AIA JOURNAL

JANUARY 1971

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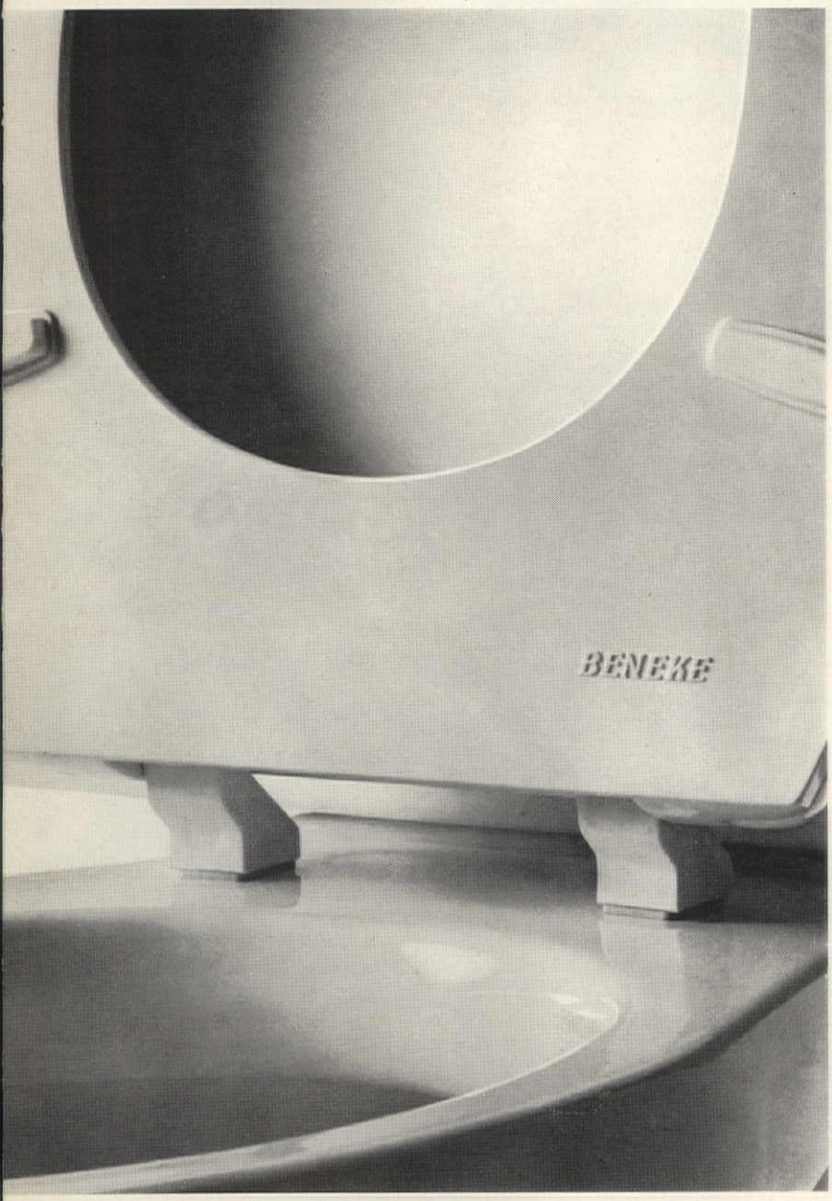
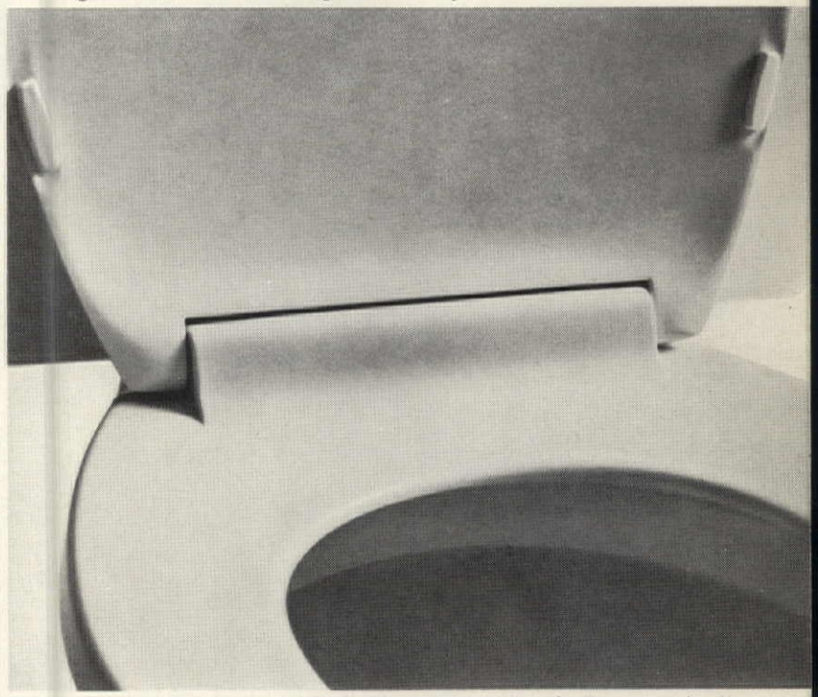
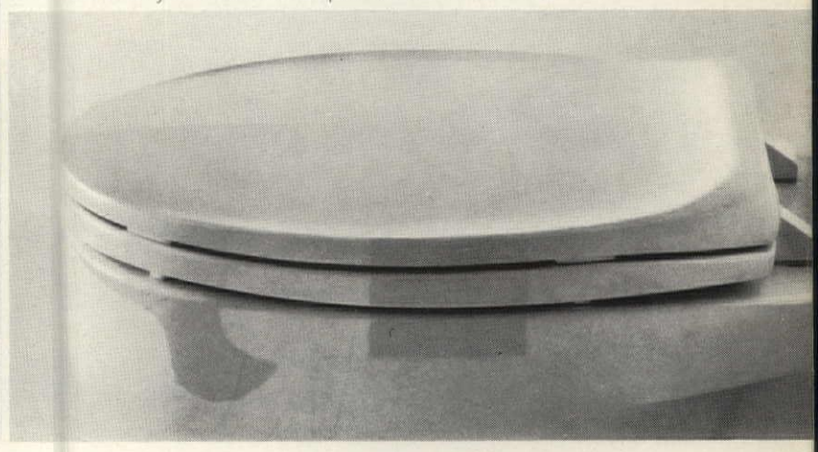


With the seat down and lid up, the streamline design of the hinge shield facilitates comfort and cleanliness. Wetness can't seep through into the actual hinge assembly.



The seat itself is molded from high impact polystyrene plastic with carefully contoured depth for maximum comfort.



The bowl and seat are cleaner because the hinge is higher. The Beneke HI-RISE® heavy duty plastic toilet seat is the first to feature this important sanitary breakthrough: the rotating mechanism is elevated well above the bowl, so thorough cleaning is accomplished quickly and easily without removing the seat. The best seat is the cleanest seat. The HI-RISE is the cleanest because it's the easiest to clean.

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Below: The Southern Yacht Club on Lake Pontchartrain, in New Orleans. Curtis & Davis, Architects, specified *Solarcool Bronze* Glass on a test basis two years ago. The results: an open view of the lake; greater occupant comfort; a beautiful, reflective facade.

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AIA JOURNAL

JANUARY 1971

DEPARTMENTS

COVER

Interpretive Design Center in Harpers Ferry, West Virginia, a new addition to National Park Service architecture, by Ulrich Franzen & Associates. Photo by George Cserna.

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VOL. 55, NO.1

comment and opinion

A SPECIAL LOOK AT URBAN NEWS: An unpublicized but nevertheless interesting conference at which I had the privilege of being a participant took place at the University of Chicago in November. Called "The Urban News Explosion," it brought together a group of journalists and scholars to the Center for Policy Study to discuss the challenge of the media (ranging from *Ebony* magazine to the *New York Times* to NBC) of covering the increasingly complex field of urban problems — an area of reporting in which architects and all those with a professional concern about the environment have much at stake.

Coming closest to home was Paul Gapp, coordinator of the university's Urban Journalism Fellowship program which was conceived at an initial conference devoted to "The Media and the Cities" in 1968. This is not surprising at all, for he earlier had served The American Institute of Architects as executive director of the Chicago Chapter and the Illinois Council. In a paper analyzing the new role of the urban affairs reporter or "specialist," Gapp listed "formal criticism" as one of his legitimate beats. "Newspapers and broadcasting stations review books, plays and films, and the press assays the worth of everything from traveling Rembrandt collections to Warhol paintings. Why not buildings?" he asked. "If the urban affairs reporter is equipped to do the job, splendid. If not, someone else with sufficient expertise (he need not be a staff reporter) should be called upon. It is a pity that so little architectural criticism is published or broadcast in the mass media." Gapp, by the way, will expand this and other ideas in a later issue of the AIA JOURNAL.

The fellowship coordinator made another interesting observation. "It was not until February 4, 1970, that the *Chicago Tribune* gave reporter Casey Bukro the title of 'environment editor' and proclaimed him to be the first newsman in the nation to carry such credentials. Bukro — a highly talented reporter — was not the first urban affairs specialist, of course. But the point is significant. Other news organizations have titled their specialists and formed urban affairs 'teams' and the like. Whether they continue to play the same old ballgame remains to be seen."

Keynoter for the conference was Grady Clay, an old friend of the JOURNAL and the Institute, and an honorary member to boot. Editor of *Landscape Architecture* and consultant to the Urban Journalism Center at Northwestern University, he referred to reporters in terms of "urban field runners" who produce "eye-witness journalism" which relates "That's what I discovered" rather than "That's what the man said." Clay's point of view was particularly pertinent in view of an item on the day-long agenda which queried: "Is there a need for more anticipatory, interpretive and advocacy reporting? Are traditional concepts of straight news reporting obsolete today?"

All of this news about the concern for and the emphasis on urban affairs reporting adds up to what I consider good news for the architectural profession as well as the fourth estate.

ROBERT E. KOEHLER

ACKNOWLEDGEMENTS

8 — above right, Mel Chamovitz
18, 19 — George Cserna
20 — above, Art Hupy
20 — below, Alexandre Georges
21 — below, Art Hupy
22 — below, US Department of the Interior, National Park Service, M. Woolbridge Williams
23 — above, Barbara Hadley
23 — center, Gordon H. Schenk Jr.
24 — Jeremiah O. Bragstad
25 — left above, Bob and Ira Spring
25 — right above, John M. Morse
25 — center, Lawrence S. Williams, Inc.
28 — Wayne Soverns Jr.
32 — left above, Gale Brooks
32 — left below, right, G. T. Kihlstedt
33 — left above, Robert A. Weinstein
33 — left center, Gale Brooks
33 — left below, F. T. Kihlstedt
33 — center above, George Stille
33 — center below, R. A. Weinstein — J. Warner
33 — right, 34 — left above, F. T. Kihlstedt
34 — left center, Robert A. Weinstein
34 — left below — Sarge Marsh
34 — right above, Jerry Morgenroth
34 — right below, Stewart & Tassian, Inc.
40 — left above, Borland Photography
40 — left below, Julius Shulman
40 — right above, Robert Perron
41 — above, Jonathan Green
41 — below, Morley Baer
42 — above, Karl H. Riek
42 — center, Philip Turner
42 — below, Ezra Stoller
44 — James E. Ellison
51 — LeLand Yee
54 — Thomas Joy

NEXT MONTH

Three professors are among our contributors, each with a pertinent message as it relates to the practitioner's shaping of the environment. A geographer takes a look in depth at Paolo Soleri and offers some insights about his ideas on architectural education, society, cities, the environment and man himself. An architectural professor proposes a concept of scale as a valuable tool for analysis, design and a better understanding of man's relation to his environment. A lecturer at a British university suggests that the architect may be trying to do today's work with yesterday's tools and presents a visual information system that would resolve uncertainties about the movement of people in existing and projected environments.

Other features include a portfolio on the winners in the 1971 Community and Junior College Design Awards, a plea for flexibility in planning our two-year institutions by a former dean of a school of architecture and No. 7 in the Practice Aids series which made its debut last January.

ASIDES

This month's leadoff presentation concentrates on the architecture of the National Park Service; it does not attempt to probe a basic question: How can a large number of people be applied to a limited natural resource without ruining what they have come to see?

This issue came clearly into focus over the Memorial Day weekend last year when 62,000 visitors to Yosemite National Park discovered firsthand that severe overcrowding, bumper-to-bumper traffic and smoky air are not environmental effects restricted to big cities.

The Park Service recently completed a master plan, in conjunction with a support study done by landscape architects Eckbo, Dean, Austin & Williams, determining policy and guiding development within Yosemite. Its major recommendations:

1. Construction of a bridge connecting highways to the north and south so that through traffic will bypass the 1x7-mile valley.

2. Abolition of the automobile from the valley and the establishment of a public transit system to carry visitors in from outer points.

3. Relocation from the valley of all support facilities and personnel which can be removed without impairing the quality of protection activities and visitor services.

4. Establishment of carrying capacities for all park resources: the number of visits which can be accommodated in a given period without damage to the resource and without lowering the quality of the visitors' experience.

Perhaps an organizational plan will emerge that can be applied to other parks when visitation reaches the proportions that it has at Yosemite. Multifold changes in the natural and social world have occurred since 1872 when Yellowstone became the first national park. The job of steering the park system into its second century is a monumental one indeed. □

outlook

Students Call for Changes to Aid Future Architects, Challenge Nixon on Environment

"Students have been an effective force for shaping The American Institute of Architects, and our new programs and budget reflect this influence," said AIA's 1971 president, Robert F. Hastings, FAIA, at the annual meeting of the Association of Student Chapters/AIA which took place in November at the University of California, Berkeley. Hastings praised the "cooperative spirit" of this year's forum.

There was little rancor and pettiness among the students from 80 universities in attendance, and the electricity of democracy worked on the floor. An entire day was devoted to the serious business of electing officers; each candidate was required to stand up and answer questions posed by the delegates. Through this process, Joe Siff of Rice

Joseph Siff takes over ASC/AIA presidency from Michael Interbartolo (see also page 55).

University was elected president. Siff, who has worked to reform convention practices of the Democratic Party and procedures of the University of Texas Board of Regents, told the 400 delegates that he believes "in working within the system when it can change and in putting pressure on it from outside when it can't."

A matching grant of $16,000 from the Department of Housing and Urban Development (Title 8 project) helped finance workshops which were a highlight of the three-day meeting. Students pledged action in their local communities after the forum based on workshop proposals. The sessions concentrated on environmental awareness education in public schools, reform of architectural curricula, aid to community Development/Design Centers and ways to be effective participants in the existing political structure.

The organization of the 25,000-member association was altered to charge four vice presidents with responsibility in specific areas: Mark Maves of the University of California for finance and fund raising; Robert Graham of Howard University for architectural education; Bruce Webb of Montana State University for public education; and James Miller of the University of California for CDCs.

Resolutions adopted by the delegates indicate a strong leaning toward social responsibility issues and problems affecting tomorrow's practitioner and the cities in which he will work. The AIA was urged to "put its priorities in order" and to divert a larger percentage of its budget to aid CDCs. The students asked for a vote on the Board of Directors for the association's president. They agreed to help citizens to gain power in poorer neighborhoods; to seek changes in architectural education to better prepare the practitioner for community service; and to advance environmental awareness in public schools.

The student architects condemned the firing of the Secretary of the Interior Walter J. Hickel. Siff said that he considered Hickel as a symbol of a businessman who changed in office and became an active supporter of environmental protection. The resolution also called on the Nixon Administration "to provide the nation with an immediate, clear and responsible policy of environmental management."

There were tense moments from a caucus of black students, but disagreements were resolved amicably by a compromise proposed by Niles Tanakatsubo of the University of Illinois. The black students had proposed a forum in 1971 to concentrate on problems blacks will face in architectural practice. According to the compromise, which was voted unanimously, a 1971 national seminar will be open to all minority architects planning to work in inner cities and rural slums.

Institute president Hastings accepting well-wishings from outgoing president Allen.

New Slate of Institute Officers, Headed By Hastings, Installed in Washington

Robert F. Hastings, FAIA, has become the first AIA president to take office in a new schedule of succession that elects officers at the annual convention, normally in June, but delays their installation for six months to provide added experience.

Although his term of president-elect extended 18 months, Hastings' tenure of president is for one year. (For a statement of his objectives, *see* the Institute Page in this issue, which also lists the complete set of officers for 1971.)

Hastings was formally installed by his predecessor, Rex Whitaker Allen, FAIA, at an inaugural on December 5 in Washington, D.C. Max O. Urbahn, FAIA, first vice president, presided at the ceremony in the Madison Hotel. Among the 120 guests were several past presidents and their wives.

The new Institute leader heads the 500-man Detroit architectual/engineering/planning firm of Smith, Hinchman & Grylls Associates Inc.

The December inaugural marked another first when Robert J. Nash, AIA, was installed as a vice president, making him the first black member to hold national office in the 113-year history of the AIA.

National Fine Arts Medal Competition Is Won by AIA-Honored Architect

Julian Hoke Harris, AIA, architectural sculptor and portraitist, is winner of the $1,500 prize from the Society of Medalists for the design of its 40th anniversary medal.

"The unusual square-on-the-diagonal shape is like no other medal in the society's collection," commented Mary Louise Cram, executive secretary of the society, a non-profit organization dedicated to promoting the medallic work of American sculptors.

The recipient of the AIA's Fine Arts Medal in 1954, Harris has been honored by the North Georgia Chapter AIA as well, having been presented its Ivan Allen Senior Award for his sculpture and public service. He is the sculptor of two medals for the Institute: the Firm Award and the Ralph Walker Centennial Gold Medal.

He has designed medals for such organizations as the National Recreation and Park Association and the American Society of Engineering Education and created the Civil War Raid Medal and the Sidney Lanier Medal for the Hall of Fame of Great Americans at New York University.

Harris has sculpted busts of many notables in American life and has executed works of art for more than 50 buildings.

Border disks of Harris' design honors 80 earlier medals issued by Society of Medalists.

AIA Gives Fourth Architectural Critic's Medal to Educator Sibyl Moholy-Nagy

The educator and author who once referred to herself as "an unaffiliated digger after treasure and debris buried under tides of conformity" has been named the recipient this year of the Institute's Architectural Critic's Medal. In informing Mrs. Moholy-Nagy of the award, AIA President Robert F. Hastings, FAIA, cited her for her leadership within the public sector in questions architectural and for her teaching of future designers.

Mrs. Moholy-Nagy, who was born in Dresden and educated in Leipzig, Dessau and Frankfurt, is the daughter of the late German architect Martin Pietzsch. After a short career as an actress, she married László Moholy-Nagy of Bauhaus fame in 1934. The two lived first in Holland and London, then came to Chicago in 1937. There, she taught at the Institute of Design in the New Bauhaus and also ran summer sessions, while continuing to assist her husband with movies, exhibits and books until his death in 1946.

From 1948 to 1951, Mrs. Moholy-Nagy taught at the University of California, Berkeley, and from 1951 to 1969 at Pratt Institute of Technology. Last year she was visiting professor at Columbia University. She has lectured throughout the United States as well as abroad.

Referred to variously as vigorous, fearless, an original with a trained mind and a person with a fresh outlook and acute perception, Mrs. Moholy-Nagy has been a contributor to a number of magazines including the AIA JOURNAL. She is the author of several books, among them *Experiment in Totality* and *The Architecture of Venezuela.*

In 1954, Mrs. Moholy-Nagy received the Arnold W. Brunner Fellowship. She is the fourth person to be honored with the Architectural Critic's Award. It will be presented on June 21 in Detroit during the AIA's annual convention.

Italy Confers Gold Medal on Wachsmann, Pioneer in Industrialized Construction

Konrad Wachsmann, director of the University of Southern California's Building Institute, has been awarded the Gold Medal of the Senate of the Republic of Italy. The presentation was made during the first International Biennial of Theory and Methodology of Planning held in Rimini last September.

Wachsmann gives acceptance speech as Luigi Preti, Italy's Minister of Finance, looks on.

Wachsmann was cited for "the high quality of his research in the field of design, in a vision elevating the science of construction, which is the study of the possibilities of the creation of space through structural geometry of absolute originality, toward a poetry of construction itself, within the framework going from practice to education, in perfect harmony with the dynamics of history."

Born in Germany, Wachsmann came to the United States in 1941 and formed a partnership with Walter Gropius. He has traveled throughout the world under the sponsorship of the State Department. In 1961, he published the book *The Turning Point in Building,* which has been translated in several languages.

The honor conferred upon Wachsmann, under the patronage of the President of the Italian Republic, was promoted by the International Research Center of Environmental Structures in the framework of the activities of UNESCO in Italy.

Following the presentation of the medal, Wachsmann visited the Soviet Union at the express desire of Russian building authorities. The invitation came on the recommendation of the State Department in recognition of Wachsmann's reputation as a world pioneer in industrialized construction.

DOD's Test System for A/E Procurement Is Withdrawn by Assistant Secretary

Just before taking its election campaign recess, Congress throttled the Department of Defense test system for A/E procurement (*see* AIA JOURNAL, Oct. '70, p. 6).

The final Military Construction Authorization Bill, which won approval in both Houses of Congress, in the section concerning the award of construction contracts states: "Further, such contracts (except architect and engineering contracts which, unless specifically authorized by the Congress, shall continue to be awarded in accordance with presently established procedures, customs and practice) shall be awarded insofar as practicable, on a competitive basis to the lowest responsible bidder if the national security will not be impaired and the award is consistent with Chapter 137 of Title 10, United States Code." The legislation refers only to military construction.

Assistant Secretary of Defense Barry J. Shillito in a memorandum dated October 19, 1970, stated: "The test proposal, therefore, which had been planned is consequently withdrawn."

Future Responsibilities of Leadership Slated for AIA's Retiring President

Leadership seems to come naturally to Rex Whitaker Allen, FAIA, who has just completed his term as president of the AIA. He will continue to be called "Mr. President," having recently been elected first vice president and president elect of the American Association for Hospital Planning at its convention in Houston.

His firm of Rex Whitaker Allen & Associates, located in San Francisco, specializes in hospital design. Some of its past projects include the Johns Hopkins Hospital in Baltimore (joint venture with Hugh Stubbins & Associates); Stanislaus Memorial Hospital, Modesto, California; Dominican Santa Cruz Hospital; Alta Bates Community Hospital, Berkeley; and St. Francis Memorial Hospital, San Francisco. Current projects include the master plans for the College of Podiatry and for Chinese Hospital, both in San Francisco; Boston City Hospital (with Hugh Stubbins & Associates); and renovation and additions for the Sacred Heart Hospital in Eugene, Oregon.

St. Croix Wilderness, With Its Chaste Waters, Transferred to the People

The "Wild and Scenic River Act," passed by Congress in October 1968, designated the St. Croix and Namekagon as one of the eight initial wild river systems to be preserved and developed in this country. The act authorizes the Department of the Interior to acquire property rights to approximately 100 acres per river-mile, as well as scenic easements on protected zones up to an additional 220 acres per river-mile.

The following year, the Northern States Power Company of Minnesota agreed to donate to the US lands on both sides of the St. Croix from Taylors Falls, Minnesota, to Gordon, Wisconsin, including shorelands along the Namekagon in the Badger State. Finally, in 1970, Walter J. Hickel, former Secretary of the Interior, signed a cooperative agreement with the power company and the states of Minnesota and Wisconsin to preserve some 70 miles of the St. Croix National Scenic Waterway.


Riverfront lands of some 7,000 acres are within short distance of the Twin City area.

A report on the area prepared by the Park Service, the states of Minnesota and Wisconsin and the Northern States Power Company is lyrical about the region's beauties. "Here," the report states, "at the edge of a great metropolitan area, the St. Croix River is almost as clean as the Chippewa, the Dakota, the Fox and the Sioux knew it. And all this while, it has been a thing so rare as to stagger the imagination and shake the conscience of man. From the wild plunging run of the upper river to the elegant currents of the lower stretches, both the beautiful Namekagon and the St. Croix have remained chaste. Despite man's historic dishonoring of his rivers with tin cans, poisons and sewage, it is a miracle that we in the expedience of time and progress have not sinned fully against these ladies of the great wilderness."

Performing Arts Centers Face Mounting Crisis as Patrons Intensify Demands

The increasing number of performing arts centers is an indication of the cultural explosion in the United States, yet the financial plight of many of these centers is a distressing aspect of this explosion.

That statement is a key point in a report by the Twentieth Century Fund in New York City entitled "Bricks, Mortar and the Performing Arts," the work of a nine-member task force.

If a new facility is to be built, the report stresses, plans should include commercial facilities, such as parking garages and restaurants and bars, to help support the center. The initial fund-raising drives should include the cost of such facilities. It is emphasized that centers should not be built unless sponsors are sure that operating and maintenance costs will not work to the detriment of performing groups. High rentals cut into the already meager revenues of such performers.

Among the findings of the task force are:

- Theatrical consultants should be given a larger role in the planning of performing arts centers and their recommendations should not be overruled except for the most considered arguments.
- A single auditorium cannot successfully serve as a theater for both concerts and drama because musical presentations and the spoken theater have different requirements.
- A national data book and technical manual should be prepared to set up patterns of stages and stage machinery which would cut costs of building large theaters and arts centers.
- Remodeling of existing structures is preferable to the construction of increasingly expensive new buildings.

The report is available for $1 from the Twentieth Century Fund, 41 E. 70th St., New York, N.Y. 10021.

Hotels and Houses will Create a New City Within a City for Orlando

A "24-hour environment" city within a city is planned for Major Center, a 2,800-acre urban complex which will surround the intersection of Interstate 4 and Florida's Turnpike in Southwest Orlando. According to studies made by Wilbur Smith & Associates, by 1985 the new city will house 35,000 families and will support them with 54,000 jobs. It is also anticipated that there will be nearly three times as much developed land as there was five years ago.

The master plan was created by the firm of Reynolds, Smith & Hill at a cost of nearly $400,000, and has won a national merit award from the American Society of Landscape Architects.

Standards Group Seeks Public Reaction

A new publication is soliciting public comment on standards that have just been submitted for approval as new or revised to the American National Standards Institute, Inc. The biweekly *Standards Action* also seeks comments on proposed actions to reaffirm or withdraw standards.

The institute is the national clearinghouse and approval and coordinating agency for voluntary standardization in the United States. It also represents US interests in international standardization work carried out by such nontreaty organizations as the International Organization for Standardization and International Electrotechnical Commission.

Ecologists See Environmental Research As Key to Improve Hudson River Basin

A group called the Hudson River Environmental Society has been founded to encourage and coordinate needed environmental research on the Hudson River basin and nearby coastal areas. Gerald J. Lauer, assistant director of the Laboratory for Environmental Studies at New York University, has been elected as the society's first president.

Merril Eisenbud, who chaired the society's organization meeting last year at Vassar College, said that the ecology of the Hudson River is in danger because of a lack of information about the environmental effects of proposed projects. He estimated that construction projects affecting the river's ecology will total more than $5 billion in the next decade.

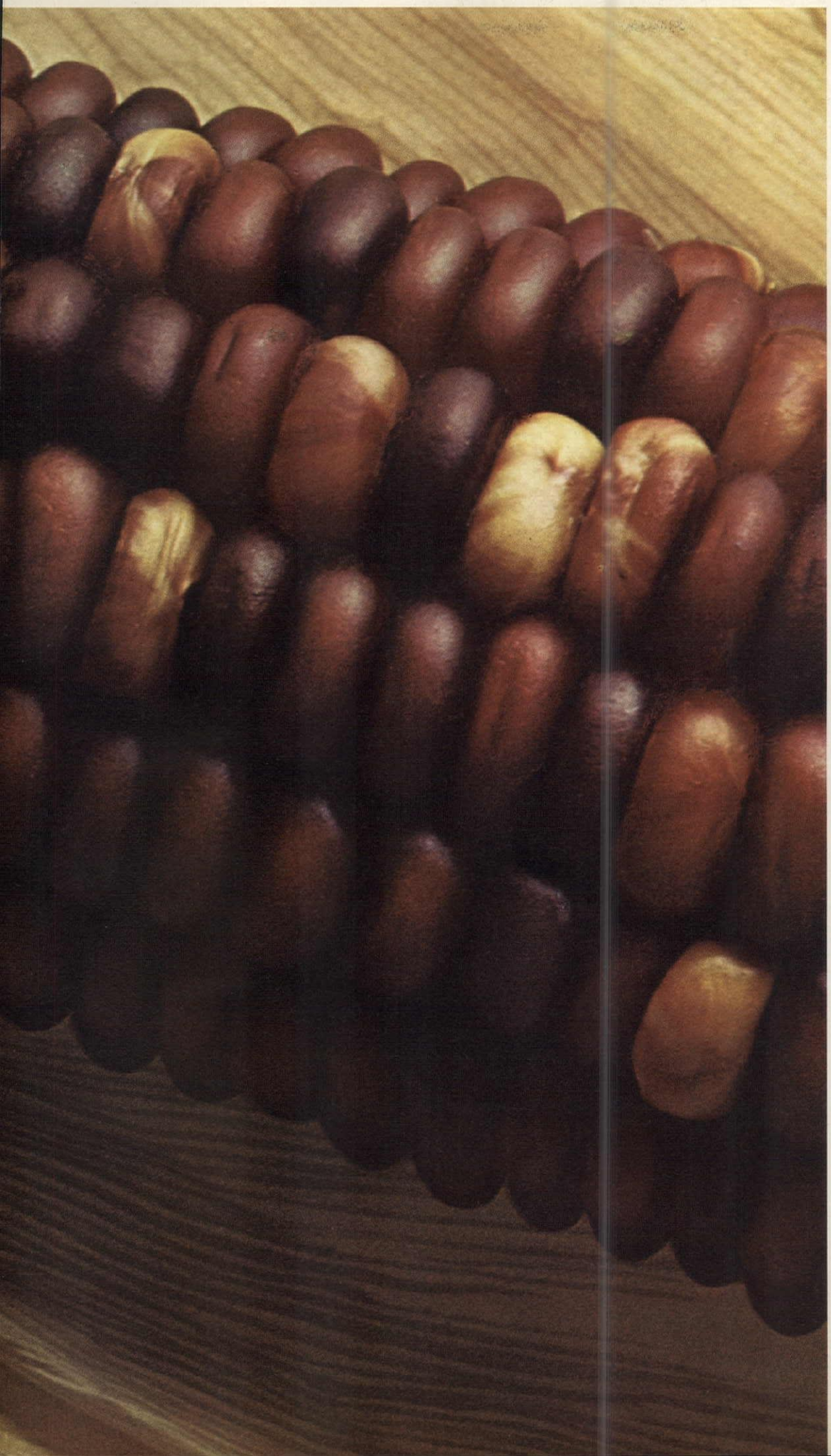
Lauer said the group will work to bridge the information gap between scientists and laymen. Membership in the new society is open to all interested in protecting and improving the Hudson Valley. The society's address is P. O. Box 522, Tuxedo, N. Y. 10987.

Designers Urged to Use Research Efforts In Promoting More Humane Environment

A wider range of choices, not more boxlike structures, is needed in low and moderate income housing. This conclusion was re-

continued on page 12

Number 97. Indian corn.



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outlook *from page 9*

peatedly stressed at the Architect-Researchers Conference held in Cincinnati in November. The three-day meetings, sponsored by the AIA and University of Cincinnati's Department of Architecture, was attended by some 200 architects, engineers, teachers, researchers and sociologists who listened to 28 papers covering a diversity of subjects (*see* AIA JOURNAL, Oct. '70, p. 76).

Robert F. Hastings, FAIA, newly installed AIA president, said in the keynote address that the researchers, design professionals and educators should push for a "HEW of the building industry." Such an organization could make research grants to schools and institutions to enable them to establish criteria for creating an environment responsive to man's needs, he said. He emphasized that the AIA is "clearly committed to a major research effort." The goal, said Hastings, is "a more livable and humane environment."

The Octagon Hosts a Variety of Events From Tours to Exhibits to Receptions

In the first year since its restoration and reopening last January, the Octagon House has welcomed about 10,000 persons, has housed nine exhibits and has been the scene of a number of AIA functions.

In addition to individual visitors, the national landmark has been inspected by school classes, women's clubs and professional and tour groups. Curator Sara Jameson reports

Flowers and silver candlesticks grace an Octagon table as the AIA honors White House Fellows, including Rodney Coleman.

that office workers are inclined to come during the week and families on weekends.

There are 12 hostesses (five are part-time) to show visitors around, and two or three are on duty at all times. Some of the ladies have had experience in working at other historic houses, and some are George Washington University students.

Admission to the Octagon is free, and it is open every day except Monday, Christmas, Thanksgiving and New Year's Day. Some of the visitors wish to make voluntary donations, however, and by November 3, the total neared $570. The visitors also buy postcards, catalogs, posters and architectural guidebooks.

The most popular of the nine exhibits shown this past year was the one on historic architecture and urban design in Nantucket, which drew a record attendance of 1,716 in October. The current exhibit, running through January 31, is entitled "Some Works by Buckminster Fuller."

Deaths

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Planning for the Years Ahead

by ROBERT F. HASTINGS, FAIA
President

A demanding world is insisting that all design professions formulate and work toward common environmental goals. It is pressing us to help create an environment that will fulfill its needs and aspirations.

We architects have no intention of evading that issue, and we will not plead either status quo or ingrained professional attitudes. Over the past few years, the AIA has demonstrated clearly that our profession is concerned and is willing to change in the face of emerging social forces and needs.

And the tools for change are being forged. The Institute is now moving steadily in the direction of getting an effective planning process. Today, when we sit down to plan for tomorrow's policies and actions, the outgoing AIA president, the incumbent president, the president-elect, the executive vice president, the board, are all part of the decision-making process. In addition to facing the realities of the moment, we are reaching back into the experience of yesterday and forward into the hopes of tomorrow. By the time a president implements a program, he may have been deeply involved in it for as long as three years. We can count on building additional progress each year atop the achievements of the year before.

This board and officer chain-of-policy is reinforced by the strength of the constantly improving Institute staff, and by the committees and task forces that implement the policies set by officers and board. These people and these groups are the cutting edge of our activities, the troops who meet our problems at the real nitty-gritty level, and this continuing involvement of our members is the cornerstone of our hopes for progress.

All of us in the AIA are already committing much of our energy and our resources to involvement in public policy. We intend to continue that involvement in the problems of housing and urban areas, and in the questions relating to our nation's material and human resources.

We will not, and cannot, manufacture that public policy. It will be shaped by social forces and human needs and aspirations far larger than any one organization or any group of organizations. But we can influence this changing policy, we can respond to it, and we will influence and respond more effectively as a single design profession with cooperation and joint effort from all of the professionals who are involved in environmental design.

This need for cooperation and united effort points the way toward the ultimate involvement of a broader profession, which encompasses all of the disciplines that play a role in environmental design. The educational process that develops these men and women must expose them to the broadest possible range of awareness of good environment. They must become generalists in environmental design first, then they can specialize in whatever phase of the creative process that best fits their interests and aptitudes. But regardless of their specific fields, they must understand the decision, design and delivery processes that bring all projects from conception to execution.

But educational changes are long-range. The AIA has a series of programs that are more immediate, divided into five categories: First, we must develop the professionals who can create this greatly expanded profession, and then we must develop the tools they need, and climate of opinion that will encourage and foster them, and the clients who will commission and support them. And finally, we must build the Institute into a powerful support for all of these endeavors. The implementation of all five phases of this program is just getting off the ground.

Looking outward from these important professional needs, we must question the existing system of creating buildings that has grown, increment by increment, over the years. This linear, step-by-step system has become too slow, too cumbersome, too vulnerable to inflation and escalating costs. More and more, the people who need our buildings are unable to afford them. Technological progress may ease this problem slightly, but the basic attack must be made on the obsolescence of the design and building process itself. All phases must be telescoped, and this is going to mean greater — and earlier — involvement of client, architect and engineer, construction manager and manufacturer in the decision-making process.

Society itself will dictate its priorities, as well as when and how it wants them reached. But the environmental design professions together must point out the hard choices that the setting of priorities imposes; we must show the gains or losses, the rewards or penalties, the plusses and the minuses of these choices. We must help society make these choices and make them wisely.

To do this, our profession must make itself into the kind of instrument that people can use to achieve the better human environment they will demand. Are we willing to make our own hard choices to do this? I'm positive we are going to do just that. □

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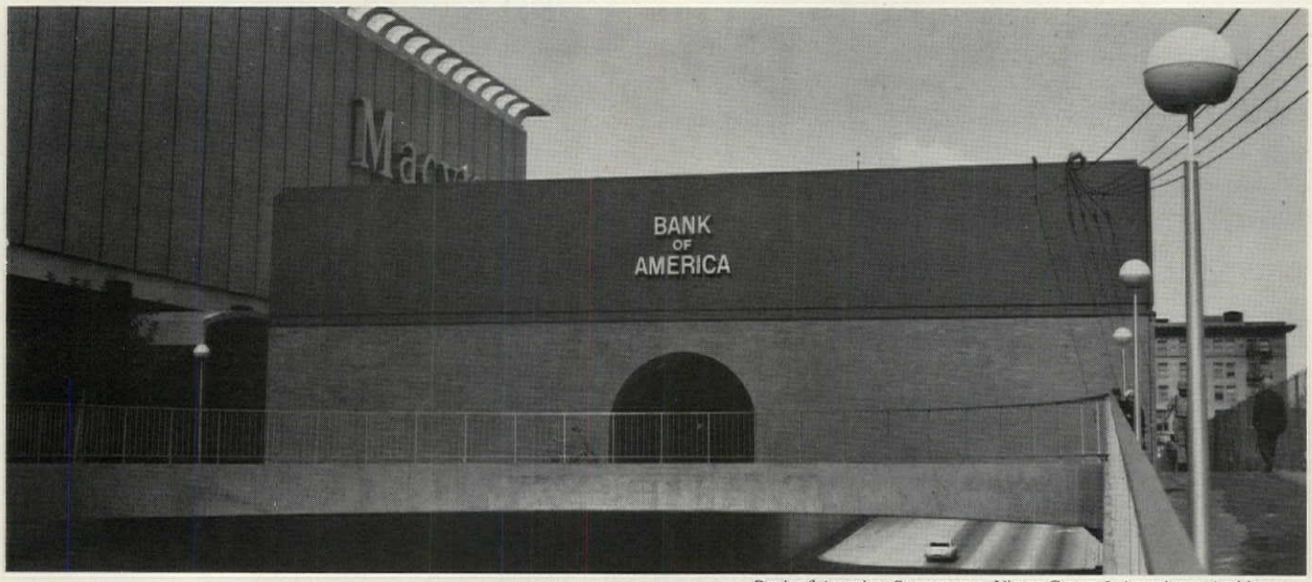
WWPA's 1970 Grading Rules, approved by the Board of Review of the American Lumber Standards Committee, incorporate provisions of the new American Lumber Standard PS 20-70, which establishes new lumber sizes, grades and identification requirements. They are now available from WWPA at $1 per copy.

One of a series presented by members of the American Wood Council.

The Bazaar was created by Callister & Payne, Community Planners; and August Rath, architect.


Dock
B



Bank of America, Sacramento. Victor Gruen & Associates, Architects.

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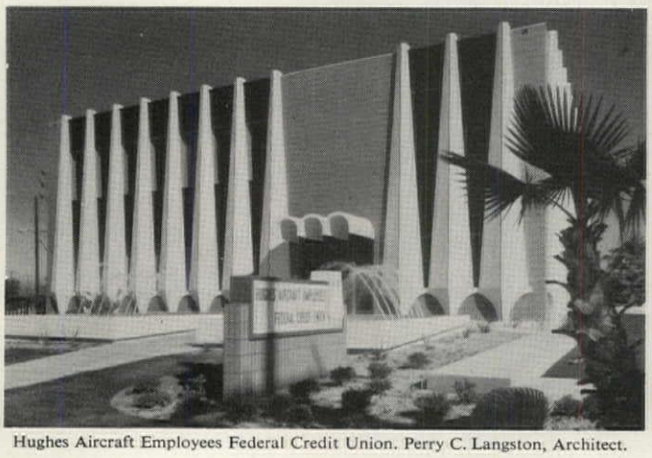
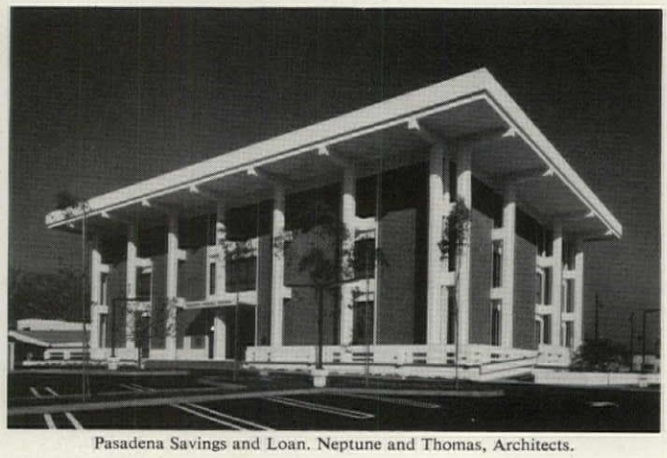


Hughes Aircraft Employees Federal Credit Union. Perry C. Langston, Architect.



Pasadena Savings and Loan. Neptune and Thomas, Architects.

Coming into favor with American architects is the use of "Brickplate," a type of ceramic tile with the density of natural granite that has been popular with European designers for years. Since 1963 it has been made available in this country and Canada by Gail International Corporation, a subsidiary of Wilhelm Gail Ceramics, Giessen, Germany.

Previously, American designers have had to improvise when using exterior tiles with materials primarily intended for flooring use. Brickplate, on the other hand, is intended for the exterior, being completely frost proof, and allows more freedom of design with a wide variety of shapes in glazed and unglazed finishes. Gail conveniently produces these tiles in modular English sizes for the American market.

Because of their low absorption, Gail tiles have dovetail ribs on the back which make a mechanical key with the setting mortar, hence, they are suitable for pre-cast and tilt-up construction as recently employed in the Serramonte Shopping Center, Daly City, California; Welton Becket & Associates, Architects.

Although mass produced in one of the most automated ceramic facilities in the world, thus modest in price, Brickplate has a warm, handcrafted quality achieved through its controlled color variation. The same dense body is used for both glazed and unglazed finishes.

For additional information, prices, samples, local representative, etc., write Gail International Corp., or see our Catalog in Sweet's Architectural, Interior Design, and Industrial Files.

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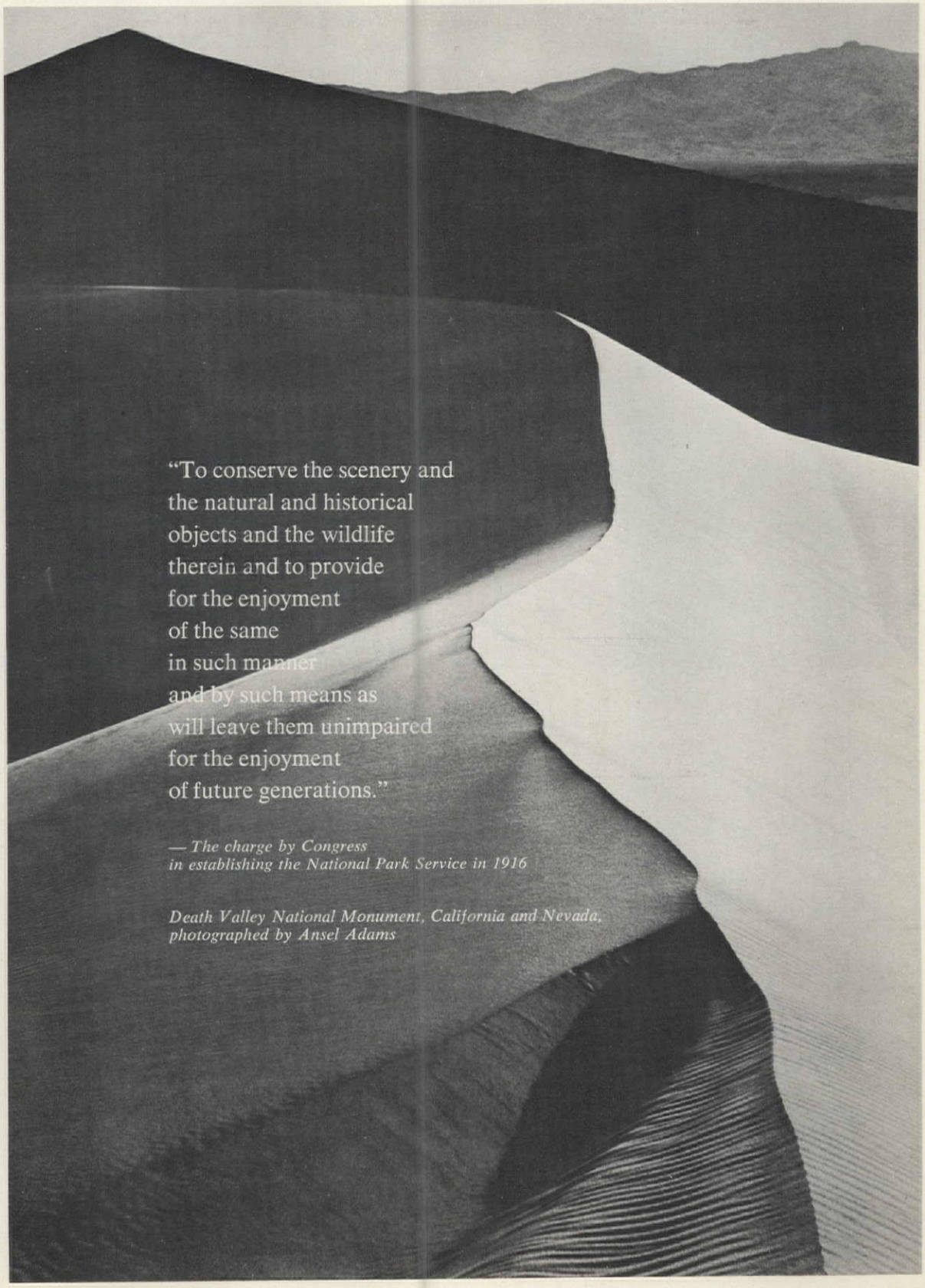
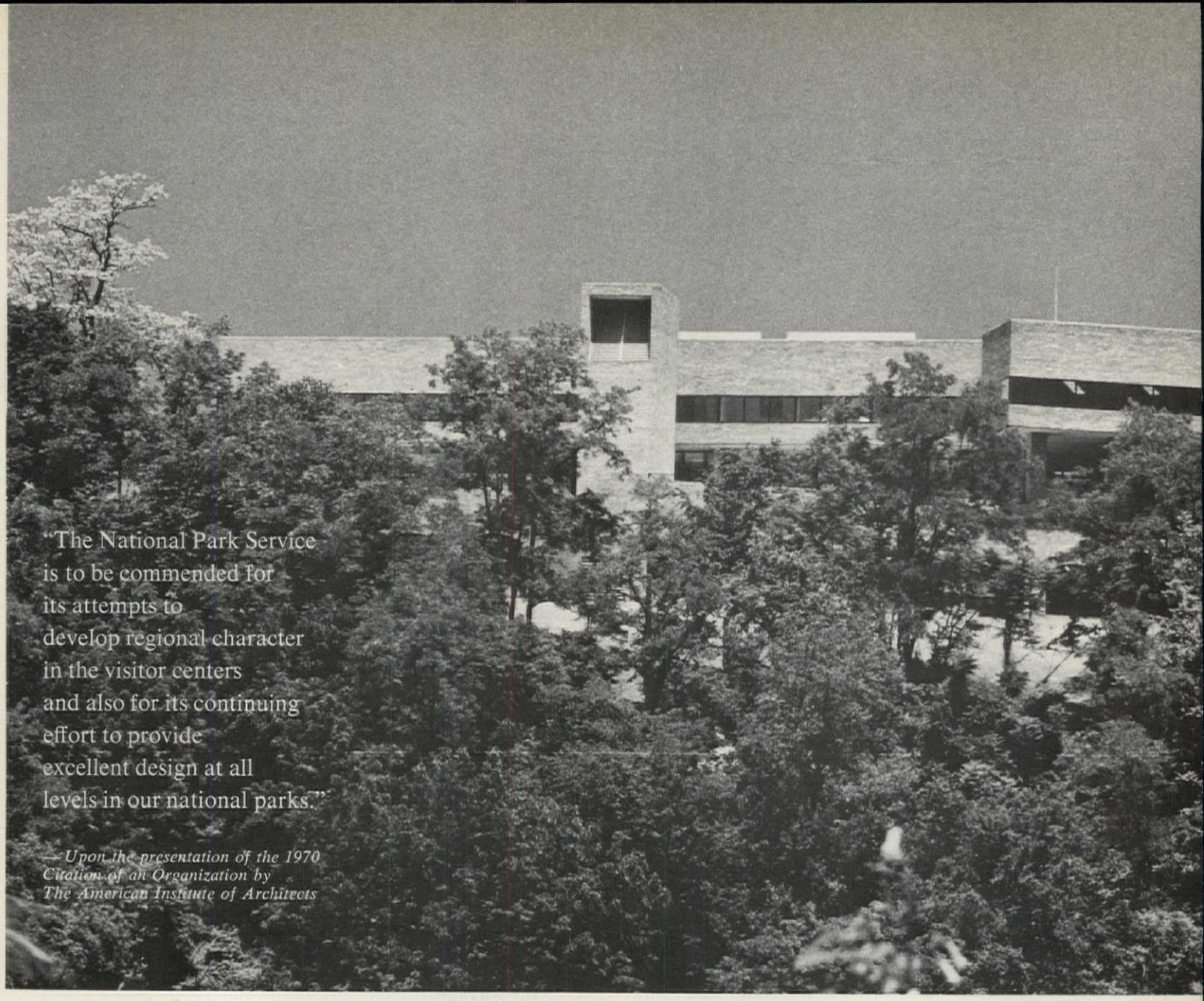
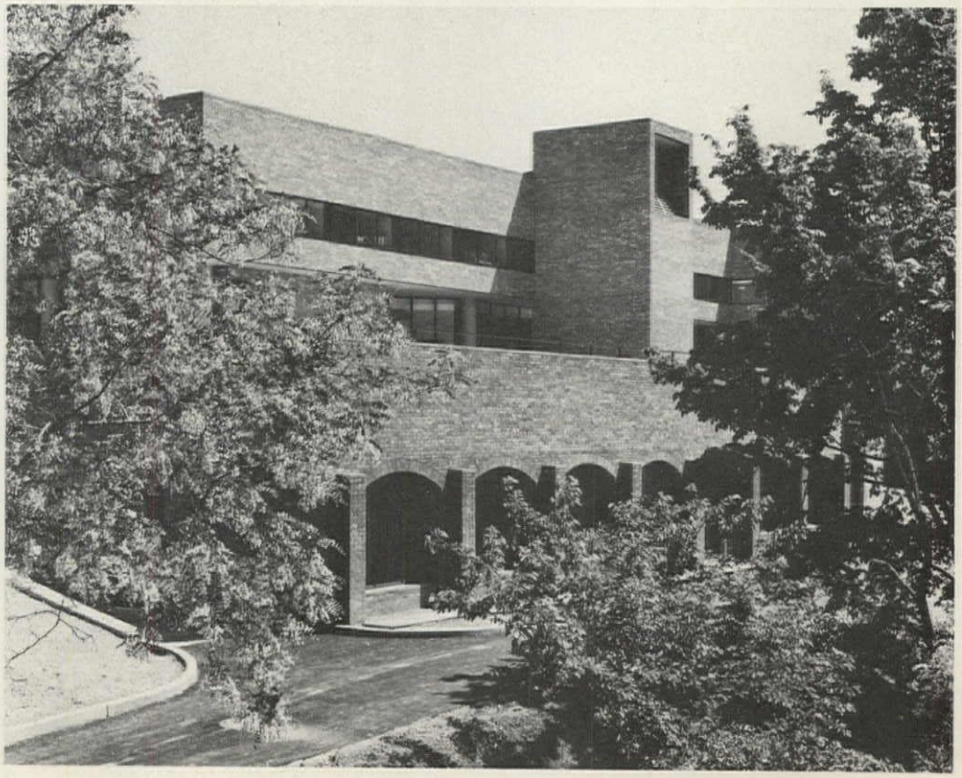

"To conserve the scenery and
the natural and historical
objects and the wildlife
therein and to provide
for the enjoyment
of the same
in such manner
and by such means as
will leave them unimpaired
for the enjoyment
of future generations."
— The charge by Congress
in establishing the National Park Service in 1916
Death Valley National Monument, California and Nevada,
photographed by Ansel Adams

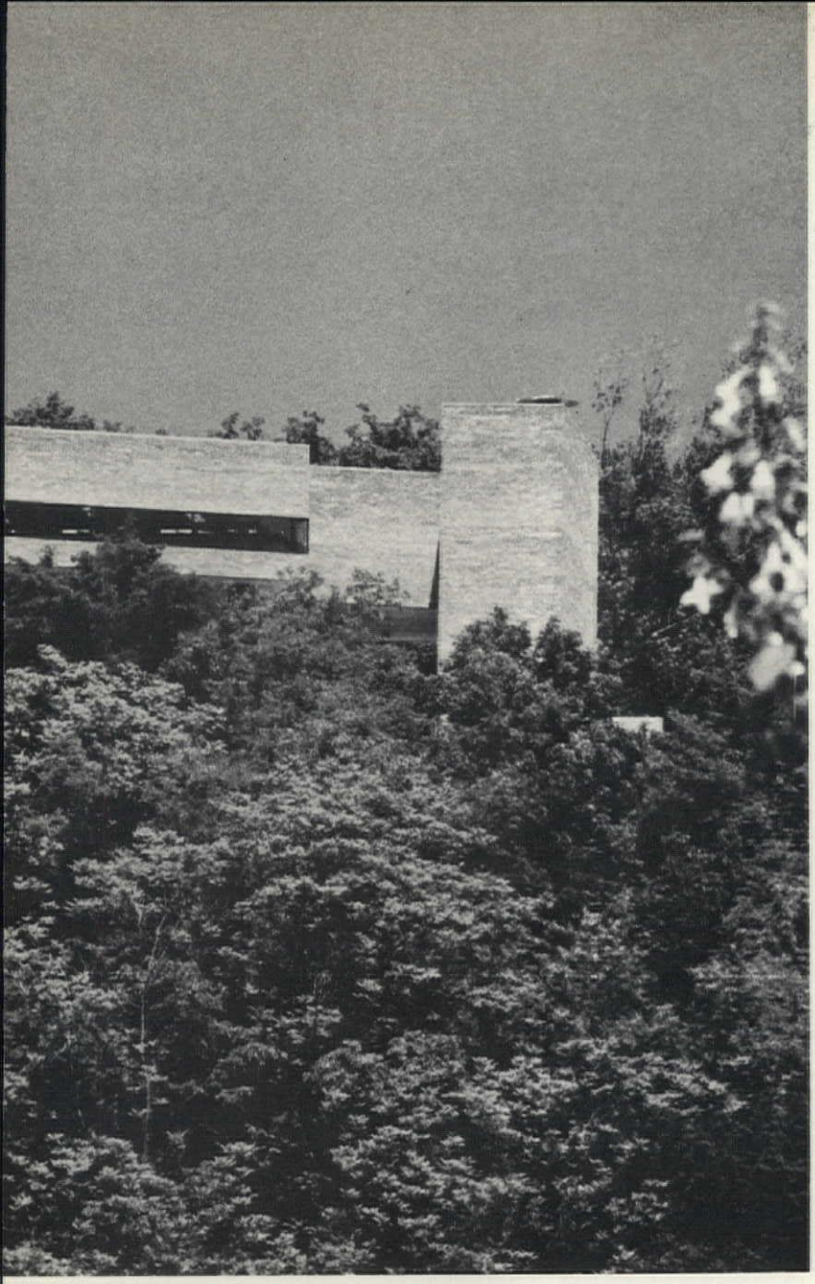


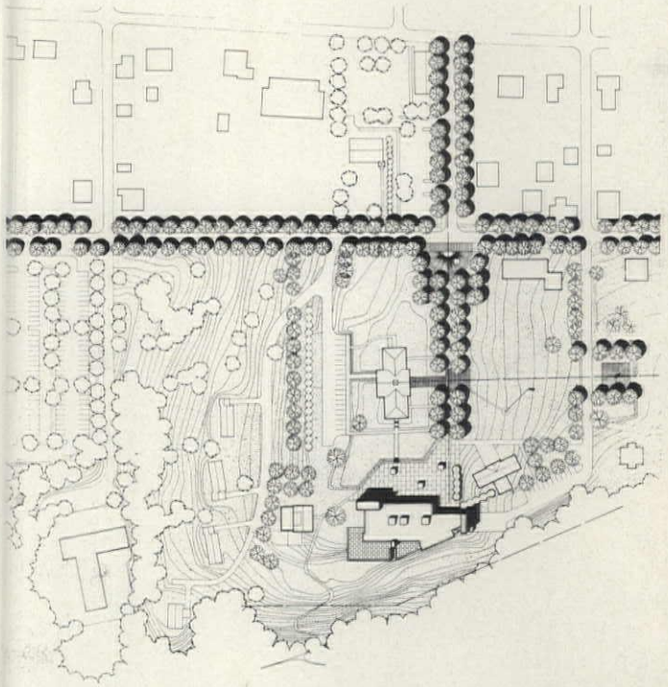
"The National Park Service is to be commended for its attempts to develop regional character in the visitor centers and also for its continuing effort to provide excellent design at all levels in our national parks."

—Upon the presentation of the 1970 Citation of an Organization by The American Institute of Architects

Our Park Service Serves Architecture Well







The new Interpretive Design Center follows the cliff edge, with the view of the building as seen from across the Shenandoah River at the left and left below and from the rear elevation below. The reinforced concrete frame has walls of brick veneer which are nonload-bearing except for the arched terrace podium. Architects: Ulrich Franzen & Associates.

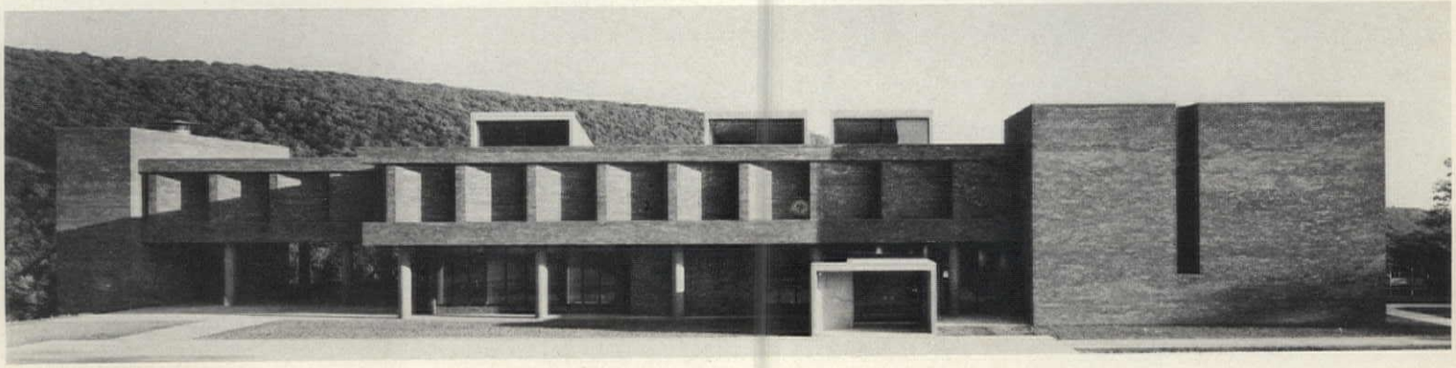
A milestone of sorts has been reached by the Department of the Interior's National Park Service with the opening of its centralized Interpretive Design Center in Harpers Ferry, West Virginia. Interpretation, considered one of the Park Service's most important responsibilities, began before 1920 with nature guiding and the development of small museums; today, this function and architecture are inseparable.

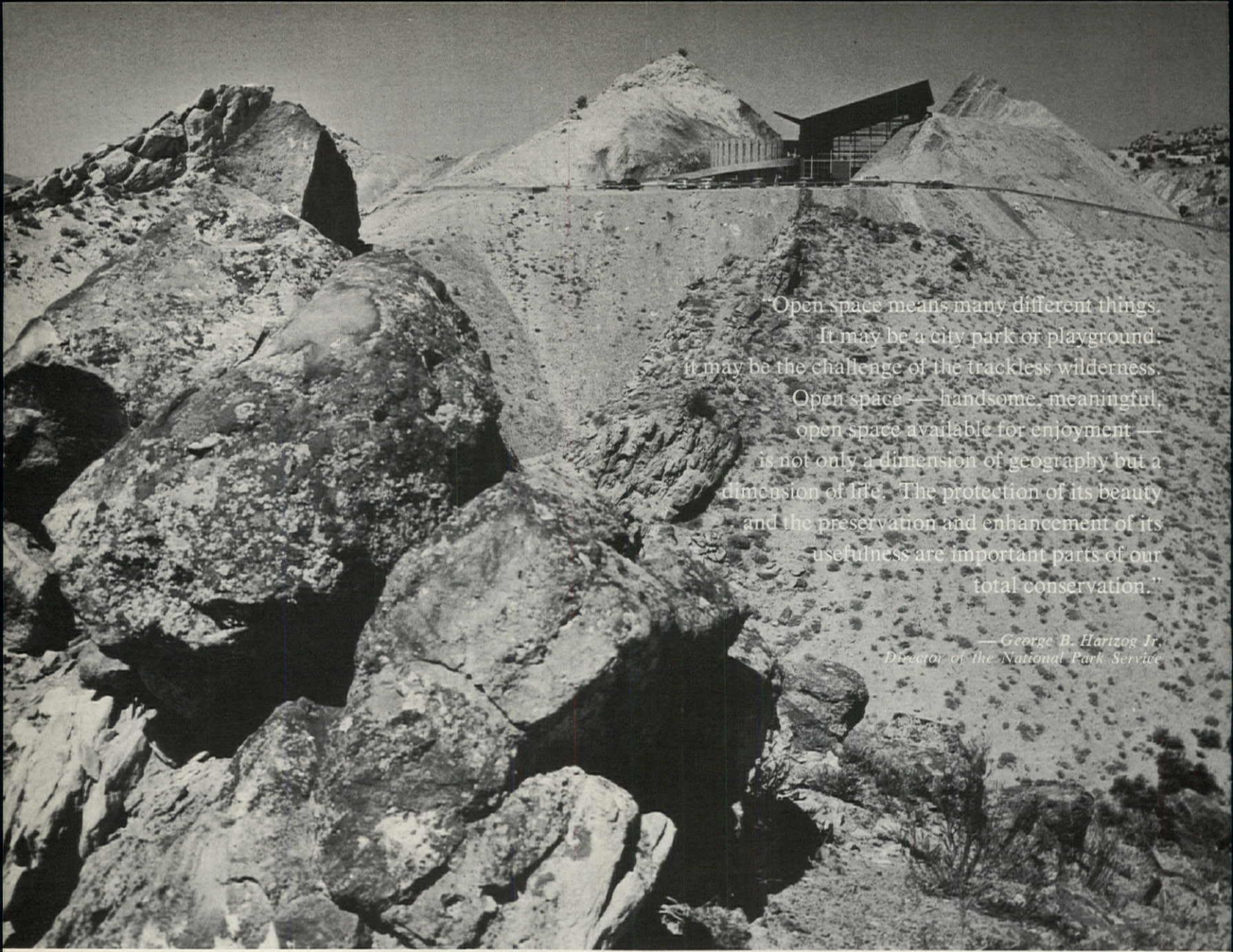
Every visitor facility in the National Park System is in some way related to interpretation, whether it is simply oral information at the entrance, a display or two in a shelter, a great exhibit hall, a viewing platform. One must complement the other, and so some of the more interesting architectural work in the Park Service is oriented to interpretation.

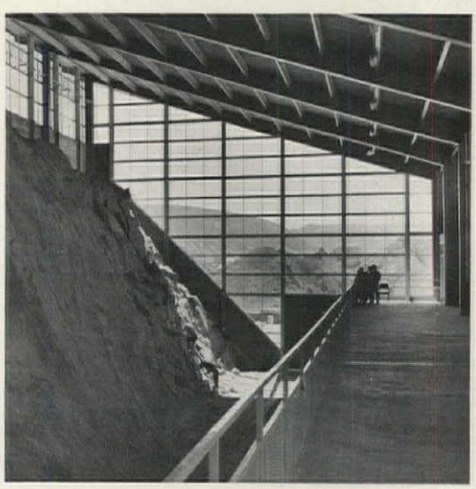
The design center's 80 employees who formerly were scattered in a number of locations in and around Washington, D.C., and in San Francisco have been brought together in a $1 million structure in the historic town where John Brown undertook the raid that set the stage for the Civil War — a vista that Thomas Jefferson called "worth a voyage across the Atlantic."

Bringing the interpretive operations into one location has made it easier to exchange ideas and techniques. Director George B. Hartzog Jr. says that such a constant interchange is needed if the Park Service is to continue its leadership in the field of interpretation, serving as a model not only in the United States but in foreign lands as well.

The design center is the newest of three Park Service units







At Dinosaur National Monument in Utah, a mountain of fossilized mammals becomes a wall of the Visitor Center ('58), as conceived by Anshen & Allen.

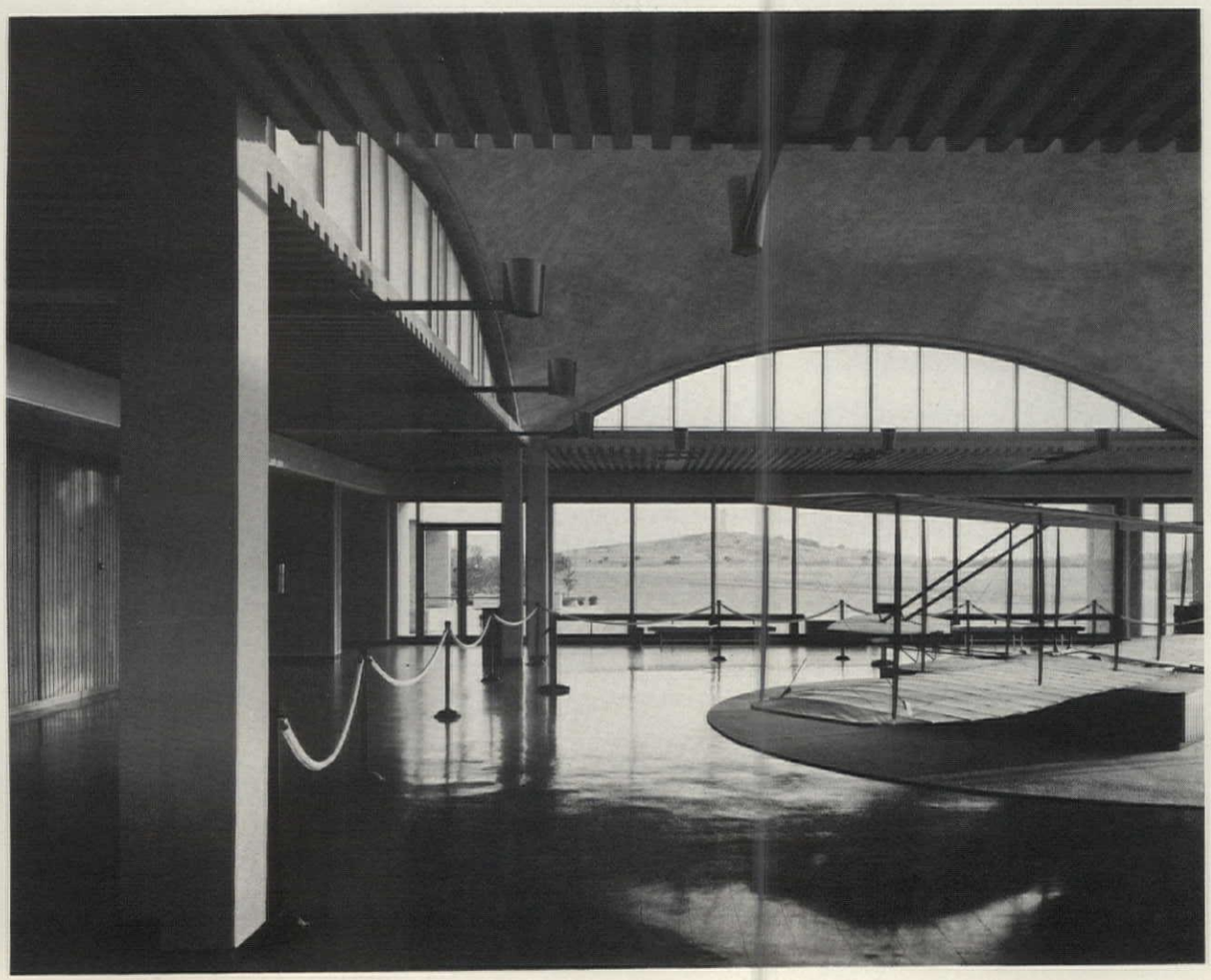
that make up the Harpers Ferry Center, headed by William C. Everhart. The others are the Harpers Ferry National Historical Park, established in 1944, and the Stephen T. Mather Training Center where both new and veteran park interpreters have been instructed since 1963. The proximity of the training center provides an opportunity for design center artists and writers to work directly with classes of Park Service personnel in training to assure optimum use of materials and a complete understanding of new interpretive concepts. Design center staff augments that of the training center. At the same time, the historical park serves as a showcase for interpretive devices developed at the design center and affords a testing ground for new programs destined for use in other parks.

The facility offered by the Harpers Ferry kind of "think tank" is a far cry from the architecture of two decades ago. From the start of World War II to 1955, the Park Service had suffered a decline in the quality of its services. Many facilities were run down, warn out and poorly equipped; many were understaffed due to lack of funds. Postwar recreation seekers were surging into the parks, only to find insufficient accommodations and campgrounds. Roads were pitted and inadequate. Historic and scenic sites needed protection from human traffic and vandalism.

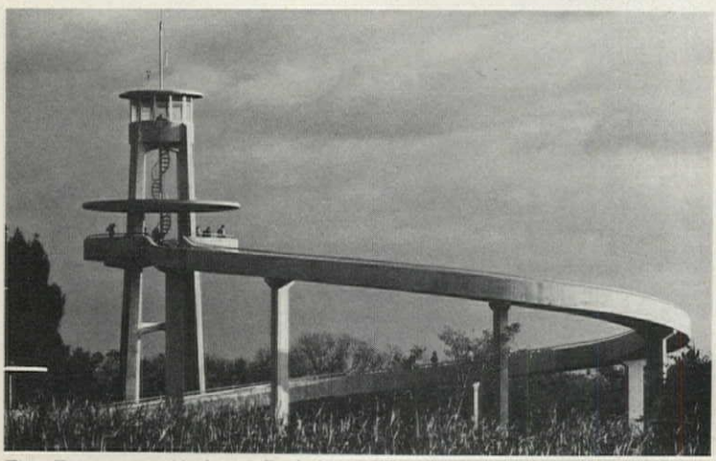
Conrad Wirth, then director, reported in 1955, "The fact that the system has been allowed to deteriorate . . . has caused serious national concern. . . . We must prepare . . . a sound, long-

The Travertine Nature Center ('69), the work of MacKie & Kamrath, is located in Oklahoma in a 140-acre environmental study area containing live exhibits.

Essentially a museum, the Visitor Center ('60) at Wright Brothers National Memorial in North Carolina houses a replica of the first airplane. Architects: Mitchell/Giurgola Associates.



The Visitor Center ('67) at Capitol Reef National Monument in Utah, by Arthur K. Olsen & Associates, blends into the Castle formation.



The Everglades National Park in Florida includes the Parachute Key Visitor Center ('61) and the Shark Valley Observation and Fire Tower ('65), both developed by the National Park Service staff.

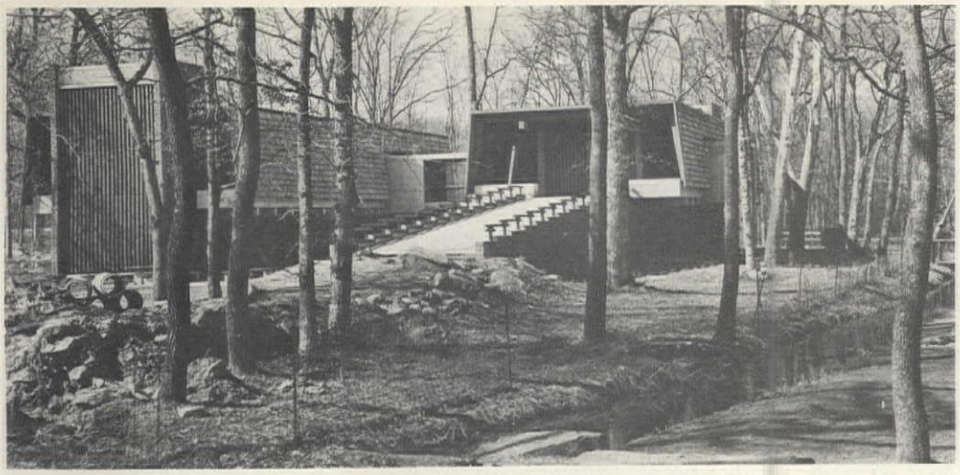
range, economical one-package program to meet future needs as well as to cure current bad conditions." The result was Mission 66, so named because the 10-year program was to end in the golden anniversary year of the Park Service. President Eisenhower quickly approved the plan after asking why it had not been started three years earlier.

Through the administration of the $725 million program, the Park Service enhanced the natural, recreational and historical values of the nation's parklands. Master plan teams evaluate the regions surrounding the Park Service areas to assure coordinated development with state and local parks. The teams included representatives from architecture, landscape architecture, engineering, ecology, natural history resource management, archaeology and history, among other fields.

As part of Mission 66, 100 visitor centers were constructed, with both private architectural firms and Park Service architects contributing to the design. The final roll call of construction, some of it completed after 1966, also included 575 campgrounds with 17,782 campsites, 29,432 new campfire and amphitheater seats, 1,239 housing units for employees, 548 comfort stations, 1,116 new or rehabilitated roadside exhibits, 50 boating marinas, 93 boat docks, 37 trailer disposal systems, 39 entrance stations, 1,502 parking areas, hundreds of utility facilities and structures. In addition, 459 historic buildings were reconstructed or rehabilitated at a cost of $15 million.

Since the formulation of the Mission 66 objectives, the Park Service has twice revised and revalidated its long-range objectives. At the present time, it is in the process of preparing a new set of objectives and goals under the acronym "REACH" to guide it into the second century.

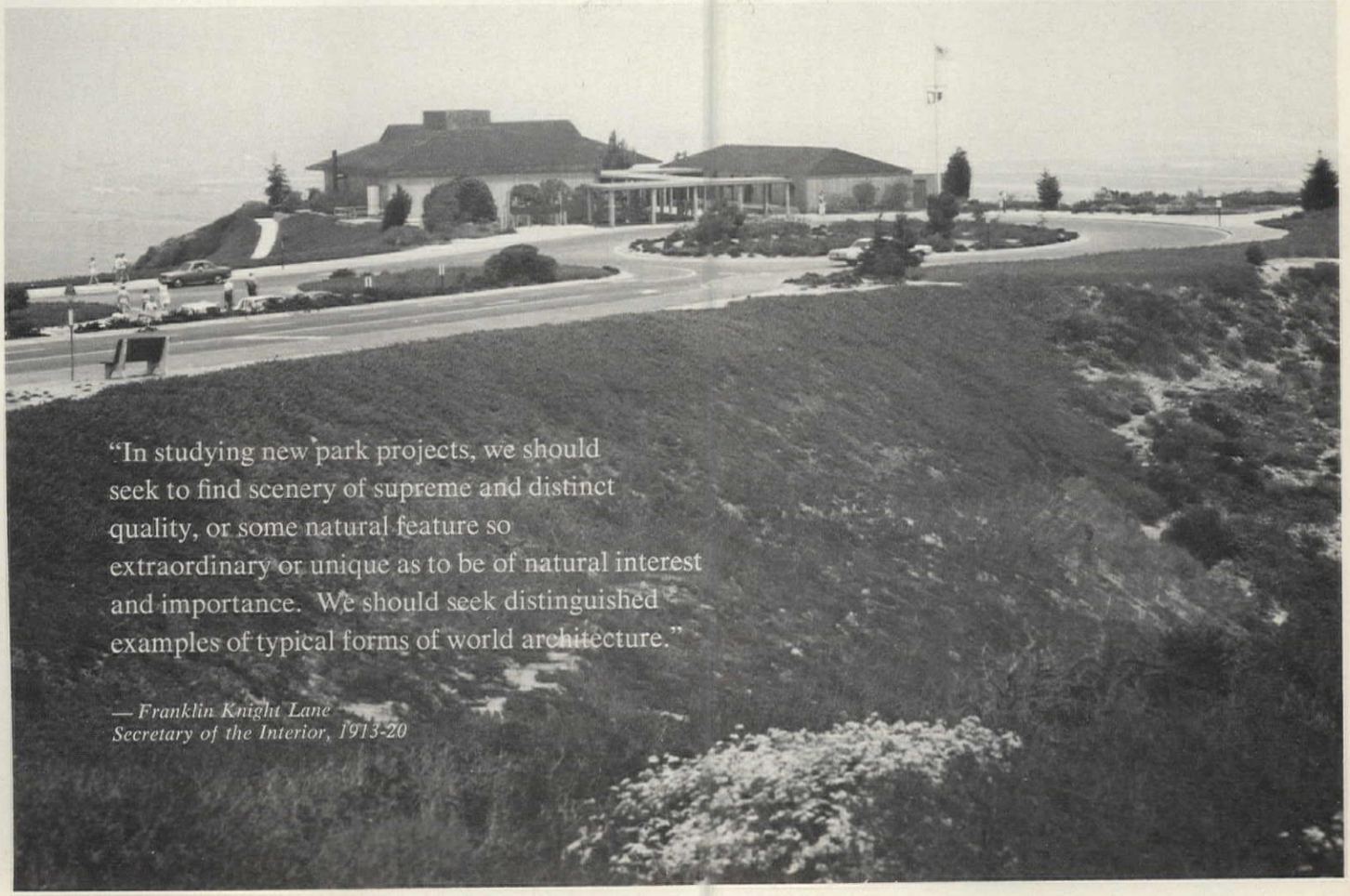
The Park Service, which recorded 50 million visits in 1956, attracted more than 168 million last year. And it is the visitor



In the Visitor Center ('68) in Great Falls Park in Virginia, W. Kent Cooper, AIA, has linked the two buildings — one for exhibits, the other for movies — by a covered passageway.

At Fort Raleigh Historic Site in North Carolina, the Visitor Center ('64), a Park Service staff design, also serves as headquarters for Cape Hatteras National Seashore and the Wright Brothers National Memorial.

Point Loma in San Diego is the site for the Visitor Center ('66) at Cabrillo National Monument. Architects: Frank L. Hope & Associates.



"In studying new park projects, we should seek to find scenery of supreme and distinct quality, or some natural feature so extraordinary or unique as to be of natural interest and importance. We should seek distinguished examples of typical forms of world architecture."

— Franklin Knight Lane
Secretary of the Interior, 1913-20

center which is the official link to the public, although historic buildings, lodges, restaurants, etc., may be larger or more prominent. The visitor center helps set the tone of the park. In the smaller parks, it is often the only structure of consequence to the public. As an architectural expression, the visitor center speaks for the park and must do so with authenticity. When it is most successful, it speaks quietly and is unobtrusive rather than flamboyant; it must not intrude on the natural landscape. Specifically, the Park Service lists eight basic architectural design criteria:

1. Each design should be a unique and individual solution in harmony with the park character and site, satisfying the building requirements at the same time.

2. Each design should grow from the landform and, except in special cases, should not dominate the landscape.

3. Sometimes areas seem to cry for a design suggesting traditional or regional style. However, to maintain regional or particularly period architecture would result in oddly proportioned boxes covered with pseudo-period gimcracks or reasonably well-proportioned structures stuffed with nonfunctioning activities. The best attack is not to copy styles but to use regional materials and echo forms if possible.

4. Within a small park or developed area of a large park, it is essential that the total concept have a consistent design.

5. The building should have an emotional impact, especially on the interior.

6. Generally, we think in terms of three factors of architecture: structure, function, esthetics. There is a fourth: space, both interior and exterior. It can be static or have a sense of order, sequence and flow. The integration of interior and exterior space creates an exciting, moving scene.

7. Sculptural relief is important in both vertical and horizontal planes, as is a pleasant sense of rhythm and repetition.

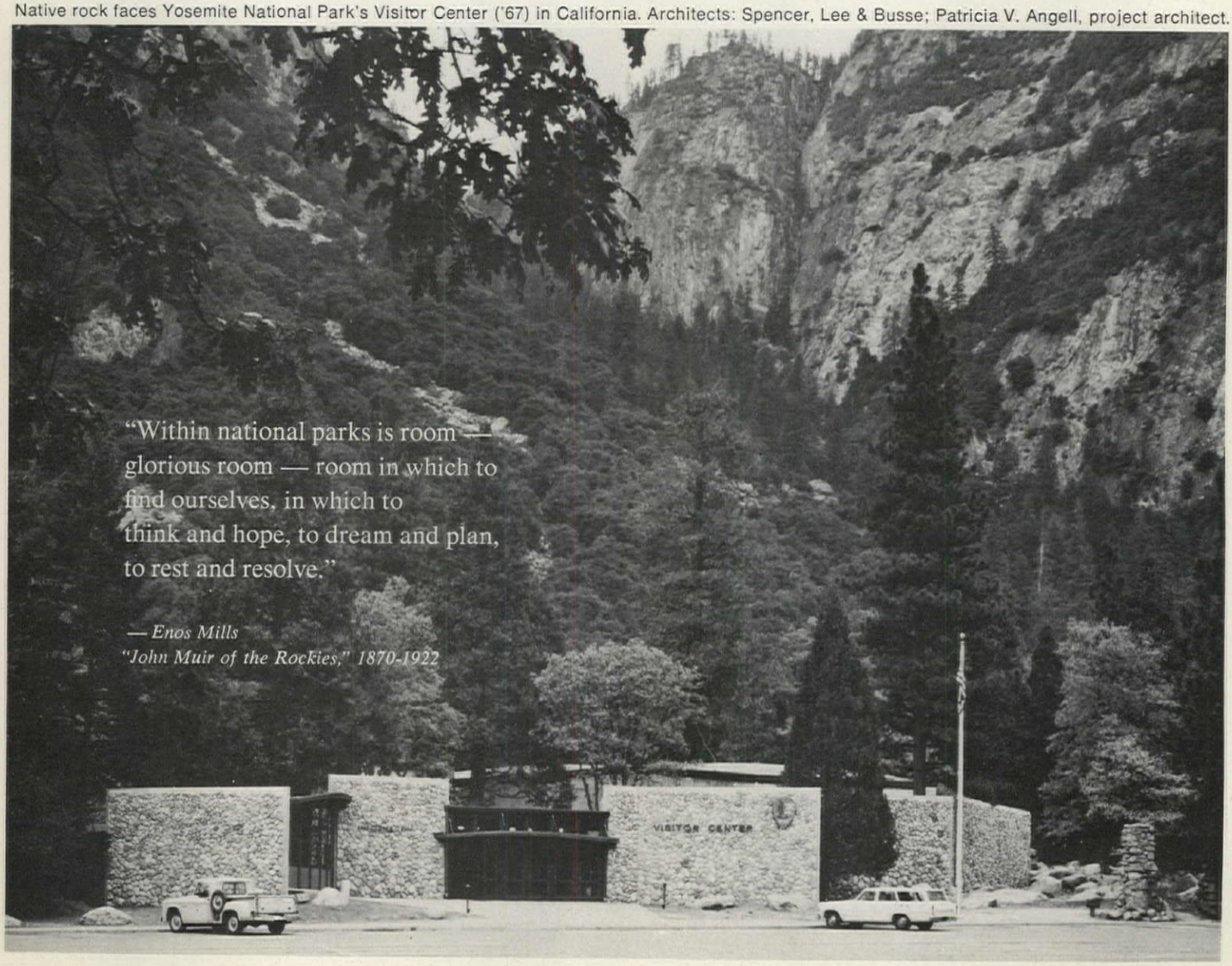
8. Color is one of the greatest single factors in creating a favorable impression, second only to location and design.

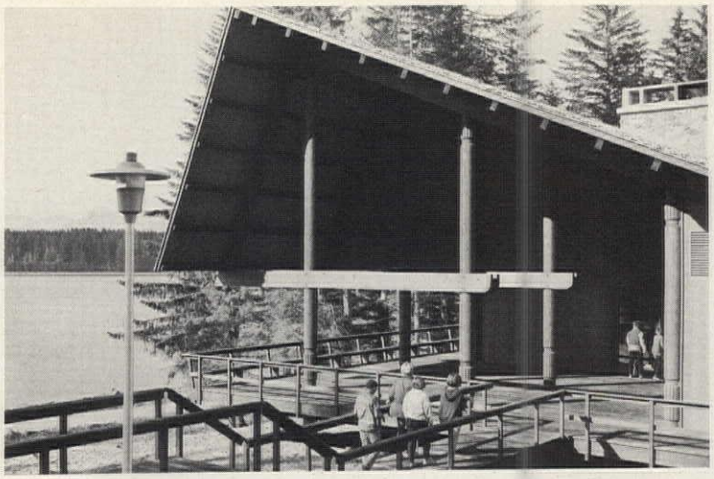
All design and construction activities are carried out by the Eastern Service Center in Washington, D.C., directed by LeRoy H. Brown, and the Western Service Center in San Francisco, directed by William L. Bowen. Within these two service centers, the Offices of Environmental Planning and Design are specifically responsible for architecture, engineering and landscape architecture. They are headed by John W. Bright in the east and Glenn O. Hendrix in the west, both landscape architects, assisted by Donald F. Benson, AIA, and Jerry A. Riddell, AIA, respectively.

Since April 1969, the Park Service has revised its master planning procedures to provide for broader public review and comment. Up to that time, public hearings were required only on the location and engineering design of any proposed new major National Park System road.

In announcing the new procedures last year, the Department of Interior explained, "Since the location and design of park roads

Native rock faces Yosemite National Park's Visitor Center ('67) in California. Architects: Spencer, Lee & Busse; Patricia V. Angell, project architect.





Glacier Bay Lodge ('66) in Alaska is the work of John Morse & Associates, who also did the Visitor Center at Sitka National Monument which boasts one of the best totem pole collections.

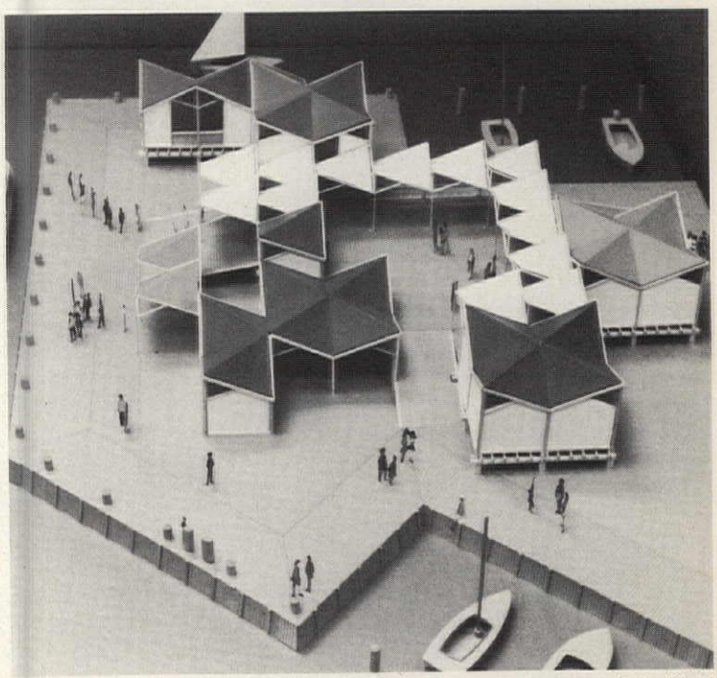
The cyclorama ('62) at Gettysburg National Military Park in Pennsylvania places the visitor in the darkened center of the battlefield. Architects: Neutra & Alexandra; Dion Neutra, AIA, project architect.

is only one of several factors in the planning process, it is not logical to single out the road construction aspect of planning for public discussion. All phases should be subject to comment from the public."

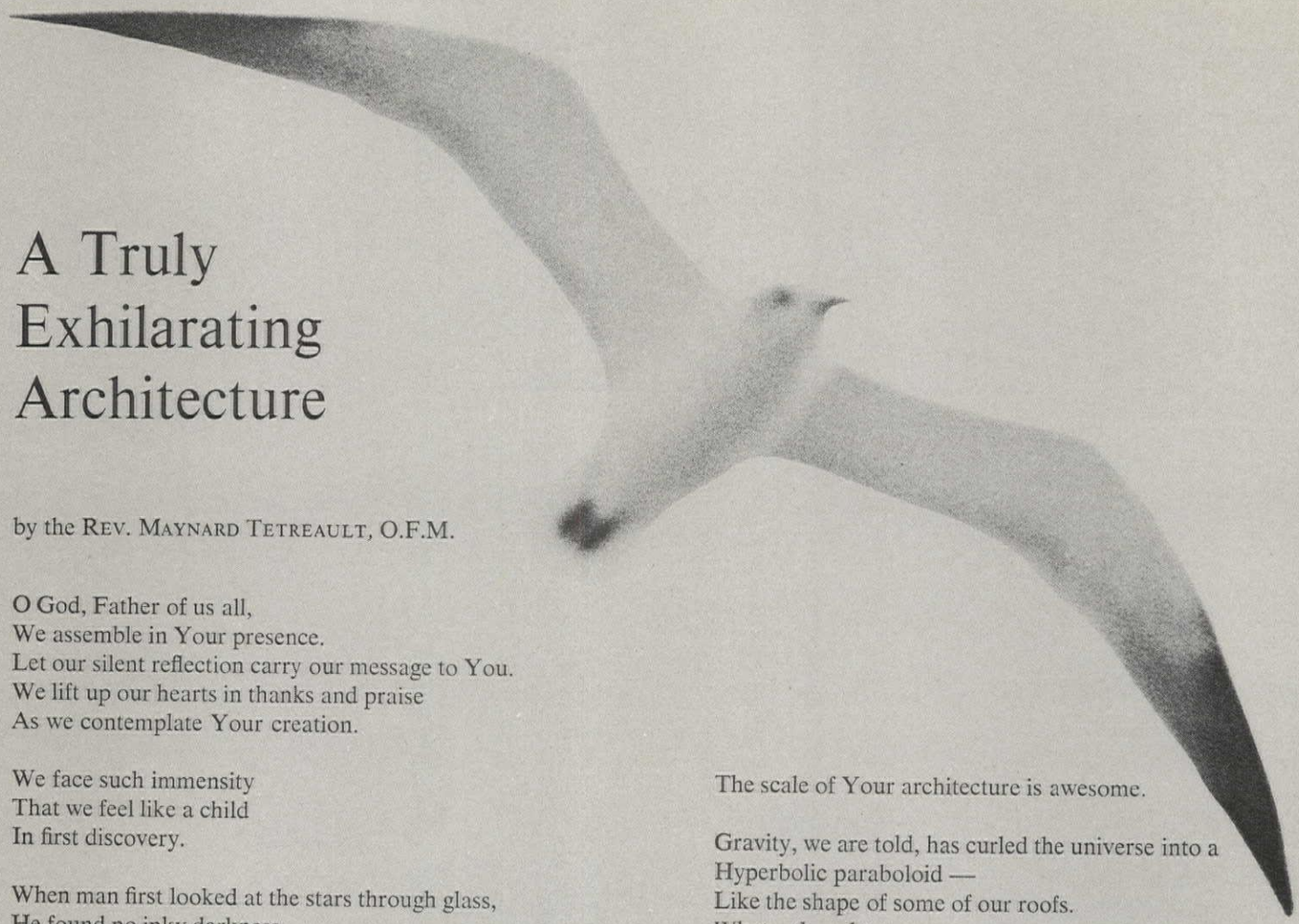
A park area master plan, Interior's statement pointed out, affects all management facets, including location of visitor centers, concessionaire accommodations for lodging and eating, administrative structures and facilities, as well as the location and design of roads. It noted, too, that the Wilderness Act of 1964 already provides for advance public review and comment on proposals for wilderness designation.

"While most master plans are more complex when wilderness values are involved, we believe that public participation in the planning process should be encouraged for all areas of the National Park System," Interior said. "Public meetings will afford interested citizens a superior opportunity to make known their views on all proposals affecting a park area. Such meetings will, however, be more informal than present wilderness hearings which require formal notice and recorded transcripts."

There can be no question that the National Park Service is a guardian of a major segment of our heritage; and, in toto, its structures stand, like the national park concept, as a distinctly American contribution to world culture. ROBERT E. KOEHLER



Among Park Service staff projects on the boards is this dock facility/ information center for New York's Fire Island National Seashore.



A Truly Exhilarating Architecture

by the Rev. Maynard Tetreault, O.F.M.

O God, Father of us all,
We assemble in Your presence.
Let our silent reflection carry our message to You.
We lift up our hearts in thanks and praise
As we contemplate Your creation.

We face such immensity
That we feel like a child
In first discovery.

When man first looked at the stars through glass,
He found no inky darkness
But oceans of light.
When our largest telescope looked out to two billion light years,
We found still more stars:
Nebulae, clusters, galaxies —
Each with millions and billions of stars.
And now reaching out to eight billion light years —
Still more stars:
Expanding, receding, spiraling.

What with millions of stars in each galaxy,
Each an "island universe,"
And who knows how many planets,
We wonder whether there might not be other spaceships like ours,
With beings, like ourselves, who can make
Words and messages,
Memories and monuments.
Who knows?
Perhaps somewhere
Some have never betrayed the mystery of charity.
With them, then, we join in praising You.

The scale of Your architecture is awesome.

Gravity, we are told, has curled the universe into a
Hyperbolic paraboloid —
Like the shape of some of our roofs.
What a thought:
That the whole massive cosmos stands tip-toe in the void!

As we walk over the surface of our own spaceship,
This round ball earth,
We are often exhilarated by Your own architecture.
What feelings we experience when we walk under
The bold cantilevers of an oak's limbs;
Or the flamboyant tracery of an elm!
We marvel at the tubular air frame of the bird;
Every bone cell a bubble!
And what can we say of the efficient design
Of a single feather from his wing?
And, indeed, our own frame has levers, posts, arches —
A whole study in structures:
Structures exposed to all sorts of stresses,
From going over Niagara in a barrel
To carrying our sometimes excessive bulk!

We pick up a pebble
And wonder at the great strength of materials
Dug up from millions of years of compression.
Here is a piece of quartz.
The pattern is repeated down to the smallest crystal,
With a flaw here and there to break the monotonous sequence.
The macro pattern finds reflection in the micro pattern,
Into smaller and smaller regions.

Then we reflect on still smaller patterns.
All the materials we handle,
Like this pebble,
Are composed of hollow electrical spheres called atoms.
Their inner spaces are so empty that matter is 99 percent vacuum.
And no longer can we believe that it is simply
Electron, proton and neutron.
Now we have over 150 protoparticles
In some yet unraveled pattern.
Here too, as we probe deeper and deeper into space,
We find still more "stars!"

Then we recall that the whole universe started
With a single superatom,
A primordial fireball,
Whose explosive bang
Can still be heard by our radio telescopes
After twelve billion years.
"Let there be light" were Your first words,
And every bit of matter we employ
Is bottled light.

O Lord, such visions lift us out of ourselves,
And fill us for a moment with a
Stab of joy.

What a spirit of play You must have
To allow such forms to evolve from Your creative impulse!
Duckbilled platypuses,
And yellow-crested nuthatches!
Beings that
Hop, run, skip, trot, bound, leap, crawl, climb, spring, wiggle,
Wriggle, twist, gallop, swim, soar, float, fly
Through Your merry creation!

We admire the economy of the bee's hexagonal warehousing.
We imitate the clam's shell
And study the scallop's improvements on the design.
What strength in the spider's frail web!
His mesh begins with daring plunges into space
And sweeping catenaries.
Today we respect the papier-mâché temporizing of the wasp's
apartments.
The chick's home is a thin concrete spheroid called an egg.
(How's that for an efficiency apartment!)
The first mobile home was the turtle,
Who even has retractable landing gear.
We haven't found an imitation yet for the kangaroo's nursery —
His early home amounts to a pants pocket!

Ah, Lord,
We can hear Your laugh across the light years,
The chuckle of an artist.
You show us what joy there is in creation,
A joy that all of us have participated in.

We ask You, Lord, to bless our profession.
We build bridges to bring men together.
We house them.
We build walls to preserve what we value.
We put doors in the walls to invite others in.
We put windows in to reach out to the light.

We want to be responsible in our profession.
We regret that at times we have been narrow.
We may have even crossed the line from artistic criticism
To a jealous cutting down of a colleague.
Teach us respect for each other's vision
And to honor what is good.
Make us generous with praise to encourage the best that is in us.

Help us to come to terms with the machine age.
We know that we must amplify our hands.
But we seek a warm, humane art
Without the machine's monotonous drone.

Make us reverent in our treatment of the earth.
Let us sense Your presence in the world.

You who visited Abraham's tent
In the guise of three pilgrim strangers,
Direct our efforts to house the homeless, the refugee, the
displaced person —
Whether displaced by bombardment or by bulldozers.
Foster our attempts to give them housing with art and dignity.
Lord God,
We realize that You have given into our hands
The responsibility of building the earth.
It is a high calling.
Help us shape our space, since our space shapes us.
Amen

Father Maynard, well known and admired by many architects, delivered this invocation at a luncheon during the annual convention of the Architects Society of Ohio last fall. He is director of a Catholic community center in Cincinnati and building director for a 14-state region of the Franciscan order.

Photograph by Rick Gardner

A HEALTHIER LOOK AT HOSPITALS

by JASON W. FRYE JR., AIA

Much more is being asked these days of the architect of a hospital. No longer can a medical facility be just a shell for efficient function; the designer must make it humane, expandable and flexible — and low in cost. The recent AHA convention bore clear evidence of these and other trends, as reported here.

"Architectural Show Sets Record" was the headline of a story in the American Hospital Association's daily newspaper on the first day of AHA's convention in Houston. Reason for the headline was the overwhelming and unexpected participation by 70 architectural firms in this country and from Canada, which provided nearly 100 projects for the convention exhibit, almost three times the number of firms participating in past exhibits of architecture at AHA conventions.

Why haven't exhibits in prior years done as well?

Previously, the attitude among clients for medical facilities has generally been that a hospital or clinic should be committed to maximum accomplishment of function. Esthetics could just tag along, if entering the picture at all. There are exceptions, of course, but the viewpoints of most such clients has been something like this: "The design is really the exterior covering of the mechanical apparatus called a hospital," or "The functions are so important and costly that none of the budget is to be devoted to esthetics."

This attitude has not been effectively refuted by the architectural profession and consequently health care facility designs have not given architects any incentive to have their work exhibited, or entered in design competitions. Medical facilities are as a rule complex and difficult to program and design. For that reason, also, architecture for health has taken a back seat, when it comes to esthetics, in the minds of architects and laymen alike.

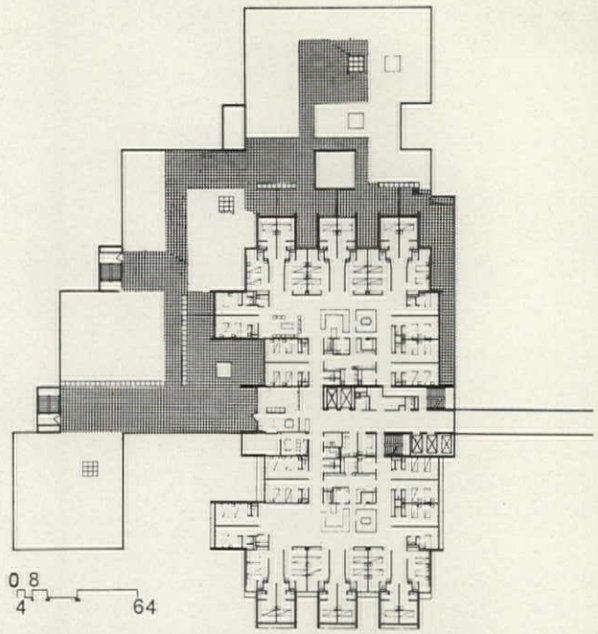
Why did this year's exhibit set new records? These are some of the reasons for the success:

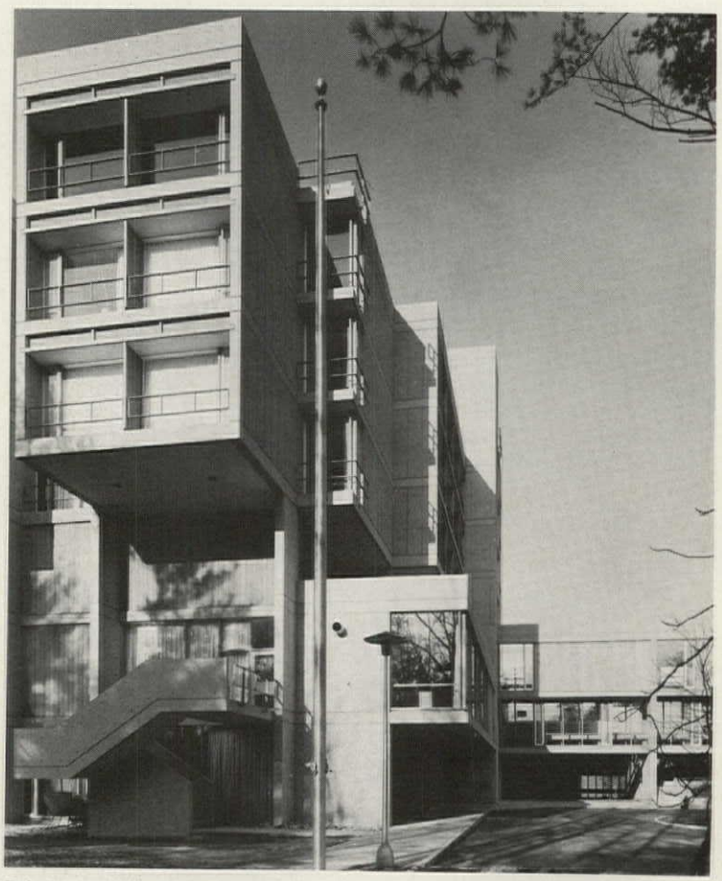
1. The increasing publicity about and the public interest in the problems of providing health care facilities, such as cost, for instance, and early obsolescence due to technical changes.

2. Greater interest in new hospital designs on the part of the medical profession due to the constantly improving technical aids, much like the interest generated by the introduction of a new car model.

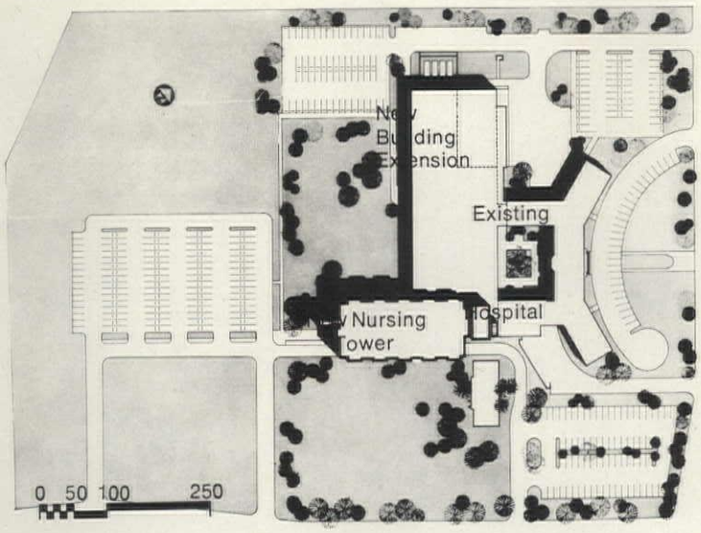
3. The increasing amount of money spent on construction of medical facilities nationwide and around the globe. This will increase even more in the coming years with the realization that health care must become a guaranteed right of all people, just like education, food, clothing and shelter. Expanding programs of health insurance have gone far in securing that right for more of our population. The eventual provision of national or universal health insurance will complete the job.

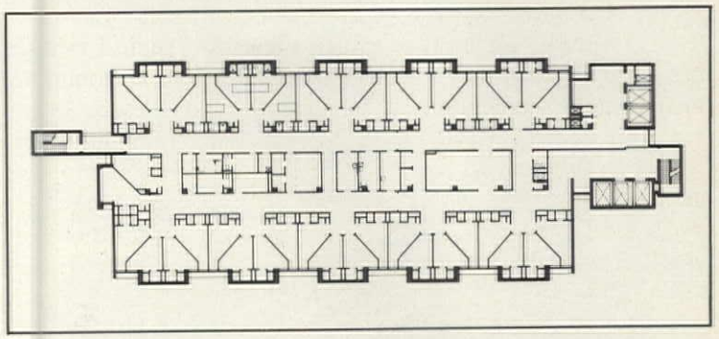
However, with larger amounts of capital being directed to answer the ever-increasing demand for health services and facilities in which to house them, we are facing much the same problem we have in housing. Technology is changing the design of hospitals and other facilities and the design and construction methods used to create them. The emphasis is on speeding the delivery process of constructed health facilities, in large





Bright colors and carpeting give the Leonard Morse Hospital in Natick, Massachusetts, a warm and friendly feeling. The concrete exterior has yellow and red panels and large areas of natural wood; this color scheme is repeated in some of the interior areas. Extensive use of glass lets the patients enjoy the change of season; this emphasis on the outdoors has proved a big help in recruiting and holding personnel. Leonard Morse, which opened in November 1969, has a two-level bridge connecting the main facility with a 60-bed progressive patient care wing in the old renovated hospital. Each floor in the main building has 64 medical and surgical beds, two nursing stations and one centrally located manager in charge of logistical needs for all beds. The 160-bed hospital can ultimately be expanded to 450 beds. Architects: Markus Nocka Payette & Associates Inc.; architect in charge: Thomas M. Payette, AIA.





The grouping of bedrooms in clusters of four permits a shorter overall length of St. Mary's Hospital in Port Arthur, Texas, and places the patients close to the nursing stations. Two bedrooms can easily be combined to form a special care unit — a more and more common part of a hospital. All rooms are private, each has a bath. The master plan provides for the gradual replacement of the existing hospital: first, as the new nursing tower is expanded and second, as a second nursing tower is built adjacent to the bank of elevators. The eventual design will be that of two towers with an ancillary two-story base to the rear. The combined capacity of the facilities with the new nursing tower partly completed is 292 beds; the future capacity of the new hospital is 656 beds. The new building has drywall and metal studs for ease of renovation. The present tower can be expanded with three more floors. Architects: Golemon & Rolfe; project architect: Jason W. Frye, AIA.

quantities at low cost. Health facility design is now given emphasis by firms which did not previously express any interest in this type of work.

4. The recognition of the fact that a wholesome environment contributes effectively to the well-being of the patient and also to the efficiency and morale of the staff and employees dedicated to his care, all of which is implied in the title of the AHA exhibit: "Architecture for Health."

Only fairly recently have health authorities and others become aware that an appropriate environment for health care is quite different from the institutional atmosphere and cold sterility of most of our existing hospitals. Clients now request a warm and homelike or at least motel-like environment. The creation of such an environment is the architect's contribution — a contribution recognized as an important factor in health care.

5. Owners of existing hospitals saddled with inflexible, permanent facilities are seeking better solutions suited to their changing needs. Since so many hospitals fit in the category of a "haunted monument" and are faced with renovation and modernization, their owners are becoming more interested in new approaches to design and construction than ever before.

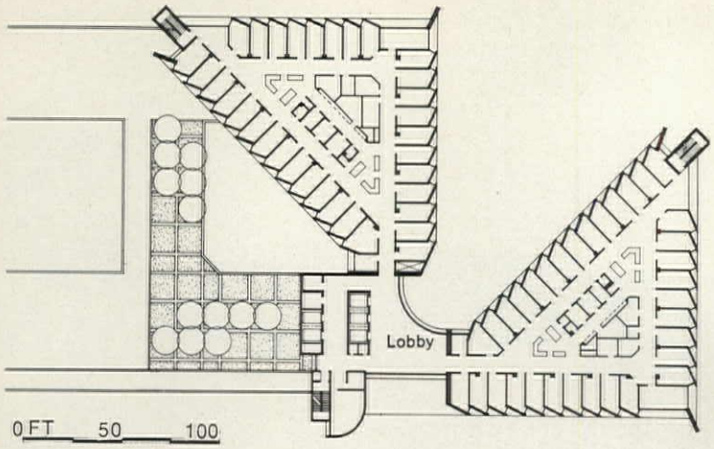
These are my observations from the convention; they spring from remarks and comments overheard during the sessions and in analyzing the exhibits.

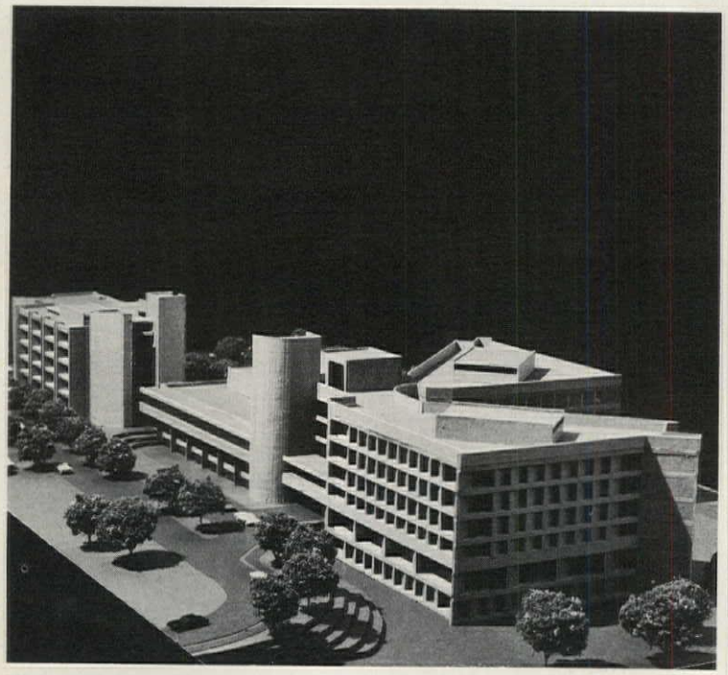
These latter included recently completed and still-under-development designs for hospitals, mental health centers, clinics and extended care facilities. Mounted drawings, photographs and design models as well were displayed. A panel of three architects (James Falick, George J. Mann and Victor G. Probst, all AIA members from Texas) and three hospital administrators directed the acceptance and arrangements of the submissions in the exhibit, which was designed by Paul S. Pierson, AIA, director of AHA's Division of Design and Construction. The American Institute of Architects was co-sponsor of the exhibit; the AIA Committee on Architecture for Health and its task force, including Falick, Mann and Probst, with the assistance of Al Cadulla, AIA, contributed greatly to its creation and success.

The general assembly on the first day of the convention drew an audience of 2,000 who heard Roger O. Egeberg, Assistant Secretary for Health and Scientific Affairs, the Department of Health, Education and Welfare, say that insuring the availability of high quality health care to all "will require some very substantial changes in the way hospitals do business and in their relationship with government at all levels. But," he continued, "it need not require radical changes in the basic structure of the health care system of this country. What we will have to do is correct some of the serious defects in the system while at the same time build on its great strength. The measures we [HEW] have taken and those we plan to take toward improving the delivery of health care will be effective only to the extent that the health care industry makes them work."

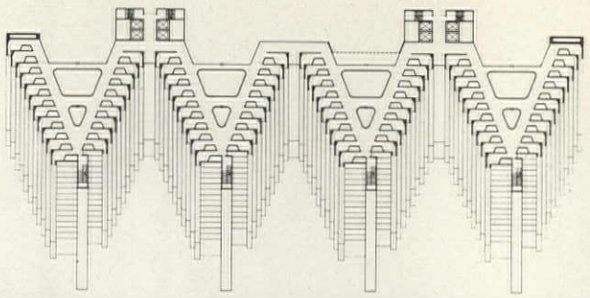
In his talk, which was directed primarily at the increasing role played by government in providing capital for new programs and facilities, Egeberg went on to say that "the substantial role that government has come to occupy in the delivery of health

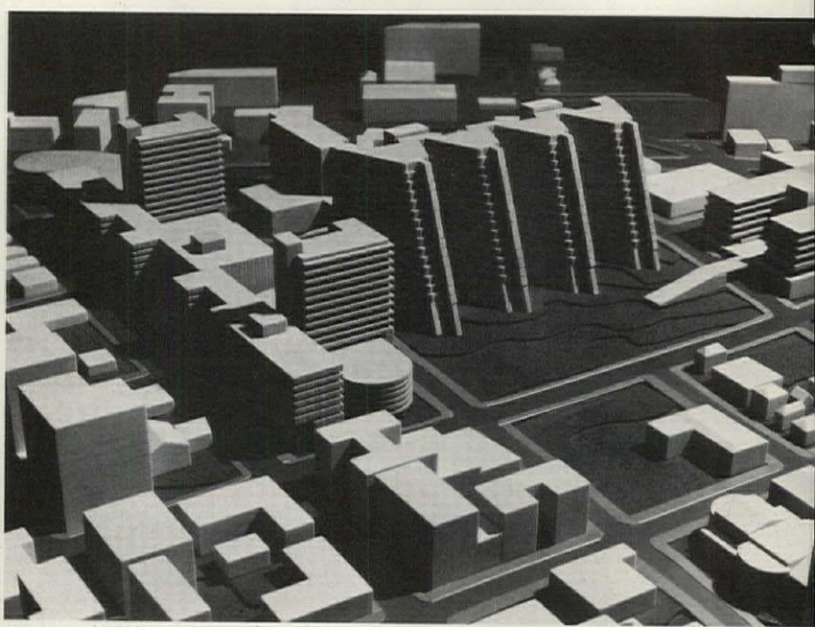
Mr. Frye is partner, and director of Medical Facilities Design, in the firm of Golemon & Rolfe, Houston.

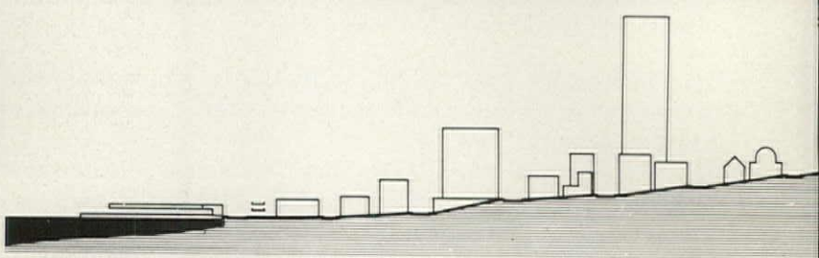




Triangular nursing units make for short walking distances to the patients in St. Mark's Hospital in Salt Lake City. They were selected after an extensive systems analysis comparison with rectangular units. All rooms are private, each with a bath. Patients can see outside from their beds or can follow what goes on in the corridors; the doors can be closed by remote control from the beds. The nursery is accessible from the elevators to allow small children to visit. Major corridors, all short, have glass on one wall or at the ends for views of the exterior. Natural wood and bright colors are used extensively. The hospital may be extended in horizontal increments from its original 300 beds to 800; a medical center is adjacent. Architects: Kaplan & McLaughlin; associate architects: Snedaker, Budd & Watts; consultants: Medical Planning Associates; designers: James R. Diaz, project architect, and Roy S. Latka.







The comprehensive plan for the Swedish Hospital Medical Center in Seattle covers 10 city blocks and has shopping facilities on a two-story arcade (at left on plan). This not only integrates community and medical center but also helps the uninitiated patient feel more at home. Physicians' offices are on six floors above the arcade; parallel to it are parking facilities. A multilevel bridge spans a city street for easy access from offices to the diagnostic and treatment pavilion behind the nursing towers, and to the surgical pavilion and administration building as well. A research center is separate. The patient care facility is based on team nursing modules; two modules of 20 beds form a unit; two units are

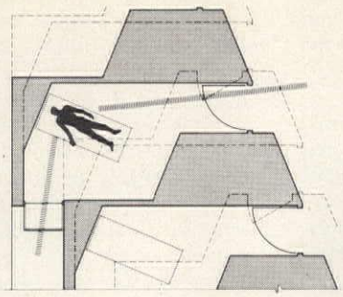
care notwithstanding, health care delivery is still primarily up to private enterprise and is very likely to remain so."

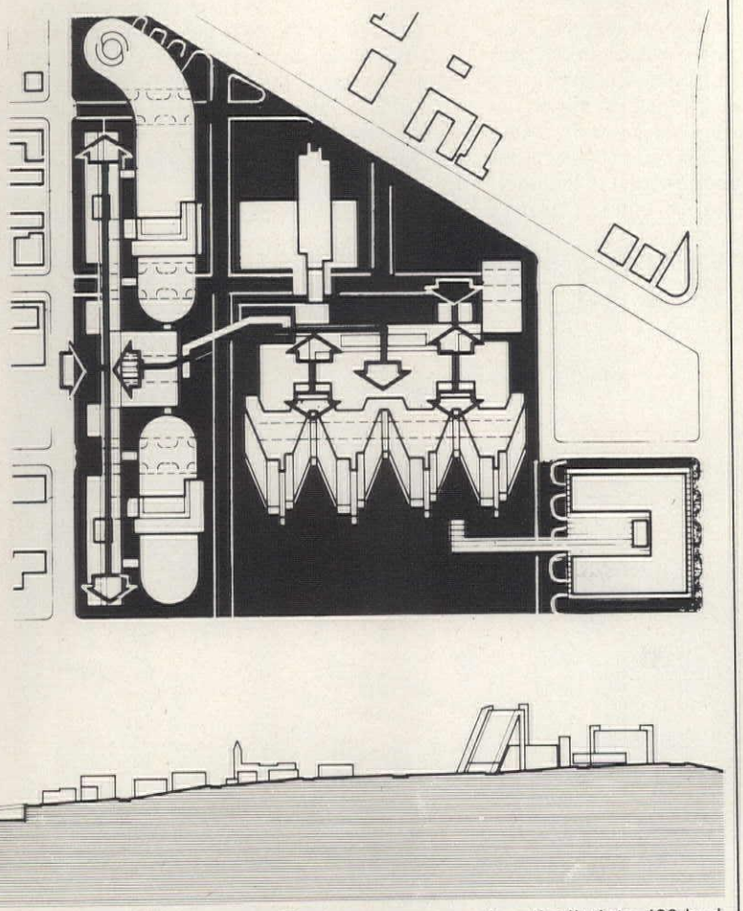
The architectural profession and the construction industry have a major task cut out for them in answering the demand for the needed facilities as health services become more and more a demand by our population as a whole. New design concepts will go along with new methods of construction; the probable rate of technological change will continue to increase.

The instructional sessions of the convention included subjects pertinent to architects in their understanding of health care facility design such as:

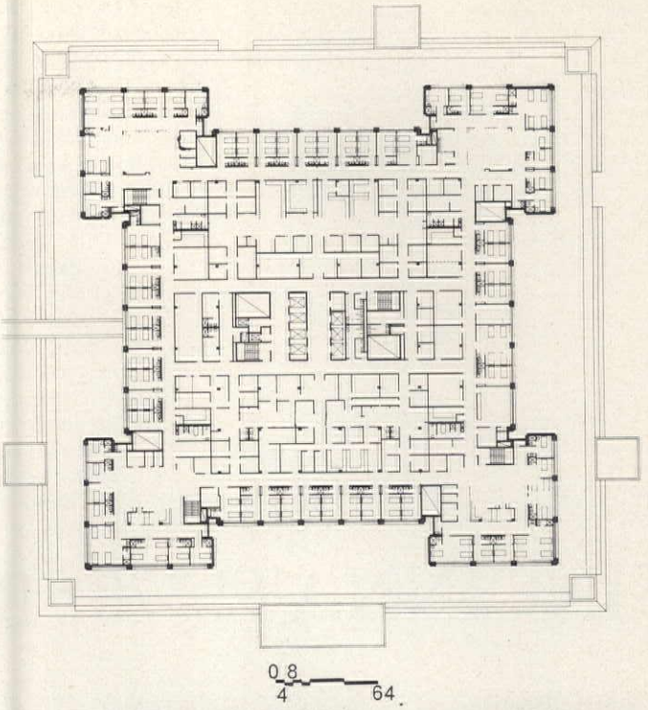
- "Ambulatory Care — the '70s and Beyond," with discussion of neighborhood health centers.
- "New Approaches to Health Care Delivery in the Federal Medical Services," with discussions by the Army, the Public Health Service and the Veterans Administration.
- "Health Care and National Goals."
- "Design and Construction — the Management of Program, Schedules and Cost," which included a panel discussion. Members of the panel were all architects; moderator was Newell France, administrator of Houston's St. Lukes-Texas Children's Hospital, which is in the later stages of a $45 million construction program.

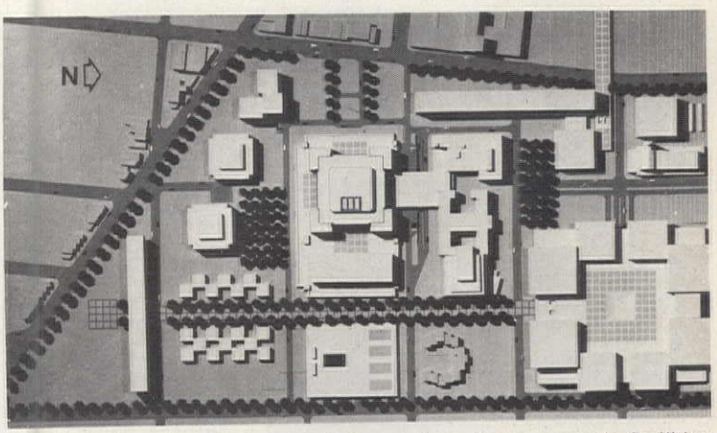
Since this was the only panel on design and construction at the convention, the architects dealt with the new methods and procedures of programming and design, and also of cost control. The conditions and responsibilities of both architect and client were discussed, the premise being that frequently the design





under one floor manager. The towers are zoned vertically into 400-bed segments, each with its own transportation and mechanical systems. The modular, prefabricated patient rooms are all private, all have similar orientation to the outside and to corridor activities as well. The structural separation of functional space types allows for independent growth rates. All major departments of the hospital are open ended and can be expanded to projected requirements for 1990, and so can the office space. Architects: Naramore Bain Brady & Johanson; partner in charge, project architect: James O. Jonassen, AIA; project designer: William Buursma; project programmer: Eugene Morris.





Patient care, professional education and medical research facilities are provided in the new Howard University Hospital in Washington, D.C. The five-story nursing tower (in center of plan), with a total of 500 beds over four floors, have specialty clinics with their particular bed patient services and supporting teaching and research areas on each floor; the first floor is for administrative use. The large out-patient and emergency department accommodates a heavy volume of patients. Additional bed capacity, 250 in all, will come with the addition of a horizontal wing on the east side of the teaching hospital; to the east of this again is parking with recreational facilities on the roof. Directly north of the hospital is a library, dental and medical schools, etc. The master plan will accommodate proportional para-medical growth as well as housing. Architects: Smith, Hinchman & Grylls Associates, Inc.

process bogs down due to a lack of communication and understanding of the relationship between architect and client. The systems approach to design was discussed in relation to the early cost control features inherent to it. Recommendations were made by each of the three architects that:

1. the architect be the logical leader of a multidisciplinary team, with the objective of streamlining programming, design and construction and make it an efficient, continuing process.

2. a representative of the medical facility work full time with the planning team on large projects.

3. the planning team be formulated at the earliest point in the development of a project, before preliminary but key decisions have been made.

In summary, conventions like that of the AHA in Houston offer the architect an opportunity to familiarize himself with the nature and the awesome problems of the health care industry. The exhibits, the instructional sessions and the related meetings are all important to an understanding of the quality of health care which now exists and the role the architectural profession must play in providing an environment suited to such care.

This environment must be flexible, low cost and appropriate for human beings as well as for highly technical activities. The health care industry is looking to our profession to accept the challenge. If we don't respond, it will look elsewhere, perhaps to the package dealer or similar sources outside the profession of architecture willing to answer the need. Architecture for health will be what our profession is willing to dedicate itself to providing. The challenge is real and it is now. □

CINCINNATI '70: BIRTH AND REBIRTH

by GALE BROOKS

This birthday tribute to the Cincinnati Chapter AIA looks backward 100 years — and forward, too, in the vistas it affords as the chapter begins its second century.

Anachronisms and futurisms; conservatism and innovation; disappointments and triumphs; lack of vision and methodical planning; missed opportunities and great potential. All these and more is Cincinnati, Queen City of the West — melting pot of Appalachians, blacks, Germans, Irish, Yankees.

The 100th birthday in 1970 of the Cincinnati Chapter of The American Institute of Architects provided an opportunity for Cincinnatians to reflect on the growth and development of the city and on the contribution that the architectural profession has made during the past century. One can only speculate about the next 100 years, but from emerging trends it appears that Cincinnati may be entering an age of cultural growth and enlightenment which will parallel the 1870s.

Union Terminal

Music Hall

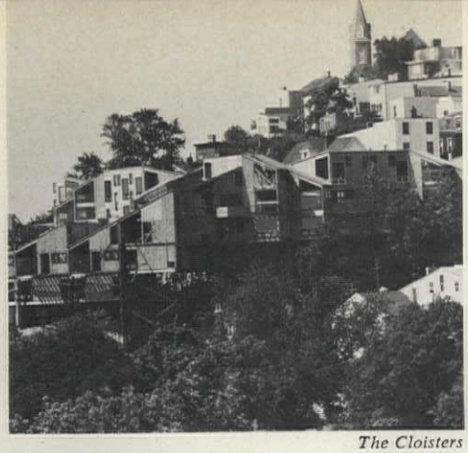
The John Hauck House

The birth year of the Cincinnati Chapter appears to have been the beginning of a new era. The ensuing decade saw the city expand from the Basin area to Mount Auburn, the hill immediately north of the city. This expansion was made possible by the introduction of an incline and trolley system on the hill, making Mount Auburn the city's first suburb. In the 1870s, the owner of the transit system, Henry Martin, built a mansion on a prominent site at the top of the hill (at the intersection of Auburn Avenue and Dorchester and Sycamore Streets) overlooking the city. This building today is being remodeled by the Mount Auburn Community Council with the assistance of Bruce Goetzman, AIA, to serve as a center for what is now a black inner city community for the most part.

Also during this decade, the brewer John Hauck built himself a mansion on fashionable Dayton Street in the West End alongside those of other brewers and sausage makers who, because of the proximity of their business establishments, did little to enhance the air — already thick with smoke from the soft coal burned throughout the area. It's little wonder that people wanted to escape the Basin. With the introduction of the incline, the move to the clean, green hillsides surrounding the city was on. In spite of the foul air, Dayton Street remained a prominent residential street until the end of the century. It is now one of the two preservation districts created by the city in 1965. Today, the John Hauck House is the home of the Miami Purchase Association, the local preservation society established in 1964. The main rooms of the house will be opened to the public early this year.

Perhaps the greatest architectural achievement after the birth of the Cincinnati Chapter was the construction of Music Hall on Washington Park in 1875-78. The architects were Hannaford & Proctor; the current rehabilitation is by George Schatz & Associates. It is a Germanic looking building which reflects the origin of the local residents in the surrounding neighborhood, still called Over-the-Rhine. Hannaford entered a partnership with his sons, and Samuel Hannaford & Sons became a name to be associated with Cincinnati architecture for almost a century.

From the medieval machicolations and pointed arches of Music Hall, Hannaford progressed through a period of Richardson influence reflected in the design of City Hall with its Romanesque arches and tower, built in 1887-93. In 1885, H. H. Richardson himself won the competition to execute the Cincinnati Chamber of Commerce at Fourth



The Cloisters

Playhouse in the Park

City Hall

and Vine Streets, making the final revision to its design before his death in 1886. This rusticated stone and round arched building met an untimely demise after a fire collapsed its floor structure in 1911. The stones from this building are currently being placed as a memorial in Burnet Woods Park by architectural students and faculty at the University of Cincinnati. The name of the project is Operation Resurrection; Stephen Carter's design was selected in a student competition (*see* AIA JOURNAL, June 1970, p. 36).

Burnet Woods is one of the many parks that grace the city. Recently, it was the site of a study by a group of University of Cincinnati students who analyzed the influences upon it as a place of interaction and communication by the university community, the integrated neighborhood of Corryville, the staid but not wholly conservative Clifton and the proposed Environmental Health Center.

Eden Park, which covers a large area just to the northeast of the central business district and overlooks the Ohio River, is an established cultural center, the home of the Art Museum, the Art Academy and the Playhouse in the Park. The Robert Marx Theater at the Playhouse, designed by the New York firm of Hardy, Pfeiffer, Holzman Associates and completed in 1968, has shown how a functional, utilitarian building can blend with an existing structure, enhance the park and give the citizens of Cincinnati a glimpse of the future.

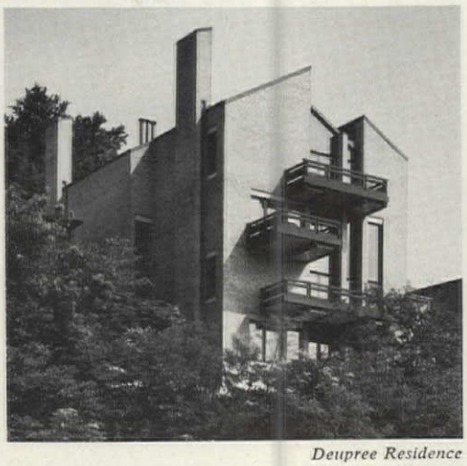
To this firm's credit also is the new condominium complex, the Cloisters, on adjacent Mount Adams. The controversial design of this telephone pole-supported series of shed roof forms with many faceted views cannot go unnoticed. Despite its critics, people are rumored to be standing in line to bid on the units when they are completed. Could it be that people are anxious for more links with the past as well as pleasant views and functional floor plans? Certainly the shed roof forms are reminiscent of the vernacular buildings of Over-the-Rhine and Mount Adams itself. From the river, the Cloisters is not an incompatible cousin to Carl A. Strauss & Associates' elegant townhouse built in 1967 for Richard R. Deupree Jr.

A project of smaller scale than the Cloisters, but one worth mentioning, is Kulla Viken in Price Hill. This hill-hugging complex, designed by Stephen Gebhardt and completed in 1968, could well point the way to the development of Cincinnati's hillside sites. Each unit is articulated and oriented toward the Ohio River, and the stepped sites compliment rather than deny the hillside.

In the '60s, after almost a century of service, the Hannaford firm faded from the Cincinnati scene. Prior to its demise, it collaborated with Woodie Garber & Associates in the production of a library for the City of Cincinnati and Hamilton County, which was dedicated in 1955. This mostly brick structure forms a well organized termination to the east end of Garfield Park, now a part of the Queensgate II renewal area. Its solid masonry masses show a respect for and a tie with their historical antecedents. Another Garber — John — has left his mark on the city too. His 1960 sanctuary addition to St. John's Unitarian Church on Resor Avenue in Clifton is a simple but highly symbolic building.

As a partner in the firm of Garber, Tweddell & Wheeler, he also helped lay ground rules for the development and expansion of the main campus of the University of Cincinnati. In addition to the master plan, the firm designed what is still one of the most handsome buildings on the campus: Siddall Hall, completed in 1964. As economics usually will it, the original design was modified. Credits for the present complex of Siddall-Calhoun go to Potter, Tyler, Martin & Roth.

With the completion of the Renton K. Brody Science Complex in 1970, the university presented the city with the first major concrete building since the construction in 1933 of Fellheimer & Wagner's Union Terminal. The Powel Crosley Jr. Research Tower in this complex is now a new landmark on the skyline; A. M. Kinney Associates is the firm responsible for this architectural engineering feat. Erected in record time, the tower is of slip form construction with a brushed concrete finish. Cincinnati can claim credit also for the first reinforced concrete skyscraper — the Ingalls Building, designed by Eisner & Anders and constructed in 1903. Despite this innovation in building construction, this



Deupree Residence

Kulla Viken

Cincinnati and Hamilton County Public Library

Siddall-Calhoun Complex, University of Cincinnati

structure (now called the Transit Building) is little known. It stands at the northeast corner of Fourth and Vine Streets in the central business district.

One cannot conclude an article about Cincinnati without a discussion of the redevelopment of the central business district and the riverfront. By starting late, perhaps it benefited from the mistakes of other cities. In any case, it has shown how redevelopment can revitalize the inner city. With the re-

opening of the completely redeveloped Fountain Square in 1969, there has been a great influx of people to the central business district. They come to look, shop, demonstrate, smoke and loiter. There is no denying that it has become an urban living room for the curious, girl-watching, sun-worshipping people of the entire metropolitan area.

With the redevelopment of the riverfront, visitors to this area can now see two notable structures in juxtaposition. The older of the two is Cincinnati's historic Suspension Bridge designed by John Roebling and completed in 1866. Next to it is the new Riverfront Stadium designed by Heery & Heery and Alexander & Rothschild, associated architects,

Brody Science Complex, University of Cincinnati

Fountain Square

(Prybylowski & Gravino, structural and civil engineers) which was dedicated in 1970.

Also completed in 1970 was the new Formica Building and Arcade, designed by Harry Weese & Associates. Adjacent to the Mercantile Library Building on Government Square just east of Fountain Square, this complex has given the Contemporary Arts Center a new home and the Cincinnati Chapter AIA its first official headquarters outside an architectural office. The Arcade should provide an appropriate image for both these organizations and should permit the Cincinnati Chapter to render increased service to the community. Hopefully, it is a significant hallmark for the chapter's second century.

With the redevelopment of the central business district, the subsequent return to the city and an apparent increase in civic pride, one can conjecture that Cincinnatians will acquire also an increased awareness of and sensitivity to the significant deeds of the past while enjoying the accomplishments of the present.

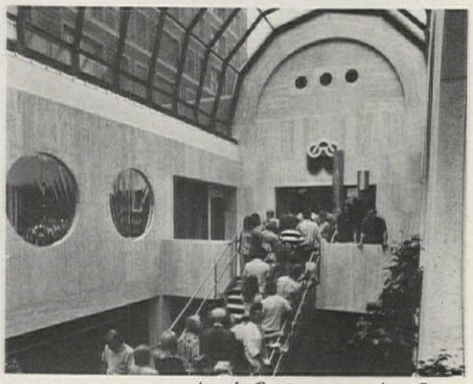
Because most of the site has been cleared for the erection of Proctor & Gamble's new office complex by Skidmore, Owings & Merrill, Wesley Chapel (designed by Caleb Williams and dedicated on Christmas day in 1831) is now on view for all who visit the area east of Government Square before it gives way to the wrecker's ball. Buried until recently in a maze of undistinguished buildings, the structure's simple neo-classic form is a brief reminder of the many historic events that took place there. Another building perhaps doomed to the same fate is the Albee Theater, an integral part of Fountain Square since 1927. Its oversized Palladian motif, movable orchestra pit and lavish Baroque interiors were the designs of New York architect Thomas Lamb.

Though the riverfront will undergo further changes, the redevelopment of the central business district is nearly completed. Planning consultants were RTKL Inc.; architects were Harrison & Abramovitz and the local firms of Gartner, Burdick & Bauer-Nilsen; Hake & Hake; Pistler-Brown; and Tweddell, Wheeler, Strickland & Beumer.

Riverfront Stadium

Recently, the city has been turning its attention to other problems. Consequently, the decade ahead may revitalize much of the environment that was produced in the 1870s, '80s and '90s which had an urban quality that is hard to better because of the awareness of human scale, neighborhood focal points and order gained through repetition of form, materials and solid/void relationships. Hopefully, the '60s laid the groundwork for the '70s and the second 100 years of AIA influence. One would like to think that the revitalization of Music Hall and other barometers of respect for heritage and tradition will influence the philosophy of all neighborhood improvement and redevelopment. Examples

Zino's Restaurant (Old Corryville Firehouse)



Arcade.Contemporary Arts Center

are the replacement of the Tyler-Davidson Fountain in Fountain Square, the recent restoration of the Isaac M. Wise Temple, the sensitive conversion of the old Corryville Firehouse by Hefley/Stevens into a unique restaurant, the commissioning of Woollen Associates to prepare an urban design study for the Findlay Market area and the upswing of housing rehabilitation in several inner city neighborhoods. Cincinnati has a wealth of physical heritage which could provide a visible link between the past and the future. It also has a unique topography which must be treated with greater respect by all who touch it.

Certainly 1970 was a landmark year for Cincinnati and an appropriate one for a birthday celebration. May it also herald the birth of a new era — one in which architecture, environment, heritage and topography are brought together in harmony. □

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A WIDER RANGE FOR R&D

by EDWARD FRANK

Research will perform a crucial role in adapting the building industry into an urban industry that will meet its expanding functions in a rapidly changing technological society. An analysis of this issue concludes by proposing environment systems research centers to guide balanced, orderly urban development.

The trend in expenditures for research and development in the United States, from $1.8 billion in 1945 to an estimated $27.2 billion in 1970, indicates its growing influence in modern technological societies. Further evidence of its rising importance is the role the federal government is assuming in financing the nation's R&D effort. In 1945, R&D expenditures amounted to 1.6 percent of the federal budget; in 1969, these had increased to an estimated 12 percent.

A comparison of the overall economy reveals that since 1953, the Gross National Product has grown at the annual rate of 3.9 percent, while expenditures for industrial R&D have increased 10.2 percent yearly. The value of R&D has become so evident that there is hardly an important industrial field today which is not research oriented and which does not base its future growth and prosperity on technological innovation.

A major exception to this roster is the construction industry. The reasons for this state of affairs are many and complex. They include, until recently, lack of federal concern and financial support; constrictive and inflexible government regulations; insufficient scientific and theoretical base in all but some of the engineering fields involved in construction; typically small scale of building by the majority of construction firms; outdated management and organization methods; inhibiting labor union rules; and obsolete practices, techniques and materials, some of which date back centuries.

Despite these obstacles, various research efforts by sectors of the construction industry have been mounted within the last decade. While these have at least established R&D as a valid construction activity, they have been hampered by insufficient financing, limited facilities and lack of trained manpower.

The fundamental reasons for the paucity of research activity in the construction industry merit further analysis.

Since federal financial support constitutes 55 percent of total R&D investments in 1970 and thus determines in which directions it is led, it is worth noting to what national goals and activities R&D is channeled.

Since 1967, 85 percent of federal R&D funds have been assigned to the Department of Defense, NASA and the Atomic Energy Commission. The remaining 15 percent has been divided among 28 other agencies. Since 1964, the former group's growth rate has decreased to 2 percent per year, while the other agencies have shown a 16 percent average annual increase. Although this is evidence of a new trend in R&D allocations, in dollar value the 1969 federal budget estimates expenditures for R&D by the DOD at $8,291 million, as compared to $27 million for the Department of Housing and Urban Development.

A comparison of industry manpower estimates that aerospace staffs 27 percent of all scientists and engineers conducting R&D while construction employs 1 percent of the national total. In 1969, the aerospace industry planned to finance $5,500 million of R&D, of which the federal government was to contribute 77 percent. In the same year the stone, clay and glass industry, one of the largest groups active in construction, aimed to spend $180 million on R&D, of which 1 percent was to be federal funds. In 1967, all of American industry invested 4.2 percent of its net sales on R&D; the aerospace industry, 21.5 percent; and the stone, clay and glass industry, 1.9 percent.

In analyzing the construction industry itself, it becomes readily apparent that this phrase is an umbrella term covering a multitude of autonomous and disparate activities whose contribution to the building effort is affected by many different and often unrelated causes. The sheer number of interests involved in the organization, design, construction and supervision of a building project should not necessarily hinder a strong industry R&D program, since approximately 9,000 firms are normally engaged in the manufacture of an orbital manned spacecraft, almost wholly a product of technological innovation. However, lacking a central common objective, government agencies, mortgage lenders, realtors, land developers, investors, architects and engineers, contractors and subcontractors, materials and product manufacturers, and suppliers all tend to develop a limited radius of interest and responsibility. The result is that the building industry, unlike technologically advanced industries, is underorganized and lacks the integration of a unified management operating under an overall policy.

Although the construction industry as a whole is one of the largest of all industries, the majority of individual building firms within it are generally too small to finance R&D. With its inherent uncertainty, research is an activity that cannot guarantee a fixed return from a given investment. A firm must be able to balance a capacity and a willingness to risk failure against the potential of extraordinary success.

It is mostly the large and financially secure industrial organizations, with their widely diversified line of products, that can afford to do this and to make the substantial investments in resources and time that R&D demands. Most other firms find the time lag between basic research and product marketing too long, and the possibilities of spreading the risks of innovating too limited, to make such an investment attractive.

The spectrum of practical problems that may be illuminated by research can be extremely wide, yet it is often difficult to foresee exactly which practical problems will be clarified by the information generated by a particular research program. In these circumstances a small firm labors under several disadvantages. It usually operates on a small margin with limited capital and thus has to restrict itself to small-scale projects with quick payoffs. It may find that even if it does sponsor R&D, the knowledge which it has acquired may not be precisely relevant to a specific problem; that the information created will not be sufficient in itself to permit it to design a marketable product but will only reveal where additional research will be required; that it can utilize only a fraction of the information it has paid for, or that it

has assumed the costs and taken the risks of innovating, only to find that its competitors are also reaping the rewards of its research.

Of the groups in the construction industry, only the building materials and product manufacturers have conducted substantial R&D programs, and these have focused less on research than on development, where the chances of success are better assured. These programs often aim to protect an existing line of products and thus tend toward incremental improvements rather than toward devising new ways of performing the same function.

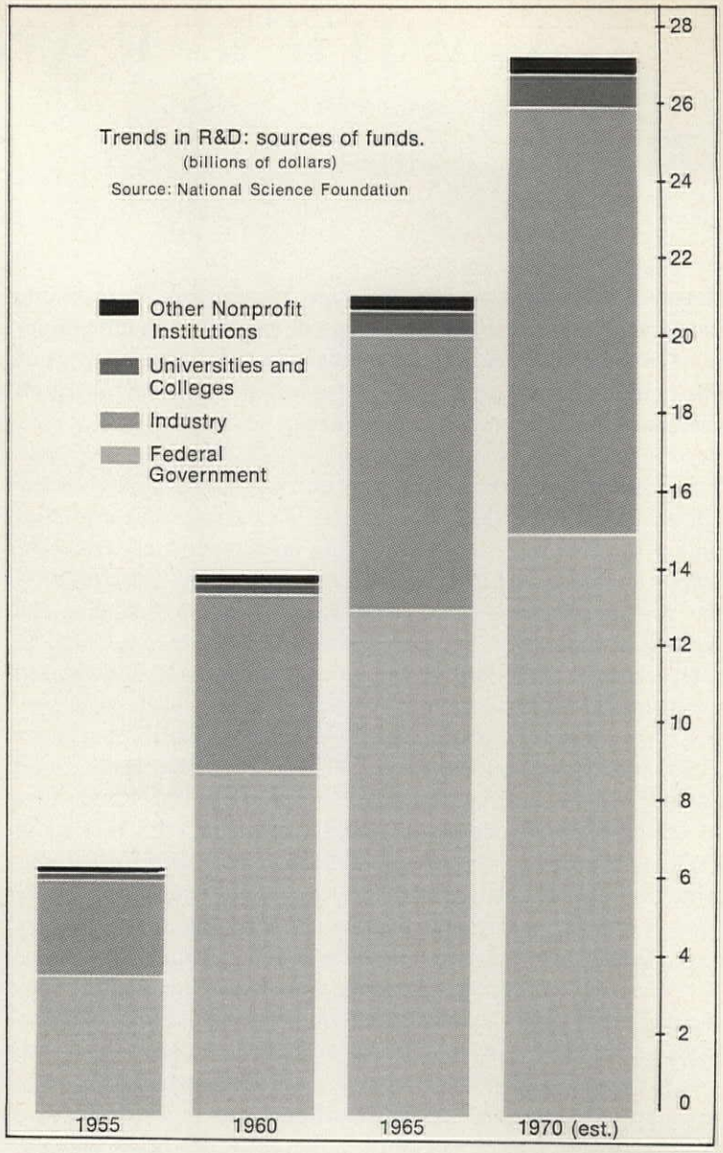
Most firms which have profitable products, proven competence, market experience and well-trained supply organizations in a certain area are unwilling to risk the costs of learning to deal with new technologies and possibly failing in the attempt. What development does exist generally proceeds unilaterally. The product line of a manufacturer may be coordinated within itself, or at most with a few other related products, but will usually have little if any relation with those other products with which it may be combined on a job. Architects are then faced with the task of detailing a building to make it seem as if each item were custom-made for its particular location when, as is often the case, the building is a skillful assemblage of disparate, predesigned parts.

In comparison to its central position in most other major industries, R&D has remained a peripheral activity in construction and is conducted on a piecemeal, sporadic, ad hoc basis. Given the present structure of the industry, research is regarded as an overhead expense rather than an investment that can return considerable benefits. It is considered rewarding provided a wealthy client has the courage to risk failure and above-average expenses; an architect is willing to invest the time to depart from convention; a manufacturer consents to retool his shop or rearrange his production methods; or a building department can be convinced that the public welfare will not be endangered. Whatever the excellence of the innovations that have been introduced by construction research, they have generally remained outside the mainstream of the construction industry, even as the industry is being outdistanced in research by most of the rest of the industrial world.

The construction industry could have been expected to continue its traditional pattern of operations as long as the national framework within which it has functioned remained relatively stable. However, there is growing recognition that this structure is undergoing change. As a salient example, our population is expected to increase by some 70 percent by the end of this century. Industry is projected to keep pace with this expansion and with accompanying demographic shifts. Within the last 15 years, it has built as much industrial plant and equipment as it had in the preceding century and a half, and is expected to double this figure within the next 20 years. Propelled in part by what has been called the research revolution, productivity and living standards are expected to double every 20 years for the foreseeable future.

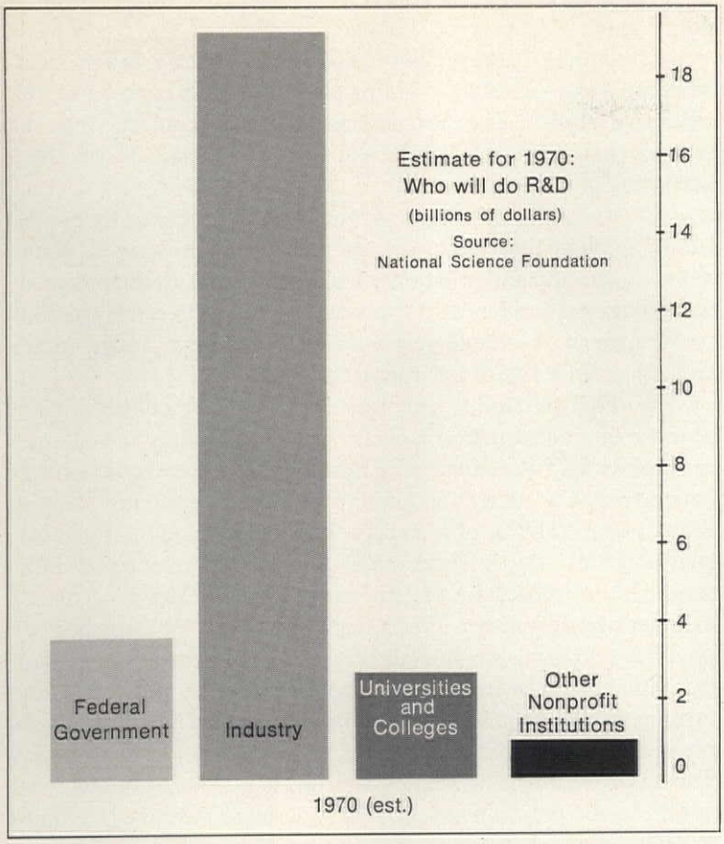
Growth at this rate, and of such magnitude, is not only an accretion of time-tested objects produced by inherited methods, but is also an accelerated process of technological innovation that creates new products through new techniques to satisfy new expectations which could only arise as technology advanced. Moreover, as these innovations spread throughout the society they generate a host of secondary technology and services to maintain them, forming the progressively more interdependent, interrelated environment of modern societies.

While each technological innovation may initially be beneficial, as it ramifies throughout the environment it may unwittingly intertwine, reinforce or conflict with others following their own courses, with the result that its intended benefits may be accompanied by inadvertent and hazardous consequences. The combined effect of introducing many such innovations through industrial R&D has contributed in large measure to what is commonly referred to as the environmental crisis.



The better examples of design to date have sought to avoid these pervasive and adverse effects of technological accretion. The few carefully designed structures of the modern metropolis appear as enclaves in the midst of a proliferating, underdesigned and disorganized environment: an airconditioned apartment filtering out smog; a Ford Foundation building shielding its garden court from 42nd Street; a Reston, Virginia, isolated and distant from Washington's suburban sprawl. Lacking the resources, organization and technology, this has been the only possible design strategy in the face of 20 years of unprecedented economic growth, technological innovation and social change. Since these trends are expected to continue in the foreseeable future, it would be prudent to expect the next decades to display at least as much change as the recent past.

If the balance is to shift from an environment which is the largely inadvertent byproduct of technological change to one that is the result of technological innovation at the service of purposeful design, preparations will have to be made to adapt the building industry into an urban industry. An important item on this agenda



should be the transference of research and development from its present insignificant position to a central function in generating new construction methods and technology. Since no group in the industry can muster sufficient leadership to organize this effort, nor the capability to finance it, the federal government, which in 1969 contributed about 45 percent of total industrial R&D funds, should assume major responsibility for creating this new national resource.

Implementation of a federally supported R&D program would be more likely to succeed if it were organized on a regional scale. The application of scientific research to the problems of a large-scale complex environment may fall short of desired results if it does not aim to solve them as entities. Indeed, since it is in the nature of R&D that advances in one direction affect progress in others, it is probable that any other approach would be self-defeating.

A program of this magnitude would provide a framework of sufficient scale to encompass the majority of environmental problems and would assure their solutions through the creation of adequate construction technology. It would also enlarge the boundary of inquiry from any one discipline to a multidisciplinary context; utilize fully the broad spectrum of information acquired by research; produce sufficient technological alternatives to permit flexibility in solving environmental problems; and, instead of oversimplifying a complex problem by reducing or neglecting important factors peripheral to a single discipline, as most of these are now forced to do in order to operate effectively, it would include these factors into a higher framework than is now possible.

Such a comprehensive program would also be instrumental in correcting one of the gravest weaknesses in the present nationwide R&D effort: its lack of coordination, which is directly responsible for the fact that current research invents only unrelated fragments of the future.

Federal responsibility for such a program could be discharged by establishing environment systems research centers, which would operate on a regional scale commensurate with the problems they would confront. Midway administratively between the federal government and the local municipalities of the region, these centers would avoid the standardization of centralized authority and the parochialism of narrow interests. They would serve several functions, among them:

- Set the policy for a regionwide, sustained, balanced, comprehensive and integrated program of research and development, to be performed largely by the industry and educational institutions of each region.
- Provide part of the risk capital to encourage design and construction of innovative large-scale environmental systems.
- Establish performance levels for the products developed under their sponsorship.

The centers' principal objective would be to guide the production of technological resources required not only to meet existing environmental problems but to insure the orderly development of the environment. As it becomes increasingly evident that as the society proceeds toward greater complexity one central cause may affect many disparate functions, a regional operating framework will be found to offer the proper scale for launching systems research projects that would attack seemingly unrelated problems as multifacets of one environment.

To implement a systems research program, the conventional "relay" method of sequential specialization in construction projects should be replaced by an interdisciplinary team approach that would concentrate the experience, judgment and insight of experts in a wide range of fields upon one central target, and produce comprehensive solutions beyond the scope of any one discipline.

In the relay method, within which architects now function, each specialist imposes limits upon every other successor; thus the later an expert is brought into the project, the greater the aggregate of constraints he has to contend with and the less are the opportunities he has to exercise his expertise.

In an interdisciplinary team the architect, for one, would enter the decision-making process at the very beginning of a construction project and not, as is usually the case now, later in the proceedings when most of the important decisions have already been made.

Industry has traditionally held the initiative in identifying product needs, yet the paucity of support for construction research has presented the consumer, public and private alike, with a narrow range of choice at each cost level. Whether it is the architect seeking a product in Sweet's Catalog, a family shopping for a house, or government officials purchasing new utilities, consumers can only select from the items they are offered. If the variety of products serving any function tends to be meager, consumer choice remains limited. This is becoming a serious hindrance to the society as it undergoes change, for this process generates unexpected needs, especially for public facilities and services.

Yet it is precisely products meeting these needs, many of which must be prepared for future conditions (and some of which are without precedent) that consumers are least capable of foreseeing and articulating.

Regional research centers would nullify this situation by taking the initiative in anticipating the probable range of environmental product needs at selected time horizons, preparing a fund of contingency policies, plans and performance criteria, and then

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Mr. Frank, a practicing New York City architect, was appointed a Guggenheim Fellow to produce a book on science, technology and urbanization. The present article is condensed from one of its chapters.

contracting out for their research and development. The large resources at the disposal of the regional centers would greatly expand the spectrum of research projects that, once successful, would offer significant innovations in product design, improvement in performance and finally in meaningful alternatives for the consumer.

These centers would encourage, through the judicious use of incentives, teams of architects, universities, product manufacturers and their related associates, to design and build environmental technology prototypes at all scales, including whole new communities. These would serve as real-life laboratories where, under controlled and monitored conditions, urban systems could be tested.

The communities would offer previews of alternative futures, where new inventions and departures in planning, land use, design, technology, urban administration, public services and zoning ordinances, codes and regulations could be marshaled into one context, and their effect on each other assessed. These experimental environments would satisfy the need for proving grounds where inventions which have become technologically feasible, but are not yet economically possible or socially acceptable, could be evaluated and their ramifications traced out without disturbing the life of any existing city. They would indicate some of the alternative directions which the future environment could take, and would present a foretaste of the opportunities and a forewarning of some of the problems that may arise in future urban patterns.

The population profile of these communities would be a microcosm of one of the probable futures projected for the region and would reflect the demographic, social, economic, educational, employment and other important characteristics that the population could be estimated to have a generation ahead.

In exploring what directions the policies of these centers might take, a number of possibilities arise. One is to tailor a program solely to the rehabilitation of the environment, considering its present problems as isolated, static and unusual phenomena for which new technology, once developed, would need to be applied on a local and remedial basis only, after which construction practice could revert to conventional methods. This policy would neglect the fact that the environment itself is being transformed.

To establish an R&D program in order to confront each problem one at a time, whether pollution, urban deterioration or traffic congestion, as if each were a unique and abnormal phenomenon divorced from an otherwise orderly environment, would be to focus on isolated symptoms and neglect their central causes. Present environmental problems may be unprecedented, but they are only the precursors to a continuing series of novel problems with which each stage of the future will confront the construction industry, and for which past experience, solutions, products and techniques may prove to be inadequate.

A second possibility is a policy which recognizes that the future is bound to be different, but only as an extrapolation of the present. An R&D program based on such a view would develop technology to solve contemporary problems, expecting this technology to be equally applicable to a future with similar but magnified problems. While this approach might be successful in coping with present problems, it would omit to take into account the fact that during the decade or two in which new technology was being developed, the environment itself had undergone change and had created new and unexpected challenges for which much of that technology would be largely obsolete; for it has been insufficiently recognized that when population growth and technological cumulation reach critical densities, there is a change not only in degree but in kind.

Until recently the pursuit of economic efficiency in a product, whether a car or office building, has obscured concern for its collective impact. The next logical step is to consider them as components in the environmental ecosystem, and design them accordingly.

At this point in history it would be imprudent to view the future only in the framework of present circumstances, goals, values, methods and solutions, and to base the development of technology on a policy that expected the future to remain similar to the present. Technological innovation implies, in part, future technology in a future environment.

A third possibility involves an expansion of the original purpose of a construction industry brought about by the enlargement of its field of activity. The historical aim of construction has been to organize, design and build structures that would maintain the physical stability of a society. In slowly changing, preindustrial societies, the internal stability of a settlement was most seriously threatened by violent perturbations caused by nature or by armed aggression. Increasingly, however, modern society's physical stability is being endangered less by natural forces than by the incursion of technology. The 20th century thus marks the turning point from an architecture directed toward problems posed by nature, to one confronting the challenges of technology. The environment is no longer a given; it is now produced. And as the Apollo program has proved, Americans have the capability to design and produce any environment they will.

A research and development program in accord with this novel situation, if launched through the proposed regional centers, would have two phases. The first would seek to close the technological gap between the construction field and the rest of industry. This could be accomplished by increasing the rate of R&D in construction until it outpaces industrial R&D, and thus begins to cope effectively with the consequences wrought upon the environment by a technological society.

Once this stage is reached, the second phase of the program could be initiated. At this time the regional centers would begin to operate as environmental self-correcting regulators. This would not require them to predict the exact future state of the environment, nor would they have to set a policy target for the distant future and thus commit future generations to its accomplishment; it would only be necessary to set maximum and minimum guidelines for the state of the region's environment. A set of critical indicators surveying this state, selected from the flow of information received by their data banks, would be continually monitored by these centers for signs that limits were in danger of being exceeded, setting in motion preventive action to correct the imminent deviation from norms.

The multidimensional changes underway in the US, induced partially by extensive research activities, have precipitated often negative consequences that are causing growing public concern. This concern is being translated into a national commitment to establish control over the development of the environment that will open unprecedented opportunities for the construction industry.

Whether through the proposed regional systems research centers or some other agencies, these opportunities will better be realized by a major expansion of construction R&D operations. Research will enable the construction industry to anticipate, prepare and guide the design and production of the environment in the direction of national objectives. Research will be its cutting edge into the future. □

This initial program for distinguished accomplishment in low and moderate income housing designed by an architect was developed under the aegis of The American Institute of Architects, the National Center for Low- and Moderate-Income Housing, the National Urban Coalition and the Urban Design and Development Corporation. The nine winners, selected from 78 submissions, all received Awards of Merit. Sponsorship and ownership of the projects are diverse and include a foundation, redevelopment corporations, churches and a union pension fund. All the winners are new structures except for one which is a rehabilitation project in New York City.

Jurors: Harry M. Weese, FAIA, chairman; Glenn A. Claytor, director of housing, National Urban League, Inc.; David A. Crane, AIA; John W. Moutoussamy, AIA; Walter L. Smith, executive director of the Low Income Housing Development Corporation of North Carolina; Robert Gutman, consultant to the jury, professor of sociology, Rutgers University; and Paul Farrell, student observer.

1970 Design Awards for Nonprofit-Sponsored Low and Moderate Income Housing

Excerpts from the Jury Report

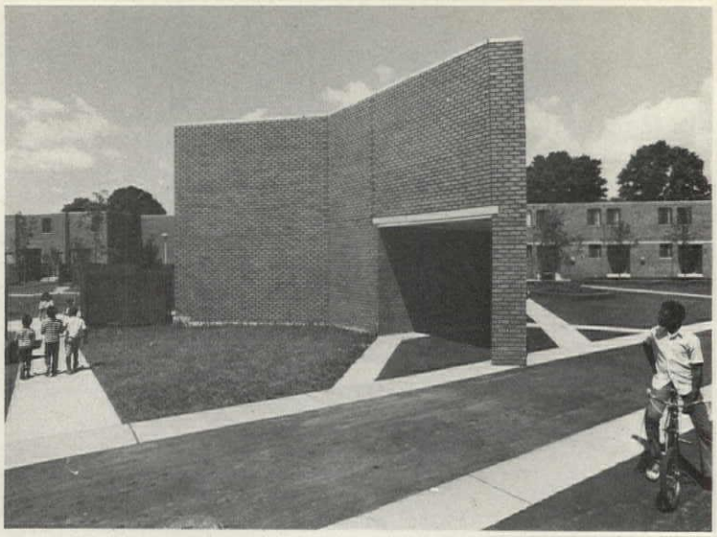
The school of urban design which features agitated skylines, varying setbacks and labyrinthine complexity is still in evidence. Some schemes, however, produced variety with larger units of repetition, such as entire frontages analogous to those of English squares and crescents — a refreshing development.

It was the consensus that highrise dwellings are not appropriate for family living and that such solutions beg the question. None of the highrise designs (or the combination of high/low) was considered distinguished enough to be premiated.

Some of the projects pushed the limit of size, such as in superblock form, producing an interior environment too remote from the outside with difficult access to units and with implied security problems. Many interesting and long-overdue uses of the piggy-back principle, i.e., a two-story house on a one-story apartment (2 on 1) and other combinations were found, as well as an increasing use of the double maisonette.

The low cost requirements influenced both site development and building design; these limitations appeared to be beneficial in terms of the elimination of a kind of gimmickry and clichés normally associated with low density, suburban, multifamily, low-rise developments in the supposedly free market. The nine projects selected for awards prove that the low cost program need not produce inferior architecture or that there is a stigma in low cost housing which must be reflected in utilitarian or barren architecture. In the hands of competent designers, a superior end product can be achieved. There can be a discipline in cost limitations as well as in architect selection in the public sector which works toward the kind of quality this program demonstrates. This design vitality could augur well for expanding the nonprofit sector in the pressing task of producing new environment.

The rehabilitation submissions were few and generally uninspired, pointing to the difficulties which beset this program. The example selected is atypical, having been selected on principle because it proves that a viable environment can be created out of old buildings. (The winners are shown in the following pages.)



COLUMBIA INTERFAITH HOUSING CORPORATION (top)
Columbia, Maryland
Architects: Collins & Kronstadt, Leahy, Hogan, Collins
General Contractor: John K. Ruff, Inc.
Jury Comment: These two- and three-story townhouses in staggered rows with pitched roofs and horizontal siting recall a logical ongoing tradition. The distribution of the townhouses among five sites in the large project produces an impact and, at the same time, an overall unity.

WASHINGTON WEST
Altadena, California
Architects: Carl Matson & Edward R. Niles
General Contractor: Sproul Construction, Inc.
Jury Comment: The cluster system with second floor access to upper units gives each dwelling its own address. Suitable to the climate, the project will grow old gracefully as landscaping takes over. The pleasing quality of scale, the simplicity and the details prove that the low cost does not necessarily inhibit good design.

MARTIN LUTHER KING JR. COMMUNITY (top)
Hartford, Connecticut
Architects: Hartford Design Group
General Contractor: Carabetta Enterprises, Inc.
Jury Comment: This highly refined and logical site plan is imaginatively adjusted to the rectangular grade and diagonal external street pattern. Individual entries and interestingly segregated dining areas within the units, plus an excellent handling of brick, produce a high quality urban environment fully conceived in detail and original in concept.

KUKUI GARDENS, INC.
Honolulu, Hawaii
Architects: Daniel, Mann, Johnson & Mendenhall
General Contractor: Hawaiian Dredging & Construction Co. Ltd.
Jury Comment: This no-nonsense yet attractive solution gives every tenant a street address — a piggy-back principle allowing density of 42 per acre on 30 percent coverage. It affords on-site perimeter parking and exhibits a healthy disdain for fashionable clichés in current urban design.

WARREN GARDENS, INC.
Roxbury, Massachusetts
Architects: Hugh Stubbins & Associates, Inc., and Ashley, Myer & Associates, Inc.
General Contractor: Starrett Bros. and Eken
Jury Comment: The straightforward townhouse solution with expressed firewalls denotes each individual unit. Grade changes produce a varied setting for the rows. The architecture itself has a logical simplicity, recalling New England tradition.

SACRAMENTO COLLEGETOWN
Sacramento, California
Architects: Smith Barker Hanssen (Dreyfuss & Blackford, supervision)
General Contractor: Nielson-Nickles Company
Jury Comment: This California solution in vertical siting with walled-in private gardens also provides well-developed common space for the married students who live here. Privacy fins and overhangs protect windows as well as break up the regularity of the facade — in a rather arbitrary way, however.

ST. FRANCIS SQUARE
San Francisco, California
Architects: Marquis & Stoller
General Contractor: Jack Baskin
Jury Comment: The open balconies are suited to the climate and afford possibilities for growing plants. The California style units offer the individual occupants considerable freedom in relation to the outdoors.

WOODLAWN GARDENS
Chicago, Illinois
Architects: Stanley Tigerman, Ltd.
General Contractor: Metropolitan Construction Corporation
Jury Comment: This urban scheme is related to the street as the central spine rather than a superblock configuration, recognizing the importance of the street not merely for circulation but also for activity. Each family has its own front door, an important attribute in providing identification and privacy. Variety was introduced by mixing modules; the exterior is dignified, purposeful.

WESTBETH ARTISTS HOUSING PROJECT
New York City
Architect: Richard Meier
General Contractor: The Graphic Starrett Company
Jury Comment: The Westbeth Corporation Housing Development Fund Company, Inc. was formed to buy and rehabilitate buildings for living and working space for artists. This 13-story complex, converted to artists' requirements at rentals they can afford, salvages a useful structure with center-city advantages by the application of imaginative reuse.

ae Architectural Education

Teaching Them to Deal with the Real World

by ROBERT G. ANDERSON, AIA
and
WILLIAM R. MITCHELL

Our universities are dealing with information which for the most part is relevant to the 19th century. New attitudes toward the education of architects which may contribute significantly to solving the problems confronting our society are described here.

The total accumulation of man's knowledge doubled between 1840 and 1940. A second doubling had occurred by 1965; a third is expected by 1975. It is understandable, given this level of change, that any profession might begin to doubt the security of its previously defined sanctuary. Architecture is one of these doubting professions which is beginning to realize that if it does not change through the use of new information and methods available for the solving of social and physical environmental problems, it will cease to exist as a relevant profession.

Although the doubting of security has been evident for some time, the profession and the educational programs that support it have thus far only attempted change within their accepted frameworks, i.e., we have only looked at some parts of our role rather than redefining our role in terms of a process. This self-limiting approach has been taken because of our education as subjective solution makers rather than objective problem solvers and as intuitive decision makers rather than the developers of decision-generative systems. Furthermore, we have failed to recognize or discover the nature of our professional and educational systems because our old degrees, professional titles and educational programs have been veiled so that our visually oriented approach has convinced us that we have begun to change.

In essence, no change of any significance has really occurred, and as long as we continue to advocate that professionals can be educated and relevant programs can be developed through the existing abilities of the profession, no significant change can occur.[1]

Architecture is not in a unique position, however, for we can see the results of irrelevant decisions in all of our society. One of the most evident examples exists within our university system, where people who are supposed to become leaders of our society are faced with packages of information that are for the most part relevant only to the 19th century.

When a student realizes that unrelated information will not significantly contribute to his potential as a leader of society, it may be easier for him to drop out of the system rather than, through graduation, limit his potential.[2]

Universities are beginning to realize this. However, they appear more inclined toward dealing at the level of the parts of the system rather than developing systematic processes which can analytically and synthetically produce information that is relevant now. The most sophisticated parts manipulation has grown into the so-called interdisciplinary approach. This indicates that the university feels that by graduating a person with a hyphenated degree, it is generating new disciplines. They probably are, but since the term interdisciplinary has never been fully accepted as an admission that we do not have the right disciplines, it is probable that the individuals who are graduating in these hyphenated programs have academically absorbed an inactive compound of relatively useless information.

Significant change is difficult to accomplish. Superficial change is simple. Significant change indicates a change in abilities and in process, i.e., the tools that you recognize as available for the solving of problems and the way in which you go about problem solving. Superficial change is a change of parts and products and usually entails the renaming of old attitudes with pseudonyms that are likely to foster approval within academic, professional and popular societies.

Since coming of age with the modern movement, architecture has changed only superficially, and at little expense to either the profession or our architectural programs.

Significant change will be more expensive. To the graduating architect it might mean an admission that his degree is in name only. To the architectural graduate it might mean that he could be joining a profession that is destined for extinction if he and his contemporaries choose to practice in the manner in which they were educated. To the professional it may mean that he has to admit that what he has done for the last 30 years has, to some extent, contributed to the chaos that is our physical environment and that he is, in fact, incapable of solving physical environmental problems through little other than the visual method — a method which has produced physical solutions that have been inconsistent with current technology and a strain on our earth resources and, very likely, on our social stability.

In order for significant change to occur within the architectural profession and its supportive educational programs, it is imperative that new abilities are realized.

Today, new abilities will only be realized through the development of methods of problem solving that are objectively communicative and are themselves susceptible to change in response to dynamic criticism and quantifiable feedback within a scientific framework.

One of the unique situations of architectural programs is that they have traditionally operated within an educational framework (the studio/complementary course format), and have been supported by a professional (design/complementary consultant services format) capable of responding to change. This has allowed a positive attitude toward the usefulness of criticism and feedback. Architectural programs, therefore, *do* have the capability of a scientific framework. In short, this framework is one that can promote analysis and synthesis as simultaneously cycling the proposal and the testing of hypotheses toward the development of new information (feedback) for the dynamic expansion of knowledge about the organization of geophysical, societal and technological forces.

Given these attitudes, it is apparent that architecture has the framework that will allow significant interdisciplinary problem solving in lieu of superficial interdisciplinary approach. Consequently, the generation of new abilities is possible, and based on these we will have the potential of generating new processes of problem solving that are relevant and generative to the tools and information available.

Since our educational programs and profession have a significant potential in the area of environmental problem solving, it is difficult to accept our past attitudes with respect to the organization of the physical and social environment. In the future, our participation in physical environmental organizations can clearly define a better environment if we recognize the relatedness of 1) our potential, 2) the development of new abilities, 3) our capability of achieving a scientific base and 4) our existing attitudes.

It is axiomatic that given a scientific base,

new abilities will develop and our potential as a significant and relevant profession can be forthcoming. It is also true that any framework is particularly dependent upon the attitudes of those who establish that framework, and the way in which attitudes generate communicative methods of problem solving. When viewed as simultaneous phenomena, attitudes and methods of problem solving are inseparable and, when viewed as separate interacting entities, inconsistencies can be identified. If it is assumed that we in architecture intend to solve physical environmental problems in as clear and responsible a manner as possible, and that we want to be able to produce useful ongoing information (over time), then there seem to be certain attitudinal inclinations within the profession and educational programs today that are inconsistent with our intention. These are:

1. We tend to be subjectively intuitive solution makers rather than systematically objective problem solvers. With this disposition, we create situations in which it is difficult to determine the exact errors in our building projects or other physical organizations. Since our method is particularly personal, it is also difficult to advise others as to how they might go about avoiding a specific error. In addition, given the inseparable mingling of our personally intuitive approach and personal pride in our work, it becomes almost impossible to admit that error has occurred. What this finally means is that, since we have been dealing only at the level of the parts of a personally defined system, we are usually not able to develop a process that can relate predictably useful information from one project to the next. Also, our dealings at the level of the parts does not give us the opportunity to direct our professional consultants and complementary course work toward the generation of analytic information that will be useful in the future.

2. We tend to resist the clear communication of useful information. Our preference is usually an advertisement of superficial heroics. This situation causes repetitive discovery of either useful or useless information that has already been realized in other situations; additionally, this attitude fosters the artificial visual mimicry of the latest, well publicized prize winners who, incidentally, may be subject to attitude 1.

3. We tend to define design as a physical object rather than the process by which we organize. "Design as a physical object" means that we are constantly placed in the position of having to reanalyze and resynthesize all of the geophysical, societal and technological determinants to each project that comes into the office. In fact, a complete analysis and synthesis of all determinants to any particular project is never realized because of the vast number of unique decisions that would have to be made. With this definition, therefore, we never have the possibility of completely solving any problem. "Design as a process by which we organize," on the other hand, means that a view is taken of the interrelatedness of determinants that are common to all projects. Initially, with this definition, it is again impossible to uniquely analyze and synthesize all determinants to a project. However, over time, this attitude leads to an accumulation of directly available and useful information.

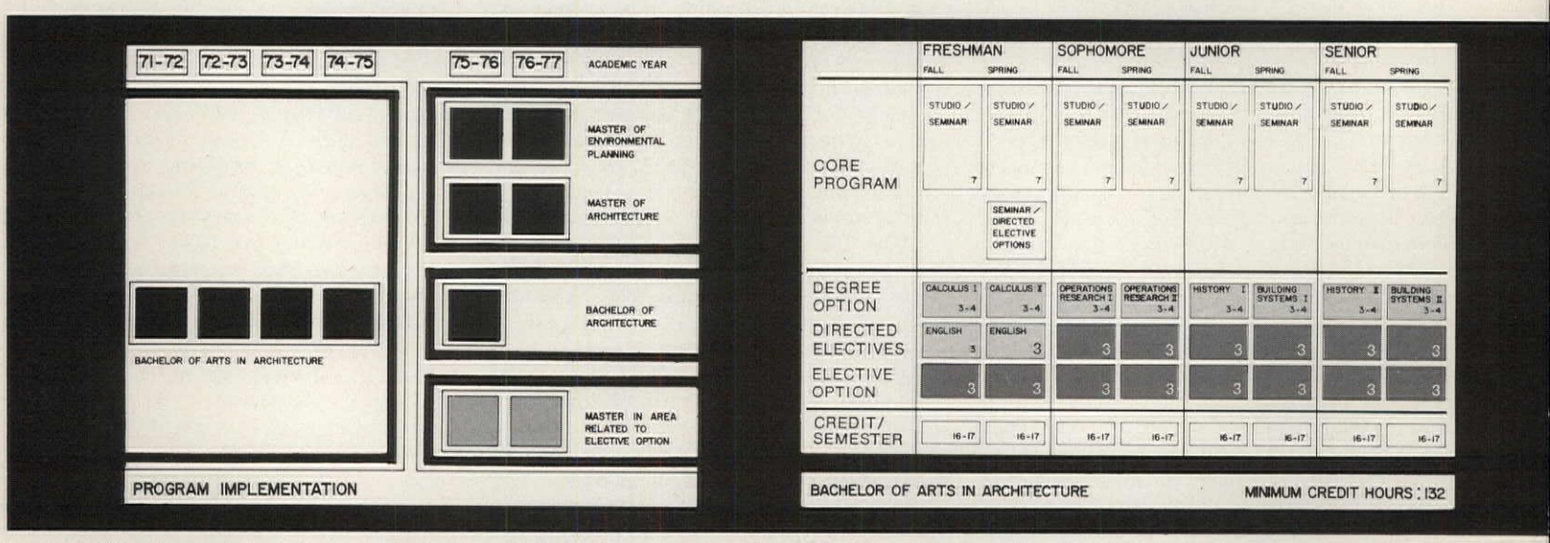
4. We tend to design solutions for, with information from, one point in time rather than solving problems over time. This attitude negates any abilities that we might have to predict physical organizations that, through an over time view, would be clearly understood as effecting our design solutions in the future. What happens with the one-point-in-time approach is that decisions are made on information available. There are seldom any of us in architecture who refuse to make decisions due to a lack of information and who go on to propose the type of information needed and the form in which this information will be most useful. Therefore, we attempt to justify our decisions concerning an office building complex or a master plan proposed for 1977 through bases like transportation information from 1958; socio-economic information from 1964; zoning requirements from 1965; commercial facilities plotted in 1969; and the latest volumes of Sweet's.

The point is that even though each of these sets of information might be very accurate, they have all been produced for one point in time. They have, also, been frozen at different points in time, making the information unrelated or unrelatable. If the information were all from the same point in time, it would be more useful. However, even this would not give us the ability to predict future information.

If we could get the information at the same points in time — five years on center — over a 50-year period, we would begin to develop the ability to predict. If two years on center, our ability increases. This argument can, of course, be carried to one second, at which time our abilities for prediction would be enormous. However, the machinery for analyzing and synthesizing such information would also be enormous. This machinery does not exist, and therefore we would not be prepared to use it, for we have not participated in the development of a language that allows us to look synthetically at the interrelatedness of useful information from different areas. (Incidentally, the National Aeronautics and Space Administration is going to orbit an Earth Resources Technology Satellite in 1972 and another in 1973. The information from these programs will be available to anyone; all we need is to know how to use it!)

With a change in our attitudes, it seems entirely probable that architecture will assume a significant position in our society. It also is quite likely that architectural programs will become the generative systems for educational frameworks capable of spawning the disciplines that will be needed to solve present and future social and physical environmental problems.

Specifically, it is our purpose to state as clearly as possible the attitudes, hypothesis, definitions and directions that we at the University of North Carolina at Charlotte are currently considering as the basis of a new program within the recently formed



Mr. Anderson is dean and **Mr. Mitchell** is assistant professor, College of Architecture, University of North Carolina at Charlotte. The ideas presented here are a result of study over a period of years.

College of Architecture. We sincerely solicit objective criticism that will lead to the further clarification of this thesis.

As has been stated, our parti is that:

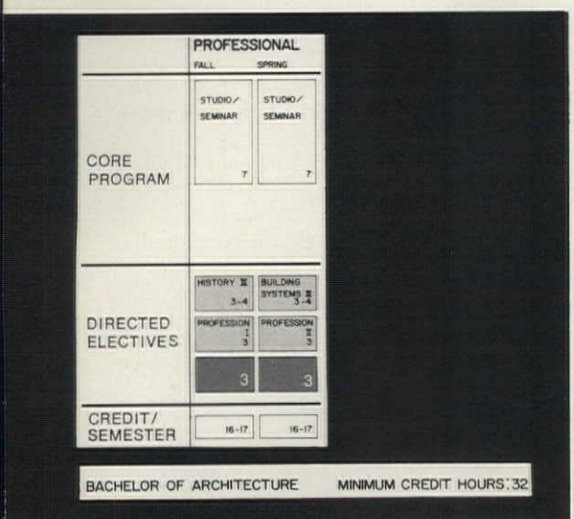
1. We intend to continue to be as objective as possible (the following listing should serve as the general base for generating — over time — attitudes that can contribute to the development of communicative processes of physical environmental problem solving).

2. All information developed within educational institutions and professions should be freely communicated in as clear a manner as possible.[3]

3. The architectural profession should change its major interest from the projects at hand to a process understanding of the physical environmental relatedness of geophysical, societal and technological forces.

Our basic attitude is that we are involved in the organization of these forces through the manipulation of man-made physical systems in our environment and that the man-made systems should, in all situations, reinforce the dynamic environmental equilibrium in our environment. This attitude will give us the opportunity to support directly the existence of man and the planet earth.

It seems appropriate here to describe in some detail the proposed program for architectural education at UNC-Charlotte. The intention of this program is to produce individuals who *have the ability to abstract; to organize information into useful form with respect to the abstraction; and to apply this information to real world problems and to come to reliable conclusions over time*. The basic method of study in such a program should be balanced analysis and synthesis.



In addition to new attitudes and methods toward education discussed previously, this program will fundamentally accomplish two things. First, through the seminar on directed electives options, each student is given the opportunity to make a rational selection of a second major; second, through the studio/seminar sequence, each student has the opportunity to objectively deal with real-world problems in our physical environment with respect to his chosen area of interest. There seems to be a number of advantages in this program: for example, each student can:

- Deal directly with objective problem solving within a scientific framework.
- Select a second curriculum major.
- Apply directly the knowledge developed in his second major in the problem solving sequence of the studio/seminar, contributing to the development of a common language.
- Choose some options at the end of the four-year undergraduate program: He may elect the fifth year for a first professional degree in architecture; do graduate work in either architecture or a related area of planning or in his selected area of interest; or leave the university with an undergraduate degree.

The following is a statement of our hypothesis: In order to generate methods of problem solving that are consistent with our basic attitude, physical environmental problem solvers from all disciplines will be able to develop a common language for procedural discovery through the following base:

Any organization (physical or nonphysical) is a direct response to the sets of determinants inherent to that organization. If any one of the set of determinants is changed, the organization exhibits a responding change. In effect, it becomes a new and unique organization. For instance, in the game of "rotation" played on a billiard table, the 15 balls are arranged in an isosceles triangle at the beginning of the game. This triangular arrangement is a response to the rules that determine the shape of the rack that determines the triangular configuration.

The rules also require that the 15 ball be located in the center of the triangle. If the game being played is eight ball, then the eight ball will assume the position occupied by the 15 ball in rotation. What has happened is that, even though the triangular configuration has remained the same, the nature of the organization in relation to the numbering of the balls has changed. Therefore, a new and unique organizational response has occurred.

This example of organizational response to a set of determinants (which may be defined as objects, rules, or forces inherent to the capabilities of an organization) can, of course, be extended from the attitude of "one point in time" to the attitude of "over time." In looking at organization response over time, a simple view could be taken at the end of each shot. This view again leads us to information at one point in time, but as information is plotted at each point in time (and accumulated over time), we will begin to be able to define the dynamic as well as static character of a system. It is also possible that we will begin to be able to predict organizational response to a change in forces.

Actually, when comparing this example to the situation discussed under existing attitude No. 4 and extending a similar attitude to other situations, what has become the basis of our hypothesis is that any organizational response can be described in terms of responding systems and force systems. Abstractly, these systems are defined according to the following:

A *responding system* is a physical or nonphysical group of parts and a set of rules that define the potential interaction of those parts; a *force system* is a system (parts and rules) stated in the terms that it limits other systems.

Given these definitions, it is hypothetically possible to develop a common language that can directly relate geophysical, societal and technological determinants through analytic and synthetic processes. The difficulty, however, lies in the area of the availability of useful information and our ability to gather and analyze that information over time.

Example: A building organization (force system)[4] is to be placed on a site. This site is analyzed and understood as a responding system composed of soil, vegetation, rainfall, sunlight, etc. The major requirement is that the development on the site should in no way upset the normal progression of the photosynthetic productivity of the vegetation of the site over a 10-year period. This problem, unlike the game of billiards, is insoluble.

The predictability of the solution for the billiards game problem is possible because of three phenomena: 1) Enough quantifiable information is available, and we have the required "handicraft" methods to use it. 2) The problem has been stated as a closed system. 3) The problem heuristically produces a predictable number of solutions at any one point in time.

The solution to the building organization is predictably insoluble for an inverse set of reasons: 1) Enough quantifiable information is not available and, if it were, we could, because of our training, only take an inadequate "visual" view of its usefulness. 2) The problem concerns a series of interrelated open systems. 3) A solution can only be found over time.

We are not suggesting that our hypothetical base has been proved impractical. We are suggesting that, given the current understanding (within our profession and educational programs) of the processes within our physical environment, we are unable to generate solutions that will support the dynamic equilibrium of the physical environment. If we as a profession accept that we ourselves intend to support dynamic physical environmental equilibrium, then the attitudes that will allow the generation of significant methods of physical environmental problem solving become quite clear:

1. We must be objective.

2. We must communicate our findings.

3. We must conduct experiments that monitor, catalogue and model quantifiable information about responding and force systems over time.

4. We must stochastically model intuitive and as yet unquantified information so that each conducted experiment can be as accurate as possible, therefore producing objective feedback that is the base for further experimentation. □

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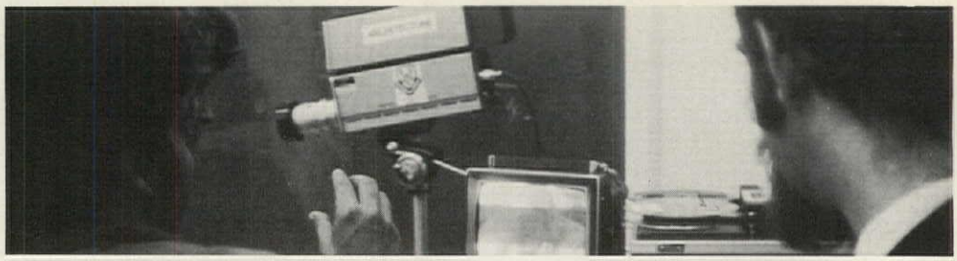
[1] The Princeton Report

[2] "Creativity and the Prediction of Success in Architecture" by Gary T. Moore. *Journal of Architectural Education*, April 1970.

[3] *The Systems Approach* by C. West Churchman. Delacorte Press 1968.

[4] In this example, the building organization is understood as a force system. Were a view taken of the building itself as a closed system, the structural, mechanical, movement systems, etc., would be viewed as responding systems while the physical and social forces within the building as well as the physical and social forces outside the building would be viewed as force systems. Were a planning view taken, the building would become one of the parts of a responding system. Were a regional scientist view taken, the physical community would become part of a responding system.



Research as an Aspect of Architectural Education

The annual conference of The American Institute of Architects and the Association of Collegiate Schools of Architecture is reported by David Clarke, recently appointed ACSA executive secretary.

The 1970 Teachers' Seminar was a well-designed conference with a wide variety of topics in parallel sessions. There was something to interest everyone each step of the way; yet, when an issue rose to central importance, the conference flowed smoothly to meet it.

The principal planners of the seminar, Robert Harris and Jerry Finrow, head and assistant professor, respectively, of the Department of Architecture, University of Oregon, and James Ellison, outgoing executive secretary of ACSA, provided some pleasant touches that should be noted for conferences in the future: a morning newsletter each day on the previous day's proceedings; a serve-yourself room with tables laden with whatever material conference participants wished to share; a conference program with space for copious notes; and a warm-up panel on the first day, consisting of people who do both research and design, and with diverse enough backgrounds to guarantee early inflammation. George Anselevicius of Washington University and in private practice helped this along with a list of complaints and suggestions well worth sharing:

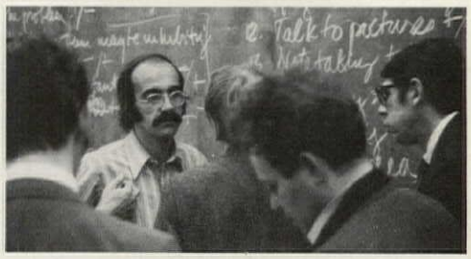
- We have too much information in too many places in too poor a form for use.
- Schools and offices ought to come together in doing research that is mutually supportive. (One complaint against the conference itself was that somehow, among the truly distinguished roster of participants, there were few representatives from offices which are doing a great deal of in-house research.)
- We must look harder at who pays, who distributes, who uses and, finally, who evaluates research.
- We must look harder also at the ills researchers are natural heirs to, such as incredible amounts of jargon and padding, inapplicability and the inaction syndrome generated by lack of deadlines and minimal contact with the day-to-day realities of office practice.

Beginning on the second day of the conference — which was held in Pittsburgh — there were four basically different kinds of presentation: individual papers, panel discussions, problem-solving sessions and a day-long tutorial by Daniel Carson of Pennsylvania State University for those of us willing to admit that we could stand to know more about research procedures than we do.

But the central issue of the conference was discovered in a Monday evening problem solving session led by Earl Rose of Synectics, Inc., a young and vigorous Cambridge firm that helps groups solve problems by removing the blocks that traditionally keep individuals from working together effectively. The topic was curricular experimentation: how to integrate research and design in a school's curriculum so that the sum is greater than the parts and so that the present bifurcation between the two becomes fiction.

Panel participants were Charles Rusch, University of California at Los Angeles; Russell Ellis, University of California, Berkeley; Robert Burnham, Carnegie-Mellon University; Ron Eichorn, University of New Mexico; Thomas Markus, University of Strathclyde, Glasgow; Barry Jackson, City University of New York; and Gary Moore, Clark University, who acted as "sponsor" and reporter.

After an initial period of getting panel members to drop their vested interests and start listening to each other the ideas began to fly. Between this evening session and the following morning's at-large reporting session, many ideas and opinions were generated. Among them were notions that research and design activities ought to appear concommitantly in a student's work; that the boundaries between them must be highly



permeable and that the individual design teacher must be skilled in both in order to facilitate in the merging process. Furthermore, that much of student research activity should be project-oriented so that research and design might occur together in a natural setting; and that evaluation processes should become a natural extension of the project time span.

In discussing actual curriculum machinery and structure, it was pointed out that there is a need to find out exactly what structures *do* exist in various ACSA schools throughout the country and use this information as a departure point.

One sign of a successful conference is that its work continues long after its planned length. By that measure the 1970 Teachers' Seminar was successful indeed. Further newsletters are either being prepared or have been mailed to all participants. Finrow has been named to lead a study into the prime topic of research curriculum, utilizing the ideas and information generated at the conference.

Publication of the proceedings is anticipated in the near future. For information about this document, write Jerry Finrow, Assistant Professor of Architecture, University of Oregon, Eugene 97403. □

1970 Rome Prize

Three architects and a writer this time walked away with the Rome Prize Fellowship in architecture and in environmental design. Winners in the first category: Myron Alexander Guran, born in Lvov, Poland, assistant professor of architecture, University of Oregon; and Peter Schmitt, of Washington, D.C., assistant instructor in architectural design at Yale University; and in the second category: Robert Regis Dvorak, of Madison, Wisconsin, assistant professor of architecture at the University of Oregon; and June Meyer Jordan, of New York City, teacher with the Department of Literature at Sarah Lawrence College.

The Rome prize is awarded annually by the American Academy in Rome to promising young American artists and scholars. It carries with it $4,500, a year's free residence and studio in Rome and use of the library and other facilities at the academy.

The 1970 jurors were, for architecture, Edward L. Barnes, FAIA, chairman; Philip C. Johnson, FAIA; Kevin Roche, AIA; and Robert Venturi, AIA; and for environmental design, Nathaniel A. Owings, FAIA, chairman; Edmund N. Bacon, AIA; R. Buckminster Fuller; Langdon S. Simons Jr.; and Paul Thiry, FAIA.

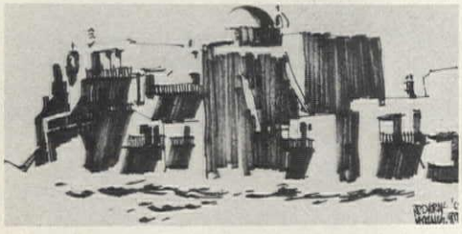
Mykonos, A Man-Fitting Environment

by Robert Regis Dvorak

Submitted to the American Academy in Rome as a proposed study project, this article is based on materials gathered for a film about the life and environment of Mykonos, Greece. It is one in a series of film presentations on urban open space directed toward solutions of the dilemma of our cities. (Works of the other Rome Prize winners will be shown later.)

To understand space and its use, one must see the total life process of the man/space atmosphere. The people make the place and the place makes the people. Realizing this, an observer of space, place and environment has only to ask the right questions. One often finds it helpful to leave familiar grounds for a time in order to be better able to perceive the problems at hand. Taking the distant view is often the only way to get close to a problem or to understand a situation. Although this principle is simple, few have learned its value.

My own experiences outside of the United States have been instrumental in the understanding of problems at home. Our cities can



be viewed as a game system. Board and players, property and people. In football the spectator can know more than the halfback because he has the overview of the whole field of play, whereas the player on the field can see only his position in relation to the three or four men he must deal with.

We cannot forget that during the greater part of man's history, men have been involved in either the welfare or destruction of man. We have grown accustomed to living alienated lives in our cities, separating ourselves from all but a select few, in many cases out of psychological necessity. But it is getting increasingly difficult to maintain this isolated living, whether it be for privacy or protection. With greatly increased population and living densities, mankind has only two choices: extreme isolation, or increased commitment to his fellow man. I foresee the latter as being the only alternative for survival.

Man, being nature, must live as part of nature in the broadest sense of the word. In order to survive (and my definition of survival is not sustaining life but fulfilling life), man must achieve a fit with his environment, a balanced healthy psychophysical relationship with his surroundings and with his

fellow man. A visit to Mykonos reveals an indigenous microenvironment where this fit has been achieved and is being sustained.

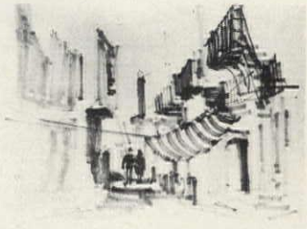
The people on Mykonos are committed to each other out of the necessity to survive. Many Mykonians never leave the island during their entire lives. They are content and happy where they are. The island does not war with anyone, there is no air pollution, overpopulation, crime or delinquency. Although the island's popularity is spreading and there are often not enough beds during the peak tourist season (in July and August there are sometimes more tourists than island inhabitants), somehow the people maintain a cheerful disposition and exhibit a sense of peace and happiness, in spite of often abusive uses of their environment by people insensitive to their culture and traditions. Perhaps their dependence upon the tourist for survival is part of this attitude; however, it is more likely their total commitment to their environmental life, exhibiting natural, traditional, religious and social values.

The approximately 4,000 people living on the island are subject to the natural force of an incessant prevailing wind from the northwest. But the wind as it whistles through the village streets becomes an audial companion, turning the windmills that grind the wheat, drying the clothes, blowing the streets clean, dispelling the smoke from the village

chimneys, keeping the air fresh and, in the summer, cooling a place that would otherwise be dry and hot. Clothes drying in the sun hang from ropes strung between buildings and can be seen daily blowing in the wind.

Mediterranean sunlight reflects from whitewashed surfaces, giving an overall impression to the physical structures of cleanliness, neatness, order and unity. The white reflections brighten what would otherwise be narrow, dark streets. The connecting white on the walls, pavements and roofs makes an ideal backdrop for individual color expression on the doors, windows and balconies. All this white gives the maximum contrast between shade, shadow and light, illustrating a traditional sensitivity to sculptural form a thousand years old.

Paraportianai, the oldest and most sculptural of the 500 or so chapels on the island, provides ever-changing shadow patterns, as do the other buildings and streets in Mykonos. These light relationships are a natural



clock telling the time of day as shadows move from sunrise to sunset. When the sun hits the street surface, the people retreat to interior spaces for relaxation during the hottest part of the day.

The cool sea water of the Mediterranean all around not only provides for physical and

psychological relief from the sun but also makes fishing one of the principal occupations, providing food and jobs for many of the men.

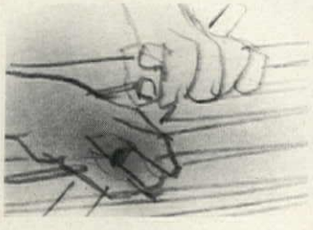
The port, the main connector between the town and the sea, becomes a center of activity when the fishermen arrive in the late morning hours to sell their fish. It is the arrival and departure center for ships transporting people and goods to and from the island, and a central meeting place for tourists and island inhabitants.

The port edge can be broken down into six parts which form a gradual transition between man-made structure and the natural sea: first, the buildings — shops, hotels, churches, restaurants and cafes; second, the temporary structure using canvas and covering eating and drinking areas; third, the open air promenade; fourth, the shore edge, the key, the beach; fifth, the fishing boats, an extension of the land into the sea; and sixth, unobstructed water.

Symbolizing the dependence upon water for the continuation of life, the ceremony of baptism is performed. Relatives and friends chant the prayers along with the priest, and the young child is anointed and then immersed in water, so precious and necessary to the survival of this town family.

Fresh water becomes scarce, especially during the summer months when the island is flooded with tourists. The public water faucets, which are now replacing most of the wells, are only open certain hours of the day.

Children learn from an early age how to fish and swim, sew and weave. Skilled hands work with all kinds of crafts, fishing, building, cleaning, painting, sewing, repairing, washing. Whether blacksmith, baker, or fabric maker, all are busy and industrious. Knitting and weaving are the main female occupations, whereas fishing and shopkeeping are the male activities. The inhabitants as a rule exhibit pleasant and funloving dispositions whether they work or play. Indeed, the two are often inseparable.



Mykonos is scaled so man fits environment and environment fits man. Its scale indicators can be seen in windows, doors, openings, stairs, streets, banisters and balconies. Transportation is by foot, by donkey or three-wheeled scooter, replacing the donkey for transporting heavy goods. Climbing and descending long flights of stairs is a daily activity of the old and young alike. The stairs and streets prohibit cars and buses.

Colored balconies connect the second-story living space with the outdoors. Some bridge over the street to the opposite house. Most of the houses use party walls. The closely tied architecture, party walls, bridges, reflect the social atmosphere where interdependence is necessary for survival.

With spontaneous and often symbolic overtones, one finds space/form public and private, interior and exterior. Often the inside (in our terms) is the outside and the outside is in. The street is a living room: a place for meeting, talking, watching, walking, buying, selling, eating, greeting.

The house, the shop, the church, the tavern: each fulfills many needs, some the same needs. The church — a place to think, to pray, to cry, to worship, to hear the latest news, to feel, to sing and to cleanse the spirit. The tavern — a place to think, to feel, to cry, to laugh, to hear the latest news, to sing, to dance and to cleanse the spirit.

The sounds of the place, the music, the chant, the bouzoukie, the loom, the windmill, the wind, the sea, are all part of the life and the environment.

Change, movement, time — is life, birth, death. It is day, a night. It is a sunrise, a sunset — the moon, the sun, the wind, the water, the tree, the animal, the bird, the flower, the machine, the shadow, the people.

Two dancers tied together arm in arm represent the community spirit of interdependent life. The streets and architecture of the town, woven together like a fisherman's net, indicate the closeness of this society. Just the opposite is found in the separate private isolation ward living in the US, where our connectors are telephone wires and TV antennas, and where people live and travel in single packages.

In America, the fight to maintain a status quo with power struggles, political unrest and urban dilemma continues. Our living spaces confine rather than free. This physical confinement shapes our thoughts, restricting change and exploration. Our buildings and cities need more and bigger openings so that we can look from the outside into ourselves, finding out where we are, look out and beyond. One must be able to change his viewpoint. Our isolation ward living breeds paranoia and defensiveness, a barrier to the joy of discovery and creativity.

Life in Mykonos continues with the same clean-fitting precision as the worn wooden clogs and wheels turning round and round in the windmill, perhaps an appropriate symbol of the close-fitting man-environment conditions that must be preserved if we are to survive. □

What's Happening in Architectural Education

Campus Notes. The University of Southern California has named Alan Kreditor director of its Graduate Program of Urban and Regional Planning. Professor Kreditor succeeds Dr. Ira Miles Robinson, who will be doing research and teaching on a full-time basis.

æ Harvard University has appointed Jerome W. Lindsey Jr. associate dean of the Faculty of Design. He will continue to serve, for the time being, as acting chairman of the Department of City and Regional Planning in the Graduate School of Design.

æ Burnham Kelly, dean for the last 10 years of Cornell University's College of Architecture, Art and Planning, has asked to be relieved of his deanship at the end of the 1970-71 academic year. He will return to teaching and research in industrial housing and land control.

æ The college recently combined its history of architecture and history of urban planning to form a new field of study, the History of Architecture and Urban Development.

æ Hampton Institute has made John H. Spencer director of its Division of Architecture. He replaces Bertram M. Berenson, who is now with the University of Nebraska.

æ The Pomona campus of California State Polytechnic College will offer the Bachelor of Science degree in architecture beginning with the 1971-72 academic year. A new department of architecture was established at the college last fall under the Division of Environmental Design.

Continuing Education. "Innovation in Building," a program covering planning, design, implementation and performance evaluation under the present changing sociological, economic and technological conditions, will be held March 22-26 in San Francisco. The fee is $300. Write Continuing Education in Engineering, University of California Extension, 2223 Fulton St., Berkeley 94720.

æ "Case Studies of Cable Structures," an institute to be held at Madison March 18-19, will emphasize cable roof structures as applied to small commercial buildings. The fee is $70. Write Lawrence A. Stoltis, University of Wisconsin Engineering Extension, 432 N. Lake St., Madison 53706.

Publications. A *Preliminary Report* on its current study of engineering technology education is published by the American Society for Engineering Education. Copies are $1 each. Write ASEE, Suite 400, 1 Dupont Circle, Washington, D. C. 20036.

æ The National Art Education Association's October issue of *Art Education* is directed entirely at our environment. Contributors cover the areas of architecture, art, ecology, education, politics, etc. □

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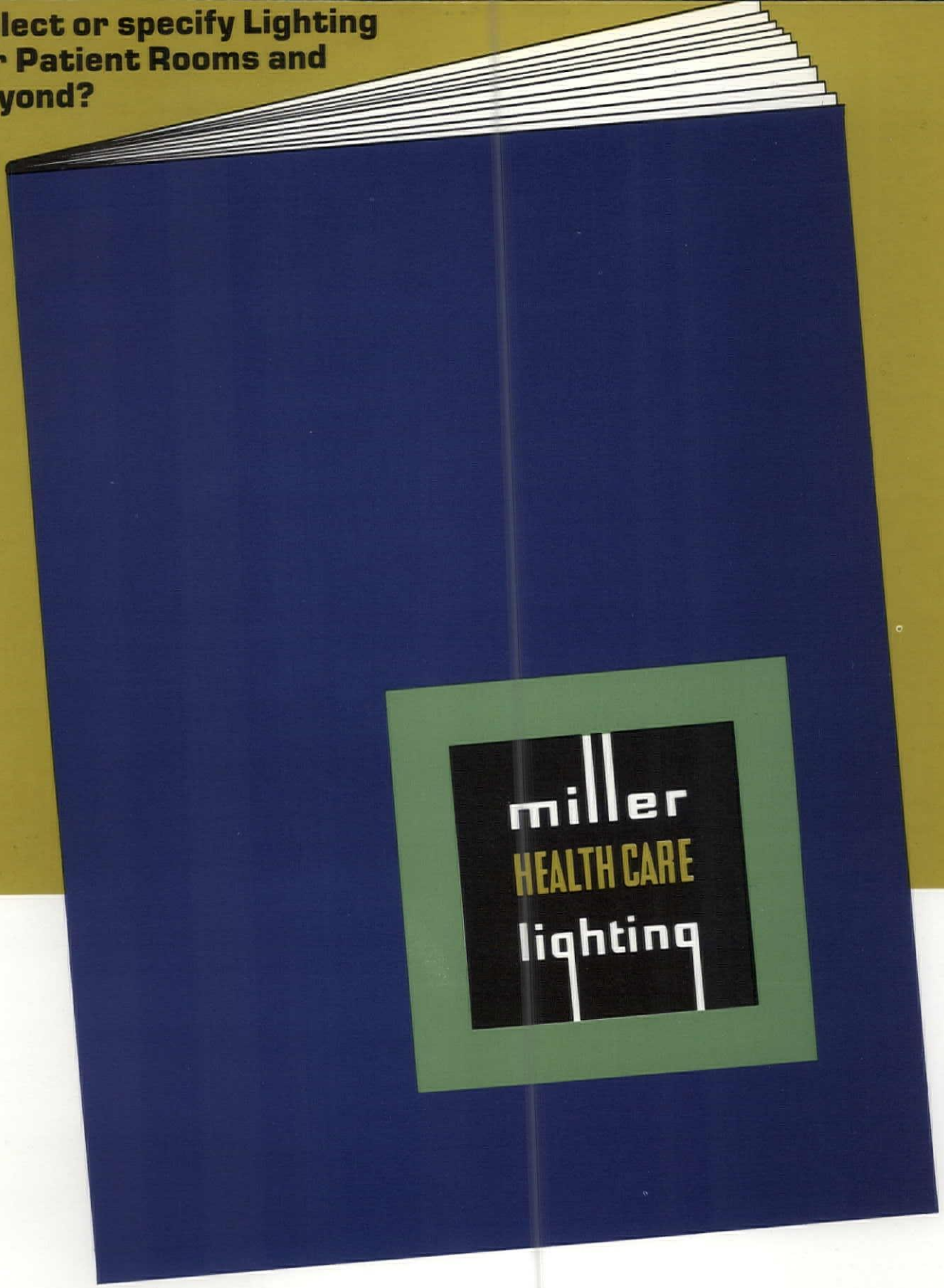

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Parks for All Seasons

Probably no other large city in the United States has such an extensive, far-flung park system as Denver. Susan Marsh, a Denver free-lance writer, relates how it came about.

Large cities strangling for park space might copy a visionary idea which was proposed for Denver by Mayor Robert W. Speer more than 60 years ago: parks far outside the city limits.

Denver owns 13,500 acres in 57 sites at distances varying from 15 to 60 miles from town. If all the mountain parks Denver owns were contiguous instead of scattered over 380 square miles, they would fill an area about the size of Manhattan. The parks range from Red Rocks, slightly higher than Denver at 5,681 feet, to Summit Lake, above timber line on Mount Evans at 12,740 feet.

Acquisition of the land — most of it over 50 years ago — was so far in advance of the city's needs that 24 of the sites are still undeveloped and unmarked. A person needs to consult a large-scale US Geological Survey topographic map to find them, for this shows the boundaries and labels them Denver Mountain Park Site.

Even the developed parks have large areas accessible only to hikers or rock climbers. Where there are picnic tables, roads or playground equipment, crowds gather on summer weekends. All parks are free to anyone so there can be no accurate head count, but a yearly attendance figure of 6 million is the estimate.

In early 1911, the Denver Chamber of Commerce, and independently the Denver Real Estate Exchange and the Denver Motor Club, pursued Mayor Speer's proposal. They later formed a committee which became the original Board of Park Commissioners.

In 1912, Denver voters overwhelmingly approved a charter amendment authorizing a mill levy for mountain parks of up to $500,000. Only one-third mill was ever taken. By 1926, $1,195,435 had been spent on the parks and the roads leading to them. In 1953, a charter amendment abolished the mill levy and the mountain parks now get less from the general funds than the former mill levy would have provided.

The state legislature passed a law enabling Denver to buy or condemn land outside its boundaries. Congress also passed an act enabling Denver to buy or accept as a gift federal land, including 7,000 acres purchased from the Bureau of Land Management for $1.25 an acre. About 2,000 acres were donated to the city and some land had been forfeited by homesteaders, but the bulk was bought from private owners.

Denver hired Frederick Law Olmstead Jr., a landscape architect like his father and also a city planner, and he recommended a principle that is still followed: close cooperation between state, county and federal agencies. He also urged the building of first-class roads and encouraged the city to buy enough right-of-way to protect important scenery. Furthermore, he advocated organized protection of land against fire, logging, exploitation and neglect. Most important, he warned that all the land should be acquired at once to prevent speculation and a rise in price.

The first completed project in the mountain parks was the Lariat Trail, a still impressive ledge road which leads to Buffalo Bill's grave. Lariat Trail, like most of the access roads built by the city, is maintained by another agency, in this case Jefferson County.

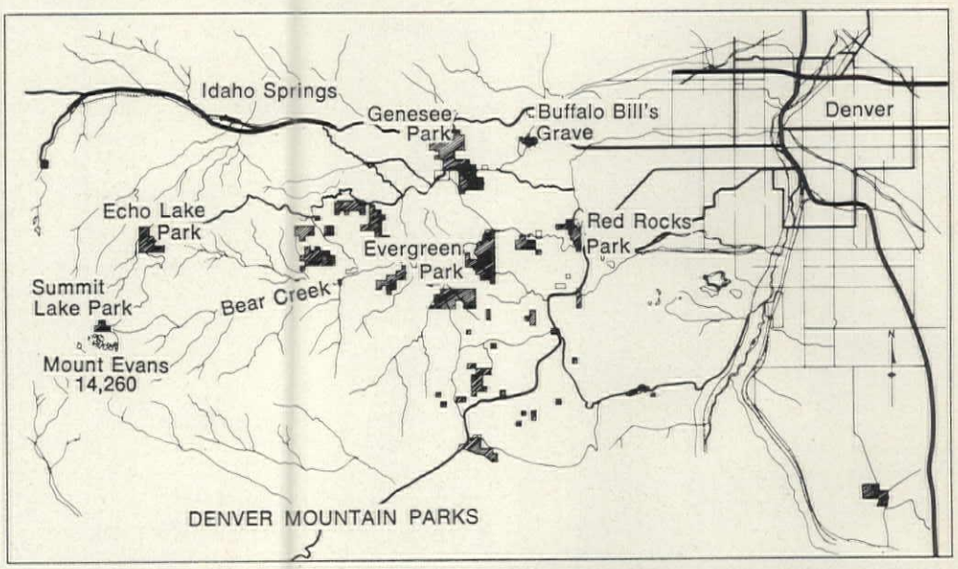
Most of the parks are primarily for picnics, but there are also scenic drives and tracts where buffaloes roam.

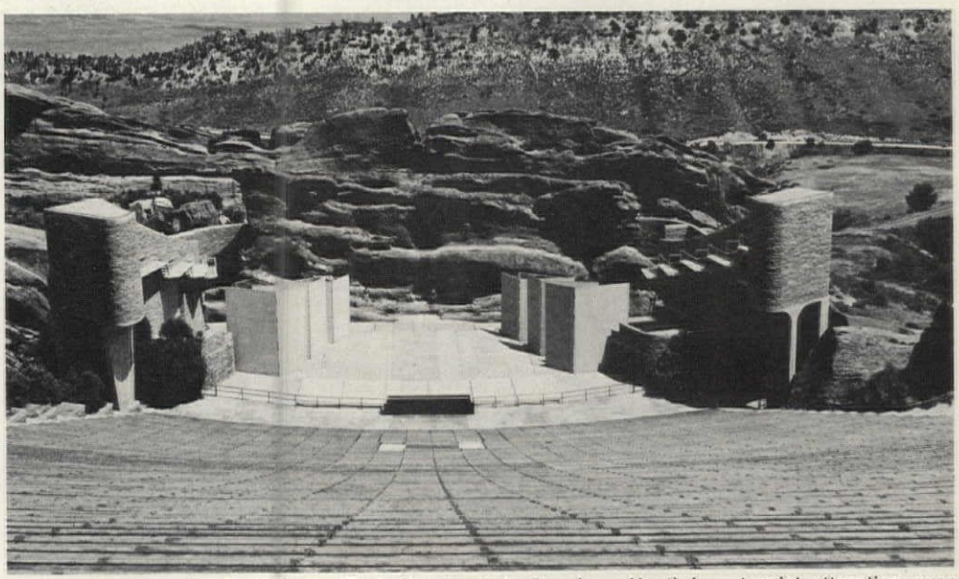
At Evergreen, the city of Denver has built a lake for summer fishing and winter ice skating. Adjoining the lake is an 18-hole golf course. Nearby are the sites where the 1976 Winter Olympics may be held; the Nordic events would be in mountain park locations.

Denver owns Winter Park, the most heavily attended ski area in Colorado, but has turned its management over to a nonprofit corporation. Camping has also been turned over to others; a concessionaire runs the campground in Genesee Park, for instance. Almost every visitor to Denver includes Red Rocks Park on his itinerary. Here, massive slabs of pitted, gouged and rounded sandstone tilt at startling angles. A 10,000-seat outdoor theater is built into the natural setting. This, as well as Winter Park, was developed through the efforts of former park manager George Cranmer.

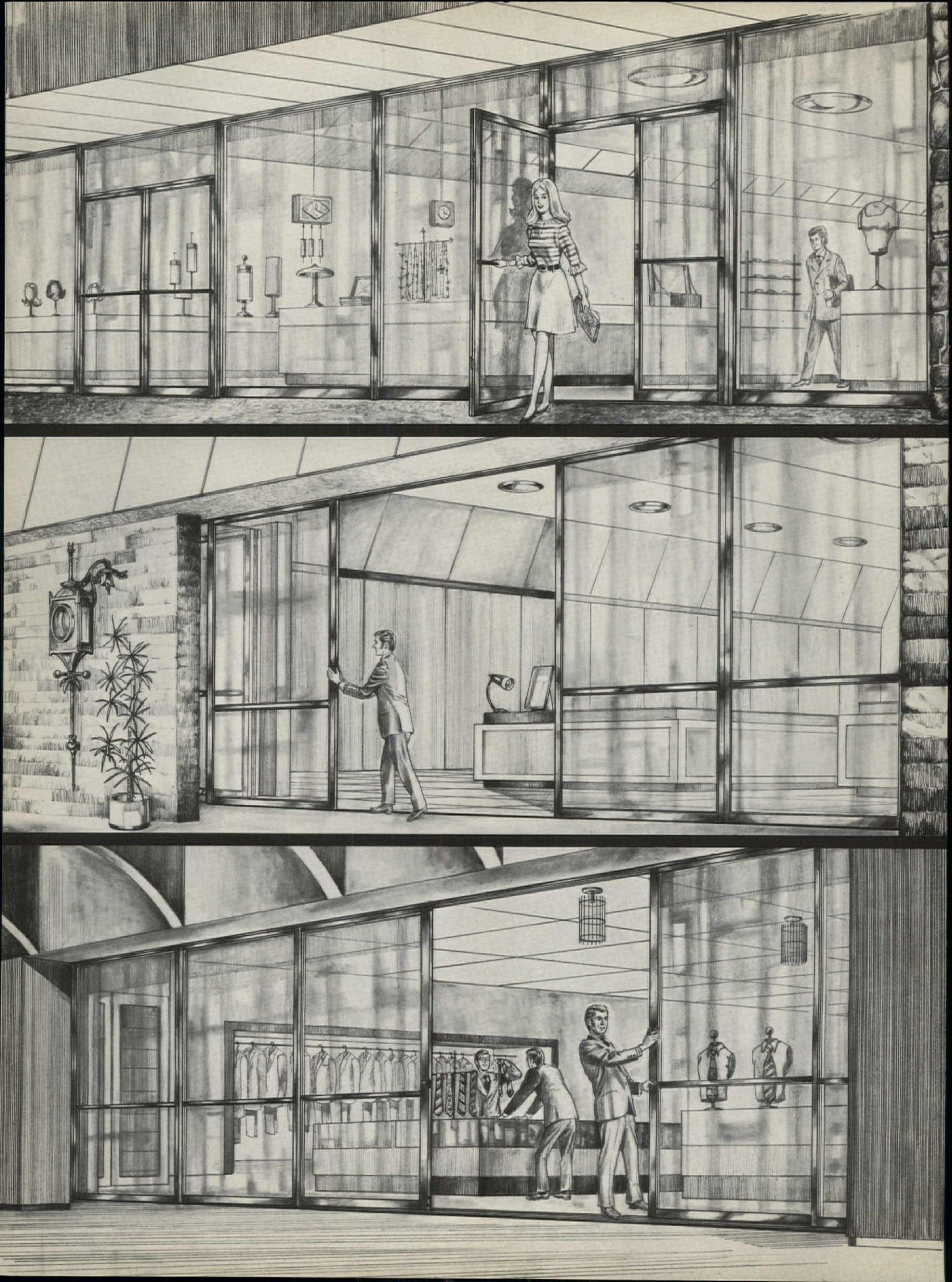
But the parks' popularity also brings problems. A quote from "Municipal Facts" of 1921 sums it up: "The time has arrived when traffic conditions in Bear Creek and on the Lariat Trail have become, on Sundays, city traffic conditions. A third of Denver's cars go to the mountains weekends."

Traffic congestion into the mountains on weekends is even worse, of course, in 1971 than they were 50 years ago, and winters are now as busy as summer because of skiing. Access roads to the parks are much improved, however, especially now that Interstate 70 is near completion. □





Open air theater in Red Rocks Park (by the late Burnham Hoyt) is a tourist attraction even when nothing is going on. Dressing rooms and stage lighting are provided in the structures; the wooden seats are warmer than concrete, an important factor at this altitude.



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Partitions That Defy Status Quo

The architect or engineer who looks for ways to design flexibility into research laboratories or other spaces may get some ideas from a system described here by W. Marshall White, project engineer with the Engineering Design Branch, National Institutes of Health.

To keep pace with the needs of rapidly changing medical research, laboratory alterations are frequently necessary. Unless the initial laboratory design embraces a concept of flexibility, changes can be difficult and costly.

A combined partition and utility support system recently developed now makes flexibility a possible feature in medical research laboratories. This system, designed by architects and engineers under the direction of Alfred Perkins, chief, Engineering Design Branch, Office of Engineering Services, National Institutes of Health, has been implemented in a renovation project at the giant NIH Clinical Center in Bethesda, Maryland.

In the renovation, laboratory walls were constructed of movable metal partitions. Between partition panels, open steel channels, positioned vertically, support utility services as well as a "utility ledge" which, in turn, supports outlet fixtures. In addition, the channels support wall cabinets, shelves and electrical raceways.

Over the past two decades, other systems were employed at NIH. Utility lines were attached directly to masonry units, plastered walls, or run through the core of 6-inch thick metal partitions. But in terms of adaptability, these approaches left much to be desired.

In detail, the movable, metal partition panels used in the renovation are factory finished, 1 foot wide, 2 inches thick, with a honeycomb paper core. Panels interlock with flush-mounted, open steel channels as well as with one another. The channels are spaced 4 feet on centers (though they may be placed at any multiple of 1 foot) and are factory welded back to back to provide for hanging utilities on both sides of the partition.

Mounting of brackets or clamps to the channels is facilitated by spring gripping nuts with serrated grooves. Spring-loaded and rectangular, the nuts can be thrust inside an open channel, rotated 90 degrees and released. When a screw is inserted and tightened, the serrated grooves of the nut are pulled tightly against the inner flanges of the open channel.

Utility lines, in general, are attached first to a channel-shaped pipe support, thence to the open wall channels. The purpose of the pipe support is to provide a "standoff" for the pipes, allowing room for insulation on steam and hot water lines. Other plumbing suspended includes vent and waste lines, cold and distilled water, steam and condensate return lines, as well as vacuum, gas and air. Waste line traps are installed, ready for hookup to sinks. Cupsinks and utility outlet fixtures are mounted in the utility ledge which, in sequence, is affixed to the open wall channels by triangular brackets beneath the ledge.

Playing a significant role in the entire utility wall system is standardization of parts and dimensions. Most appropriate intervals have been established for locations of waste traps, cupsinks and utility outlets. In fact, in the utility ledge, holes for pipes and cupsinks are factory cut. Hooking up fume hoods and peninsular sinks, on the other hand, are exceptions to the standardization concept. Special attention must be given to the plumbing for these items.

To provide for quick changeovers in the future, special adaptations were devised for dealing with the "now" configuration. For example, holes not used in a particular area of the utility ledge are sealed with plastic caps. In areas where no furniture is to be placed, metal partition filler panels are positioned beneath the utility ledge to hide utility lines. Where wall cabinets do not cover the open wall channels, snap-in face covers are available for sealing the open channels.

The beauty of this system is that nearly all plumbing can be installed before laboratory furniture and benchtops are fitted into place. Sinks and attendant hot and cold water faucets, of course, are an exception and must be hooked up when installed. All components of the system are readily available — and from more than one supplier. Such companies as Virginia Metal Products and Dowcraft Corporation are sources of supply.

To convert a lab to an office, filler panels are installed beneath the utility ledge, outlet fixtures are removed and holes in the ledge are plugged.

Should alterations be required in a laboratory building which has the utility partition system, laboratory furniture can be moved from one location to another. Benchtops can be changed from sitting height to standing height or vice versa. Because all fastenings are to channel posts, partition walls can be quickly disassembled and in most cases reused undamaged. Filler panels for closing in piping beneath the utility ledge can be cut from salvaged panels. Furthermore, converting a lab to an office, or the converse, is simple and efficient with few assembly problems. A minimum of skill by the workman is required not only for conversions but for initial erection of partitions as well.

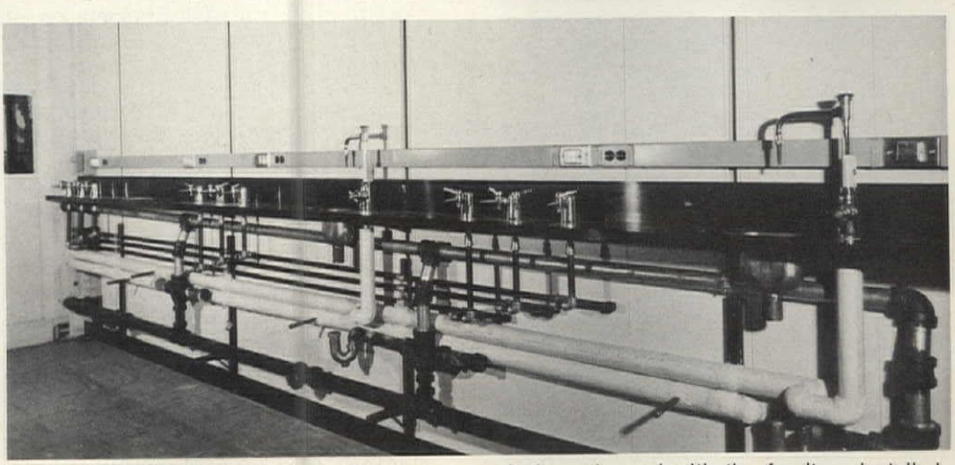
The use of office type partitions is expanded for multiple duty; besides laboratory use, the partition can support shelves to enable a room to serve as a library. By the addition of vinyl-clad gypsum board, or other decorative panels attached through battens to the channel posts, a room may be transformed into a conference room. Where special treatment for sound is needed, acoustical panels can be readily affixed to the partition.

With materials as well as dimensions standardized, warehouse inventories of parts can be sizeably reduced — a real boon in a large, multibuilding complex.

Aside from the many advantages offered by the system there would be, in certain cases, some disadvantages. For example, somewhat less benchtop working area (in one plane) than usual may be available when the top is at sitting height. Since the benchtop and the utility ledge are two separate pieces, there is more chance, even with a sealant, for leakage of chemicals between them than with a one-piece top.

Plans for further use of the movable partition utility suspension system have already been initiated at NIH — and on a big scale. In the National Institute of Child Health and Human Development buildings, now in the design stage, the new system is slated for another appearance.

The outlook for this and other concepts which meet demands for greater flexibility in laboratory design most assuredly appears bright. □



Utility ledge and lines suspended from open steel channels, and with the furniture installed.

A Student Leader's Point of View

The newly elected president of the Association of Student Chapters/AIA replies to pertinent questions asked him by Jack Fraser, assistant director, Public Relations Department, The American Institute of Architects.

Joseph T. Siff is an energetic representative of student opinion and an older tradition in politics. The 23-year old Siff shares the confidence of most Texans and has experience in national and state politics which most architectural students and practitioners lack. He worked in the coalition that attempted to change — with some success to date — convention procedures of the Democratic Party. He has aligned himself also with young lawyers, including his twin brother, trying to modify the operations of the University of Texas system Board of Regents.

Joe Siff was born in Akron, Ohio, but moved to Texas when he was four months old. He was educated in the public schools of Spring Branch, a suburb of Houston, and attended Lafayette College at Easton, Pennsylvania, for a year before transferring to Rice University. Now in his fifth year at Rice, he has worked four years part-time for the Houston firm of Caudill Rowlett Scott. His father, Alvin Siff, is merchandising manager for Foley's Department Store chain and his mother, Iris, is managing director of Houston's acclaimed Alley Theater.

Siff was interviewed less than a week after he was elected to head ASC/AIA.

What is the mood of architectural students?

Our general attitude is that the profession should be more responsive to the needs of the general population rather than special interest groups. The age of the dilettante architect is dead as far as students are concerned. We need to provide a more livable environment for all mankind and be active in the issues that affect this environment, not just in structures that shelter, but in the infrastructure, the in-between space in the city, the glue that holds it together.

Will today's students end up as practicing architects?

Yes. But let's clarify that. Our definition of architecture places it as an evolving profession. The main criterion for judgment will be product delivery. The means by which delivery is achieved is architecture. Therefore, architecture will involve much more than pen-and-ink drawings and Beaux-Arts education. It will involve acquiring the tools to allow you to deliver a product.

Will it be hard for the architect, in this context, to anchor a role?

Not if we conceive of it as Art Symes (ARCH director in Harlem) says — learning how to "deal" in the environment. All the professions are evolving. Medicine, law, even the arts, are going to the people and finding out what they need and want and then serving them, helping them to get it. The new architect will be a generalist initially. He should have an interdisciplinary frame of reference. Then each architect will have to decide where he can best serve in helping to provide the livable environment.

What place does the traditional, technical competence expected of an architect hold? Will students of today be able to perform tomorrow?

I've learned at work that there are a number of specific tasks that an architect has to perform. They are the same in most jobs. They have to be done in order that the job be delivered. These aren't simply technical functions, yet they take a trained technician. Some of the work could be performed by persons with a technical education. Others demand a person who has both technical and broader training. My personal opinion is that technical skills are never wasted even if an architect does not fully use them. The skills remain as a subconscious framework from which decisions can be drawn. Technical skills are never wasted.

What kind of architectural education is needed for the future?

The educational system has to be changing, evolving. It can't be static in a formalized form. You can't offer one set curriculum for 250 individuals, and we are not doing that at Rice under Anderson Todd. We see a department of architecture as a form of warehouse of knowledge with students picking what they need for the areas of special interest, in addition to certain knowledge shared by all. The objective in education should be to stimulate a lifelong search. We expect architects to be learning all their lives. In this context, we want to maximize a sharing or pooling of information and experience. That's one reason we are seeking the exchange program in which students could go to different schools to take advantage of special resources.

How receptive are the government and the people of the United States to concerns of architectural students?

We are concerned and disappointed with the Nixon Administration's lack of commitment to the protection of the future of our environment and, therefore, our survival. But we think governments and peoples can change. I work for change within a particular system until that proves fruitless. If a system can't evolve from within, we have to work from the outside. As a nation, we can do whatever we want to do. Ninety percent of the problem is making the commitment. Once it's made, you're on your way to delivery.

"The objective in education should be to stimulate a lifelong search. We expect architects to be learning all their lives."

Aren't there dangers in the architect's becoming deeply involved in politics?

It's frustrating to answer that accusation. It shows a lack of understanding. Politics per se is not negative. Politics is how things work, how things get done. John Kennedy, for me, made politics exciting, stimulating, worthwhile and constructive. The person who isn't "in politics" is negligent. It's not our prerogative but our responsibility to be involved in the future. A church near my home said on its bulletin board: "Today is the first day of the rest of your life." From that day on, there isn't a day that I don't think of that. It's a necessary attitude for all of us.

What about political methods? How do you approach your new job?

I don't want to be limited to one role. I may not always be predictable. It's ridiculous to take on the costume or appearance of a personality who will immediately turn off certain people. It's ridiculous from a tactical standpoint.

What do students want from the AIA?

We're not asking for something out of the AIA. It may provide $60,000 to ASC, but that is a legitimate business expense, a maintenance cost — not a gift or a bribe. It's an investment in the men and women who will be AIA members some day.

What, then, are ASC's goals within the AIA?

We're asking that the AIA make the successful operation of community development design centers around the country its number one priority. We also would like to see the Task Force on Professional Responsibility continued and strengthened and its work given more energy and funding by the AIA. We are asking also to change the ex officio status of the ASC/AIA president to that of full voting membership on the AIA board.

What changes in program and structure have been adopted by ASC/AIA?

We have taken, I think, a giant first step toward moving a year-long program in the establishment of four vice presidents with specific jobs: finance and fund raising; CDC help; public education; and architectural education. We have plans for a newsletter, a fact sheet with information on the programs and curricula of each architectural school.

Is there a chance of a black walkout from ASC and the AIA?

No. How could they seriously consider this when the AIA has achieved some results to date on the accreditation of six black schools of architecture, and ASC unanimously voted to seek a seminar during 1971 where the special problems of blacks and other minorities who expect to be practitioners in their communities will be explored?

If you were 50 today, how would you view student architects?

It's not age that makes the difference between people — it's attitudes and the ability to accept new ideas and to analyze them objectively. □

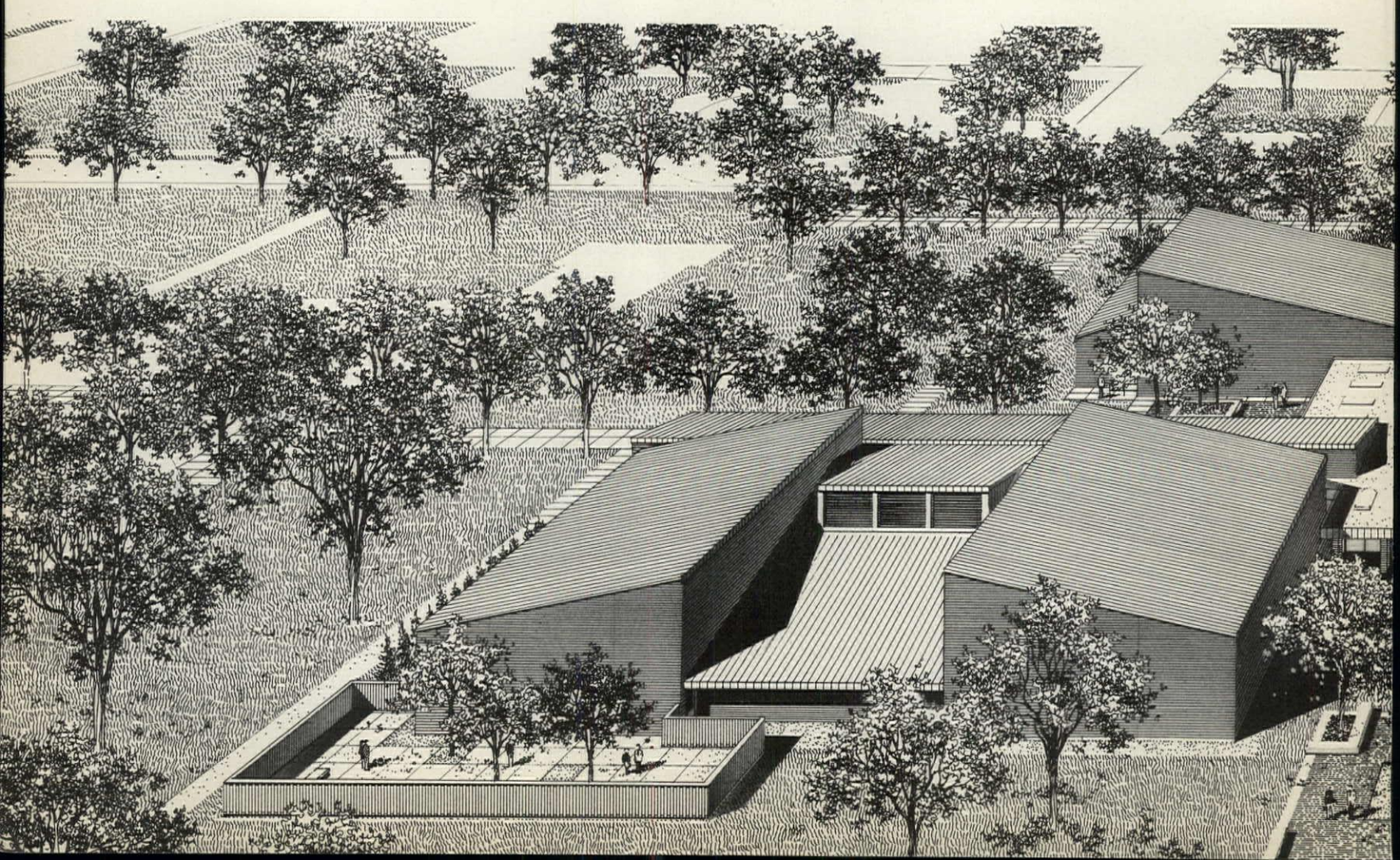
TCS:

Rehabilitation Center
Buffalo State Hospital
Buffalo, New York

Rendering by Brian Burr

Architects: Milstein, Wittek, Davis & Hamilton
Buffalo, New York

A project of the New York State Health and Mental Hygiene Facilities Improvement Corporation for the New York State Department of Mental Hygiene



THE LOGIC OF ITS USE.

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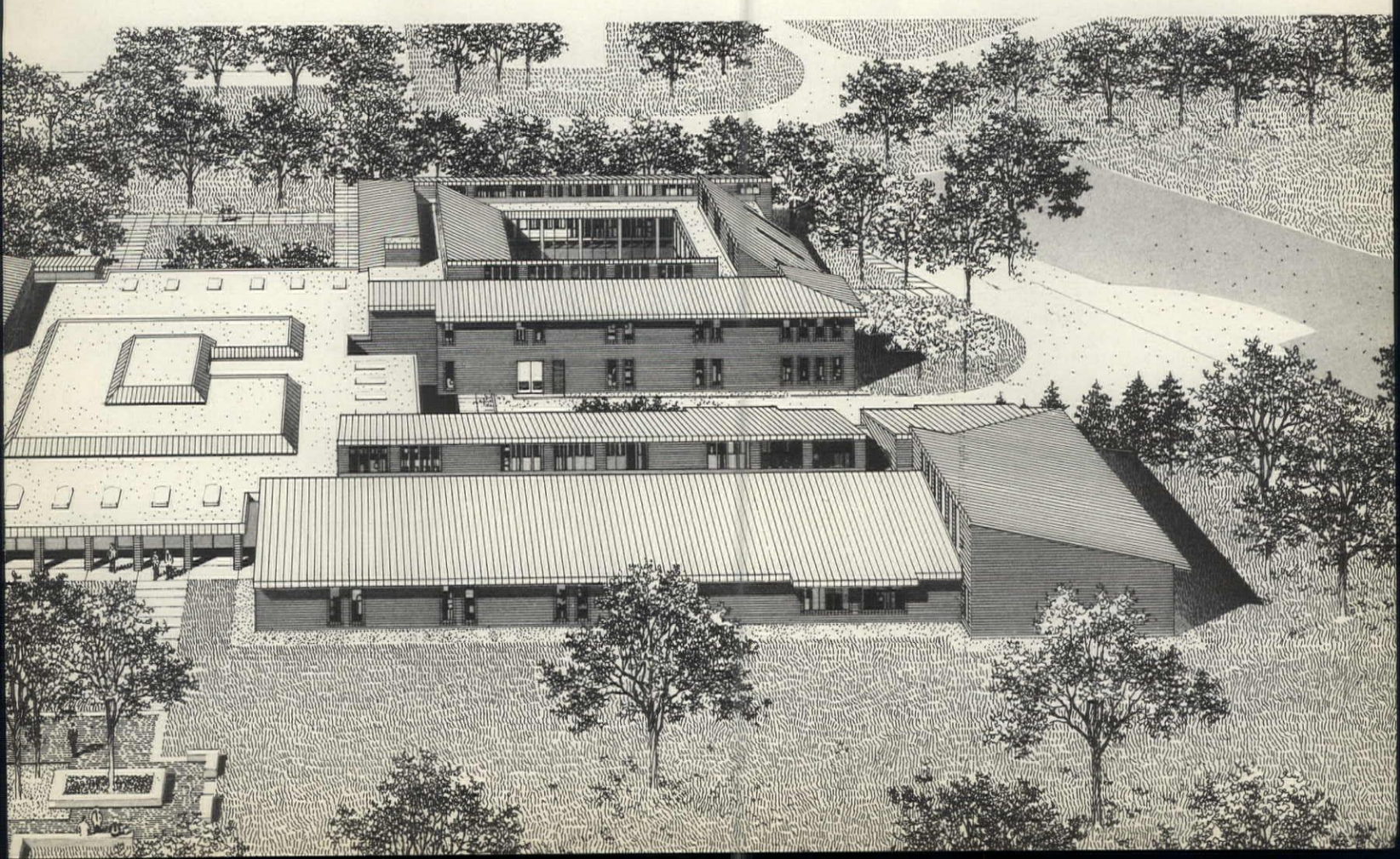


books

Legal Aspects of Architecture, Engineering and the Construction Process. Justin Sweet. St. Paul, Minn.: West Publishing Co., 1970. 953 pp. No price given.

Over the years, there have been a number of attempts to provide architects and engineers with basic legal works suitable for a layman's understanding of legal principles applicable to his work-a-day world.

None of these efforts has been completely successful, nor can they be for the simple reason that practicing architects and engineers are subject to the whole body of law, which cannot be compressed into one book, no matter how well done.

Sweet, a professor at the University of California, has made another valiant attempt to summarize what he considers to be the main legal principles affecting A/E practice. His premise is that in the transition from school to practice the neophyte takes a "cold bath" when he moves into the world of clients, contractors, developers, building inspectors and loan officers. "An understanding of law and legal institutions may not eliminate the 'bath,' but it should reduce the shock and make the transition more tolerable."

If practitioners will read his book in this light, undoubtedly they will benefit, but Sweet would be the first to agree that it is not a substitute for professional legal advice. He divides the content into five basic parts: legal doctrines, professional-client relationships, laws relating to land, the construction process and professional practice problems. The text is followed by standard forms for O/E services, A/E services, owner-contractor agreement, general conditions, performance bond, labor and material payment bond and the construction industry arbitration rules. Unfortunately, some of the standard AIA forms reproduced in the appendix are the 1967 rather than the 1970 editions.

It is clear that Sweet has a good grasp of A/E practice problems based on his studies for informal lectures and regular academic courses given to architectural students at Berkeley from 1963 to 1969. For example, he provides a brief but adequate review of the pros and cons of the design professional's role during construction, noting the high liability exposure compared to the low fee attributable to those services. And he wisely includes the full text of one of the most informative cases on the liability danger arising from "supervision." (Pastorelli v. Associated Engineers, Inc., US District Court, R.I., 1959, 176 F. Supp. 159.)

Another valuable discussion is in the area of cost estimates — a continuing troublesome problem. His analysis concludes that "the professional societies are doing all they can in their printed forms to have any cost predictions considered merely cost estimates. The courts, on the other hand, seem to be ruling in accordance with what they consider to be the basic understanding of the client rather than the language of the contract."

The author includes an excellent index and a full text of key cases illustrative of particular points. Lawyers using the book will wish that he had included also a table of cases. Some other important current practice areas reviewed by Sweet include the collection of fees, subsurface problems, registration laws (including A/E jurisdictional disputes), indemnification, liability insurance, service as an expert witness, application of the Wage-Hour law (but not labor law generally) and arbitration.

In this reviewer's judgment, Sweet has come closer than his predecessors in compiling a valuable text on legal aspects of A/E practice. The careful practitioner, however, will remember that "a little knowledge is a dangerous thing." If one is tempted to act on legal questions by reading this book, he might well ponder Lincoln's admonition: "A person who represents himself has a fool for a client, and an ass for a lawyer."

MILTON F. LUNCH

The reviewer is general counsel, National Society of Professional Engineers.

Open Space for Human Needs. Marcou, O'Leary & Associates. Edited by Donald Canty. Washington, D.C.: National Urban Coalition, 1970. 51 pp. Free.

"What human values and preferences should open space serve? How can these values be applied to the design of particular types of open space? How can the specific values and needs of different groups within the population be identified and incorporated into the open space planning process?" These questions are raised in this timely report, and the study "represents a beginning attempt to answer the questions."

The concepts undergirding the report were developed at a conference conducted by Marcou, O'Leary & Associates, a subsidiary of Westinghouse Electric Corporation. The firm made use of background papers by Kevin Lynch, Marvin J. Cline and Carl Feiss, FAIA, in the preparation of this report, published under a grant from the Department of Housing and Urban Development. A method is proposed for surveying an area's social as well as physical structure whereby open space plans can be made in accordance with the needs and attitudes of the potential users of the space. It provides guidance to state and local officials in planning and designing spaces which are not totally committed to traditional recreation activities.

The communities of Anacostia and Meridian Hill in Washington, D.C., are used to illustrate the approach to open space planning. The conclusions and recommended design solutions take on concrete meaning when applied to real communities in a particular city.

There is much useful information in this study, and it is recommended for all who are concerned about our cities.

American Architects Directory. 3rd ed. Edited by John F. Gane, AIA; editor emeritus, George S. Koyl, FAIA. New York: Bowker, 1970. 1,126 pp. $22.50 members; $35 nonmembers.

When this reviewer worked in an architectural reference library, rarely a day went by without consulting the second edition (1962) of this work. The new edition, with a 60 percent increase in listings, is an even more invaluable tool.

This is the standard professional directory of information on members of The American Institute of Architects (sponsors of the publication) and on selected nonmembers who are principals and partners in architectural firms. Each biographical profile includes information about the architect's education, previous professional affiliations, present position, states in which registered to practice, his five principal works through 1970, professional honors and awards, publications, memberships, public and/or government service and current educational and AIA activities — a veritable treasure house.

Still more useful information is in this edition. More than 3,500 architectural firms are listed with full name and address, name of predecessor firm, addresses of branch offices and names and professional status of principals. Heretofore, it has been hard to dig out current data on firms.

Other features of the book are a geographical index, a necrology and descriptions of medals and awards presented by the AIA with names of recipients. Also there are names and addresses of AIA officials and staff. Listed as well are state architectural registration boards and members of the Association of Collegiate Schools of Architecture.

The publisher says that this directory is "a barometer of the tremendous growth of the architectural profession over the past 14 years." It is, indeed. The first edition, in

1956, carried 9,000 listings. The second, in 1962, increased the number of biographees by nearly 50 percent, and this latest edition brings the total number of listed architects to more than 23,000.

The directory is certainly a necessity in any of the larger public and college libraries; the individual architect as well will find it valuable. MARY E. OSMAN

Gothic: The Age of the Cathedral. Paul Simonsen, AIA. New York: Exposition Press, 1970. 333 pp. $7.50.

The author — a fellow student, colleague and friend of mine for 50 years — tells us his book is not a formal history, nor is it intended primarily for the student of architecture. Rather he draws upon his vast knowledge of the Gothic period to provide a book of unusual interest for the general reader. In instances, he invents minor characters and dialogue to illustrate his points, but he never violates historical truth.

The story begins with an exciting bit of fiction about two of Rome's thousands of vagabonds in the year 999. While these years were called the Dark Ages, it was this period that produced many inventions useful to man. The nailed-on shoe, the rigid collar and traces for horses and the wheeled plow were among the items that made survival possible during those harsh and difficult times.

The Middle Ages was a period in which every trade was still an art and every art a source of inspiration. The author conducts the reader on a journey to that era recreating before his eyes the building of the great Gothic cathedrals. Construction of these masterpieces in stone was closely tied to the political, social and religious climate of the time, from the 10th to the 13th centuries. It is remarkable how the problems of the Middle Ages parallel those of the present. But as the author states, "They had not yet been spoiled by affluence as our modern-day neurotics are."

This story of the promise and fulfillment of Gothic architecture makes highly rewarding reading. E. JAMES GAMBARO, FAIA

The Urban Design Report. Seattle: Bridges/Burke, Architects, 1970. 168 pp. No price given.

The Washington State Highway Department contracted for a one-year concept team study of a segment of I-90 in the Seattle area. The recommendations of the consultants, Bridges/Burke, focus on three major areas. Two are large joint development projects within the right-of-way of the highway and the third is a relocation housing project in the vicinity of the new highway.

While the future of the recommendations contained in the reports is questionable at this time, one can chalk up at least one gold star for the Washington Highway Department for exploring the possibilities of joint use. Perhaps the whole investigation of I-90 would have been improved had the concept team developed alternative alignments. If this had been done, a much broader frame of reference could have been employed for evaluating the costs and benefits.

In recent testimony before Congress, the AIA has proposed that design teams be required to evaluate alternative alignments for all federally aided highway projects.

MICHAEL B. BARKER

The reviewer is director of Urban Programs at Institute Headquarters.

Interior Design: An Introduction to Architectural Interiors. Arnold Friedmann, John F. Pile and Forrest Wilson. New York: Elsevier, 1970. 303 pp. $14.

This book is about the basic facets of interior design and its relations to the environment in general. It contains a great deal of pertinent information about such matters as form, scale, texture and color and light. It focuses upon architecture and its function and planning.

There is a discussion of interior design in current practice with a look at such topics as work, living and public spaces. Furniture, interior materials, lighting, accessories, art and systems design are covered. In a section on interior construction, the authors consider building materials, architectural drawing and interior environment. It concludes with a section on professional practice in which the role of the designer is seen in its most typical aspects.

Interior design is viewed as a specialized branch of architecture. Architectural firms with or without interior design departments will find this book of considerable help. Written by three authorities, it concerns good interior design and how to approach it. Well illustrated, the book concludes with a selected bibliography which will aid those who want to pursue its topics in greater depth.

Otto Wagner, 1841-1918: The Expanding City; The Beginnings of Modern Architecture. Heinz Geretsegger and Max Peintner. New York: Praeger, 1970. 276 pp. $25.

Most of this handsome book is given over to a photographic study of Wagner's works and projects. The authors, two Viennese architects, have taken new photographs of all Wagner's extant buildings. In addition to the truly impressive designs, illustrations, photographs and documents, there is a short biography of Wagner, a comprehensive bibliography and a chronological listing of Wagner's works and the principal events in his life.

In a preface provided by Richard Neutra, he says of Wagner: "For two generations now my being has drawn strength from the memory of Otto Wagner and has clung to him with affection." Many other architects have been influenced by this seminal thinker, among them Le Corbusier, Gropius and Mies van der Rohe.

Walter Burley Griffin: Selected Designs. Edited by David T. Van Zanten. Palos Park, Ill.: Prairie School Press, 1970. 113 pp. $25.

Griffin called himself a "ground planner" rather than an architect, and he devoted most of his life to site and town planning. This book, superbly produced, contains a range of his designs as visualized in the beautiful drawings of his wife, Marion Mahony. There are over 50 of her drawings with six transcriptions of Griffin's addresses and writings. The drawings, collected from libraries in New York, Chicago and Australia, include Griffin's award-winning design for the Australian capital city of Canberra.

Day Care Centers. Karen E. Hapgood. Chicago: American Society of Planning Officials, 1970. 33 pp. No price given.

With women's lib in the act, it's almost a foregone conclusion that one of their demands will be met and more day care centers will be built in this country. This report, one in the series of ASPO's Planning Advisory Service, is a useful document for the architect. The first part sets forth the reason why such day care services are needed for children in the preschool age group and how existing services operate. The second half of the report discusses planning considerations, costs, financing, standards and zoning for day care centers. Not a great deal has been published on the planning of child care centers, and this report is a welcome one.

Will They Ever Finish Bruckner Boulevard? Ada Louise Huxtable. New York: Macmillan, 1970. 268 pp. $7.95.

Those of us who have a tendency to clip every *New York Times* that contains one of Mrs. Huxtable's pieces of architectural criticism will be glad to have this book and get rid of some of the clippings. This is a collection of some of her better articles, arranged by subject rather than date of appearance in the paper.

Lima, Peru: A Study of Housing in an Arid Coastal Region. Robert D. Troy. Lubbock, Tex.: International Center for Arid and Semi-Arid Land Studies, 1969. 55 pp. Free.

The author, a member of the AIA, worked on this project with a Langley Scholarship. Lima presents a good case study for the documentation of knowledge about arid and semi-arid lands because of its location. Here, Troy analyzes architectural solutions to housing problems in such a climate. The text is supplemented by many photographs.

The Picture Palace and Other Buildings for the Movies. Dennis Sharp. New York: Praeger, 1969. 224 pp. $12.50.

An account of the movie house — from nickelodeons to drive-ins. The picture palace reached its heyday in the United States, and its origins and colorful changes are discussed as well as theaters in Great Britain and continental Europe. Numerous photographs, plans and sketches.

Urban Dynamics. Jay W. Forrester. Cambridge: MIT Press, 1969. 285 pp. $12.50.

Forrester contends that the measures taken to solve the problems of American cities

often intensify rather than alleviate them. In this book, certain to cause debate, he examines the nature of the urban problem, its causes and possible corrections in terms of interactions between components of the urban system.

Nursing Home Standards: A Tragic Dilemma in American Health. Jordan Braverman. Washington, D. C.: American Pharmaceutical Association, 1970. 75 pp. $2.50.

This study provides information about federal and state regulations applicable to the construction and operation of nursing homes. It highlights standards the homes must meet to qualify for certification and operation under medicare and state licensure programs and notes as well the tragic absence of even minimum standards in some areas.

The Office in the '70s. Elmhurst, Ill.: Business Press, 1970, 120 pp. $4.75.

A compilation of articles originally presented at a symposium called by the Business Equipment Manufacturers Association in 1969. The papers concern people, organization, machines, building and environment.

Le Corbusier: Last Works. Edited by Willy Boesiger. New York: Praeger, 1970. 208 pp. $25.

A number of buildings and plans of Le Corbusier have been executed or completed since his death. Here are some works never previously published, making this volume pertinent to Le Corbusier admirers and students.

German Architecture, 1960-1970. Wolfgang Pehnt. New York: Praeger, 1970. 240 pp. $20.

A survey of Germany's rich and colorful architectural panorama from Mies van der Rohe's classical modern style in the Berlin National Gallery to the pneumatic construction and spanning systems of Frei Otto.

Chartres Cathedral: Illustrations, Introductory Essay, Documents, Analysis, Criticism. Edited by Robert Branner. New York: Norton, 1969. 278 pp. $6.95.

Chartres Cathedral is acclaimed for its magnificent architecture, its abundance of sensitive sculpture and stained glass. Here Branner provides a penetrating guide for its study, bringing together critical documents that have appeared across the ages about the cathedral and its glories.

The History, Principles and Practice of Symbolism in Christian Art. F. Edward Hulme. Detroit: Gale Research Co., 1969. 234 pp. $10.

This book, first published in 1891, has long been considered a standard work on the signs and symbols Christianity has employed from the catacomb to the cathedral.

Kobenhavn. Steen Eiler Rasmussen. Copenhagen: Gads, 1969. 322 pp. D.kr. 56.

If you don't know a word of Danish, you will still enjoy this worthy addition to the literature on the world's great cities. The photographs, some in color, are praiseworthy.

Vertical Transportation for Buildings. Rodney R. Adler. New York: American Elsevier, 1970. 228 pp. $18.50.

Going up? To get you there, the architect must know about the significant principles of vertical transportation even though details of design may be left to the specialist. This book intends to give the architect what he needs to know about the basic requirements of this essential service. Cost comparisons are indicated and performances of alternative means of vertical transportation are suggested.

Children's Rooms and Play Yards. Editors of Sunset Books and *Sunset Magazine*. Menlo Park, Calif.: Lane Books, 1970. 96 pp. $1.95.

Almost any parent, architect or not, will get some useful ideas about space for children from this book. There are literally hundreds of suggestions, many quite inexpensive, about bedrooms, playrooms, furniture, storage, sandboxes, playhouses, playthings and even park equipment.

Design Guide for Permanent Parking Areas. Washington, D.C.: National Crushed Stone Association, 1970. 34 pp. Free.

A description of the proper usage of crushed stone in flexible pavements for any type of parking area. Information is provided on planning, typical geometric drawings, pavement design, construction guidelines, specifications and references.

Your Right to Clean Air: A Manual for Citizen Action. Washington, D.C.: Conservation Foundation, 1970. 108 pp. Free.

This manual contains sections describing the present federal air pollution control system, opportunities for public participation in key control decisions, sources of information on the air quality and the control process and tested forms of citizen education and community action.

Library Lighting. Keyes D. Metcalf. Washington, D.C.: Association of Research Libraries, 1970. 99 pp. $2.

Metcalf, who has been called the dean of library consultants, has had more than half a century of experience in the planning of library buildings. If you are charged with the responsibility for such a building type, this book will more likely than not be of help in solving the problems.

The Environmental Services of Buildings. Toronto: Ontario Association of Architects, 1970. 264 pp. $11.25.

The Registration Board of the Ontario Association of Architects requires that applicants attend courses and take examinations arranged by the board. The courses, given annually, involve lectures by outstanding authorities. To assist in conducting the courses, lectures on basic topics are published in book form. This is the third book to be published; the others are on *Legal Aspects of Architectural Practice* and *Accounting for Architects.*

The lectures in this book are excellent, having been determined by the directors of the registration course and lecturers over the past eight years. They contain pertinent information for the practicing architect in Canada and in this country as well.

Building Construction Cost Data, 1970. Edited by Robert S. Godfrey. Duxbury, Mass.: Robert Snow Means Co., 1970. 209 pp. $4.50.

This manual's object is to provide average unit prices on a wide range of building construction items for use in making up estimates. Now in its 28th consecutive year, the manual brings with this new edition over 8,000 unit prices showing material, labor and total in-place costs. There is a section of square foot and cubic foot costs for 45 building types. To help adjust costs for local conditions, there are 90 major US and Canadian city cost indexes. Use of the forms will expedite quantity take-offs, pricing and budget estimating.

Crisis-Transportation. Peoria, Ill.: Caterpillar Tractor Co., 1970. 47 pp. Free.

A graphic portrayal of the current status of highway, air and mass transportation systems; in short, the main trouble spots.

A Span of Bridges: An Illustrated History. H. J. Hopkins. New York: Praeger, 1970. 288 pp. $12.50.

Those who are fascinated by a bridge will find this book interesting. It tells how engineering principles developed, how great bridges are built and about the human beings involved. Theory and practice from past to present are interplayed. □

letters

A Lesson in Economics

Bernard J. Grad's article "Is the Roof about to Fall In," in the October issue is excellent and timely. We may well be ripe for collapse. In the final paragraph, Grad says that "it is time to act—not talk—about costs." I suspect the causes of this problem to be of such a complex pattern that architects will be next to powerless to reverse them. What architects *can* do about these causes they will refuse to accept and, even if they acknowledge them, they will lack the courage to follow through.

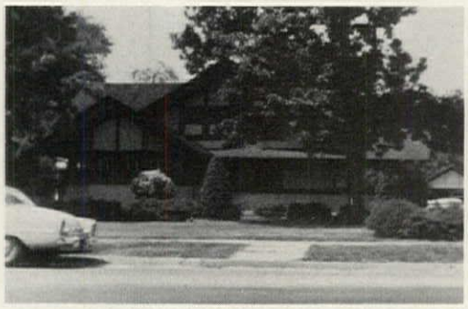
A common misconception is that high prices constitute inflation. The fact: Inflation causes high prices. Inflation, purely and simply, is a dilution of the money supply caused by the monetization of the public debt by the federal government. When taxes do not equal expenditures and borrowing does not make up the difference, the government goes to the federal reserve and, in effect, causes new money to be issued to it because it must pay its bills. This is a process similar to "watering down the milk" in which the money, like the milk, loses its value. The money supply has been inflated; thus "inflation" is the proper term.

Unions by demanding higher wages to make up for their inflation losses do not cause inflation. They may well cause unemployment thereby, but inflation is a separate matter. When unions urge government spending not accompanied by tax increases to pay for it, they contribute in this manner to the pressures which cause inflation. But architects do this also. It is a rare AIA publication which does not note that its president or some other representative has appeared before some Congressional committee to urge more spending which, in turn, causes more debt, causes its monetization, causes inflation.

The money supply in an economic system can well be compared with the blood supply of the body. Each serves as a circulating medium bringing life-giving supplies where needed. In the economic structure of our country, our various "specialities" are circulated by the money system. When that system is diluted, just as if the blood supply were diluted, the body becomes unhealthy and is in line to collapse if the causes of dilution are not corrected.

Failure to recognize the causes or failure to make the sacrifices they require will not prevent our collapse regardless of how good our intentions might be. Architects cannot by themselves bring a return to sanity, but they can set their own house in order, which is as much as could be asked.

In *The Imitation of Christ,* Thomas a Kempis said, "Everyone is for peace but scarcely anyone is for the things which make for peace." To paraphrase him, "Everyone is against inflation, but almost no one is willing to forego the spending programs which cause inflation." E. W. DYKES, AIA
Canton, Ohio



Wanted: A Sympathetic Purchaser

We currently own the Warren R. Hickox residence, a house designed by Frank Lloyd Wright and constructed in 1900 in Kankakee, Illinois.

I am retiring from active work this year, and there is a possibility that we may sell our home and move to Florida. If the house is sold, we want it to go to someone interested in Wright's architecture who would preserve it and use it as a home or museum.

If any of your readers know of someone who may like to buy the house and who would appreciate it and preserve it, I will be pleased to provide particulars about it. I may be contacted through this magazine

L. K. DONOVAN
Kankakee, Ill.

Questions for MASTERSPEC

After reading the article on "Here Is MASTERSPEC" by John H. Schruben, AIA, in the October issue, I should conclude that our office can save $10,000 to $20,000 yearly and also provide superior service to our clients through the use of MASTERSPEC. Frankly, I find this difficult to rationalize.

According to the article, the prime savings result from a reduction in technical labor. By employing skilled technical personnel, one will be able to produce better material to many clients at lower cost. This seems logical to me. The next steps in the procedure I find difficult to accept.

First, the Table of Contents is used as the order form for copies of sections. *Question:* Why can't each subscriber maintain a file of sections which will be automatically updated by MASTERSPEC? This would eliminate delays through mailing and inaccurate ordering. It also would solve the problem of last-minute decisions.

Second, the user marks up each section to match his project requirements and upon completion sends the complete project specification draft to the nearest franchised data processing center. *Question:* Why shouldn't the subscriber be able to mark up sections one at a time and have a typist create the project master for each section, one at a time? Our experience indicates that our typist can produce masters at the same speed as the technical labor can execute the mark-up. This procedure eliminates delays caused by mailing to and from the processing center and the handling problems related thereto. It is inevitable that after a period of time the subscriber would have accumulated a volume of masters suitable for duplication without the need for markup. Our office has been following this procedure for several years. I judge that approximately 60 percent of our specification sections for each project is ready for duplication now. Typing time is not a critical problem.

I assume that there is little that is unique about our procedures; thus it seems logical that many other offices are faced with questions somewhat similar to mine. Must we support the costs of data processing and computer work if we feel that these services add rather than deduct from our specification production costs? I should like to see a more detailed accounting of how my dollar is spent. If MASTERSPEC had 1,000 participants at $350 per year, it seems to me that more than ample funds would be available for the production of a master specification. Where is the money going? If there are 5,000 participants, will the fee go down to $70 per year, per participant?

WILLIAM CALEB WRIGHT, AIA
Indianapolis

Schruben Replies

The comments of Wright get to the heart of the past six to eight years of collective experience and development in the theory and philosophy of using an automated master specification system. It is impossible to develop here the same documented conclusions that we have, on occasion, produced in two-day technical seminars, but the following attempts to answer the critical questions:

• Stockpiling copy for editing: Statistics show that the average office would use 1/10 of the available sections on nearly every project, 1/10 on one project out of two, 1/5 on one project out of three to nine, 1/10 on one project out of 10 to 50, 1/10 on approximately one project out of 100 and 2/5 on the average of once during the life of the office (say 40 years). Wright's examination of this situation will confirm everyone else's conclusion that it is futile for every office to maintain, at all times, a workable stockpile of up-to-date sections, ready for editing for each project. The expense is prohibitive because of the tremendous waste involved. A portion of this system's net savings is developed from everyone's use of a common stockpile, where the volume of reproduction can be effectively projected with waste thereby minimized. The set of reference catalogs in the office can always be used (by Xeroxing) for last-minute decisions which require sections not originally ordered from stockpile for that project.

• Typing versus data processing: A subscriber may type any or all of the project

spec rather than sending it through to data processing. During this early stage, many subscribers have done just that. This procedure is necessary, on occasion, to get out an early section (such as "caissons") or a follow-up section that was not anticipated.

As we implement more and more items of possible sophistication, however, the advantages of the automation will become more obvious. As an example, the computer can print out a listing of all required shop drawings. Furthermore, it is through automation that the specification system will be integrated (or interfaced) with the construction cost estimating system and other systems.

On the other hand, Wright's idea of building submasters (which obviously would not be kept up to date) is contrary to the major proficiency goals of this venture. It is only when the specifier edits the entire master section that he considers or reconsiders all feasible normal choices. This broad consideration for every project is one major improvement over the old system of simply cutting and pasting from a previous project. The idea is to do the job as well as feasible, not to get something done with the narrowest possible range of consideration.

Wright is correct in saying that most offices have been following the same system as his. Over a period of time, they have built masters that they use over and over; some unchanged for three years, some for 20 years, but all out of date.

• Where the money is going: First, we should supplement the content of the first paragraph of Wright's letter. The $10,000 to $20,000 per year is true only for the medium-sized office which would otherwise not attempt to do anything in this direction to improve its proficiency in specifying. For the medium and large office which would otherwise attempt to build and maintain its own master system, the savings are more nearly in the range of $100,000 to $250,000 per year.

If we had as many as 1,000 subscribers, we could probably get along with less than $350 per subscriber. We have less than a third that number, however, and this is the time we most desperately need "investment" to build the system and start repayment of the initial borrowing. As you may know, the AIA has been unwilling to spend even one dollar of dues money on this venture; everything we have "borrowed" must be returned, with interest.

The present fee schedule is structured to load the yearly subscription fee with the cost of developing and maintaining the content of master sections over a long period and for distributing the reference catalogs to subscribers once each year. The present cost of supplying materials to a new subscriber is approximately $95 for the year. This will probably double in less than two years. In any case, something less than $200 is available from the average new subscriber to pay the overhead of developing and maintaining content. If we had 1,000 subscribers, we could probably reduce this slightly; or if we had 5,000, we could certainly reduce this substantially — probably down to the $70 figure Wright mentions. If this were the case now, the present yearly fee would need to average only $165 ($95 cost plus $70 overhead).

The fee for data processing ($2.25 per page of computer output) has a margin of $0.75 to $1 per page in it for the development of the computer program, continued maintenance of machine-readable master and initial costs of installing the system at new data processing centers. If you don't use the data processing service, you don't contribute anything to these overhead costs. How could it be set up more equitably?

The fee for supplying edit copy ($1 per section) pays for the cost of operating this service and its proportionate overhead in our office.

Just as in any other self-supporting business venture, the money to operate must come from the sale of the product. However, unlike many other business ventures, this one is a not-for-profit operation which assures the subscriber that his contribution is not being siphoned off for some unrelated purpose. There is reason to believe that the projected growth of this venture may be for a $3 to $5 million yearly operation within five years in order to optimize the feasible benefits for everyone using its system.

We are always anxious to receive constructive comments from knowledgeable sources.

JOHN H. SCHRUBEN, AIA
President, PSAE
Chicago

events

National

Jan. 17-21: National Association of Home Builders Annual Convention, Houston

Jan. 25-29: Prestressed Concrete Institute Design Seminar, Drake Hotel, Chicago

Jan. 28-30: Conference on the Ecology of Human Living Environments, University of Wisconsin-Green Bay campus and Beaumont Motor Inn, Green Bay

Jan. 28-31: Society of Architectural Historians Annual Meeting, Conrad Hilton Hotel, Chicago

Jan. 31-Feb. 3: National Concrete Masonry Association Annual Convention, Marriott Motor Hotel, Atlanta

Feb. 7-19: Annual Woodlawn Conference for History Museum Associates, Woodlawn Plantation, Mount Vernon, Va.

Feb. 9-12: Society of the Plastics Industry, Inc. Annual Conference, Shoreham Hotel, Washington, D.C.

Feb. 20-24: American Association of School Administrators Annual Conference and Exhibition of School Architecture, Haddon Hall, Atlantic City, N.J.

Mar. 22-26: Innovation in Building Symposium, under sponsorship of the University of California, San Francisco

Mar. 26-28: Annual College and University Conference and Exposition, Convention Hall, Atlantic City, N.J.

June 20-24: AIA Annual Convention, Detroit Hilton Hotel, Detroit

International

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

Jan. 29: Entry forms due, Design in Steel Awards Program. Contact: American Iron and Steel Institute, 201 E. 42nd St., New York, N.Y. 10017.

Feb. 1: Nominations due, R. S. Reynolds Memorial Award. Contact: AIA Headquarters.

Competitions

Feb. 26: Registrations due, Beaubourg Plateau Centre, Paris, for contemporary arts and library. Contact: Délégation pour la Réalisation du Centre du Plateau Beaubourg, 25 rue de la Bienfaisance, Paris 8e, France.

Feb. 27: Participation cards due, International Furniture Competition. Contact: Ente Mostra Selettiva e Concorso Internazionale del Mobile, Piazza Marconi, 22063 Cantù, Italy.

Fellowships

Feb. 1: Applications due, Graham Fellowship for Advanced Study in Computer-Aided Architecture. Contact: Nicholas Negroponte, Room 9-158, MIT, Cambridge, Mass. 02139. □

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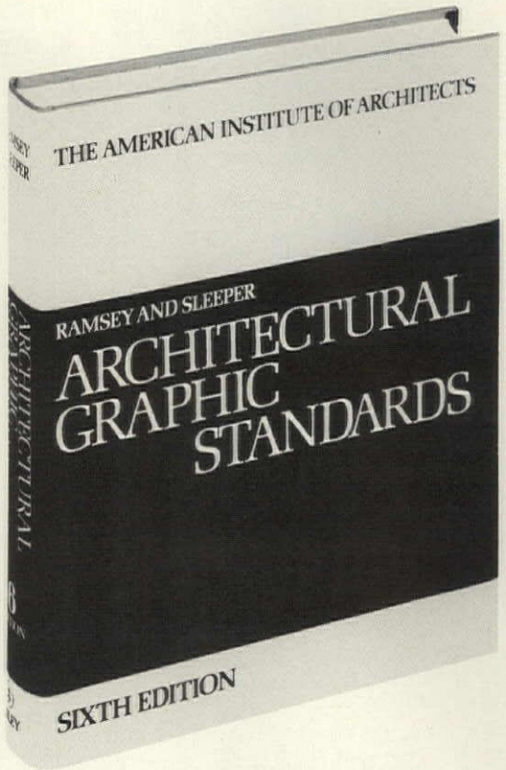

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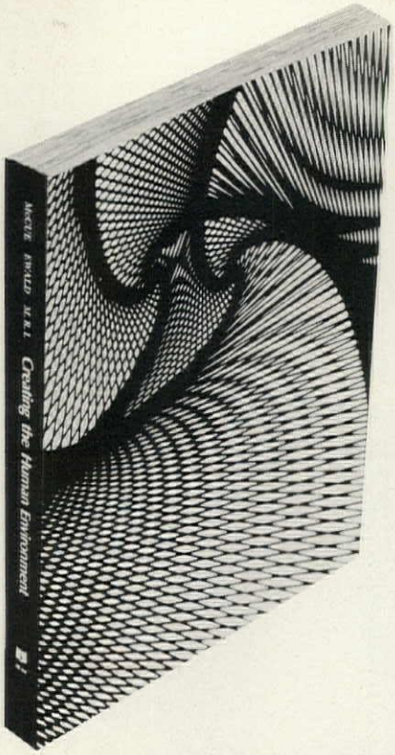

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