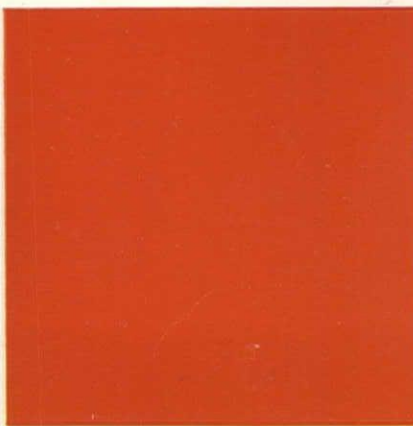
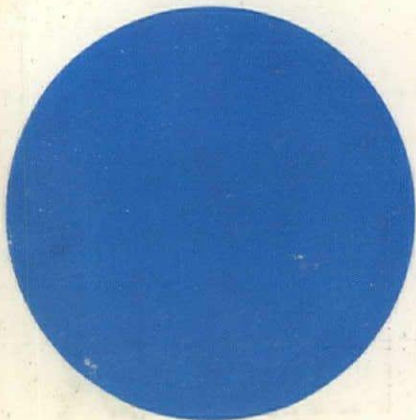
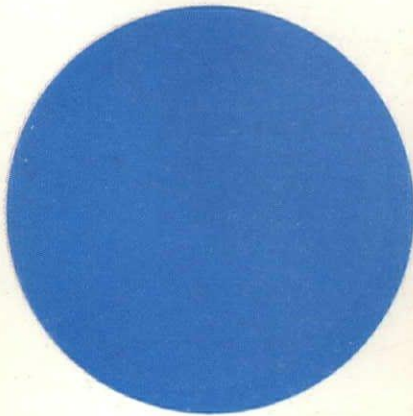


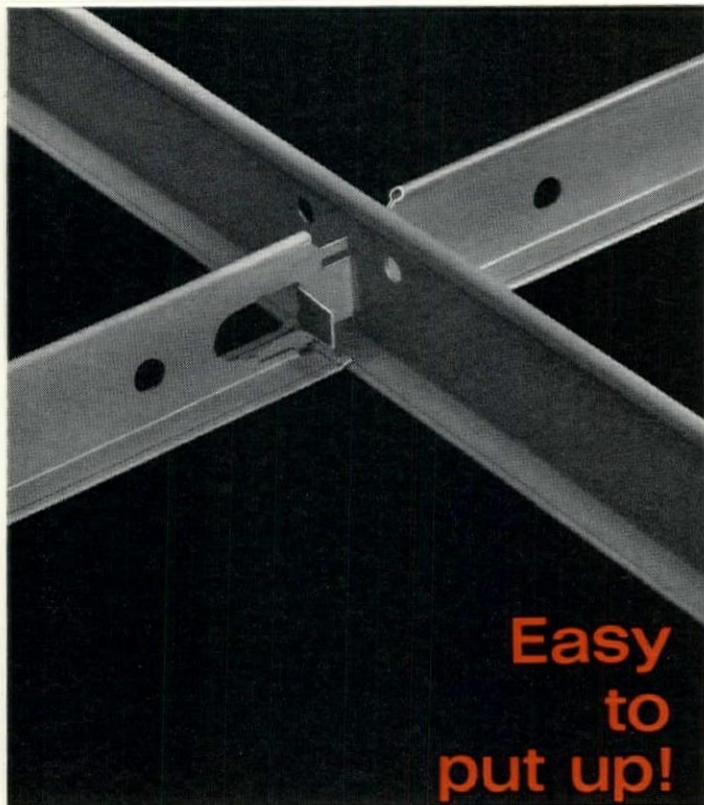


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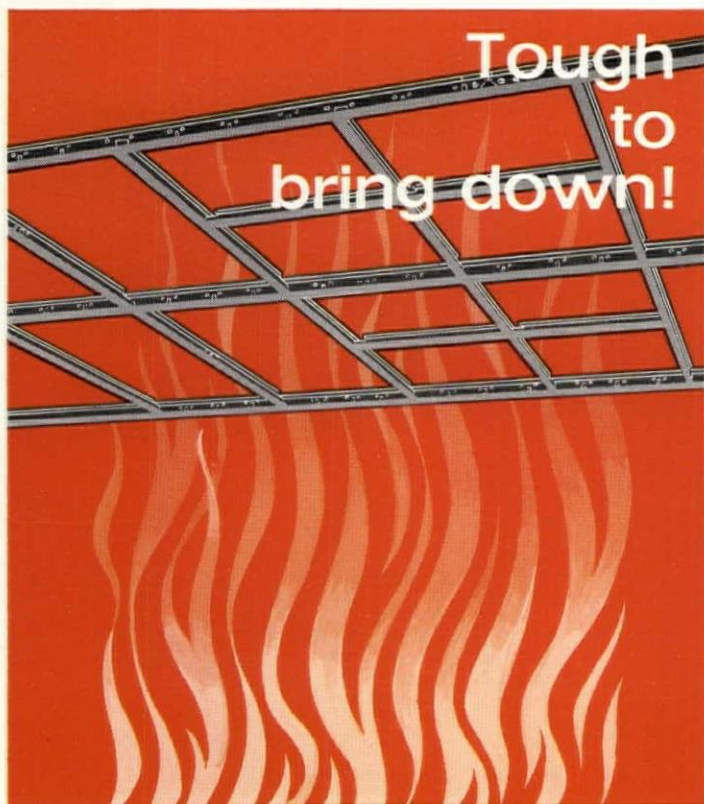
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March 1966





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Cover: Colors can be related to forms—the square for red, the triangle for yellow and the circle for blue (p. 58).

LOOKING AHEAD TO APRIL

Capitol Controversy in Focus: In its most recent policy statement on the matter, the AIA left no doubt about its stand on the proposal to extend the West Front of the United States Capitol. Should this happen, the Institute maintains, "we will have buried the last of those walls that date from the early years of the Republic and will have obscured a part of our history that can never be repaired." A knowledgeable man on Washington and its architecture, Francis D. Lethbridge AIA, sets out to put the issue in proper historical perspective.

American Spirit of Urbanism: "Player with railroads and the Nation's Freight Handler; Stormy, husky, brawling, City of the Big Shoulder," are oft-quoted lines from Carl Sandberg's "Chicago." All that and much more was uncovered by a Graham Foundation Fellow who made a year-long study of Chicago's central area and came up with some recommendations for its restructuring. His method of approach might very well suggest ways in which architects and other professionals can survey their own communities.

Seeing Is Creating: Morley Bear probes with eyes and camera—and the results become art in the true sense. This year's winner of the AIA's Architectural Photography Medal is equally at home with the simple things of life, as demonstrated by an eight-page portfolio of his work.

Better Cities for Whom? Daniel Patrick Moynihan, former assistant secretary of labor, compares the relative prestige of two American concepts: liberty and equality. The latter, he says, "simply isn't in our bone and blood . . . and you ignore [the phenomenon] at your peril. We ignore it at the peril of the commonwealth."

An Educated Man: What the profession desperately needs are trained specification writers, whose education should be broadened to emphasize practical applications of theoretical principles. This and other views are put forth by a member of the AIA Committee on Specifications.

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COMMENT & OPINION

A Man for All Faiths: The impact of the late Paul Tillich, whose probing into religious art and architecture is this month's lead-off article, was demonstrated in the January 21 edition of *Commonweal*.

In offering a Protestant viewpoint in the liberal Catholic semi-monthly, Robert McAfee Brown declared "that Tillich, by the very breadth and catholicity of his concerns, was dealing with material no theologian of whatever confessional stance could afford to ignore."

The piece is recommended for its contribution to ecumenical thought. Speaking of that movement, it brings to mind the International Ecumenical Congress on Religion, Architecture and the Visual Arts, which will be held in New York City in the summer of 1967. It will consider the "indecision and uncertainty" which leads to "bizarre and nihilistic expressions in religious art and architecture"—the very heart of Dr. Tillich's presentation in the current AIA JOURNAL.

The URD Bandwagon: Making a significant contribution to the campaign for underground residential distribution (URD) is the National Electrical Contractors Association. The December issue of its official publication *Qualified Contractor* devoted 15 pages to the subject, citing beauty, safety and weather-proofing—in that order—as key reasons for the advanced growth in the burial of electric wires.

Contractors' viewpoints were followed by some comments of the Institute's own Robert J. Cowling AIA, director of Technical Programs. The Rural Electrification Administration came in for its share of plaudits because of its cooperation in the URD program.

Architecture à la Rockefeller: The truth will out, even when it involves the first family of our most populated state. Nelson A. Rockefeller, upon receiving an AIA citation, admitted he is a "frustrated architect." But he showed little frustration about his stand on design in his acceptance remarks when he said: "I believe that we in New York State are at a unique moment in the history of our building for the future—and we

are reaching out to ask that you [architects] give us your best."

More specifically, the Governor went on to comment on the recommendations that emerged from a conference of the New York State Council on the Arts. One proposal would initiate, at the university level, programs and courses on architecture and the environmental arts to emphasize their significance to and effect on society.

At the Old Ball Game: Drop in on almost any kind of meeting these days and you can take odds that the subject of stadiums—recently completed or proposed—will come up for discussion in the halls, if not from the podium. And Pittsburgh's urban transportation conference (see Newslines) was no exception.

Robert Sommerville, president of the Atlanta Transit System, who surprised his audience by stating that his operation has been gaining passengers—2 million more in 1965 than in 1964—had some things to say about the new Atlanta Stadium (Heery & Heery-Finch, Alexander, Barnes, Rothschild & Paschal, Associated Architects and Engineers).

From the outset, Sommerville

Mr. HUD and the Press: Robert C. Weaver's mid-February engagement at the National Press Club took on more than usual significance for it marked his first appearance there as secretary of Housing and Urban Development (see Newslines).

The Secretary confined his formal remarks to creative federalism, which "stresses local initiative, local solutions to local problems." One aspect of that concept, the Demonstration Cities program, will emphasize "not only the highest regard for architecture and design but also the critical interplay of building and spaces."

Dr. Weaver quite frankly could not answer a good many of the questions that followed since they were concerned with HUD's organizational structure, the blueprint for which would be announced before the end of the month, he promised.

Before he was put on the firing line, the Secretary warned the newsmen that even if he could not answer all the inquiries, at least he would "dispose" of them. The consensus seemed to be that he had come through his initial press encounter with flying colors.



explained, traffic patterns were based on transit carrying a substantial number of spectators. They will see, if Atlanta has its way, the baseball Braves (seating capacity: 51,500) this spring and the football Falcons (58,000) this fall, both National League teams.

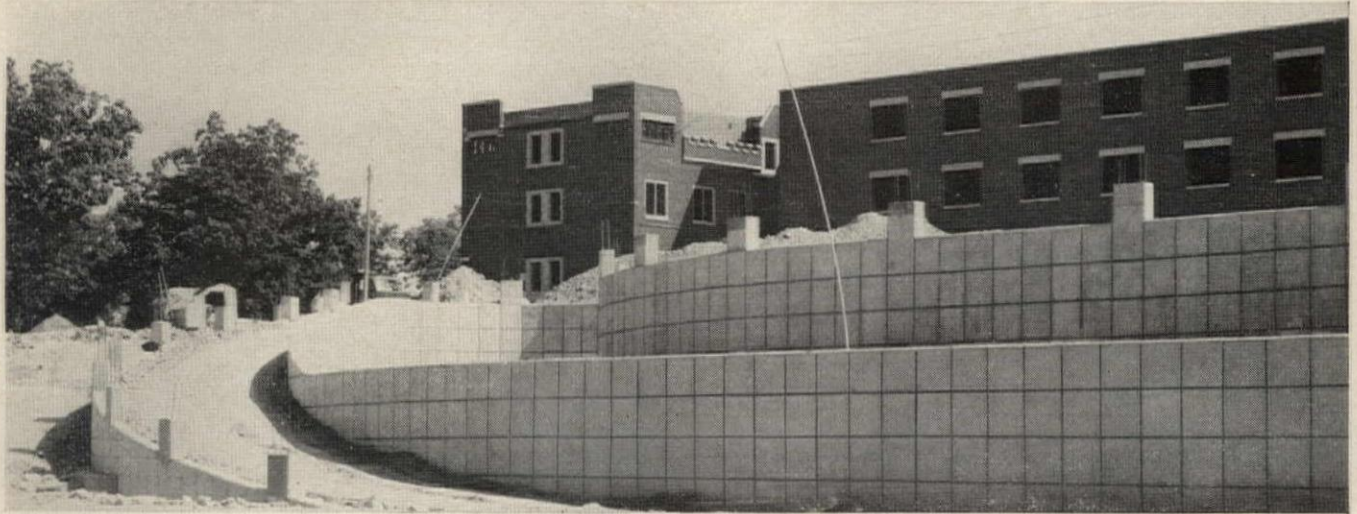
For every event last summer and fall, mainly minor league and exhibition contests, the system offered shuttle service from downtown Atlanta to the stadium. "For the largest events, we really poured it on," Sommerville added, "to the point that of the biggest crowd to attend, we carried no less than 26 percent of the spectators in 204 buses."

Rockville's Growing Recognition:

The subject of the JOURNAL's cover last September got another plug when the American Institute of Planners presented its 1965 Honor Award for a city of less than 50,000 population to Rockville, Maryland. Its achievements are the result of a "municipal teams" approach and the budget since 1961 has included provisions to revise and improve the master plan adopted the previous year.

The JOURNAL article dealt exclusively with the urban design contract drawn up between Rockville and its consulting architects.

ROBERT E. KOEHLER
Editor

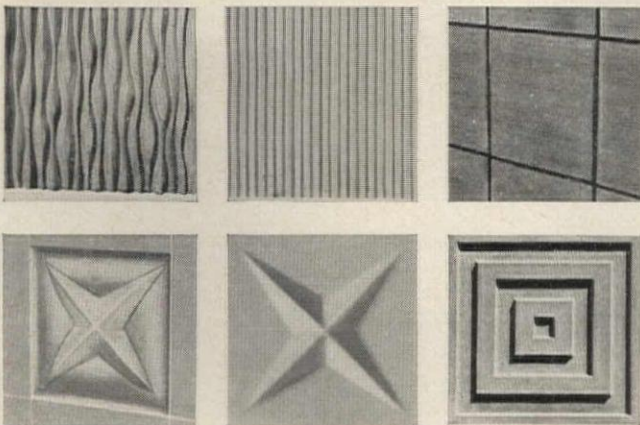


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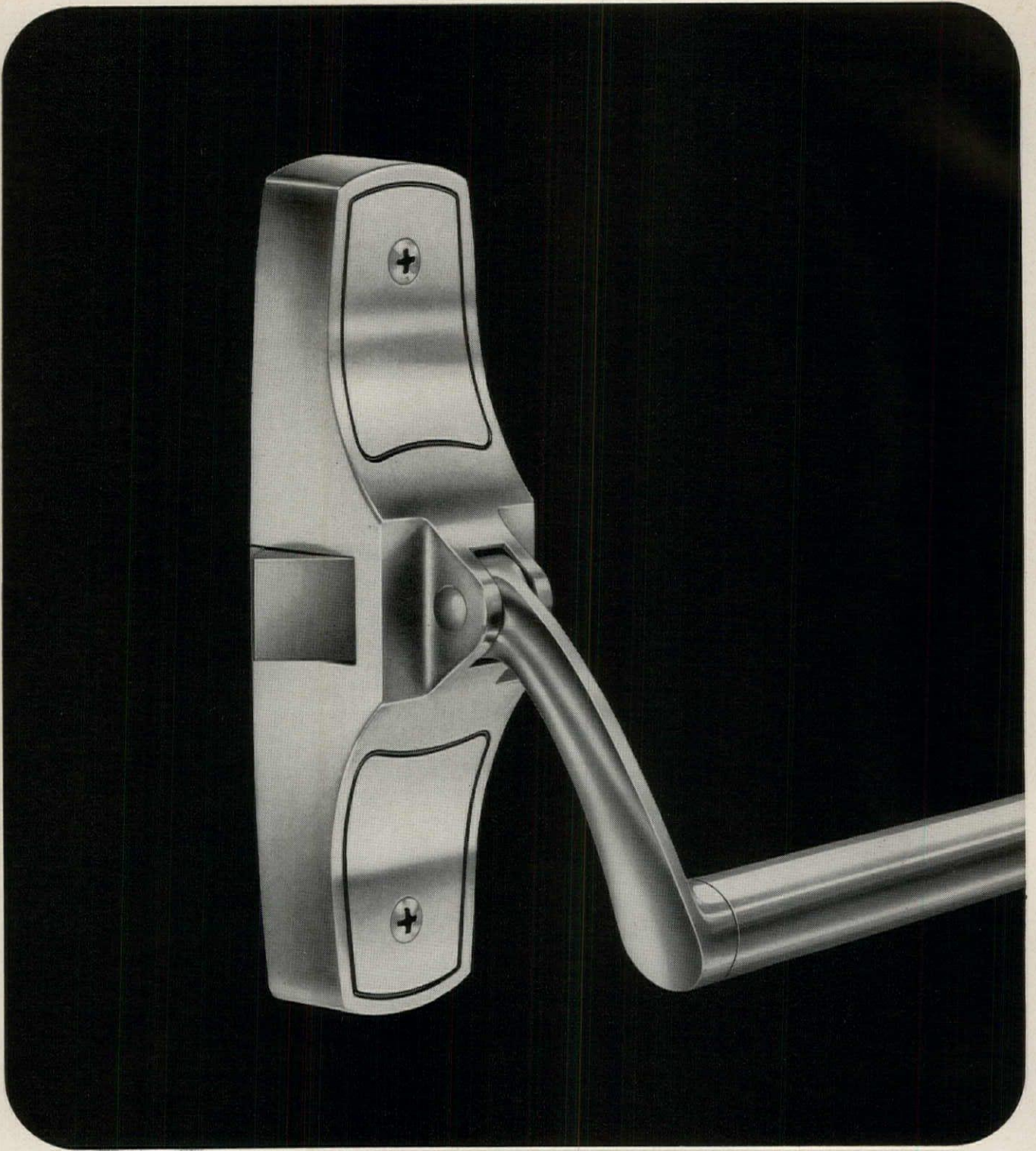
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NEWSLINES

HUD Undertakes Massive Challenge with Weaver In Charge and President Pushing Urban Goals

"It is the beginning of an exciting adventure," said the President of the United States. "We are setting out to make our cities places where the good life is possible."

The President's enterprising words following the administration of the oath of office to Dr. Robert C. Weaver, 58, as secretary of the Department of Housing and Urban Development and Dr. Robert C. Wood, 42, as under secretary.

Said Lyndon B. Johnson of his new Cabinet member: "No one has borne such a challenge before."

One week later, in his message to Congress on improving the nation's cities, Mr. Johnson warned of dire consequences if that challenge is not met. Then he proposed a strenuous Demonstration Cities program aimed at eliminating blight "in the entire demonstration area."

Meantime, Weaver and aides were busily organizing HUD, mindful of the President's desire that the department fill "modern urban needs—rather than fitting new programs into the old and outworn patterns."

The Secretary's lieutenants include, besides Wood, chairman of MIT's political science department and head of a Presidential committee that studied the organization of HUD:

Commissioner Philip N. Brown-

stein, 48, of the Federal Housing Administration, appointed assistant secretary for financial management in charge of private mortgage market programs; also serving as federal housing commissioner.



Leaders of the HUD team, from left: Wood, Weaver, Haar and Brownstein.

Charles M. Haar, 45, Harvard University law professor, authority on land planning and use and a member of the Wood committee, appointed as assistant secretary for metropolitan planning.

William B. Ross, 38, a career government employee named deputy under secretary for planning programs and evaluations.

"These men," Mr. Johnson said, "working with Mr. Weaver and Mr. Wood will, I believe, form a first-rate team."

The demonstration projects could have vast importance to the future of urban America. The President

proposed 14 guidelines, one of which says:

"The demonstration should make major improvements in the quality of the environment. There must be a high quality of design in new buildings, and attention to man's need for open spaces and attractive landscaping."

The six-year program involving

60 to 70 cities (more than 800 cities are joined currently with the federal government in urban renewal programs) envisages an outlay of \$2.3 billion.

Demonstrations would have to be big enough to "arrest blight and decay in entire neighborhoods," the President said, and thorough enough "to make use of every available social program."

The demonstration effort has two phases—one of federal aid to help cities plan their demonstration projects; the other, the comprehensive demonstration programs themselves.

The program was hailed by Institute President Morris Ketchum Jr. FAIA as a gateway "to great achievement" in the reshaping of the nation's cities. "We need plans like this if we are to have sound urban growth," Ketchum said.

transit

Ideas, Needs Plentiful At Pittsburgh Event

Ideas were abundant and enthusiasm high as an international gathering in Pittsburgh last month addressed itself to travel systems for burgeoning metropolitan areas.

The 2½ days of intensive discussion drew a sprinkling of representatives of several foreign coun-

Continued on page 12

Leaning Backward to Comply with Setback Law

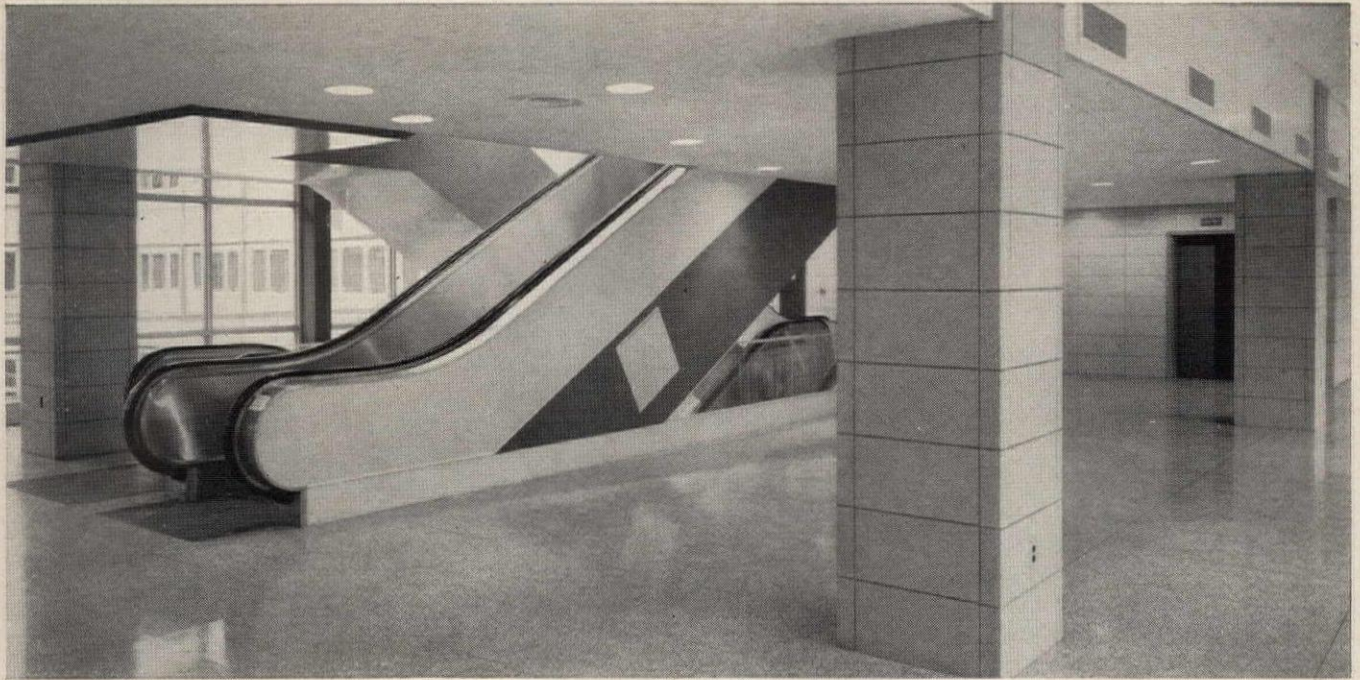


The National Maritime Union's Health, Training and Recreation Center embodies a novel solution to New York's setback regulations.

The 11-story, steel-framed structure fronting on 17th Street, midway between 8th and 9th Avenues, declines 8½ degrees off the property line.

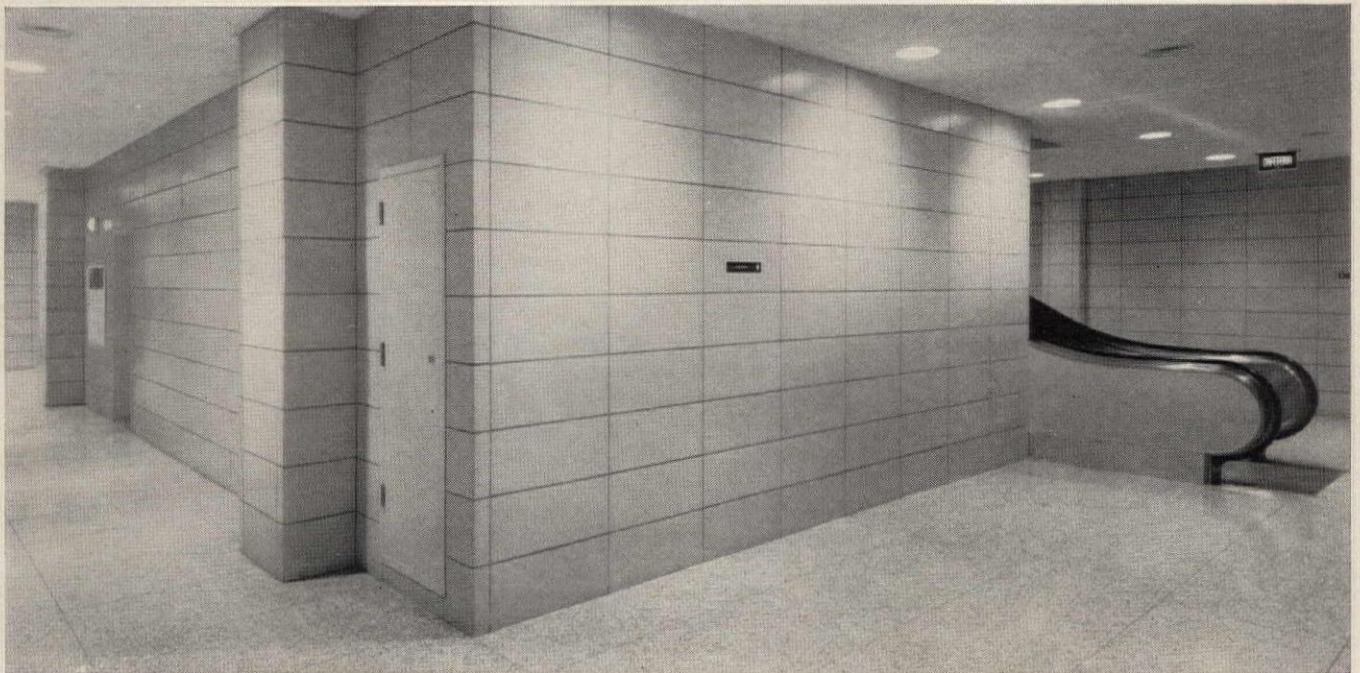
A Manhattan structure can climb 85 feet vertically from its street boundary but must be set back 20 feet for the next rise.

This 11-story structure which slopes back to avert the stagger was designed by New Orleans architect Albert C. Ledner, AIA, in association with Furman & Furman of New York.



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tries and a horde of attendees from this nation—despite more than a sprinkling of snow.

There were on hand, in fact, nearly 1,300 registrants from the United States despite snow-clogged roads and snarled airline and rail schedules. Little wonder.

As the chairman of the event—the first International Conference on Urban Transportation—put it:

“No less than 34 major cities in the US alone require urgent attention to the problems of urban transportation if they hope to survive as healthy and prosperous communities in the future.” And, warned the chairman, Dr. J. C. Warner, president emeritus of Carnegie Tech, the big cities are forecast to get bigger—and bigger.

J. Stanley Purnell, chairman of the Urban Transportation Council of the Chamber of Commerce of Greater Pittsburgh, conference sponsor, talked about problems compounded:

“In recent years more than 450 private transportation companies in this country have gone out of business or have been sold to the municipalities they served. And this has happened while the need for adequate public transportation has been increasing daily.”

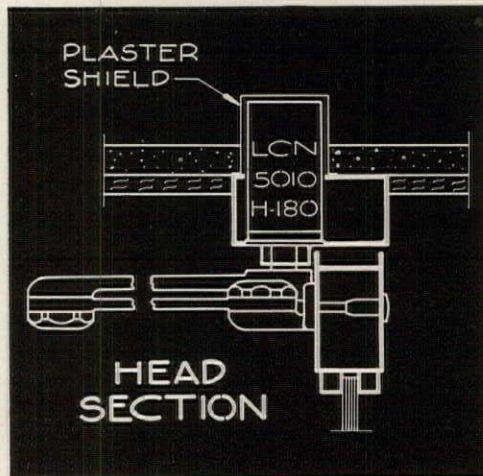
Who Foots the Bill? Nevertheless, optimism prevailed throughout the conference, and a number of often opposing points of views emerged. Some of them:

- Free transit service as advocated by Robert L. Sommerville, president of the Atlanta Transit System, could be financed by adding, say, a dollar a month on water and electric bills.
- More than adequate financing and a variety of methods are available, but publicly owned systems may have the advantage in obtaining funds because of the tax-exempt status of their bonds.
- Users, nonusers and elected government officials alike must be convinced of the necessity to pay for public transit, as in the case of the San Francisco Bay Area Rapid Transit District, where a system goes into operation in 1968.
- Balanced systems of transportation, designed specifically for each of the nation's urban regions, would include the “right mix” of automobile, bus and rail.
- Restraint of the automobile, where alternate systems are readily available, might involve issuing of a

Continued on page 14

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special license, costing so much per day, for circulation in a specified area, or imposing a tax on downtown parking space.

• Public transport should be reorganized so as to create single authorities responsible for its development over the whole urban area, such as has been done by the Mas-



Senator Claiborne Pell (D-R.I.), right, receives first Urban Transportation Award from Richard K. Mellon for his work on high-speed passenger railroad act, which will provide corridor of mass transit between Boston and Washington, D.C.

sachusetts Bay Transportation Authority.

• Creation of a federal department of transportation, endorsed by Alan S. Boyd, under secretary of commerce for transportation, and other speakers, would eliminate the "fragmented approach" brought about by 35 federal agencies now dealing with transportation.

• Japan's New Tokaido Line, construction of which was recorded in a movie shown the conferees, is "one of the great technological and educational developments of the 20th century," yet the US has failed to appreciate its lessons.

Finding the Ideal. Conference keynoter Leland Hazard, board member of the Port Authority of Allegheny County, outlined three axioms for ideal urban transit:

• Its vehicles must run on exclusive rights-of-way.

• Its systems of exclusive rights-of-way must be as coextensive with, and ubiquitous within, the real community as topography and technology permit.

• Its services must be regular and frequent, it must be esthetically pleasing and its fares must be such that anyone can afford them.

"Each of these axioms," Hazard declared, "calls for rapid transit.

"There is a difference between mass transit and rapid transit—a simple but fundamental difference. Mass transit may mean simply that a significant number of people move in vehicles, buses, for example,

which will carry 50 persons past a single point per unit of time, as distinguished from the private automobile which carries an average of 1.5 persons past the same point in the same time. But bus travel commingled with private automobile and truck travel can be no more rapid than the whole assortment of low-powered, high-powered, underloaded, overloaded, flat-tired, dead-engined, longitudinal complex."

Hazard pointed out that the term "rapid transit" does not necessarily imply high speed but must mean separation from all other traffic.

As for the second axiom, Hazard said ubiquity would involve a fundamental breakthrough in the nature of the transit vehicle itself and of its operation.

"Here is the challenge," the keynoter declared. "Do we have the wit to get rapid transit out of the ground? Do we have the engineering imagination to translate lower weight cars into lower costs throughout the whole system; to make bridges across rivers, structures winding up hills, loops, and loops within loops, spindling compared with the massive structures we are accustomed to for railway bridges and six-to-eight-lane automobile bridges. Can we make total rapid transit costs decline exponentially with the reduction in the weight of the car?"

Those Auto Shrines. Getting back to the subject of the automobile, Hazard said: "There are still pavers and trafficists who think we can put

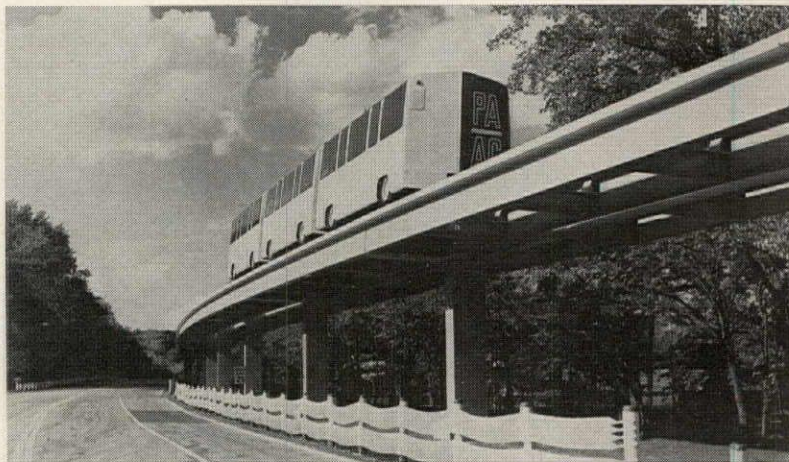
"Now when I say that a rapid transit system must be esthetically pleasing," Hazard said of his third axiom, "I mean it must be something more than just a means of reducing commuting time, important as that is; it must comport in grace and elegance with all those rich stores of art and architecture which bespeak man's ageless reach for truth and beauty."

Abramovitz and Subways. Max Abramovitz FAIA, who moderated the panel "Transportation and the Balanced City—2000 A.D.," made this observation about his home town: "New York moves into its own core 3 1/3 million people a day, as big as the city of Chicago. Of these, 850,000 move between 8 and 9 a.m. Nine percent come by car and taxi, 11 percent by commuter railroad, 72 percent by subway.

"Now, they have researched this fact. If we doubled every street in Manhattan, every avenue, every bridge, every tunnel—doubled, mind you, and I needn't tell you what it would do to the city and the dollar sign—we'd only raise the 9 percent to 22. We are on the wrong track."

Pointing out the terrific impact that transportation has on our way of life, the architect asked: "Do the road engineers understand this? If they did, you wouldn't have had a revolt in San Francisco."

Panelist Charles Luckman FAIA, whose home base of Los Angeles took its share of knocks, responded "Nuts!" to ideas that automobiles be



Skybus vehicles, designed by Eliot Noyes & Associates for Westinghouse Transit Expressway demonstration project in Pittsburgh's South Park, are being tested singly and in trains of three. Lead vehicle receives commands to start, stop, etc., and passes them along to units following.

our motorized camels through the eyes of our municipal needles. And to this day city planners and authorities are building more and more of those tax-exempt shrines known as parking stations,

barred from downtown metropolitan areas, as suggested earlier in the conference.

"Fortunately, it has been demonstrated that balanced transporta-

Continued on page 19

tion systems can make significant contributions to both the esthetics and the vitality of our cities," he said. "And by 'balanced' I mean a combination of autos on expressways, outlying parking, downtown parking, feeder buses and high-speed rail rapid transit—each used to enhance and implement the effectiveness of the others."

Industrial designer Peter Muller-Munk observed: "In the coast-to-coast city of tomorrow, freedom of placement, of size and of design of single structures will be controlled by a master plan in which the city itself, its linkage to its periphery and to its center, its circulation and its amenities will be coordinated into much larger metropolitan patterns. Urban sprawl will become urban design, and this will include both the big and little components of the cityscape."

But the Pittsburgher cautioned: "There are just so many vehicles, so many architectural or engineering monuments and so many concentrations of people which we can accommodate with any decency before their numbers and the scale of their proportions strangle the individual."

Carnegie Tech Installs Unit to Study Transit

A Transportation Research Institute placing immediate emphasis on urban rapid mass transit has been established at Carnegie Institute of Technology.

To be supported in part by a \$300,000 gift from the Richard King Mellon Foundation, the Institute begins with these purposes:

To perform transportation research, provide the framework within which seminars, conferences and symposiums can be organized, develop an educational program in transportation at the graduate level, and advance knowledge.

The Institute's director is Dr. James P. Romualdi, professor of civil engineering. Drs. Thomas E. Stelson and Milton C. Shaw, heads of civil and mechanical engineering, respectively, at Carnegie Tech, were named associate directors.

Institute staff members will also include members of the department of architecture.

Details of the new unit were made known Feb. 3 at the first International Conference on Urban Transportation.

Continued on page 23

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Emblem Competition Held for Students

The Marble Institute of America is holding a student competition for an MIA emblem.

The emblem, says MIA Managing Director Don Hagerich, "should represent marble as a living, dynamic material in contemporary architectural design."

The winning emblem will be copyrighted and used by the MIA and its members as a signature.

Students regularly enrolled in a course of architecture, graphic arts, design or fine arts in a college in the US or Canada are eligible to enter the competition. Entries must be postmarked on or before April 15 and should be sent to the MIA, Room 848, Pennsylvania Building, Washington, D.C. 20004.

First prize is \$500. There will be 100 additional prizes—marble-headed putters, tabletops, etc. Winners will be announced in May.

USA/FLW

Frank Lloyd Wright, whose stamp of greatness never touched a federal government building, will be honored by his government.

A two-cent Frank Lloyd Wright stamp will be issued, the Post Office Department made known, with first-day cancellation set for June 8 at Spring Green, Wis.

Team Seeks Quick Ways To Slum Modernization

A research team will seek to develop a new construction system for accelerated low-cost modernization of occupied slum tenement buildings under a grant from the US Housing & Home Finance Agency.

The system, involving pre-assembled and factory-fabricated components, would shorten the time tenants would be out of the building to about 48 hours—and would reduce rehabilitation costs drastically, according to Tishman Research Corp.

The corporation, a subsidiary of Tishman Realty & Construction Co., is a member of the team which also includes the Institute of Public Administration, a private New York

group specializing in the analysis of government affairs and serving as nonprofit sponsor of the project; Conrad Engineers; T. Y. Lin & Associates, engineers; Horowitz & Chun, consulting architects; and Paul R. Williams FAIA.

Structures at Fair Site Undergo Load Tests

Several buildings at the New York World's Fair site are being load tested.

The Building Research Advisory Board said it is believed substantial information can be obtained as to actual performance under load of design procedures and assumptions.

BRAB is taking part in the program initiated by the American Society of Civil Engineers. The existence of contemporary structures offers a rare opportunity to test without the cost of erecting test structures, BRAB said.

The testing, scheduled to span this month, was tentatively slated to include the Rathskeller, Chimes Tower and High Street, all in the Belgian Village, and Bourbon Street.

Each of the buildings—two of reinforced concrete and the others of structural steel—will probably be subjected to vertical, lateral and/or vibratory loads. Plans are to load the structures to the point of collapse, a BRAB spokesman said.

Meanwhile, it was announced that another Fair building will be given a permanent home. The Johnson Wax "Golden Rondelle" theater will go to the company's headquarters at Racine, Wis.

There it will be fitted between auxiliary buildings designed by Taliesen Associates. The headquarters building was designed by Frank Lloyd Wright. The Johnson Wax World's Fair movie, "To Be Alive," will be shown as part of its tour program.

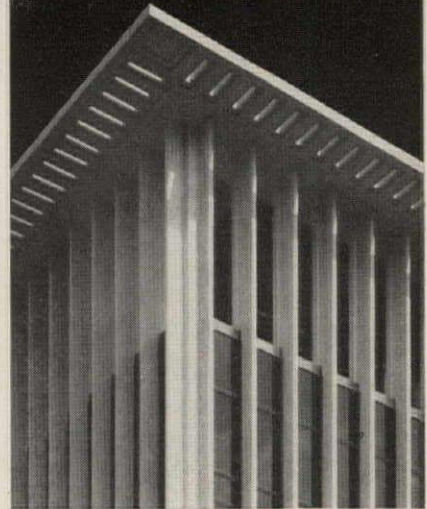
Gov. Brown to Reward Creators of Beauty

California Gov. Edmund G. Brown says he will establish an annual governor's award for outstanding contributions to beauty and conservation.

"I will ask a jury of distinguished architects and critics to select each year the one project in each of several categories that does the

Continued on page 24

WASHINGTON LANDMARK

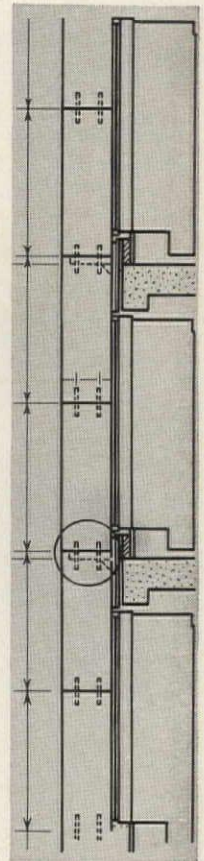


In the National Geographic's new headquarters building, architect Edward Durell Stone employed Vermont Imperial Danby Marble throughout the interior and exterior.

To erect the vertical fins, horizontal shelf angles at each level support two marble courses. Matching holes drilled into the upper and lower portion of each fin take 3/4" hot-dipped galvanized dowels, to provide a hidden anchor, with each pair mated securely to those above and those below.

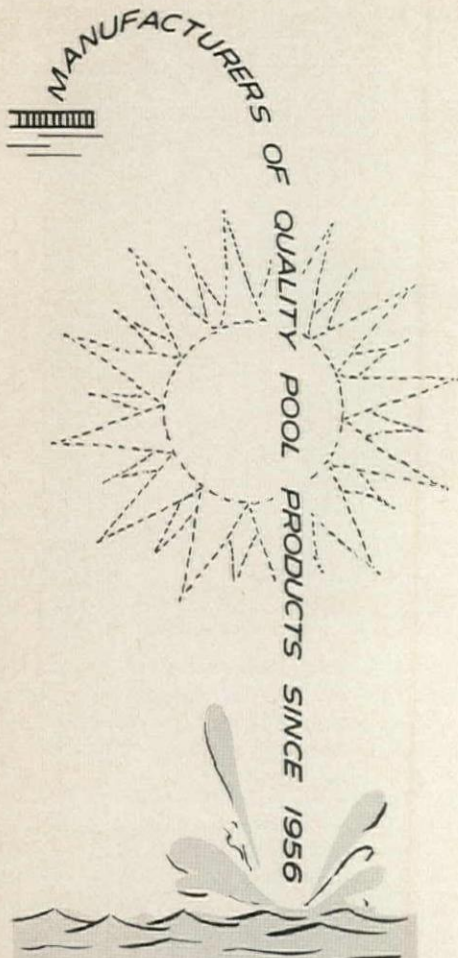
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Newslines from page 23

most, not only to preserve the beauty of California, but to enhance the environment," Brown said.

Companion awards will be given to the architects of the projects. These are the categories: downtown buildings, industrial plants, rehabilitation of buildings of historical or architectural merit, public buildings and bridges, community or housing developments and, finally, a category for the greatest "overall contribution to beauty and conservation."

Donald Hardison, president of the California Council AIA, lauded the governor's program. He referred to the AIA's annual awards and commented, "We feel that the more recognition that is given, the more opportunity our citizens will have to perceive the values of a better environment."

No Glazing, No Gazing; And Teachers Like It

Does the windowless classroom hurt or help the learning process?

Neither, University of Michigan researchers found. Windows are not an absolute necessity in schools.

This was the main finding of a three-year experiment directed by C. Theodore Larson AIA professor of architecture. The work of children, grades kindergarten through 3, who spent a full year in a windowless building, was comparable to that of a control group in a nearby school with glazing, the study showed.

The windowless youngsters were found not to mind. As for the teachers, a major shift in their attitude was detected.

They emerged from the experiment "unanimous in their reasons for not wanting the windows. The children are no longer distracted by outside happenings."

Larson noted that several educators have questioned whether the elimination of outside distraction is always to be desired.

"An exterior happening may now and then provide a fruitful stimulus to learning activity in the classroom, particularly if the class—as in the case of kindergartners—does not have a strict set of learning tasks. However, most school work has a definite educational focus and relatively few classrooms would find windows an advantage here," said Larson.

Nonprofit Housing Seen On Rapid Upswing

New housing projects sponsored by churches, unions and other nonprofit organizations will account for a rapidly growing share of total US homebuilding activity in the next few years.

This is the forecast of Fred Kramer, chairman of the advisory committee for Urban America's local development services division.

There is every reason to expect between 100,000 and 200,000 units to be built in nonprofit projects by 1970, he said.

He cited three main reasons: recent federal legislation, an increase in the number of nonprofit groups entering the housing field, and a growing public awareness that "something must be done—and can be done—to provide adequate housing for the disadvantaged."

Expanded government efforts, and particularly the Housing Act of 1965, Kramer said, "are making it possible for hundreds, perhaps thousands of nonprofit groups across the country to participate in the monumental job" of creating needed housing.

Under certain circumstances government support for a nonprofit organization's housing program makes it possible to finance 100 percent of a project's cost over a 40-year period at interest rates as low as 3 percent, Kramer said.

Shopping Center Nucleus Is Old Packing Plant

A reconverted, 60-year-old building will serve as the core of a shopping center in Marysville, Calif.

In addition to the cost saving factor, retention of the old brick packing plant is intended as a reference to the colorful, turn-of-the-century aura of the West.

The building will remain relatively intact, according to Richard L. Dorman & Associates, architects.

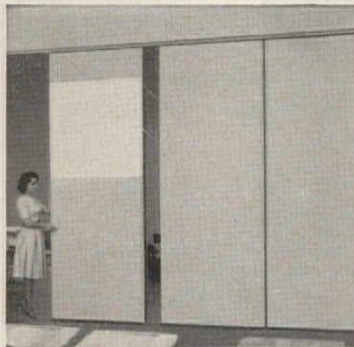
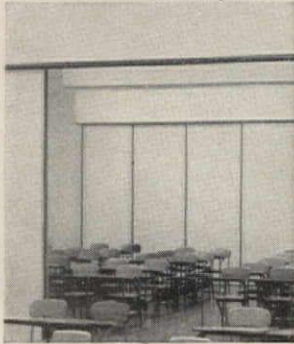
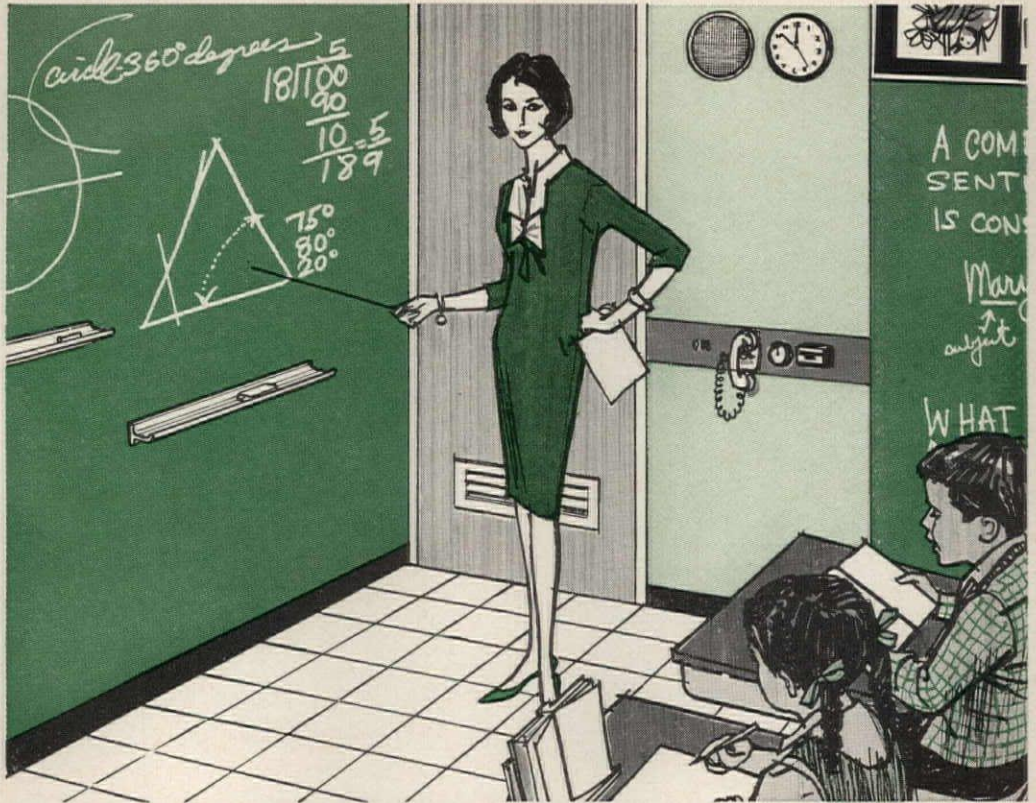
PPG Competition Topic Turnpike Hospitality

Theme for the Pittsburgh Plate Glass Architectural Competition, co-sponsored by the National Institute for Architectural Education for the third successive year, is "The Image of a State—A Hospitality Center on a Turnpike."

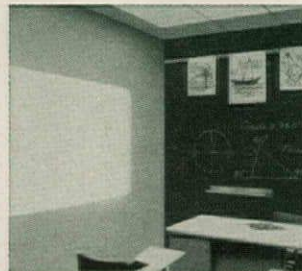
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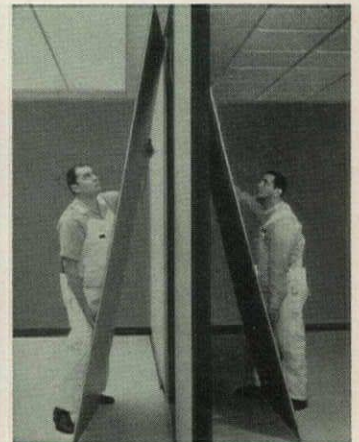
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REFERENCES: Sweets Architectural File, section 13n Hi

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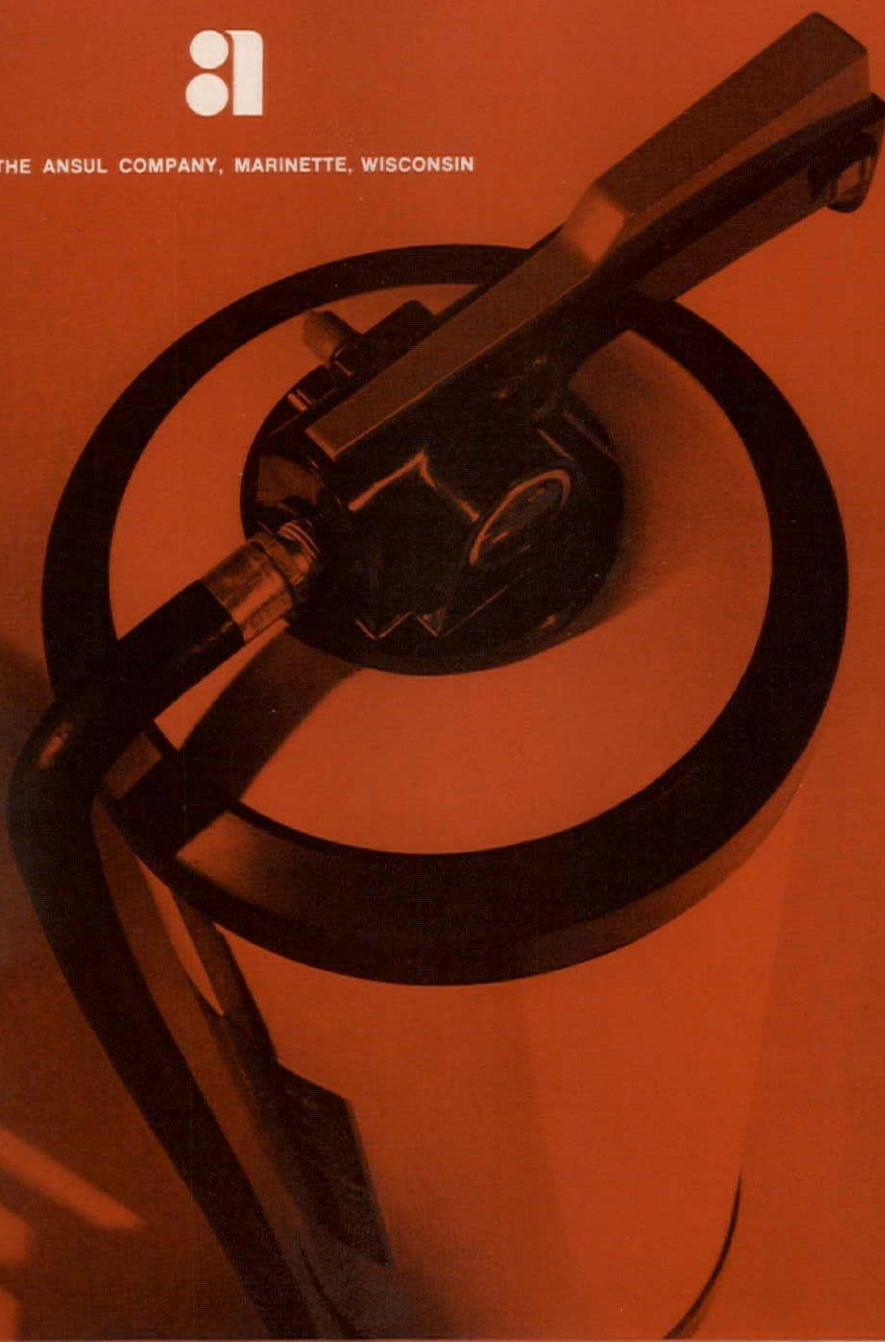
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Newslines from page 24

The competition, NIAE said, is open to architectural students and architects under 30 years of age.

Elmer Lundberg AIA, director of architectural liaison for PPG, listed prizes as follows: \$1,200 first prize, \$750 second, \$500 third and 10 merit awards of \$100 each.

The competition closes April 22. A jury of architects will meet in Hershey, Pa., early in May to select winners. Entry forms, information from NIAE, 115 E. 40th St., New York, N. Y. 10016.

Architecture-Rich Town Gets Design by Roche

The city of Columbus, Ind., notable for its collection of buildings designed by outstanding architects, will get a post office by Kevin Roche.

Postmaster General Lawrence F. O'Brien said Roche's professional fee to the government will be met by the Cummins Engine Co.

In effect, though Roche is billing the Post Office Department, the government is getting his services

free. As far as he knows, O'Brien said, this is the first time the Department has ever enjoyed such an arrangement involving a nationally prominent architect.

Roche is a principal and chief designer of the Eero Saarinen firm. Cummins Engine maintains headquarters in Columbus, and its arrangement with the Post Office Department is part of a program that brings leading designers to the community.

Consulting Engineers See Good Laced with Bad

Results of a survey by the Consulting Engineers Council indicate a record-breaking year for both engineering and construction in 1966.

Replies from nearly 300 consulting engineering firms were nearly unanimous in agreement on a record level of assignments on the drawing boards or in prospect.

Engineers in private practice also agree on the existence of pressing problems, according to CEC. These include a growing shortage of competent manpower and inadequate compensation.

A critical shortage of manpower in all categories was reflected in survey results. All replies called attention to the need for *qualified* personnel.

"We may be paying contract bonuses for outstanding personnel just like the football clubs," commented one consulting engineer.

Plans Set for Meeting on Religious Architecture

"An End to False Witness" is the theme of the 27th National Conference on Religious Architecture April 26-28.

The San Francisco meeting, sponsored by the Institute, the Commission on Church Building and Architecture, National Council of Churches of Christ in the USA and the Guild for Religious Architecture, will hear major addresses by theologians and architects.

The conference will also include a special program, "Architecture and Religion in the City," tours, seminars and exhibitions.

The exhibitions include religious art (juried), recent and projected religious buildings, and building materials and products.

Continued on page 34

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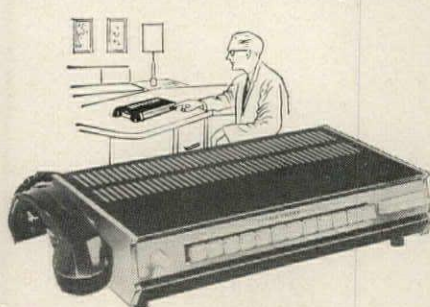
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FROM BETHLEHEM STEEL

No. 13

ONE CENTER PLAZA IN BOSTON.

The initial design of this new office building called for a framing material other than steel. But the owners and builders changed to a steel frame in order to allow for easy modification of tenant space (additional stairways, increased floor load capacities, etc.) after completion of the building. The eight-story structure will have 600,000 sq ft of space, with underground parking for 400 cars. Bethlehem Steel is supplying some 5,000 tons of structural steel for the framework, which is recessed at the first floor level to provide a pedestrian arcade.



Owner: Beacon Construction Company
architect: Welton Becket and Associates
consulting engineer: Wayman C. Wing
steel fabricator: West End Iron Works

WHY PENNEY CHOSE STEEL FRAMING

Final design of J. C. Penney Company's 200,000-sq-ft retail store in Ventura, Calif., was preceded by a detailed analysis of the relative merits of steel framing versus reinforced concrete. Disclosed were significant savings in the choice of steel. Because of the low load-bearing capacity of the soil, foundation piles were required. Since the steel frame was much lighter, fewer piles were required. The lightness of the steel framing also permitted utilization of exterior masonry walls as shear walls. Considerable savings resulted from the simplicity of the steel frame for vertical and lateral loads. Further economy was achieved by designing with uniform bay spacing.



Owner: Gordon L. MacDonald & Associates;
architect: Mazzetti/Leach, Cleveland & Associates;
structural engineer: Samuel Schultz;
general contractor: Monitor Construction Company;
steelwork: Bethlehem Steel Corporation.

OLD BRICK, NEW STEEL.

Civic-minded San Franciscans are enthusiastic about a restoration project near famous Fisherman's Wharf. There the brick shell of a circa-1903 fruit cannery is being braced, divided into two buildings, and filled in with three levels of steel framing to house a potpourri of restaurants, pubs, shops, and galleries.



Owner: Leonard V. Martin; architect: Joseph Esherick and Associates;
structural engineer: Rutherford & Chekene;
general contractor: Greystone Builders;
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Nice Work if You Can Get It



One of the most pleasant privileges of the executive director is to become acquainted with architects from other lands

who visit the Octagon. They all enjoy a little fun, so I expect none will take offense at a little satire on that enfant terrible, the alien critic.

"What brings you to America, Professor Von Popov?" I inquired as we clicked martini glasses.

"To give critique lectures on your lousy architecture," replied Von, downing his martini and signaling the waitress for another.

"Purely objective criticism, of course?"

"Precisely. I will single out the bad from the terrible, absolutely without favoritism."

"How about the good architecture?"

"Where's this good architecture?" scowled Popov, his mane bristling. "I read your own critics and they never mention any." As an afterthought, he added, "You have a few critics who show promise. They are learning to be just like me."

I ordered another round of martinis. "The trouble with these," said Von, "they are shockers, not aperitif. Only the Latins know what to drink before eating."

"I should have ordered vermouth cassis."

"Nein," said Von, smiling for the first time. "I make point of drinking native. Besides, I am allergic to cassis anyway."

The waitress brought the menu.

"Well, fellas, whatyahavintaday?" We ordered.

"Such familiarity," muttered Von, looking after the departing waitress. "Our waiters wouldn't dare."

"Men waiters?"

"Si. But then, I must admit they don't favor the eye as much," he added as the waitress served the onion soup. "At least 38, I would think."

"Nearer 40," I said, feeling sure of my ground for the first time. "But back to architecture, professor."

"Your architects, they cannot make up their minds," asserted Popov. "They all do the glass box till someone say it is bad. They put the frame inside, then outside. Now the style is the building must be bigger at the top than at the bottom. Now they must try to sculpture the building."

"Maybe they got that idea from Corbu."

"That talker!" said the professor. "He only do two or three good buildings."

"How about Nervi, then?"

"Engineer! Package dealer!"

"Well then, Aalto?"

"Maybe he make it someday."

"You have just eliminated three of our Gold Medalists, professor."

"Yah, naturally," snorted Von, "I know these architects! Why don't Hay Hi Hay give gold medals to Americans?"

"Same reason," I admitted sheepishly.

As we began on the roast beef, Professor Von Popov complained about the sauce and the wine. At

least his stance is consistent, I thought.

"Well, anyway," I began again, "you must admit we build well. Everybody tells me the workmanship on your buildings is horrible."

"Name one," challenged Von.

"The Tower of Pisa."

"The Pisa job went to the low bidder."

Undaunted, I asked, "Where are you lecturing, professor?"

"Several universities, on coast-to-coast exchange grant. I use heavy accent then," he said with a chuckle. "That way I can insult American architecture and they love it. Thees ees only way to get big honorarium. Why don't you try it on us sometime?"

"I only wish I had the—the talent. I wonder if your people would stand for it?"

"Nyet," said Popov, beginning to soak up the last of the inferior meat sauce with a slice of bread. "In my country you don't criticize architecture—or anything."

"Ethics?"

"Police."

"What will you be doing after your tour, professor? Writing?"

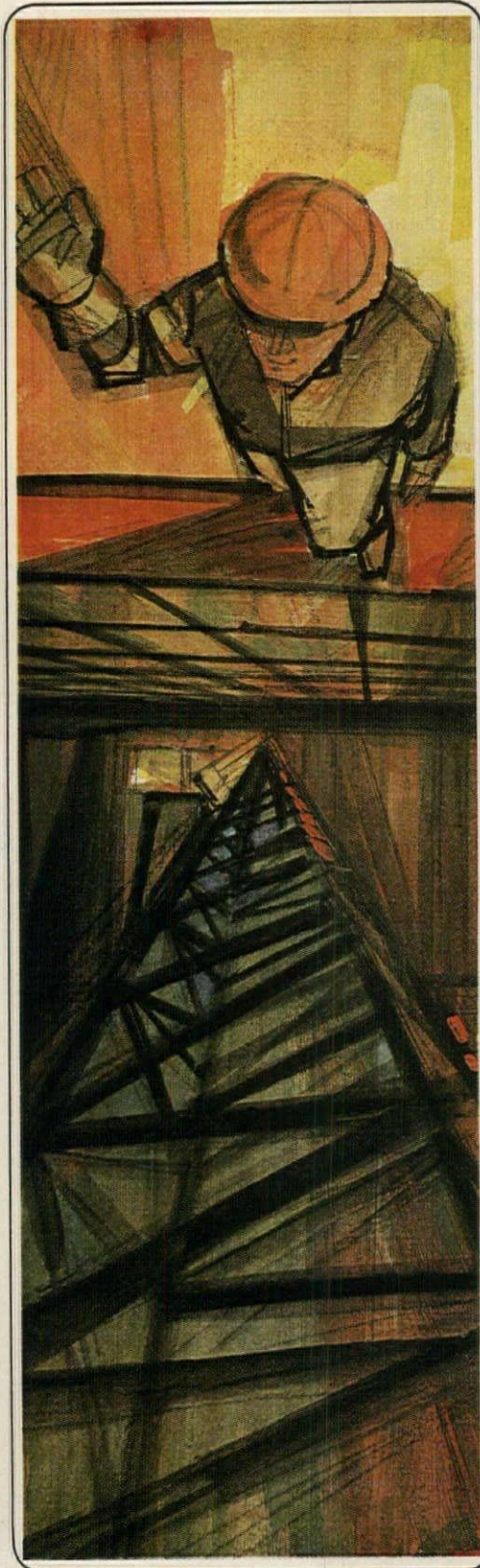
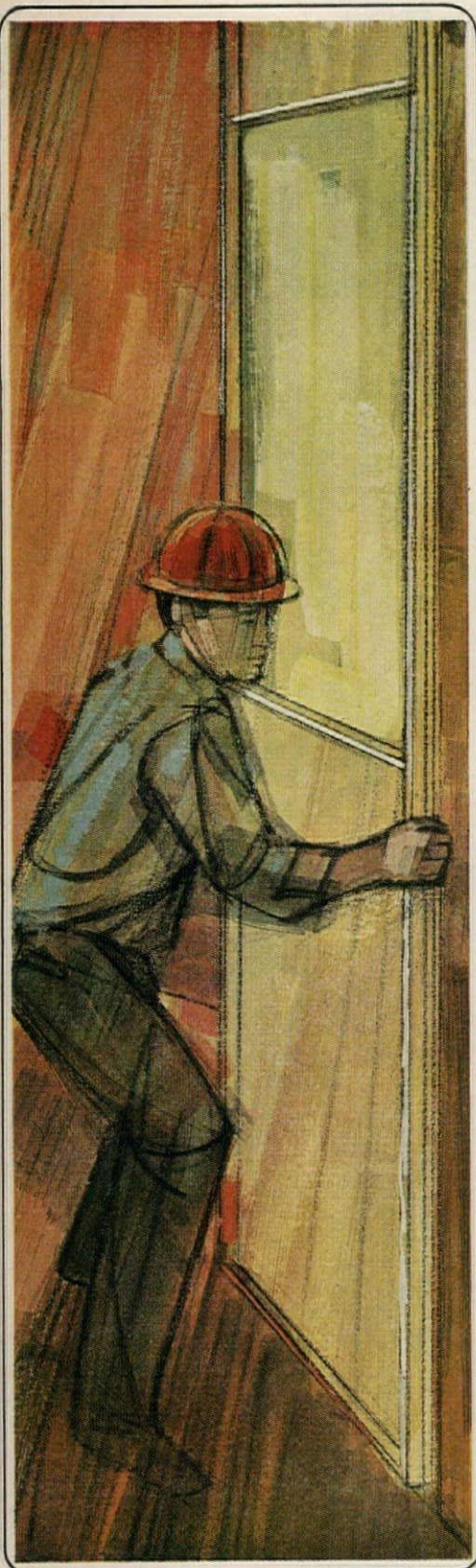
"Non. Practicing architecture here. I see this is good business for foreign experts like me."

"In spite of all the lousy architecture?"

"Who's knocking?" said Popov, with one of his rare smiles. "Besides, in my country I am now *persona non grata*."

I thought that meant "a razor blade without cheese."

WILLIAM H. SCHEICK, FAIA
Executive Director



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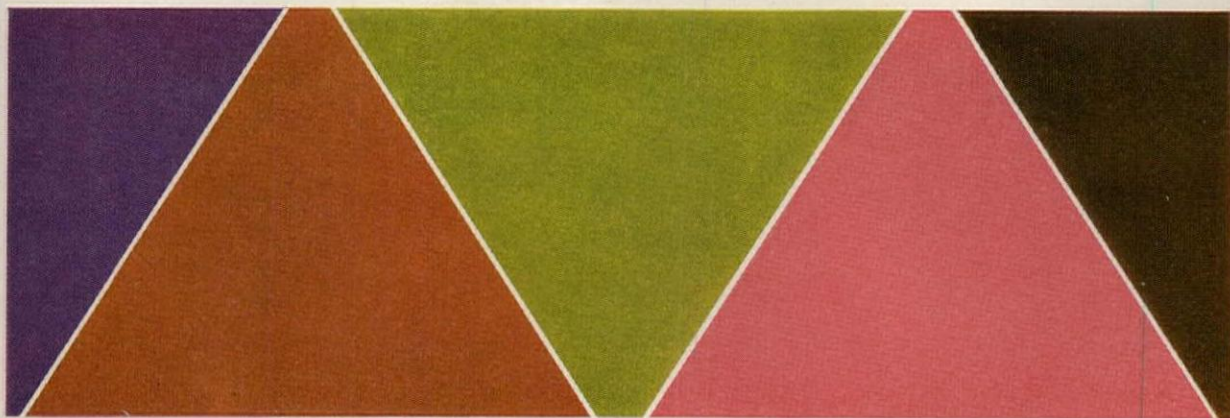
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*By the School Construction Systems Development project of the Educational Facilities Laboratories.

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A · I · A

Journal

Religious Art and Architecture

Honesty and Consecration

BY DR. PAUL TILLICH

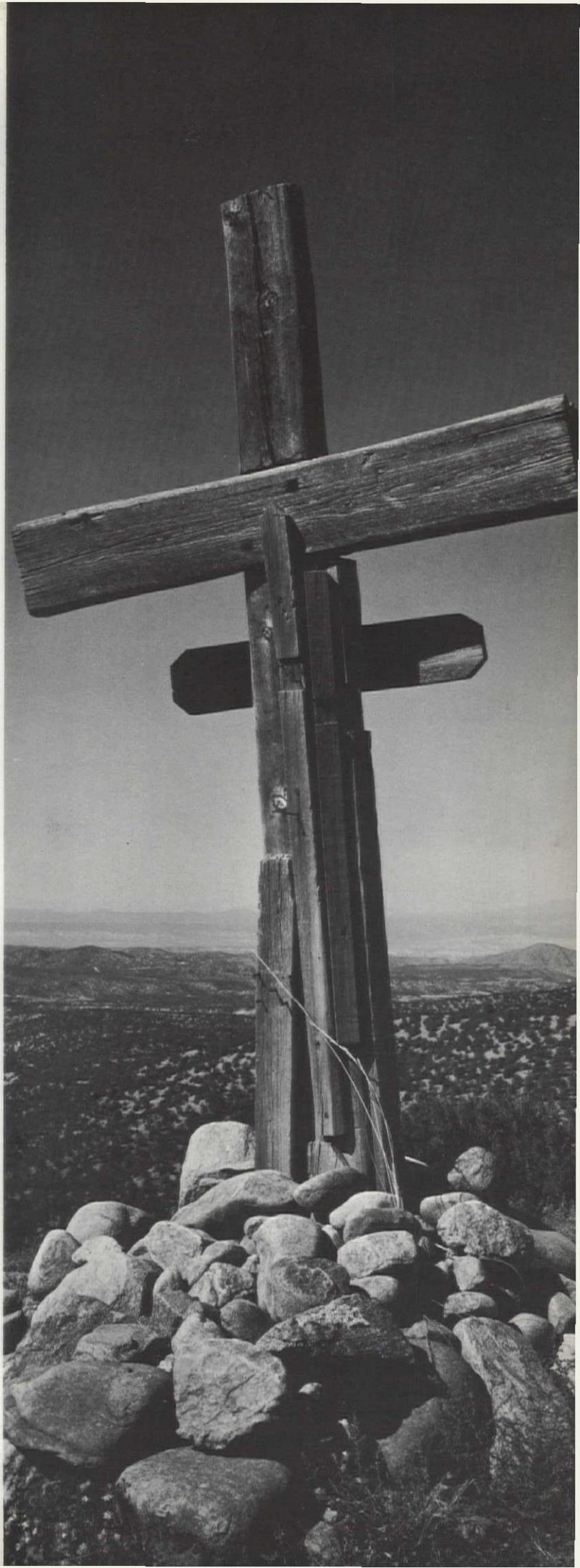
This personal probing takes on added significance for it represents one of the last statements prepared by the theologian before his death last October.

I WANT TO start with a kind of autobiographical report about the way in which I reached the two principles—honesty and consecration—which should control religious art generally and church architecture particularly.

In my early life I wished to become an architect, and only in my late teens the other desire, to become a philosophical theologian, was victorious. I decided to build in concepts and propositions instead of stone, iron and glass. But building remains my passion, in clay and in thought, and as the relation of the medieval cathedrals to the scholastic systems shows, the two ways of building are not so far from each other. Both express an attitude to the meaning of life as a whole.

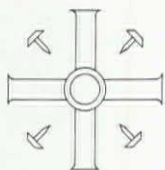
My love for architecture never died. It expressed itself in the admiration of the pilgrimage to great architecture and in a feeling of inner

MARCH 1966



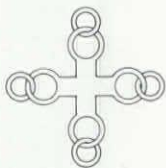
fulfillment in places where good architecture surrounded me. The fact that I lived up to my 14th year in the parish house of my father, opposite a 15th century Gothic church in a small town of eastern Germany, had influence on my decision to become a theologian and on some lasting elements in my theological thought.

Much later, during the horror and ugliness of the First World War, in which I served as a chaplain in the German Army, and immediately after the war, my eyes were opened to the glory of painting. They are usually not being opened in a Protestant parish, neither in Germany nor in this country, and I was initiated by my oldest friend, an art critic, into the expressive power of all modern art.



This made me a defender of modern art ever since, even if I disliked or did not understand some phases of it. But it did more. It made me not only a defender but also a severe critic in two respects. First, in the realm of painting—particularly religious painting—the Guido Reni type of sentimentalization of the Christ, which was rampant in all church leaflets and sacristies and parish houses in Germany, showed to me what dishonesty in painting means. I felt that all these paintings were judged and rejected by one of the greatest of all religious paintings, the “Crucifixion” by Matthias Grunewald at the end of the 15th century. The horrible wounds of this body are an anticipation of modern expressionism. It is not a naturalistic copy or a distortion but an artistic expression of the truth about what has happened on Golgotha.

In this way I learned to reject the beautifying naturalism of late 19th century and still early 20th century religious art. It had invaded Catholicism, in spite of its great tradition, as well as Protestantism. I began to learn what artistic honesty and dishonesty mean.



But I had a second, perhaps even more important, experience this time with church architecture. In Europe we had many genuine Romanesque and Gothic buildings. One visited them, especially the greatest, and I experienced a small one in my home town. But long ago pseudo-Gothic and

pseudo-Romanesque imitations were built in Germany in spite of the great tradition.

Then I came into contact with the architectural ideas and persons of the Bauhaus, and again, in a sudden opening of the eyes, I saw the dishonesty of the imitation of the Gothic and Romanesque style in modern churches.

In 1933 I came to this country and lived for 22 years in Union Theological Seminary in New York, in the shadow of the pseudo-Gothic Riverside Church, attacking it in classes and talks to the dismay of many. But I must confess, this was not easy because the church reminded me, internally more than externally, of genuine Gothic art, and it had for this very reason, some lure for me. I would call it today a temptation which I resisted. And when I had to deal in my systematic theology with religious art, I introduced the principle of honesty as one of the two main principles into the discussion of the problem.

This led me to further observations. The failure of imitation is that it is not born out of the creative inspiration of the builders of the original work. Imitation comes out of the scientific study of things done in the past. It is produced without the unconscious, symbol-creating side of the artistic process.

Besides imitation, the act of adorning or trimming in order to make beautiful is an expression of dishonesty. If some building is architecturally perfect in itself, namely, completely adequate to its purpose, one should not add anything to beautify it. The beauty must lie in the adequacy and expressive power of the structure, not in contingent additions; and I believe that the word “expressiveness” must, at least for 30 years from now, replace the desecrated word “beautiful,” desecrated most by religious art at the end of the 19th century.

This, however, can lead to an ascetic radicalism of the principle of honesty. There was a struggle years ago about the idea of the “dwelling machine,” the house which is perfect in all technical respects but in which one cannot live because life as a whole was not taken into consideration. The wish, at least, of some people for separation from the open space, from the world space and its infinity; the wish to have individual privacy, not only family privacy but also individual privacy; the distaste of some people against hard materials which hurt the body by their very presence, even if one doesn’t touch them, as iron and concrete—all this was not taken into consideration.

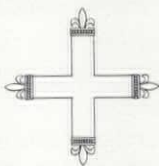
These people (to whom I belong), want organic materials—carpets, clothes, wood. The problem, then, is how can architecture combine the emotion-filled idea of “home” with the ethics of honesty? How much of architectural honesty has the architect to sacrifice in order to build a

cozy lower middle-class home? How much of the sentimental idea of a home must the customer sacrifice to accept the idea of honesty by the architect?

In church buildings we have to deal with the problem of honesty in relation to consecration. In order to do so we have to discuss a few more expressions of honesty. I have stated that honesty condemns imitation as well as trimming. But it denies something else, namely, the arbitrary solution of the problems of modern church building by running for novelty.

Traveling quite frequently, I saw everywhere—here and in Europe, in Catholicism as well as in Protestantism—attempts at new architectural forms in church buildings. The newness as well as the manifoldness is overwhelming, even if one chooses only the outstanding examples. Many, even of the average buildings, have some interest. Many give you a great surprise. But surprises wear off, and the new, if it lacks genuine adequacy to the meaning of the church buildings, becomes almost intolerable.

There are two reasons for this situation. One is the large amount of possibilities given by the new materials, concrete and related ones, and a universal truth: that possibility is temptation; the other reason is the break with tradition which makes experiment necessary. The tradition broke when the turn to the historical styles began. The only honest way in this situation is the creative inspiration of the architect who meets the objective demands of the particular situation and wants to express something important. Neither imitation nor wilfulness is allowed under this principle.

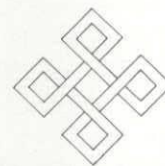


The demands the church architect must meet from the theological side are expressed in the principle of consecration. It implies a large amount of important theological questions. The first one is rather paradoxical, if mentioned in a church architectural group. It refers back to the principle of honesty, and asks whether it is honest today to have churches at all. Do we need and do we still want places of consecration? There are heavy reasons against this desire.

The first is sociological. There are large groups of the population for whom the church has become a class symbol, perhaps not so much in this country as in Europe. I think of the workers in Germany after the First World War, and the idea, considered in a movement to which I belonged, to have religious meetings in the back rooms of

cheap restaurants where the workers would feel at home and where one could talk to them about the problems of religion and socialism. There are analogies to this idea in present America, in the creation of storefront churches in New York's Harlem.

But also on the opposite side the question is serious. I think of educated Christians in Japan, who cannot stand the mission-created churches (which are mostly dominated by European or American denominational missionaries) and who therefore meet in private houses, Sunday by Sunday. Or I think of the religious discussion groups which I discover on my many lecture trips all over this country, who got together because they are not satisfied by the traditional church services and gather around a book of sermons or on the Bible or on theology or philosophy in a private home. Or I think of the worker priests of France and the factory meetings of workers with theologians in England. I think of religious lectures and discussions on the radio, besides the radio's church services.



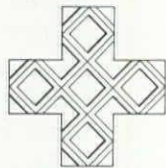
All this is an expression of our situation, the secularization of the world and the irrelevance of the Christian message, as it is communicated for innumerable people. This refers to all social classes, but it is most conspicuous in the intelligentsia in the Western world; and it refers to the whole Communist-determined civilization in countries which embrace half of the population of mankind. There are probably no new churches being built in Russia and no new Buddhist temples in China.

The people about whom everybody is excited in discussions in the Western world are artists, musicians, painters, architects who, in the majority, have no relation to church life—sometimes not even those architects who build churches. I think of Matisse, whose chapel in Vence in southern France I saw and admired as a great work of art in its simplicity. After we left it, I said to Mrs. Tillich, "I haven't found any mistake in this building, but he never practiced religion."

But the most radical attack on church buildings comes from theology itself. It starts in the Old Testament when up to the time of Solomon there was resistance against church buildings, and Solomon himself spoke in the consecration prayer about the possibility of having the infinite within a finite space. More radical is the attack against the whole temple cult in the words of the prophet

Amos: "Take away from me, says God, the noise of your songs. To the melody of your harps I will not listen, but let justice run down like waters and righteousness like an ever-flowing stream."

When the disciples of Jesus pointed to the beauty of the temple, he only repeated the prophecy of its destruction. Luther did not reject church buildings but devaluated them as the holy spaces, just as he devaluated Sunday as the holy time. And in the heavenly Jerusalem, this is what we read in the last Book of the Bible: "And I saw no temple in the city for its temple is the Lord."



All this expresses God's freedom from religion, even his fight with religion in the whole history of religion. It expresses God's freedom for the secular, as emphasized powerfully by the martyr-theologian Dietrich Bonhoefer.

Theologically it has led me to the doctrine of the two concepts of religion—the larger and basic concept, namely, religion as the state of being driven by an ultimate concern which transcends the separation of the sanctuary and the marketplace, of the holy and the secular. But there is also a narrower concept of religion—religion as the life of a social group which expresses a common ultimate concern, an experience of the holy, in symbols of myth and cult as well as in moral and social ways of life.

The first concept of religion is the basis and the essence of the second. It is valid for the second concept of religion directly and for all cultural creations indirectly. Through works of philosophy or science, of literature or the visual arts, ultimate reality can shine, perhaps unintended, but without particular religious symbols; perhaps using religious symbols, but as elements of a secular work.

The statement that a house as such can have a religious quality is true in the sense of the larger concept of religion. The honesty and nobility and adequacy of the house, of the private house, can express something of the ultimate meaning of life. It can have sacredness. Similar examples can be taken from the practical, moral, social, political side of the secular side of life.

There are movements which do not belong to the church but which can be called expressions of the church latent. In the latent church the ultimate concern shines through as movement for social justice or as growth in personal righteousness. All this may give the impression that the secular is self-sufficient and no church as social structure, and therefore no building, is needed.

But this is not so. The town without temple is the heavenly Jerusalem, not an earthly town. And all those who have fought against holy places have used holy places and holy times themselves. It is the human predicament, the universal estrangement of man from his true being, which demands "church" in every sense of the word. Religions, temples and churches are witnesses against men, showing the split between what man essentially is and what he actually is.

Holy places, holy times, holy acts are necessary as the counterbalance to the secular which tends to cut off our relation to the ultimate, to the ground of our being and to cover the experience of the holy with the dust of the daily life. Churches are the treasure chests in which revelatory experience, the experiences of the holy are enshrined, and often enshrined in such a way that they are unapproachable. And this is just our situation today.

It would be the task of the churches to open themselves and their treasure by words and acts which are able to communicate to our time. This is true of all functions of the church. It is true of theology. And it is true of religious art, which today has not yet reached the ability to communicate through its new stylistic forms but which should not ever relapse to the dishonest, beautifying sentimentality of the near past or some earlier periods.

It is the task of the church architects to create places of consecration where people feel able to contemplate the holy in the midst of their secular life. Churches should not be felt as something which separate people from their ordinary life and thought; rather they should open themselves up into the secular life and radiate through the symbols of the ultimate into the finite expressions of our daily existence.

How does an architectural work express the presence of the holy? And at the same time, how is it able to open up into the world what is experienced in it? The principle under which the church architect must work is expressed in the words of the mystical poet Tersteegen in his great hymn, "God Himself is present, let us now adore Him." The experience of the presence of the holy by the kind of space the architect has created is what must be intended, even before anything else happens within this space. Since the experience of the holy is never directly possible, because it transcends everything finite, its presence must be mediated by authentic representation and symbolic expression.

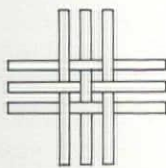
Which kind of expression is adequate depends on the character of the relation of a religious group to ultimate reality, the holy itself, and there are many ways in which men have experi-

enced the holy, and there are great differences even within the same religious tradition. A decisive difference is based on the character of the ultimate reality that, on the one hand, it transcends everything finite and, on the other, it is the creative ground of everything finite. It is beyond what can be grasped by senses or words or thought, and it is at the same time the creative ground, present in everything. This polarity is equally important for the theologian, the artist and the architect.

If you emphasize the one side of the polarity, namely, the transcendence in a radical way, you may come to something which one would call "sacred emptiness"; and there are many architectural creations which express this, mostly born in Israel, and important to the two religions which are dependent on Israel, Christianity and Islam. When one uses the words "beauty of holiness," one can call this kind of expressing the holy "beauty of emptiness." This emptiness is not an emptiness where we feel empty, but it is an emptiness where we feel that the empty space is filled with the presence of that which cannot be expressed in any finite form.

Into this line belong movements which have fought against images in the church. They led to bloody struggles in the eighth and ninth centuries in the Eastern Church; they arose again in the reformation period, especially in Calvinism; their spirit underlies some of the great American church buildings of the pre-imitation period.

One can feel the presence of the holy also in the opposite way. I think of India with its vegetative abundance in all sacred buildings, with their wild growth of limbs of the human body and the infinite manifoldness of divine-demoniac beings. In Christianity such abundance never was reached. It is because of its monotheistic basis impossible in Christianity, at least in principle.



Nevertheless, there are Catholic churches in which with the help of the dogma of incarnation, namely, the concrete presence of God in time and space, similar trends have developed. I think of some of the church buildings I have seen in Mexico, which also show a wild-growing abundance of holy forms and figures.

How does this polarity refer to our present situation? The richness of contents, the expression of the presence of the holy by many forms is a possibility as long as these forms were immediately understandable. But now it often happens that traditional symbols are renewed and that only

a few understand them, so that an interpreter is needed. I felt this when I met, both inside and outside the sanctuary, symbolic signs which once upon a time were understandable, but to a present average churchgoer they are strange. They have lost their symbolic power. But the meaning of a symbol is to show something which cannot be given by words and interpretations. The question then is: Do we have such symbols today?

In the middle of the 20's, there was the so-called "Berneuchener movement" in Germany. It was a group of still comparatively young theologians and laymen who met once a year to revise the 19th century liturgies with their sentimentality and poverty and to go back to the richness of the liturgical past.

But soon something happened to our group. It became divided. The one group dug back into the past with the intention and in the hope to revive it for the present. The other, smaller group (to which I myself belonged) was related to the Religious-Socialist movement. We asked: What do these symbols, these liturgical forms, tell the worker, e.g., in the northern part of the city of Berlin? There were some large churches with 100,000 baptized members, and 200 elderly women in the Sunday morning services, no men, no youth. One asks: What can one do in such a situation? Can one offer to the young people, to the workers, to the intellectuals liturgical expressions of the Christian faith, conceived 1,500 years ago in Mediterranean cultures?

The ongoing discussions were cut by the arrival of Nazism. The remaining group, the "antiquarians"—as we called them—prevailed. They are still active, but were unable to communicate except to small circles within the church.

Today the difficulty to communicate is increasing. And this is expressed in liturgies as well as church buildings, and even in theology. "Sacred emptiness" should remain the predominant attitude for the foreseeable future. We should express our experience which has been called the experience of "the absent God." This does not mean a negation of God, but it does mean that God has withdrawn in order to show us that our religious forms in all dimensions were largely lacking both in honesty and in consecration.

Saying that God has withdrawn implies saying that he may return. Then he will disappoint those atheists who believe that he has confirmed atheism by his withdrawal. What may have happened by the victory of secularization is that his wrong image has been destroyed by himself. Therefore, the expression of church buildings should be "waiting" for the return of the hidden God who has withdrawn. ■

Presented at the National Conference on Church Architecture.



Norway's Fascinating Stave Churches

BY T. WILLIAM BOOTH

Apart from the romance of finding these remaining curios or from the challenge of relating them to Continental history, one might go in quest of stave churches to see how a relatively unsophisticated people had mastered an expression of wood construction. This essay, possibly the first in English on the subject, may serve as an introduction to a segment of medieval architectural wonders.

THE STAVKIRKKE derives its name from the heavy wooden pillars, called *stav*, which provide the support for churches built in northern Europe. Throughout southern Norway, stave churches were constructed from the time of Christianizing the realm by St. Olaf (King 1016-1029) until as late as the 14th century.

The erection of the churches was, in some recorded instances, by the king's "landsmen" (sheriffs), and in later times by the clergy when the Church became a landholder. The rate of building must have been so great as to give constant employment to traveling master builders similar to those working on the Gothic in France. So great was the fervor and the problem of topography and

communication that the total number of churches may have been as high as 600. Today, we find that there are only 28 stave churches in various states of restoration or modification. Fragments of many more remain in the Oslo University Archeological Museum.

From a distant view, a stave church with its many angled, highly textured roofs has the appearance of the indigenous fir trees. This poetic notion is incomplete, for the churches which are no higher than 40 feet to the ridge possess a marvelous spatial grandeur created by direction and detail.

The feeble light let inside through the few high-placed holes barely illuminates a mysterious void of trusses and columns all in wood. As one's eyes become accustomed to the gloom they soon discover familiar forms: the column and attached pilaster, the arch here modified to wood, lintel, simple scissor truss and sculpture. The carvings in the pagan-Salic style may, however, contain unrecognizable symbolism. The wonder of it all is that the wood was cut and shaped 800 years ago and has supported churches in continuous use since then.

On closer inspection one notices very real efforts





The structure seems to soar but in reality is no higher than 40 feet to the ridge. The portal at A1 (across page) is considered the finest classic statement of carving in stave churches, which demonstrate a borrowing of forms.

at imitating masonry motifs: modified triforium elevation, cuspid arches, carved arch moldings and cushion capitals, as well as the obvious basilican and cross plans. In a land where the wood tradition must have been already well advanced in the 12th century, it is all the more remarkable that there should be such borrowing of forms. A brief look at history may reveal why this should happen.

Christianity in Norway as a whole began with the consolidation of the realm and enforced proselytization by King Olaf II. It was under him and his son Magnus the Good that the first churches were erected. Their form and structure, as determined by a few clues, were similar to the domestic dwelling of the time, that is, the staves were merely stuck in the ground much like fence posts.

The first churches, which may have lasted as long as a century, were replaced by a more advanced type in a great burst of building during the intense but short time of the 12th century. Thus 100 years fell roughly between the end of Viking raiding and the Hanseatic control of Norway's trade. The Church consolidated its position at the expense of royal authority. The new (1151) archbishopric probably looked to England for institutional and cultural models. This may account for some of the borrowed forms.

That during the 12th century and the next as many as 600 churches may have been built need not seem excessive for such a small area. The

difficulty in traversing from valley to steep-walled valley, to say nothing of moving through some of the splendid gorges, necessitated the siting of farms and church only where there was a leveling in the valley sides. For example, in the Numedal, just 50 miles from Oslo, there are four of five churches still standing. And that valley is 60 miles long.

Today, the modern roads follow the once-abandoned flood valleys. From them one can discover with great delight the thoughtful siting of the churches in commanding positions along the old high roads halfway up the valley sides. According to tradition, the church was considered the citadel of the godly and, therefore, was often placed at the edge of a west-facing bluff. Because of this position, the approach engendered great spiritual involvement and impact.

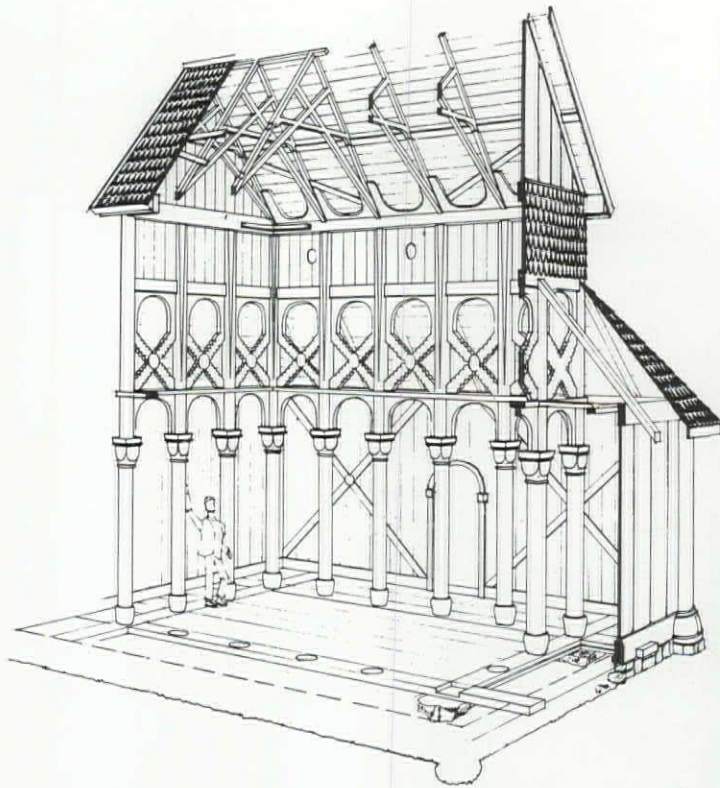
Upon entering the churchyard, the significance of the dragon heads as protectors from evil is revealed. Next, one passes through a carved portal which is, perhaps, the most wonderful element in a stave church. During the early 12th century the symbolism used still retained pagan motifs: dragons (Lion of Judah) and serpents (evil) all intertwined, the portal from Urnes being the best known. The later additions of griffons, birds and organic forms probably reflect Romanesque influence from England. The portals are, however, uniquely a Norwegian adaptation.

Once again from the outside, the foundation supports are ambiguous, for the perimeter wall is merely a screen. The real bearing is at the inside corner stave under which one large stone is usually located.

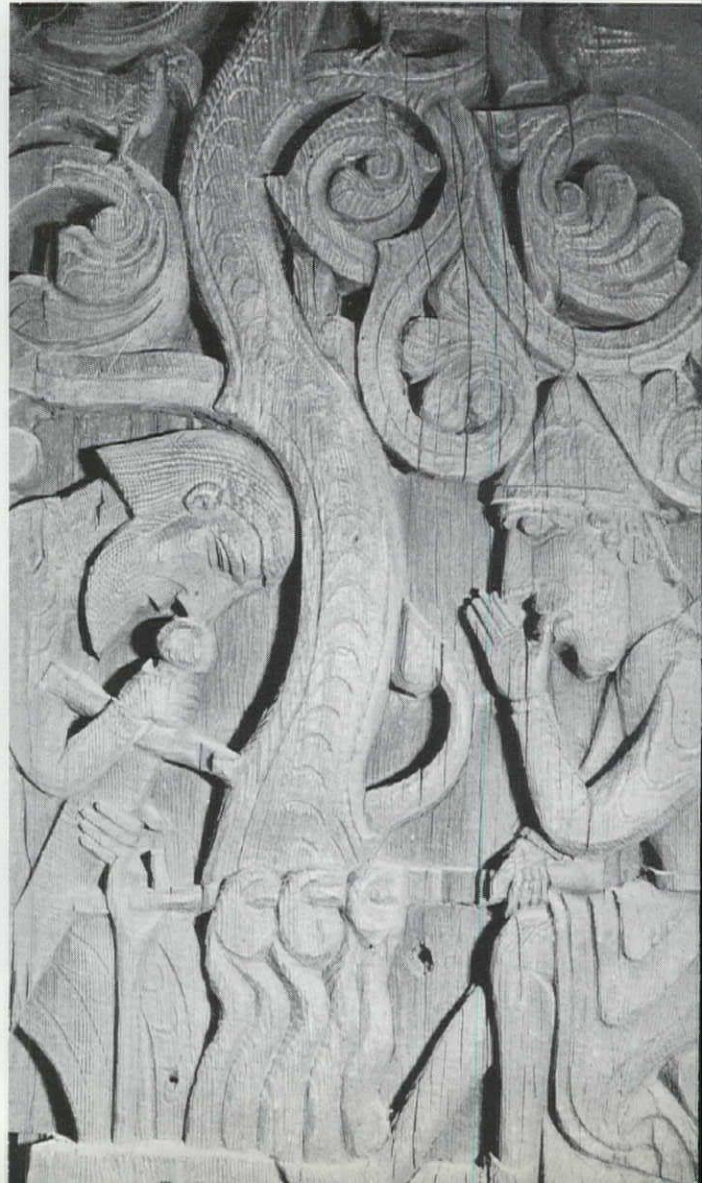
Inside, the structure is, like the Gothic, the essence. Here, too, pre-Christian antecedents may be found in domestic construction techniques, although there are no extant models to be certain. The reconstruction drawing* shows the inner nave sills. Over these ride the ground (exterior) sills and the interior staves. The ground sills are bound

*Prepared by the author, now employed by a Seattle architectural firm, who devoted two summers to his research under a Rehmann Scholarship and in-between worked for Alvar Aalto in Finland.





The carvings vary from the pagan-Salic style to the baroque in the portal fragment of the Wotun epic from Hylestad. As the reconstruction drawing shows, the structure inside is the essence, while the perimeter wall is merely a screen.





A majestic medieval painting is found in the 13th century vault dedicated to the patron St. Margaret at Torpo.

at the corners by boles. The moldings on the bole may reflect an earlier time when thongs were used to bind all together. The staves, in turn, support headers whose joints are made rigid by natural knees, much like the floors of a boat's braced hull.

Later churches became higher, and an intermediate header and knees were inserted. The space above this header took a light "X" bracing called St. Andrew's Cross (Scottish patron saint). This last element is thought to have been introduced to prevent racking when the newer structural method proved to lack the necessary rigidity. Recall that in the first churches the staves, driven directly into the ground, were inherently rigid, because the ground offered the necessary bracing support. At Hoprekstad, one of the early high churches, it appears that the connection of the cross to the capitals is so badly handled as to be only an expedient afterthought. There has been no reconstruction research to prove the point.

At Torpo is seen the stave church in its classic moment. The refinement of detail, proportions, clarity of support and the perfection in execution suggests that the city was the seat of a wealthy landsman or cleric. The construction occurred under the long reign of peace and increased clerical importance under Magnus V (1162-1184). Also, there is at Torpo one of the superb medieval paintings in the vault dedicated to the patron St. Margaret (latter half 13th century).

There is a similar nave vault preserved in the Oslo University Archaeological Museum from A1 Church. The vault, measuring about 5 by 3 meters, depicts episodes from the life of Christ. But this is only half the preserved treasure from A1, for its portal may be considered as the finest classic statement of carving in stave churches.

Finally, the portal fragment from Hylestad with the late date of 1225-1250 may be said to represent the baroque moment in the style. The literal aspect of the Wotun epic shows the decay of the original motivating spirit. This analogy deserves special study.

The stave-church type was not limited to Norway. There were such buildings in Sweden and Greenland, even as far afield as Poland and Russia. But nowhere did it reach such a high point of artistic development as in Norway. The diminutive size and personalized detailing served as long as the local populations remained small and poor.

The spiritual impact of the rich wooden interiors, lighted only by candles with the color and brilliance of vestments and gold service, was suited to the simple liturgy of the time. Although plans were diverse—from cross with central mast-column, to simple barnlike halls, to apsidal basilican plan with ambulatory—the churches all had one quality in common: an extraordinary expressiveness of purpose, material and iconography. That any are extant is proof of these lasting values. ■

What Education Means to Architects' Wallets

A Cincinnati Area Survey Produces Some Inconclusive but Interesting Findings

BY MARY PLEDGE PETERSON
& JOHN M. PETERSON, AIA

WHAT IS the relationship between architects' level of education and their level of earnings? Of primary importance in undertaking a study to probe the matter was the more specific question: Do architects with master's degrees earn more than architects with bachelor's degrees? If they do, what is the magnitude of this difference? Do architects with bachelor's degrees earn more than architects who have no college degrees? In addition, what is the opinion of architects regarding the earnings prospects of a master's degree holder, and is this opinion consistent with actual earnings?

The first step of this research project was to choose a representative group of architects which could be studied. The Cincinnati area architects were selected, a choice based solely on convenience since there was no evidence that this group of architects is not typical of the profession as a whole. The second step was to obtain the required information on age, educational level (degrees earned) and the earnings of the individual architects. Since this information was not available, a questionnaire was sent in June 1965 to each of the 305 architects in the Cincinnati area who are registered to practice in the state of Ohio (as listed in the *Ohio Architect*, March-April 1965). This study is based on the 92 anonymous questionnaires which were completed and returned.

The husband-and-wife team who authored this article are both associated with the University of Cincinnati—he as an assistant professor in the College of Design, Architecture and Art; she as a lecturer in economics in the Evening College.

With this size of response, the data should be adequate to permit reliable observations and conclusions. Further, a total geographical area was used, thus eliminating the problems associated with random sampling methods. Although the actual levels of income may vary with geographical area, there was no evidence that the differences in relative incomes between architects with master's degrees, bachelor's degrees and no college degrees would vary with geographical area. To reduce the effect of fluctuations which might occur in income from year to year, earnings from practice and/or teaching for a five-year period were averaged. With these factors as controls, reliable observations should be expected.

The first observation which is of interest is in the comparison of earnings of architects with bachelor's degrees and the earnings of architects with master's degrees. The age-earnings data for both groups is shown on Graph 1, along with the earnings trend lines for both groups. The bachelor's degree group consists of 74 respondents and the master's degree group represents 11 respondents. This data yields some interesting information about the two groups.

First, and not surprising, is that on average the earnings of both groups increase with age. In addition, architects with master's degrees earn more throughout most of their lives than their contemporaries with bachelor's degrees, and this differential increases with age as can readily be seen. None of these observations are surprising because they are consistent with the results of other education-age-earnings research which has been done.

What is perhaps more interesting is the size of the differential between the two groups. This differential is extremely small and, considering the cost of a master's degree, which includes the earnings foregone by the students, it looks as though they would have been better off financially had they put the money in the bank at the going rate of interest instead of investing it in additional education. However, further analysis of the data will show that this is probably not the case and that the small earnings differential is misleading.

For the purpose of calculating the earnings trend line shown, the architects with master's degrees were considered to be a homogeneous group, but the data shows a deviation from this assumption. Although this group is small, it appears to show two age-earnings trends rather than one. It is safe to assume that the two groups represent those in practice, in the high-earning group, and those in teaching, in the low-earning group. This assumption is considered to be acceptable for three reasons. First, we know from personal association that there are architects with master's degrees in both teaching and practice. Second, there are two schools of architecture in the area studied, and it is reasonable to assume that the response includes both groups. Third, the earnings of those in the high group are unreasonably high for teachers in this area.

Considering our assumptions, it appears (Graph 2) that practitioners with master's degrees are earning much more than teachers and are probably receiving a sizable financial return on their investment

in the degree. The situation of the teachers presents a more complex picture. Over a lifetime, teachers with master's degrees will probably earn more than teachers with bachelor's degrees, but we do not know whether this earnings differential would be enough to cover the costs involved in getting a degree, or be large enough to cover costs and also yield a financial return on the investment. This notwithstanding, when architects with master's degrees make the free choice to teach rather than practice, they do so at a sizable financial loss. Surely they could earn at least as much, on average, in practice as those with bachelor's degrees, so by teaching they not only suffer a financial loss, but that loss increases with age. Therefore, teachers at this time receive a large measure of compensating psychic income or satisfaction, the minimum dollar value of which is the difference between their earnings trend line and the earnings trend line of architects with bachelor's degrees.

Shifting now to the age-earnings data of the architects with bachelor's degrees, similar subdivisions and earnings comparisons can be attempted. There are evidently three earnings trends for architects with bachelor's degrees (Graph 3) which are consistent with the organization of most professional offices: principals, associates and employees, ranging from highest to lowest earning levels respectively. With these additional breakdowns, it is possible to compare the earnings of practitioners and teachers who have master's degrees with the three bachelor's degree groups above (Graph 4). This reveals that teachers earn just over \$1,000 per year more than employees and, in fact, earn less than 69 percent of the architects with bachelor's degrees. On the other hand, practitioners with master's degrees earn more than 82 percent of the architects with bachelor's degrees and fall between principals and associates in this respect.

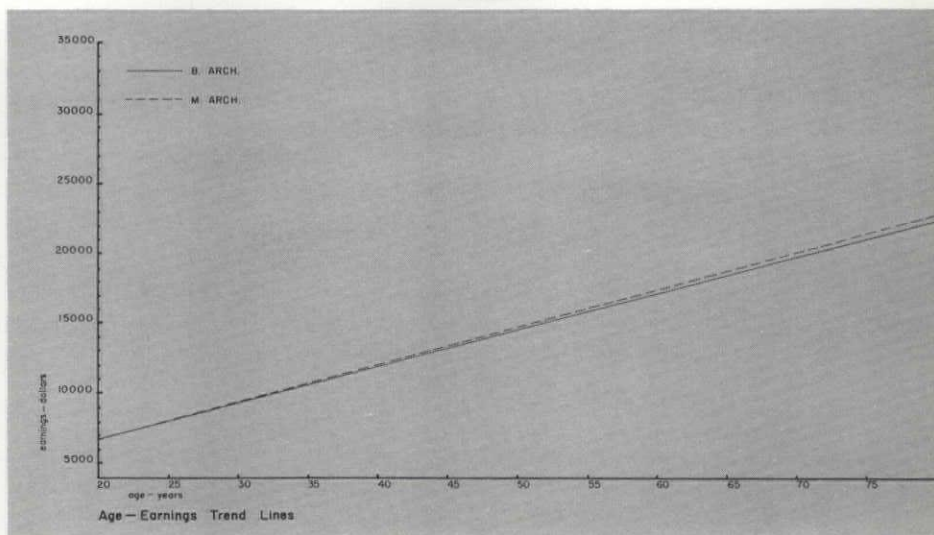
In addition to a quantitative analysis, it was hoped that the attitude of architects regarding the value of a master's degree could be obtained and analyzed to determine whether their opinion was consistent with the facts. The architects were asked: "Do you feel that architects with master's degrees have better earning prospects?" Of the 92 respondents, 45 answered no, 38 answered yes,

and 9 were undecided. Those respondents who had no college degree were evenly split in their opinion while those with master's degrees felt, by a ratio of 10 to 1, that the degree does improve earnings prospects. Thus, it was in the group of bachelor's degree holders where the preponderance of negative answers occurred. Their response was 41 no and 25 yes, but 8 of those answering yes qualified their answer by adding that only in teaching or specialized fields would earning prospects be better with a master's degree. Since the group holding bachelor's degrees was further subdivided into principals, associates and employees, it is possible to see how each of these groups felt about the degree. The principals were split 50-50 on their response. They gave the highest percent of positive answers for the three groups. The employees re-

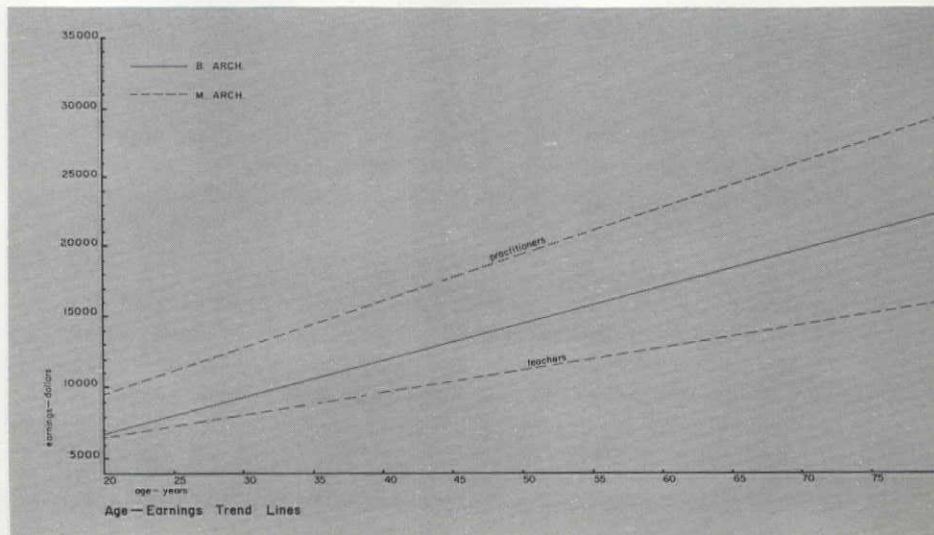
sponded 41 percent yes and 59 percent no while the associates responded 31 percent yes and 69 percent no. They gave the highest percent of negative answers.

Regardless of the above analysis, the majority of responses were negative. Therefore, by examining the earnings trend of architects with master's degrees as a single group, it would appear that the majority of architects have correctly sized up the situation. On the other hand, if the earnings of the assumed groups of practitioners and teachers are under consideration, then the negative attitude about the value of a master's degree is not consistent with the observations. As a group, the practitioners with master's degrees have improved their earnings relative to the earnings of those with bachelor's degrees, and teachers have probably increased their earnings relative to the earnings of

GRAPH 1



GRAPH 2



teachers without master's degrees. At the same time, a master's degree does not prevent teachers from being in the lowest earning group of architects. As far as teachers are concerned, the major influence on their earnings prospects is their decision to go into teaching, not their decision regarding a master's degree.

Finally, information was obtained from the questionnaires about the earnings of architects who have no college degree. Although the number of architects without bachelor's degrees is declining, it is of interest to note the information which was compiled for this group. There were several respondents with no college degrees, and they ranged in age from 49 to 63 years. The medium earnings of this group was \$11,600 while the median earnings for architects, in the same age group, with bachelor's degrees was \$13,500. The data verifies our expectations that, on average, a Bachelor of Architecture degree is worthwhile in terms of future earnings.

Before listing the observations and conclusions resulting from this study, several final points should be made. This was a group study, and what is true for a group is not necessarily true in any single, individual case. For this reason findings are stated in terms of *for the group or on average*. Second, the earnings trend lines may appear to the reader to be predictions of earnings at future ages when, in fact, they only represent a picture of the earnings of a group of architects of different ages, averaged for five years. Finally, this was a study of the relationship between only two factors: the education and the earnings of architects. It is therefore advisable to keep these qualifications in mind when reading the list of the observations and conclusions of the study:

1) Earnings increase with age for architects as a group.

2) Architects with master's degrees earn more throughout most of their lives than architects with bachelor's degrees. However, the earnings differential seems to be too small to provide a financial return on the investment in the degree.

3) It was observed that there are two earnings trends for architects with master's degrees, the higher one for practitioners and the lower one for teachers. The level of earnings of practitioners is

well above the level of earnings for architects with bachelor's degrees, and there is probably a sizable financial return to them on the investment in a master's degree. The level of earnings of teachers is well below the level of earnings of practitioners with bachelor's degrees.

4) It was observed that there exists three earnings trends for architects with bachelor's degrees, the highest representing principals; the middle, associates; and the lowest, employees. Practitioners with master's degrees have earnings which are between those of associates and principals, and 82 percent of the architects with bachelor's degrees earn less. Teachers with master's degrees earn about \$1,000 per year more than employees, and 69 percent of the architects with bachelor's degrees earn more.

5) The majority of architects think that a master's degree does not improve earnings prospects, and it was observed that this is not the case. Architects with bachelor's degrees have the lowest opinion of the value of a master's degree, but within that group principals and employees have a higher regard for the degree than do associates.

6) Architects who have no college degree earn less than architects who have bachelor's degrees.

Before attempting to interpret the results and their implications, several further qualifications must be made. This study makes no judgment as to the quality of the individuals, their work or the quality of architecture which exists in the sample area. Any implication of quality is limited to that which can be measured in economic terms and is at best coincidental. Further, the comments which follow represent the opinions of the authors with respect to the facts divulged by the study and should be considered in this light. The observations and conclusions which have been set out may seem rather prosaic and even fall into the category of "I knew it all along." While this may in fact be true, the presenting of a verification of them should prove of some satisfaction, if not some small merit. A fuller understanding of the profession, founded in some fact, is the ultimate aim of this study.

Of the six points made in this study, several are of a prosaic nature. They offer little surprise, leave little room for comment and can thus be accepted at face value.

Point 1 concerning the increase of earnings with age falls into this category; however, point 2 raises an interesting problem. The fact that the cost, direct and foregone earnings, of a master's degree probably exceeds the resulting increase in earnings might on the face of it ring the death knell for all graduate programs in this country and render them financially worthless, save for those foolish enough to spend the money. The third point, however, brings this into sharper focus. The existence of the two earnings trends should be of no surprise to those who have had any contact with education, both architectural and general, and confirms the fact that earnings increase with education. Nevertheless, the low state of earnings for those in education does not speak well for the profession or its future.

The fact that taking a master's degree into practice offers the prospect of earnings in the top echelon of the architectural profession, as evidenced by point 4, raises several interesting areas of speculation. Does this imply that potentially all leaders or principals in the profession will be holders of master's degrees, just as the bachelor's degree has eventually supplanted, in large measure, the apprentice system? Would the introduction of more master's degrees lower their value, or raise the overall abilities of the profession, and at what point would these two factors converge? What factors are inherent in the master's degree which make its holder more valuable as reflected by earnings? All of these questions, and more, could be raised. It is obvious that they are not answerable by the data presented here but they should be answered.

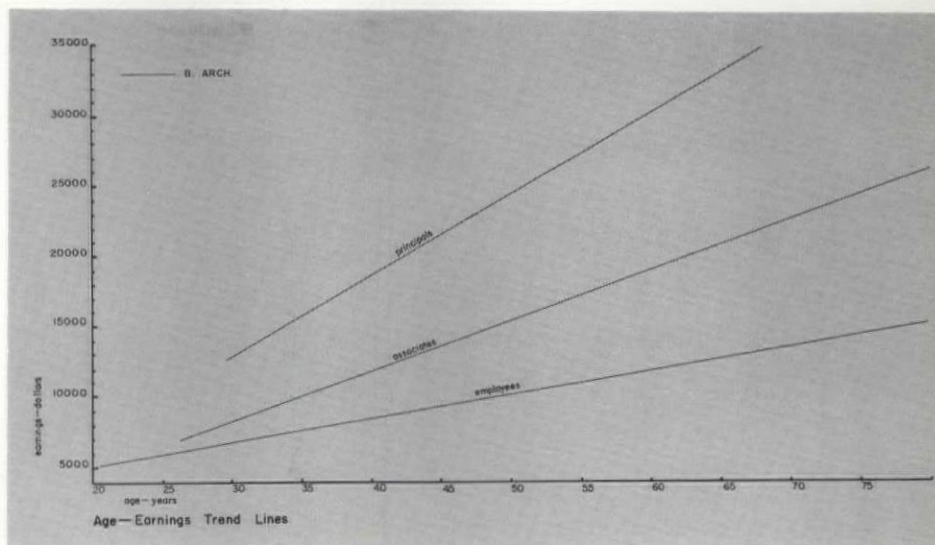
No less important is the question posed by the low earnings of those who teach. In a period of rapid change and increase in knowledge and information, no profession can allow its educational establishment to become secondary. To be sure, it is encouraging that so many with master's degrees enter teaching, thus foregoing an income about twice as large as current earnings. There are, to say the least, many rewards in teaching which are not available in practice, but to assume that they exist at the rate of this forfeiture is a very big assumption. It seems more likely that in our imperfect employment market the teachers are not aware of the ex-

tent of their potential income from practice. To assume that education can continue to attract what are apparently valuable individuals is rather academic, for if the profession is to advance, it is in the colleges where many of these people must be located in order to provide the education and the research upon which this advance must ultimately be based.

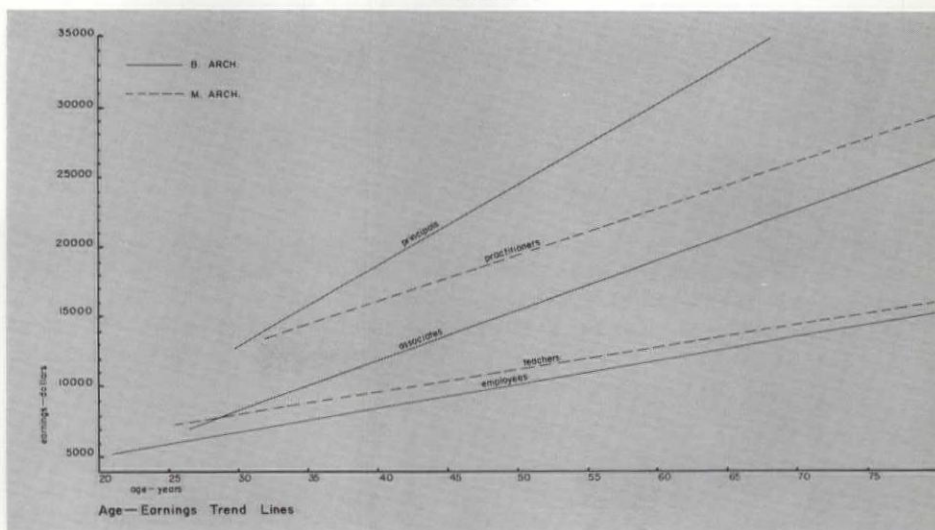
This notwithstanding, there are those who might suggest that teachers can practice on the side. To be sure, in the data shown there are those who practice on the side and those who teach on the side. However, as everyone who is in teaching or in practice knows, both are full-time jobs with the result that the other becomes a secondary activity. This is demonstrated by the rather wide split in earnings of the two groups. It is obvious then that the old platitude that *every architect should be a teacher and every teacher an architect* (practicing) will no longer suffice as a philosophy of professional education.

The remaining observations in point 4 showing the breakdown of earnings among principals, associates and employees are of interest as matters of fact; however, when related to the information in point 5 they become enlightening and again raise some questions. The fact that the majority of architects feel that a master's degree is of little financial value is both disturbing for its lack of respect for education and somewhat misleading when taken as an all-pervasive fact. The fact that principals on the one hand and employees on the other have the highest opinion of a master's degree's value is interesting. The principals seem to realize the value of additional education to deal with the multitudinous problems with which they are faced and for which they might wish they were better prepared. This opinion is important by virtue of its source for if principals feel there is value in the master's degree then the question must again be asked: Will the master's degree holder potentially displace the bachelor's degree holder as the leading element in the profession? The employees must feel that by not having a master's degree and what it portends, they are limited, at least in their earnings.

Further, the fact that associates show a marked disdain for the master's degree indicates either a lack of knowledge about the degree or,



GRAPH 3



GRAPH 4

more likely, view its holders as potentially jeopardizing their future advancement. This latter supposition is not without its basis in fact as is shown by the comparison of the earnings of the several groups (Graph 4). Therefore, it might be assumed that by answering negatively, the associates affirm the value of a master's degree. Nevertheless, this cannot change the fact that there seems to be a negative cast to the profession's view of additional education.

This negative cast seems strange in light of the observation presented in point 6. The development of the profession from the apprentice system is clearly demonstrated. The necessity of a bachelor's degree is a fact which very few would dispute and is reflected in the laws of some states. Therefore, the opinion of the master's degree seems unfortunate in that it does not support the advancement in the abili-

ties and capacities of the profession. On the other hand, in so far as earnings can reflect advancement through education, they seem to do just that. The missing support suggests a lack of understanding or communion between the profession and its educational establishment.

All of this goes to point out that there is more to be learned and, as evidenced by the above, this study raises more questions than it resolves. However, two points become abundantly clear: Additional education in the form of a master's degree increases an individual's value if not the quality of his work; and the profession must become more concerned with its educational establishment and the earnings of the people involved. What was learned here must be expanded in order that the advances propounded for the profession as a whole can be plotted with a base of knowledge and understanding. ■

Several books and scores of magazine articles have been written by the author making him one of the most widely known authorities on color. He has also appeared often on radio and television programs and before various groups. Educated at the University of Chicago and the Chicago Art Institute—his original training was in the graphic arts—Birren is a specialist on human reactions to color. He is a consultant to large firms and maintains affiliations in several foreign countries. His chief activities involve color research on national trends and consumer goods, the evaluation of packages and advertising, color in paper, and scientific applications of color in work productivity and manual and visual efficiency.

BY FABER BIRREN

ALL ARCHITECTS are concerned with problems of color and space, color and form, color in three dimensions. They are constant problems, and any factors bearing on them, whether simple or complex, observable or subtle, had best be understood.

In one of my books, "Color, Form and Space," I have noted that many architects have two curious faculties not shared by average persons. The first is the ability to visualize shapes and forms as though they exist in empty space. A drawing is supposed to be seen as a thing in itself, separate, apart. It is true, of course, that all things exist in space. Man is conscious of space, perceives space—and sees space even if such space is empty air. Thus space is always part of architecture and cannot be ignored.

Secondly, it is by no means rare for architects to deal with forms as if they were colorless. Major thought may be given to line, mass proportion, the idea being that color was something aside that could be added later. Nothing seen by the eye can possibly be colorless. White, gray and black are colors for the simple reason that they are definite sensations. Color, in a word, is integral with form and cannot be divorced from it. Gothic architecture, for example, is appropriately gray and conveys a gray, solemn mood.

As to the significance of color and form, consider a test devised

by the Gestalt psychologist. When children are asked to match a series of geometric shapes which are in different colors, shape will be more or less overlooked, and matching will be done on a basis of color. Most persons will have a better memory for color than for form. For color is more primitive than form in human perception.

Although a test like this is ambiguous, it does stress the fact that color impresses itself more quickly and powerfully than does form. Indeed, it can be argued that color comes before form and that it is every bit as important as form.

While color is a highly emotional subject, I would like to avoid personal views and opinions for strictly objective evidence. People at large and architects in particular pride themselves on having an excellent sense of color. To criticize a man's taste in color is like criticizing his religious or political convictions. It just isn't polite.

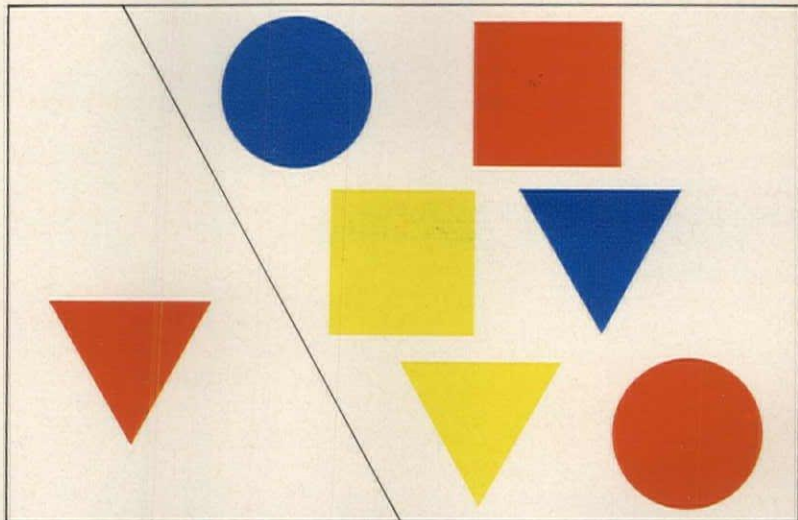
Yet in color and in the sense of space, there are several facts and phenomena which an architect ought to recognize. As a color consultant, I do a great deal of work with architects. I insist that color from the emotional standpoint should be personal and creative. The architect should be left alone to his individual fancies, to the expression of his personality. Nonetheless, he can stand a measure of instruction now and then, if only to qualify his skill.

COLOR

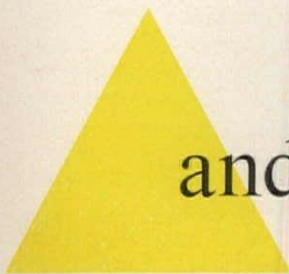
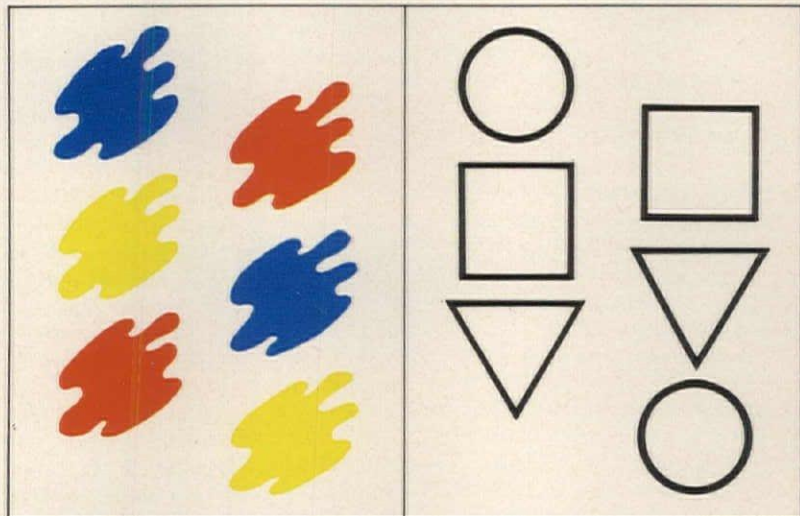
For perfectly sound optical reasons, certain colors have relationship to certain forms: the square for red, the triangle for yellow, the circle for blue. The lens of the eye grows farsighted for red and warm colors and nearsighted for blue and cold colors. This means that a color like red is solid, substantial and sharply focused by the eye. It can take angles and sharp edges. Yellow is even more sharply focused, being the color of highest visibility in the spectrum. Yet it isn't solid and heavy like red; it's more radiant and incandescent—and it can take exceedingly sharp angular forms. Blue and violet cause the lens of the eye to flatten out. Because such colors tend to blur when seen from a distance, they cannot take sharp form and therefore are better suited to rounder and softer shapes. In nature, blue rays of light are scattered in the atmosphere—hence distance itself is bluish and indistinct.

These facts were noted by the great abstract painter Kandinsky and should be regarded by the architect.

In visual response and actual physiological response, it is known by the Gestalt psychologist and easily understood by the architect that there are two major reactions to color: toward brightness and warmth on the one hand, and toward softness and coolness on the other. In one direction there is attraction to stimulus and excitement,



Where different forms are exposed for a short period, there will be a better memory of colors, as on the left (below), than of forms, as on the right.



and the Sense of Space

in the other there is withdrawal and sedation.

In the design of environments to control space, the bright effect is extroverted, so to speak. Where there is abundant light, pale colors like yellow, high reflectance of surfaces, attention goes outward; the body is conditioned to action; the muscles are stimulated, and physical tasks are well performed.

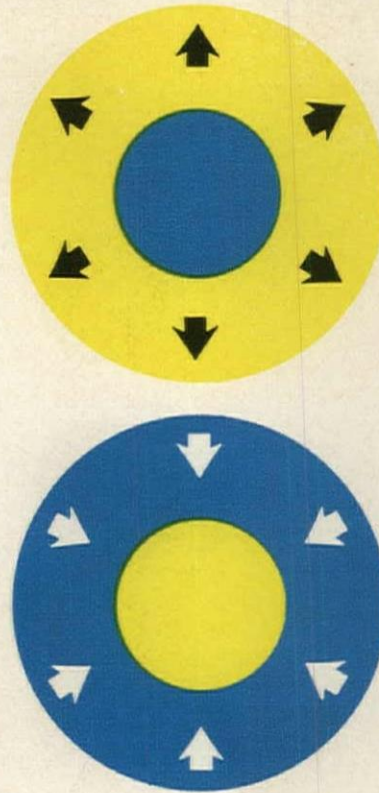
Conversely, the softer surrounding (but not too dark) is introverted. Such an environment tends to retreat. Attention is likely to go from the general to the specific. Surface colors are suppressed. Grays, greens, blue-greens are applied. If strong light is necessary for difficult eye tasks, it is localized. Here a man can use his brain and think coherently without needless distractions. Indeed, if a complex mental problem is posed to most people, they may close their eyes to get rid of the environment completely and thus concentrate all the better.

It will be noted so far that I haven't been too fussy about individual hues. To repeat, matters of taste ought to be reserved for the predilections of the architect. He should always defend his particular "feeling" for color. Otherwise, individuality may be lost.

To go on to more facts of vision, let me tell of further reactions to brightness and color. Let me be frank and critical of two modern tendencies. I object to the fanatically high light levels recommended by some elements in the lighting industry. And I object to the current rage for white and off-white walls which so enthrall a lot of misguided interior designers.

Understand, however, that I speak of working environments in offices, schools, stores, not of homes. In a home a man and wife should give free reign to their desires, and anything goes as far as I am concerned. But where the architect and designer are dealing with groups of people trying to make a living or do a useful day's work, brightness and color should be wisely applied as aids and not as handicaps.

First of all, it is elementally true that the pupil of the eye constricts, or closes down, under the stimulation of brightness; and it dilates, or opens up, under more subdued conditions. A blast of overhead illumination can cause "snow blindness" in an office or schoolroom. So can white walls if they are brilliantly



Visual attention will tend to go from darkness to brightness—outward or inward makes no difference to the eye.

illuminated. And no one, child or adult, can do much of anything if he can't see, regardless of light level.

Besides this, and due to the phenomenon of brightness contrast, white walls will cause things to look blurred. Human complexion goes dull and muddy. So in a room with a thousand footcandles of light a person may find difficulty in seeing—and he may look like the devil!

Purely from the optical and scientific standpoint, the most flattering of all colors to human beings is a soft tone of blue-green. Whether you like the color or not emotionally, it is quite handsome in its effect. For functional reasons it was originally devised for hospital operating rooms and beef coolers at packing houses. Blue-green complements the tint of human blood and tissue, its after-image being a lush warm pink. The surgeon can see better and more sharply as he goes about his gory business, and the butcher can make the toughest chuck meat look like filet mignon.

Let me add that colors like yellow-green, if reflected on human complexion, can make you look as if you're sick to your stomach. And the after-image of purple, which is a mustard yellow, can cause nausea.

In many cases, brightness may be more important than hue anyhow. And once again I would like to give the architect relatively free choice to express himself.

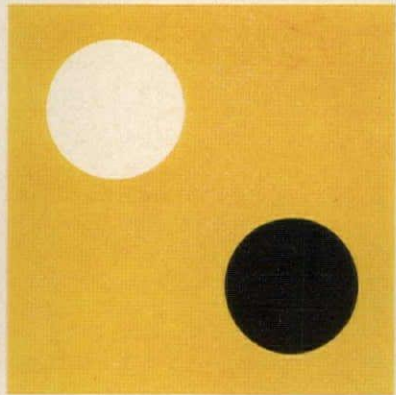
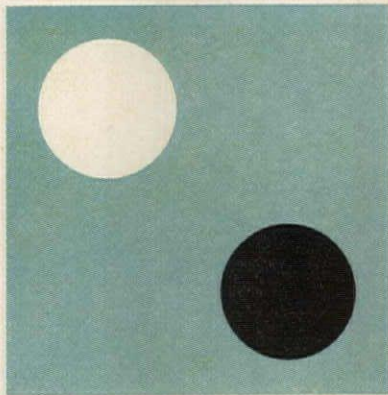
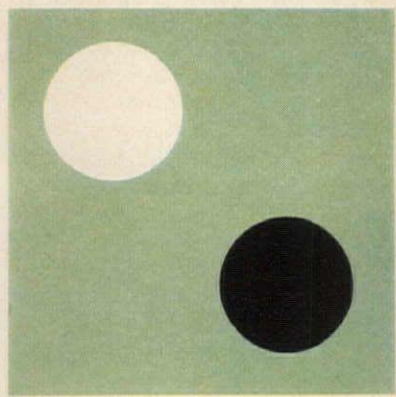
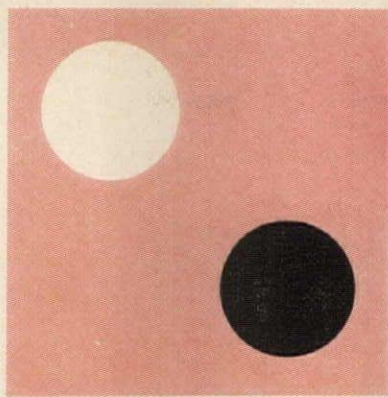
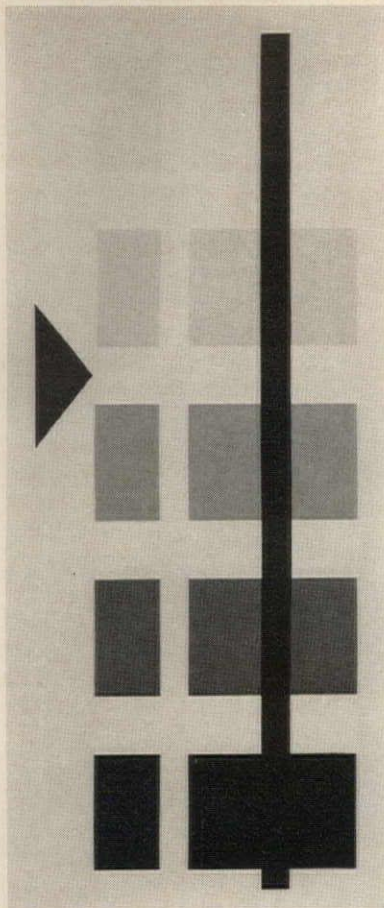
He shouldn't enclose space with too much brightness, nor should he let it go black. Consider another fact: While the eye can adjust itself to brightness and to darkness quite comfortably and efficiently if it sees them one after the other, it cannot take the two of them together at one and the same time. A lot of so-called optical or op art today is created around this observation.

No functional type of environment should expose large areas of light and dark at one time. White walls and black ceilings or floors, broad areas of yellow set against ultramarine blue may look rather striking on casual sight, but they will raise havoc with human eyes and dispositions. Constant adjustments to light and dark force the pupil of the eye to open and close. This action, being entirely muscular, can lead to impaired vision, fatigue and psychological irritability. A person can argue in favor of black and white interior decoration in working environments until he's blue in the face, but it's wrong and can't be defended. That is, unless an architect wishes to make nervous wrecks out of people.

Where working spaces and environments are concerned, there may not be exactly right and exactly wrong ways of doing things, but there most assuredly are good and poor ways. The process of seeing may be complex in some respects, but in the engineering of brightness and color to aid human vision and work capacity, certain elementary principles will be found to hold true—again with due allowance for choice of individual hues. Colors can be adjusted in quality to appear as "ideal tones." Highly satisfactory colors for the enclosing of space or for equipment and work surfaces shouldn't be too extreme. To repeat, great extremes in brightness should never exist at one and the same time in an environment.

For walls, reflectances from 40 to 60 percent are quite proper and comfortable. For desktops, work surfaces, furnishings, the reflectances can run from 25 to 40 percent or higher, but surely not all the way to black or to white.

Colors of medium tone average out brightness to a comfortable level. They act like visual cushions,



Ideal tones of color can be adjusted to strike a pleasing and comfortable balance between brightness and darkness.

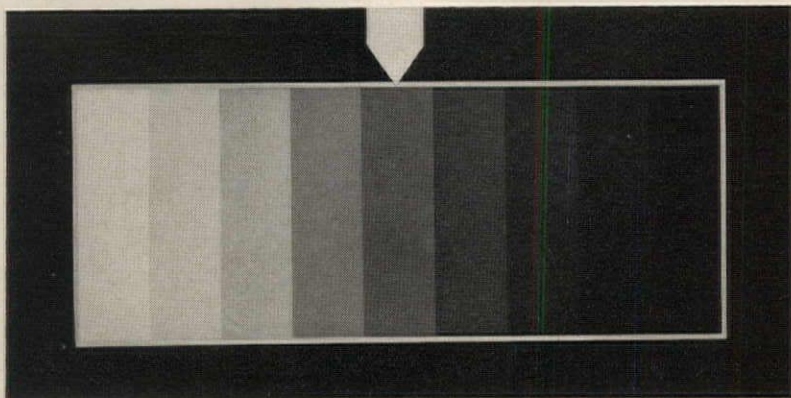
so to speak. They are controlled to be neither too light nor too dark, nor too pure or gray. Where such medium tones occupy fairly large areas, such as walls, floors, desk tops, the eye adjusts to them. It can then look up at things of higher brightness (white paper, for example), or down at darkness (black printing). All will be well. The medium and light tones will cushion visual shock. Where the eye is not strained, the body experiences less fatigue, and the disposition remains equable.

Regarding color, space—and illumination—a most important point is to be made which I trust won't

seem too involved. Illumination creates and destroys space. It changes the aspect of all things in endless ways. Space by no means is empty, nor can it be described as nothingness.

Yet we perceive space in terms of the objects seen within it. And we also perceive illumination in terms of the appearance of objects seen within space. The world seems broad and wide under bright light. In dim light the world crowds in like a great tent. Why do we say night falls when, in truth, what is really happening is that daylight is receding? Darkness which is more or less negative, seems positive.

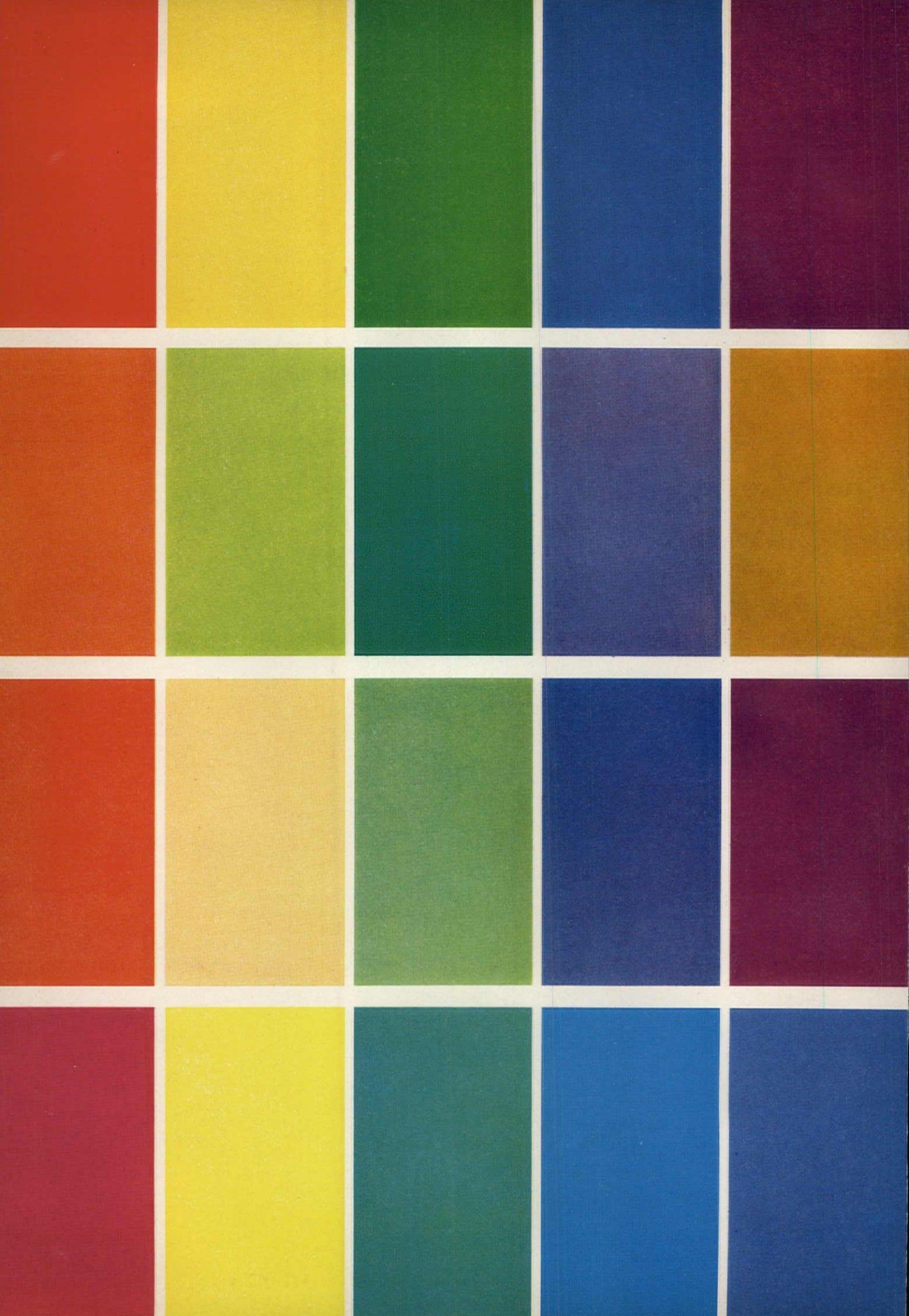
White-to-black scale's mid-point will shift toward light end under illumination.



To continue, under bright light space is readily defined, distances can be nicely determined, forms appear round and three-dimensional, and details, colors and degrees of brightness are all clearly seen. Where light goes dim, however, space seems to contract, distances cannot be well perceived, forms tend to flatten out into silhouettes, details are lost, and color and degrees of brightness undergo radical transformation.

To quote from my own writings: Plain surfaces when seen at a distance, particularly under dim light, may confuse judgments of distance and space. As far as architecture is concerned, this effect may be wanted and planned for, or it may unexpectedly wreck what the architect had in mind. For example, when a person enters a great enclosure, such as a planetarium, he may be quite conscious that a structural dome is overhead. When the lights go out, the dome may seem to disappear, but the brain may remember that the dome is still there. Yet when stars and planets are projected, a perfect illusion of infinite space will be achieved.

One of the greatest problems encountered in the manipulation of



color and space centers around strange things that happen under different degrees of illumination. Let me try to make a simple demonstration with the accompanying gradation chart. This is essentially a gray scale on a dark ground.

To digress for a moment, a relatively new symphonic hall in the east has had its interior painted a deep navy blue. I ask to be forgiven for saying so, but I can think of only one color that would be worse than navy blue, and this would be a funeral purple.

What happens is that when lights are dimmed, the eye—and perception—lose all grip on the navy blue. The color falls apart, so to speak, and loses its identity. It doesn't disappear exactly, it just collapses. This becomes quite distressing to the audience, for in dim light the environment loses its character, structure, form and solidity and grows weird and unreal.

The experience is disturbing. There may be nothing intrinsically wrong with navy blue, but navy blue to be seen for its beauty needs a lot of light. Without such light, the color is meaningless.

Let me add that black has similar odd characteristics. No black surface absorbs all light. Thus we are confronted with the strange fact that black will look blacker and blacker as more light shines upon it, when, in true fact, it reflects more light.

Now back to the chart. For the human eye to see colors and degrees of brightness clearly, abundant light is necessary—at least 25 footcandles or more.

Where there is abundant light, the mid-point on a gray scale will be located where I have placed the arrow. (This is equivalent to a gray reflecting about 25 percent of light.)

Now as light is dimmed, the gray scale begins to shorten at the dark end. To locate a mid-point, the arrow needs to be moved toward the white end. (Let me recommend that the reader study the chart in strong, medium and dim light. He will note how color "values" change.)

We learn a few lessons regarding illumination, color and space:

1) Where light in an interior is dim, deep colors will lose identity and appear alike. Colors such as navy and maroon which may appear attractive in bright light becomes nondescript in dim light.

Across page, top to bottom: Colors can be elemental or sophisticated, adjusted from a warm to cool spectrum.

2) Any architect makes a serious mistake if he judges his color effects in one light and then uses them in another. What may be beautiful under one condition may be ugly under another.

3) What happens under dim light is that color values melt away on the dark side of a brightness scale. White and very pale colors will hold their character. To be a bit more specific, anyone who designs or chooses colors, say for an auditorium, theater, hotel lobby, night club, cocktail lounge—or even a living room which is meant to appear at its best at night—should not, for walls or large areas, pick any color or color value reflecting less than about 10 or 15 percent. If he does, let him not expect to have his esthetic dreams come true.

There are other factors in color which an architect would also do well to appreciate—and again, with full allowance for individual color preferences.

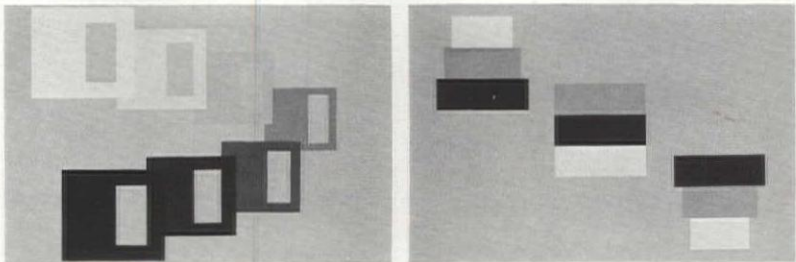
In establishing space relationships in a building, either for the interior or exterior, there is a wholly natural sequence or perspective. White, black, pure hues

arts, the sequence descending from the top down. Otherwise, haphazard assortments of color weight may look clumsy and awkward.

Finally, and on matters of taste, let me offer counsel with two simple observations. Colors fortunately are not all things to all people. There is that which is elemental and that which is more sophisticated. If you are dealing with ordinary Americans in ordinary walks of life—a school, for example, a chain store—the elementary palette will hold greatest appeal. People may intuitively reject or disregard that which lacks direct emotional impact. Small children and uncomplicated mortals will like red and yellow and be confused by any subtleties such as mauve or ecru. So if a color scheme is to be designed for them, use colors that are uncomplicated.

On the other hand, in a home, an exclusive shop, where high individuality seems desirable, let the color effects be more exclusive. Here the architect can really let go with his personality.

A color harmony can be generally warm in key or generally cool. Most of the old masters liked the



White, black look near, gray distant in aerial perspective; (figure right), architectural balance to left, typographic balance to right. Colors have "weight."

and deep shades all appear near the eye. In what artists have called aerial perspective, as colors shift into distance, that which is dark comes up in value; that which is light in value softens a bit—and all things eventually fade into a medium light neutral gray. Color schemes can be planned to feature this phenomenon, using strong colors and strong contrast for near elements, and grayish colors and weak contrast for far elements.

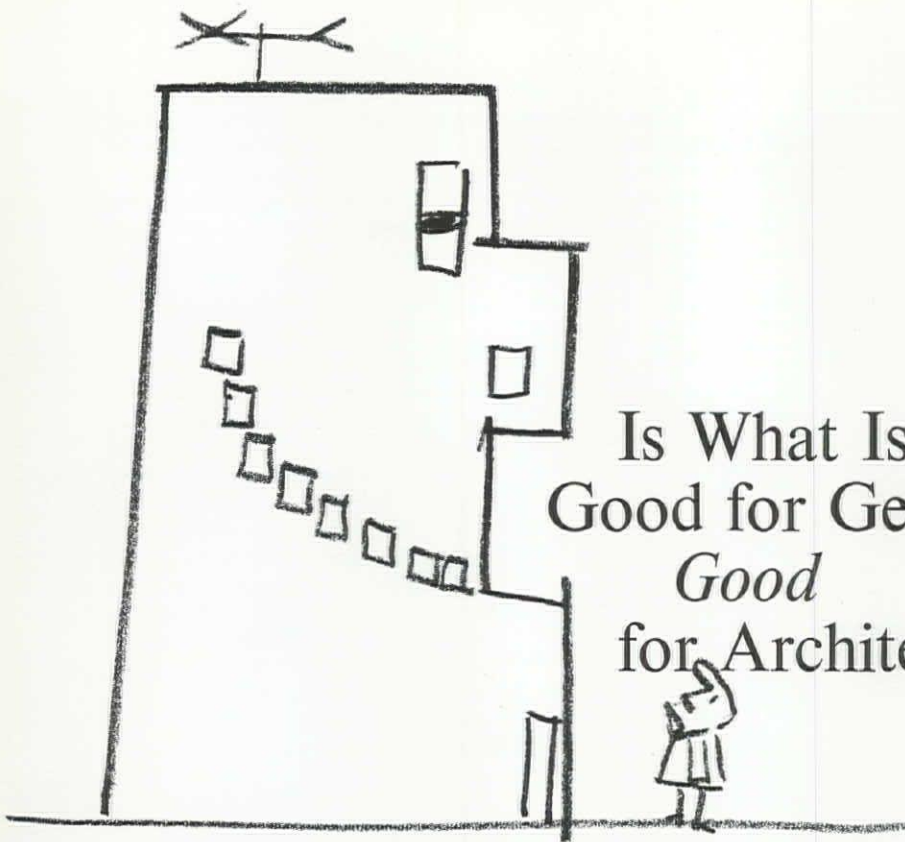
Likewise there is weight to color, the paler tints looking light in weight and the deeper shades looking heavy. As on the diagram above, good architectural balance looks best when it builds from the bottom up. To the right, however, is inverted balance, commonly used in typography and the graphic

warm effect, while a number of the impressionists favored the cool one.

A color scheme can be out and out primary, or it can swing warm or cool. Any color—red, yellow, green, blue, purple—can have a warm or a cool variation. When these are put together concordantly and harmoniously, the results are truly beautiful.

So again, I advise the architect to let his spirit and his soul guide him. But I would also advise that he learn about his spirit and his soul—and the spirits and souls of others—so that when he does express himself with color in space, he will do so with competence. ■

Adapted from an address before the Wisconsin Chapter AIA.



Is What Is Good for General Motors *Good* for Architecture?

BY RICHARD MYRICK, BARBARA S. MARX & STANLEY L. COHEN

A research team at George Washington University suggests some of the ways in which psychology can make a contribution to architectural thinking.

CHANCES ARE that events in the field of management over the last 30 years are about to be re-enacted in the profession of architecture.

They were events that grew out of research findings in social and industrial psychology. They shifted management from an emphasis primarily on basic skills in planning, delegating, controlling and evaluating an organization's activities to one of understanding the equal importance of concepts about the needs, motivation, perception and social interaction of people.

Specifically, the re-enactment of these events in architecture is likely to involve the redefining in social science terms, as well as in architectural terms, of many environmental design problems. Types of buildings most likely to be involved in the redefinition are schools, dormitories, hospitals and clinics and office buildings; in short, buildings in which social interaction and social structure are particularly important.

It should first be noted, however, that a broad and important goal is shared by architecture and management; and unless we recognize this common goal, it is hard to see the relevance of social science and management research to architecture.

Dr. Myrick, who holds a Bachelor of Architecture degree from Princeton University, is director of the "Space and Learning Behavior Research Project," supported by a Public Health Service grant from the Division of Dental Public Health and Resources.

Management and architecture both attempt to satisfy two kinds of human needs, which, using the terminology of the well-known social psychologist A. H. Maslow, are lower order and higher order.

Typically, lower order needs relate to physical requirements which, translated into architectural terms, consist of such things as adequate space and equipment, adequate lighting and temperature control, and convenient location of the parts of a building that a person has to use. Higher order needs typically deal with psychological needs, such as the need for social interaction, recognition and esteem and self-fulfillment.

For an example of the effect of these different needs in a management situation, take the secretary working in a typical office. Her lower needs would be met by such things as good pay, job security, convenient working hours and a brand-new electric typewriter. Her higher order needs would be met by such things as finding her work satisfying, feeling she is an essential part of the organization, being able to have good relationships with other people in the work situation, and understanding how her particular job contributes to the goals of the organization as a whole.

Now, if many of the higher order needs are *not* met, poor morale and low productivity, together with the adoption of goals contrary to those of the organization, will often result even though many of the lower needs are satisfied. Frustration of higher order needs can lead to various subtle but powerful expressions of damaging negativism.

Consider some possible effects of the architecture of a building upon lower and higher order needs, keeping the secretary in mind. Some of her lower order needs are met by providing not only the rudiments of shelter but a convenient arrangement of working spaces and an interior and exterior design that she finds esthetically pleasing. A sample list of certain higher order needs to which the architecture of a building can contribute is nearly identical to those which can be met by appropriate administrative actions on the part of the management.

The architecture, for example, might help the secretary understand how her job relates to the work of the organization as a whole if the plan of the building helps make visible to her the other related parts and their functioning. She might also feel a greater sense of loyalty and affiliation if the



architecture facilitates the opportunity for informal social contacts with her co-workers, making the job more satisfying.

Some critics will argue that it is extreme to say architecture can have nearly as much influence as management policies on the attitudes and actions of the people who inhabit and work in a space. They would probably be willing to agree, no less, that there is an obvious connection between effective ways of supervising and psychology. In fact, they might contend, "You *have* to use psychology in managing people."

But they would probably reason that architecture provides mainly a physical environment, and what is physical is clearly not psychological.

Let us look at these two arguments, considering first the assertion of an obvious connection between the way people are managed and psychology. It is an assertion which makes so much sense to us now that is hard to realize the connection was not always obvious. Management used to be as concerned with lower needs as architecture is today. Few people were aware 30 years ago of the usefulness of psychology in management. Management concentrated on making clear statements and on simplifying and standardizing work procedures—to reduce lost time and motion.

Then came the well-known Hawthorne studies¹ to determine the influence of temperature, illumination and other physical conditions of work on productivity and morale. The results at first greatly puzzled researchers by giving no consistent pattern

of answers. Both increases and decreases in the illumination level, for example, resulted in heightened morale and productivity.

It was finally realized, in a revolutionizing breakthrough, that it was the interest which the management and researchers took in the workers—by interviewing them about their opinions and by making tangible changes in their working conditions—rather than the experimental variations in temperature and other physical factors which was raising productivity and morale. As a result of this insight, there came about a gradual yet profound redefinition of management problems in psychological terms.

As for the second argument, that architecture deals only with the physical environment and what is physical is not psychological, the example of the Hawthorne studies suggests that problems originally stated in one set of terms, not psychological, may after a time be defined in terms that *are* psychological. It is almost a matter of whether one wants to think about response as well as stimulus.

The stimulus is the building or the space, or the color, proportions or arrangement of the parts of the building. The response is how the people behave when they occupy the space. As more sophisticated concepts of group behavior with sensitive measurement devices become available to psychology, a great deal may be gained by studying not only the stimulus but also the response. Such research may in time suggest useful ways of modifying the stimulus, the architecture of the building, in order to obtain the desired responses. We may then hope to find answers to questions such as: What is the desired behavior, and what conditions in the building influence it?

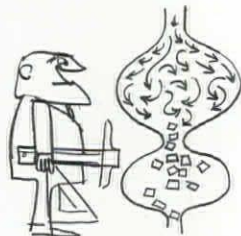


If we agree that the important goal of meeting human needs is shared by management and architecture, then, since management has been using social science research to move toward this goal for the last 30 years, and since architecture has been using it in a much more restricted way, we must admit that architects are in a fortunate position. For they stand to gain a great deal from the available research into human behavior if its general applicability is made specifically relevant to architectural problems.

For some perspective on what might be accomplished in the course of translating these behavioral

concepts into architectural terms, consider some social psychology studies which seem particularly relevant to architecture. The Hawthorne studies which originally attempted to identify the ideal working conditions can be compared with a more recent study by the American Hospital Association.²

A purpose of this study was to learn more about the circulation of patients, doctors and other per-



sonnel in the hospital. The study was conducted by persons experienced in hospital design, and it involved sophisticated research techniques.

It resulted in general recommendations as to where the main building elements might be located as well as more specific recommendations as to corridor width relative to the number of patients using the corridor, etc. Note the similarities between the Hawthorne studies and this recent hospital design study. Both are concerned with the stimulus or physical conditions. Both seek to make the layout more efficient. Neither is primarily concerned with the response to the stimulus, namely, what the people in that setting see, feel or do.

The main difference between the studies is that the management one was done almost 30 years ago, while the hospital study is less than five years old.

As a further comparison, take a recent study which sought to discover the effects of working in an esthetically pleasing room vs. one that is neutral or displeasing. The task occupants of each room were asked to perform was to rate a series of photographs of faces in terms of how much well-being and energy each face expressed. The photographs used were negatives, which were deliberately vague and unclear, so it was difficult to interpret them. This meant that in interpreting the

pictures, the people in the experiment projected and expressed their own feelings of well-being and energy.

Those people in the esthetically pleasing room, rating the same pictures as the people in the other two rooms, consistently rated them more favorably in terms of well-being and energy. However, in the discussion of the findings, the author gives some of the comments of occupants of this room, and one sees that it may not have been the esthetically pleasing aspect of the room alone which led to the favorable responses but associated social aspects as well. One person who sat in the "beautiful" room which had a large executive-type chair in it reported it made him feel like a "big shot" to be in such an office.

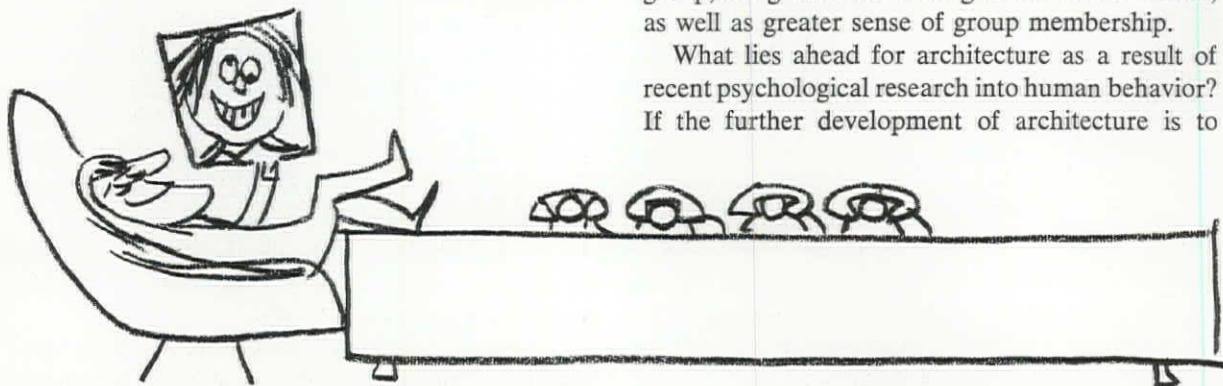
Thus, there is some evidence here that the social meaning of an individual's surroundings may outweigh the esthetic effects. In short, if the surroundings make an individual feel valued, he may have increased morale and a greater sense of well-being and satisfaction.

Another area in which there are parallel efforts in management and architecture concerns social interaction, accessibility and communication between people. Architects have developed a number of devices such as circulation diagrams which designate spaces that should be immediately accessible, and other spaces which require certain intermediary or controlling spaces such as a receptionist's office.

Ingenious as these devices are, they still concentrate mainly on the stimulus. Meantime, management has progressed toward concentration on the response. One experiment conducted by social psychologists and having interesting implications for architecture used five men separated by partitions arranged in various patterns of accessibility. In some cases, the partitions allowed communication with only one or two other men. In others, they permitted communication with three persons, and in one situation all the partitions were removed, and each of the five men could communicate with any of the others.

The study results showed that the greater the intercommunication between the members of a group, the greater the feelings of individual status, as well as greater sense of group membership.

What lies ahead for architecture as a result of recent psychological research into human behavior? If the further development of architecture is to



recapitulate the development of behavior-oriented thinking in management, some speculations are possible. It seems that the higher order human needs will begin to command a greater share of attention in architecture. An impressive list of these behavioral needs has already been drawn up by Lönberg-Holm and Larson.³ The greatest hope of constructively influencing the behavior of people using buildings appears to lie in the perceptual and social interaction areas.

In the perceptual area, the "image" of the expression of a building will probably undergo considerable development. The word "image" currently seems to have two meanings in architecture. Most typical, it is the idea which is communicated to a person looking at it. This kind of image has been for ages a chief concern of architects. What may change here is the means for evaluating the impact of the image, through new methods of measurement which only now are being devised and refined.

But a second concept or definition of a building's image is just beginning to be developed. Kevin Lynch describes some of its properties in his work "The Image of the City."⁴ Here the word "image" connotes the ways in which the individual observer uses a building or area in orienting himself to his surroundings, his route and the boundaries within his confines.

Consider how this concept might be applied to the design of educational buildings. Here, the purpose is not just to keep the student from being lost in the physical sense of the word but also to keep him from being overwhelmed by the volume and variety of subject matter he must study and by the years he must spend in training. The physical aspects are important, particularly because they can give his world a perceptual clarity. But in addition, the architecture of a school building can, by striving to incorporate some of the spatial correlates of educational landmarks, decision points, goals, paths and districts, help the student identify in educational terms where he is, where he wants to go and how he will get there. Much of psychological counseling aims at defining goals and giving a sense of direction. To the extent the architect can help the student establish this sense of direction, he has also helped the student establish his basic motivation.

As for social interaction, it must be said that at some point we have to come to grips with the problem of defining the desired kinds of social interaction. This step was taken in management research with the statement that high productivity and morale were desirable and important. Then, by comparing the leadership, group structure and other factors in desirable and undesirable situations, management identified factors that make a

difference. Often, ways of systematically increasing desirable situations resulted.

A similar line of investigation leading to the identification and maximizing of desirable interaction situations can be followed in architecture. Naturally, what constitutes a desired kind of social interaction will often depend on the purpose of the building—or, to put it another way, will depend on both the goals of the organization occupying the building and the needs of the individuals using the building.

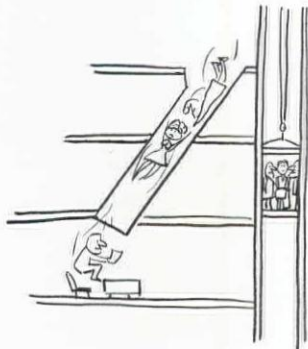
Returning to the example of an educational institution, one might select the social interactions resulting in informal learning as a desirable situation. The term informal learning means learning which occurs by means of casual conversations between students or between students and teachers. In these situations insight into the subject matter, or relationships between ideas, is often expressed and clarified. It is possible to study how a building provides or blocks opportunities for social interactions leading to informal learning, and some such work has already been done.⁵

In both the perceptual and social interaction areas, we are dealing with the human response to the building. But these represent only half the situation. The other half is represented by the building itself, the stimulus. To draw the parallel in management, the productivity of the employees can be viewed as the response, while the type of leadership used in an organization would be the stimulus. Much progress has been made in management research in devising a simple measurement scale extending from autocratic leadership, through laissez-faire leadership, to democratic leadership, on which virtually any kind of management style can be located and described. Such a comparative scale on which virtually any building can be located and described is, as yet, lacking.

Architecture's lack of a comparative scale is a serious drawback because it makes a comparison between two buildings within a single framework nearly impossible. Even terminology incorporating comparative ratings is woefully lacking. Art historians have made some contribution here by introducing terms such as central and longitudinal which can be applied to describing churches. Hereford and Hecker⁶ have introduced a measure for school buildings, but although this measure is useful in determining compactness, it is not widely applicable because it is largely influenced by the number of floors. If the architect finds that a building seems to be particularly effective in producing certain desired behaviors, he is hard-pressed to identify and measure what characteristics of the building produce these effects.

In approaching this problem, there are two important management studies which, if tied into

the architectural situation, would be very helpful. The first, a study by Hemphill,⁷ asked the question: What are the main dimensions of effective leadership? Hemphill found two dimensions—the ability to initiate activity and a consideration for others. A person might be high on both, or high on one and low on the other, or low on both; in short, these were separate dimensions. The value of this study is that it provides a simple description of the complex task of leadership which then facilitates studying the effects of leadership.



Another study in the field of management which has become a classic compared the effectiveness of autocratic and democratic forms of leadership in supervising a boys' club activity.⁸ When judged in terms of motivation, as well as quality of work and the absence of disciplinary problems, the results were strongly in favor of democratic methods. As other researchers have conducted further studies in this area, they have learned more about circumstances in which democratic leadership will or will not be effective.

Were this study to be translated into architectural terms, one probably would not find architectural factors which had meaning closely equivalent to these basic leadership dimensions. The parallel we have in mind is much more abstract. We cannot expect buildings to be pieces of management theory any more than we can expect them to be pieces of "frozen music." But to speculate on the architectural application of these two leadership dimensions, two have already been implied. One is perceptual, and it might measure the extent to which a building allows a person to see and understand the various activities occurring within. If a man goes to see a friend in a building and comes away knowing no more about the latter's activities than what the friend told him, the building would be low on the perceptual dimension.

The second dimension might be translated into terms of social interaction, and might be measured by the extent to which the building provides options for its occupants to meet and talk informally. If a man spends a day in the building where he works, and his only contact with others is officially scheduled, the building would be low on the social

interaction dimension. Of course it is not always desirable to be high on this dimension. In almost any kind of organization there will still be needs for isolation and privacy.

Lastly, what will be the role of the architect if new developments relating behavioral and architectural factors take place? Already some architects are demonstrating an awareness of the relevance of social science research to architecture.⁹ One reason for this new relationship between the architect and the social scientist is that social organizations, and consequently buildings to house them, have become more complex. But a second reason, perhaps greater in importance, stems from the social organizations who are the clients. The general swing away from autocracy as the preferred form of leadership has frequently left the administrators of client organizations with differences of opinion about their building needs, differences they are unable to resolve among themselves.

The architect finds that if there is to be any architecture at all he must act as an arbiter and take actions which will resolve conflicts and reduce anxieties expressed by a building committee.

We may conclude that architecture in the future will consider the response or the behavior within the building, as well as the stimulus which consists of the building itself. To do justice to the response will involve the creative integration and application of new concepts about behavior and architecture.

The problems of conceptualizing the response—and of determining what are appropriate design refinements to influence it are elusive, but meeting this challenge can raise architecture to new accomplishment.

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URBAN DESIGN WORKSHEET 7



PREPARED BY PAUL D. SPREIREGEN, AIA, FOR THE COMMITTEE ON URBAN DESIGN

Downtown Parking Lot Edges

DOWNTOWN parking lots have become a hallmark of the urban scene for two reasons: first, the automobile is the predominant means of urban travel, even when a good public transit system is in operation; and second, the surface parking lot is a handy interim land use.

The automobile storage problem creates a whole new scale of downtown design. In a typical recent study, city-center growth was projected as an increment of the surrounding metropolitan area. The downtown increment was based on a fully developed automobile and public transit system for the metropolis. Growth was projected over a period of 20 years.

When the data was assembled, it was revealed that nearly half of the new floor area in the downtown would be for cars in multilevel garages. Further, to attract growth in new offices and com-

mercial floor space, the parking would have to be built slightly ahead of demand.

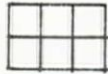
This creates a very difficult problem of appearance. Imagine a downtown whose "face" is largely parking structures: it could be visually oppressive.

However, moving about the city at normal driving speed—say, 15 to 20 miles per hour—large, simple structures are appropriate. The visual problem is a problem not so much for the driver as it is for the pedestrian. Actually, the problem goes beyond the visual.

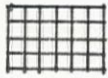
A pedestrian walking along a downtown street on his way to work, to lunch or to shop wants to be in a place of high visual intensity. He is in a world of intimate mix, in a milieu of sounds, people, smells and sights. He notices faces, things in windows, news headlines, signs—a whole world of intricate sensual data. This is the atmosphere

Parking lot edges like the one on the left are an eyesore. Screening by shrubs or a fence is a big improvement.

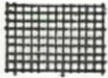




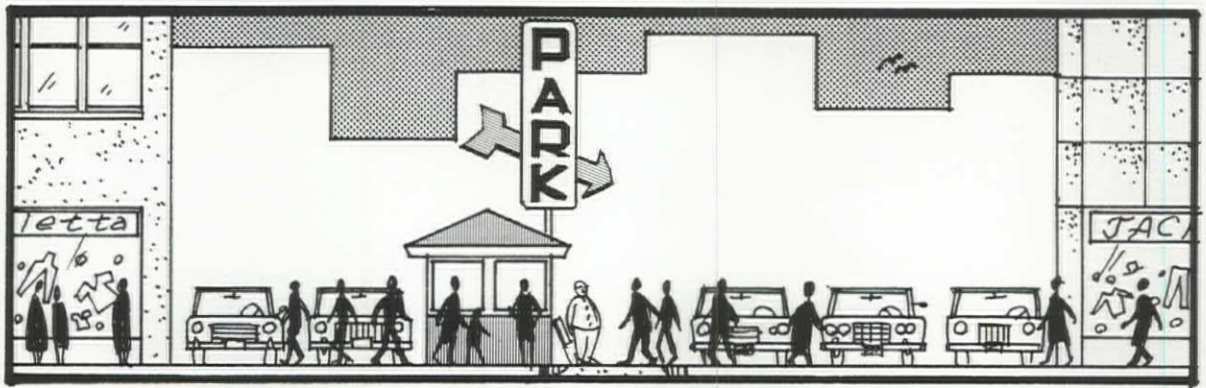
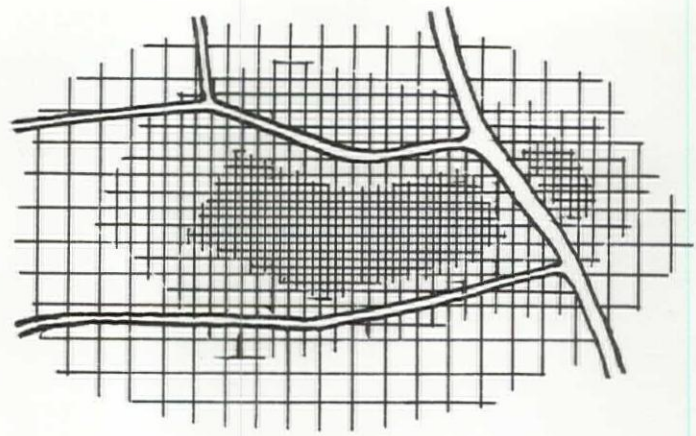
Peripheral urban area
of central city.



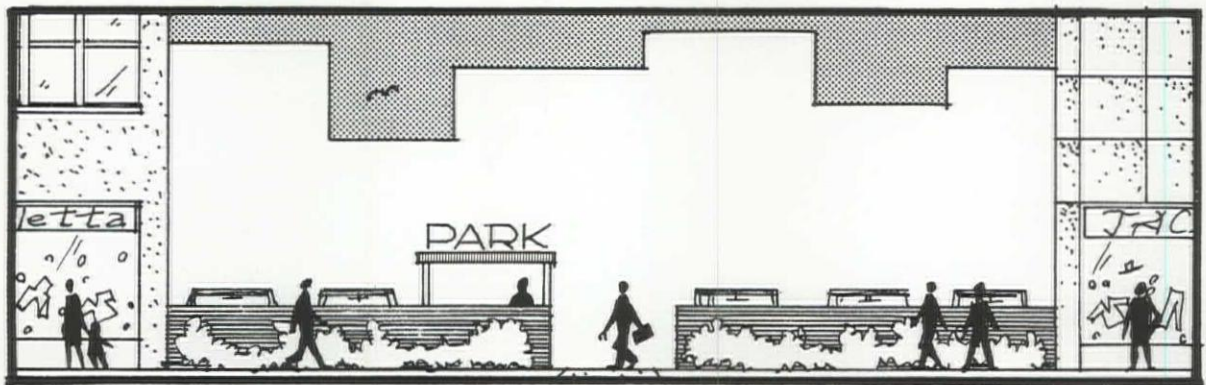
Moderate-intensity
downtown fringe.



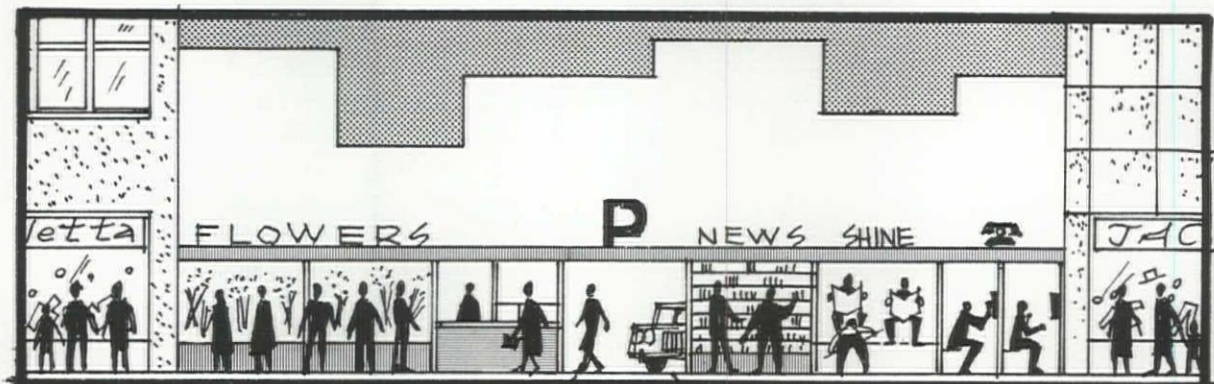
High-intensity
downtown core.



In addition to their unsightliness, downtown parking lots interrupt the continuity of pedestrian flow.



In the moderate-intensity downtown fringe, decorative planting with perhaps some garden art and/or a screening wall are appropriate. This can be done for a multistory garage too. However, this is costly and has no "return."



In the high-intensity downtown core, a row of tiny shops saves the problem of appearance, continuity and cost—and this, too, can be done for a multistory structure. Construction might consist of a simple, demountable metal frame.

of a shopping center, a supermarket, a bazaar or a department store. It is the atmosphere of a downtown. The movement and appearance of cars and buses are part of this scene and welcome, as long as the vehicles do not become a menace to the pedestrian, as long as they do not interrupt pedestrian flow.

Interruptions to the continuity of pedestrian flow and to downtown intricacy come dear. Such occur at street crossings where pedestrians have to stop and wait for the light to change. Of course, an interruption can be a welcome pause, such as a small place to sit. But most parking lots or structures along downtown pedestrian streets are generally interruptions. They need some design help, which in reality is easy to apply. But first we must understand the different problems posed by the surface parking lot as compared with a parking structure.

The surface lot poses a more difficult problem than the parking structure. The former is temporary. Its outfitting—bumper logs, chains, horses, ticket shack, signs, etc.—are not usually works of loving attention. Even when they are, they are minor in comparison to the sight of the automobiles themselves.

Some cars may be clean and shiny. Some may be dirty and in disrepair. In either case, they are an uninteresting sight seen en masse at eye level. Curiously, cars are rather interesting to see from high above.

Basically, the problem with either the surface lot or the parking structure is interruption. They are severe gashes in the continuity and flow of a downtown area. The parking structure is a break in that continuity. The surface lot is both a disruption and unsightly. Both types of facilities can be aided by a dose of the same medicine—an appropriate pedestrian-level “edge.”

We suggest that the edge of a surface lot or the ground floor of a structure be made into a shallow row of tiny shops. These need not be more than 5 or 6 feet deep. Such shops could include flower stands, shoeshine stands, telephone booths, newsstands and candy stands. A small section could also function as the office of the parking lot. Whatever the usage, each function would be to maintain continuity on a pedestrian street.

A moment's thought or a short survey of an existing downtown reveals many more possible uses: taxi offices or a package delivery service operated by the downtown merchants association. A small section could contain a community bulletin board. Another section could have a bus route-map with a push-button system for showing routes.

The structure for such a row of postage-stamp shops could be a demountable metal frame with variable insert panels. This would make up pat-

terns of fenestration, doors or solid panels. It would be an adult-size erector set. It might also be so temporary that it could be made of wood, to be dismantled when no longer needed.

A certain caution should be exercised in placing these shop structures. There are some places where they are not justified. It is the heart of a downtown area that needs continuous vitality along its streets. The fringe of a downtown may not need it or warrant it, if there is an insufficient flow of people. Distinguishing “heart” from “fringe” is a job of judgment—the combined judgment of the professional, real estate man, entrepreneur and land owner. Determination might be made by the local planning board or parking authority. Anyway, if a mistake in judgment is made, the shop structure could be demounted and erected elsewhere.

The design solution for the “fringe” zone is decorative landscaping. This could be a combination of a stone, wood or iron fence, plus some greenery. Of course, this should be done with the view of the passing pedestrian foremost in mind. This kind of design is basically a bit of camouflage, but it can also be a fine touch of garden art.

Finally, there are one or two larger aspects of this problem that ought to be mentioned. Even though parking is a major use of downtown floor area, parking demand in particular areas may change. It may be wise to build parking structures that can be converted to some other use—office or commercial. This possibility should at least be considered in the early stages of design.

In any case we must all recognize that parking is not an isolated land use. It is a link use between traffic arteries and downtown facilities. Every city needs a full-fledged parking authority, one that does more than set rates and approve locations when proposed by private operators. The parking lot or structure is the receptacle for cars at the end of the road. It is also the vestibule for downtown's shops, offices and hotels.

On one side it must be oriented to the arriving and departing driver. On the other it must be oriented to the pedestrian. The car side should be on an arterial street, and the pedestrian side should be on a shopping street.

In all areas dependent on auto access, there must be an overall plan of movement and stopping. This whole plan is a movement system within which appropriate buildings can be placed. With such movement systems we can proceed to refine our structures, parking included. We might place the latter inside a building, making it the core of the building with an exterior doughnut of offices or hotel rooms, as Louis Kahn suggested a decade ago.

Meanwhile, the linear shop structure along the pedestrian pathway should be quite helpful. ■

IT IS NO secret that an overwhelming percentage of preservation and restoration activity in the United States is subsidized by private enterprise. Our country is almost unique in the world in this respect since preservation activity in other countries is usually governmentally controlled and subsidized, with private activity in a very subsidiary position.

Let us assume that there is a building or group of buildings within a given community that a local group is interested in preserving. What are the alternatives to gaining control of such property? The simplest, of course, is to purchase it, providing monies are available. Proper counsel can sometimes point out methods whereby control can be gained over a structure with the immediate expenditure of less monies than initially anticipated through the negotiation of a system of options. This has been admirably demonstrated by a group of citizens who have purchased an entire town near Lexington, Kentucky, called Shakertown at Pleasant Hill, which they are developing into an educational and museum center.

Another possibility, should the owner be interested in the structure's preservation, is an outright gift of the property to the interested agency. This may be achieved in the owner's lifetime, if he is in an upper tax bracket seeking ways and means for tax deduction, by either giving the entire property as a single gift or, in an arrangement usually more advantageous to the donor, giving a portion of the property to the agency each year.

In the case of structures still privately occupied but owned by Colonial Williamsburg, for example, a clause of life-right was written into the agreement of sale which allows the former owner a life tenancy. The late Mrs. Woodrow Wilson made a gift to the National Trust for Historic Preservation of the house to which she and the former President retired from the White House many years before she died. She remained in residence, however, until her death. The house, in Washington, D. C., has since been designated a National Landmark and is now open to the public.

Another form of outright gift is the bequest wherein the owner enjoys occupancy and ownership of the property during his or her lifetime, actual ownership of the property coming to the agency only upon death as specified in the will of the owner. The National Trust has acquired most of its properties in this manner, such as the Casa Amesti at Monterey or the Trust's property on the Hudson at Tarrytown, New York—Lyndhurst—bequeathed by the late Duchess de Talleyrand, as well as the Shadows-on-the-Teche in New Iberia, Louisiana.

One seldom thinks of exchange as a medium of obtaining control over historic structures, but this

New Twists in Financing

BY WILLIAM J. MURTAGH

The donor and the foundation are not the only salvation in saving buildings of historical significance. The author, director of the department of education, National Trust for Historic Preservation, cites examples of good old ingenuity.

can at times be successful if a thorough investigation is made into the needs of other organizations and agencies within the community. In Bethlehem, Pennsylvania, for example, a mid-18th century building owned by the Moravian College came under the jurisdiction of the local restoration agency through a series of land exchanges between the city, the College, Lehigh University and Bethlehem Steel Corporation. Through this, Historic Bethlehem, Inc., the preservation agency, was able to begin restoration on this important 18th century structure which no longer best served the needs of the college.

A similar exchange accrued to the benefit of America's heritage through the exchange of a building owned by Old Salem, Inc., in Winston-Salem, North Carolina, and the Moravian Church. Through this exchange, the agency gave up a mid-19th century building which, when restored and rehabilitated, better served the needs of one of the functions of the church, and Old Salem received in turn the 18th century Single Brothers House which has now been restored and into which it has moved its headquarters office. The building has exhibition rooms open to the public.

Federal aid programs such as urban renewal can serve preservation interests if the redeveloping agency is philosophically oriented in this direction. A case in point is Strawberry Banke, Inc., in Portsmouth, New Hampshire, where the preservation agency is acting as the redeveloper of an area cleared of slum conditions through an urban renewal program. In this program, Strawberry Banke, Inc., gained control of a series of 18th century structures it was anxious to preserve. The urban renewal money was used to purchase the buildings at fair market value and clear the land. As the redeveloper, Strawberry Banke, Inc., purchased those structures it wished to keep. They will be sold to individuals who will restore them.

These are not, by all means, the only methods whereby a structure can be saved, but they do suggest some of the alternatives possible.

Historic Preservation



Lyndhurst, on the Hudson River, an outstanding example of American Gothic Revival, is open daily as museum.

Once obtained, the agency is faced with the problem of what to do with the building. This problem can be considerable, especially if the structure with which they are dealing is a large Victorian building of the late 19th century. An obvious approach, of course, is to use the building for museum purposes, i.e., to illustrate the beginnings of the community either through reappointing the rooms as they originally were, thus making them into what we term a historic house museum, or by using the structure as a case museum where documentary material is collected in cases or on shelves for consultation and research.

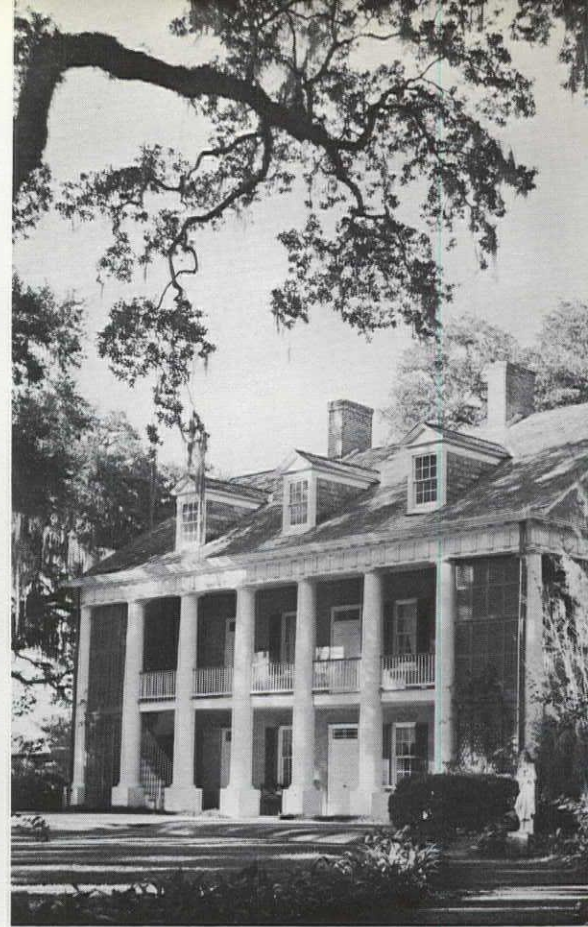
A museum, however, may not be the answer. The community may have already established such a house or case museum, or perhaps such need is negligible because of other conditions within the community.

What then is the answer? Finding a new adaptive use that treats the structure sympathetically and yet gives it a new role in a new century usually answers this question. The architectural quality and the amount of original material remaining many times determine the freedom by which one can revamp an interior for other uses.

The headquarters of The American Institute of Architects in Washington, D. C., is a case in point.

The Octagon, a singularly handsome building of 1799 designed by William Thornton, architect of our nation's Capitol, is used by the Institute in a variety of ways. On the first floor an attempt has been made to recapture the feeling of the house as it was when used as a private residence by refurnishing it with furnishings of the period of the house. These rooms are used for receptions and other social functions. On the second floor, the area where the Treaty of Ghent terminating the War of 1812 was signed is maintained as a museum exhibit room. The adjacent rooms, however, presumably originally bedrooms, now house temporary exhibitions and offices. Exhibition panels, mounted on poles kept in tension between the floor and ceiling, serve the function of display while preserving the architectural integrity.

Another case in point is Merryvale, built in the late 19th century for the San Francisco Gas Light Company, which has been recently serving as an antique shop and garden center. In Boston, the headquarters of the American Meteorological Society are established in the home of Harrison Gray Otis, built between 1806 and 1848. This historically important and architecturally magnificent structure was in derelict condition when the Society acquired it in December 1958. The present



Ainsley Hall mansion (left), built in 1823, has been restored by a citizens' group in Columbia, South Carolina. Shadows-on-the-Teche (right) in Louisiana is the gift of the original owner's great grandson, who undertook its first restoration.

owner has even retained the mirrored dressing rooms and bathrooms later added to the building.

Almost everyone benefits from such an adaptive use. The skyline has not lost one of the major monuments which help create the atmosphere and character of Beacon Hill, and the Society is extremely pleased and proud of the architecturally magnificent headquarters from which it operates. Moreover, the address offers the organization a status which it could not enjoy under almost any other circumstances.

Examples of adaptive use are legion and could be quoted ad infinitum. This is not really the crux of the problem in most cases, but how to finance the structure is.

A donor, commonly referred to as an "angel," is, of course, the obvious source. Perhaps the prime example of philanthropy of the single individual in the preservation field is Williamsburg, Virginia, an entire 18th century colonial village which has been restored and reconstructed. Individual philanthropy of this nature is naturally unusual enough to be newsworthy as noted in the *New York Times* of January 14, 1965, when the Marquesa de Cuevas spent \$2 million to save four houses built between 1909 and 1926 at the corner of 68th Street and Park Avenue in New York City. Her intent was to give them to the City of New York for some cultural use. Donors of this magnitude are naturally extremely rare, and assistance of this nature should be the last of which one thinks.

Unfortunately, it is all too often the primary hook upon which a local group of citizens hang its aspirations for saving a structure.

A foundation approach is the second most thought of method of raising money. Here again, the average individual all too often makes the mistake of pinning his hopes on foundation support.

A second common misconception is to think only in terms of national foundations, by-passing smaller local and state foundations. "The Foundations Directory" lists any number of local and state foundations from which interest and support can be solicited, if a proper approach is made. This includes the preparation of a booklet or brochure, with pictures of the structure in question and a good businesslike delineation of a program and detailed exposition of the funds that are needed. As in the case of the New York buildings, once the funding for purchase or acquisition has been determined, the simple giving away or leasing of the structure can solve the maintenance problem providing the preservation agency receives assurance of continuing sympathetic treatment for the building under other ownership.

An admirable example of such preservation and restoration was demonstrated a few years ago by the Society for the Preservation of Landmarks in Western New York, Inc., which was very much concerned over the fate of an elaborate Greek Revival structure built in 1837 by Jonathan Child in Rochester, New York. In 1957, the Society

raised enough money to purchase the house, but no monies were available to do a proper restoration or maintain it in satisfactory condition. An answer to the problem was found through the cooperation of the Bureau of Municipal Research, a nonprofit, tax-exempt organization and a quasi-branch of the local government, which agreed to move into the house.

The Society, i.e., the owners, offered to let the Bureau use the house for 20 years rent free if the latter would restore the interior and exterior, carefully preserve the historical features of the building, adapt it for office use without desecrating the inside, maintain it and pay for insurance and other obligations. The new tenant has reroofed, rewired, repainted, and installed new heating, lighting and plumbing systems. Certain partitions, carefully fitted around existing moldings, were also added. The Society, in the meantime, reserves the right to show the building. Like the American Meteorological Society in Boston, the Bureau has acquired a status headquarters, and the Society has been successful in preserving one of the city's great monuments.

The simple expedient of mortgaging a historic property to raise money for restoration and rehabilitation purposes is surprisingly seldom given thought. The Trust has used this procedure at the Shadows-on-the-Teche in Louisiana. This house was bequeathed to the National Trust by its late owner Weeks Hall, with an endowment to maintain it. Restoration monies to open the building to the public were secured by mortgage through local banking concerns. Part of this is paid off each year.

Mortgaging has also played a role in the saving of a number of buildings in Georgetown, part of the District of Columbia. An interesting case are the structures at 30th and M Streets which were destined to a fast demise at one point in 1951 when a permit was issued for their demolition for a parking lot. An alert citizen learned of this and banded together with a few others to raise \$600 through contributions for a survey to determine whether the buildings could be bought, remodeled and rented as a business venture. They formed themselves into a profit-making organization and sold shares of stock in what has become known as Historic Georgetown, Inc.

Through this manner, \$60,000 was raised, and the contract was signed for the purchase of the properties for \$75,000. A \$20,000 down payment was made, and the buildings were mortgaged for \$55,000. With \$40,000 available from the sale of stock, it was decided to renovate the basements and create three shops on the first floors. Apartments were planned for the upper floors. The first-floor shops were occupied by December 1953. A restaurant was opened on the second floor in 1956,

and one duplex apartment was prepared for occupancy in 1959, which completed the basic task.

Historic Georgetown now operates in the black with a substantial reserve fund. It has reduced its mortgage to \$45,000. Preferred stock amounts to \$30,000, common stock to \$86,000. Because of the nonprofit status of the National Trust, this organization has been the recipient over the intervening years of grants of stock, thus becoming one of the largest shareholders. It is hoped that the Trust will benefit in the not-too-distant future from these gifts through the dividends which will accrue to it.

The same area has seen still another approach to financing restoration through the creation of a revolving fund. The Georgetown Redevelopment Corporation was formed in 1959 to purchase properties in danger of destruction or in danger of being put to inappropriate uses. One of the buildings saved in this manner was purchased by a newly formed club, the City Tavern, which financed its rehabilitation through debentures bought by the founders and charter members and through initiation fees of almost 1,000 members.

The Georgetown Redevelopment Corporation has eight members, each of whom has invested up to \$5,000. As true with many revolving funds, the principal purpose is to preserve buildings and not make money although a slight financial surplus has materialized. Seaport Development Corporation, in nearby Alexandria, has been operating in a similar manner.

One of the most successful revolving funds has been rehabilitating the Ansonborough area of Charleston, South Carolina, adjacent to the well-known Battery. This area is replete with magnificent houses of the 18th century and early 19th century, most of them in slum condition. The Historic Charleston Foundation, a local nonprofit organization with headquarters in the Battery, administers a fund financed by local foundations and individual grants. Gifts to the fund are, of course, tax deductible. Properties are purchased and restored by the Foundation, after which they are either resold or rented. All of the original outlay is not always recovered, but what is recovered is used again and again on other properties.

Any deficit is considered a contribution of the Foundation to the cultural heritage of the city and the nation. To date, it has bought and processed more than 26 pieces of property. As of 1963, nine had been resold, renovated and occupied as residences. Two were resold and were in the process of being renovated as residences. Three were renovated into apartments for rental income. Five were cleared as substandard buildings and combined with adjoining properties to improve the appearances and to provide off-street parking areas.



Shakertown at Pleasant Hill, Kentucky, a citizens' group effort, has such houses as the Dr. Pennebaker residence.

Three were being held pending the Foundation's decision to renovate for rental income or offer for sale. Four were then being put on the selling block.

There are doors within the federal government which have been opened to assist in the preservation of landmarks and monuments, although the prime reason for allocation of the monies has usually been granted for a related purpose. The Ainsley Hall house in Columbia, South Carolina, is a case in point. This magnificent early 19th century structure by Robert Mills, architect of the Washington Monument, had been used as a school in the early 20th century. It had subsequently been empty and was in derelict condition. A group of citizens formed Historic Columbia Foundation to aid in the restoration of the structure.

Through private subscription and a city appropriation, the Foundation was successful in accumulating a total of \$350,000. During the process of its fund-raising campaign, a request was made to the Open Space Land Branch Division of the Housing and Home Finance Agency for a grant toward the cost of purchasing the four acres of land on which the house stands. Thus, on the basis of providing open park land within an urban center, the federal government granted a sum of \$105,000 to the City of Columbia to be applied toward the purchase price of the land.

As mentioned earlier, a group of citizens has succeeded in purchasing the entire early 19th century Shaker village at Pleasant Hill, amortizing the payments for the property over a 10-year

period. Having once secured its options, the group made application to the Area Redevelopment Administration of the United States Department of Commerce for a low-cost, long-term loan to assist in the project. This agency is not interested in preservation but in the creation of jobs within certain areas of the United States designated as depressed areas. Pleasant Hill fortunately fell into one of these designations. Thus, federal monies have been loaned to develop this educational and cultural center which, in turn, will provide jobs, thus improving the economic level of the area.

The subjects of tax abatement, easements and other forms of reducing the costs of restoration and rehabilitation of structures important to the local scene could be discussed at considerable length, but each form of preservation technique always has the basic ingredient of civic pride and individual initiative behind it. In each case cited, imagination and citizen initiative have been the motivating forces. Approaches to the problem, from new and often unexpected angles, have provided the necessary financing to achieve the sought-for ends. These are the important ingredients of any approach to financing US preservation.

The donor and the foundation are not always the answer. An old-fashioned application of gray matter and an objective look at one's community from a new angle can often produce exciting, surprising and productive results. ■

Presented before the 1965 annual meeting of the Society of Architectural Historians in Los Angeles.

Getting Civil Defense into Codes

BY ROBERT BERNE, AIA

Chief architect for the Office of Civil Defense, the author is former head of the Institute's Architectural-Building Information Services and editor of the 1962 Building Products Register.

"AS YOU KNOW, a continuing concern of the Committee on Building Codes and Disaster Studies is the inclusion of protective structures criteria in local building code provisions." This was the opening sentence in a letter from Chairman Ralph O. Mott AIA to Institute Executive Director William H. Scheick FAIA in March 1963.

The correspondence also marked the beginning of a comprehensive building codes study for the Office of Civil Defense, conducted by the AIA in cooperation with the four national model code authorities. The culmination came in November 1965 when the final report was reviewed and accepted by an ad hoc group consisting of the AIA Committee on Building Regulations (successor to BCDS), under the chairmanship of Raymond Ziegler AIA, and representatives of the four model codes and the OCD.

At the conclusion of that meeting, Paul E. Baseler, national secretary of the Building Code Coordinating Council, stated that the cooperation shown between the AIA and the code groups in carrying out this special study had done more than anything else to bring these two groups close together, and was the beginning of an era of harmonious working relationships with respect to important building code problems of mutual concern. The Council is comprised of the Building Officials Conference of America, the International Congress of Building Officials and the Southern Building Code Congress.

Code group representatives also expressed confidence that the suggested changes would receive favorable consideration at an early time from their respective review committees. The OCD is gratified to have been the catalyst by sponsoring a project of importance to the defense of our country that is also of vital interest to both the AIA and the code groups.

In its introduction and background discussion, the report explains concisely the National Shelter

Program, Department of Defense policy on shelter and the effects of nuclear weapons, with emphasis on the creation of fallout and the attendant radioactivity. Great stress is placed on the need for the type of community planning that includes, as a program requirement, shelter for all inhabitants. This is consistent with the Community Shelter Planning Program, being carried on by the OCD, which serves as the foundation of local emergency readiness.

The program begins, in any community, by precisely identifying shelter deficit areas. Until additional shelter can be created, it assigns the people in small geographic areas to the best protected space available and makes these allocations known.

Based on OCD Technical Requirements for Fallout Shelters (TM 61-3, revised March 1965), a generalized permissive building code article is presented, establishing the minimum criteria which must be met "before a building or building space can be constructed, occupied, used or designated a fallout shelter."

The article covers building spaces when used as fallout shelters for reasonable periods of drill and instruction. If a shelter is not being so used, the normally applicable provisions of the code apply. This sets the stage for applying each of two groups of criteria to any space which has normal occupancy in normal times but becomes a fallout shelter during an emergency.

Thus, the more restrictive requirements of normal use and occupancy are relaxed in an emergency, permitting more occupants in a space designated as a shelter than would be permissible under normal exit, sanitary, ventilation and other requirements. For example, office space that is designated for fallout shelter use in an emergency need not conform to the requirements of a place of assembly simply because of the increased number of people that will occupy it when used as a shelter.

Under the National Shelter Program and the proposed code article, a shelter is defined as a space having a minimum protection factor (PF) of 40 as determined by an architect or engineer certified by the OCD as a qualified fallout shelter analyst. PF is a factor used to express the relation between the amount of fallout gamma radi-

A limited number of copies of the report are available by writing to Mr. Berne, OCD-DOD, Pentagon, Washington, D.C. 20310.

ation that would be received by an unprotected person and the amount he would receive in a shelter.

The minimum area per shelter occupant is 10 square feet, and the minimum volume is 65 cubic feet. This, however, is increased where ventilation is not adequate to supply at least 3 cubic feet of fresh air per minute per person. The report includes a table showing the minimum volume of space per person based on the time required for a complete air change. The upper limit of the table is 500 cubic feet per person for a 1,000 minute air change.

Two widely spaced exits are required for each shelter area aggregating at least one unit of egress width (22 in.) for every 200 shelter occupants. Required design live loads for normal use govern in dual-use shelters and are not less than 40 pounds per square foot in single-purpose shelters, with special consideration given to concentrated loads due to storage. Toilets, either flush type operating from the normal water supply system or chemical or other types, are required on the basis of one toilet per 50 occupants. Empty water containers may be considered as fulfilling this requirement. There are no special requirements for windows, illumination or fire-resistive construction beyond those for normal occupancy.

Suggested changes to the four national model codes are too numerous and detailed for inclusion here. But they follow the pattern set by both the generalized permissive article and the styles of each of the four codes.

The new code provisions are not intended to make fallout shelters in new construction a mandatory requirement of municipal building codes. Aside from the fact that the report does not recommend this as a policy, it points out that legal ramifications also militate against it. Codes, at best, are designed primarily to provide local statutory guidelines for the administrative control and regulation of building construction practices, especially where the owner proposes voluntarily to erect a building to be used for particular purposes which involve the public health, safety and welfare. For this reason, they are not generally used to establish special public policy governing the kinds of buildings and buildings spaces which *must* be created to assure public safety. No recommendation is made regarding mandatory shelter provisions in other types of legislation.

In order to protect US citizens from the effects of fallout gamma radiation, the OCD established the National Shelter System, which makes use of habitable spaces in buildings that have materials and configurations adequate to shield against the deadly radiation. To date, 140 million such spaces have been identified in existing buildings. Not all

are necessarily in the places where they are needed or readily accessible to those who might have to use them. In order to complete the system so that shelter will be available, in the event of national emergency, to every man, woman and child whether at work, home or in school, spaces must be developed in new construction.

Many building materials, by virtue of their density, make good shields. When properly exploited and judiciously combined by an architect who understands shelter design, they can reduce otherwise harmful or lethal doses of gamma radiation to tolerable levels. Thus, by considering shelter as a program element in a new building, protection can be maximized as the building is designed.

Civil Defense is grateful for new shelter spaces of any type. Nevertheless, as a practical matter it advocates that shelter in buildings be designed as a dual-use space in which the shelter functions are secondary to the primary use. Shelter should be unobtrusive but available in time of need. Designing shelter into new buildings will speed us toward the goal of a complete National Shelter System.

A cost-reimbursable contract was awarded to the AIA on June 30, 1964, in the amount of \$29,500 to do the following:

- 1) Develop a permissive building code article based on OCD minimum technical requirements.
- 2) Develop administrative code provisions to permit relaxation of normal requirements during times of national emergency but retaining all code requirements for normal daily use.
- 3) Perform a detailed study of the NBFU, BOCA, ICBO and SBCC codes to determine areas that inhibit inclusion of shelter in buildings as dual-use space and make specific recommendations for changes.
- 4) Perform a detailed study of the four codes to determine where shelter should be mentioned and make suggested insertions.
- 5) Make a survey to determine what has been done in other countries in the way of adopting ordinances to require the inclusion of shelter in buildings.
- 6) Make recommendations as to whether mandatory shelter in new buildings should be initiated in this country and, if recommended, how this should be accomplished.

Research into government requirements for mandatory shelter in foreign countries revealed that, although some have such legislation, none has it in the form of a building code. As for legislation, Great Britain and France have none. West Germany recently adopted a Civil Emergency Planning Bill requiring the inclusion of fallout shelters

Continued on page 78

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In Sweden, private shelters of specified resistance are required in buildings in towns over 5,000, except one-story, single-family dwellings. Public fallout shelters must be provided in all new construction with the central government contributing two-thirds of the cost.

Peaceful Switzerland, which has escaped war for several centuries, has one of the most sophisticated shelter systems. Fallout shelters are required in communities of 1,000 or more for all new construction and remodeling. For private shelters, subsidies of 25-35 percent are allowed by the federal government with a combined contribution by the commune and canton to make 70 percent of total cost. For public shelters, 40-50 percent of the total cost is available from government subsidy, which also contributes 55-65 percent for shelter construction in hospitals.

In the Soviet Union, civil defense policy stressed the new construction of factory and apartment buildings at least until 1958. Civil defense approval of plans was also included in this policy. However, fallout shelter protection is still an important aspect of new buildings, leastwise in theory. Some blast protection in urban areas is also available, particularly in deep subways.

At the 1963 AIA convention in Miami Beach, an informal conference was held with the BCDS Committee and Robert J. Piper AIA, its staff executive. Groundwork was laid for the first meeting of the ad hoc committee previously mentioned. The AIA was represented by the BCDS Committee members and the OCD by James E. Roembke, director of the architectural and engineering development division, and by the writer. The Southern Building Code Congress was unable to send a delegate, but the Building Officials Congress of America was represented by Baseler, executive director; the International Congress of Building Officials by T. H. Carter, managing director; and the National Board of Fire Underwriters by William W. Pritsky, director of codes and standards.

The consensus of the meeting was that the problem had to be defined in very specific terms before the study could be undertaken. In order to do this, requests were sent out nationwide for actual examples of local building code requirements that had inhibited the inclusions of fallout shelter in the designs of new buildings or, at best, had made it difficult. The AIA requested case studies through a *Memo* article, the codes groups sent letters to their subscribers and the OCD wrote to the 4,000 architects and engineers whom it had qualified as fallout shelter analysts

up to that time (currently, the figure is 10,000).

Replies showed that the major problems occurred in the areas of required exits and stairs. Under normal code requirements for exits and stairs based on peace-time occupancies, the number of persons who could be assigned to a potential shelter area within a building was only a fraction of those who could be reasonably expected to seek shelter there during a national emergency. Other problem areas comprised sanitary facilities, ventilation, exterior openings, occupancy requirements, fire protection, electrical systems and belowground ceiling heights. How to remove these stumbling blocks to shelter construction was the problem facing the BCDS Committee.

In November, the Committee adopted a resolution urging the ad hoc committee to recommend to the AIA Board of Directors that the Institute negotiate a contract with the OCD for the preparation of permissive shelter provisions that would be suitable for acceptance and adoption by the four model codes. This resolution, in turn, was agreed upon by the ad hoc committee and subsequently accepted by the AIA Board. As negotiations proceeded, Mott retired as Committee chairman to be succeeded by George Bain Cummings FAIA, and Robert J. Cowling AIA assumed the duties of staff executive from Piper.

The AIA divided the contract into two parts, carrying out at the Octagon administrative functions which comprised handling of all meetings and preparation of drafts and the final report. Since the AIA could not assign regular staff to detailed studies of this type, it requested proposals from several firms of architects. Graves-Hill & Associates of Lexington, Kentucky, was selected to perform the work.

This firm's principals had considerable experience and background in Civil Defense work. Charles P. Graves AIA is dean of the School of Architecture at the University of Kentucky, and John W. Hill AIA is professor of architecture and a qualified instructor in fallout shelter analysis. Clyde R. Carpenter is also instructor at the School. These three architects were involved at the same time in the direction of the "Kentucky Charette"—a design study of municipal buildings with emergency operating centers and public fallout shelter—for the OCD.

Consultants on the code study project were Robert S. Moulton, Weston, Massachusetts, fire protection engineer and nationally recognized building codes expert; William L. Matthews Jr., dean of the Kentucky Law School; William H. Qualls, executive director, City-County Planning Commission of Lexington, Kentucky; Dr. James L. Leggett, structural engineer; and J. Virgil Proctor, mechanical engineer. ■

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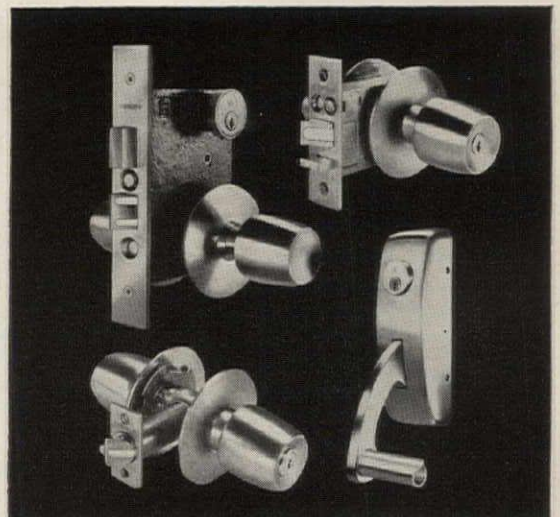


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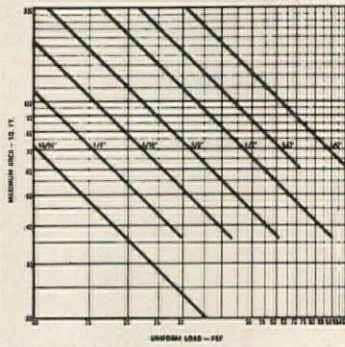
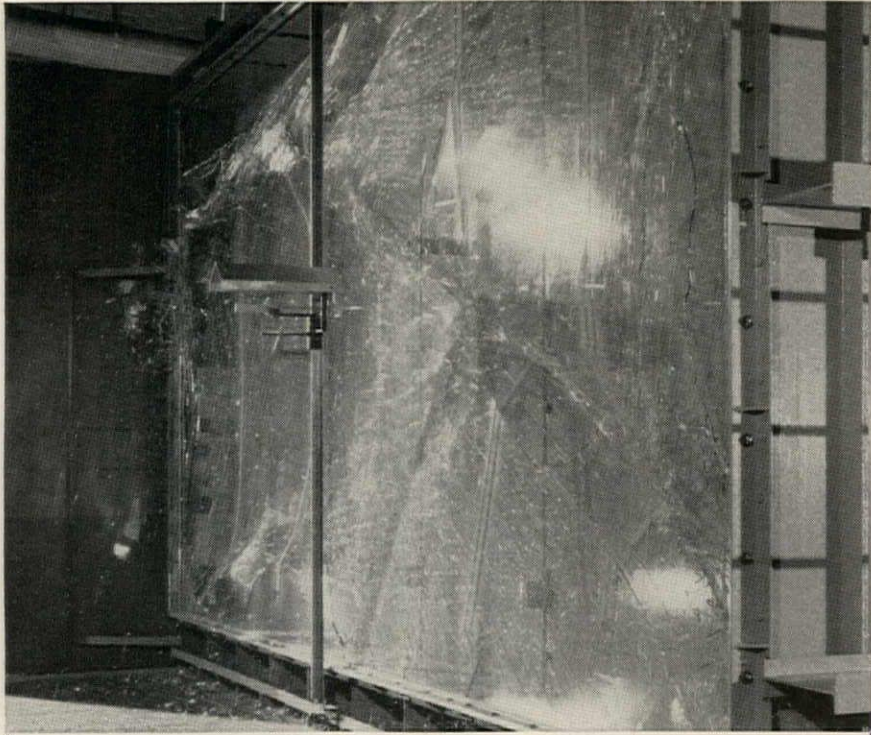
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Values are based on L·O·F published minimum thicknesses. All edges continuously held. Data shown is based on actual tests to destruction. For sizes and thicknesses not shown, or when the length is more than five times the width, consult your L·O·F district office.

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Building Code Groups Adopt L·O·F Glass-Strength Data.

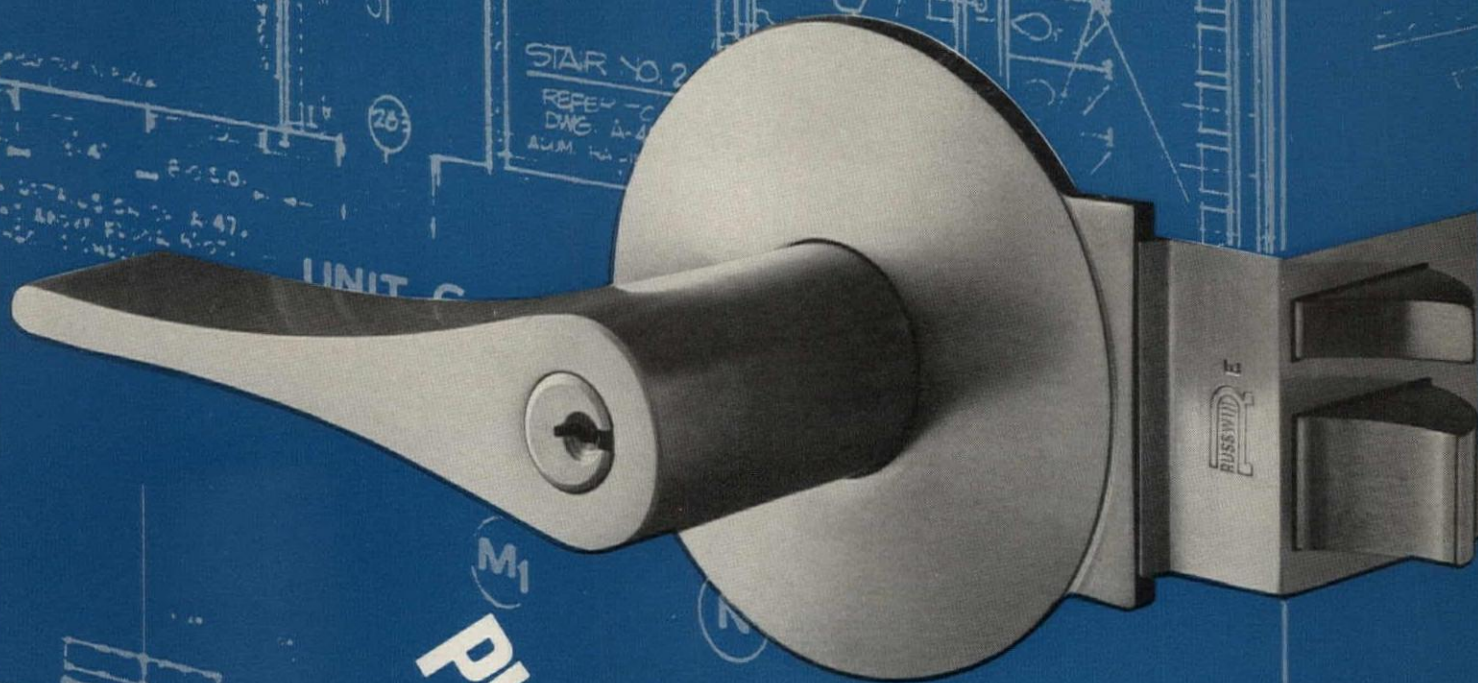
At the annual 1965 meeting of the Building Officials Conference of America and the Southern Building Code Congress, L·O·F glass-strength information was included *without change* in their revised model codes.

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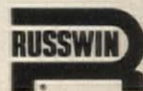
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Big Little Memorial

THE IDEA occurred to him, said William S. Paley, as "I was casting about for an appropriate way to create a memorial to my father."

Why not a tiny, restful spot in the heart of Manhattan? Samuel Paley, who died in 1963, spent most of a long and productive life in two great American cities.

And so to his son it seemed that to provide a bit of open space "in the very center of our greatest city would be the kind of memorial that would have pleased him most."

As a New Yorker, Paley said, he has often felt that "we ought to set aside occasional spots of open space where our residents and visitors can sit and enjoy themselves as they pause in their day's activities."

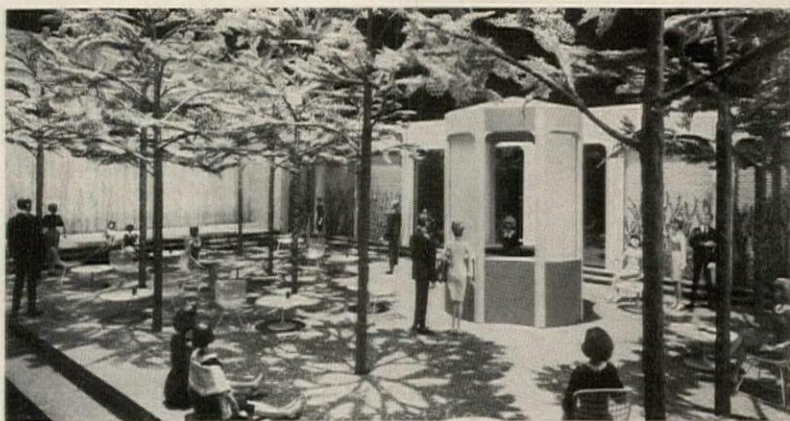
Paley then announced the acquisition of a tiny site—42 feet frontage, 100 feet deep—and the establishment of the Greenpark Foundation to create and administer the Samuel Paley Plaza at 3-5 East 53rd St., formerly the site of the Stork Club.

"Altogether," said Paley in summing up the location's busy qualities, "it seemed an ideal place to try a new experiment for the enjoyment of the out-of-doors in the heart of the city."

In a letter to Mayor John V. Lindsay, Paley said he hoped the little park would serve as a "pilot project for other individuals, corporations, institutions or local governments."

The size of the plot is central to Paley's concept that small areas in cities can be used for park purposes.

Plans were developed by landscape architect Robert L. Zion. A. Preston Moore AIA served as architectural consultant. Construction and plantings are expected to be completed by early summer.



Side view of Samuel Paley Plaza showing "waterfall," left, and kiosk.

The basic plantings will be 24 full-grown locust trees placed at 10-foot intervals, their tops forming a foliage canopy.

At the rear will be a high "waterfall" designed to provide a visual backdrop, soften traffic noises and in itself yield a relaxing sound.



Samuel Paley



William S. Paley

The side walls, planned to give an expansive air to a confined area, will consist of high, gently rounded concrete arches with brick and occasional mirrored paneling to enhance the feeling of spaciousness.

Instead of having the traditional benches, there will be individual chairs. Coffee, soft drinks and sandwiches will be available from a kiosk, and the plaza will be lighted for night use.

Paley, who in 1928 became the Columbia Broadcasting System's first president, has for the past 20 years served as board chairman.

His father, who had come to this country from Russia at the age of 12, was a distinguished businessman and philanthropist. He was a strong supporter of the arts, education and medicine.

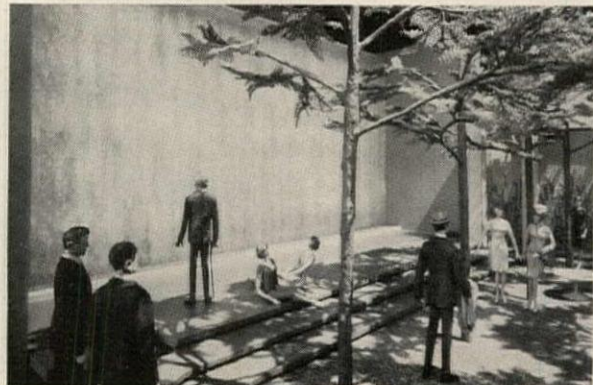
William Paley said that while the primary purpose of the plaza is to provide an attractive outdoor resting place in the midst of a huge city, "I hope it will have equal importance as an experiment in a new kind of small urban park."

"It is still possible," he continued, "to acquire large tracts of land for traditional parks in some of the outlying areas of our major cities."

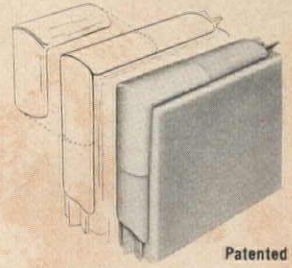
"But there is a need also to have more parks of this kind in central urban locations where the population of residents, commercial employees and visitors is most concentrated.

"In order to make the most of such relatively little areas, new approaches, new designs and new techniques seem necessary. ■

The scene at left shows entrance to the park from 53rd Street; right, the wall of water at park's rear.



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Getting Along with Oneself

An exhortation for better workmanship made before a gathering of Armstrong Cork Co. ceiling systems contractors by Laurance P. Berri, architect in charge of production, Pearce & Pearce, architects-engineers, St. Louis.

THE BUILDING industry is big business: 1966 promises a \$17.4 billion volume, exclusive of residential construction and public works.

Unfortunately, much of it will be without controls over either the finished products, the buildings, or various components, particularly subcontract work. Other major industries have their own self-disciplining quality control programs. But not building.

Such basic components as building product materials are generally made under rigid controls, the manufacturer not waiting for consumers to reject inferior products.

Lack of self-imposed quality control at the construction stage, however, has permitted a steady deterioration in the workmanship, encouraged constant violation of construction contract documents, promoted utter disregard for the interests of the consumer-owners, and reduced credibility of completion schedules to the level of the ludicrous.

There is a great tendency in each of us to shift the blame.

"The general contractor cut the subcontract bids too low."

"The other trade installed the work improperly."

"The material isn't up to standard."

"The specifications are inadequate or impractical."

'Inadequate' Fees. The president of a prominent general contracting firm noted recently in a national building construction magazine that an undue burden is placed on general contractors because some architectural firms are neglecting their responsibility for detailed checking of shop drawings. He attributed such neglect to "inadequate" fees paid to architects.

Right or wrong as to neglect in checking drawings or adequacy of fees, it is incomprehensible to me that a general contractor worth his salt as a businessman could, should or would willingly delegate to the architect—a party with whom he has no contractual agreement—the

important control of checking shop drawings.

In fairness to the conscientious contractor and subcontractor, let me discuss briefly broad contributory areas underlying poor work:

1) Outdated trade union practices that allow unskilled mechanics to do uncraftsmanlike jobs. Much work installed by permit mechanics has to be redone—at the expense of the contractor. Wage scales have a lot to do with this problem since they are no longer related to dexterity, diligence or desire.

2) Expedients, resorted to by contractors under pressure of rigorous competition, and labor shortages and mounting costs which themselves contribute to poor work.

Most of today's general contractors are no more than brokers. Indeed, there is a marked similarity between the broker who buys and sells a commodity without ever seeing it and the general contractor who coordinates subcontractors without knowing what they are doing or what their particular contract encompasses.

Subcontractors lacking direction from a single source tend to avoid concern with any other work phase but their own. They are grateful for the lack of quality control on the part of the general contractor.

Just once in the past 15 years of my experience on construction projects—and that one time *was* nearly 15 years ago—do I recall a general contractor rejecting a subcontractor's work.

Seemingly there is more concern for "getting along" with contractors than for doing a job that will permit a man to "get along" with himself.

3) Architects, too, must share the blame for deterioration of workmanship. Every architectural inspector who looks the other way (or worse, who comes on the job too ill-equipped to know whether or not work is in accordance with contract documents) is contributing to lower standards.

Many architects have been duped into believing that strict supervision and insistence on compliance with contract documents will result in higher bid costs. That, at any rate, is the reason they give for their laxity. This must be termed one of the contributors to the overall problem.

With some risk, Pearce & Pearce some years ago made the decision to prepare contract documents that were explicit as to what we wanted, and to provide close supervision of construction to make sure we got it. If this sounds like normal professional architectural service, let me assure you it is far from the norm.

In following our policy we have been subjected to threats from contractors and subcontractors of not bidding our work again. Subcontractors sometimes implied that penalties were being added to our bids. Clients questioned our ability to "get along" with contractors.

Admittedly, we have had anxious moments. But we continued our policy and by and large the myths evaporated.

Not only have our project costs remained competitive with other architects, but new clients have been referred to us by satisfied old ones. Furthermore, I am confident those contractors and subcontractors who follow our work would rather know in advance what is expected of them, and that our documents and supervision will be consistent from one project to the next.

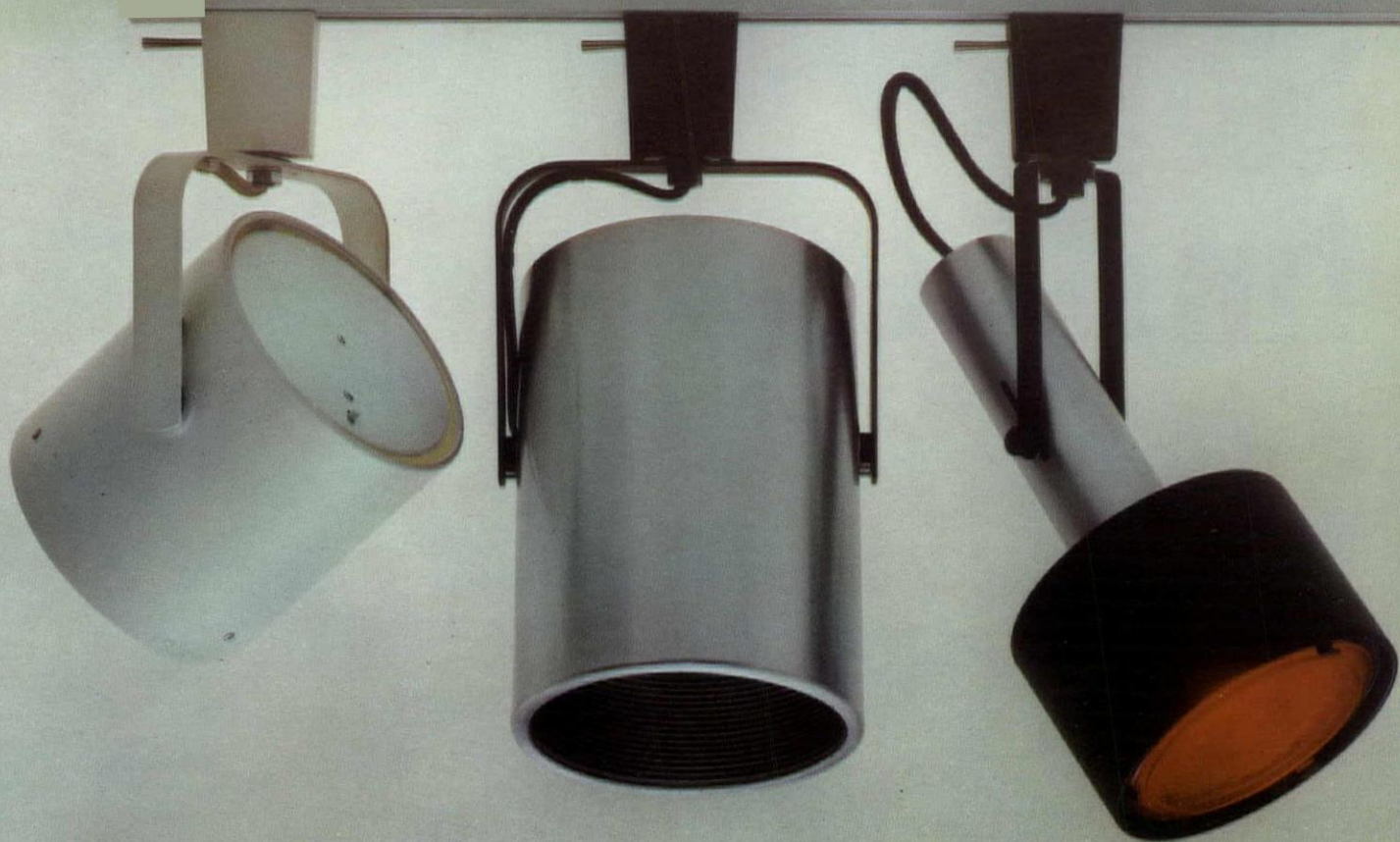
A Song on Their Lips. We are constantly encouraging our associates in the profession to equip themselves with the tools and qualifications to protect their clients' interests and raise the standards of the construction industry.

There is a song on the lips of many contractors these days. The lyrics praise the single contract. They say single responsibility ensures quality. They say completion schedules are assured.

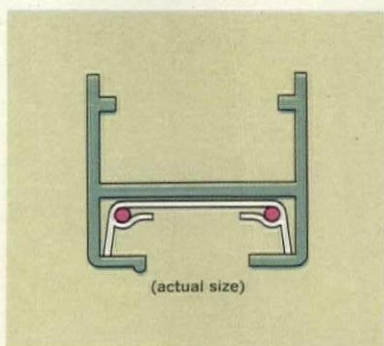
Trouble is that though the words are right, the tune frequently is discordant and the reason is the lack of quality control.

Ultimately, the general contractor, if he is to maintain his single contract position, must establish quality control over the total product, *prior* to the time the consumer-owner-architect passes judgment.

I invite all contractors to join in the effort to establish quality control in building. When each of us involved in this huge manufacturing process is willing to accept responsibility for quality, then and only then will the construction industry be able to shed its stigma of being the world's largest producer of inferior products. ■



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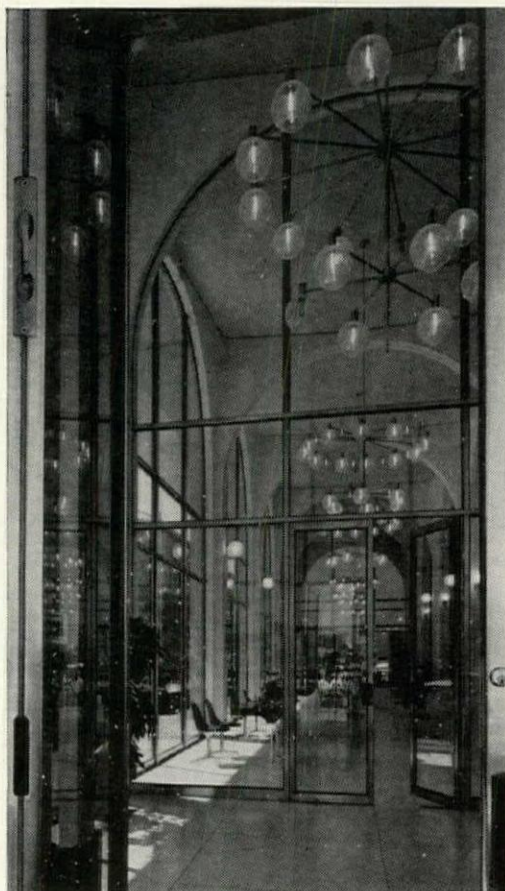
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warp-resistant. Stainless entrances are now available, from stock, at prices sure to interest architects and builders. Other benefits are gleaming beauty . . . easy care . . . and long life. Wherever metal is a possibility, stainless is the probability. Its finish gets a lot of exciting things started!

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posers recently elected to membership in the National Institute of Arts and Letters, the nation's highest honor society of the arts.

► Gerhard E. Karplus AIA of New York has received the Gold Medal of Merit from Austria President Franz Jonas for services to the Republic of Austria. A native of Vienna, Karplus has executed various installations on Austrian government buildings in New York.

► New York Gov. Nelson A. Rockefeller received a citation of the Institute that was presented at a dinner of New York's Metropolitan Club.

The resolution praised Rockefeller efforts in "furthering" architecture and the arts and his "insistence on fresh, unregimented solutions in the creation of educational buildings and other institutional structures, resulting in the architectural master planning for the college and university campuses of the state university of New York." Institute President Morris Ketchum Jr. FAIA made the presentation.

► Lathrop Douglass FAIA has been appointed chairman of the architectural advisory council of the New York Board of Trade.

Formed last year, the council gives advice to the Board in environmental matters and on the improvement of public and private facilities.

Douglass, a charter member of the council, succeeds Max O. Urbahn, president of the New York Chapter AIA.

► Roy N. Thorshov AIA of Minneapolis was appointed by Minnesota Gov. Karl Rolvaag to a four-year term on the State Board of Registration for Architects, Engineers and Land Surveyors.

► An honorary fellowship in the Royal Architectural Institute of Canada has been extended to the Institute's immediate past president, Arthur Gould Odell Jr. FAIA.

George Nelson Captures Two Design Awards

George Nelson FAIA has received the 1965 Alcoa Industrial Design Award for "notable achievement in the imaginative and effective use of aluminum."

Nelson, president of George Nelson & Co., New York industrial design consultants, also received the International Design Award of the American Institute of Interior Designers.



George Nelson Action Office group.

Both awards were for his business furniture design.

The Alcoa award was for his designs for the Action Office furniture collection manufactured by Herman Miller of Zeeland, Mich.

Nelson, a native of Hartford, Conn., is also a partner in the architectural firm of Nelson & Chadwick. He received the AIA's Industrial Art Medal in 1963.

He attended Yale University and is a graduate of Yale's School of Fine Art. He also attended the American Academy in Rome.

education

Belluschi Is First to Hold Jefferson Professorship

Dr. Pietro Belluschi FAIA, former dean of the School of Architecture at MIT, holds the first Thomas Jefferson Memorial Foundation Professorship in Architecture at the University of Virginia.

He is filling the new professorship for the first half of the spring semester.

Belluschi, an architect in Portland, Ore., for more than 20 years, was dean of architecture at MIT from 1951 to 1965. He has served as a member of the National Fine Arts Commission and as an adviser to the Department of State on the design of buildings overseas.

The professorship was established last spring with an annual grant of some \$30,000 to the School of Architecture from the Thomas Jefferson Foundation.

The selection committee which chose Belluschi included Hugh Stubbins FAIA of Cambridge, Mass., Walter Netsch Jr. AIA of the Chicago office of Skidmore, Owings & Merrill, and David Yerkes FAIA of Washington, D. C.

Other members were Thomas K. Fitz Patrick FAIA, dean of the School, and Francis L. Berkeley Jr.,

executive assistant to University President Edgar F. Shannon Jr. and a member of the Foundation's board.

► A Secondary School Planning Institute will be held at Stanford University July 5-9 under the auspices of the School Planning Laboratory and Educational Facilities Laboratories. For further information: Coordinator, Secondary School Planning Institute, School Planning Laboratory, School of Education, Stanford University, Stanford, Calif.

► A special summer program on plastics in architecture will be held at MIT in cooperation with the Construction Council of the Society of the Plastics Industry June 14-17. Inquiries should be addressed to: Director of Summer Session, Room E19-356, MIT, Cambridge, Mass. 02139.

► Rensselaer Polytechnic Institute has established a Center for Architectural Research with Alan C. Green, associate professor of architecture, as its director.

Morton C. Gassman, associate professor of architecture, was named senior design coordinator.

► Six University of Illinois graduate students are getting experience in urban design by planning the growth of Jacksonville, Fla., through the year 2000.

Jacksonville Growth Organization and Jacksonville Lions Club asked the students—five in architecture and the sixth in landscape architecture—to offer a plan for the orderly growth of the city over the next 35 years.

A six-member committee from Jacksonville including Mayor Byron Holkenbrink viewed resulting models and selected the best points of each, asking the students to incorporate these into an overall plan.

► Vincent J. Scully Jr. has been appointed the first John Trumbull Professor of the History of Art at Yale University. The new chair in art honors the famous patriot-painter of the American Revolution.

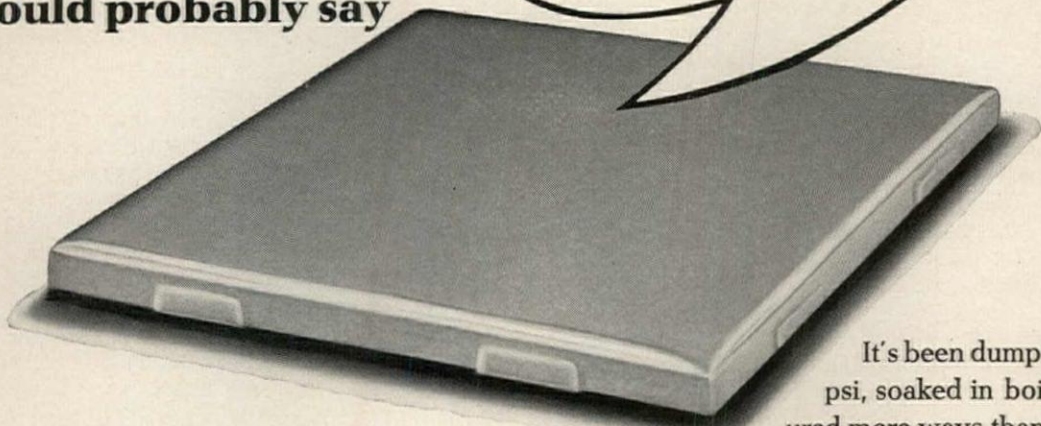
► Robert Ingle Hoyt AIA spent a week at California State Polytechnic College as a visiting lecturer.

► Prof. Robert D. Katz, University of Illinois College of Fine and Applied Arts, is recipient of two grants totaling \$7,100 to study the professional designer's role in publicly assisted housing programs.

On sabbatical leave this semester and the first of next academic year, Katz received a \$6,100 grant from the Graham Foundation for Ad-

Continued on page 94

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it would probably say**



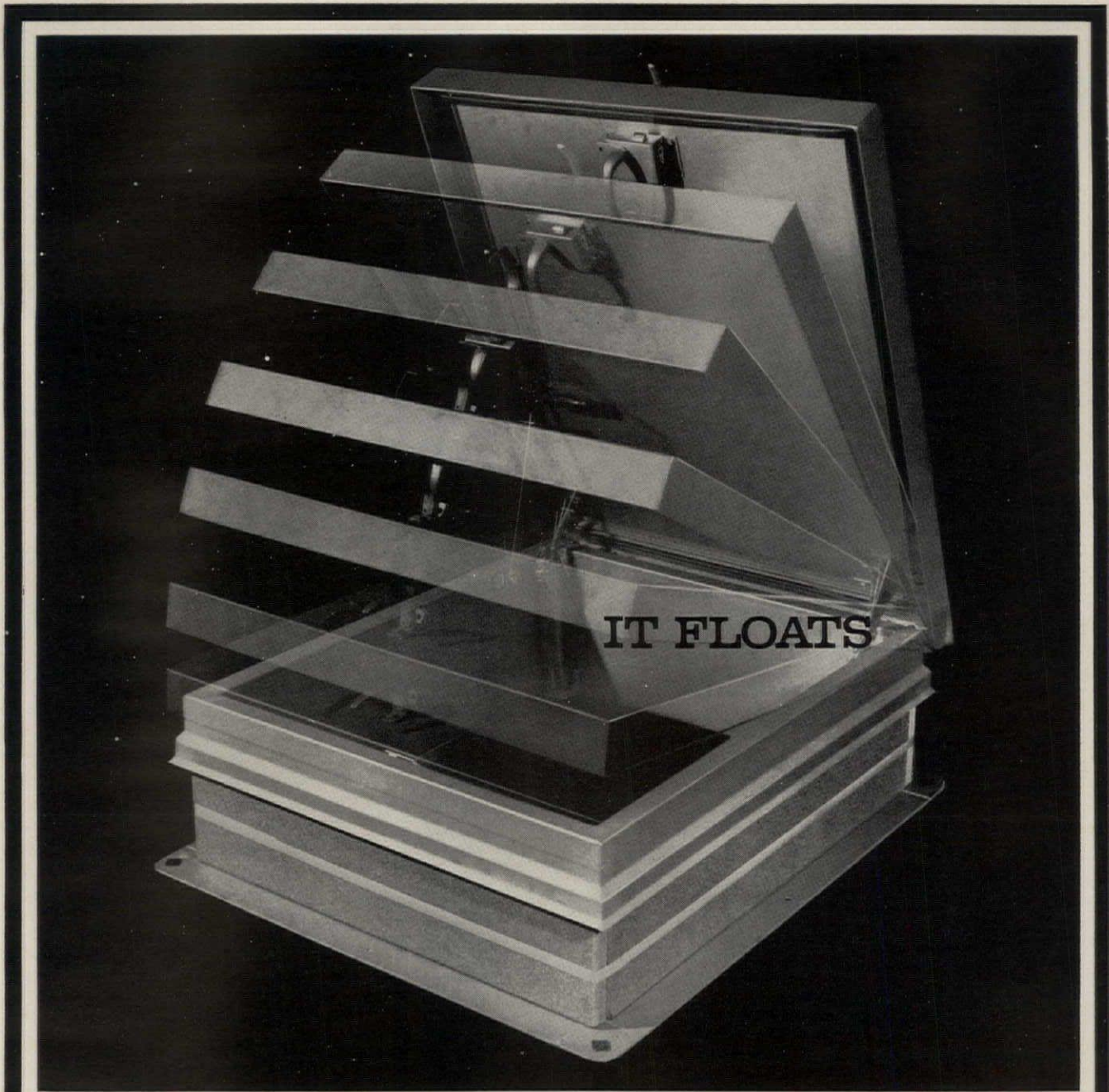
It's been dumped in steam at 100 psi, soaked in boiling water, measured more ways than a beauty contest winner, peered at for visual defects and given a thermal shock test for good measure. In all, it's gone through 11 tests to make certain that it's good enough to bear the mark "Certified Tile." All part of a program by the Tile Council to provide you with a positive way of getting the qualities you look for in ceramic tile.

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vanced Studies in the Fine Arts and a \$1,000 grant from the AIA.

► Percy Johnson-Marshall, professor of urban design and regional planning at the University of Edinburgh, is at the Department of City Planning in Yale's School of Art and Architecture this spring.

The visiting critic is a former chief of planning for the London County Council and was active in the rebuilding of post-war metropolitan areas. He is the author of the book, *Rebuilding Cities*.

► The University of Michigan is making a study of the needs of industry in the field of design and drafting.

The study, undertaken in cooperation with the American Institute for Design and Drafting, will seek to determine current and future needs and how education might adjust to meet them.

► The latest of Stanford University's city planning projects for the town of Morgan Hill, Calif. involves a team of 54 students, most of them in architecture but some from Engineering and Law Schools.

The engineering students help with such matters as utilities and

streets, while the law students are involved with the legal structure of the municipal government.

► Alvin Boyarsky, former fourth-year master and lecturer in architectural history at the Architectural Association School of Architecture in London, has been appointed associate dean of the College of Architecture and Art at the new Chicago Circle campus of the University of Illinois.

► A seminar series at Columbia University, called "Urbanization and Housing Policies in the Developing World," has drawn 15 international authorities including the ambassadors to the US from Venezuela and Ceylon.

► The American Society for Engineering Education has recommended that the master's degree awarded on completion of an integrated program of at least five years, become the first recognized professional degree in engineering.

It would be mandatory for professional status in the fields of design, research and development. The current first degree, the bachelor's, would become an "introductory engineering degree."

► A scholarship program for undergraduate students in urban plan-

ning has been established by the Richard King Mellon Charitable Trusts at the University of Illinois. James F. McLaughlin of Rochester, N.Y., is its first winner.

Said to be the first such undergraduate program, it will run for at least four years and will provide six to eight students each year with full tuition and fees. Cash stipends are also available.

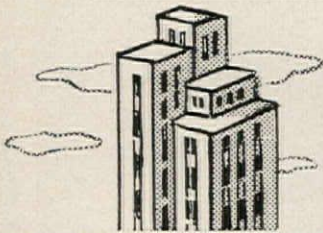
New York Promotes Art in Buildings

The latest of cities to encourage works of art in new buildings is New York City.

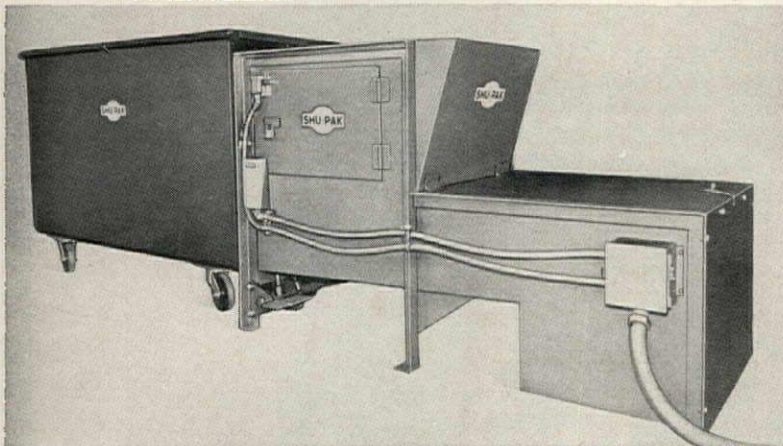
Under an executive order issued by former Mayor Robert Wagner late last year and extended by Mayor John Lindsay early this year, public buildings are required to include art works costing between 1/2 and 1 percent of the building's total construction cost.

New York describes works of fine art as mosaics, murals, sculpture, frescoes, paintings, stained glass, bas reliefs and other art works which are not utilitarian.

Boston and Philadelphia have similar programs. ■

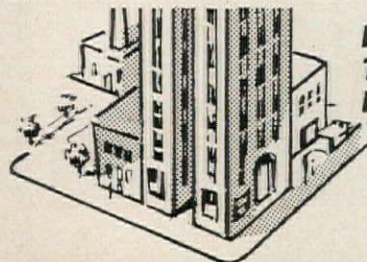


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BOOKS

Ise: Prototype of Japanese Architecture. Kenzo Tange and Noboru Kawazoe, with photos by Yoshio Watanabe. Cambridge, Mass.: MIT Press, 1965. 212 pp. \$17.50

Of all the books I have ever read on architecture, this is the most stimulating. It opened a whole new world of thought. My way of looking at the architecture of my own culture will not be the same. The veils of mystic mumbo-jumbo explanations of Oriental, or at least Japanese, architecture have been lifted. I hope I can convey the reasons for this.

A few of our more perceptive colleagues have helped light the way to Ise. Bruno Taut, for example, rates Ise along with the Parthenon or Chartres. Robin Boyd speaks of the Ise Shrines as "a sort of refined extension of nature." John Burchard, who wrote the introduction, points out that while the *physical* journey to the shrines is not long, the *spiritual* journey is.

But Walter Gropius is most helpful in comparing the Ise Shrines with the Parthenon. He explains that the Parthenon is a building of limitless radiance, while the entire Ise area is in deep shadow. The Parthenon embodies the Western world's heroic attitude, to breast and conquer nature. The Ise Shrines embody an almost opposite viewpoint, an animistic adaption to, and absorption in, nature.

The Ise Shrines are well known to architects. They are exquisite wood structures set in walled-in spaces, all in beautiful natural environments. Every 20 years many of the structures are duplicated, holy artifacts are moved to the new buildings, and then the old buildings are dismantled. A clue to the reason for this is beautifully propounded in the very last paragraph of the book:

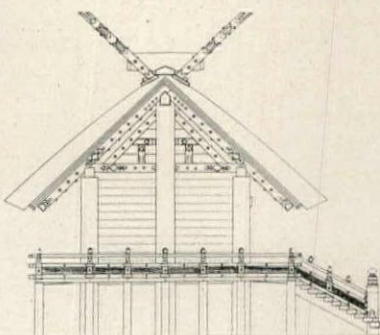
"The Japanese thought that life becomes eternal by being absorbed in the great stream of Nature. For them, it was not a case of 'life is short, art eternal.' They had only to look at the Ise Shrines—ever new, yet ever changing—to know that it is art, in truth, that is short and life that is eternal."

Explaining the process through which this attitude was reached, and the architecture which resulted, is the glory of this book. Ise is 270 miles from Tokyo. The cyclical rebuilding process started in AD

685 and involves 59 buildings each time. In 1953 permission was granted to photograph the latest version of the reconstructions. Permission was also given to the authors to see the forbidden structures. This book is a translation of a Japanese book of 1961 in which the photos and text were published.

The early Japanese, like many others, ascribed divine meaning to special objects which they found in nature. As in many early religions, rocks with special shapes gained holy significance. So, too, did certain trees and bodies of water. Gradually a pantheism developed, within which certain beliefs and associations rose and fell. Belief in one or another god evolved through an increasing understanding of climate, agriculture, mechanics or society. Finally, the goddess of the sun and the goddess of cereals were established on the top of the hierarchy. The emphasis on the feminine is significant. It is typical of agricultural societies.

Rocks were first thought to house deities, perhaps because they were the most permanent objects around and because they were so useful as tools. With the development of farming, the earth became a mother god. The seed placed in the ground and nurtured there was an overwhelmingly convincing symbol of feminine power. The matriarchal society of Japan came from the south, possibly with roots in Oceania. Stone arrangements developed into expressions of male and female. There was a hierarchy of gods and spirits, each abiding in stone.



The first structures built by early societies, aside from rude huts, were platforms for storing grain. When the personification of the grain god was put on such a platform, the idea of the Ise Shrine was born. But it had a long way to go to maturity. The first personification was undoubtedly a stone.

To protect the stone personification, a house was erected on the platform. This house was a refine-

ment of the type of wood structure which the Japanese had developed to resist earthquakes—a prismatic pole structure surmounted and braced by an inclined roof-pole system. The whole was covered with leaves or thatch.

Gradually, it was not the artifact which came to represent the godly presence but the space or enclosure in which he lived. The Japanese became concerned not with isolating space but in marking it off—the sacred abode of the gods. In the West we were learning how to capture space, to set it aside from nature. We were learning how to pile stone on stone, to emphasize vertical mass with its emphasis on heaven and the beyond.

Japanese technology (and earthquakes) did not favor vertical emphasis, nor did the scattered sites of many "godly presences" allow for concentrated building groups. Holy places remained dispersed, wed to their natural settings and adorned with natural materials refined. However, vertical piling was not entirely absent.

Kenzo Tange feels that there are two dominant spirits in Japanese building: the Jomon and the Yayoi. The Jomon is the vital, active sense of Japanese architecture. The Yayoi is the more passive, esthetic strain. The Jomon is embodied in the vertical, the Yayoi in the horizontal.

The northern Japanese did, for a long time, see their active, nearly violent and primitive personifications in the vertical. The tree symbolized their spirit, thrusting dynamically between heaven and the nether world. The more passive matriarchal, horizontal, southern Japanese culture—and architecture—was to come into conflict with this.

The fusion of the two ideologies has its counterpart in the fusion of horizontal and vertical architectural forms. When that came, the Ise Shrines had found their form, and the religion its mature essence. The transition had started with stone, shifted to wood, translated to space, and space itself articulated by a combination of the active and the passive, the vital and the esthetic, the male and the female, by the very play of mass and space. All wisdom, all knowledge of nature, was comprehended in spiritual belief, accompanied by an architecture which expressed both the ideology and its evolution.

This also was expressed in elaborate Japanese mythology having to

Continued on page 98



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do with the role of the emperor as caretaker of the shrine, the stories of gods and goddesses in conflict, and legends of ascending and descending gods. It is perhaps because we westerners are so bound by the images of things that we have been so long in penetrating behind the images to the spirits—to the concepts and ideas about life and nature—which the images represent. Actually, the Japanese images, architecture and legends do not represent concepts and ideas as much as they evoke them.

Eastern music, art, poems and architecture evoke a sense, a spirit, an attitude about life. Our western counterparts seem more to proclaim such concepts or ideas. New concepts often have to supplant old ones by destroying the old. A new style, philosophy, art form, expression or political belief can scarcely exist for us unless we clear the air of immediate predecessors. When the influence of predecessors is harmless, we allow their recognition. We put the old symbols in a museum. One wonders if our overemphasis on representational objects, hard ideas, hard concepts is not the source, if not the nurse, of a deep pathological strain in our mentality.

The Japanese at Ise learned how to avoid this. They embodied not ideas but artifacts which evoked them. The ideas were the wisdom of nature and man, and that was permanent. The artifacts of evocation were evolved—and are and will ever be cyclically renewed. Each generation, acting every 20 years, has the responsibility to remind itself, to re-educate itself, in great truths so long ago uncovered.

The Western mind does well to ponder Ise.

PAUL D. SPREIREGEN, AIA

A Program for a Comprehensive Post-Elementary School Building in Israel. H. H. Waechter. State of Israel, Ministry of Housing, 1965. 57 leaves (reproduced from type-written copy). No price given

Waechter prepared this report for the Planning Department, Ministry of Housing, State of Israel, thus executing the first attempt at long-range planning for comprehensive schooling there. Its purpose is to serve as a critical study of secondary schools in Israel, as well as a guide in the design of comprehensive schools. While he puts much emphasis on flexibility, he does not promote the American loft plan.

The author, who is teaching city planning during the winter term at California State Polytechnic College, points out that the term "comprehensive education" is probably variously defined, but one of the basic requirements is that "academic and vocational programs are integrated and taught to all children of a community under 'one roof.'" He would make the school building a tool of learning itself—more than just housing for teaching. The author's specific recommendations for use of space in the various areas comprising the school make this report one of general interest to the school architect even though the study was undertaken for a specific situation.

Chemistry and Biology Laboratories. Werner Schramm. New York: Pergamon Press, 1965. 255 pp. \$17.50

This work, first published in Germany in 1957 and followed by an expanded edition in 1960, is now translated into English and further revised. It provides a useful guide for the planning of scientific laboratories, whether commercial or academic. Although the emphasis is upon German design, the scope of the work is international. Copiously illustrated, the book sets forth in thorough fashion the fundamental principles involved in design, construction and equipment.

Cities. *Scientific American.* New York: Knopf, 1965. 211 pp. \$4.95 hardbound, \$2.45 paperbound

This book first appeared in magazine form as the September 1965 issue of *Scientific American*, with illuminating illustrations. Unfortunately, the book form fails to furnish the same visual material, and, hence, does not make the impact of the magazine version. There are 12 chapters written by well-known urbanists, such as Kingsley Davis, Hans Blumenfeld, Charles Abrams, John Dyckman and Kevin Lynch.

The Architectural Expression of Methodism: The First Hundred Years. George W. Dolbey. London: Epworth, 1964. 195 pp. 35 shillings

This book is fascinating to an architect interested in religious architecture, especially when he is a Methodist. It describes the preaching houses of John Wesley's day from 1739 to his death in 1791, and the grand and glorious days of the English Methodist Church from then until 1840.

The early Methodist buildings were not meant to be churches but places for religious meetings. Wesley was ordained in the Church of England and went out to preach to the people to keep them active in their church life. The builders in the 18th century worked in the classic style of the countryside church popularized from the work of Christopher Wren.

These buildings have simplified Georgian details, later churches following the Adams brothers or Regency or Greek Revival details. Reviewing this, Dolbey says "the life and spirit of every age finds expression not only in its religion but also in its architecture—in every age ecclesiastical architecture has been distinctive, though not always distinctively good."

The fascination comes in the description of the buildings, more so because the 34 illustrations are on 24 pages following the text. (By 1784 there were over 350 chapels.) One wonders how steep and how many steps can be in a gallery on three or four sides of a meeting room 42x35 feet, seating a total of 260.

Wesley's eight rules sound like a recommendation for modern architecture, including plainness, neatness and local materials. He recommended 21x18-foot proportions, followed in many early chapels at double that size, and later meeting places being doubled again, e.g., 78x60 feet seating up to 1,500 (gallery four sides) with 12-foot narthex and stairs added in front and a small apse in the rear, which was curved or rectangular. The apses often contained the table and the communion rail with a two- or three-level pulpit in front. As these became more elaborate, the table was moved in front of the pulpit with an enclosed communion rail around three sides. An organ was placed in the niche on the gallery level with the choir between it and the pulpit.

It is interesting to note the comments made during the Gothic Revival which followed. "There is a peculiar drabness about them, a slackness in the proportions, a lack of vitality, as if their designers had driven themselves to a task for which they had no heart. As then, we are still saying, 'Architects too easily designed in any mode or style that happened to appeal to the ill-informed taste (or lack of it) of a new race of clients—a morbid antiquarianism was in the ascendant.'" H. WALTER DAMON, AIA

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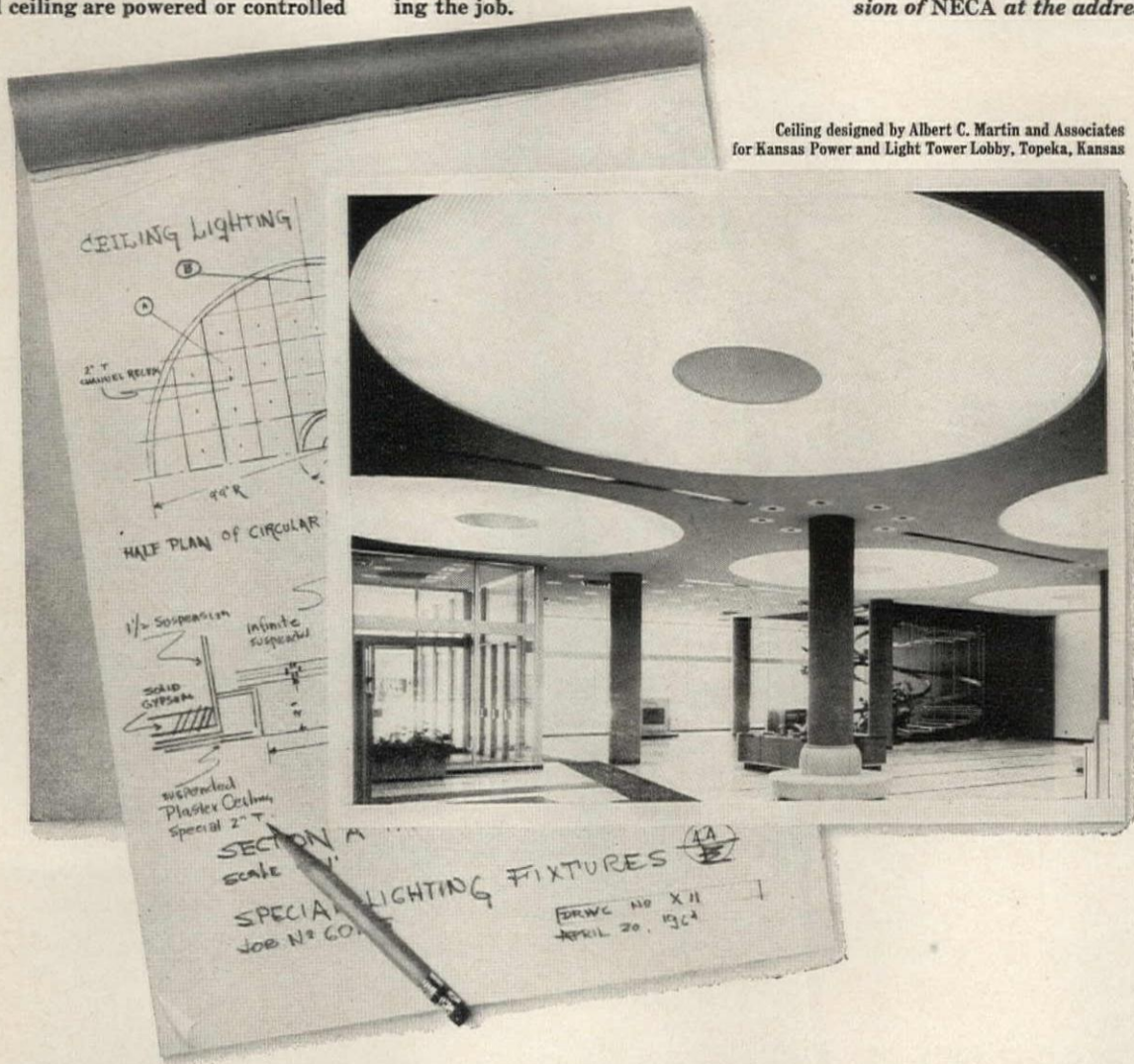
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April 24-29: National Association of Architectural Metal Manufacturers Annual Convention, Mark Hopkins Hotel, San Francisco

May 4-6: Consulting Engineers Council Annual Convention, Civic Center Assembly Hall, Tulsa, Okla.

May 8-12: ASLA Annual Meeting, Yosemite National Park, Calif.

May 15-21: Mid-Pacific Conference on Landscape Architecture, Hawaiian Islands

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June 11-18: Fifth Congress of the International Federation of the Prestressed Concrete Industry, Palais de Chaillot, Paris

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AIA Regional and State Conventions

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April 13-15: Gulf States Region, Hot Springs, Ark.

May 10-12: Wisconsin Chapter, Lake Lawn Lodge, Delavan

May 20-21: Tennessee Society of Architects, Claridge Hotel, Memphis

July 21-23: North Carolina Chapter, Grove Park Inn, Asheville

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March 9-10: Reynolds Memorial Award Jury

March 10: Octagon House

March 11: AIA-Construction Specifications Institute Liaison

March 12: Office Practice Seminar, Philadelphia

March 14: National Research (Division of Engineering & Industrial Research)

March 15-16: Library Awards

March 21-22: Council of Commissioners

April 3-6: Press & Buildings of Cities, Athens, Ga.

April 11-15: Jury of Fellows

April 14-16: Urban Design Workshop, Washington University, St. Louis

April 15: AIA-American Medical Association Joint Committee on Environmental Health

April 18: Executive Committee, Williamsburg Lodge, Williamsburg, Va.

April 19-21: Board of Directors, Williamsburg Lodge, Williamsburg, Va.

April 25-26: National Architectural Accrediting Board

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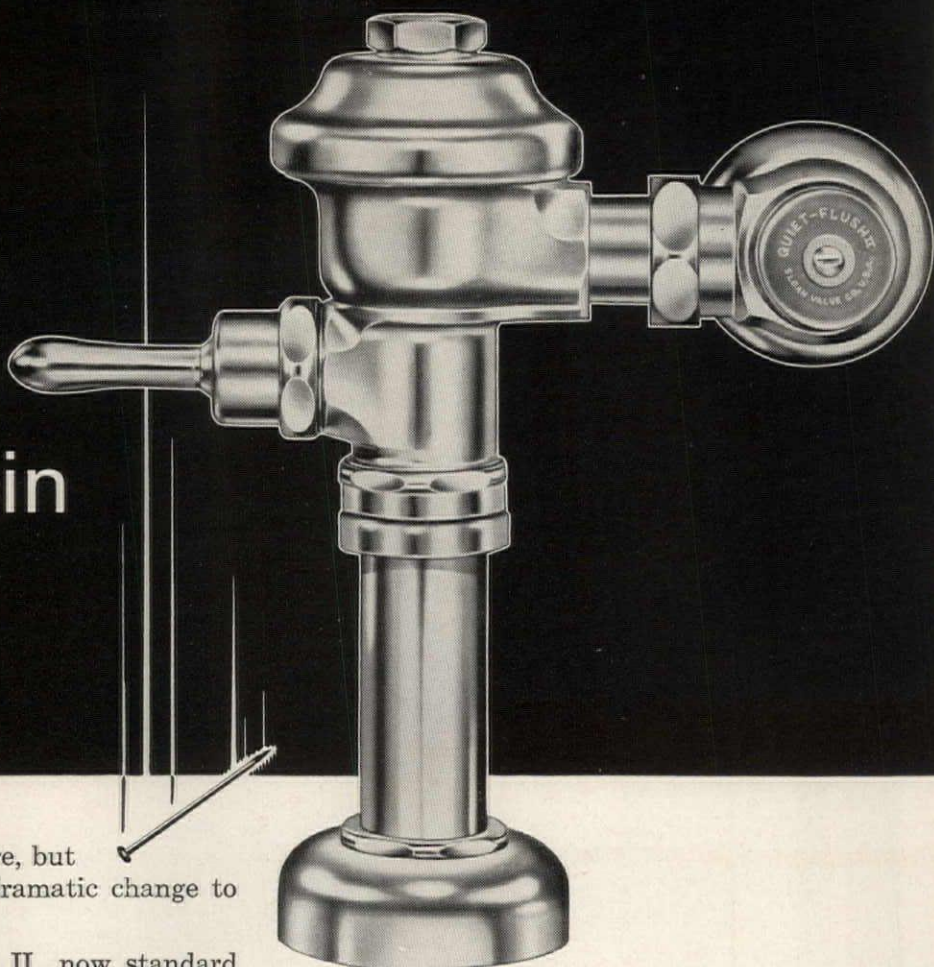
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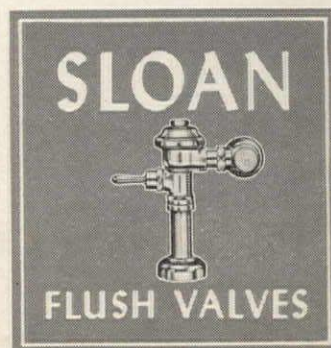
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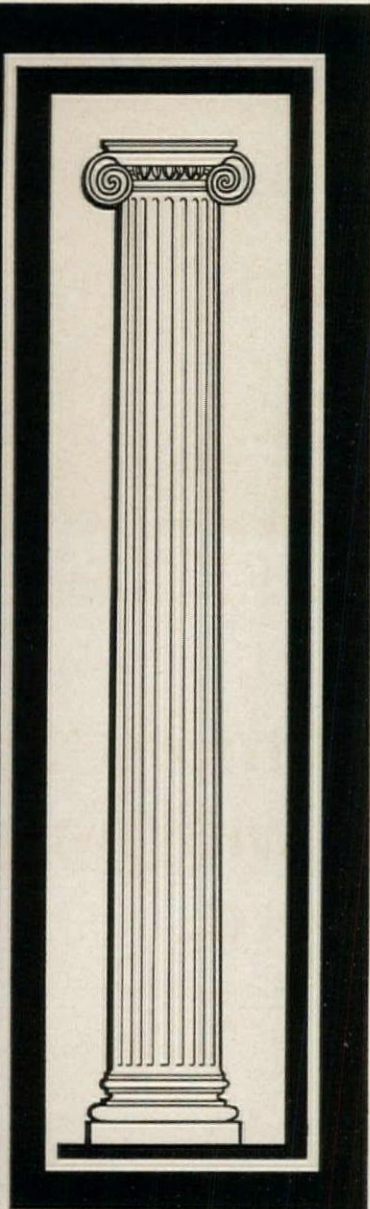
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LETTERS

Expressions on an Expressway

EDITOR:

In his article "Open Spaces in Urban Growth" in December, Sam Zisman has outlined with great clarity and conciseness the controversy over San Antonio's proposed North Expressway. The cupidity of the proponents of the expressway route through the city's major open space is truly astounding.

I would like 15 or 20 reprints of this article to send to members of the City Council, state officials and local newspapers.

WALTER R. BELL
San Antonio, Tex.

Comments on Corporate Building

EDITOR:

Having spent the past 30 years with two of the largest corporations in the world involved in facility design and construction, I found the companion articles, "How Architects Fare in Corporate Building" and "How Large Firms Construct Facilities" [Dec.] most interesting.

It is time the profession researched this phase of construction. I am sure it will find that corporations had to establish their own design departments for many reasons—the basic one, of course, being that the profession for some reason failed to give them the type of service they must demand in order to maintain their position in highly competitive enterprises.

I have worked with many of the outstanding architectural firms throughout the country and am familiar with their shortcomings. Last year I retained about 50 firms from coast to coast and expect to engage many more in 1966.

D. CARLTON BELL
Architect
Franklin, Mich.

Reflections on the Arch

EDITOR:

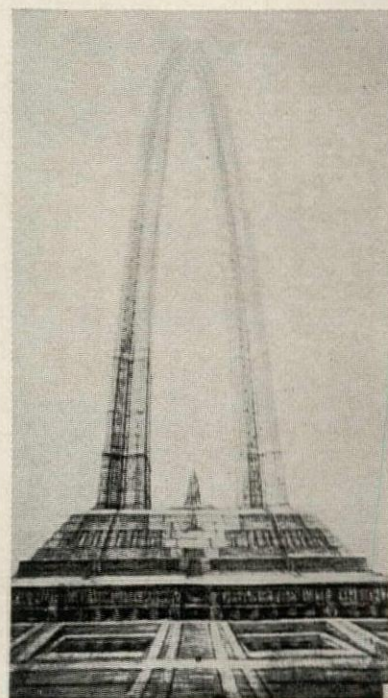
At the "Operation Grassroots" meeting in St. Louis, I visited the Gateway Arch, which is truly majestic and impressive, fully justifying Aline Saarinen's enthusiasm expressed in Newlines in the January issue.

Her description of other famous American monuments caused me to reflect on form givers of geometric shapes. "The Washington Monument, a vertical line," taking us back to the Egyptian obelisk. "The Lincoln Memorial, a cube," where

Henry Bacon lovingly developed the Greek Doric temple theme. "The Jefferson Memorial, a globe," John Russell Pope's elaboration of the Pantheon in Rome.

We do not know with any certainty the name of the architect who designed the first monolithic obelisk, the first cutstone Greek temple or the concrete hemisphere of Hadrian's dome.

Eero Saarinen skipped the Gothic arch, which was never built as a free-standing form, and turned to Bruno Ferrati of Milan, Italy, who had designed, but never built, an original form (see cut) he described as a "gigantic aureola, lyrical and audacious."



Ferrati's design was submitted to the Christopher Columbus Memorial Lighthouse Competition in 1929, with Eliel Saarinen as delegate of the jury for Europe. It was to have been built by "a modern means of construction unknown in times gone by."

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HARRISON GILL, AIA
Chattanooga, Tenn.

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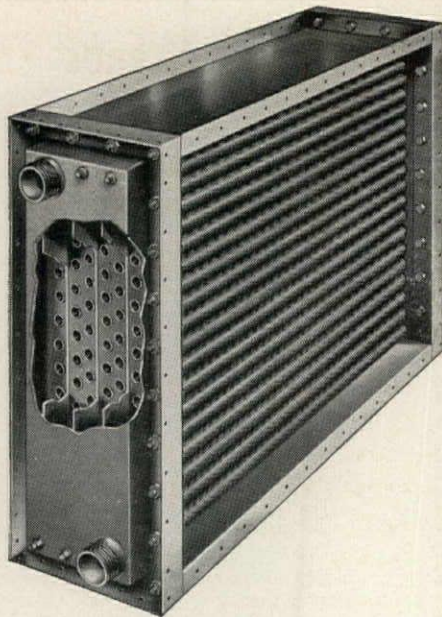
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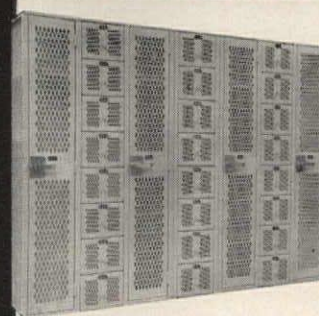
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