the membership for study prior to the opening of the convention.

Among the distinguished speakers will be John W. Gardner, former Secretary of the Department of Health, Education and Welfare, who is now chairman of Common Cause, a newly organized nationwide citizens' lobby. Gardner will consider how we can apply our resources to meet basic human needs. His address will be followed by a discussion period which will be led by a panel of experts. Time will be allowed for questions and comments from the audience.

Trend Toward Utilization of Arc-Welded Steel Design Seen in Awards Program

The James F. Lincoln Arc Welding Foundation has granted \$50,000 to authors of 24 papers in its 1970 awards program for engineering design of arc-welded structures.

Winners of the first prize of \$10,000 are Houston co-authors J. Harris Fulcher, an architect with the firm of Eugene Werlin & Associates, and Walter P. Moore, secretary-treasurer of the consulting engineering firm of Walter P. Moore & Associates.

The award-winning paper, "Miller Outdoor Theater," describes the design of this structure which is located in central Houston (see *AIA JOURNAL*, Aug. '69, p. 73). The theater features box-member structural elements, weld-fabricated from high-strength weathering steel.

Editor Mickel Wins Fitzpatrick Award

Five national organizations, including the AIA, have joined in concert to honor Ernest P. Mickel, Washington editor for *Architectural Record*. He will receive the 1971 F. Stuart Fitzpatrick Memorial Award in San Diego in March at the annual convention of the Associated General Contractors, another sponsor. The others are Producers Council, Building Research Advisory Board and the National Association of Home Builders.

The award jury said of Mickel: "Your fair and factual reporting about activities of one of the largest segments of the nation's economy — the construction industry — and your unfailingly cooperative attitude reflect the basic philosophy of the man whose memory is honored by the Fitzpatrick Award."

**Alfred Shaw Leaves Legacy of Buildings
In Chicago; Designed for Military Too**

A number of Chicago landmarks owe their design to Alfred P. Shaw, FAIA, president of Alfred Shaw & Associates and a former director of the Institute. Among them are the original McCormick Place exposition hall, the Merchandise Mart, the LaSalle Bank Building (formerly the Field Building), the Continental Plaza Hotel, the One East Wacker Drive Building and the interior of the Museum of Science Industry.

Shaw, who died December 1 in Chicago at the age of 75, also was the architect of American air bases in Spain and naval facilities in Bermuda. He worked in Boston and New York before coming to the Midwest to establish an architectural practice. During the 16 years that he was a partner in Shaw, Metz & Associates, the firm designed industrial, commercial and residential structures valued at \$853 million.

After serving in the Army's Aviation Service in World War I, he represented President Hoover in the administration of relief in the Balkan countries.

Deaths

- GEORGE L. BENNETT
Fort Lauderdale, Fla.
- J. IRVINE CALVERT
Pittsburgh
- ARTHUR DEIMEL
Washington, D.C.
- ALEX A. DICKSON
Columbia, S.C.
- DONALD L. DOUGAN
Portland, Ore.
- P. A. GATZ
Auburn, Me.
- ALFRED T. GRANGER
White River Junction, Vt.
- HECTOR OLIVER HAMILTON
San Francisco
- J. P. MACELWANE
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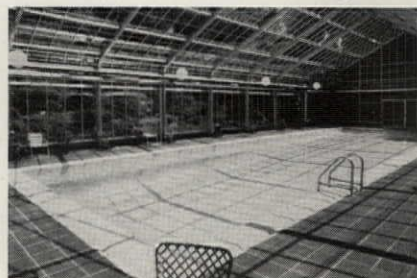
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The Time Is Right – Now

by GRADY E. POULARD
Administrator, Community Services

Representatives of local AIA chapters throughout the nation will meet at the Omaha Hilton late this month to organize themselves as the Human Resources Council. Commonly referred to as HRC, this council was established by the AIA Board of Directors last September to mobilize support for programs of the Institute's Task Force on Professional Responsibility to Society. Its role will be to raise funds from all available sources for the support of these programs on both the national and local levels and to inspire volunteer service support at the local level.

The task force programs for which HRC is seeking support focus on the need to reverse the deterioration process common to neighborhoods which are impacted by the effects of chronic poverty and compounded by racial discrimination. These programs represent a part of the commitment of the profession and the AIA to make the practice of architecture more responsive and responsible to public needs. This commitment is based on the premise that legitimate professional self-interest and professional responsibility to society are virtually synonymous. HRC has as its goal \$15 million — the commitment made by the membership at the 1969 Chicago convention. HRC itself will be financially self-supporting.

Already in existence is an HRC Executive Committee, co-chaired by Nathaniel Owings, FAIA, of San Francisco, and Institute Vice President Robert J. Nash of Washington, D.C.* This committee has been working for about two months preparatory to the organizing meeting in Omaha, where many of the details concerning organizational and operational procedures will be decided.

Approximately 175 local AIA chapter representatives are expected to attend the Omaha meeting. These were chosen because of their interest in and dedicated service to the Task Force on Professional Responsibility to Society. They will work to stimulate AIA chap-

ters to become active, raising funds and contributing time to programs tailored to meet specific local needs. In order for this HRC effort to become a success, it is vitally important that every local chapter be represented.

The idea of a body distinct from, but within, the AIA to raise substantial, tax-deductible contributions was conceived when it became apparent that the Institute, through its regular channels, could not provide sufficient financial support for the programs.

For the last two years, the AIA has been supporting, and seeking outside funding to assist, a network of Community Development Centers offering professional services to citizens in poor neighborhoods. The Institute has also been trying to help improve the professional skills of minority citizens by increasing the number of black colleges of architecture and improving their curricula, and by funding disadvantaged candidates for scholarships for architectural education.

These efforts will be supported by HRC. Other task force programs for which it seeks to generate financial and volunteer support are: Constraints to Building/Creative Economics (the goal of which is to identify and remove the constraints to quality and quantity building); Black Executive Exchange Program (BEEP), On-the-Job Training Program (OJT), Remedial Training Program, Technicians' Training Program and High School Career Guidance (all of which seek to demonstrate occupational opportunities for the disadvantaged in the profession).

The future of this new effort depends upon the quality of leadership that will emerge on the local level. Once the architectural profession makes a convincing move in this area, it will strengthen the Institute's position in attracting outside funds and in working in collaboration with other national groups toward common objectives. In addition, other professional societies, businesses, corporations, etc., will get "turned on" to the HRC concept. Thus the architectural profession will give increased credence to the claim that the times are right for architects to take their place among the leaders of societal and environmental change in America. □

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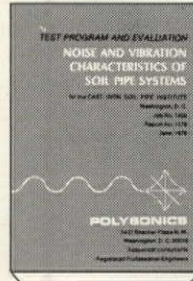
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*Other members are David Yerkes, FAIA, and Taylor Culver, both of Washington, D.C.; Gene Lindman, student at the University of Illinois in Chicago; Robert Alexander, FAIA, and McDonald Becket, AIA, both of Los Angeles; Leo Daly Jr., AIA, of Omaha; S. Scott Ferebee Jr., FAIA, of Charlotte, N.C.; and Thomas A. Bullock, AIA, of Houston.

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SOLERI

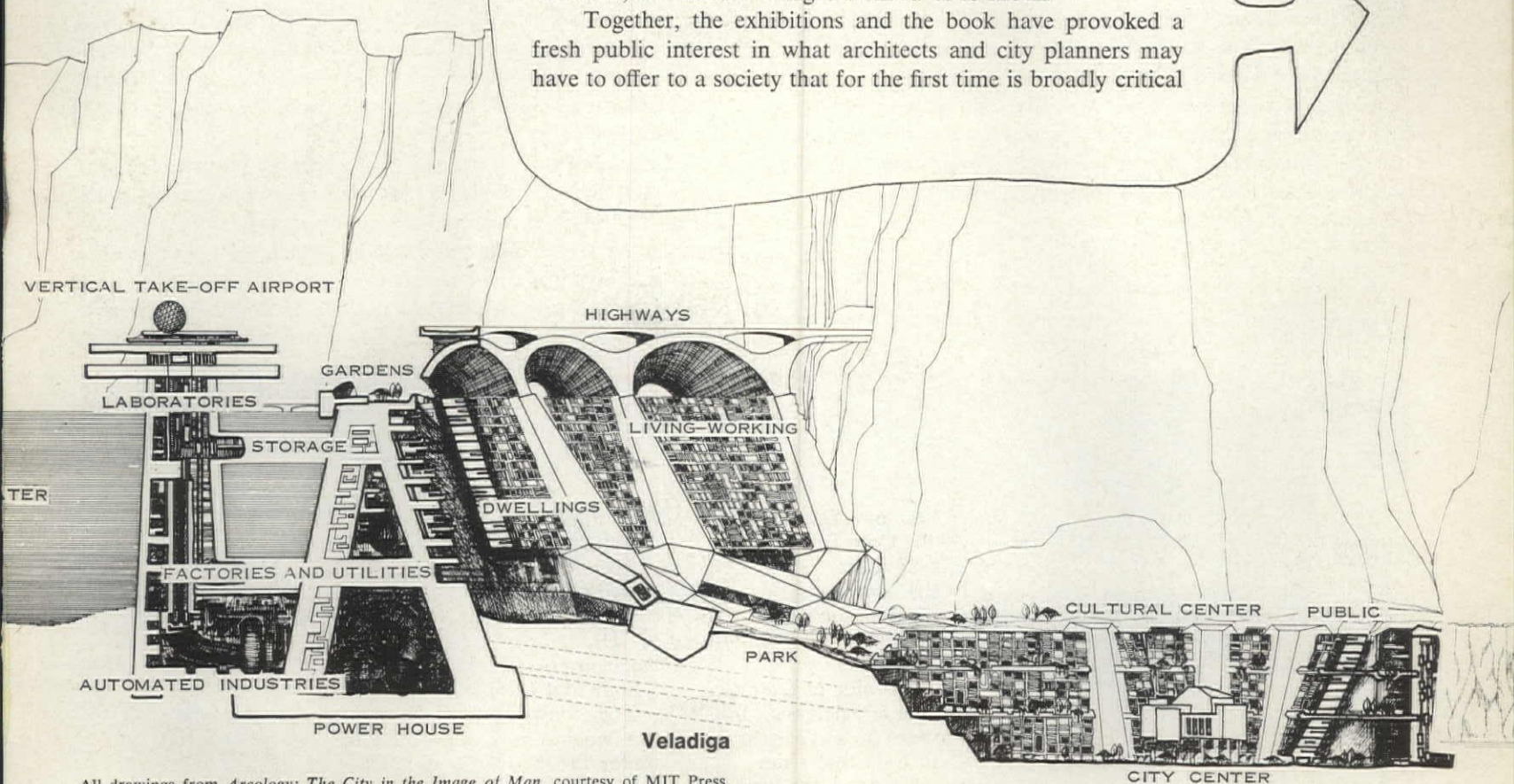
*'Plumber with the
Mind of a St. Augustine'*

by EDWARD HIGBEE

Just why this geographer so describes the desert designer of mega-structures is clear through his insights into Soleri's views of cities, society, architectural education and man himself.

While Paolo Soleri has been looking at the world with an original mind for several decades, 1970 was the year in which the world, beyond a small architectural elite, had a chance to look at him. Last February, Washington, D.C.'s Corcoran Gallery of Art erupted with a volcanic display of his models and drawings. That show, the gallery announced afterward, stimulated a press reaction wider than any previous exhibition in its history. In summer, the reception was similar at New York City's Whitney Museum of American Art. Also, Soleri's book *Arcology: The City in the Image of Man* (Cambridge: MIT Press, 1969), was widely reviewed; the reactions ranged from raves to shock.

Together, the exhibitions and the book have provoked a fresh public interest in what architects and city planners may have to offer to a society that for the first time is broadly critical



All drawings from *Arcology: The City in the Image of Man*, courtesy of MIT Press.

of the environment it is creating. The current preoccupation with ecology guarantees Soleri that his works will receive serious attention since that is what they are about. Arcology is architectural ecology.*

Because he regards the environment — organic, inorganic, physical and social — as an inseparable unity, Soleri's concepts have met with particularly enthusiastic response from those young people who are concerned not just with the pollution of the physical landscape but also with the pollution of our social attitudes and behavior. He is the first major architectural theorist and critic since Walter Gropius and Lewis Mumford who finds that the root of the city's environmental failure is attributable not only to bad design but also to our materialistically oriented culture. "The city," he writes, "is a human problem that has to find its answer within ecological awareness." As the world environment becomes more complex, physically and institutionally, with increasing populations and technological sophistication, it is threatened, Soleri believes, with becoming "ecumenopolis," a horizontally spread web of development within which nature will be destroyed and the surface of the globe will be plastered with what he calls a "pseudo-urban environment." As an alternative, he proposes "miniaturization."

Miniaturization is concentration. As Soleri views it, miniaturization would halt the horizontal sprawl of metropolis. Instead, cities would rise vertically and compactly. They would be great megastructures, each accommodating up to a million or more persons, offering the opportunity for a wide diversity of lifestyles within, while surrounding landscapes would be reserved for agriculture, forestry and recreation. Every person in a megastructure would be within 15 minutes walking distance of open countryside. Thus the individual would no longer be a prisoner inside concrete and steel shells. The automobile would be superfluous, the urban megastructures being connected by air and rapid transit systems. The alternatives of privacy and community would be only minutes apart. Within the megastructures, every person or family would have its personal quarters, yet all the variety of occupations, activities and pastimes that people engage in within a great city would be reachable by elevator, escalator, ramp or stairway. The only communities we have today that are comparable are the campuses of great universities where tens of thousands of people with widely different interests are able to pursue them, where privacy and society are equally available and where transportation is no problem.

* ED. NOTE: After the show closed at the Whitney on September 20, it traveled to the University of North Carolina, October 21-November 18; the Museum of Contemporary Art, Chicago, December 19-January 31; and will be at the University Art Museum, Berkeley, California, April 25-June 13.

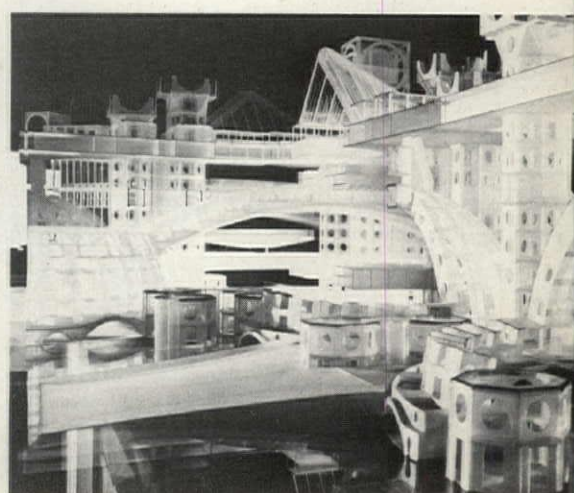


Soleri recognizes that social life within megastructures would be an intolerable babel without what he calls "equity" and "congruence." Therefore, to be operative, his arcologies would be the product not of some superconstruction company but of a just society. "The care of the citizen," he says, "is the sap of the city."

"Man," Soleri writes, "is faced with the following syllogism: 1) The city is the cradle and the expression of civilization, and 2) materialistic society has all but destroyed the city. Thus 1) materialism is foreclosing man's destiny, and 2) the city is a non-materialistic phenomenon. If the city is a nonmaterialistic phenomenon, it follows that a speculative (business) attack on the urban problem is devoid of the fundamental power the solution demands, i.e., the care of a nonspeculative commitment." He continues, "Society is founded on equity . . . the pursuit of equity is primary and essential to man." The Woodstock generation, with its emphasis upon humanity and community, would know intuitively how to live in Soleri's megastructures, even if its parents, with their commitment to rugged individualism and social segregation, might panic. Possibly the fact that for the first time in history a very large portion of youth have a college experience, enjoying its freedoms and its nonmaterialistic way of life, has had much to do with the widespread preference among their generation for a lifestyle oriented toward human experience rather than things.

Ada Louise Huxtable writes that the observer of Soleri's abstract schematics "either bolts in horror or he falls in love with the vision." Wolf Von Eckhardt describes the flamboyant sketches and models as "at once delightful and faintly depressing." An instructor in architecture at Pratt Institute asserts that "Soleri's cities compound every problem we know of. These gigantic, concentric, beehive structures will require rigid, programmed conformity from their inhabitants in order to function safely." These critics tell us as much about themselves, our society and our culture as they tell us about Soleri's works. For a people fearful of people and beset with social anxieties, as so many older Americans have become, the thought of increased urban densities and a stepped-up interaction of human diversities provokes alarm. Soleri's ideas and works are certain to be controversial because they clash head-on with what has been called the value system of the "establishment."

Generally, architects and city planners are Beaux Arts-oriented, thus content to work intuitively at physical designs without first formulating coherent and fundamental theory about the community, society and culture within which they operate. The result is commonly what Soleri describes as "doodles on the back of a cosmic phenomenon and will not do." He himself begins with the fundamentals of our being. "The conceptual criteria for the



arcologies are the necessary stuff of their makeup." The first part of his book is devoted to theory. It is from theoretical postulates about the continuing evolution of man and his environment that the arcologies are derived. "If I were to present the arcologies," Soleri writes, "without their theoretical background, I would not be supplying any foundation for the conceptual process nor any comprehensive justification for the results."

It is the arcologies, however, which have received the greatest public attention, both in the reviews of his book and in press comments about his exhibitions. Soleri regards his arcologies more as attempts to give form to his architectural theory than as literal proposals. His primary concern is the validity of his thesis as outlined in Part 1 of his book. If the postulates stated there are accepted and if the reasoning that follows from them is consistent, then something like, but not necessarily identical to, his arcologies would be necessary to give architectural form to his ideas. Soleri warns that the graphics, both conceptual diagrams and arcologies, "are not to be taken literally." They are symbolic of the idea structure which is basic. Soleri is a Platonist. The idea is the reality — not the thing. To him, the essence of life is psychological, not physical.

"I have little doubt that life in general and human life in particular can be symbolized by a vector and cannot be symbolized by a random pattern. Vectoriality is the character of living reality, and the case of man is basically a willful or unconscious action with or against it." This concept is amplified in Soleri's diagram, "The Condition of Man." The thinking expressed in this and other diagrams in the conceptual section of his book is consistent with the noosphere thesis of Teilhard de Chardin, whom he quotes.

Soleri accepts as valid the proposition that mankind has the capacity to outgrow its present state of being, which is incongruent with its ideals. He begins his critical inquiry by assuming "that the best hopes for contemporary man have been fulfilled and the urban medium has been cleared of slums and cleansed of ills and grievances. If there is no mention of segregated minorities, of slum clearance, of exploiter and exploited, of tax unfairness, of bossism, of children killed by delivery trucks, of skid row peripatetics, of 'pets not allowed,' of profit incentives, of self-help, it is because one assumes that in time the skill of man will take care of them all. *The foundation of equity is thus granted.*"

Having leaped over the most complicated and agonizing questions of the moment with one majestic, if quite unrealistic, flash of intuition, Soleri goes on to deal with his principal problem — the design of landscapes and cities that are congruent with the finest qualities of man's spirit. "Congruence" used in this sense is a key term in Soleri's idiom. Incidentally, he is as quick

to invent a new vocabulary as he is to give us new perceptions. A glossary of his terms would help him immeasurably to communicate with his readers and viewers. As it is, there is always some doubt as to whether one is getting his precise intent. Occasionally, it seems that he himself gropes for clarity.

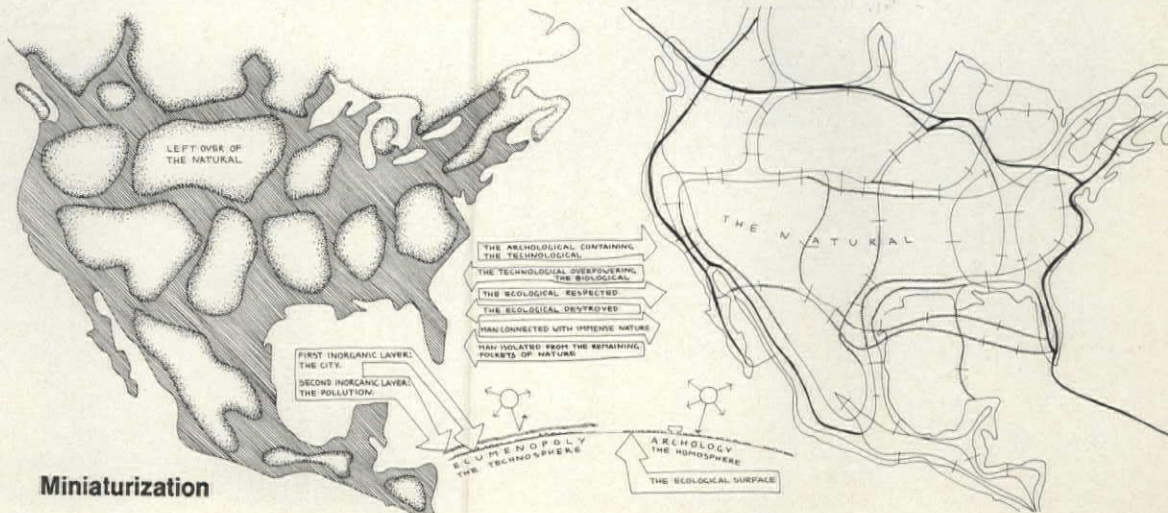
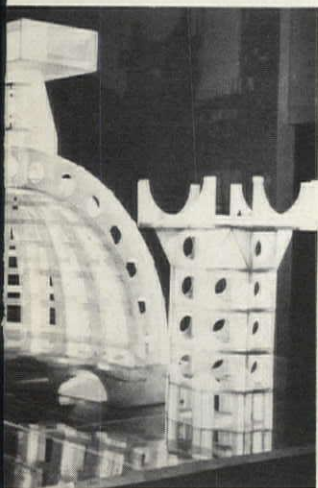
To Soleri the wonder of humanity is its capacity for a mutual enrichment of life through social interaction. To him the city could be the supreme expression as well as the stimulator of our best instincts. His work demonstrates that the architect and city planner through environmental design can give mankind a vision of itself living at its best. To do so requires not only drafting skill and some acquaintance with esthetics, but more importantly a respect for life and its potentialities. Such respect for life permeates every aspect of Soleri's work. Albert Einstein once remarked that humanity is split between those who are motivated by fear and those who are motivated by longing. Soleri's arcologies are for those whose outlook is uninhibited by the fears which make us antisocial at home and belligerent abroad.

Soleri's vertical cities make us face up squarely to what we are as a people. Are we prepared to live equitably as our material affluence would permit? Are we, or are we not, destined to remain a nation of squirrels, snatching from one another and hoarding whatever is extractable from our environment regardless of the consequences? If indeed we are to remain selfish and antisocial, then just to survive we may very well end up as a police state with or without the kinds of cities that Soleri visualizes. Our problem is not physical density but rather social indifference.

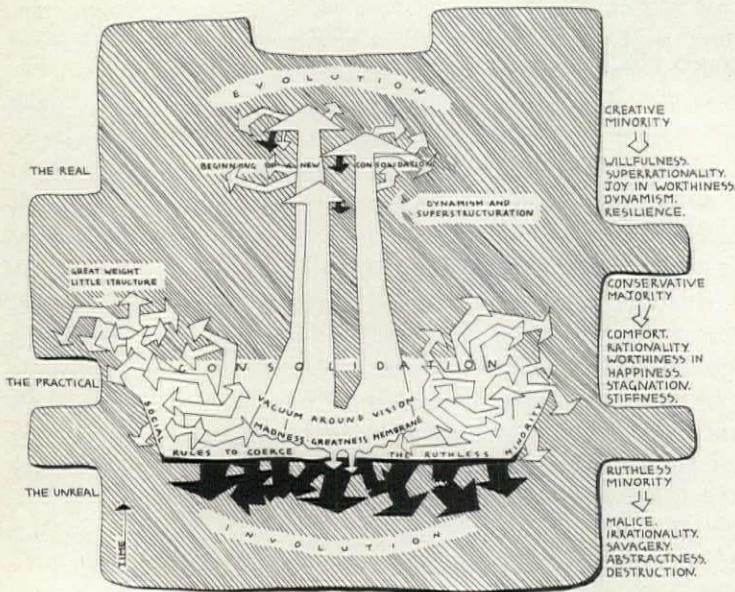
Our present cities and suburbs are manifestations of the incongruity between our ideals of equity and our practice of inequity. American architects and city planners have been reluctant to recognize the need, let alone in any substantial way to attempt to design environments which are congruent with equity. "The category of equity is specific to the human species and owes its existence to man's peculiar ability for doing 'wrong.' Congruence is a more universal character. It is present in nature. In a sense it is a nature itself because here working is a constant coordination of disparate things into congruous patterns. With man this apparently automatic congruence ends. Most of man's deeds are governed instead by antagonistic rules: love and hatred, enlightenment and obscurantism, peacefulness and belligerence."

"The pursuit of congruence," says Soleri, "is substantially the transposition and the transfiguration of natural congruence into a congruence embracing the human condition. It is the hu-

Dr. Higbee, professor of land utilization at the University of Rhode Island, is a consultant to the Congressional Committee on Environmental Quality. His most recent book is *A Question of Priorities*.



Miniaturization

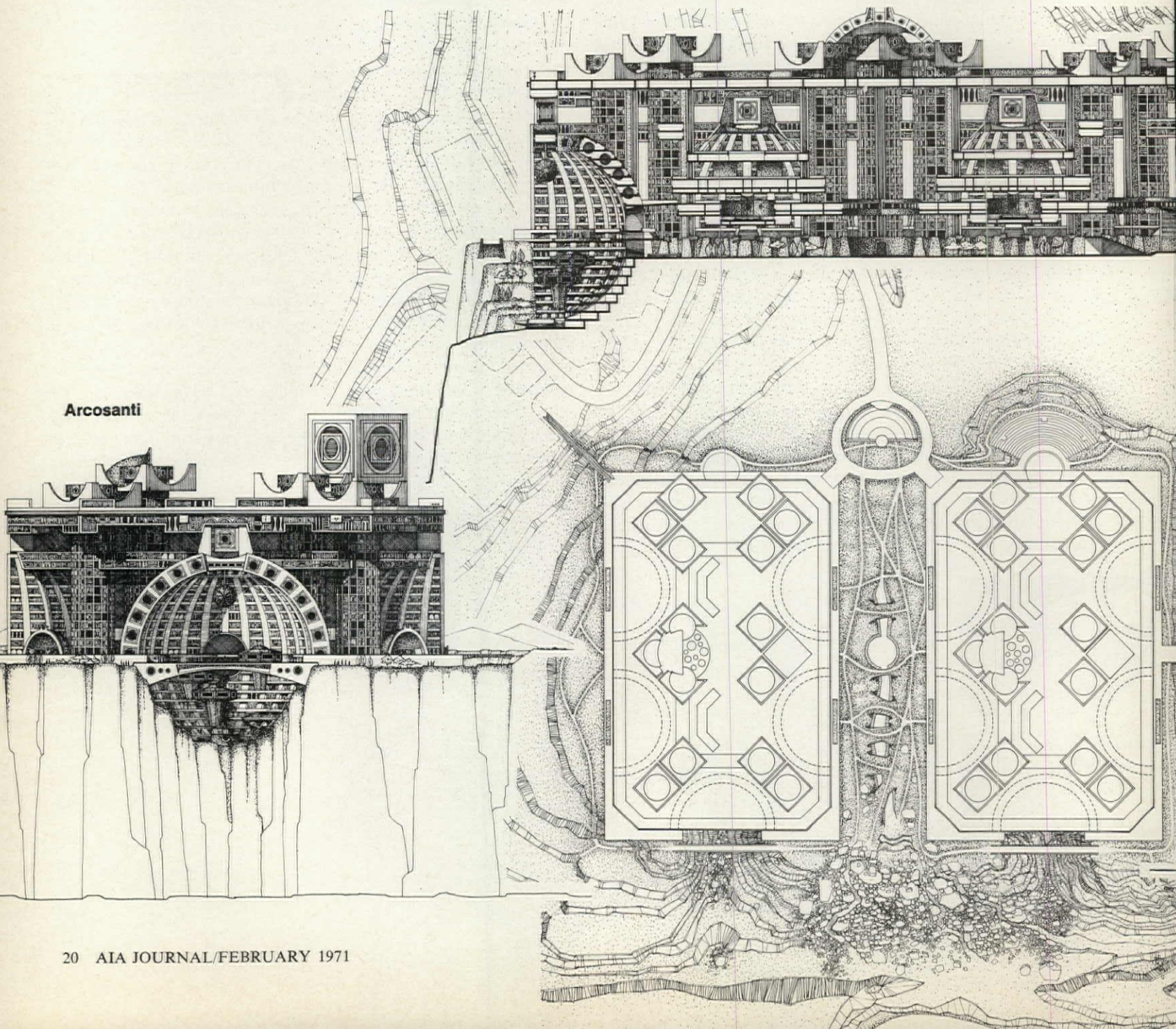


The Condition of Man

manization of the earth, and as such it demands a global coherence." Such are some of the theoretical propositions from which Soleri's architectural models and drawings are derived. Nothing like them has been stated so explicitly since Walter Gropius insisted upon "seeing things whole." The humanistic aspects of Bauhaus theory were never as meticulously stated nor made central to its architectural design process as they are in Soleri's system. Consequently "seeing things whole" degenerated into functionalism in the hands of the less imaginative Bauhaus practitioners who got bogged down in "doodling" and forgot, or never even seriously adhered to, the social humanism of Gropius and Hannes Meyer.

Architecture and city planning in the hands of functionalists who failed to "see things whole" became a workshop/design studio technique without any more basic theoretical foundation than that "a good school has to be a 'house' where good minds and talents meet to participate in the struggle for ideas and to experience creative adjustment." (AIA JOURNAL, July '70, p. 22). No wonder that having been stripped down to such an amorphous theoretical foundation, contemporary architecture and city planning are "incongruent" with the basic ecological requirements of both individual and society. By and large, American architects

Arcosanti



and city planners, with a few notable exceptions, have been reluctant to recognize, let alone deal with, social issues.

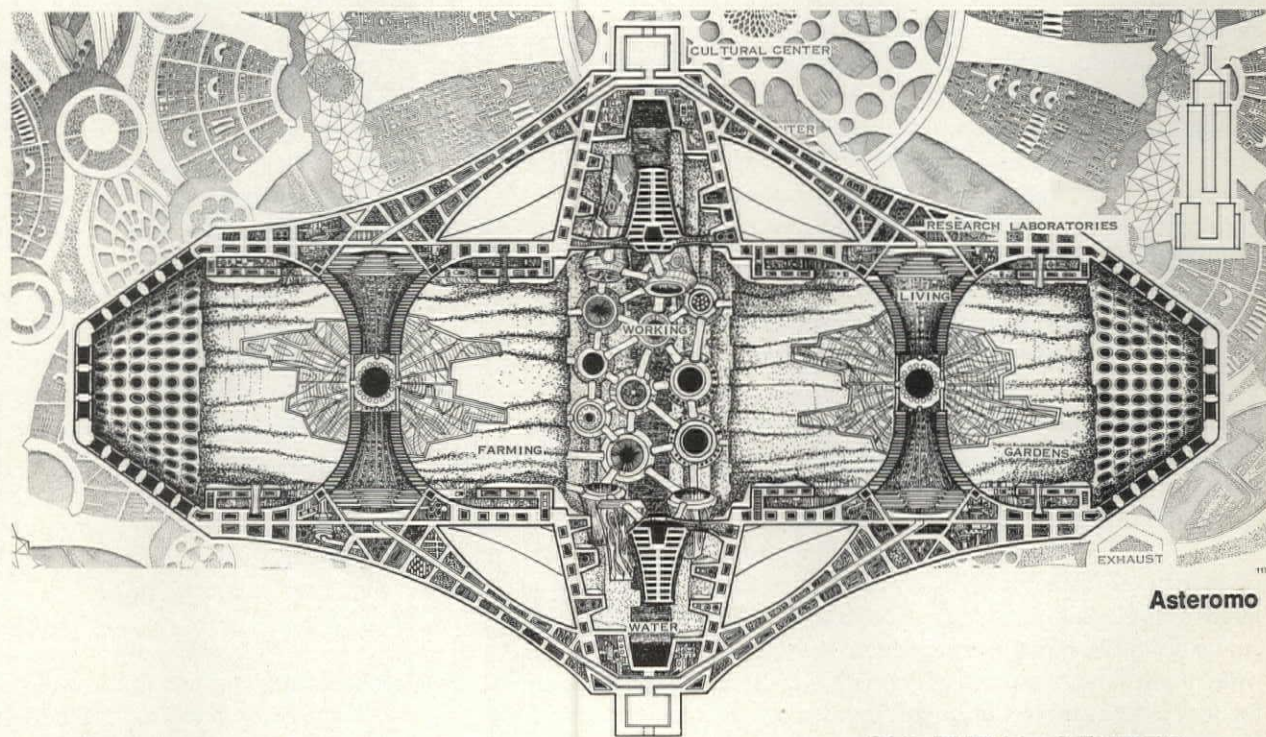
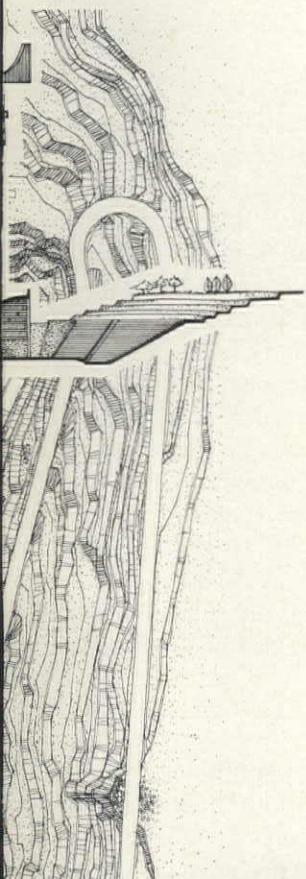
I have asked Soleri about these matters. Modestly he refrains from criticism of his contemporaries, although not of the environmental consequences of their work. "I am not that acquainted with the Bauhaus to be precise about it," he declares. Asked what he would recommend to improve the training of young architects, he says, "I do not have in mind a didactical procedure, not because I do not wish it that way but because I know I am not good at it. . . . Mine is 'general' and not organized in a curriculum." There is no easy academic road to the kind of insights Soleri regards as vital. What is required is the severest kind of intellectual effort coupled with what he calls an esthetocompassionate regard for life and the universe. "Before getting 'down' at the detail and losing the wall for the sake of the brick, be able to grasp even if only in flash form the immensity and the vectoriality of the whole cultural, social, human, animal, vegetal, mineral, energetic, spatio-temporal universe." *

What then might go into the education of a young architect and city planner that would help him get such a cosmic grip on his work and so encourage the originality that might design an environment congruent with man's better nature rather than with

his competitive and acquisitive characteristics? "Discriminate," he says, "in the counseling and in the setting up of disciplines . . . between A) the social, humanistic, political, religious minds to which to entrust the *ways*; B) the technological, engineering, economic minds to which to entrust the *hows*; C) the formative mind (architecturally creative) to which to entrust the definition of the physical environment. The three, A, B and C, kept connected by a trust of generalists, are bound to learn from the three as much as to 'guide' them into a real ecologically and humanely sensical pragmatism." *

Most critics agree with Soleri that the prevailing structure of cities is impractical for mass populations. In the United States, three remedies are in vogue: urban renewal, suburbanization and new towns. The thesis behind urban renewal is that the replacement of obsolete components will rejuvenate the whole — a heart transplant approach. The thesis behind suburbia is that the mass city is too much activity by too many people confined within too little space. Solution: Spread over more territory. The thesis behind new towns is that only new containers can accommodate the size, diversity and intensity of contemporary interaction. All three

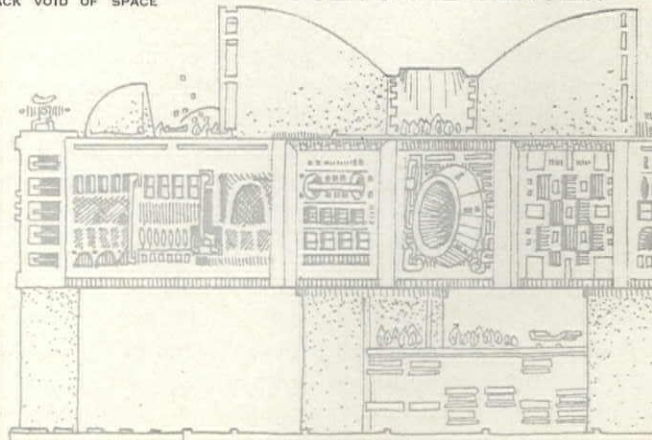
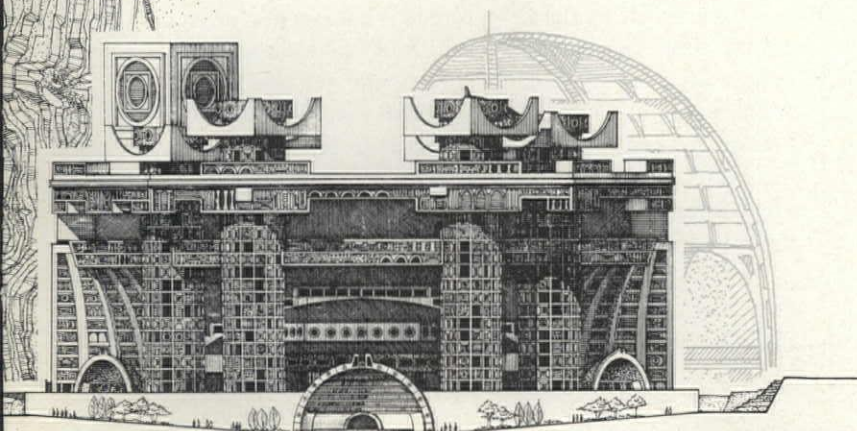
* From correspondence with Soleri.



Asteromo

BLACK VOID OF SPACE

CULTURAL CENTER



approaches seek to accommodate present commercially induced lifestyles but in glossier settings.

Looking at results in terms of man's capabilities and aspirations, it appears that these three theses are more like rationalizations of new techniques to make profits out of land speculation. Genuine satisfaction of personal and social needs is not a conspicuous result. If anything, individuals of all economic classes are now more frustrated and our society is more fractionated by the urban environment than was the case several decades ago before we undertook large scale urban renewal, suburbanization and the building of new towns. If it is true that physical design of structures affects the quality of life within them, architects and planners bear some responsibility for our environmental crisis.

To the critic who rejects what is falls the task of proposing an alternative. This challenge Paolo Soleri has accepted with flair. Part 2 of *Arcology* presents plans for megastructured cities that comply with Soleri's axioms. It is one of the most dramatically illustrated statements by an architect in our time. Its sweep spans the full range of the technically possible and goes well into the beyond — from ocean-going Novanoahs of up to 2.4 million persons to improbable but symbolically meaningful earth-orbiting Asteromos, population 70,000. Asteromo is a self-sustaining, self-regenerating earth orbital arcology. Its principles are those which the ecologist would define for the earth itself. Buckminster Fuller in his many books has appraised what he calls our Space-ship Earth in a more comprehensive fashion than Soleri attempts in *Arcology*. As a man of the desert, Soleri conceives of multi-purpose dams containing cities (Arcodiga, Veladiga and Theodiga). They are man-made oases which illustrate his principle of miniaturization — the concentration of populations into small areas to eliminate waste and other "temporal obstacles to performance." Arcvillage 2 is a good representative of the Arcology concept.

The aim of the arcologies is to suggest rather than to define specifically how we could use our new environment-making capabilities to achieve a quantum jump in the quality of our existences. As matters stand, we are victims of technology because we pattern our cities according to an archaic value system. Our presently regressive society is a product not of our tools, as we like to excuse ourselves, but of our inhibited minds. Soleri, therefore, attempts to liberate the psyche. "The city," he says, "is a biological organism of a thousand minds."

The author's approach is tied to the postulate that "the aim of man is an esthetocompassionate universe." The result is a guide to total environmental revolution. In the process of elaborating his thesis, it becomes evident to the reader that Soleri tosses away immediate prospects of winning a contract to build one of his megastructures in this country, either for a commercial or a governmental sponsor. This is not to put him down as an impractical dreamer — far from it. It is simply to say that as a society we are not ready for him. We have a lot of obsolete notions to dispose of and a lot of institutions to change before we can embark with him on the most exciting adventure humanity could undertake: the construction of a "neonature" — a man-made environment that would leave most of the natural landscape undefiled and beautiful within walking distance of densely populated but esthetically constructed megastructures in each of which the individual would enjoy both privacy and community.

In brief, Soleri gives us a glimpse of our ecological selves at our potential best. If we do not believe in what he calls "reality," we do not believe in ourselves; so we will go on building third-rate cities, ignoring what could be. Soleri tells us that "the function of the real is to dictate why, what, where and when the prac-

tical is to operate. This antimaterialistic tenet is lost in the feverish idolatry of the feasible and the license of 'free' enterprise. Most of what is feasible is irrelevant or unreal. It is not real because it does not converge with the aims of free man." We are back again to the concept of congruence.

Soleri's megastructures are not ends in themselves; rather they are means to the humanization of the environment — means to the recycling of wastes of all sorts and the conservation of life. "If, for the sake of 'clarity,' one separates the not-too-separable instrumentality from the scope (ends)," he writes, "one may say that the instrumental purpose of arcology is the definition of a well-rounded service system which, cutting into the waste of time and space, presents man with a few extra years of 'positive' time, time to use to his personal, social advantage if he so pleases. That this may be invaluable lies in the assumption that life is precious enough and unique enough to demand rightly the best environmental conditions for its flowering and that coercion and frustration are inimical to life. Life is coerced by the environment man has produced and lives in." Soleri modestly infers that he himself is but a plumber. If so, he is a plumber with the mind of a St. Augustine. What people will do with his ideas is up to them.

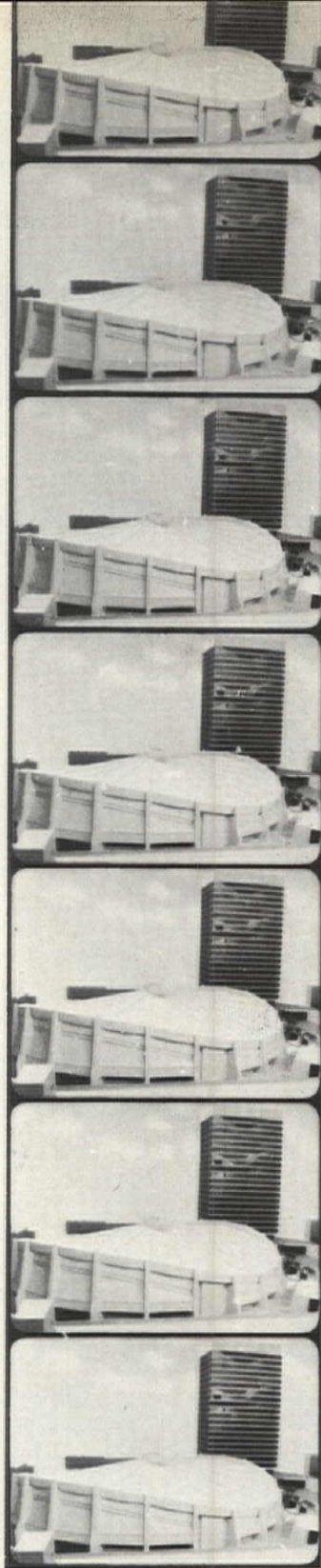
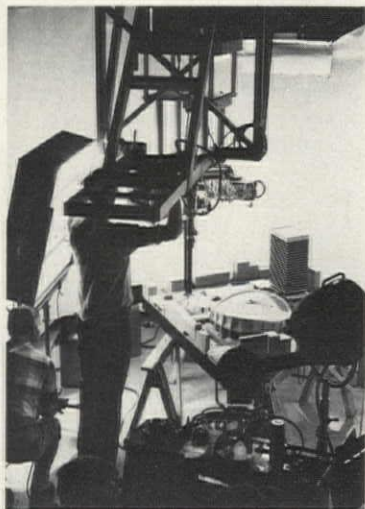
Clearly Soleri has given architectural form to an environment congruent with the idealistic aspirations of those young people who look for an alternative to the antisocial constraints of our laissez-faire system.

The alternatives which Soleri proposes are certain to have a profound influence upon the bright young architects and city planners who take ecology seriously and who are searching for new philosophical models. Ultimately such abstractions as Soleri and Fuller have given us will be more influential than anything now standing in steel, concrete and glass. There is nothing like a valid idea to shake the system but, like yeast, it takes a while to work. Meanwhile, practical men will go about their business oblivious to the evolution going on within the most creative minds who hope to head off the nightmare of ecumenopolis.

A lack of contracts is not likely to disturb Soleri unduly. He must have reconciled himself to such a fate when he broke with Frank Lloyd Wright and the Broadacre City concept of a continental suburbia. He defines real wealth as understanding rather than material gain. "Real ownership," he asserts, "is knowledge . . . that which I understand is mine and the understanding is the true possession, not the physical holding of it." If this statement is clear to the reader, then the intent of *Arcology* will be clear despite its sometimes enigmatic prose. □

Soleri and his students are now at work on a pilot project in Arizona. They are building it themselves with whatever assistance they get from friends and well-wishers interested in seeing an idea emerge in physical and social form. Ultimately their minimegastructure will accommodate 2,500 people on 8 acres of land. An integral feature is the surrounding land, approximately 800 acres, which will be farmed, grazed or left in its natural state. Thus Arcosanti, as the project is called, will serve as a prototype of ecological architecture — an attempt to create an environment respectful both of unconscious nature and of self-conscious man.

According to recent information from Soleri, a reference block (center of the building) has been placed. "Almost by accident, it happened to be Hiroshima day. The block is dated: 'Hiroshima, August 6.'"



The Architect as Film Maker

by VINCENT G. KLING JR.

With films, an architect can let his diversified audiences — clients, prospects, the public — not just see design proposals but actually experience them. Here is how one firm uses this diverse communications medium.

On your left as you approach the building, a fountain. The drops of water seem to take on a jewel-like glitter as they arch against the blue of the sky; the gentle splash made as they fall back into the pool gives a sense of serenity. To your right, a massive sculpture. You turn and walk around it, considering it from all sides, then head for the building, noting the way shadows play on its textured masonry facade. You pass through the entranceway and into an interior courtyard. Suddenly the building surrounds you. Looking up, you can see a patch of sky beyond the top floor. . . .

Well, you get the idea. What is happening is not, however, a walking tour around a real building; it is all done with film. The building, fountain and sculpture are scale models, seen through the lens of a snorkel camera. The splash of the fountain is recorded on sound track, the color of the sky and concrete on color film. It is almost like being there, except that none of this has actually been built. You have just given your client a startlingly realistic preview of what it will be like to walk around and through his building — long before the first sheet of construction documents has been produced.

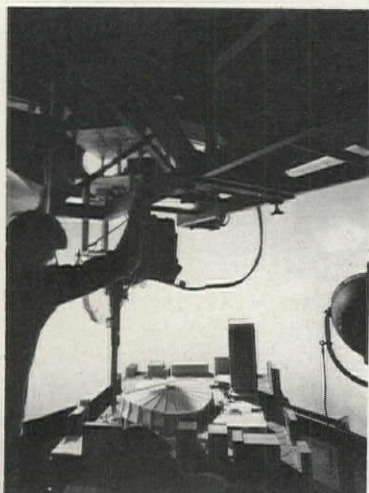
That's one of the beauties of films: They really do communicate. Dynamic instead of static, they offer sound, motion, color, all adding up a higher degree of involvement than possible with the more traditional media of our profession.

The desire to "experience" and anticipate projects led Vincent G. Kling & Associates into films to begin with. It grew out of dissatisfaction with some apparent limitations of model still photography; it seemed that models were often seen and photographed from viewpoints bearing little or no relation to the way people would see a real building.

What we wanted to do was to photograph models realistically from the eye level of a scaled-down person. To find a way to do it, we turned to an ex-Disney cameraman, N. Paul Kenworthy, and to a builder of special purpose cameras, William Latady. The two of them, with the help of our firm, developed the first snorkel lens for a motion picture camera.

Described simply, a snorkel camera is a tube with a motion picture camera at one end and a movable mirror at the other. In between is a series of lenses. The tube can move up, down and sideways to follow any prescribed path. It can rotate for panning shots, and the mirror tilts in imitation of human head and eye movements. The mirror can drop to within a quarter of an inch of the surface, giving a wide range of eye levels. In the current version of the snorkel — much advanced over the prototype — closed circuit television is used to monitor the picture, with the TV camera mounted at the top of the tube alongside the movie camera.

The result, for architectural photography, was the opportunity to show models as the completed buildings would be seen. In the



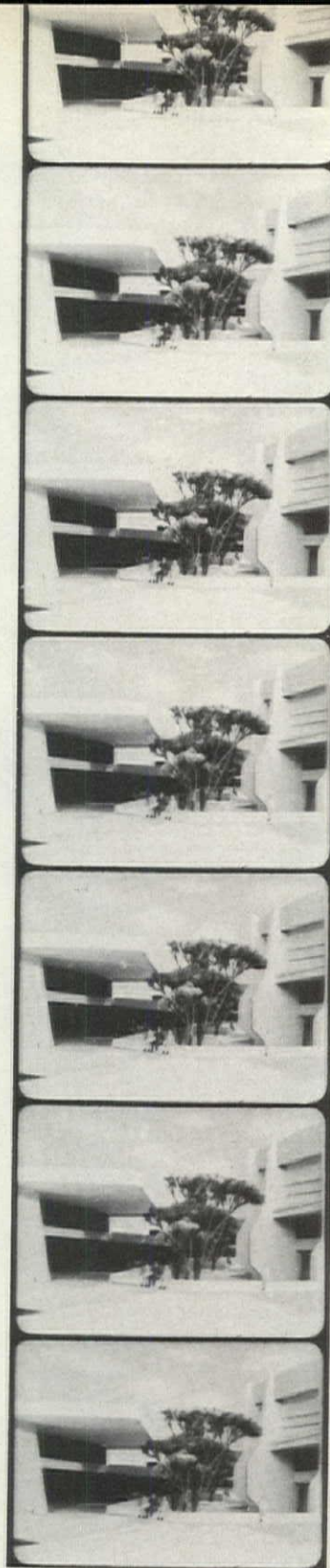
seven years since its development, the snorkel camera has found a variety of other applications in industrial films, TV commercials and adventure shows.

The development of the snorkel camera marked our introduction to films. Our first efforts were for an in-house design study, but there were films made to present to clients too. One showed the movable roof on a proposed stadium; another, taken from a hovering helicopter, simulated the panoramic view from the executive office of a proposed building.

In a sense, these early movies were just a step beyond still photography. They were not much advanced over home movies and there was no real attempt at producing a professional film.

Productions came quite a bit later. One of the first was a presentation to a prospective client. Along with several other firms, we had been invited to present our credentials for designing a student union building at a university in upper New York State. Instead of restricting our presentation to a showing of previous work, we decided to let the students help present the case for us.

That was in November of 1969, at a time when student involvement in a university's decision-making process was a lively topic for discussion. We wanted to get across to our prospective client the idea of working through the students on the project.



To do that, Bob Kear, one of our associates, took on the task of producing a documentary of student opinions. He asked students a series of set questions while camera and sound men filmed them and tape-recorded their answers. Between Monday morning and Tuesday afternoon, about four hours of film footage and six hours of tape were put in cans. The finished film was to be presented that Friday, so as soon as the filming and taping were finished, the film went to the processor and the sound tape was given to a typing service which transcribed it. From that copy the film was edited late into Wednesday night. The next day, while the Mets won the World Series, was spent synchronizing film and tape. Thursday night the film was rebuilt three times, and by 8 a.m.

Friday, Kear and his crew were on their way to the presentation with 16 minutes and 20 seconds of film.

In a way it was like putting together an architectural program. What we really did was hold up a mirror to let the client see himself and the requirements of his project. And the client liked what he saw. The film received a rousing ovation; the school asked for copies for use in fund-raising activities and in its own film-making classes.

We have got a lot of additional mileage out of that film. Our associates have used it for recruiting purposes on a number of campuses. Reactions have been mixed, depending on the campus.

Our most ambitious film so far is one made for the Hartford Civic Center project. As much a presentation to the citizens of Hartford as to the City of Hartford, the film attempts to show what a civic center can do for the city. It is in color, with sound — music and voices — and includes stock footage of basketball games, shoppers, automobile shows, circuses, along with snorkel shots of a model and scenes of Hartford. It runs for approximately 14 minutes, which is important if you hope to have your films used by TV stations.

For this film we didn't have the pressure of such a tight deadline, so there was time for polishing and editing. It started with a brainstorming session in our office, after which Calvin Productions, Inc., one of the leading producers of nontheatrical films, was called in. Peter V. DeMitri, head of Calvin's Philadelphia office, supervised, and Don Cochran, who directed the film, developed a rough script from the first meeting. This was polished and edited, and edited and polished and edited through a total of six more treatments. About three weeks were spent in shooting the film, one of them in Hartford.

The result is a 14-minute color/sound film that includes scenes of Hartford, views of our office, drawings, animated charts and snorkel sequences of the model. The finished sound track combines a music track, a special effects track and a voice track.

What can we do with a film like this? The original purpose was to present the design concept for the Civic Center to the city government. That done, the film can be shown to the other civic groups in the Hartford area. Because the film is also intended to present the Civic Center to the public, arrangements have been made to show it on local TV stations. And it makes a good film to show prospective clients for similar projects.

Through all this, we've discovered some additional advantages to films, advantages beyond the sound and motion and color. One is the portability: It is easier to move a projector and a can of film than to transport a large model. Another is what might be called the ubiquitousness of film: Fifty copies of one film can be shown simultaneously in as many different locations. They can be shown over and over again as often as desired. And then there is control: Once made, a film doesn't change; it can't give halting or wrong answers to questions.

Our film-making experience is nothing like "Bracken's World," of course, but we have learned a few things. The biggest, and when

you think about it, least surprising of these lessons is that putting together a film is a lot like putting together the design for a building. These are corresponding problems — the countless little things to be coordinated — and similar steps in the process. Developing the concept for the film might be likened to programming, for example.

There is another similarity too. A successful film, like a successful building, depends on two basic elements: people and money. People, because they make the decisions and do the work, and money, because there is usually only a limited amount of it available and films can get expensive.

Because people and money are so important in making films, it is essential to get the best help you can afford. This means professional film makers, much as you engage recognized professionals as consultants in specialized areas of design. The parallel is appropriate: For the film maker to be able to do his job, he must have from you the same trust and respect any other professional consultant would get, the same trust and respect the architect expects from his own client.

Choose your film maker the same way you would choose any other consultant. Look at his work, talk to him, talk to some of his other clients. But above all make sure that you end up working with someone you are convinced has a feeling for architecture and what you are trying to accomplish. Make sure also that you know with whom you're dealing and that the person you are talking to is the one who will be doing the work. Don't hesitate to ask if he is the person who is going to be working on the project three months later. You need this kind of continuity. The job also demands availability, since a film tries to fall apart at every opportunity.

Usually it is more economical to bring in a professional film producer than it is to try to assemble your own film-making staff and equipment. Cameramen, soundmen and other technicians are important, but the key people are the director and the producer. Both should be sympathetic to what you want to get across through the film, and both should be willing and able to devote all the time necessary to the project. So, by the way, should your own 'producer' — your staff member responsible for the film. He shouldn't be afraid of screenings scheduled at odd hours, or of redoing everything at the last minute.

Another important factor is to have the right people in control of the film's production. The film maker has been engaged because he is a professional in his field; creative control should be left to him, with your approval and/or guidance.

About money: A good rule of thumb for a professionally made 16mm color/sound film is \$1,200 to \$1,500 per running minute. Some run as high as \$2,000 a minute. But don't let those figures scare you — that's for the more elaborate film, using the most expensive equipment. It can be done for less.

Much depends on the way the film is to be

used. A presentation aimed at persuading corporate or government decision makers will call for a different tone and style than one aimed at influencing students. Techniques that will reach one group won't necessarily reach, and may even antagonize, the other. For a film that is to sell a project or an idea, you may want to spend the money for a thoroughly professional presentation; for another type of film, you can experiment with less costly methods and techniques. The important thing is not how much money you spend, but what you get for it.

Some sort of agreement should be reached with the client (if you are doing the film for a client) about the cost; in any case, a cost ceiling should be established. There always seems to be extra costs cropping up, and it is

a good idea to identify them early and figure them into the budget. These extras can include such items as stock footage, snorkel work, animation and location shooting. If they aren't figured in from the start to give a realistic cost ceiling, the estimated maximum cost can be just the beginning.

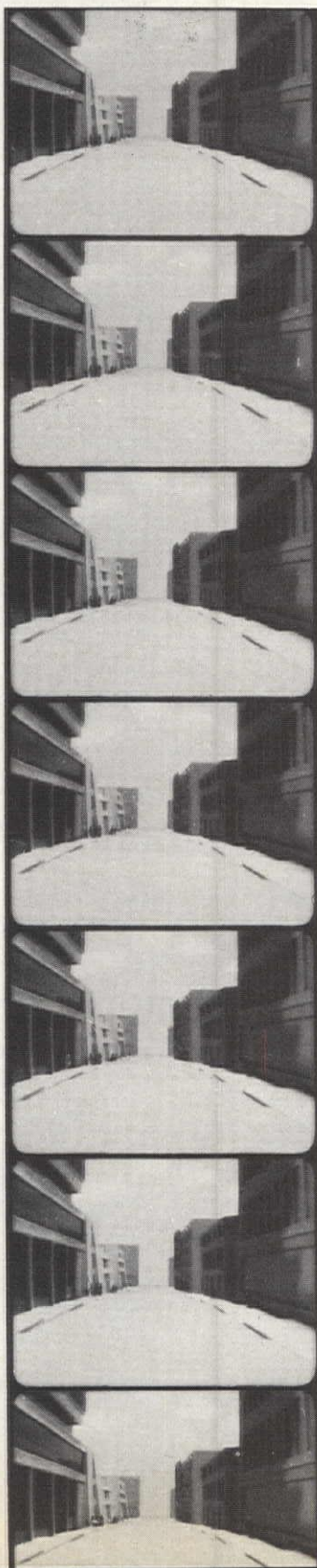
And make sure everything is cleared. Models, actors, music, quotes from existing works — all should be cleared ahead of time to prevent embarrassment and surprise charges later. With a reputable film maker working with you, this should present no problems. He will take care of it himself.

So although Hollywood isn't feeling the pinch, and probably never will, we are finding film making on our modest scale to be an exciting and useful part of our work. Currently, we are documenting the erection of steel roof trusses for a coliseum project in Richmond, Virginia; we have plans to present the idea of a middle school to a school district we have been dealing with; and we are looking into making films from slides (filmagraphs).

And there are other possibilities for films. There are companies that specialize in distributing public relations films to movie houses. A film on a firm's work, or on a current social problem, could reach a broad audience this way. Then, too, there is TV and its broad audience. The American Institute of Architects has had success in producing films for general audiences, most recently the highly acclaimed TV film spots.

Something else we are looking at is closed-circuit TV and video tape. One intriguing factor is cost: Video playback equipment, which only a few years ago cost as much as \$15,000, now is available for \$1,500 and the price is still dropping. Video tape experts claim that a minute of video-taped presentation can be produced for \$125. What's more, tape reproductions are reportedly less expensive than film prints. Projection size, naturally, is limited to the maximum TV screen size.

If Marshall McLuhan was right, the days of print and still photos may be numbered; film, video tape and the electronic media will be the future means of communication. And if he was wrong — well, film is still an exciting, dynamic and engaging way to let an audience experience architecture, proposed or built. □



Mr. Kling is a member of the Philadelphia firm of Vincent G. Kling & Associates.

1971 Community and Junior College Design Awards

BILL N. LACY, AIA
Chairman of the Jury

DR. CHARLES CHAPMAN
President, Cuyahoga Community College, Cleveland

ROBERT ENTZEROTH, AIA

ROBERT H. McCABE
*Executive Vice President
Miami-Dade Junior College, Miami*

OSCAR PADJEN, AIA

JANET NULL
Student observer

Five Honor Awards and as many Awards of Merit will be presented in the second annual Community and Junior College Design Awards program. Sponsored by The American Association of Junior Colleges and the Office of Construction Services of the Office of Education, Department of Health, Education and Welfare, the program was established to provide guidance in the design of two-year institutions. The presentations will take place in Washington, D.C., on March 2 during the AAJC annual convention.

Jury Report: The jury is pleased to report that the quality of the entries in the second annual Community and Junior College Design Awards program was extremely high. Also, the preponderance of master planning studies, rather than building types, submitted was interpreted as an indication that the importance of the former is becoming more widely acknowledged.

While many submissions were competently executed and represented worthwhile additions to the communities they serve, the jury's charge was to select those entries which achieved excellence in architectural response to the needs of the community and educational programs for which they were planned and designed.

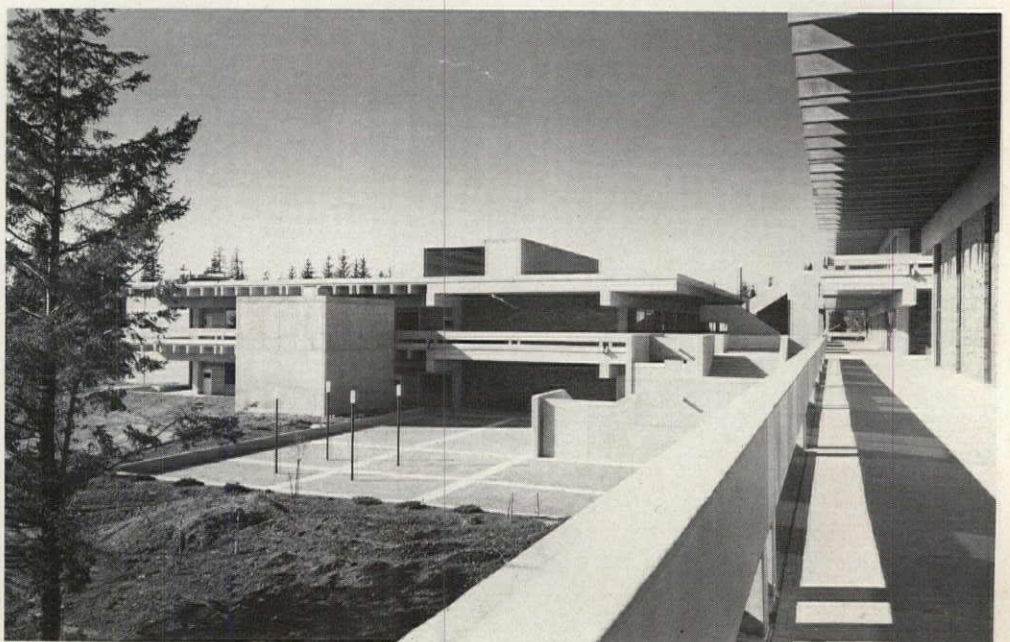
Among those projects selected for awards, there was a sufficient number of points of agreement to suggest important directions in junior college design. The role of the college as an institution within the community received careful consideration, and this relationship was expressed through buildings and master plans that encourage participation rather than isolation. In addition, more spaces and places permitting informal contacts and nonclass opportunities for education were provided in many campuses. Flexible surroundings evidently were being provided more often for students and faculties to use and alter as situations dictated. The monumentality that has long been associated with educational facilities seemed to be giving way to "individualized" spaces that lend themselves more readily to change and growth.

Of the 68 candidates for awards, five were selected for Honor Awards, and five for Awards of Merit. All those considered for Honor Awards were visited personally by members of the jury to confirm their selection.

HONOR AWARDS

Portland Community College, Phases I and II, Portland, Oregon. New Facilities. Architects: Wolff Zimmer Gunsul Frasca Ritter.

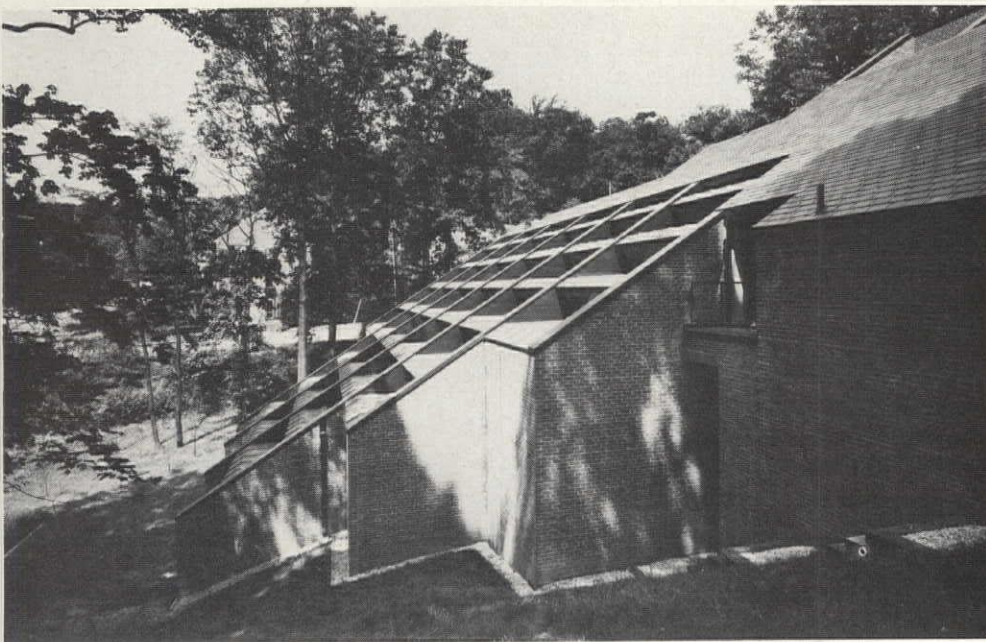
Jury Comment: Almost every community college seeks true community involvement, high visibility of the educational process and a dynamic curriculum. Portland Community College achieves all of these. Through its architectural plan and its flexible educational program, the experience of learning in a free and open atmosphere is well provided. Extensive use of glass walls to enclose every conceivable activity from class room to faculty office makes the program visually apparent and serves to esthetically balance the brick and concrete forms of the individual buildings. The general openness of the educational areas is reinforced by a spacious, central, enclosed mall that accommodates a changing variety of events.





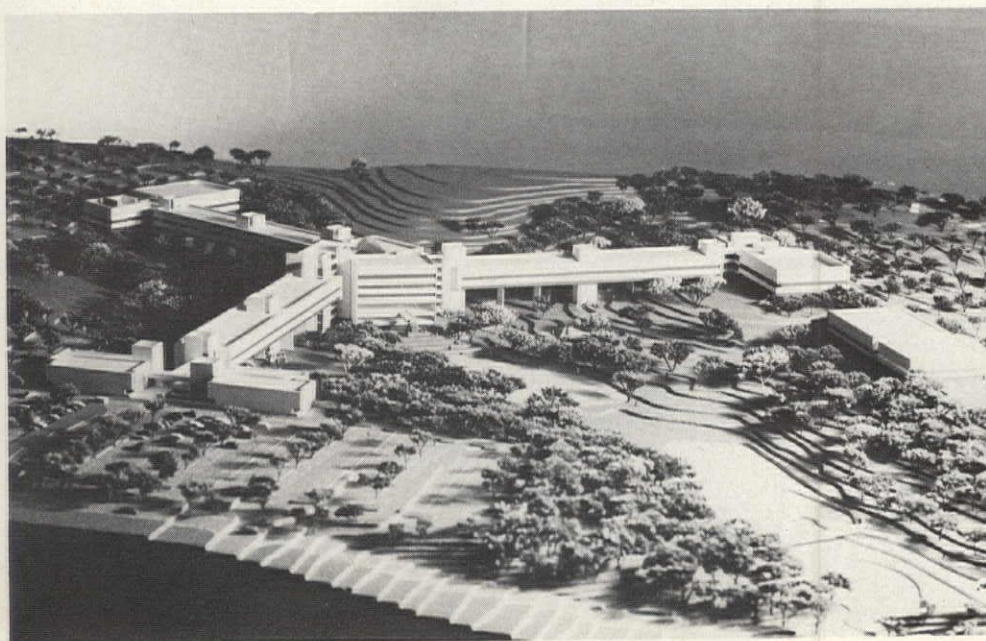
Cypress College Phase I, Cypress, California. New Facilities. Architects: Caudill Rowlett Scott; William Blurock & Partners.

Jury Comment: The architectural design makes effective use of bold forms to relieve a uniformly flat terrain and to establish community identity within a residentially scaled neighborhood. . . . Decentralization is accomplished through the use of several academic "houses" with integral eating facilities. This device also recognizes the need to establish social cohesiveness in a student body primarily composed of commuters. . . . The attention given to the staging of buildings during the initial periods of growth and the design quality of the interim campus are commendable accomplishments.



Mount Vernon College Chapel, Washington, D.C. New Facilities. Architects: Hartman-Cox.

Jury Comment: The problems posed were threefold: 1) to provide a multiuse space that would serve worship, music, drama and a variety of convocational activities; 2) to harmonize in architectural style with existing neocolonial campus buildings; and 3) to build on a difficult, heavily wooded site. The chapel solves all of these problems with distinction, restraint and consummate skill. The exterior expression is one of well-composed brick planes, carefully arranged to effect contemporary architecture in harmony with older campus buildings. By contrast, the interior is a rich, almost Baroque, display of natural light on white sculptural forms. The total effect is a memorable and commendable response to the building program.

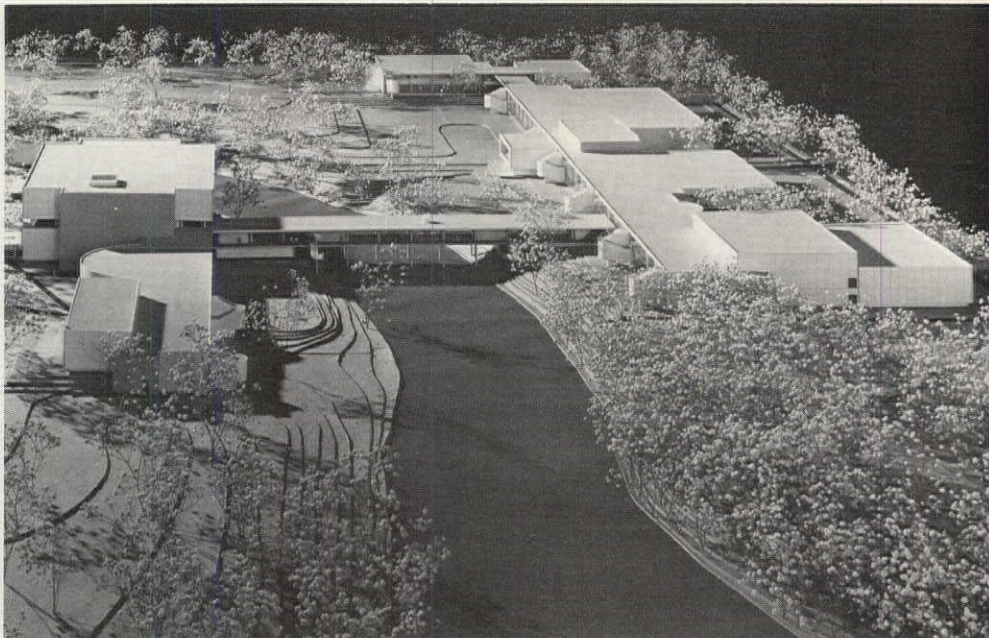


Community College of Allegheny County — Boyce Campus, Monroeville, Pennsylvania. Comprehensive Campus Master Plan. Architects: Celli-Flynn & Associates.

Jury Comment: This is a unique and imaginative response to a difficult "bowl-like" site. The three linear, connector buildings and the central multistory core utilize the site to its fullest and gain advantages through dispersed parking, straightforward vehicular and pedestrian circulation and an adventurous sequence of educational spaces. The project is an excellent example of the benefits that can accrue, through design innovation, to colleges with less than ideal building sites.

Joliet Junior College, Joliet, Illinois. Comprehensive Campus Master Plan. Architects: Caudill Rowlett Scott.

Jury Comment: The simplicity and clarity of organization of the college plan, in both a physical and disciplinary sense, are highly commendable. The skillful integration of all activities recognizes that a college is more than a group of class rooms and makes especially good use of the natural amenities of the site. . . . The linear organization of the plan permits easy expansion by stages but avoids any stigma of monotony through several changes of direction in the circulation "spine" and the use of the bridge across the lake as a communication link. The plan is sensible in its functional layout and sensitive in its design execution.



AWARDS OF MERIT

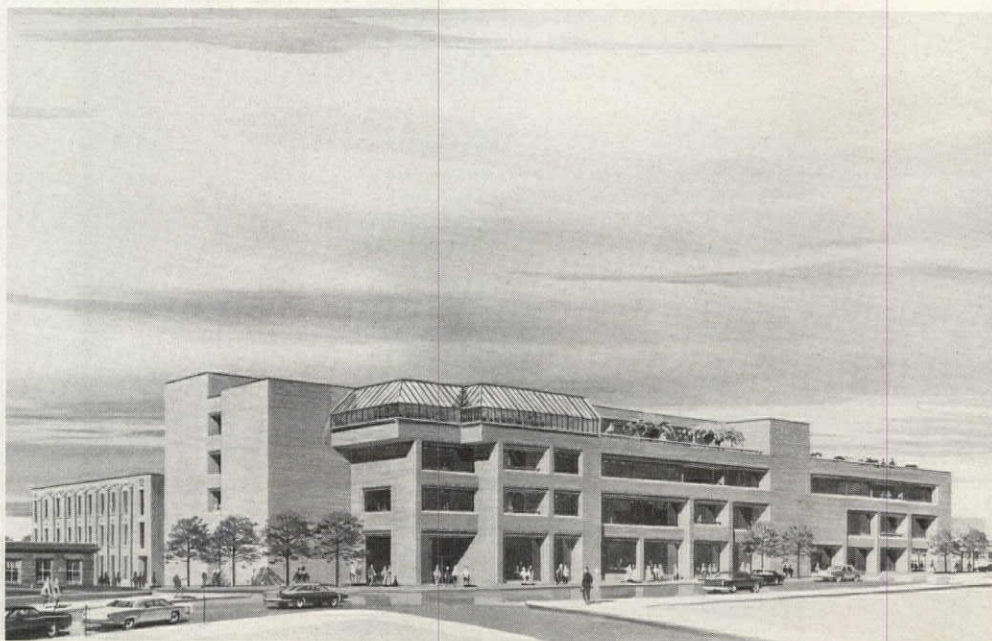
Allen County Community Junior College, Iola, Kansas. New Facilities. Architects: Schaefer, Schirmer & Eflin.

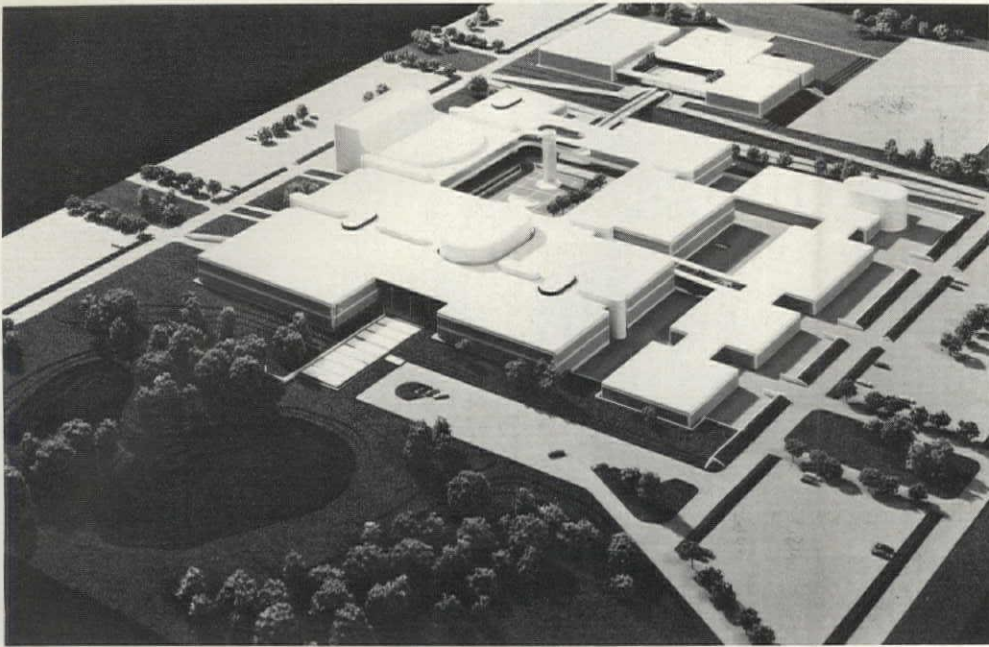
Jury Comment: The plan is a good example of the manner in which architecture can serve to establish community identity for a small junior college (500 students). Interior courts where students and faculty can gather are effectively used as functional elements in the circulation pattern.



Seattle Central Community College, Seattle. Comprehensive Campus Master Plan. Architects: Kirk, Wallace, McKinley & Associates.

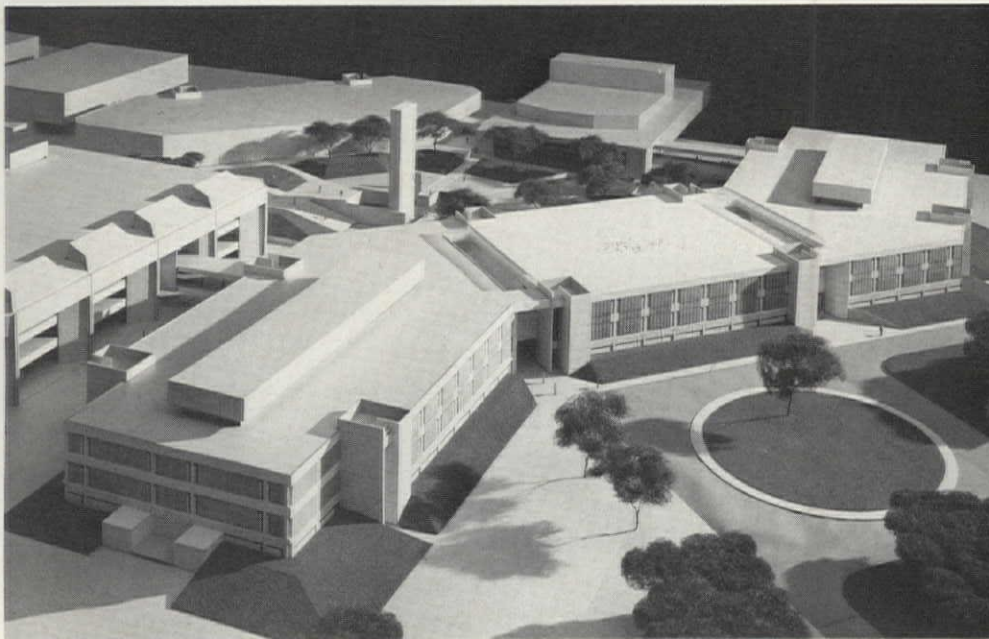
Jury Comment: The plan is an excellent expression of the commitment of this college to relate to, and become a part of, the surrounding community. The interior mall serves as the "pedestrian street," along which students and community residents can mingle freely. A multimode learning program is effectively accommodated in "learning villages" created for each division. The concept and the architectural form are straightforward, functional and appealing.





Linn-Benton Community College, Albany, Oregon. Comprehensive Campus Master Plan. Architects: Jeppsen, Miller & Tobias. Consultants: Daniel, Mann, Johnson & Mendenhall.

Jury Comment: The easily expanded campus plan uses an elevated platform, sunken central court and earth berms to effectively modify a flat site. The ease of entry to the buildings from the parking area and the free-flowing but ordered internal circulation are among the several commendable features of the scheme.



Washtenaw Community College, Ann Arbor, Michigan. Architects: Tarapata-MacMahon-Paulsen Associates, Inc.

Jury Comment: A continuous multilevel building creates an organizational system in this closely related complex of individual units encircling a central "great court." This impressive facility adapts nicely to the topography and capably allows for incremental growth and generally concealed parking.



Manchester Community College, Manchester, Connecticut. Comprehensive Campus Master Plan. Architects: Daniel, Mann, Johnson & Mendenhall. Consultant: Philip J. di Corcia, AIA.

Jury Comment: This plan takes full advantage of a linear enclosed academic street as the organizing element for circulation, social activities and extracurricular educational encounters. Interior flexibility and future growth are made possible through the skillful location of fixed utility and circulation cores.

On the Horizon: Nontemples of Learning

by BILL N. LACY, AIA

The restless, exploring minds of youth seek to break through the traditional red brick campus barriers and out to active learning settings. Architects can help them in a great measure by providing buildings to accommodate the students' needs.

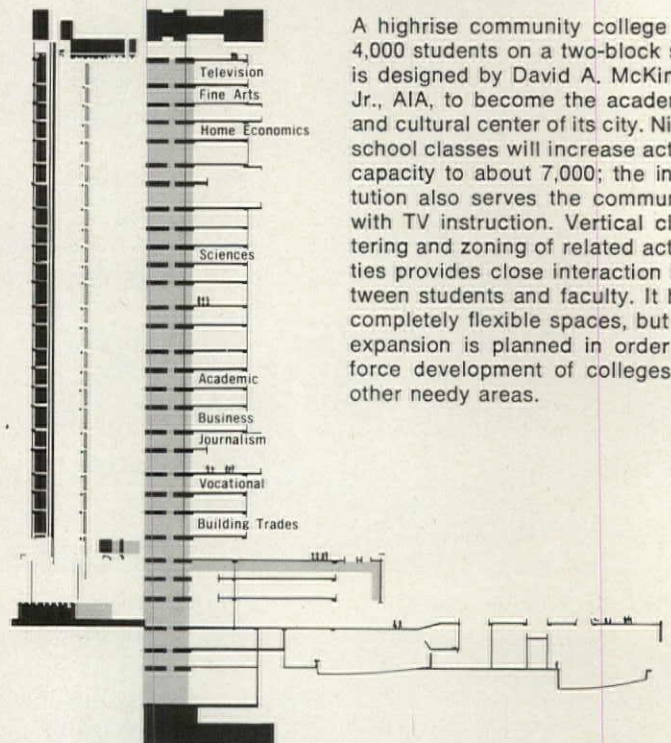
Back in 1962, when I was at Rice University, we decided to have 10 architects come to the School of Architecture for a two-week session to look at the design of community colleges — at that time a relatively new challenge in the educational field. The idea was to have these architects, along with student teams and consultants, explore what educational and architectural form the community college might take in the coming years. Educational Facilities Laboratories, Inc., that patron saint of architects and educators, agreed to finance this brainchild. It later published the results in the booklet "10 Designs: Community Colleges."

The 10 designs would still hold up well today, nine years later. Many colleges have been built in the intervening time that incorporate some of the ideas contained in these design solutions. We would naturally like to assume a direct relationship, but it may simply have been that our participants only reflected the natural development of prevailing thought in the field.

At any rate, there were advanced concepts in our 10 colleges: Frank Lawyer's great umbrella under which an open-air educational marketplace occurred; Dave McKinley's 30-story, circular highrise college on a downtown block; Edmond Lay's prefabricated, concrete extrusion college with individual, totally electronic study cubicles; Gyo Obata's urban campus with its own shopping center for an enrollment of 10,000 (a figure that boggled our imagination then); and the favorite of the group, Don Barthelme's "grow-it-yourself" college that expanded and contracted along a lively street where educational wares were vended in the bustle of everyday community activities. And, if these ideas were not enough to stimulate new approaches to the design of community colleges, Bill Caudill followed our publication in 1967 with one of his own, *Probes*, which contained 20 additional provocative directions for college planners and designers to ponder.

The ideas in both of these publications will no doubt continue to have validity in the years to come, but for those who would be misled by prognostications of the future, it is well to remember that the future never arrives at the same time for everyone. We are currently building colleges that, in my opinion at least, belong in every past decade of this century, and only a few that may appropriately belong in the '70s. Were I to conduct another design session similar to the one in 1962, I would center it around one theme: change. I would not accept a solution that did not plan for change in some positive manner or other.

I believe that the thing that will distinguish successful educational institutions of the coming decades will be their ability to accommodate change. I further believe that the student's present concern with the environment in general will gradually



A highrise community college for 4,000 students on a two-block site is designed by David A. McKinley Jr., AIA, to become the academic and cultural center of its city. Night school classes will increase actual capacity to about 7,000; the institution also serves the community with TV instruction. Vertical clustering and zoning of related activities provides close interaction between students and faculty. It has completely flexible spaces, but no expansion is planned in order to force development of colleges in other needy areas.

focus on his own collegiate environment and that students will insist on change in old facilities and the creation of new forms of curriculum and facilities that will permit continual change.

Students today do not find educational institutions stimulating or even interesting places to be. To the contrary, they most often characterize them as boring. Their surroundings are the same year in and year out. These "television children," as Marshall McLuhan has told us, live in a world where their environment largely consists of electric information. At home they are constantly attuned to inflation, war, riots, debates and soap commercials. Consequently, they are disinterested when forced into the regimented classroom routine still in use in colleges today.

There is no opportunity for the student to modify, participate or enjoy any degree of proprietorship in this classroom. Firstgraders, at least, are allowed to decorate school rooms with

their own artwork and toys, but in a university the classroom usually remains unchanged during the student's entire stay.

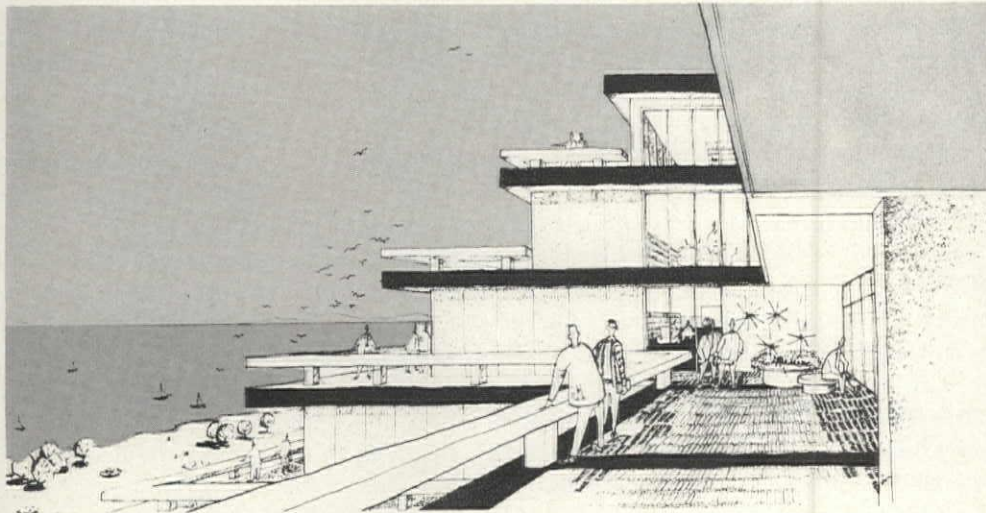
Students show their disdain for the university setting by their unanimous preference for classes off campus. This aware generation of students has learned that education can take place anywhere and they reject the "temple of learning" syndrome perpetuated by most institutions. They realize that classrooms are devices that serve student/teacher ratios rather than student/learning ratios.

Why, then, do we build these permanent cubbyhole classrooms when they are scorned by those they are intended to serve?

Certainly not for posterity. Our world is changing so fast that it is useless to continue to build monuments which outlive ourselves and our governments. The importance of a building can be measured by standards other than endurance. One of the most famous buildings of the century was Mies van der Rohe's German Pavilion at the Barcelona Exhibition, built in 1929. It stood for only nine months before it was dismantled.

Neither do we build them for functional uses, because we have known for some time that our brick and concrete fortresses seldom weather the social and technological advances longer than 10 years after their doors are opened for business.

If not classroom cubbyholes, then what should we build?



Mies and Bucky Fuller have shown us that we can build "envelopes" rather than mazes for activity; that our buildings can be skins for surrounding immense undefined spaces which may be tailored or subdivided for various activities.

And now there is a legion of young intellectuals extending this idea of flexible spaces further than we ever imagined. Joan Littlewood, a theatrical personality, has conceived of the Fun Palace, a giant erector set consisting of parts and a space grid of supports and services. Devices within the grid services can assemble and animate the parts to suit whatever purpose comes along, and then put everything back in the box. Peter Cook, of the London Archigram group, has designed a "plug-in" university so that modules for activities may be attached in a multitude of patterns to a service framework.

In addition to those who are designing envelopes or interchangeable parts, there are also those exploring the possibilities of temporary structures. Frei Otto refined the tent, long used to

shelter religious revivals, to house the German exhibition at Expo 67. William Katavolous has given us chemical structures produced by pretailoring double-walled rubberized fabric balloons which would be filled on the site with quick-hardening urethane. And in their book *Kinetic Architecture*, William Zuk and Roger Clark outline a whole further range of alternatives to the static architecture which we have so long accepted.

Inevitably, when we begin to think of buildings with component parts which can be arranged in a myriad of ways, or of structures which can be completely dismantled, moved and reassembled on a new site in a matter of days, we begin to look for new and more efficient methods of production. We have seen the automobile become a central theme of our culture. Architects, even before George Romney published the fact, have known that the automobile industry represents all the things that the building industry does not: standardization of component parts, modular coordination, assembly line production and a widespread distribution network. Detroit has not, like the building industry, eluded the 20th century. In a recent article, "Easy Come, Easy Go: Notes on Ephemera," (*Design Quarterly* 76, Walker Art Center, Minneapolis), Daniel Solomon likens the building industry's ability to successfully avoid industrialization to guerilla warfare tactics, and characterizes it as "an instantly

A bustling atmosphere is planned by Gyo Obata, FAIA, rather than a grand scale for a metropolitan commuters' college for 10,000 students. Social areas are on the ground levels so students and members of the community can mingle and shop in the numerous stores. Placement of the buildings permits a vista of the lake from the city. Similar functions are grouped together for economy and flexibility. Static spaces are outside flexible instructional areas so they won't interfere with changes. All fixed elements — stairs, elevators, mechanical shafts, etc. — are placed in towers so that user spaces may remain as interchangeable as possible.

mobilized and demobilized little army of men nailing sticks together one by one," and who by their "crudity, flexibility, non-commitment to facilities, training and research" can ultimately be victorious.

The building industry has a long and inglorious history of flirtation with massproduction, starting with Fuller's Wichita House in 1927 through the ill-fated Lustron House that eventually succumbed in 1950, to the Finnish-designed Futuro House on sale today. But we are ardent and optimistic still and the School Construction Systems Development experiment gave cause for a brief revival of hope, which was fanned by the plans for Operation Breakthrough. Even Paul Rudolph, who has previously been best known for his rather monumental, neo-Roman buildings, has shown increasing infatuation with a highrise tower of plug-in mobile homes.

Hopefully, from these experiments we will learn not to keep on constructing archaic buildings because someone started us out in that style more than 100 years ago. I have seen administrators and architects who have admired the new ideas and new forms but who have chosen the old brick and glass fortresses because they wanted a unified campus architecture or because these were what schools were supposed to look like. It is a myth to think

Mr. Lacy, who is vice president of the firm of Omniplan in Dallas, was formerly dean of the School of Architecture at the University of Tennessee. The present piece, which was prepared with the assistance of Glenda Elkins, is based on a speech he delivered before the annual convention of the American Association of Junior Colleges last year.

that architectural unity comes only with likeness. Certainly, unity would exist just as much on a campus composed of 30 experimental buildings of different types as on a campus of 30 buildings that are exactly alike.

We have always admired the ease with which automobiles, household appliances and TV sets can be replaced when they become technically obsolete. And at the same time we have shunned buildings which cannot stand for at least a century. It is time we realized that buildings, as well as automobiles, are part of the Kleenex Culture. We must accept that they, too, are part of the hardware of the world which, when new hardware is developed, should be replaced, as we replace cars or appliances.

We are all aware of the difficulty of remodeling rigid structures designed decades ago for functions that are now obsolete. At the University of Tennessee we faced this problem when we created a new School of Architecture. We began in a marvelous old antique of a building that had been relegated to the role of a storage and supply depot. We began our renovation with two goals in mind. We wanted 1) the spaces to be as flexible as possible and 2) our students to have some feeling of ownership of these spaces during their years at the university.

Our first crop of students came before the building was remodeled, when there were only cardboard-box desks and a single telephone. During that fall we held classes literally everywhere, from a boat dock on the river behind the school to the upper deck of the football stadium.

In remodeling our "antique," we attempted to preserve its natural assets, such as the maple floors, and insisted on incandescent lighting, feeling that the difference in atmosphere more than outweighed the argument for efficient fluorescence. In the studios we created loft spaces and turned over boxes of individual carrels to students to assemble and arrange as they pleased.

Since then, I have noticed that every new class has rearranged these carrels and desks. They have created entirely different spaces to suit their individual purposes and decorated them with their own art and books.

In fact, it was these personalized work spaces which created problems during our first year. The students, after arranging and decorating their own areas, began to view them as their private offices, places for studying all subjects, not just design, and carrying on hobbies and discussions. They resented the security police who, in accordance with campus policy, locked them out of their "offices" at midnight. We finally arranged with administration officials for the architecture studios to be the first classrooms on campus open to students 24 hours a day.

Since that first year, because of the heavy increase in enrollment, the University of Tennessee has had to remodel a new building every fall. Each class has felt that it has played a part in the school's development because the students have caused a change to take place in its physical boundaries. I hope that the time will never come when the students feel that they have inherited the school, rather than built and owned a part of it.

A grow-it-yourself college on an academic street is developed by Donald Barthelme, FAIA, from questions such as: How does learning take place? What does the individual seek from education? What can architecture best do with an educational opportunity? The street is the main hall of the college, rich in variety, and not a corridor. The architecture is modest, respectful in scale; the beautiful forms, colors and textures used in the nonmonumental structures still remind people of past human accomplishments and emphasize continuity in human values.

The programming for a new building is now underway. The task is approached in a somber mood because of the realization that a new building which does not continually adapt itself to the student needs will not be an improvement over the present situation. It must be a building of small parts that can be rearranged. There must be few fixed anchor elements in it. It must have large open spaces in which temporary events can happen. It must not have clearly defined tops and sides. It must always be *unfinished*.

If architecture and the building industry do catch up with the century before it passes, the most significant buildings of our times could prove to be not the Boston City Hall or Habitat but, instead, the paper housing for the migrant farm workers by Hirshen/Van der Ryn or Fuller's Expo 67 pavilion.

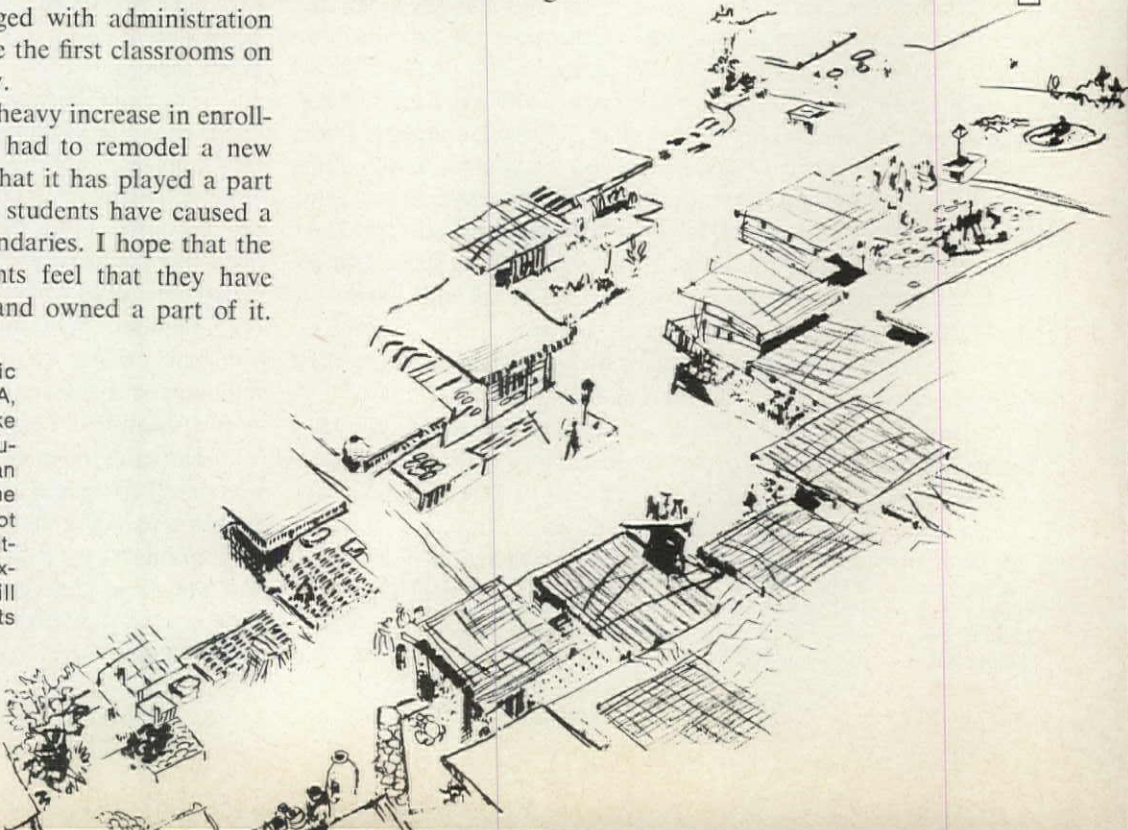
There has never been an educational program written that did not contain the word flexibility. Inevitably this is at best translated by the architect into a few folding partitions.

The architectural profession must share a large part of any blame for resisting new theories. We continue to predict human behavior and future needs without reliable data and then freeze the prediction in an inflexible envelope of brick and concrete and glass. We have opposed too long the concept of real flexibility and disposability of architectural elements for fear that the tradition of architecture might also pass with our out-of-date beliefs.

The junior colleges are the newest development on the educational scene and therefore should be subject to innovation. They should be more pliant than the moss-covered, tradition-bound four-year institutions, but they are not. They have the same brick buildings with ends and tops that will not budge, arranged around a formal axial plan. Name me the community college that is so experimental and exciting that everyone in the country must travel to see it and learn from it.

This troublesome and troubled new generation of students, with their irreverent "why, why, why," is very serious, but not about stuffy traditions or imitations. They will demand variety, color, spirit, freedom and the right to experiment. Instant theatrical sets, disposable backgrounds, the unusual, the original, will all have greater impact and importance to them than the planned rigidity with which they have come to identify the educational process.

We got rid of the red brick schoolhouse for the most part at the secondary and high school levels. It may now be time to do the same for colleges.



Scale as an abstract, esthetic principle is no longer relevant in the architecture and design of today's environment. An extension of the concept is proposed whereby through perceptual experiences a conscious and dynamic relationship is achieved between the physical properties of the environment — sizes, forms, textures, spaces — and the sensual responses of man, the user.

A Functional Definition of Scale

by J. WILLIAM CURTIS

Environmental designers have two definitions of scale for the development of design concepts and tools. One may be denoted as "traditional"; the other as "contemporary." Both definitions are inadequate to explain or deal properly with the basic phenomenon of scale in environmental design.¹ I should like to present what I believe are the limitations, as well as the advantages, of the current concepts and to suggest a new definition which appears to me to hold tremendous promise in the analysis, design and understanding of the role of scale phenomena in the relationship between man and his environment and, ultimately, between man and man.

The principle idea underlying traditional definitions — that scale is determined by a sense of fitness between the human figure and the parts of a building and that there is a felt proper size for any particular form or part of a building — is perhaps an adequate, if unwieldy, concept in a relatively static context.² There the designer works within an established and constant discipline, technology and economy and within cultural relationships which are more or less understood by all members of the society. Once new technologies and other cultural patterns begin to emerge, however, the capability of the designer to deal with scale in a traditional way begins to deteriorate.

The traditional concept of scale, based as it is upon a felt properness of size for particular objects and forms, is dependent largely upon a static or, at the least, a slowly changing technological potential. Concepts of a felt proper size result from the internalization of size expectations. These in fair measure are a direct result of technological ability. In periods of relatively stable technology, one can readily acquire an expectation of the sizes of bricks, the sizes that seem to be most practical for stone lintels, etc.

Once a new material is introduced or exploited, the result is

a radical disruption of size expectations. Moreover, once technical innovation began to speed up, its pace accelerated at an ever-increasing rate — a process which now assumes dizzying momentum. If the advent of steel structures severely disrupted the framework of size expectations of parts of the built environment as compared with earlier masonry technology, the complete plasticity and variable surface quality of precast concrete (and later plastics) seem to destroy any hope of size expectations. This, of course, refers only to those parts where size is controlled by technological capability. Items such as stairs maintain a more direct relation to the size of the human body.

The notion of the proper sizes of things, however, has been used also in an attempt to evaluate the scale of a building or its parts from viewpoints other than learned ideas about structural or technological capability. One of the more prominent of these is more explicitly described in terms of operational space. For example, in the instance of an auditorium we may refer to the scale of a stairway when we may be stating, in fact, our opinion of how well we think the stairway will handle anticipated traffic. Does the stairway adequately provide for the volume and kind of traffic for which it is designed — rapid, slow, processional or other modes of movement — without going to the extreme of providing waste space? Do the landings provide just the right amount of space to accommodate the customary decrease in speed that occurs there, without being excessively commodious or tight in comparison with the stairways themselves? In other words, have operational space requirements with all their subtleties and nuances been thoroughly understood and sensitively interpreted?

Overlap of the use of the term scale into concerns of operational space has led to the transfer of the idea of scale to other areas of man's experience involving extensions of his capabilities.



In these instances, the technique used is to redefine the unit of measure to be the particular extension of man as the immediate referent, rather than man himself. This term is used, for example, to describe the size and form of spaces necessary for the operation of automobiles and trucks. In other words, a downtown street or urban freeway is properly scaled for the automobile because (or when) its dimensions, surface variations and layout permit the easy movement of automobiles at specified speeds and because (or when) signs and other items surrounding the road are designed to be viewed from automotive vehicles at the road's design speed.

Similarly, functional groupings of people and their resulting cultural expression often acquire a provisional significance as the measure of scale in a traditional sense. One finds frequent reference to "residential scale," "commercial scale," "industrial scale," "urban scale," "the scale of the megalopolis." Heath Licklider in his book *Architectural Scale* also refers to "human scale," "physical scale," "proportional scale" and "a world of scale." Hans Blumenfeld in his article "Scale in Civic Design," published in the April 1953 *Town Planning Review*, has referred to "personal scale," "building scale," "superhuman scale" and "extrahuman scale."

These uses of the term result principally in obscuring the

meaning, while the shifting, personal references of measure provide a degree of underpinning, however uncertain, for a definition of scale which has declined severely in effectiveness and perhaps should not be artificially reinforced at all. On the other hand, it is freely conceded that the traditional definition contained elements of great value which later and more precise definitions may be hard pressed to incorporate. Traditionalists expressed a passionate commitment to achieve a sense of congruence between the size of an object and its form.³ Moreover, this congruence needed to be such that nothing in the object or its surroundings seemed to be out of order. The technology of allowing people to pass expeditiously from one floor to another was merely a functional beginning distinguished from a true achievement of proper scale by the distinction between utility and graciousness.

There was also an implicit requirement of conformity to the demands of nature. Together with its companion concept, proportion, the concept of scale defined essential ideas about the expression of materials. It demanded perceptive acknowledgment of their bulk, rigidity, elasticity and strengths as well as of the foundations on which they rested. Although capable of

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explicit analysis to a certain extent, there was a strong element of poetry. As the ground nurtures the tree, the tree exists in a perfect relationship with the ground. In this way, the forest glen is created. In a similar manner, the quiet pool and cascading river both come to be, always adequate and in perfect harmony with what they are. The traditional definition of scale says that good architecture must be like this.

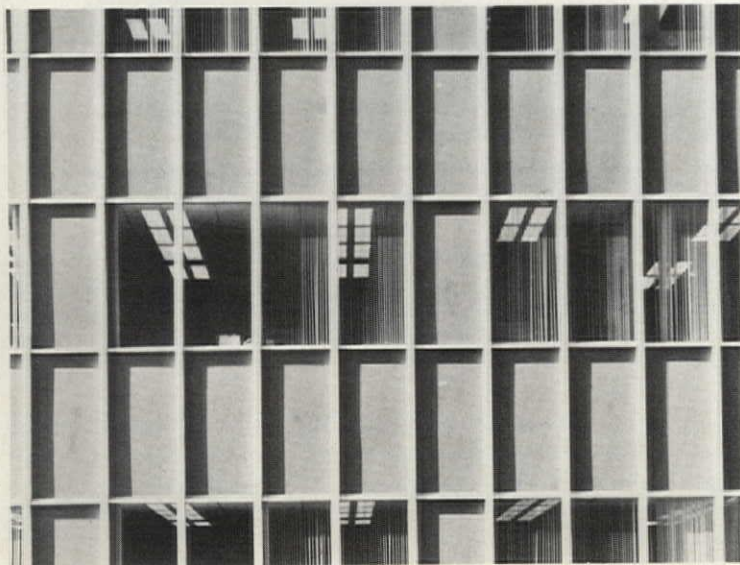
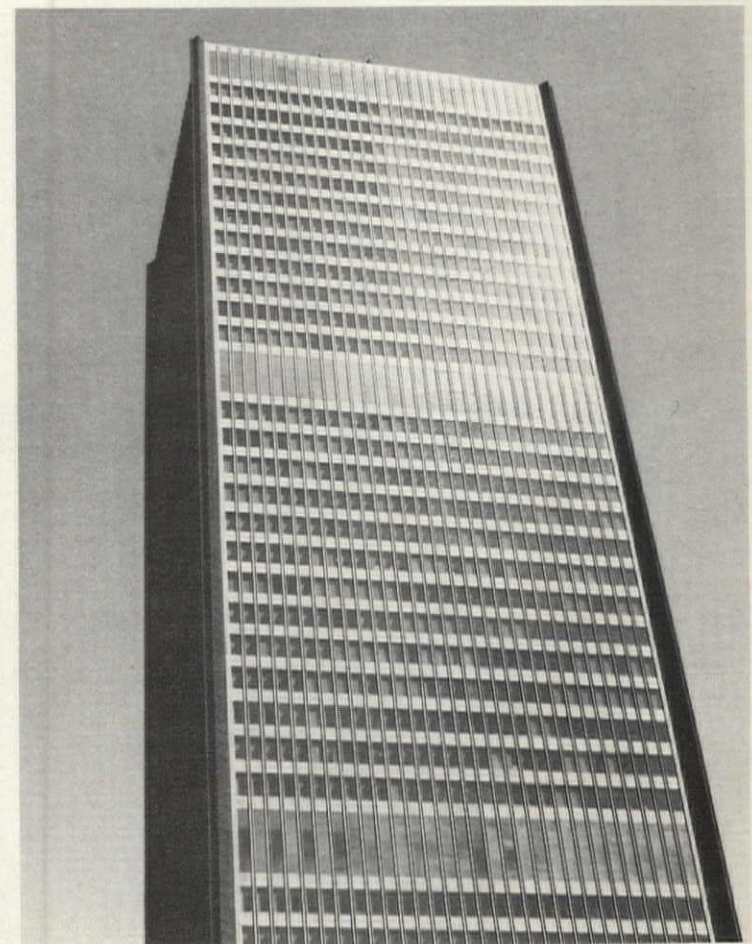
Technical innovations in building which marked the explosive beginning of the modern era disrupted traditional expectations. New materials provided enlarged possibilities in the ability to span and enclose space without the need of intermediate columns. At the same time, this radical potential violated the familiar cues that were anticipated by the observer. He often was left with little means to evaluate the size of the space that he was in at the moment.

Moreover, feelings of relatedness to the site and its components were placed in equal jeopardy. Significantly, the work of Le Corbusier emphasized a dramatic opposition of building and site.

Meanwhile, a number of workers in psychology, and in other areas as well, began to wonder how the human being actually perceives and evaluates size in his environment. Gestalt psychologists made explicit studies of visual illusion. The relatively recent Ames experiments were often concerned directly with size in architectural context. The principles of perspective, so effectively employed by Renaissance architects such as Bernini when he built the Palazzo Spada about 1635, are being documented and made explicit. The question of how we see, though still obscure, is being made more and more accessible to designers of the environment. Researchers are documenting the implications of binocular vision, atmospheric effects of distance, overlap, similar sized objects and countless other cues by which we evaluate our visual environment.

What is now referred to as the contemporary definition of scale is an attempt to make the phenomenon of size more understandable and to provide a definition which might lead to the development of a functional design tool. In order to accomplish this, the poetic excesses of the traditional concept are countered

Seattle-First National Bank, designed by Naramore Bain Brady & Johanson, is seen from a distance on the preceding page. It appears as a brooding monolith, dominating the cityscape. At closer view (top), its uniform dark color and lack of visual textures emphasize its unrelieved approach. At still closer range (right and bottom), the viewer makes new judgments and has a different emotional experience as he observes a careful selection of specific texture sizes and surface patterns which communicate a mood in keeping with the building's purposes.



by asserting that scale must be defined as precise, measurable quantity.

According to the contemporary definition, scale is a numerical ratio denoting the relationship between the size that an observer estimates an object or space to be and the physical measurements of that object or space. This may be expressed in mathematical terms as the equation $S_c = \frac{S_p}{S_m}$, where S_c is scale according to the contemporary definition, S_p is the perceived size of the object or space and S_m is its measured size. The question posed here is not how a building relates to man as its measure, but more simply how big it appears to be in comparison with its actual size.

There are two difficulties with the contemporary definition. It is removed from the traditional by only a single step and depends for its validity upon an only slightly less static situation. It is not really prepared for a rapidly changing technology. It falters before the dilemma of "scale-less-ness" posed by such structures as Buckminster Fuller's Dymaxion domes. Of greater significance, however, is that the contemporary definition sacrifices far too much in the way of content in order to achieve a remarkable gain in clarity and precision. It forms the basis for possible development of a useful and accurate design tool but only at the inordinate cost of sacrificing the most important concern of the previous concept. In effect, it deletes all of the emotional consequences which the traditional definition attempts to enclose.

Yet it seems to me that the central issue of size, and thus of scale, *must* be the issue of the nature of the relationship between the sizes of things in the environment and man. Having accepted the importance of phenomena governing apparent size and recognizing their utility as a design tool, what are the effects of these perceived sizes of things upon man in his environment? This is the vital question. A new grasp of the situation and a new definition of scale are needed if we are to deal with man's relationship to his environment in a meaningful and fruitful way.

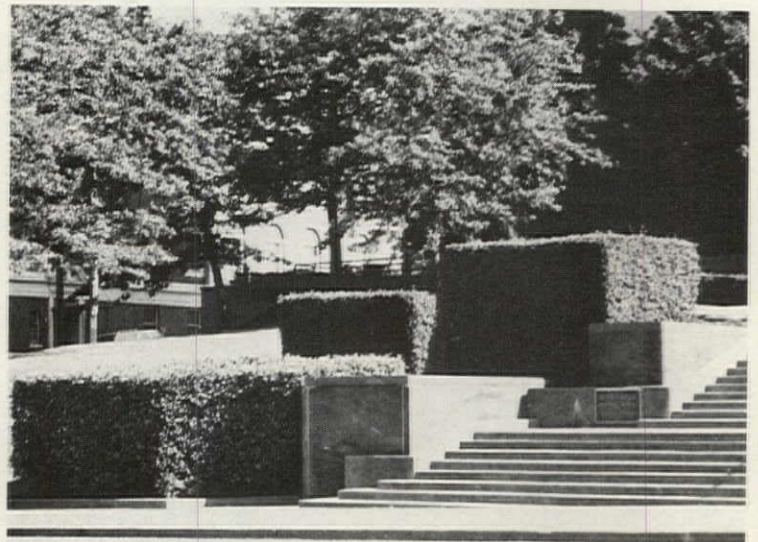
We must return to experience to develop a new concept. We must learn to see again the conditions in which we have constructed our ideas. We need to find more commonalities that seem to suggest reasons behind our sentiments and inclinations.

Our framework for perception of the world is formed at an extremely early age. As children, we are largely creatures of the out-of-doors. Indoor play is a pale substitute for outdoor play, forced upon us by inclement weather and the restrictions of parents. We learn the best places to play ball, to roller skate, to sit; we come to know the feel of gravel under bare feet, the oozing softness of marsh or bog.

As adults, most of us still turn to this kind of environment when we think of a vacation. We think about fishing, camping or a resort where we can attempt to capture the best of both worlds. At the least, we will flee to suburbia every night, trying somehow to achieve the natural life of Thoreau, even on an 80x100-foot lot.

We are faced with an immediate need in the creation of an urban environment: the relationship of man's environment to man himself. This is the primary task of architecture; without a solution, no other achievement is significant.

What is the relevance of these speculations to scale? We can observe that important elements of this relationship result in sizes of things which relate to the individual in particular ways. Every visual element of the environment will exhibit size. This size, related to its function and embodied in form, communicates in implicit and emphatic terms the attitude between elements of the environment and the person who stands in it.



A profuse array of natural forms and textures, which delights some but seems disorderly to others, is shown at the top. The careful trimming of a hedge achieves a sense of order and precision through the use of rectangular shapes and the elimination of a large range of textures that would have been a part of the shrub's normal growth pattern.

Insofar as we are concerned with scale, the predominant characteristic which lends itself to an objective analysis of immediate utility is the concept of size. We can analyze the size of each form or group of forms and relate the size of the forms to the size of man. A concept of scale can then be derived from

immediate experience which can make explicit emotional aspects of the relationship between man and his environment.

When we examine the forms present in a natural outdoor environment, we become aware of an infinite multiplicity of sizes. Our minds absorb the texture of the grass, the pattern of the leaves of the hazelnut tree, firs and billowing clouds moving across the sky. If I describe these things in terms of size in a way that relates to my own being, I will hold up my hand so that with thumb and forefinger I can show you the size of a hazelnut leaf; with my whole hand I can show you how I would grasp the trunk of a young tree; with both arms spread I can tell you about a tall fir. Each motion of my arms and hands will be charged with all sorts of emotional content and associations.

The number of different sizes is limitless. My reaction to the space around me depends upon the forms I see, their patterns and textures — the grouping of sizes of things. If we are to construct a definition of scale which can lead to a theory illuminating scale phenomena, our definition must respond to the range of possible sizes from the infinitesimal particles of a mirror surface to the limitless expanse of the sky. Then we can begin to study the effect of specific size groupings in any particular view.

I have termed this the "functional" definition. Scale in architecture is a succession of ascending or descending sizes, or a progressively graduated series of perceived sizes. This definition adheres much more closely to the general definition of scale than the two previous concepts. It is highly specific and leaves no doubt as to its content. Moreover, it is more abstract than the other definitions. Past experience in scientific work indicates that the projection of an issue to a higher or different level of abstraction often leads to new insights and opens doors to broader speculation, experimentation and understanding. We may justifiably expect similar results from this concept.

In any specific design situation, an environmental designer has a selection of materials. Each material is available in a particular range of sizes, has a certain texture, often has a patterned surface and may be combined with other materials to produce additional sets of patterns and textures. The choices available and the combinations developed determine to a marked extent the communication of the mood, quality or intent by the environment.

The situation is crudely analogous to that of a musician who composes a presentation, or communication, using energy pulsations of audible frequency. The range of these frequencies is marked off in a set of fairly even intervals, each bearing a fixed mathematical relationship to the other. The notes the composer selects, the number of times each is used, their relationships to each other and the arrangement of the sequence and duration of presentation have a profound effect on the emotional communication or mood of the music.

Obviously, the environmental designer's problem is vastly more complex. Much of his design is not presented discursively but all at once. Many more perceptual pieces are set forth at any one time than the musical composer is required to deal with. Moreover, he often has only limited control over the path that users of the environment may take. The number of possible space sequences usually increases radically with the number of spaces provided. The viewer may experience the environment proceeding in a number of different directions and may often reorder the sequence of spaces according to how circuitous or direct a path he wishes to take. He may run, walk rapidly, meander or stop at any point. With the exception of situations involving equipment, such as an elevator, there is no control over the timing of the presentation of spaces.

Complexity, however, does not fundamentally alter the

analogy. It merely means that the resolution of environmental problems is complex. Rather than indicating the futility of attempting to solve the problem, it suggests that a more broadly adaptable system of notation will be required. Since we do not have a fixed, limited scale of sizes, we can refer perhaps to the entire range of size possibilities as the scale spectrum.

Within this abstract framework, we can graphically represent the presence of the various textures which exist in any specific environment. This graph would then be termed its scale spectrum profile. Analogous to this are the familiar light spectrum profiles which are used to describe the intensity of each frequency of light waves present in a light source. The graph might better take some other form as well, but this is not important at this point. My intent here is not to develop the mechanics for a specific procedure but to present principles upon which such mechanics might be developed and to discuss some of the difficulties which need to be resolved. Important at this juncture is only the conceptual possibility of developing the graphic system.

Analysis of differing environments and comparison of graphs describing their scale spectrum profile can make explicit much of the relationship between people and their environments which is due to sizes of form, patterns and textures. The drawing room of a Victorian home, for example, is noted for a heavy emphasis of a particular area of the scale spectrum to the obvious exclusion of some others. There is a small amount of mirror surface and a great deal of texture, such as that of mohair upholstery. Larger visual forms are broken down by the use of striped and patterned fabric, folded draperies, portable screens, a profusion of bric-a-brac. This kind of environment is termed fussy by some, cozy or warm by others, depending upon one's background and conceptual context.

The problem is one of communication. The environment implicitly tells the viewer something about the attitudes and opinions of the controller of the environment. Two factors determine meaning to the receiver: first, his understanding, emotional attachments and associations; second, the context within which the communicated is present. This, again, far from suggesting the futility of the situation, demonstrates the magnitude of the knowledge and understanding that are necessary for its solution, as well as the vast amount of research that needs to be accomplished in order to develop explicit design criteria.

Implicit in the development of the functional definition of scale is the idea that built environments must communicate to their users the same kinds of accommodations, usefulness and compatibilities as the image they carry of idealized surroundings. This idealized image is presumed to be learned in childhood through contact or cultural learning and is reinforced throughout life by implicit and explicit statements of cultural ideals. The images suggest that one's environmental experience should add up to a substantial experience of the complete scale spectrum.

Such a thesis raises a number of questions. One wonders, first, if the problem is not effectively resolved by a simple act of perception. If we examine a photograph of a building, we notice immediately that the visual element of each column, each window, each mullion and each sill is, in fact, different in size. Each member has a different relationship to the camera than all the others of its kind. Each variation in position and distance registers a unique image size on the film. Similarly, each of these would also register a different shape and size upon the retina of an observer's eye. It might be reasonably assumed that such a phenomenon will effectively nullify the issue of a scale spectrum.

Considerable scientific experience has indicated that this is

not the case. M. D. Vernon reports in *A Further Study of Visual Perception* that an assumed constancy of size in situations such as the one just presented is a reasonably consistent phenomenon. One might conclude that cultural experience has equipped us with what might be called a rectifier which modifies our retinal image to fit a concept of reality which fits our past experience. We are certain that all of the columns are the same size, and we make the observation directly without any reflection.

It would appear, then, that the phenomenon of multiplicity of distance and position between an observer and components of the environment may have little significance for scale phenomena. Again, this is only partially true. The frame of reference within which the functional definition was developed is physical experience of the environment. Our frame of reference is immediate and personal. We measure with our own bodies. What must we pluck between forefinger and thumb? What can we grasp in closed fist or open hand? What can we embrace, sit upon, step across, reach between or stoop beneath? These are the central issues. Relationships to the environment are based upon its accessibility and utility.

The question of how we perceive, conceive and evaluate textures at a distance raises complex sets of questions. It is with distance, even short ones, that we begin to experience differences between the real and apparent sizes of objects. When we can walk up a set of stairs, its oversize dimension will not delude us. A short distance away, we make a different evaluation. Then as we approach the stairs, a disparity results between what we assumed and what is now apparent. New judgments are formed. This, too, has little to do with the size of the retinal image, but is a function of the more complex act of perception. The idea that the mind, through the function of the eyes, performs visually in the manner of a camera is aggressively disputed by Rudolph Arnheim in his book *Art and Visual Perception*. Thought moves out to objects being perceived, explores their recesses, moves across their surfaces, "feels" their textures and follows their forms.

Only research can adequately uncover the correct way to account for distance in scale phenomena and the most effective method of adapting a proposed notation. We can speculate, however, that a beginning method would be to subdivide the environment into three or four zones such as immediate, proximate, dis-



Freeways provide an environment characterized by extremely large texture patterns. Presumably, this makes for safer driving, but at the cost of what some people consider a dehumanized landscape of ugliness.

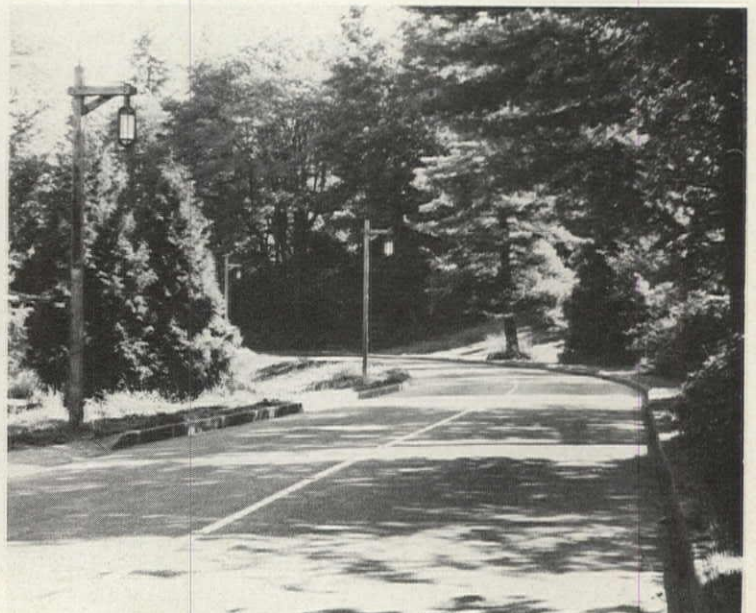
tant and scenic. A diacritical mark adjacent to the notation could be used to indicate the zone concerned in the notation. Such a device might account also for other phenomena of distance. The more removed environment is, the more conventionalized and stereotyped is our image of its patterns and textures. Within a short distance, we no longer perceive the details of the textures. At the distance of a half-mile, much of our evaluation of any scene is pure conjecture. We see a color and form, presume that it is made of brick and immediately have a mental image of the approximate pattern of the wall and texture of the brick. A distance of several miles causes our entire impression to be fabricated from past experience and cultural expectations, often with only the barest of clues.

Further, our environment is what we see, but vision is not encyclopedic, which makes the environment a fluid aggregate of collected physical objects and conceptual symbols. This adds another dimension to the problem and links the study of scale to the discipline of anthropology. What does one focus upon to hear and how is extraneous sound filtered out? With the sequential experience of arrays of textures, what in fact does one see? What is the "melody line" which carries from experience to experience as a primary theme weaving itself into memory of events? Equally important, what textures does one filter out as visual "noise" in any particular set of experiences, and how are the decisions made?

As more and more issues begin to emerge, the potential for research within the functional definition of scale becomes increasingly richer and more promising. As theories and answers begin to be developed, we should be able to utilize this concept of scale as an ever more valuable tool for analysis, design and understanding of man's relation to his environment. In such an event, the use of scale can become an explicit and predictable element of the process of interpersonal communication via conscious environmental choices. □

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In contrast, winding roadways with views bounded by trees decrease the upper size limit of the available texture pattern spectrum, and one travels pleasantly through a succession of wooded "rooms."

Fair Weather Reports from Three Small Firms

by H. L. SISSON

Is the small office, as some prophets of doom say, a dead era of architectural practice? Or are there approaches to practice which will keep the small architectural firm as a continuing influential force in the development of our society? The outlook is seen as anything but doomsday by architects in California.

"We believe the small, private practice of architecture is here to stay. The basic urge of a young architect to hang out his own shingle will never change. The continuing satisfaction achieved by the private practitioner involved in all aspects of his practice is a reality that demands continuation." So said Kermit Dorius, AIA, when he introduced a panel discussing the small office during the annual conference of the California Council, The American Institute of Architects.

Continued panel chairman Dorius: "Without question, there are people to house and cities to build and rebuild, all requiring services of the architect if he is flexible in developing his practice in response to the needs of the people he will serve."

The panel participants, all three from San Francisco, were selected by the Office Practices Committee of CCAIA (which constitutes about 15 percent of the national membership) and represented three entirely different approaches to the survival of the small office. They were:

- Robert Hayes, AIA, president of the Compla Corporation, a miniconglomerate including separate divisions for the disciplines of architecture, urban planning and marketing, site planning, design engineering, landscape architecture and interior design.
- Henrik Bull, FAIA, a principal in the firm of Bull, Field, Volkman & Stockwell, a consolidation of three successful small firms into a corporate image but philosophically typical of the small office practice in approach.
- Howard Friedman, AIA, principal of Howard Friedman & Associates, which he termed "a small or individual architectural practice, by premeditated choice a long-term institution (which has capitalized on the expertise of the turnkey and other developers) rather than a temporary vehicle en route to a large, multi-headed architectural entity."

Hayes began his practice as a sole proprietorship which evolved into a partnership of Hayes & Smith, architects/planners. In this partnership they faced the realization that the design of an occasional custom residence would neither support their practice sufficiently nor ultimately solve the larger problems associated with the lack of adequate housing. It was at this point that they turned their attention to satisfying the needs of the larger builder/developer, the greatest source of potential business and potential service to society in the field of housing. Their decision was to incorporate a comprehensive service for the builder/developer.

"Over a 10-year period of service to large builders in housing," Hayes said, "it has become apparent that something more was increasingly being required from the architect than simple architectural design service. Consequently, we feel that today's architect must place more emphasis on satisfying the all-encompassing needs of today's sophisticated housing client."

Urban planning and marketing as a separate division, Hayes noted, evolved from an increasing need for study of general community problems, both economic and social, as they related to

initial site plan studies, thus serving both the client's and the community's needs. Due to the nature of the large-scale projects, basic land planning service was increasingly recognized as a required responsibility for the builder/developer. Design engineering consequently developed as a division in Compla from the need for close and immediate coordination with land planning, especially in the field of hillside planning. Landscape architecture as a division arose naturally out of the architectural and site planning services already offered. Finally, the interior division was added "because interior design had been handled so poorly in the past by a majority of clients. In self-defense, to keep architecture from being virtually destroyed, the interior division was formed."

As the firm is now organized, the client/developer has the option of using all of these services, or only one or two, depending on his own specialized needs. In addition to this, Compla is organized so that on a regional and national basis, its services in land planning, marketing, etc., can augment the basic architectural design services of a small, individual architect in the local community where the housing project is being developed.

As for techniques of the practice, Hayes explained that the firm provides its services on a fixed compensation basis, determined from an estimated cost of the services based on the hourly rate of each of the divisions involved. This fixed compensation also includes a profit factor based on management services in consultation with the AIA. All of the divisions are under one roof, and each division maintains records of costs and profits to validate the fixed compensation estimate and to show their validity in generating new clients.

Asked if his firm ever had considered being involved in the actual financial development of the projects, Hayes replied that these developers are seeking "someone to share the risk, not the profits." But he also noted that he was aware of some architectural firms which had successfully ventured into development.

Bull, in his presentation, said that the concept of the consolidation of three successful smaller firms resulted from the four principal architects involved "exchanging, over lunch, their frustrations about their inability to achieve an architectural utopia, or even a moderately sensible world."

"We saw a trend toward bigness, with large corporations and dominating politicians," Bull went on, "We were all small offices doing work that clients traditionally assign to small offices. We weren't doing much harm, but we weren't doing much important good, either. We agreed we would attempt to do work according to the same standards we had as small firms and, in fact, in much the same manner, since we really believed in the worth of the small office. The client would not know that little had changed, and coincidentally we would achieve certain efficiencies and economies of the larger office such as more stability for our employees and more efficient management and bookkeeping."

At the conception, the four architects agreed that corpora-

tions and government agencies would consider the consolidated firm for larger work, which would be more significant with greater effects on the environment. Most of their work since the consolidation (which has increased beyond their wildest dreams both in scope and volume) is done under the direction of a single partner assigned to the particular job at its start. Except for the availability of a larger, more stable and better qualified staff, the work is accomplished much the same as in a small office.

The consolidated experiment, which Bull termed "most definitely successful," has resulted in larger commissions, many from corporations which would never have considered any of the smaller firms individually. It has also resulted in clients showing greater respect for the principal's professional advice, particularly in the classic arguments between ecology and economy. The range of jobs have included single-family residential units, preliminary studies for new towns, single structures under \$3 million in construction cost, theaters, college buildings, commercial projects, religious buildings, land planning, apartments, etc., with a steadily increasing volume.

Bull pointed out that one positive result, which had really not been considered, was the increased ability of the consolidated firm to hire and retain, on a continuing basis, top quality professionals, experienced, licensed architects who did not want to be the No. 2 man in a small office but also felt uncomfortable in the anonymity of the large office. The consolidated firm has no specialists among its principals such as in design, management or administration, and it also continues to use outside consultants and enters into joint ventures with landscape architectural firms and others in larger land development work.

"We decided early that we would charge more so that we could pay our staff more," Bull said in regard to fees. "We have never lost a commission that we know of because of this. We avoid percentage contracts unless we are working with the state or others which insist on it." Compensation is determined on an hourly rate ranging from \$15 to \$25 an hour in proportion to the employees' salaries, with a flexible multiplier. Often a fixed charge is set after preliminary drawings have been completed. "These are often very low on a percentage basis, sometimes quite high," Bull added. "We use the CCAIA compensation curves to define our maximum and we have been able to continue our policy of higher wages."

Friedman, whose firm truly represents the average-size small firm by AIA standards, outlined in great detail a design procedure that "can be applied to selected projects, can produce good architecture and can give the small practitioner greater capacity to concentrate on design and planning with resultant greater volume and

a broader range of projects, and certainly can afford the small practitioner a more equitable financial return."

The traditional architectural client, Friedman noted, has been more or less absorbed by the corporate structure, by the sophisticated investor, by the developer/promoter and by vast federal, state and city agencies and major financial institutions. "The impact on the direction of a project," he said, "seems to indicate a change in the design control position traditionally held by the architect. Demands are for services of a much broader scope and responsibility than usually offered by architects."

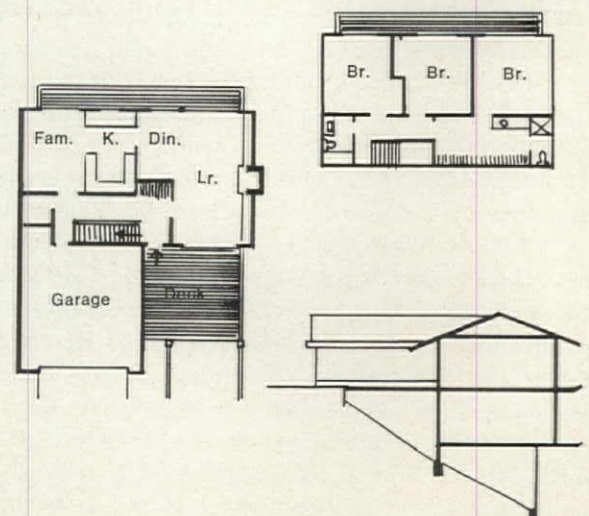
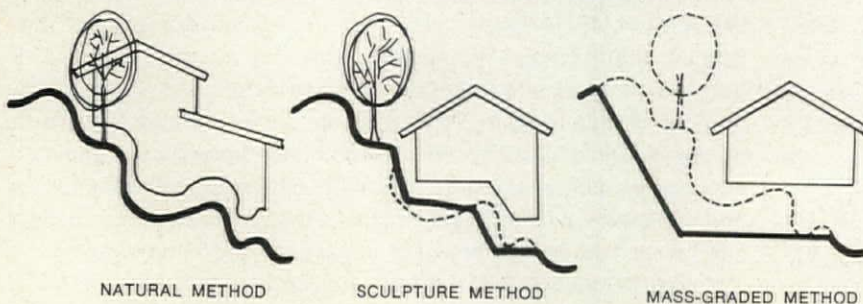
He also pointed out that an architect is but one component of a myriad of participants in construction, including a general contractor who no longer is the image of an ex-carpenter attempting to emancipate himself from competitive bidding procedures that revolve about the plans and specifications reflecting the expertise of the architect and his assorted consultants.

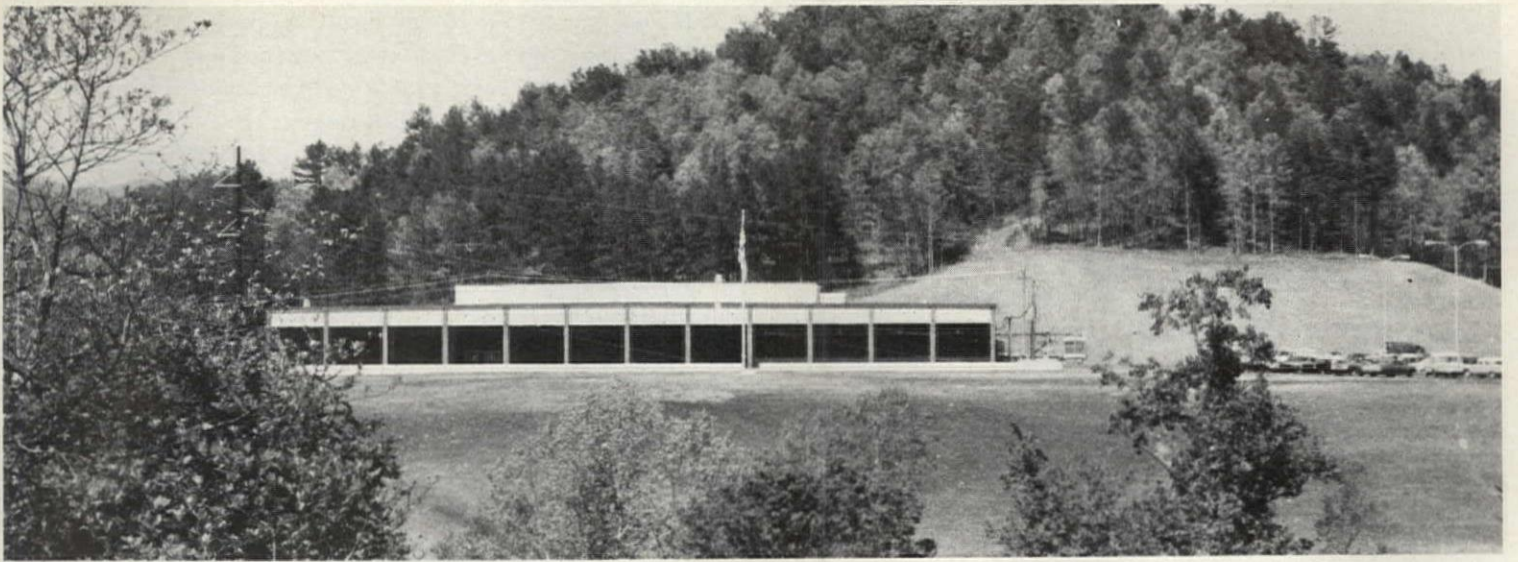
"I accept the emergence of the turnkey and other developers as a logical and realistic outgrowth of our construction industry and as a positive influence," Friedman said. "I accept his expertise (and that of his technical staff, which often includes design professionals), his abilities to perform and execute and be responsible for the total ingredients comprising a building. And I have exploited him in a series of actual experiments which I believe have been in the best interests of my clients and my office."

These series of experiments resulted from a proposal by a developer to one of Friedman's clients, offering a give-away bargain price of \$3 per square foot compared with \$11 to \$13 for the structure traditionally designed with architectural services. Faced with another round of justifying his cost to the client, Friedman decided the time was right for an experiment where he would prepare for the client, following preliminary consultation and studies, drawings and specifications that could be presented to a selected group of builders and/or building manufacturers for competitive turnkey bids to produce a building and related site work complete and ready for occupancy. This experiment, Friedman said, also stemmed from the fact that he recognized within his firm the burdens, costs and difficulties involved in preparing detailed working drawings and complete specifications.

In the experiment, they produced 1) drawings that carefully defined and established design criteria in addition to necessary controls for all the major components of the project and 2) site-work, planning, building design, structural, mechanical and electrical details and specifications in a form that would carefully articulate the performance and end result rather than the specific item. Wherever feasible, the method and technical detail and in some cases the selection of materials would be left to the expertise

Doing something about the housing problem is possible by working with builder/developers, the Compla Corporation feels; these also provide the greatest source of potential business. The firm uses the "sculpture method" for design and planning on hillsides around San Francisco. This method eliminates costly mass grading; as a rule, it makes for better land use. Even so, individuality and privacy are retained to a larger degree than on flat land because it keeps the contours of the natural terrain, at the same time satisfying the conservation-minded public.





Working in cooperation with turnkey and other developers enables the architect to give a broader scope of service, A. Friedman & Associates finds; it most likely brings substantial savings to the client; it provides better financial returns and it relieves much of the burden in preparing drawings and specifications. Its method is to send design criteria drawings and performance specifications out for bid to contractors with engineering capabilities. Levi Strauss & Company's new factory in Murphy, North Carolina, is built according to this system.



The merging of three small firms—which although successful got mostly standard small-firm jobs—brings better service to the clients, better economy, better staff and better conditions for it, larger and more significant commissions. The philosophies of the architects involved are not changed after the consolidation, Bull, Field, Volkman & Stockwell maintains; the work is done in much the same way as in any small firm. The volume of work is steadily increasing. A recent commission is the Education Building at Sacramento State College in California.

of the contractor and/or turnkey developer. "In other words," Friedman said, "the drawings and specification criteria would establish basic design and planning requirements."

Architecturally, these included size and shape of the building, location and sizes of wall openings, overhangs, porches, paved areas, interior bay sizes, clear dimensions, height, etc. Structurally, Friedman's consulting engineer provided the necessary design criteria for floor and roof loads, lateral forces, foundation re-

Mr. Sisson, who is an assistant to the executive director of the Consulting Engineers Association of California and also a freelance writer, was at the time this report was written director of information services for the California Council AIA.

quirements, material tolerance, site survey, soils tests and analysis. Mechanically, his engineer developed criteria for inside-outside temperatures, humidity control, ventilation, airconditioning, plumbing, fire protection, etc., identifying the basic systems that would be acceptable along with possible location of mechanical space. Electrically, the consulting engineer established criteria for power and lighting requirements, including intensities and capacities, general category of fixtures and location of distribution panels and number of outlets per room.

"I don't mean to oversimplify," Friedman said, "since this is easier said than done. It meant, literally, that both words and diagrams would be used to carefully establish the basic requirements for an entire project. . . . And this, of course, involved considerable thought in the specific manner, the technique and the presentation of the requirements."

In addition to this, Friedman and his consultants (who reacted reluctantly at first) agreed that this was worth a try and provided a good procedure that would guarantee a satisfactory outcome. As a result, they added to their specifications the requirement that all components of the building carry a five-year guarantee and maintenance program, posted in the form of a bond.

Fourteen bidders were selected for the first experiment. Only two did not submit a bid. The bids also gave an instant comparison between the costs of tilt-up concrete versus concrete block walls and steel prefab, etc., all based upon the same criteria. The successful bidder was also to carry the total responsibility for preparation of complete detailed working drawings and specifications. Bids were all below the construction budget of \$1.3 million and ranged from a low of \$819,848 to a high of \$1,211,500. The successful bidder, selected on the basis of a review by the client and Friedman's staff, was \$1,044,000. In each case, even the unsuccessful bidders expressed pleasure in the fact that an architect had recognized their expertise as builders and that they would bid again on a project handled in a similar manner.

Since the completion of this first project, the experimental theory has been utilized three more times, all providing substantial savings to the client, and with Friedman's firm maintaining its compensation on a per diem basis.

"This process certainly affords the architect and his staff a more equitable financial return," Friedman said in his concluding remarks. "This is true because the relationship between the architect and the client in this context is on a consultation basis similar to an attorney or physician. The percentage fee no longer applies and the recompense is more easily determined, be it by virtue of a per diem arrangement or formula or fixed fee plus office costs." □

Wake up, Mr. Architect, and use today's tools for today's work. For example, with the aid of electronic intelligence a visual information system can be devised to study all scales of human activity in present and projected environments.

Absorbed in our attempts to solve the many problems of our urban centers, we architects overlook the primitive state of our "tools." Despite tremendous advances in data procurement, classification, storage and retrieval, we are still bound by our traditional methods of interpreting information visually. As human beings, it is unlikely that our interpretative ability will improve; therefore, this very human limitation makes it more and more difficult to gain a comprehensive view of our problems.

Another effect of our primitive "tools" is that they permit us little means of experimentation. Every large new building that we see erected is essentially a timid experiment, its users the white mice. Of course, we never refer to our buildings as experiments, but they are surely considered as such during some stages of their evolution by their financiers.

It is not difficult today to find urban building projects that were welcomed initially as useful additions to the community but which are now considered inadequate. Obviously, to experiment and fail in this fashion can be costly. It is little wonder that this approach encourages incremental change and improvement that cause architecture, planning and building technology to move at a snail's pace in our otherwise exploding world. Until we can establish accurate means for predicting the desirability and usefulness of projects in the design stage, we will never see built the kind of imaginative solutions that are increasingly demanded by today's problems.

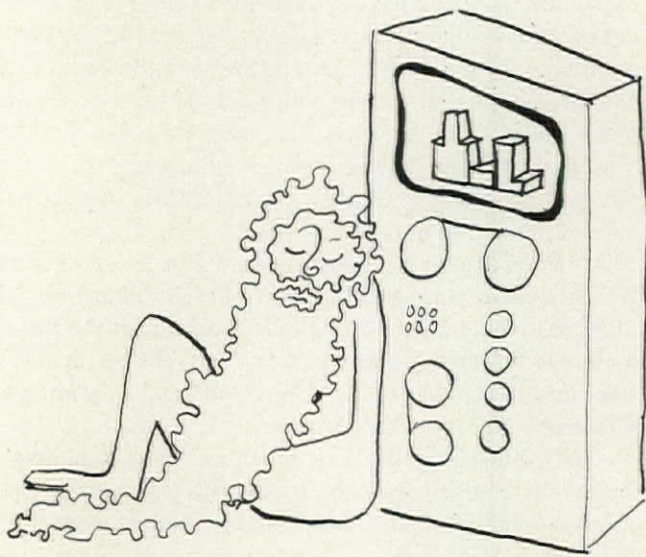
With the design aids and predictors of usefulness that could be devised from present electronic technology, it is nothing short of inertia and ignorance for the design professions to encourage and allow the Stone Age experimentation we see rising around us. Experiment we must, but *before* commitment.

Today, visual communication in architecture and city planning still leans heavily, if not entirely, on static two-dimensional drawings. When we wish to clarify, impress or convince, we may throw in a perspective or two or even a model. Yet these added aids are static and, although they may tell us much about the forms, they cannot show us what is surely more important: the *use* of these forms. We literally have no way to show how a building, a complex of buildings or a city will function. We talk and argue endlessly; invariably decisions are made on the basis of opinion—not fact.

It is true that during the conceptual and preliminary phases of a project we, as designers, take many "trips" through our schemes, but these are very personal trips, and we cannot take any photographs.* We can imagine the use of these spaces by ourselves and by others; but how many others, what are they doing and what time is it? Is it night or day, wet or sunny, weekday or weekend? Are the people children or adults, white or black, men or women? Are they just meandering, or moving with purpose from here to there?

Designers cannot include all such factual information in their imaginations; the problem is further complicated when one realizes that the information listed must be imagined over the backdrop of proposed forms. What happens when more and more people live in an area that remains fixed in a two-dimensional sense? What kinds of human movement are possible in that area?

* ED. NOTE: Except with a snorkel lens, which photographs models as if they were actual buildings and is now coming into use. See page 23.



ARCHITECTS: the Rip van Winkles of the Electronic Age?

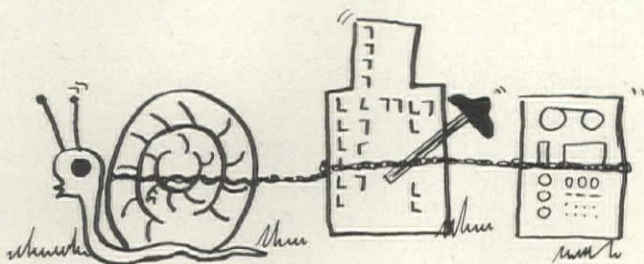
Perhaps with small projects our imaginations can deal with these variables of human use, but we will inevitably consider only particular rational uses, not wasting time on the possibilities of multiple use, misuse or overuse. It is surely ironic that we, as architects and planners, have the means of seeing our buildings and city plans before they are realized, enabling us to correct all *visual* imperfections but lack a way to see what is more important: their use by human beings.

Although largely unused as yet by architects, a tool for visualizing such use does exist: the electronic computer. The science of cybernetics has advanced to the stage where it would be possible to develop a system — a computer plus viewing screen — that would enable us to structure visually and analyze the dynamic patterns of life. The computer can augment our imperfect imaginations. Its “people” will be no more nor less human than those who inhabit our imaginations, but they will be seen alike by all who choose to look, and there will be a common factual basis for discussion. Those legions of imaginary people who have heretofore been populating cities and buildings only in the minds of planners and architects can now leave those subjective chambers.

The computer will interpret the stored information in relation to the matrices (fixed forms) under consideration. These matrices (plans of rooms, buildings, cities, i.e., maps of the fixed forms that so greatly influence human activity) will be projected at will onto screens. Simultaneously identifiable symbols of everything human and nonhuman that occupies space will be projected on screens. People can be represented at very small scales by light dots to the scale of the background matrix. These individual dots will merge visually with other dots to form amoebalike areas of light moving among the static forms of the background. At larger scales, as in the consideration of a building, the symbols of people can begin to suggest differentiations such as sex and size.

As very small scales, all significant movement can be regarded as essentially two-dimensional, hence this descriptive approximation of the proposed system is not inaccurate. At larger scales — particularly in the consideration of spaces where vertical movement is extensive — modifications and further study of the visual representation of such movement would be required. There is certainly no reason why these screens could not display anything that architects and planners draw today on two-dimensional sheets of paper.

The images seen on the screen would be a function of the time scale in terms of both minutes and days. It would be possible to



view activity at any particular instant of any day. With this system it would be possible to isolate a particular proposed building or complex of buildings and view them alone at large scales to see how they work, then project them at smaller scale to see how they

Mr. Nairn, formerly with Skidmore, Owings & Merrill, San Francisco, is a lecturer in Portsmouth Polytechnic's School of Architecture, England.

affect their immediate surroundings. Continuing to diminish the scale would make it possible to observe the tiniest ripples that result from insertions of buildings into an existing urban scene. It would be possible to cut out all the people whose movements would not be affected by such new insertions and observe only the patterns of those whose movements would be influenced. Any number of vital “games” could be played with the assistance of this system.

We could view the current scene, as well, experimenting with proposed modifications of existing structures and relationships.



With our knowledge of past forms and their civilizations, we could sit back and watch the activity in the Piazza San Marco during the Renaissance, the ceremonies at the Acropolis or the construction of the Egyptian pyramids. It could be a marvelous “light show” of past, present and future human activity among the man-made forms of our civilizations.

If you recoil at the thought of the task of recording the movements of 7 million human beings, each going about his business, bear in mind the axiom that the whole is made up of the sum of all its parts. Consider the movements of just one of the 7 million people. Let us say that he is a man with a wife and child who lives in the suburbs; he gets up in the morning, eats breakfast, is driven to the station by his wife. He takes a train to the city station, then a bus to his office in a large building. At noon, he comes out of the building for lunch in a nearby restaurant, then returns to his office. At 5 o'clock, he retraces his steps of that morning, ending up once again at home. His movements are rational, logical and statistically predictable. Such a logical sequence of events, portrayed visually, results essentially in patterns.

Before discussing the proposed system as merely a fairly elementary extension of an existing cybernetic capability, it would be well to consider some basic aspects of the stored information.

One segment of the computer program, which deals with known paths and objectives, will be deterministic and relatively straightforward, comparing in complexity with the movements of a cuckoo clock. The other segment will be probabilistic, concerned with the occupants' perception of initially unforeseen stimuli such as signs, events, objects and other occupants.

When we consider the movement of a simulated human being who does not follow a predetermined pattern, we recognize that his passage through space is influenced by both internal and external stimuli. Though we must take internal stimuli into account (the remembered pot on the stove, the random thought that recalls some other urgent task), the majority of our probabilistic voyagers will adjust their paths because of external stimuli.

The reaction of a human being to external stimuli is similar to

that of a computer which refers to its stored previous reactions before deciding what to do in the situation at hand. Norbert Wiener in his book *The Human Use of Human Beings* discusses the similarity. "It is my thesis," he writes, "that the physical functioning of the living individual and the operation of some of the new communication machines are precisely parallel in their analogous attempts to control entropy through feedback. Both of them have sensory receptors as one stage in their cycle of operation: that is, in both of them there exists a special apparatus for collecting information from the outside world at low energy levels, and for making it available in the operation of the individual or of the machine. . . . In both of them, their *performed* action on the outer world, and not merely their *intended* action, is reported back to the central regulatory apparatus." Thus the essential idea of feedback is at the heart of the probabilistic portion of our program.

These programmed reactions to various stimuli would be based on actual, observed, predictable human reactions until such time as it might be possible to give the simulated population an artificial sensory awareness. In a discussion of experiments with probabilistic movement, Wiener notes that "it is easy to make a simple machine which will run toward the light or away from it and, if such machines also contain lights of their own, a number of them together will show complicated forms of social behavior such as have been described by Dr. Walter Grey Walter in his book *The Living Brain*. At present, the more complicated machines of this type are nothing but scientific toys for the exploration of the possibilities of the machine itself and of its analogue, the nervous system. But there is reason to anticipate that developing technology of the near future will use some of the potentialities."

We would want to build into our proposed system an ability on the part of the projected occupants to identify their intended paths in a variety of similar matrices. For example, in considering five different plans for a medical clinic, we would want patients to proceed to their objective, say the information desk, even though it was positioned differently in each of the plans. This flexibility and intelligence on the part of the simulated population is a most vital aspect of the proposed system for it would encourage sharing programs for use on a nationwide or even worldwide basis.

Throughout the country, planning departments could establish program banks related to areas under their jurisdiction. The programs in these banks would be constantly amended, altered and improved to reflect changes as they occur.

In his exciting proposal, "Amid the Explosion an Experiment Proposed" (AIA JOURNAL, Jan. '67), Gideon Kramer suggested

the establishment of a workshop center to investigate exhaustively "an immediate environment (which we now call 'house')" using existing information from related disciplines. I concur with Kramer's outline for the composition and operation of a national workshop center; I would only alter the emphasis. I believe the problem universally recognized as most needful of study today is that of our urban centers.

Urban problems are nationwide; the variables of these problems are significantly more similar than different and they continue to become more so every year. Regionalism diminishes with intensification of nationwide and worldwide communications. Today, many of our urban problems do not particularly belong to certain areas or states; they are national problems and demand a national effort.

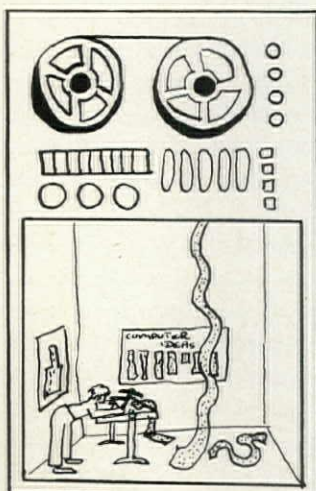
Localized urban study groups, small when compared with a national effort, do not enjoy the stimulation of extensive interdisciplinary contacts. Such groups do not usually include representatives of all relevant disciplines, and the generalists (architects and planners) are overly emphasized.

The prospect for success in solving existing problems is certainly related to the size of the effort. The nature of the problems does not suggest that their solution lies in simple, not-yet-revealed answers that could be discovered by isolated individuals or small groups. Moreover, small groups dispersed over the country are likely to duplicate endeavors and cannot command the kind of support from government and foundations that the problems require.

In summary, there can be little question that our ability to solve these problems will relate directly to our comprehension of them. To achieve full comprehension, it will be necessary to cope with masses of information and statistics that could not be understood, related and filed without extensive help from electronic intelligence. As Marshall McLuhan says, "Our electronically configured world has forced us to move from the habit of data classification to the mode of pattern recognition. We can no longer build serially, block by block, step by step, because instant communication insures that all factors of the environment and of experience coexist in a state of active interplay." I fear that our efforts have been fragmented, step-by-step endeavors that have not fully recognized the ever-changing interrelations of all the parts in question.

It has been said that computers can control any process provided that the process is so clearly understood that it can be translated into logical machine instructions. We have been talking here about predictable patterns of human and nonhuman movement in a variety of matrices, about the overwhelming complexity of urban problems. As architects and planners, we presume to understand human movement and base everything we do on this presumption. Surely, it would not be an impossible task to encode this understanding into a realistic computer program. Without the help of computing machines, it is unlikely that we will ever be able to point to a particular place at a given time and readily portray the ensuing activity other than in our imagination.

I have tried to propose a visual information system that would resolve uncertainties regarding the movement of people and objects in existing and projected environments. It is my belief that such a system would become a valuable tool for the study of all scales of human activity — a tool that would act as a positive stimulator for the continuing reinterpretation of the need for form in environment, which is, after all, the essence of planning, architecture and industrial design. As McLuhan says, "Our age of anxiety is, in great part, the result of trying to do today's job with yesterday's tools." □



The Many Rewards Due a Doer

**Several years ago The American Institute of Architects,
pointing out that practitioners too often are critics after the fact, sought
to inspire its members to become doers,
to lend their hands and minds to the molding of form and
function of their communities.
Here is how that admonition influenced one architect.**

by HOWARD R. LANE, AIA



The San Fernando Valley is my community. It has more than a million residents, very soon to become 2 million. Technically, it is a part of Greater Los Angeles but alone, it would be the nation's sixth largest city. The Valley is comprised of 27 separate communities — some incorporated cities, others post office/chamber of commerce operations.

The Valley has tremendous problems, not just those of all other urban areas but special ones stemming from its sudden emergence as a major commercial, industrial and residential area and from its fantastic pattern of growth. Twenty years ago when I arrived here, the San Fernando Valley was orange groves and cow pastures. It is still emerging from a huge bedroom community into one of the West's most balanced commercial/industrial/residential areas. Freeways, the aerospace industry and the insatiable demand for more space to house the ever-growing population of Los Angeles have forced the valley communities to sprout and grow so rapidly that planning has, more often than not, been lacking.

As a result, the Valley suffers today from main avenues that resemble "Tobacco Roads," from thoughtless patterns of building serving a myriad of purposes, from inadequate sewer and drainage systems and from traffic snarls that threaten strangulation.

A young, beginning architect is apt to be more affected by such conditions than able to effect changes in them. And, while possibly concerned with his community's problems, he is likely to be more concerned with effecting a successful practice.

Somewhere along the line, though, it is vital that the architect weave himself into his community's fabric. At first, he might turn to the local service clubs as sources of business rather than for sociological and philanthropic reasons. If so, he will probably be disappointed in the monetary results. But his role in such organizations — besides taking part in the innate good these groups perform — benefits him by his introduction to the people who compose the personality and complexion of a community, thus giving the architect a human third dimension to accompany his purely professional motivations.

It is difficult to presume what my course might have been had not the AIA made that plea for architects to get involved; involved not for the sake of business, but for the sake of their communities and, quite importantly, for the sake of the profession as well.

But how do you suddenly get involved, become a community leader? Simply by joining and volunteering at the lowest level, by taking the most direct step: joining the local Chamber of Commerce and telling the president: "I want to get involved."

If truly sincere, you will soon be appointed to committees and to vacancies on the boards of directors — as I was in 1963 to the Planning and Zoning Committee of the Encino Chamber of Commerce. That appointment introduced me to the very essence of my community's development and got me into the sort of heated atmosphere of controversy that forges so much of our lives. It is a never-ending road. The results are mutually enriching for the community and the architect.

As the San Fernando Valley develops, one community after another becomes embroiled in the controversy concerning residential, commercial and industrial zoning. Encino, an upper middle-class community nestled on valuable foothill and hillside land, has had to come to grips with major business and highrise buildings. The confrontation was, and continues to be, heated.

The future of any community concerns all its residents and neighbors. When the contrary opinions and interests assault an emerging community, the stage is set for conflict and the politics of playing for private and public stakes. The demand for spokesmen and leaders becomes acute; the urgent need for clear-thinking planners and doers flushes out those who might otherwise be overlooked. The architect already involved in his community's interests and activities stands, as I did, in the bright light of recognition.

A result is tremendous press exposure and the development of a public identity and image. The architect can become a known figure in the community, and this usually leads to other civic appointments, further controversy and even greater exposure.

Meetings will fill the evenings and luncheons will seem to dominate the days. The telephone will develop into one of the most hated instruments of torture. All, of course, competing with the time and effort an architect must devote to architecture, to developing a practice, to his professional skills. All competing, too, with your precious private life, the demands always incumbent upon a husband and father.

It will, at times, seem an impossible chore. And, particularly when things are most controversial, it will seem to be a thankless, pointless exercise in frustration. The question must be asked, how does all this affect your practice? Indeed, how is it even possible to maintain one with so many irons in the extracurricular fire?

You cannot embark upon all these involvements with any

assurances as to how they will affect you, your practice or your community. The chemistry of such involvement is highly variable and depends upon the personality and philosophies of the individual, the nature and problems of the community and the very tenor of the times.

Through it all, an architect cannot only survive but can establish a respectable and successful practice. It is difficult to believe this can be so, and even I, having followed the course without the benefit of a professional partner to share the load, still find it amazing.

Why, then, should so much effort be expended in this direction? Because the personal rewards in terms of satisfaction and achievement are great. They are your payment.

I recently stepped down from the presidency of the Associated Chambers of Commerce of the San Fernando Valley. As a direct result of this involvement, a Valley Conventoin Center Committee has been funded by the Los Angeles City Council with a sum due to be matched by that city's County Board of Supervisors. In a role with Los Angeles' "Destination '90" committee, thoughts and needs of the citizenry in the Valley were communicated to governing bodies and planning departments of half a dozen cities.

And, as the founder of a San Fernando Valley Round Table, an architect's efforts were instrumental in bringing together, for the first time, representatives of all 27 separate and highly individualistic Valley communities to work together for their and the Valley's best interests.

The sum affect of such combined civic and professional interests and activities, ranging from the tedious persistence involved in modernizing street ordinances to effecting their changes to the far-reaching studies inherent in master planning, is the beautification and development of the community.

And a more attractive community attracts major developers; and major development of the community results in a more attractive economic climate and, more often than not, an increased demand for architects.

It is possible that because your name becomes known, some business might come your way. It is also possible that the community will so completely identify you as a civic leader that it will forget that, professionally, you are an architect.

I must say that I can point to no commissions coming to me



The environmental needs of the community come into proper perspective when the architect is involved in community questions. Encino Hospital (Howard R. Lane Associates) accommodates the public with a plaza.

as a direct result of my community involvement. No one gave me a job because I was president of the Chamber of Commerce or holding any of those other offices. I can truthfully say that I have never generated one new client directly from meeting people for the first time at civic affairs.

However, the cumulative effect of having my name in print and the repetitive use of the term "architect" along with my name in news stories about these various civic endeavors continually reinforced the impression my name and profession made in the public eye. I guess I can liken it to the long-range advantages accrued from an institutional advertising campaign in the mercantile world. And I do know that there were many occasions when clients would later admit to having seen and heard much about me in the news long before we entered into a business relationship.

Let's face it, there must be some correlation between my civic activities and my business growth because I have so many projects in the San Fernando Valley, where I live and maintain my office and where most of my community work is centered. I began practice in 1953 as a one-man office doing residential work. Today the workload has grown to the point that 15 people are required to fill the needs — and that takes into consideration the fact that all engineering is done by outside consultants. Our growth has expanded throughout California.

But one of the greatest values a person can achieve from participation in these activities is the confidence he gains. By meeting and mingling with people and taking on jobs and doing them, he becomes a more effective, more confident person, better able to relate to people, to communicate with and lead large groups and to conduct meetings. And this is of inestimable value in running your own business.

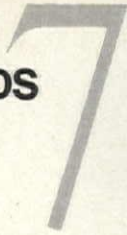
There is another benefit, too, that accrues both to the community and to a client as a result of involvement in civic affairs, stemming from the fact that such involvement makes you more sensitive to the needs of both community and client.

Much of our work is done for the highrise developer/builder where budget consideration is foremost and bottom line return is the name of the game. In dealing with this kind of client, we always try to upgrade buildings in quality of material, design and contribution of open space. For example, the Wilshire-Canon Building, which we designed, has a 7,000-square-foot street-front plaza; the 19-story Hollywood Building has a 30-foot setback, the 17-story El Segundo Towers are surrounded by 40-foot landscaped plazas on all sides; the landscaping budget for the Encino Hospital was \$80,000 — all of this on some of the most expensive real estate in southern California.

We talk to the clients in the language of dollars, translating esthetics into money and show them how it improves occupancy (translation: profit). In each of the above cited cases, we achieved the esthetic, but did so in a way that was profitable for the client.

Even if community involvement hadn't helped my firm grow, I have gained so much in so many other ways that it has been more than worthwhile. For when all is said and done, you are an architect who is a doer in society, designing not only the concrete and steel for its structures but structuring in concrete terms the destiny of your community and the pattern of buildings so far into the future that you may never see them. Who else but an architect could be in such a position? □

Mr. Lane, who is past president of the Associated Chambers of Commerce of San Fernando Valley and presently chairman of its Committee on Cultural and Convention Facilities, is active in 17 other community groups as well and has received a long list of commendations from the City and County of Los Angeles and from the State of California. He is also past president of Architects of San Fernando Valley District AIA.



A Drawing Method for Fast Perspectives

by CLIFF PHILLIPS, AIA

A method of using a microfilm reader to save time and money in drawing perspectives has been devised by an Illinois architectural firm. The system has other special functions as well, and it is anticipated that microfilmed drawings produced via computer will be retrieved to effect even greater economy.

Our 12-man firm has cut from 20 to 30 hours from the time required for drawing a single perspective, saving \$300 on each one by means of a system we have developed. The system involves a few strips cut from 1/8-inch wire grid (hardware cloth), photography of a site or floor plan and enlargement on a machine originally designed for use as a microfilm reader. We create some 50 perspectives annually, so the saving is substantial.

A key element in the system is the Multifocus microfilm reader which permits continuous variable enlargement of a projected image from 10 to 40 times.* We built a 6 1/2 x 2 1/2 foot drafting table around the machine's glass reading area which becomes a part of the drafting table top and is covered by a 25 x 38 inch movable plexiglass drawing surface.

The system begins with a drawing on translucent paper of a site or floor plan. Detailed drawings are not necessary, but there must be proper scale proportions. The plan is then affixed to a grid on a fiberboard table. A Polaroid camera is set up at the elevation and angle desired in the perspective drawing. Then at points, such as corners of the building, two or three strips cut from the wire grid are stuck vertically into the fiberboard. These strips are a single vertical wire with a short section of cross wires left on. A plumb bob is suspended above the table and is lowered into the camera's view to provide a true vertical line for reference. The plan is then photographed onto Polaroid positive transparency film which provides an image for projection in the Multifocus reader.

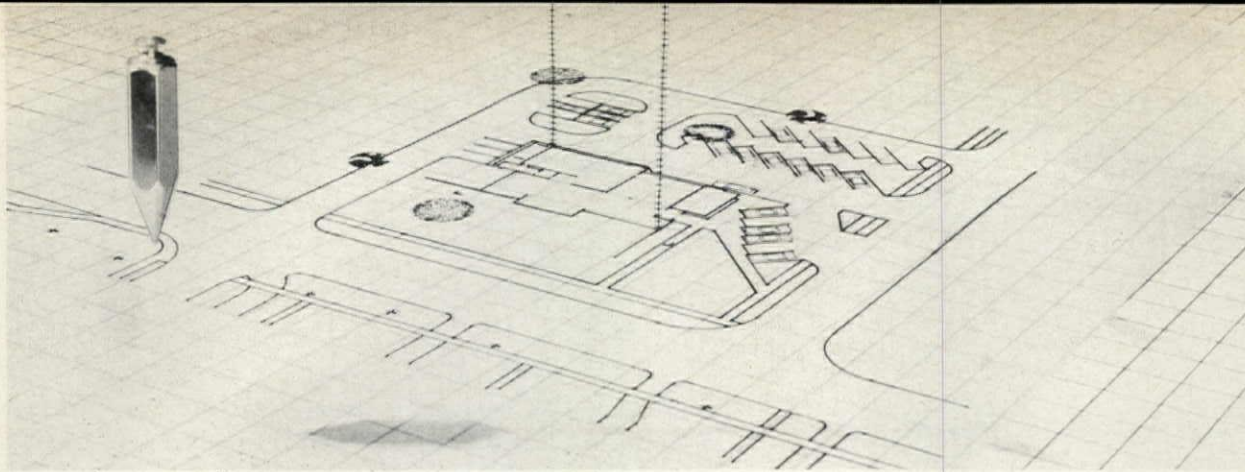
What the film shows is an angle view of the plan which in itself achieves proper perspective. The cross wires establish vanishing points for elements of the structure which are above ground level. The grid board sets vanishing points at ground level. The film is placed in the holder of the Multifocus and enlarged to the scale desired for the perspective drawing. Because the Multifocus allows continuous variable enlargements, any scale can be accurately projected.

Working on tracing paper attached to the plexiglass drawing surface laid over the 14 1/2 x 20 1/2-inch reading glass of the Multifocus, we then draw a perspective drawing using the vanishing points, grid lines, plumb bob and various lines on the plan itself.

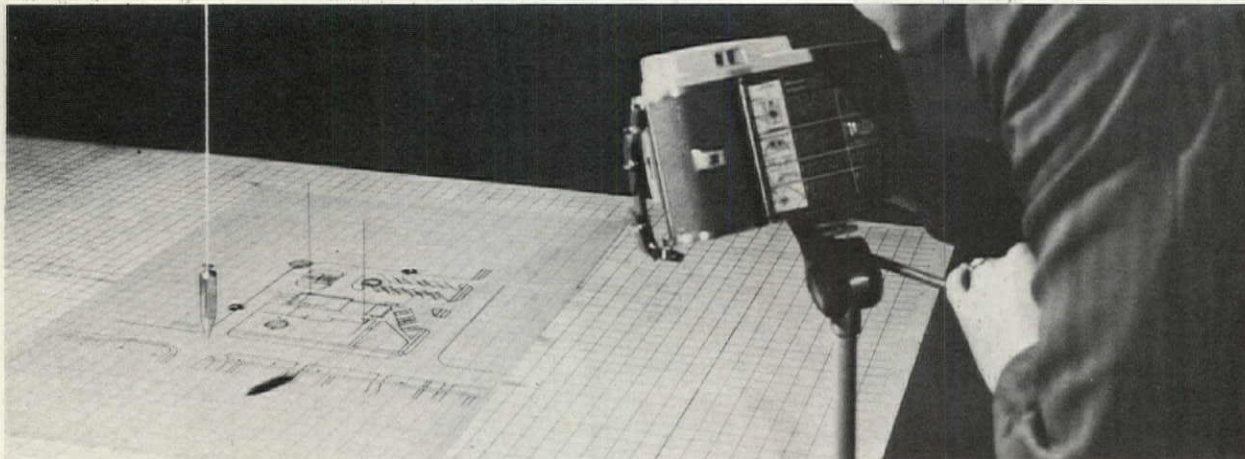
The total area of the transparent film often cannot be projected in desired scale on the reading glass of the machine. In this case, knobs on the projection carriage enable the film to be moved in all four directions so that the total area of the transparent film can be covered. As the film is moved, we also move the drawing surface, relocating it in accordance with the change in location of the projected image.

This method is extremely helpful in drawing in curved road-

* The Multifocus is marketed by the Chicago firm of Charles Bruning Co., a division of Addressograph Multigraph Corp.



Site plan to be photographed (top) is taped in place on grid board. Vanishing points and other details to produce an accurate perspective are present. A Polaroid camera (center) is used to photograph site or floor plan from same elevation desired in the perspective. Positive transparencies are projected by the Multifocus (bottom) onto the reading glass to provide guidelines for speedy drawing.



ways and walks in proper perspective. They are already laid down on the original drawing and placed in perspective by the angle of the camera. All we do is trace them.

Once the drawing of the building is on paper, we have another way of saving time. We use transfer art pieces, such as trees, shrubs, automobiles, animals and people, to finish the drawing. These art pieces have been a sideline product of ours for some time and are marketed nationally.

When we have completed the perspective drawing, we run polyester copies on a Bruning 860 diazo whiteprinter and then color them for presentation to a client. In about six hours, we have our perspective made, copies on the 860 colored and ready for showing to the client. Any architect can do what we accomplish without any difficulty.

The Multifocus helps us in other ways. By projecting film of an existing building, for example, it is quite easy to draw an addition to the structure in correct scale and exact perspective angle. The machine is used also to reproduce such things as topography maps when scale changes are required. In this instance, sensitized copy material is placed over the reading glass of the machine to copy the image being projected and is developed on the 860. Previously, this procedure had to be done by an outside service which required two days of time. It is done in minutes with the Multifocus.

Looking to the future and anticipating greater utilization of the Multifocus, we are presently compiling a file of filmed detail sections which are common to most structures and which can be quickly retrieved via the machine. In this procedure, the section desired is exposed onto sensitized diazo material. Many of the detail sections are taken directly from accurately drawn illustrations in manufacturers' catalogs. These firms have gone to the expense of preparing excellent drawings of the manner in which their products are installed. There is no reason why we should pay a



draftsman to redraw them when the drawings can easily be put on film, filed and retrieved any time we need them. At the same time, we eliminate the necessity for checking this kind of work. If it is accurate when put on film, it will be accurate when it is retrieved.

In addition to section drawings, we are reproducing photographs of installed parts on our working drawings. Many times a photograph will tell more about how a thing is installed than will a drawing. We take advantage of this fact for better understanding at the job site.

We estimate that with all of its varied uses the Multifocus returned our investment within 90 days after purchase. I envisage the day when microfilmed drawings produced via computer will be retrieved or utilized on the Multifocus for even greater savings in time and money. □

Mr. Phillips is a principal in Phillips & Associates in Canton, Illinois, where he has practiced for the past 20 years.

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'Get With It or Lose Out'

The first international Industrialized Building Exposition and Congress was held in Louisville, Kentucky, last fall. Robert Allan Class, AIA, director of the Institute's Technical Programs, gives his impressions.

Approximately 11,000 people attended IBEC/70, over 800 of them architects or designers. Hotels were filled to capacity and downtown restaurants were swamped. Nearly every one of the seminars, held three at a time in large spaces, played to overflow crowds, necessitating a replay of the more popular ones.

The exhibit hall was equally popular with its more than 200 exhibits, appearing like a marketplace for every conceivable kind of building industry goods and services. There were complete modular homes, some of which could be adapted for use as apartments, patient care facilities, townhouses or similarly scaled structures. There were also bathrooms, kitchen and utility rooms, completely prefabricated and fitted, plus examples, though disappointingly few, of large-scale components and multiproduct assemblies.

Automated machinery for producing large components, such as nailing machines for large floor, wall and roof panels, were on display too, as well as various form systems for concrete components. Several service organizations were exhibiting, covering a broad field from land acquisition to design to financing to construction to full services. An interminable amount of traditional building products familiar to most architects was shown also. A few large-scale displays were outdoors, adjacent to the exhibit hall, including more complete houses, lifting and hauling equipment

and even a fully equipped and self-sufficient motor home for six. An indoor theater ran movies on various building systems each day on a half-hour headway.

Heavy advance publicity gave the impression that many building types would be included, but the emphasis was definitely on housing. Seminars covered a broad range of interest to the various segments of the construction industry; architects with varying backgrounds in the industrialized process were among the panel speakers. A digest of the complete seminar programs will be published by the sponsor, Cahners Publishing Co. Some points of special interest to the architectural profession:

- Thinking is the most important process in industrialized building.
- A possible step in the advancement of industrialized housing is to take it out of the normal building market and make it an outright industrial production process, with closed or single management, delivering the product directly to the consumer.
- A building system is both a technique and an organization; both must be open and efficient architecturally. Subsystems should be as flexible as possible to impose the least restraint on design and construction.
- Industrialized building will advance slowly until labor and code constraints are eased or eliminated and local authorities are adequately educated.
- The in-place costs of conventional housing construction may increase at the rate of 10 percent a year where factory-produced housing may increase no more than 5 percent yearly.
- According to a British producer of precast concrete housing components, boxes are suitable only for single-family homes made of wood rather than concrete. Others disagreed with this concept.
- New opportunities for architects include: 1) design of building systems, i.e., the hardware components of a whole system; 2) development of systematic/methodological processes covering problem definition, criteria and alternative evaluation as well as solution generation and feedback on responsiveness to human needs; 3) participation in team research on user requirements equated to human needs; psychological, physiological and sociological relationships of man and his cities; and codes and standards as related to human activities.
- If industrialized building does not effect a

meld of module and land, it will not become an important part of the shelter industry.

- Modules should be designed to fit human beings, not highway transportation.
- Industrialization will fail if it only develops design solutions that reproduce an unacceptable living environment.
- Even though industrialized technology costs may be higher, the quick building process will be less costly in the end because of substantial reduction in interim financing charges.
- Cost saving can be accomplished now by using off-the-shelf items innovatively.
- California's Factory Housing Law, which sets acceptable basic codes for factory-produced housing, provides for automatic approval at the local level of any housing unit bearing the state seal of approval.
- The multidisciplinary approach is one way to avert the danger and deliver the promise of industrialized building.

Several architects have sent me their observations of IBEC/70. The more important points are:

- The opportunity of meeting so many of the players in the industrialized building process in one place is unparalleled and contributes to removing the mystery from "systems."
- Exhibits are needed which place less stress on ordinary products and more on industrialized systems with flexibility and good design qualities, categorized in terms of visitor interest for better assimilation.
- Seminars should be fewer but of outstanding quality and professionally oriented to promote a new way of thinking.
- Architects need to gain greater knowledge of available in-plant production methods and transportation requirements.
- Far-reaching changes in construction methods and processes will lead to changes in the practice of architecture.

The lessons learned from IBEC/70 should be a good base for INBEX/71 next fall. Industrialization involves not only new techniques but also new approaches, products and processes. There are new roles for every architect who is willing to identify them and find ways to make contributions to this new process of building. As was stressed at the Building Research Institute's seminar on building systems last year, the architectural profession has been challenged "to get with it or lose out." It is evident that it is time to move from listening to the process of learning a new discipline. □



Crowds gather around the IBEX exhibits with displays of every kind of industry goods and services and with equipment demonstrations outdoors.

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Photo by Ezra Stoller (ESTO)

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Bauhaus and Bauhaus People. Edited by Eckhard Neumann. New York: Van Nostrand Reinhold, 1970. 265 pp. \$13.50.

This is a collection of 48 commentaries by former Bauhaus teachers, students, visitors and friends. The hero is Walter Gropius, the man who "had the ability to lead to a common goal forces strained to the breaking point" and who overcame opposition "by his intelligence and the courage of his heart."

Guiding the Bauhaus, a school of unorthodox ideas located in hostile Weimar, was not easy. In re-reading a diary of the '20s, Gropius notes that "it became clear . . . that about 90 percent of the efforts made by all participants . . . went into countering national and local hostility, and only 10 percent remained for actual creative work." In 1953, he ends a letter to his old friend and former employer, Lord Mayor Hesse of Dessau, "It was all worthwhile, though neither you nor I knew beforehand the great and almost unsurmountable difficulties we were going to have."

Johannes Itten, the most dynamic teacher of the early period, comes through as the man who knew "how to inflame us, shake us up, break down all the dikes and plunge us into a veritable frenzy of production, and still become one of us." Another student writes, "From the very first I was fascinated by his personality, his teaching ability and his overwhelming imagination. He looked like a priest with his red-violet, high-buttoned uniform, his bald shaven crown and his gold-rimmed glasses." To most students, he was the high priest of Mazdazan — an Oriental-European religion. His teaching included physical exercises, diet, breathing, fasting, in short, a whole way of life. One student recalls, "When one day Itten declared that hair was a sign of sin, his most enthusiastic disciples shaved their heads completely."

And the students? "The Bauhäusler of 1920 was a lean-jawed, wide-eyed apparition, in an extraordinary garment, running to bare legs and sandals, long locks on male heads and bobbed hair on women, causing unending scandal to the citizens." Another student notes, "It was a protest against middle-class conventions." Still another recalls, "In those days, most of the students . . . were extremely poor because of the inflation. Many wore suits — or should I say shirt-blouses — which had been made from uniforms left behind by the Russian prisoners-of-war. To make them less militarylike, the students dyed them fanciful colors."

The book contains revealing stories about Mies, Meyer, Moholy-Nagy and other teachers, as well as information about the school's curriculum, the social life at the Bauhaus and the political climate during the

Weimar Republic. There are 43 photographs documenting various aspects of the Bauhaus phenomenon. One is tempted to compare the end of the Weimar Republic with the current USA and contrast the expressionism of affluence with the rationality of the Bauhaus approach.

JAN REINER

Steel Buildings: Analysis and Design. Stanley W. Crawley and Robert M. Dillon. New York: Wiley, 1970. 397 pp. \$17.50.

Both theory and practice of structural aspects of steel building design are integrated in this book by two architects. Dillon, a member of the AIA, is executive director of the Building Research Advisory Board; Crawley is professor of architecture at the University of Utah.

Chapter topics include reactions, shear and bending moment; beams—bending and shear—deflection and design procedures; columns and struts; connections; framing of one-story building; continuous beams and frames; ultimate strength and plastic design. The final chapter describes a design project with a three-story commercial type building as the model.

The authors presume the reader to have a knowledge of elementary principles of statics and strength of materials, but they review much of this data throughout the book.

Principles of Hotel Design. Edited by *The Architects' Journal*. London: Architectural Press, 1970. 87 pp. 50 shillings.

Hotels are the modern man's home away from home, marketplace, restaurant and meeting ground. The material in this book, originally published in two special issues of the British *Architects' Journal*, offers some helpful suggestions to the architect.

There are sections on market feasibility studies; hotel investment and operating costs; hotel catering; and principles of hotel design. The core of the book is a briefing guide that



will aid the architect in his confrontation with the client. The final part contains a series of information sheets which give basic planning data on the design of public areas; guest bedrooms and bathrooms; service areas; lighting and sound; and building services and circulation.

The outlook is British, of course, but the principles involved apply to the American architect's problems in hotel design.

Vacation Houses. Selected by the editors of *Architectural Record*. New York: American Heritage Press, 1970. 247 pp. \$9.95.

Does your client have \$5,000 or \$100,000 to spend on a vacation home? Regardless of his spending ability, there are plans here to interest him. The book, in fact, is of primary concern for the client rather than the architect. It gives him pointers on how to select an architect, what to look for in land and site selection and the rules of thumb on what it all will cost him.

Houses of Mexico: Origins and Traditions. Verna Cook Shipway and Warren Shipway. New York: Architectural Book Publishing Co., 1970. 249 pp. \$13.95.

This husband/wife team is well known for a number of books on Mexican houses and their interiors. Here the authors stress the roots of the Mexican style. Primarily a book of photographs with descriptive captions, the volume includes many pictures from Spain and Portugal, as to be expected. Others portray the way the contemporary Mexican home utilizes these influences for diversity, putting upon them Mexico's own creative genius.

Great Shops of Europe. Jerome E. Klein and Norman Reader. New York: National Retail Merchants Association, 1969. 239 pp. \$20.

As the authors of this handsome book say, shops of any city or village reflect the culture of that place. "In some respects, a nation's great shops are as important as its museums." This compendium of Europe's great shops is intended as a guide for shoppers, although it is much too heavy a tome to put in one's suitcase. It is a "showcase of the unusual."

The Modern Chair: 1850 to Today. Gilbert Frey. New York: Architectural Book Pub. Co., 1970. 187 pp. \$14.75.

The personalities, art movements and models which have characterized the development of the chair since 1850.

Swimming Pools. Editors of *Sunset Books* and *Sunset Magazine*. Menlo Park, Calif.: Lane Books, 1970. 112 pp. \$1.95.

This completely revised edition includes current information for the design of a pool, the selection of a site and the choice of materials, equipment and accessories. There are many photographs and plans.

The Architecture Machine: Toward a More Human Environment. Nicholas Negroponte. Cambridge: MIT Press, 1970. 153 pp. \$5.95.

"Let us build machines that can learn, can grope and can fumble, machines that will be architectural partners, architecture machines," writes Negroponte in this interesting book.

continued on page 54

The reviewer is an architect who practices in St. Petersburg, Florida.

for architects, engineers, consultants . . .

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Negroponte here discusses artificial intelligence (electronic machines) for architecture, emphasizing their potentialities rather than their achievements. Indeed most of the machines do not exist, and Negroponte calls his ideas "extrapolations into the future derived from experiences with various computer-aided design systems and, in particular, URBAN 5."

The concepts presented here were discussed in the article "Toward a Theory of Architecture Machines" in the March 1969 AIA JOURNAL.

Kinetic Architecture. William Zuk and Roger H. Clark. New York: Van Nostrand Reinhold, 1970. 164 pp. \$14.95.

The authors of this book on adaptable architecture reject the philosophy which considers architecture as "frozen music." They believe in an architecture which recognizes the fluidity of the set of pressures to which form must respond and of the technology which allows us to interpret these pressures and situations under which they exist. "We must evolve an architecture which will adapt to continuous and accelerating change — a kinetic architecture," they declare.

The first part of the book establishes a philosophy for kinetic architecture which is followed by a discussion of kinetics in nature and the development of the field of kinetics in technological applications. A third section

is concerned with the potentials of kinetics for architecture, and in a final section speculation is made on the implications of kinetic architecture and its relation to urban planning. The authors maintain that a kinetic, transposable and mobile architecture could allow the city to meet its needs both economically and orderly.

A provocative book that looks to the future and one that the contemporary architect should read.

Architectural and Interior Models: Design and Construction. Sanford Hohauser. New York: Van Nostrand Reinhold, 1970. 211 pp. \$20.

An exhaustive treatment of general model making with hundreds of illustrations and charts to provide comprehensive coverage. If you require models, this book will teach you how to build them economically and well. It will provide you with detailed information on how to display and photograph models too.

Joint Occupancy: Profiles of Significant Schools. Evans Clinchy. New York: Educational Facilities Laboratories, 1970. 34 pp. Free.

During the next five years, New York City will gain 23 new schools to accommodate 22,300 children representing \$118 million worth of school construction. All will be paid for in full by revenue from commercial buildings built above the schools.

Other examples are given in this booklet on the concept of joint occupancy whereby schools are combined with housing, parking garages, commercial space, municipal offices, health units and other facilities to solve the spiraling costs of city school construction.

A History of the Gothic Revival. Charles L. Eastlake. Edited with an introduction by J. Mordaunt Crook. New York: Humanities Press, 1970. 209 pp. \$16.50.

Eastlake's book was first published in 1872 when the Gothic Revival period was at its height. Here is the full text of the original work, including 48 woodcuts. Crook's introduction serves to give attention to the earlier phases of the revivalist movement. A section of 26 illustrations has been added.

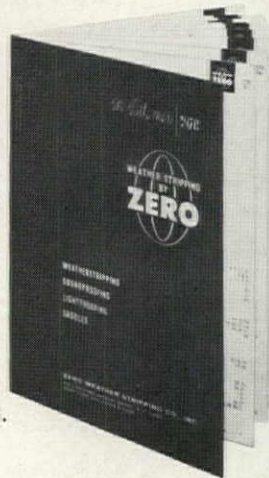
Our Environment Can be Saved. Nelson A. Rockefeller. Garden City, N.Y.: Doubleday, 1970. 176 pp. \$5.95.

A "practical man's guide to saving our environment, based on experience rather than theory." The focus is on what has been done, what is being done and what is planned regarding air, water and power. There are chapters also on open spaces and the arts and the quality of life.

Housing: The Social and Economic Elements. Wallace F. Smith. Berkeley: University of California Press, 1970. 511 pp. \$12.95.

This is "an introduction to economic
continued on page 59

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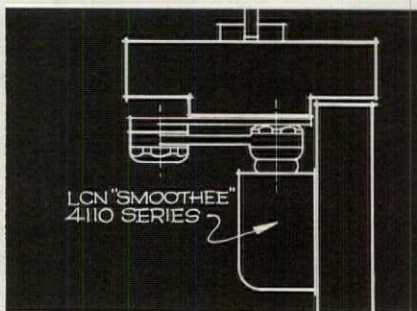


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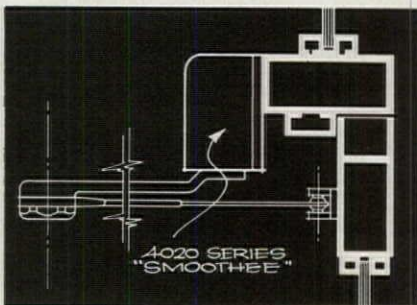
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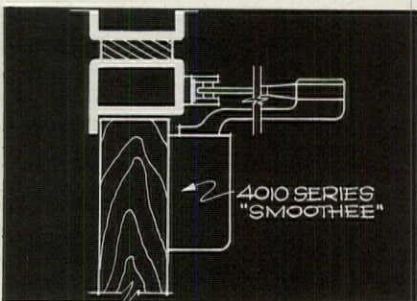
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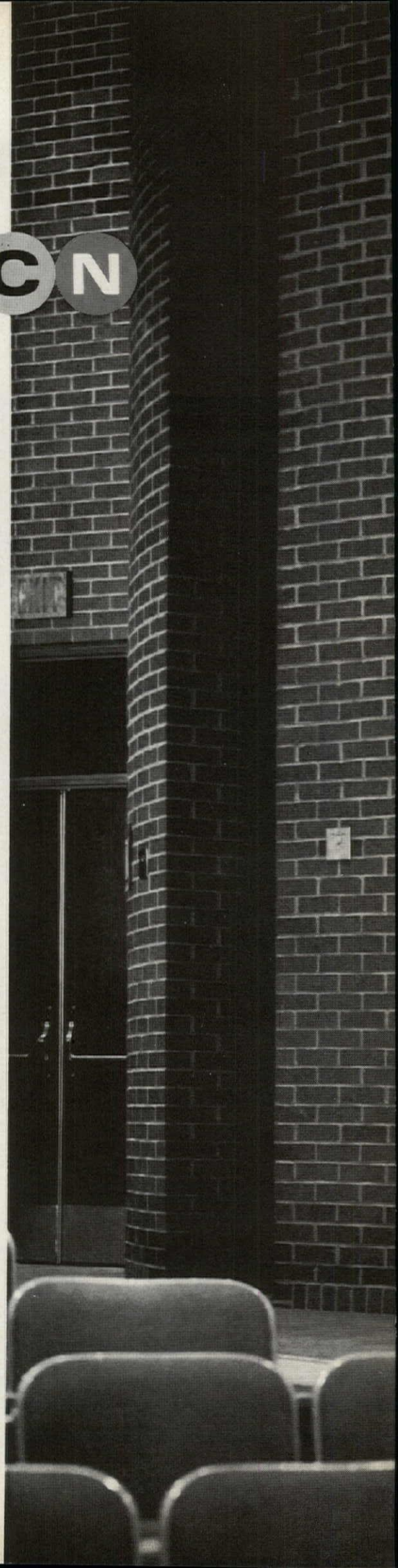
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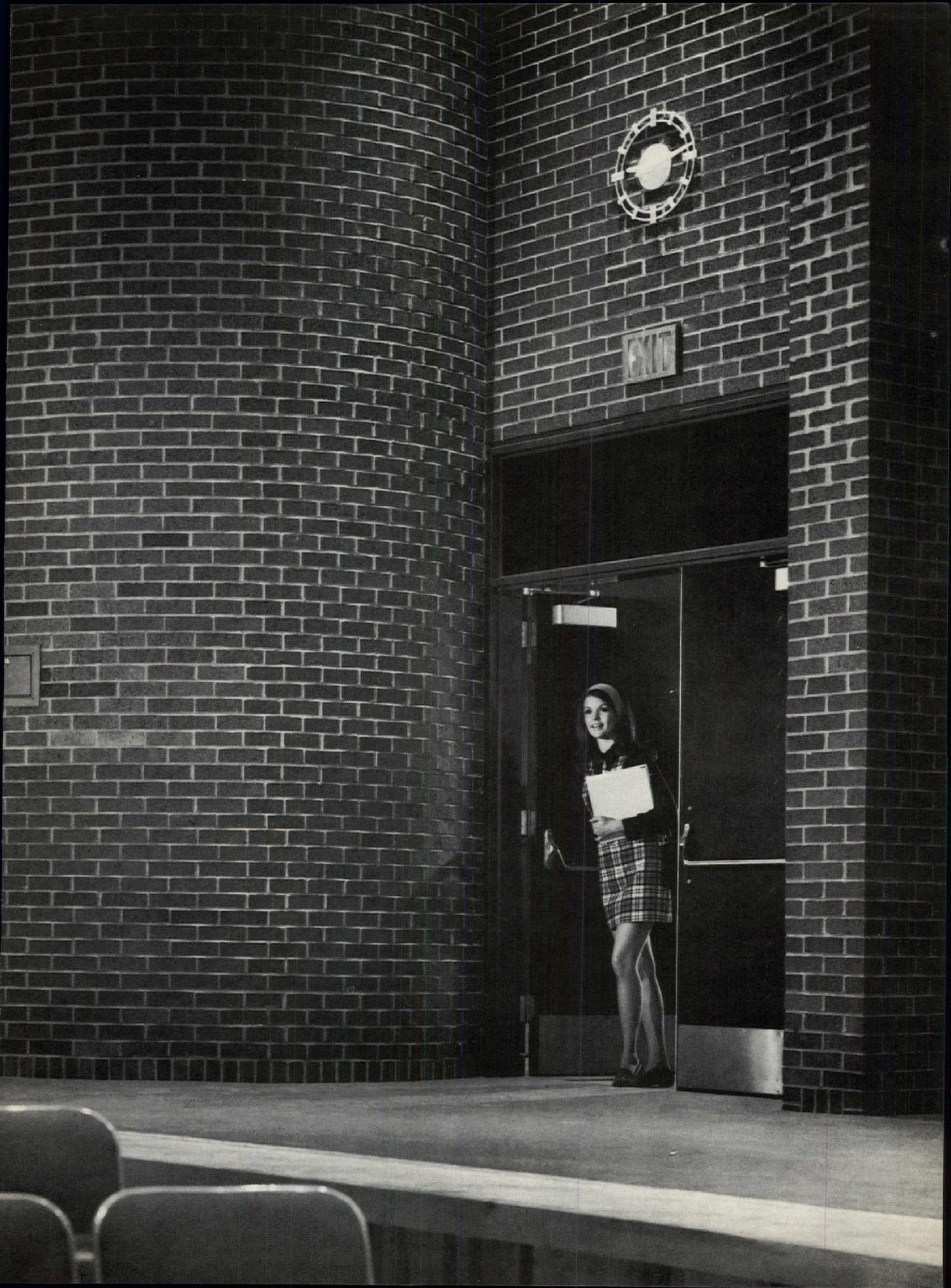


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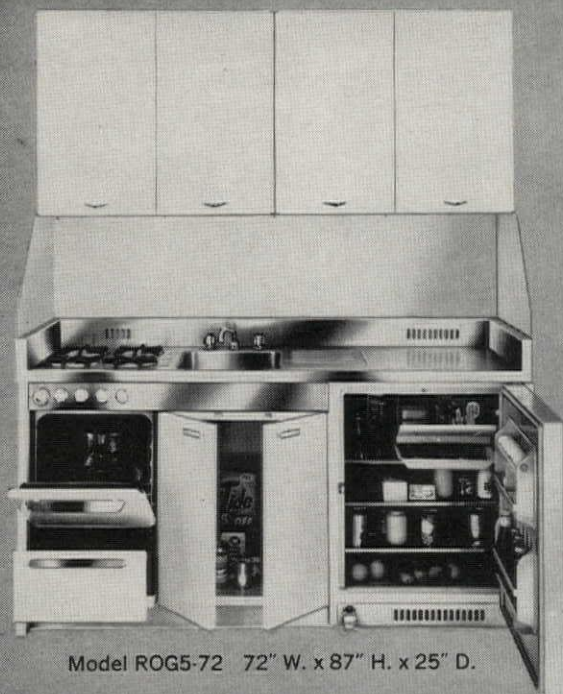
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reasoning for people who are concerned about housing . . . and to housing issues for people who are trained in economics." Housing is considered not as a physical artifact but as a set of interrelated activities, including the legal, social, financial and technical conditions which unite to determine the kind of housing a family may enjoy. An objective and factual work, the book is designed as a text in the field of urban studies. The author is associate professor of business administration at the University of California, Berkeley.

Architectural Psychology. Edited by David V. Canter. London: Royal Institute of British Architects, 1970. 92 pp. \$7.

Architectural psychology, the understanding and investigation under scientific principles of the way human beings perceive and respond to the built environment, is a fairly new research field. Insights into this discipline are offered here in the published proceedings of a conference held at the University of Strathclyde in 1969.

A number of distinguished people contributed papers, organized here into three main areas: theory, laboratory research and field research. The classified bibliography and glossary of terms add greatly to the book's usefulness.

An Organic Architecture: The Architecture of Democracy. Frank Lloyd Wright. Cambridge: MIT Press, 1970. 56 pp. \$6.95.

Frank Lloyd Wright delivered four addresses to young British architects in May 1939. This book is the verbatim text of those talks, which have been called the best statements of Wright's principles and ideas.

Landscapes: Selected Writings of J. B. Jackson. Edited by Ervin H. Zube. Amherst: University of Massachusetts Press, 1970. 168 pp. \$6.

A collection of lively essays on the environment by the founder and former editor of *Landscape* magazine. The work is edited from several lectures presented at the University of Massachusetts in 1965 and 1966 and from articles printed in *Landscape*.

A Sign System Manual. Crosby/Fletcher/Forbes. New York: Praeger, 1970. 76 pp. \$10.

Here is a simple, basic system for designing and displaying signs. There is an introductory history of alphabets and a survey of the development of letters and type to help the reader understand the characteristics of lettering and typefaces. The major part of the book, however, is a practical guide for those who need a sign program. The authors are members of a design firm.

Urban Design within the Comprehensive Planning Process. M. R. Wolfe and R. D. Shinn. Washington, D.C.: Department of Housing and Urban Development, 1970. 247 pp. Free.

A guideline document that "amplifies the role of a design element in the planning process and that clarifies concepts of urban

design in comprehensive urban planning." Divided into two parts, the publication's first concern is a general exposition of urban planning process issues, followed by a case study that places the hypothetical process into an operational context.

Urban Processes as Viewed by the Social Sciences. Kenneth J. Arrow et al. Washington, D.C.: Urban Institute, 1970. 79 pp. \$1.95.

A collection of papers delivered at a National Academy of Sciences symposium where the discussion focused on the economic, political and social institutions which distribute wealth and power in the American society and their impact on cities.

Electrical Services in Buildings. Peter Jay and John Hemsley. New York: American Elsevier, 1969. 180 pp. \$5.50.

A book for the specialist, confining itself to British practices with, unfortunately, scant mention of industrialized building. Its compactness, however, makes it useful for those who want a practical manual on electric services.

Urban Highway Design Teams. Douglas C. Smith. Washington, D.C.: Highway Users Federation for Safety and Mobility, 1970. 72 pp. Free.

An in-depth look by an AIA member at current and recent multidisciplinary highway design teams at work in nine cities. The history of such design team efforts is discussed and new dimensions facing current teams are set forth. The book describes the organization of teams and of the public agencies using them and speculates on costs of both the teams and the projects they are designing. The conclusion is reached that broad group design efforts are and will continue to be virtual necessities when any large public works projects are undertaken. Recommendations for future use of design teams are given.

A Response to Need: Designs for Family Housing. Urbana: Committee on Housing Research and Development, Graduate College, University of Illinois, 1970. 36 pp. \$1.

This report documents a search for new housing concepts. The staff and students of the Department of Architecture, University of Illinois, present three proposals for well-designed housing in a suburban setting for low income families.

The Escalation of Wages in Construction. Alan Greenspan. Washington, D.C.: Associated General Contractors of America, 1970. 32 pp. Free.

This study, commissioned by AGC to analyze the effects of government policies and labor legislation on the collective bargaining process in the construction industry, calls for the enactment of legislation to curb the construction unions' "monopolistic control" over manpower supply. Greenspan says construction unions' control over the flow of skilled labor "should be closely examined by Congress." He also asks for a "thorough review" of the training programs in construction. □

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letters

NCARB Plans for Exam Questioned

Having read Dean L. Gustavson's article in the December issue about NCARB and its proposed examination, I am deeply concerned with the possible results that may follow the liberalization of the licensing examination. I feel it will only increase the quantity and not the quality of practicing architects. It would lower the standards and qualifications for the practice of architecture.

A college degree without a term of practical experience cannot produce more competent architects, nor can an abbreviated exam prove that a person is qualified to practice the complicated, ever-expanding profession.

I urge my fellow practitioners to write the NCARB and the AIA to express their views and to demand that any revisions in the NCARB licensing test concerning content and procedure be voted on by all those whose qualifications are presently certified by NCARB. Why should we allow so few to dictate policy on a matter which affects us all so directly?

GLEN H. ISAACS, AIA
Nashville, Tenn.

The article was both interesting and distressing. Noting that the new examination process is not yet totally firm, I should like to make several pertinent comments. Although changes in the states' examinations and requirements for NCARB certification are needed, it should be remembered that the principal purpose of licensing by states is "to safeguard life, health and property." As a design-oriented profession, we must be able to guarantee professionals who are technically competent to practice architecture.

Having recently passed my state's architectural examination, I agree that such categories as architectural theory, site planning, professional administration and building construction and equipment should be re-evaluated. In our future examination, however, we must include categories in architectural design and separate structural design. We must remember that public health, safety and our profession are on the line, for once one receives his license, he is immediately eligible for private practice.

JAMES OLIVER CLARK
Architect
Tyler, Texas

ED. NOTE: An in-depth article on the new examination will appear in the May issue.

Architectural Firm Provokes Comment

In the November issue, there is a statement by John T. Law, AIA, in the Practice Profile on his firm which contains familiar words to those of us in urban planning and design here. And I quote: "The most frustrating thing to date is that in rural areas . . . planning commissions are so unsophisticated that they can't understand good site planning and will

not allow clustering of units which would leave open spaces and preserve scenic quality."

Even in Connecticut, generally considered to be a densely populated area, such a lack of understanding still results in restrictions and inflexible zoning, illustrating what a big job is still ahead to convince the public that there are better alternatives to the use of underdeveloped land. Though most of the architects in the New Haven area have their practices in urban centers, many of us have been active in suburban communities in promoting the passage of "planned unit development" sections of local zoning ordinances. We have met with limited success.

Of course, those of us who are involved in planning the development of a city such as New Haven, where the housing problem is acute, have a special interest in promoting low and moderate income housing in the suburbs where development costs are potentially lower. But we are also concerned that if the local communities do not act on their own to help relieve the pressure for housing development, the initiative will be taken from them by the state or federal government on the basis of preservation of the environment as much as in an attempt to solve the housing problem. Because of restrictive zoning in Connecticut, land costs typically run from \$8,000 to \$18,000 per lot in areas near urban centers—excluding those lots in planned developments.

I was impressed also that some of Law's housing units can be purchased for as little as \$15,000. The best I have been able to find in Connecticut is \$24,500 per unit. These were offered by a developer who used non-union labor.

LARRY D. NICHOLS
Chief Project Architect
New Haven City Plan Department
New Haven, Conn.

It is good to read of an architect's success in his work in the article in the November issue entitled "Small Firm with a Big Stake in Housing" by Jack Fraser. Mr. Law is to be congratulated.

However, the concept that a wage of \$3 per hour under factory (good?) conditions vis-a-vis an \$8 hourly wage under field conditions (bad?) is desirable or desired, particularly by the worker, continues to bemuse me.

Perhaps this view is the key to the condition existing in architects' offices (factories) relative to wage scales (good?).

WILLIAM B. McCORMICK, AIA
San Francisco

I have always admired John T. Law's approach to the profession. After reading the November issue, I am convinced that he has come up with some great answers.

MRS. JEAN ROTH DRISKEL, AIA
South Pasadena, Calif.

Applause for City Streets

The December issue tells a beautiful story. It is a fine job, and I appreciate the opportunity of having had a part in it. TERRY MCGOWAN
Lighting Development
General Electric Co.
Nela Park, Cleveland

ED. NOTE: Seymour Evans & Associates should have been credited for the lighting of Nicollet Mall in Minneapolis, which was shown in Mr. McGowan's article as well as on the cover.

Thanks for the splendid issue devoted to City Streets. It is a fine beginning, getting close to the kind of empirically based planning data we need so much. And it is blessed by authors who dig streets.

ROGER MONTGOMERY, AIA
Berkeley, Calif.

The December AIA JOURNAL is superb. It is exactly what I have been looking for to distribute to participants at our forthcoming conference on "Programming for the Urban Environment" to be held in Newark on February 28-March 2. Sponsored by the New Jersey State Council on the Arts, the conference will be attended by those professionals concerned with state arts council programs in the eastern part of the United States.

PHILLIP I. DANZIG
Architect
Project Director, Council on the Arts
Monclair, N.J.

The issue is filled with so many relevant and superb articles that we would like it for use by our faculty and students.

RICHARD J. THOMAS
Brigham Young University
Provo, Utah

Art and Architecture for a Vibrant City

Comment and Opinion in the December issue weighs admirable virtues and finds that art and human use of public spaces are lacking but essential ingredients in the urban environment to provide for a setting for urbane, civil and loyal citizenry.

The editorial continues that this is inconsistent with "social and environmental reform . . . [whose] arguments center on housing the poor and creating communities rather than the creation of monuments." The quote is from Ada Louise Huxtable.

This misunderstanding of urban planning has caused many of the ills that today beset environmental design. Art and the arrangement of important urban spaces are not frosting on an urban infrastructure in the form of plazas, boulevards and the sculpture to grace them. Art and a hierarchy of urban space are at the very heart of urban development — necessary ingredients on the occasion of the basic conceptualization of "social and environmental reform."

So many architects have excused their pallid, or even unpleasant buildings, by grumbling fatalistically about public agencies and then give lip service to urbanity by the display of plazas, frequently useless and/or in the wrong place, and "sculpture" of dubious virtue. The very nature of urban design within, for example, a model cities precinct, should bring to the average man humanity, pedestrian scale and visually hand-

some and socially usable public space. In effect, it should bring delight to the urban scene. Sculpture can lift that scene to a higher level of delight, but the very nature of the architecture should provide one or more levels of sculptural qualities through the buildings themselves and their urban arrangement.

Williamsburg Houses in Brooklyn still stands as New York's greatest contribution to the urbanity of the common man. Built by a distinguished panel of architects, including Richmond Shreve, Matthew Del Gaudio, Arthur Holden and William Lescaze, the 1,600-unit complex brings, through a four-story "entry" system, distinguished urban pedestrian space, social activity areas and distinguished architecture to a huge precinct

of the city. Designed in 1931, with the last sections completed in 1937, for the New York City Housing Authority, its creation preceded federal legislation in public housing. Nothing since has equaled its combined social and architectural virtues save perhaps the smaller but equally distinguished River Bend houses of 1968 (middle income housing) by Davis, Brody & Associates.

Let us not festoon a dreary city with art. Let us make a vibrant city whose art is in and party to the architecture that forms it.

NORVAL C. WHITE, AIA
New York, N.Y.

ED. NOTE: It seems to us that Mr. White is saying essentially the same thing in a different way as the remarks emphasized in the editorial and several other articles in the December issue.

A Protest Against Fragmentation

There appears to be a tendency in universities and colleges to fragment and dilute the architectural profession. This disturbing fact was brought home to me once again when I read "What's Happening in Architectural Education" in the October issue.

I fail to see why schools of architecture have to include other disciplines in the titles of the schools unless (and I have a strong suspicion that this is so) the frustrated architects, the so-called planners, urban designers, environmental designers, interior designers, city planners, environmental engineers, environmental planners and many other specialists want to bypass the requirements of first becoming an architect and then specializing in one of the disciplines enumerated above.

If planners, environmentalists, urban designers, etc., are to be licensed and recognized as the spokesmen of the architectural profession, then let us drop the title "architect" and all become specialists.

One wonders how the medical profession would react if orthopedists were licensed to practice their specialty without first becoming doctors of medicine.

I am an adjunct associate professor of architecture at the New York Institute of Technology and I find much confusion in the minds of architectural students. Many have questioned the value of an architectural degree when they can more easily and in less time become a "certified planner" with as good or better compensation. As such, he will be telling the architect what to do because he will be at the decision-making level.

I strongly urge the AIA to study this serious situation and to advise and/or direct deans and administrators of the schools of architecture to correct this fragmentation of our profession. The alternative, I fear, is gradually to lose the prominence of the architect as the master planner to a minor role in the development and rebuilding of the physical environment.

SAMUEL SCHEINER, AIA
Massapequa, N.Y.

Help in the Design of Darkrooms

For some time now, I have encountered photographers and architects who are carrying plans for a new darkroom in their pockets. Often they do not really know how to go about it all insofar as the authenticity and validity of layout and function are concerned.

Therefore, I should like to give you the name and the department of Eastman Kodak Company which provides such a magnificent service for photographers and architects. It is free and consists of a wealth of information including many versatile plans and adaptations plus suggestions for all sizes and functions, from the home amateur all the way to the large commercial industrial photographer complex.

Any interested architect may write to D. J. Hudson, Senior Facilities Design Specialist, Eastman Kodak Company, 343 State St., Rochester, N.Y. 14650. By the way, there is no sales pitch in any form. JULIUS SHULMAN
Los Angeles

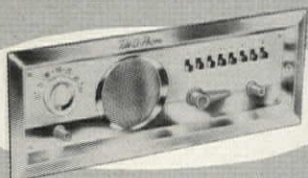


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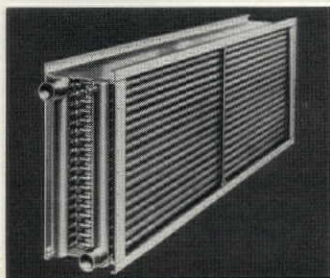
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- Feb. 18-20:** South Carolina Chapter Winter Meeting, Poinsett Hotel, Greenville
- April 8-10:** Gulf States Regional Conference, Arlington Hotel, Hot Springs, Ark.
- May 4-7:** Wisconsin Chapter State Convention, Milwaukee Exposition Hall Red Carpet, Milwaukee
- May 5-7:** Middle Atlantic Regional Conference, Jewish Community Center, Wilmington, Del.
- May 7-9:** Missouri Council of Architects Annual Convention, Holiday Inn of Table Rock Lake, Kimberling City

National

- Feb. 20-24:** American Association of School Administrators, Annual Conference and Exhibition of School Architecture, Had-don Hall, Atlantic City
- Mar. 26-28:** Annual College and University Conference and Exposition, Convention Hall, Atlantic City
- April 18-22:** National Conference of States on Building Codes and Standards, Olde Colony Motor Lodge, Alexandria, Va.
- April 19-22:** National Conference on Religious Architecture, Los Angeles Hilton Hotel, Los Angeles
- April 25-30:** Engineering Foundation Conference on Control of Quality in Construction, Asilomar Conference Grounds, Pacific Grove, Calif.
- April 26-28:** Apartment Builder/Developer Conference and Exhibition, Rivergate Exhibition Center, New Orleans
- June 20-24:** AIA Annual Convention, Detroit Hilton Hotel, Detroit (recessed convention, Copenhagen and London)
- June 23-25:** National Exposition of Contract Interior Furnishings, Merchandise Mart, Chicago

International

- May 10-13:** International Association of Town Planning and Distribution, Paris and Versailles, France
- May 23-27:** World Colloquium on Theater, Television and Film Lighting, Hotel Roosevelt, New York
- June 22-30:** International Council for Building Research, Studies and Documentation Congress, Versailles, France

Awards Programs

- April 1:** Entry information and fee due, Honor Awards Program on Religious Architecture, National Conference on Religious Architecture. Contact: Mrs. Thelma Livoti, 774 N. Lake Ave., Pasadena, Calif. 91104.

Fellowships

- Mar. 11:** Applications due, Rotch Travelling Scholarship, limited to persons under 31 years of age with study or experience in Massachusetts. Contact: Francis B. Sellew, Rotch Travelling Scholarship Committee, 54 Canal St., Boston, Mass. 02114.

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Dover Corporation —		Talk-A-Phone Company	62
Elevator Division	2-3	Von Duprin Incorporated	9
Follansbee Steel Corporation	55	Weyerhaeuser Company	16
Georgia-Pacific	4	Zero Weather Stripping	54
Haws Drinking Faucet Company	Cov3		
Hillyard Chemical Company	7		
Hope's Windows, Incorporated	51		

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