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EDITORIAL
P/A's new Editor surveys the direction of contemporary architecture and maps out the significant problems as he sees them.

COMMENTARY AND ANALYSIS
FORMS AS PROCESS: An in-depth study of "Field Theory," which is SOM/Chicago's planning analysis based on human functions. The process involves the fluid manipulation of geometric forms.

FIELD THEORY FILM ON LAB PLANNING: A film produced by the Chicago office of SOM was designed to introduce systems analysis and Field Theory as they can be applied to buildings and furniture.

FIELD THEORY USE TO DATE: Six buildings designed on the basis of Field Theory principles. SKIDMORE, OWINGS & MERRILL, ARCHITECTS.

CIRCLES ON SQUARES: Designing a two-telescope observatory, the architects varied a geometrical theme: Circular domed enclosures rest on tetrahedral framework atop a square base. SKIDMORE, OWINGS & MERRILL, ARCHITECTS.

LIBRARY FOR WELLS COLLEGE: A lattice pattern of rotated squares and octagons is the basis of the geometrical plan for a college library. SKIDMORE, OWINGS & MERRILL, ARCHITECTS.

GEOMETRIC PREFABBING: Three-dimensional polyhedrons composed of economical hexagonal panels characterize the work of an Israeli firm. NEUMA, HECKER & SHARON, ARCHITECTS.

DIGNITY IN HOUSING FOR THE ELDERLY: A 17-story apartment house provides dignified surroundings for its elderly tenants. Offsetting the massiveness of the board-formed concrete façade are gaily planted window boxes, and, inside, corridors broken by elbows and jogs as well as seating areas with views of Sound and town scape. KIRK, WALLACE & MCKINLEY, ARCHITECTS.

OPEN PAVILION ON VIRGIN LAND: In a rustic setting of open woodland, the architects designed a wood-frame house possessing varied rhythms in posts, mullions, and siding. SCHUBART & FRIEDMAN, ARCHITECTS.

FEEDBACK ON THREE SCHOOLS: What are the criteria for good school design? Examination of three different schools reveals successes and failures discovered with use, but no standard rules.
134 BUTLER COUNTY COMMUNITY JUNIOR COLLEGE: Unusual building forms act as an architectural “sign” to attract attention to this conservatively planned school, but the real success is its educational philosophy. SCHAEFER, SCHIRMER & ELIFFIN, ARCHITECTS.

138 HENDERSON HIGH SCHOOL: A school that was to be a completely flexible system of spaces did not achieve all its expectations, partly because of cost cutting when bids came in. WITTENBERG, DELONY & DAVIDSON, INC., ARCHITECTS.

142 PROSPECT VALLEY ELEMENTARY SCHOOL: One of the few schools built on a completely open plan is examined after more than a year of use. ROGERS, NAGEL, LANGHART, ARCHITECTS.

146 POST OFFICE STANDARD—WITH VARIATIONS: Exposed concrete construction, with infill of brown brick, at first appears typical of post offices everywhere, but the architects have varied column and window treatment so as to reverse the initial impression. DANIEL, MANN, JOHNSON & MENDENHALL, ARCHITECTS.

150 VACATION CAMP FOR THE BLIND: Designers show remarkable ingenuity in emphasizing senses other than vision in designing a vacation camp for the blind. SAMTON & ASSOCIATES, ARCHITECTS.

154 SPECIFICATIONS CLINIC
Harold Rosen explains how hardcoat anodized aluminum finishes are produced.

156 IT’S THE LAW
Bernard Tomson and Norman Coplan discuss a case in which an insurance company had to defend its client in a liability suit even though the liability fell outside the terms of the policy.

158 BOOK REVIEWS
A cross-section of significant new books.

6 VIEWS
Our readers’ comments on the architectural scene.

92 FRONTISPICE
Corner window tetrahedrons, Arts and Architecture Building, University of Illinois, Chicago, Ill. (p. 98). Photo: Orlando R. Cahanban.

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A monthly service to P/A readers who desire additional information on advertised products and those described in the News Report, who wish to order new books, or who want to enter their own subscription to P/A.

43 P/A NEWS REPORT


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Views

The Future of Architecture

Dear Editor: Perhaps my effort as a member of the P/A Design Awards jury (January 1969 P/A) may not be fully understood by your readers. For this reason, I offer the following observations:

The first award, with its disregard for sophistication of detail, with its misuse of materials, with its disregard for the individuals' varied demands of heating or cooling, and its orientation toward the multipurpose space, is a mandate to industry to take over our lives and reshape us without sympathy.

It is not just the fact that the professional field of architecture is relinquishing its leadership to the industrialist, but that man himself is abdicating from the society in which he has derived his cultures. He no longer looks for the touch of individualism. He wants to lose himself in the thin extrusions of a machine age whose directions and decisions are determined by a hierarchy of electron tubes.

What is the significance of this to us? It seems to me that the future of architecture will be affected by new methods of marketing and industrial processes, but it will include the social and political forces as well.

Man's romantic past, his concern for nature and art must be retained, his change for the future must come from yesterday's poet, today's challenger, tomorrow's problem solver.

However blurred man's values may be, the future is still his to hold. His individuality must not only be defended, but enhanced. He must be recognized within his own identity, and not that of the machine he invented and uses.

R. M. Gensert
Cleveland, Ohio

Design Awards Revisited

Dear Editor: Concerning "the most potentous of the projects that we finally selected" (January 1969 P/A), which demonstrated "the preservation of . . . buildings as the important decision," I am delighted that James Polshek's Albany Project has been recognized. I hope that it may be influential as a prototype, but for the record it might be noted that "the important decision" to preserve the facades of these buildings can better be attributed to active concern of the community than to enlightenment of client or architect.

Those who first worked to preserve the quality of this neighborhood were not, I fear, aware of "a coming of age of modern architects in terms of their leadership of responsible preservation efforts."

Although a few local architects did indicate some interest in "Saving Elk Street," and although the client and his architect did eventually recognize the contextual value of their several buildings, which are not distinguished in themselves, it may be more the sensitivity, taste, and leadership evidenced by the Albany Community that gave initial direction to this significant project.

Paul Malo
Assistant Professor
School of Architecture, Syracuse University
Syracuse, N.Y.

In the Bowels of America

Dear Editor: When I suggested that you "cut the Venturi -" (views, January 1969 P/A), I never thought you would print it.

Your editorial reply to a letter from planner Carl Lindbloom in the same issue, "Small-Timers Fight It Out," is excellent and underscores my reason for writing. Although unfortunately true, you should use it to remind planners and architects continually that, while they go on perpetuating the graphic arts, the lawyers and public administrators go on "doing" America — inheriting the earth. That is why Venturi's small-time buildings and rediscovery of "strip" development may provide him with his jollies, but they really are a waste of space in any architectural magazine.

Planning and architectural education is irrelevant; the professional stature of the AIA and AIP is nil and ludicrous; planners and architects are technicians, buried in the bowels of public agencies and that great America-building machine — corporate America. We are not credible because we neither know nor understand the forces creating the environment. And we are not political.

So much for architectural critics, Venturi, the Philadelphia-Kahn School, and spoofs.

R. Dean Meredith

A New Profession?

Dear Editor: Your excellent Editorial in the December 1968 P/A underlined problems in architectural schools that have developed due to an anachronistic professional approach to education. The revolution has started in our schools because students see an incredible waste of energies currently being expelled within the
The beauty of copper plus the strength of stainless steel — that's why the fascia of this new computer center campus in Whitpain, Pa., is TiGUARD copper-clad stainless steel. A composite of copper metalurgically bonded to both sides of a Type 409 stainless steel core, TiGUARD will not delaminate under severest forming conditions. It cuts, forms, and solders as easy as copper. It weathers like copper too. Within two weeks the TiGUARD fascia of the Whitpain campus acquired its dark brown patina that blends with the earth-tones of the brick. Unlike copper, TiGUARD has low thermal expansion . . . fewer expansion joints are needed . . . buckling is no problem.

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This exciting new landmark will soon be a part of the San Diego skyline. It's the Adams Avenue Overpass. Part of the Mission Valley freeway project. A monolithic reinforced concrete span that will reach out 268', rise 80' above the freeway floor, nestle beautifully on a ridge that can be seen for miles around. It's a curvilinear 3 span structure with inclined bents. Easy to look at. Economical to build. Virtually maintenance-free.

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Apartments:

Half longitudinal section: staggered trusses.

Cross section: (Note corridor space in center of truss.)
when steel goes up costs come down.

First cost is just one of the ways to save with steel. This 186-unit apartment building shows how imaginative design with steel brought a project in at $59,580 below budget.

The building is a low rent housing project for the elderly. Two 17-story towers flank a service core. Each apartment contains 455 sq. ft. The assignment was to design a building for pleasant living within a modest budget.

After evaluating several structural systems, the architects found their answer in a staggered steel truss system. This is the first use of the staggered truss system, which was developed at MIT in a research program sponsored by U. S. Steel.

Story-high trusses, spanning the building's 52'0" width, are set in a staggered pattern (see diagram). They are located within the separating walls of alternate apartment units. Precast concrete floors rest on the top chord of one truss and on the bottom chord of another truss. The floor slabs act as diaphragms together with the trusses to effectively resist wind loads.

Total steel requirement for the building was about 480 tons for an average weight of 6.8 lbs. per sq. ft. The A572 steels used in the welded trusses are USS Ex-Ten 50 and 60 High-Strength Low-Alloy Steels (50,000 and 60,000 psi min. yield points respectively). Construction cost, including mechanical and electrical bids, was $2,282,870. Sq. ft. cost: $16.31.

Structural Report
This is one of many ways to keep costs down with steel. Used imaginatively, steel usually wins out in first cost compared with other building materials. In the long run, there's no question. Only steel-framed buildings can be altered at low cost when it comes time for major remodeling.

If you're planning a new building, look into the staggered truss system. Get a copy of our "Structural Report," which details its use in this building, by contacting a USS Construction Marketing Representative through the nearest USS sales office. Or write U. S. Steel, P. O. Box 86 (USS 5796), Pittsburgh, Pennsylvania 15230. USS and Ex-Ten are registered trademarks.
Alcoa Building
Dear Editor: To complete fairly your description of the integration of structure into the architectural expression of the Alcoa Building (DECEMBER 1968 P/A), it is necessary to explain the structural meaning of discontinuing the seismic trusses above the plaza level. The seismic shear, which is close to its maximum at this point, must be taken into the foundations in one of two manners, which is not clear from the article: either by transmitting it through the floor slab to interior shear walls, or by transmitting it, and resulting large bending moments, through the columns. Either way, it would seem that architectural considerations have necessitated a compromise in the structural clarity and economy.

KENNETH KRUGER
Newark, N. J.

Vandals Play
Dear Editor: Buchanan School Play-ground (OCTOBER 1968 P/A). The story of the afternoon of October 6, 1968, Washington, D.C., as told by Ellen Montague, age 8:

"We were going to a new park on 13th and E Streets, S.E. When we got there, we saw that some teen-age Negro kids had sprayed water into a basketball court that went down, and they were throwing all the stuff they could get their hands on from a nearby building into it. We stayed there a little while and played."

"Then my father told Mommy we should go tell the police they were wrecking the playground. We went and we looked all over for a policeman, and finally Daddy saw one, but he was parked on a one-way street so Daddy had to turn around and come in the other side. Daddy told him that some teen-age Negro boys were wrecking a new playground. The policeman turned on the little radio in his car and told the police station to send another car to 13th and E Streets.

"Then we drove back to the playground. Finally, a police car came. Daddy told him all that happened, and it scared away the gang. Then another police car came—a Negro policeman—and he went over and asked some questions of some of the people there, and then they tried to turn off the water but the policeman couldn't find how to turn it off. A little Negro boy knew how to turn it off and turned it off. Then the policeman went away.

"Then we played at the playground a couple of minutes, and then we went home."

Unfortunately, the answers to slum problems are not as simple as Mr. Breines and others might have hoped. It certainly was a beautiful playground, but maybe it should have been located closer to the local housing and built by the local people.

HARRY MONTAGUE
Washington, D.C.

Report From a Truant Officer
Dear Editor: The distorted, kinetic light experience of the fragmented existing elements consummately calculated by using meticulously proportioned lines and spaces supergraphically illustrated in the OCTOBER 1968 P/A would make most people throw up, rather than kick a building. As a truant officer of some 30 years, I've often pondered the kind of environment which has, in recent years, spawned the S.D.S. and other anti-Establishment types. The October issue vividly and conclusively gave us a rat's eye view of what they crawl out of and flop back to. There was, as I recall, a conspicuous absence of toilet facilities or bathtubs. Was this intended? Are you hinting at something?

Let's have less of this superficial, tricky, repetitive and shallowly ornamental nonsense. When are you going to publish something on How to Flood New York? It needs it.

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MARCH 1969 P/A
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Keene imagination

Simon Fraser University Pool
Vancouver, B.C.

Architect: Duncan S. McNab and Associates
Vancouver, B.C.
If you've ever tried to make yourself heard around a huge indoor swimming pool, you'll appreciate Keene's solution to a tough acoustical problem at Simon Fraser University, Vancouver. The highly reflective surfaces make speech and hearing practically impossible. That's why those Keene Sonosorbers are hanging from the ceiling. More than 100% sound absorption is obtained from each square foot of their surface area.

Whatever acoustical problem comes up, chances are Keene has come up with the product to solve it. Sonosorbers are just part of the biggest specialty line in the business. The most versatile structural framing line in the business is Keene Speed-Steel™ chosen for the Atomic Energy Commission's Brookhaven Laboratory shown here. The only flat surface in the building is the floor, since all of the walls are sloping. In combination with precast concrete, Speed-Steel helped an imaginative concept take shape.

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For complete information on Keene acoustical products and a general catalog of Keene building products, write to Dept. P-3, Keene B-E-H, 500 Breunig Avenue, Trenton, New Jersey 08602.
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No exterior painting or scraping. Wood sill and jambs are covered with rigid vinyl.

Sash balances adjusted to each window. Like power steering they do most of the work.

Wide flange simplifies installation and provides excellent weatherseal.

Low profile sash lock pulls sash rails together snugly, flexible vinyl weatherstrip makes snug seal.

Clean, narrow profile lines give this window its name. No heavy, bulky look.

Inside wood surface of sash may be stained or painted to match any decor.

Snapout perma-fit grilles made out of rigid vinyl make window cleaning easier.

No storm windows needed with welded insulating glass. Two, not four glass surfaces to clean. Triple glazing is also available.

Sash slides smoothly against vinyl jamb liner... no sticking or binding.

Four step factory finish on exterior of sash won't need painting for at least 10 years.

Molded-on bead of rigid vinyl fits foam-lined groove in top and bottom sash for weathertight seal.

MARCH 1969 P/A
on-site painting with these Windows from Andersen.

Perma-Shield Narroline won't need painting for at least 10 years

Meet the only modern, traditional window. It incorporates the best of modern materials technology without sacrificing the traditional window form that's been popular since Paul Revere's day. Starting with the classic, double-hung form, Andersen has designed the most maintenance-free window possible at a reasonable cost.

All surfaces exposed to the weather, except the sash, have a core of warm, stable wood, and a surface of rigid, weatherproof vinyl about 30 mils thick. (That's not just a coating, but a vinyl sheath* about as thick as the cardboard backing on a writing tablet.)

The wood sash is protected by a 4-step factory-finishing process* that won't chip, crack or peel ... won't require painting for at least 10 years. On the interior, the wood may be finished to blend with any style of decor.

No exterior painting, no storm windows.

Welded, insulating glass is the most popular glazing option with Perma-Shield Narroline. And with it, owners can look forward to years of easy living—without the back breaking job of changing storm windows, without the usual painting or putting every 4 or 5 years.

Still, no real cost premium.

As we've said, Perma-Shield Narroline Windows require no exterior on-site finishing. Builders across the country now pay up to $10 per window for a professional painter to put the outside finish coats on an ordinary double-hung window. Add the clean-up costs to that, and you know why there's little, if any, additional cost to homebuyers for the low maintenance advantages of Andersen Perma-Shield Narroline.

Exposure tests prove superiority of sash finish. Both samples have been exposed to sun and weather the same length of time, yet look at how the conventional paint at left is cracking and flaking, while the Perma-Shield Narroline finish is still smooth. It still looks good. Still protects the wood.

In the next 5 to 10 years, exterior on-site finishing will become a thing of the past. Keep up with this trend to pre-finished, low-maintenance exteriors with Andersen Perma-Shield Narroline Windows.

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or surfaces. Available in a selection of baked enamel decorator colors. Chromalox Architectural Sill Line works with any air conditioning system to give year round individual room temperature control. Provides warm air "draft-barrier" protection against cold window downdrafts. For detailed information call your Chromalox representative. Or write directly for Design Manual F 31101. MARCH 1969 P/A
When the Port of San Francisco opens its new Army Street Terminal for business every morning, Cookson opens the doors. And closes them again at night.

155 Cookson power-operated steel rolling doors provide easy access to, and complete security for, the $25 million installation's 820,000 square feet of enclosed cargo handling and storage facilities.

And every one secured by a Cookson steel rolling door

On the basis of quality, operating ease, reliability and cost, the Port of San Francisco's choice of Cookson power-operated rolling steel doors was an open and shut case.

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Manufacturing and Research Facility for Teledyne Systems Company, Northridge, California

“This building successfully combines space and function in a cohesive complex. It provides a feeling of openness to the outside and relates nicely to its environment.”

Alcoa Building, San Francisco, California

“Here is a landmark structure which introduces a handsome bracing system to the San Francisco skyline. The structural system produces an interesting facade and provides stability against wind and earthquakes. It is ideal to this geographical location.”

C. Thurston Chase Learning Center of Eaglebrook School, Deerfield, Massachusetts

“Steel and masonry are used well together to create a warm environment for learning that maintains the human scale and avoids an institutional feeling.”

Ford Automotive Safety Center, Dearborn, Michigan

“The architect effectively used counterpoint to combine the strong discipline of this building with the soft form of a serpentine brick wall which pleasantly extends the building into the landscape. The use of materials is very skillful and very simple. The result is truly twentieth century.”
Architectural Awards of Excellence—1968
American Institute of Steel Construction

Superior Oil Company Geophysical Laboratory, Houston, Texas

"Precise, sophisticated details make this an outstanding example of architecturally exposed steel. The fascia is beautifully executed and the building will become increasingly striking as the weathering steel takes on its final color."

Jury of Awards:

Harry C. Adley, AIP, President, Adley Associates, Inc., Urban Planners, Atlanta
Sam T. Hurst, FAIA, Dean, School of Architecture and Fine Arts, University of Southern California, Los Angeles

H. Samuel Krusé, FAIA, Director, AIA Florida Region, Watson, Deutschmann & Krusé, Architects and Engineers, Miami
Fred N. Severud, F. ASCE, Partner, Severud-Perrone-Sturm-Conlin-Bandel, Consulting Engineers, New York
Wayne R. Winsor, AIA, President, Ellerbe Architects, St. Paul

C. Thurston Chase
Learning Center of Eaglebrook School

Manufacturing and Research Facility for Teledyne Systems Company

Ford Automotive Safety Center

Alcoa Building

Superior Oil Company Geophysical Laboratory

Structural steel for all of these award winning structures was furnished by Bethlehem.
A graphic reference of current urban design standards

Planning Design Criteria

By Joseph DeChiara and Lee Koppelman

In cooperation with the School of Architecture—Pratt Institute

395 pages
9 x 12
$25.00

A professional’s comment about PLANNING DESIGN CRITERIA:

“This volume may be characterized as being unique literature because it presents maximum useful information with concise graphic explanation. In short, this book will be warmly welcomed by all interested professionals and students who seek to make our environment a more functional and more attractive place to live.”

from the foreword by Olindo Grossi
Dean, School of Architecture Pratt Institute

A graphic reference of current urban design standards

The complexity of contemporary society makes great demands on urban design and planning. In the past several decades practical experience in the field has produced a substantial body of information which is important to our methodology of resolving urban problems. However, until now there has been no summary of this basic reference material needed by the planner and urban designer.

Useful to many professionals

Comprehensive in scope, PLANNING DESIGN CRITERIA is invaluable to professionals in public planning agencies, park departments, housing agencies, and traffic departments. It is also an excellent guide for architects, site engineers, builders, and land developers. The result of extensive research, this volume represents a carefully balanced selection from the vast wealth of available data related to current practices. At the same time it compiles in handy reference format the most appropriate standards that have emerged in the field to date.

Presents essential data and standards

The book gathers into one source a wide variety of practical data and established standards essential to everyone interested in the physical aspects of current urbanization. Divided into nineteen sections, it covers a particular area of interest in each, ranging from neighborhood unit and new town concepts through industrial development and economic base to special government programs.

Van Nostrand Reinhold Company
120 Alexander Street
Princeton, New Jersey 08540
still intact. Last year's deficit reportedly reached $5 million, as bad weather kept attendance well below hoped-for levels.

What will become of the pavilions is a question no one seems willing to answer at this point. But it seems unlikely that the city alone, without financial help from the provincial or federal governments, can keep this white elephant around as a curiosity piece.

**HARLEM ON WHOSE MIND?**

NEW YORK, N.Y. One of the most eagerly awaited exhibitions of the 1968-1969 New York season has been the Metropolitan Museum of Art's major show, "Harlem On My Mind: The Cultural Capital of Black America, 1900-1968." It was expected that under the imaginative and energetic leadership of Met Director Thomas P.F. Hoving and the creative control of Alton Schoener, Visual Arts Director of the New York State Council on the Arts, the Harlem show would be a stirring evocation of life and death in the black ghetto. Unfortunately, what was unveiled at the Met was a polite gallery of Harlem history with commentary and music spotted along in the background.

Predictably, some of the more militant elements in the black community called for a boycott of the exhibition because of alleged white control of the selection of the material and design of the installation. To us, it seems that those concerned with this show are guilty of a more serious fault: the failure to create— with one of the most powerful subjects and some of the strongest resources available just a few blocks from the museum—environments that would truly cause the viewer to share some of the Harlem experience. Instead of the genteel translation of book techniques (pictures and text) to walls and partitions, how much more compelling would have been the recreation of actual ghetto conditions—littered vacant lots, storefront churches, crowded tenement stoops, dismal two- and three-family flats— in the pristine atmosphere of the Metropolitan galleries. Instead of slides and voices and music, how much more power there would have been in the actual sounds of the street piped in day by day; the smells of a rancid tenement hall; the texture of filth and raw brick; the fright of the rat seen out of the corner of the eye. This is Harlem life, not the polite, cosmetic version created by the Metropolitan. It is pitiful that in a time when there is so much emphasis on individual and group involvements with urban situations, both actual and "artistic," that a major cultural repository has failed to answer a prime social and environmental challenge. —JTB

**BUTTON-DOWN CURTAIN WALL**

BALTIMORE, MD. A sheer, six-sided, 23-story office tower, sheathed in glass, won an architectural competition here. Designed by the Baltimore firm of Rogers, Taliaferro, Kotritsky, Lamb, the $10-million building will rise in Charles Center, Baltimore's 33-acre urban renewal project. Designer George E. Kotritsky plans to encase the building, which rises from a three-story granite base, in solar gray laminated glass, fastened to interior steel plates (invisible from the outside) by rows of faceted stainless-steel buttons; these will relate to details in a nearby building. Both the rows of buttons and the building's irregular shape will contribute to what one jury member called its elegance. According to one spokesman, "The building form and its plaza have been developed to respond to the circulation flows of the existing public spaces in Charles Center and the new Inner Harbor ferry terminal."

Acting as jury for the competition was the Architectural Review Board: Pietro Belluschi, G. Holmes Perkins, dean of the Graduate School of Fine Arts at the University of Pennsylvania; and David A. Wallace, professor of city planning at the University of Pennsylvania and partner in the architectural and planning firm Wallace, McHarg, Robert & Todd.

**COLUMBIA CONTINUES ITS BUILDING BOOM**

NEW YORK, N.Y. When, a few months ago, Columbia University announced the retention of I.M. Pei & Partners to prepare a master plan for all future development of the university, it was already aware that some sorely needed facilities would have to be built before the plan was complete. Now, the university has announced that Gordon Bunshaft and William S. Brown of Skidmore, Owings & Merrill have been commissioned to design a complex of buildings for the sciences. SOM will work closely with Pei's office to coordinate the new structures with plans for long-range future development.

Construction of the new science buildings will be confined to an area east of Broadway and south of 120th Street, within the present boundaries of Columbia's campus. Announcing SOM's commission, Andrew Cor- dier, acting president of Co-
What does real Marlite look like?
Any kind of paneling your client wants.

One brand of wall paneling gives you more than 70 ways to be creative. It's real honest-to-goodness Marlite. This modern idea-paneling can be almost anything your good taste recommends. Deep or pastel colors. Deep-embossed textures. Authentic woodgrains or tasteful decorator patterns. In fact, most people don't know real Marlite when they see it.

But, in one way, all Marlite is exactly alike. Every panel has a baked-on finish of impervious plastic that seals out grease and stains, guards against hard knocks.

So, Marlite makes sense for walls in heavy traffic areas. And for clients who are maintenance-minded, this prefinished hardboard paneling wipes clean with a damp cloth.

See what's new from Marlite in Sweet's File, or write for samples and literature to Marlite Division of Masonite Corporation, Dept. 314, Dover, Ohio 44622.

On Readers' Service Card, Circle No. 351
lumbia, was careful to empha-
size the university's new poli-
cy of intensive use of land it
now owns, to avoid disruption
of the surrounding communi-
ty.

Although no details of the plan
have been announced, Cordier indicated that the
first structure to rise will
house research and teaching
facilities for Columbia's rap-
idly expanding biological sci-
ence programs.

ENVIRONMENTAL ACTION GROUP

An organization that will con-
cern itself with wide-ranging
projects of environmental
planning has been formed
with headquarters in Wash-
ington, D.C. Its name is The
Overview Group and it is
headed by former Secretary of
the Interior Stewart L.
Udall as Chairman of the
Board; landscape architect
and planner Lawrence Hal-
prin as Chairman of the Ex-
cutive Committee; and Hen-
ry L. Kimelman, formerly
Assistant to the Secretary of
the Interior and Commission-
er of the U. S. Virgin Islands,
as President and Treasurer.
The Group will also include
Henry S. Bloomgarden, for-
mer Special Assistant to Sec-
retary Udall, as Vice-Presi-
dent, and Mrs. Sharon F.
Francis, who was Mrs. John-
son's Assistant for Beautifica-
tion and Conservation, as Sec-
retary. The affiliation of more
Overview members will be
announced in the near future.

At an introductory press
conference last month, Udall,
Halprin, and Kimelman de-
scribed the new venture as
one that will take an over-all,
interdisciplinary approach to
the solution of problems of
life in both urban and non-
urban places. Noting the pres-
ent, fragmented attitude in
dealing with design and con-
trol of the environment, Udall stated that Overview
will strive for an integrated
means of involving all appro-
priate professions in the de-
sign and planning of regional
and nationwide systems. As
backup for the main Over-
view staff, a group of more
than 25 Principal Advisors
will be associated for the
study and implementation of
various projects. Presently in
formation, the advisory group

ARCHITECT CARL KOCH, principal
in the Boston firm of
Carl Koch & Associates, will
receive the Industrial Arts
Medal when the AIA con-
venes for its Annual Conven-
tion next June. Koch was cited
for his efforts to "incorporate
prefabricated building mate-
rials into his designs with
variety and imagination."

In awarding the 1969 Cita-
tion of an Organization to the
New York State University
Construction Fund, the AIA
said that the Fund "had judi-
ciously selected from the fin-
est architectural talent in the
United States the architects to
develop the campuses of the
State University of New York.
In its quest for excellence, it
did not limit itself only to archi-
tects from the State of New York.
This procedure has produced a
distinctive and consistent high
growth, throughout the en-
tire system."

Although no details of the
conference last month, Udall,
revised the new venture as
one that will take an over-all,

This year's recipient of the
Architectural Critic's Medal
is Ada Louise Huxtable (see
photo), architecture critic of
The New York Times and
former contributing editor of
P/A. The award is given each
year in recognition of a dis-
tinguished career devoted to
architectural criticism.

Winners of additional med-
als are: Jones & Emmons, Los
Angeles, Calif., The Architec-
tural Firm Award; Jacques
Lipchitz, Fine Arts Medal;
Philip J. Mead, formerl y of
Meade, Kessler & Associates
and now of Smith, Hinckman
& Grylls, The Edward C.
Kemper Award; Julius Shul-
man, The Architectural Pho-
tography Medal; Henry Eas-
terwood, The Craftsmanship
Medal; John Skilling, of Skill-
ing Helle Christiansen Rob-
ertson, Engineers, The Allied
Professions Medal.

AIA NAMES '69 MEDALISTS
WASHINGTON, D.C. Early last
month, the AIA announced
winners of 1969 medals in
special categories.
ALLEY OPENS ON THE PLAZA

HOUSTON, TEX. The Alley Theater has grown from humble childhood to grandiose maturity. Architect Ulrich Franzen’s recently opened theatre (see p. 49, September 1965 P/A) for producer-director Nina Vance completes a third wall on Houston’s new Civic Center Plaza — a sloping park with an underground garage, flanked on one side by a colonnaded convention hall and on the other by Caudill Rowlett Scott’s colonnaded Jesse Jones Hall. The Alley Theatre is sited, imperfectly, on the downhill side of the quadrangle, rather than on the western crown, which may one day have a taller block that will shield the sun, as the lower theatre will not do.

The building’s exterior is a robust, turreted sculpture of concave and convex walls, segmental terraces, and staggered voids that has the air of a fantasy castle in sandblasted concrete. It appropriately sets the stage for theatre. Fulfilling architect Franzen’s hope, the building does indeed “release feelings” of visitors. As a romantic fortress, it is also the most imposing, handsome, and architecturally acceptable of all the major regional theatres built in the last decade.

Inside, the lobby ticket office has battered walls that carry forward the bastion-like image of the exterior. Up from that level, a staircase carries the juxtaposed curves of red-orange carpet, white plaster, and laminated oak sculpted handrail up to a platform, intended for a sculpture, and to the upper lobby level. At present, instead of the sculpture, the Alley can afford only a grand piano, which is used for cocktail-like music before performances begin.

The auditorium itself (see p. 172-73, October 1965 P/A), holding 798 seats, is fan-shaped, not quite semicircular, with bold caliper stages raked from the audience rear wall to the open-thrust stage; it has deep gray walls, continuous orange carpet, and antique copper plush upholstery (which does not work so well with the carpet as the oak handrails do in the lobby). It is an immediately appealing space. Its open stage, with 17 entrances, is flanked by boxlike, door-height side stages, entered from the wings and from the calipers, and they add considerable flexibility to the staging. These permanent side structures may prove too strong, too personal, to be desirable for every production; ultimately, more physically alterable units may be desired to give the hall more anonymity. Sliding panels that run on tracks overhead in the grid (which covers the open stage 20’ above it), backstage close-off panels, traps, two stage elevators, a steel mesh walkway over the grid through which lighting can be projected without shadows, and an analogue light control system (not yet completely installed) are the contributions of George Izenour in consultation with Nina Vance and the architect.

The acoustics, by Bolt, Berman & Newman, are excellent. Back in the lobby at intermission time, during the opening night performance of Bertolt Brecht’s impressive drama Galileo, the Texas company never stopped moving: Instead of permitting audience conversation to rise, a trumpet voluntary is broadcast over the amplification system for a procession of several resplendent banners by artist Robert Indiana in red, orange, and yellow. At the play’s end, departure is slowed by the long, winding staircase that is the principally remembered entry, and by the usual jam at elevators.

A small, 298-seat arena stage downstairs in the building handsomely recreates the stage of the company’s former home, and displays an exemplary grid for a theatre-in-the-round. Backstage and administrative facilities are bright, spacious, and appealing.

Houston can be proud. The new Alley Theatre is a handsome urban addition, a pride of “regional” (non-New York) theatre, and a paradigm of good theatre design. Nina Vance and Ulrich Franzen can also be proud. — CRS

PROTECTING THE AGED

DUSSELDORF-GARTH, WEST GERMANY. If medieval fortresses had had picture windows, they might have looked something like this. One can even envision Rapunzel letting down her hair from one of those balconies. This particular fortress is a home for the aged, accommodating 105 persons in single rooms and in suites with kitchens, and, in some cases, small gardens. The slablike, sharp-edged surfaces of the raised chapel (left in photo), with the vertical lines of the board forms left in the concrete, contrast sharply with the horizontal lines of the brickwork and with the curved towers and stairwells. Concrete balconies balance and reiterate the texture of the chapel. Architect of the structure is Professor Bohn of Cologne.
EXOTIC PLAN FOR A PERSIAN ISLE

TEHRAN, IRAN. William Wesley Peters, chief architect of Taliesin Associated Architects, flew to Iran's capital early last month to sign a contract with the Imperial Government for development of a master plan for the Island of Minoo.

The present project involves an island in that part of the Euphrates River which runs into Iran at the top of the Persian Gulf, near the oil city of Abadan. Minoo is within a 60-mile radius of the historic sites of Shiraz, Persepolis, and Isfahan in Iran, and the remains of ancient Sumeria, Babylon, Ur, and Ctesiphon in Iraq. Development of the island will probably consist primarily of luxury resort facilities designed to attract vacationers from the Middle East and Europe who presently spend their leisure time (and money) in European or Mediterranean resorts.

Because of the extremes of climate of Minoo — the heat and humidity — the architects propose a series of enclosed, air-conditioned megastructures, each in turn consisting of a group of buildings. The megastructures themselves would be connected by straight or spiral ramps. Beneath the ramps, space would be available for various building purposes, such as stores, restaurants, and parking. The exotic names of "Ramp of Shapur" and "Ramp of Adashir" are suggested for the two major spiral ramps, which will serve as highways.

In the northern portion of the island, and bounded by the river and three ramps, the planners propose construction of the "Court of Rustam," where a great sports arena with a translucent roof would contain tracks and playing fields for all types of sports and athletics, including horse and camel racing. (The name is a literary allusion to the ancient epic in which a father and son, representing two opposing armies, fight to the death in single combat.)

Southern and western shores of the island would be developed for residential use, providing single, group, or apartment facilities. Design of the dwellings would be leased on a variation of the ancient garden court plan of Persian villages.

The easternmost portion of the island, landscaped as a great terraced plaza, would hold additional apartments and hotels, as well as casinos, nightclubs, restaurants, and swimming pools. This area is designated "The Plaza of Khayam."

For transients, the centrally located resort area and hotel-motel complex could offer lodgings to 3000 guests. It is conceived as a series of terraced rooms opening outward toward views of the river, and inward toward a central garden court.

Additional facilities will include libraries, schools, chapels, mosques, a zoological garden, and an amusement park ("The Garden of Scheharazade"). In addition, there would be a number of buildings for the performing arts, such as music, theater, and the dance. And the crown of cultural development on the Island of Minoo will doubtless be the proposed university, The International University for the Promotion of Peace.

The proposed developments are expected to cost the Ministry of the Interior approximately $18,450,000 over the next three years, and, if all recommendations are followed, a total of $977 million over more than 15 years.

IN CASE OF CONFRONTATION, HIDE HERE

WALTHAM, MASS. Renderings of Brandeis University's new Usdan student union show a structure that is fortress-like in both form and plan. Deeply recessed windows with jamb slanted at a 45° angle emphasize the somewhat forbidding forms of the face-brick façades and create notches that lend the entire building something of the flavor and fascination of a medieval castle.

Once a visitor has located the wide-angled entranceway, passed under an elevated corridor, and arrived at an inner open courtyard — an adventure that may call to mind Jonah’s experience with the whale — the atmosphere becomes somewhat more inviting, although the building's forms are no less complex from an "interior" vantage point. Access to the various parts of the structure is through doors opening onto the court, whose walls are almost fully glazed. Inside, four distinct areas with their connecting elements serve to zone different types of activities. Each area has its own stair and elevator tower; from the outside, these elements are reminiscent of watchtowers. Within the five activity areas, labeled Academic Administration, Central Facilities, Student Activities,
Student Organizations, and Social Recreation, there will be space for an FM radio station, library, mail room, lounges, billiard tables, a bookstore, bowling alley, and photo labs. The cafeteria will accommodate 390 students; a combination ballroom and banquet hall will seat approximately 680.

Like some other structures of recent vintage (the Boston City Hall, for example), the Usdan Student Union is intended as a center of activity for the entire surrounding community, a center that blends in scale and form with its physical surroundings. Yet it looks like nothing so much as a fortress, very much on the defensive.

We worry about the fate of those who will occupy the offices of academic administration in the building, should a “confrontation” between students and administration occur on campus. We picture the battle of the courtyard, and then, when the vastly outnumbered administrators have been driven from the fort, students stalking the battlements and manning the watchtowers. If they succeed in taking this building, they will be in a very secure position.

Construction of the Usdan Student Union was begun on October 1 of last year and should be completed by the summer of 1970. The structure was designed by Hugh Stubbins & Associates and is expected to cost $4,100,000.

Winner of the competition is a Viennese architect, Wilhelm Holzbauer, who, in his choice of a brown brick for the façade, has tried to make the structure sympathetic to the architecture of Amsterdam. Unfortunately, it is not enough. Holzbauer’s structure, taken by itself, is indeed handsome, attractive enough so that people might say, “Let’s meet at the City Hall.” Unfortunately, it cannot stand alone.

The building will have several galleries with staircases winding through them. And it will have benches so that people will come inside and linger. “Everything” he expains, “will be in the colors of Rembrandt, in the colors of the real Amsterdam. A person cannot live without romance.”

Holzbauer’s design was chosen from among 803 entries in the international competition by a jury of five architects: Sir Robert H. Matthew of England; Professor J. Schader of Switzerland; and F.J. van Gool, H.A. Masskant and P. Zanstra of the Netherlands. Their nonvoting adviser was C. Nielsen, the Amsterdam city architect.

Already, even before the city council has voted on what will become of the plan, the Amsterdam press has begun to question the wisdom of such a competition, one in which all the finalists showed plans for large, low buildings that monopolize the site.

According to one writer, “A disadvantage of an open competition is that the participants are not as well acquainted with the city building situation when a plan must be projected as in a situation where a commission would be awarded to develop a plan.” Especially in Amsterdam, where for centuries, the architecture has been systematically planned according to a certain style, it is difficult in the center of the inner city to develop a plan for a large building that will fit in naturally with its surroundings.

The jury has not yet issued its report. It will be available at the end of March, and perhaps it will at least clarify the reasoning behind its decision.
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March 1969

On Readers’ Service Card, Circle No. 373

P/A News Report 49
IOWA CHAPTER HONORS ANNOUNCED

DES MOINES, IOWA. The Iowa Chapter, AIA, presented design awards to seven firms at its annual meeting, held late in January at the Des Moines Art Center.

Crites & McConnell of Cedar Rapids led the list of winners with eight awards: three Medal Awards for its design of the Farmers State Bank of Marion (1), the Ferris Residence in Cedar Rapids, and the Oehmke Residence (2) in Iowa City; two Honor Awards for the Knock Residence in Creston and the Unitarian-Universalist Meeting Hall in Cedar Falls; and three Merit Awards for the Schuster Residence in Ames, the Birch Residence in Iowa City, and the Men's Residence Group at Iowa State University at Ames.

Other winners of Medal Awards were: Maiwurm-Wiegman of Fort Dodge, for the Okoboji Presbyterian Camp Building (3) in Okoboji; Charles Herbert & Associates, Inc., of Des Moines, for the Brenton Student Center (4) at Simpson College in Indianola; Thorson-Brom-Brosher-Snyder Associates, Inc., of Waterloo, for the Pilgrim Lutheran Church (5) of Waterloo.

Honor Awards went to: Maiwurm-Wiegman for a Kindergarten and Primary School in Clare; Professor Ray Reed, Head, Department of Architecture, Iowa State University, for his residence in Ames; John Stephens Rice of Des Moines, for the National Bank of Des Moines.

Winners of additional Merit Awards were: Charles Herbert & Associates, Inc., for the Black Oak Office Building, Des Moines; and Brown-Healey-Bock of Cedar Rapids, for the Coe College Union in Cedar Rapids.

YALE DISSECTS VEGAS

NEW HAVEN, CONN. The letters "LLV" hung in red neon just inside the exhibition space of Yale's A&A building. It signaled Robert Venturi's and Denise Scott-Brown's (Mrs. Venturi) student presentation of a research and urban planning problem called "Learning from Las Vegas." Charts, maps, diagrams, and photographs hung on every wall; from the ceiling, boomerang-shaped maps hung guillotine-like, expressing the configuration of Las Vegas' Route 91 — "the archetype of the commercial strip." All was reflected in the silver vinyl of Project Argus (p. 152, OCTOBER 1968 P/A), which still sprawls diagonally across the space. Attending the presentation, together with students and faculty of Yale's Department of Architecture, was a star-studded list of guests chosen from among those interested in Pop Architecture With and Without Pop Architects: present, of course, were the Venturis, Charles Moore, and Vincent Scully; also Donlyn Lyndon, Alan Lapidus, Kevin Roche, pop pundit Tom Wolfe (Tom Wolfe?), publisher George Braziller, P/A's C. Ray Smith and other critics from art and architecture circles. An elaborate presentation of great variety filled the entire day — 10 A.M. to 10 P.M. on January 10.

Denise Scott-Brown maneuvered the students and guests from corner to corner in and out through Project Argus, changing location for each topic of the presentation. The show presented the study of what Robert Venturi called "a new kind of urban environment that simply sprawls from the social and commercial needs of contemporary life." One study, "Activity Patterns," used color-coded
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maps to spot the locations of gambling casinos, wedding chapels, and food stores; another research project, "User Behavior," dealt with the iconography of parking lots, "vehicular behavior," and the inadequacy of directional signs in leading motorists into the desired driving patterns. Others, such as "Communication Systems" and "Anatomy of Signs," dealt with the scale, visibility, and construction of Vegas' flashing, bubbling neon supersigns. There were beautifully drawn and presented diagrams and maps. One observer called it a Beaux Arts presentation of the most meticulous character, and it did seem, in fact, as if measured drawings of outhouses were being presented.

There were also some spectacular slide shows and films, including one three-screen film of the Las Vegas strip as viewed from a car while driving up and down the strip by day and then by night; another film was taken while flying over the casinos—with their joyously beautiful signs—by day and by night.

Both Bob and Denise Venturi confessed that they did not yet know what material of value had been learned from the investigation, which had taken the form of three weeks' library study, four days in Los Angeles, and ten days research on the spot in Las Vegas. The researchers then spent 15 weeks analyzing and presenting their findings. But one thing was apparent: the investigation had opened everyone's eyes to a strong, vital, if unpopular, environment spawned by our society; and, until recently, largely ignored. It was also, according to Venturi, a step forward, in the way of "getting some imagery and inspiration from commercial architecture as early modern architects looked to industrial architecture for inspiration." And it also very evidently made an innovative contribution to architectural education, as the Venturis pointed out, "in that it attempts, through adapting the format of the city planning or urban design studio, to improve the intellectual level of studio education, while maintaining the synthetic and learning-by-doing tradition of the architectural studio. It is a technical studio tuned to the development of new professional skills relevant to new needs."—cbs

DESIGN IN STEEL

NEW YORK, N.Y. Early this month, the 1968-69 Design in Steel Award Program came to a close as the American Iron and Steel Institute announced winners in 17 categories and subcategories. The following awards and citations were presented in A-E categories. Best Design in Residential Constructions: Louis Skoler, Architect, Syracuse, N.Y., received an award for his private vacation house design (1). Henry T. Elden of Henry T. Elden & Associates of Charleston, W. Va., received a citation for excellence in this category for his design of a steel-framed residence. No award was given for Best Engineering in Residential Construction; John A. Taras of Pacific Grove, Calif., received a citation for engineering of a private residence. For Best Design in Low-Rise Commercial, Industrial, or Institutional Construction was made to Mike Barrett, Charles D. Keyes, and William B. O'Neil of Ketchum-Konkel-Barrett-Nickel-Austin, Denver, Colo., for their Denver Convention Center Exhibition Hall (3). The one citation in this category went to J. E. Sirrine Company, Greenville, S.C., for the Clemson University Littlejohn Coliseum. Skidmore, Owings & Merrill of San Francisco won the sole award in the category of High-Rise Commercial, Industrial, or Institutional Construction with their design of the Alcoa Building (4). A welded space frame for a mine hoist designed by Leo Borasie, SVS/BA, Rohn, and Chester C. Janeicwicz, of the Stearns-Roger Corp., was named winner of the award.
for Best Engineering in High-Rise Commercial, Industrial, or Institutional Construction.

Cited for excellence were: R.S. Fling, J.E. Sadler, and P. Mannik, of Fling & Eeman, Inc., Columbus, Ohio, for their steel dome roof of the Convocation Center, Ohio University. In the new category of Art in Steel, best work was adjudged to be the sculpture "Fallen Sky" (5) by Beverly Pepper of New York. The three works cited for excellence in that category were: the sculpture "Tropic" at the U.S. Pavilion at HemisFair 68, San Antonio, Tex., by Alexander Liberman; the sculpture "Steel Mace" by Charles O. Perry; the sculpture "O, cee" by Antoni H. Milkowski, and a Welded Painted Steel Sculpture by Forrest Myers.

WASHINGTON/ FINANCIAL NEWS

by E. E. HAI MOS, JR.

**What the Budget Holds for Architecture — Because of the foregone conclusion that it would be changed as much and as soon as possible by the Nixon Administration, the usual searching examination of the final budget message delivered by President Johnson was by-passed by much of the Washington press corps. President Nixon will of course do what he can to pare down the $195,300,000,000 spending program Johnson outlined, both to make good on some campaign oratory, and, more important, to make some room for his own programs.

Nevertheless, the final Johnson document may prove a good general guidepost, since the majority of the figures it was planned to fund are dictated by law, and are not subject to much Presidential discretion. Where any real cutting may come must center on direct construction work; or on social programs either not yet under way or just started, which might thus be cut without too much damage or waste.

Nixon has indicated his opposition to any "start-and-stop" handling of construction or even not liking what he will try "holdbacks" such as were made in the highway program within the past year. Instead, he will probably use a direct stop order. Washington had a horrible example of the kind of cut-off curtailment of contract let-put-offs: The Bureau of Public Roads quarterly cost index jumped more than 11 points, to reach an all-time high in the last quarter of 1968. Statisticians blamed the jump on curtailment of contract let-put-offs.

Therefore, in areas of direct interest to architects, there's not much likelihood of any substantial cut in the $604 million appropriation sought for military housing construction, or — at least so long as hostilities continue in the $550 million requested for direct military construction.

**Model Cities Cut Not Likely —** By the same token, the $540 million requested for the Model Cities program is likely to stand.

But the $982,900,000 sought for academic loans and grants (for construction purposes) might be chopped down, or might the $43 million asked for highway beautification.

**Behind the Real Budget —** Where the real cutting can be done is in another aspect of the budget message: the figures listed under the heading "NOA" (for New Obligational Authority). This is the annual "blank check" request, under which Congress is asked to permit the Federal agencies to "obligate" the Government for additional amounts, even if actual appropriations are not made available.

The difference is sometimes enormous: Where $530 million for comprehensive facilities for military construction, the NOA request is for $1 billion; where the budget seeks $36 million for expenditure on neighborhood facilities grants (under Housing and Urban Development), NOA would amount to $52,500,000. A total of $1 billion of Urban Renewal "NOA" is requested; $473,500,000 "NOA" for low-cost public housing; $750 million for Model Cities; $65 million for comprehensive urban grants, against $45 million in requested appropriations.

Chopping of these requests for future spending authority would put a tight rein on the Federal departments, and could possibly provide the needed breathing room for any future Nixon programs.

Of course, there's another aspect to Federal spending: What Congress will do with any proposals that the President may make; and what it will do on its own.

As to Presidential requests, Congress seems willing enough to give Nixon his honeymoon — to wait for his suggestions and generally consider them favorably. However, there's also the prospect that it may add substantially to such requests. (Congress can talk a lot about fiscal responsibility, but doesn't have the actual responsibility for balancing the budget.)

**Current Money Bills**

There were relatively few major spending matters among the 6000 or more bills that had gone into the Congressional hands by mid-February.

Biggest was a proposal (S. 269) for a $400-million-a-year loan-guarantee program to start an attack on a reported backlog of more than $1 billion in needed construction and reconstruction of U.S. hospitals. Other bills that would involve added
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spending were, for the moment at least, in other areas, such as stream pollution.

The most hopeful bill to go in, from the viewpoint of those pushing for more local public works, is S.409, which would set up a $25 billion Urban Development Bank, with 50% of funds to be subscribed by the Federal Government, the rest by states and municipalities; the bank would buy up tax-free bonds of local governments at low interest rates, sell them to private investors.

Meanwhile...—On other legislative fronts, possibly the most worrisome bill was a House measure (HR 3808) that represents another attempt to set up Federal safety standards for all industry, with particular emphasis on construction. Previous attempts have consistently failed.

In the legislative field, another battle for the construction industry was begun, one that it apparently will win. The battle has been joined over the issue of capricious application of equal-employment-opportunity laws, on which each Federal department has been merrily making its own interpretations. Appearing before a subcommittee of the Senate Public Works committee, contractors and state officials were unanimous in approving the principle of equal employment, but also unanimous in denouncing administrative procedures. They cited case after case where a contractor’s plans had been approved in one state, the same plan disapproved in another, because of lack of uniformity of regulation. The matter affects all construction where Federal funds are involved, and it seemed likely that Congress will insist on uniform rules.

The highway segment of the industry had won one major victory (despite the unexpected lack of support by AIA) over the outgoing Federal Highway Administration, over controversial proposed regulations setting up two-step hearings for highway route planning and design, and an appeals procedure that would have set the Federal Highway Administrator as supreme arbiter (over state officials and courts) of disputes.

The appeals procedure was eliminated completely, the rest of the requirements modified, and, most significantly, the regulation was finally issued as a “PPM” (policy procedure memorandum), which can be changed easily by administrative order.

On a local level, architects were still awaiting (as of early February) a final Nixon Administration decision on who would head up the National Capital Planning Commission. It appeared that Philip G. Hammer, who has been serving as chairman under a Johnson appointment and whose term runs to 1973, would continue, and that Nixon would be content to make his own appointment when the term of Seattle architect Paul Thiry expires in April. Other members, who serve ex officio — such as the heads of the National Parks Service, Bureau of Public Roads and Public Buildings Service — will change as new appointments are made.

The commission acts as city planning arm for the District of Columbia and the Federal Government.

FINANCIAL

• The startling jump to a reading of 132.6 (with 1957–59 as 100) in the highway cost index was a shocker to construction; it represented a rise of 11.3% over the fourth quarter of 1967, was blamed on higher costs of excavation. The rise was reinforced by a smaller but equally significant rise in the monthly cost index on water and sewer construction, which went up 1.44% in December, over November.

• Housing starts seemed to be winding up 1968 at predicted rates. According to the Census Bureau, in October, rate of starts was at an adjusted rate of 1,548,000 for the year.

• Total construction volume dropped slightly, in November figures now available, to a rate of $86,700,000,000 compared with $87 billion in October. Nevertheless, the total was about 9% over the previous year.

• HUD’s action in raising allowable maximum interest rates to 7 1/2% was seen as a potential boost for housing; the higher rates (previous top was 6 1/4%) were expected to attract money back to the mortgage market.
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**CONSTRUCTION**

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**DOORS/WINDOWS**

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**FINISHES PROTECTORS**

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**ELECTRICAL EQUIPMENT**

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Furnishings

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Moen, Elyria, Ohio 44035 • A division of Standard Screw Co.
Card, Circle No. 393
ARCHITECTURAL MODELS

Colony Square Project, Atlanta, Georgia. Designed by Jova, Daniels, and Buzby, Atlanta. The model is 1/16" = 1'-0" scale, with a five foot square base. It is being used for presentation and public relations.

Request free brochure or for estimate on architectural or styrofoam contour model send plans to Osm ent Architectural Models, P. O. Box 496, Shawnee Mission, Kansas 66201. Phone 913 CO 2-1666.

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55-350

62 P/A News Report
On Readers' Service Card, Circle No. 416
March 1969
**MFRS' DATA**

**ACOUSTICS**

Plenum accessibility. TAB-LOCK 281 is said to be the first concealed acoustical suspension system with a true grid. Thus claimed to be structurally stable without tiles, TAB-LOCK 281 has both the accessibility and convenience of an exposed grid. For the reason, sequential installation of an exposed grid. For the TAB-LOCK 281 has both the necessary. Grid for 12" x 24" tile accessibility and convenience grid. Thus claimed to be structural systems and load limits. Specs. Bulletin, 4 pages. Architectural Metal Products Div., Eastern Products Corp., 1601 Wicomico St., Baltimore, Md. 21230.

Circle 200, Readers' Service Card

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**CONSTRUCTION**

Exhausted industrial air. The C series low modular roof exhausters feature a cover especially designed to eliminate condensation problems, and offer optional curb and cap additions that afford three-way weather protection. Schematics best describe the units, but additional charts give weight and dimensions for each model, as well as capacity and some value data. The modular intake relief heads are available in multiple units with various combinations. Specs. Catalog, 12 pages. Jenn-Air Corp., 3035 N. ShadeLand Ave., Indianapolis, Ind. 46226.

Circle 201, Readers' Service Card

**INR Isolation**

Structural clay and facing tile. This line of structural clay products for both interior and exterior masonry work includes face brick and structural tile in a host of shapes, colors, and textures. Featured are: Uni-wall, a two-faced thru-the-wall unit; SCR Acoustile; and Tex 4521, a 12" face brick module. Data includes a centerfold spread, chart, drawings, installation details, charts of physical properties, and short form specs. Bulletin, 8 pages. Glen-Gery Corp., P.O. Box 206, Reading, Pa. 19607.

Circle 204, Readers' Service Card

**DOORS/WINDOWS**

Engineered doors. All of the products in this line of metal and wood rolling, sectional, and vertical overhead doors are said to be custom engineered. Offered in the line are service and fire doors, rolling grilles, counter shutters, and sectional overhead doors. Operational possibilities include manual, chain, motor or crank. Description of each door type includes illustrations, drawings, dimensions, and installation details, and complete specs. Catalog, 32 pages. North American Door Co., Inc., Lindenhurst, N.Y. 11757.

Circle 206, Readers' Service Card

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**FINISHES/PROTectors**

Sealing industrial gaps. SCOTCH-SEAL industrial sealants were developed for use primarily in sealing gaps between mating metal surfaces. To prevent the passage of liquids, gases, or minute particles. A host of sealant types are available; possible applications of each are briefly discussed, together with physical properties, performance data, and outstanding features of each sealant. Photos illustrate various application methods. Catalog, 4 pages. 3M Co., Adhesives, Coatings and Sealers Div., 3M Center, St. Paul, Minn.

Circle 207, Readers' Service Card

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**INSULATION**

Urethane choice and use. CPR rigid urethane foam is claimed to have the lowest K factor of any insulation on the market. A guidebook describing the foam is also an aid to the choice and use of various urethane foams for insulation. A table compares the physical properties of seven different formulations. Selector chart shows where to use rigid board, prefoamed sections, and three foamed-in-place types that may be sprayed, pored, or frothed. It also gives typical installation details for wall cavities, pipes and pipe fittings, and coverings for expansion joints. 18 pages. CPR Division, Upjohn Co., 555 Alaska Ave., Torrance, Calif. 90503.

Circle 208, Readers' Service Card

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**AFR TEMPERATURE**

Glass sandwich. AllianceWall is coil fabricated of porcelain on steel and aluminum to form laminated veneer and sandwich panels. Porcelain enamel fused to steel at high temperatures is said to form a fade-proof panel that will not blister or peel. Because of glass-hard properties, the porcelain is also claimed to resist scratching and abrasion. A specially insulated panel is available; various cores for wall and partition panels are also described. Data contains installation drawings, details, dimensions, detailed specs and technical data. Booklet, 12 pages. AllianceWall Corp., P.O. Box 247, Alliance, Ohio 44601.

Circle 203, Readers' Service Card

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**NEWS REPORT**

Manufacturers' Data 63
with an asphalted kraft vapor barrier, said to be especially effective against condensation in attic, sidewall, and former installations; Foil Faced, which offers additional heat reflective qualities; Rigid Fit, an unfaced material with an optional polyethylene film for cavities between studs and joists; Pre-scored Perimeter rigid insulation for foundation slabs; and Pouring Wool, fluffy wool-fiber insulation for use where batts and blankets are not required. Accompanying each installation photo are thermal resistance charts for various thicknesses.

High pressure illumination. According to this manufacturer, there are three principal categories of high-intensity discharge lamps: mercury, Multi-Vapor, and Lucalox. Common to all lamps in these categories are "gaseous discharge arc tubes," which enable a high lumens per watt efficiency rating. The booklet outlines the development of this type of lighting, then illustrates lamp parts, bulb shapes and sizes. Performance data and spectral (color) energy distribution data are also included. 27 pages. General Electric, Large Lamp Dept., Nela Park, Cleveland, Ohio. 44112. Circle 211, Readers' Service Card

A window for all seasons...

Therm-O-Proof insulating glass

Through Boston's bitter cold or sweltering heat, Therm-O-Proof insulating glass dramatically reduces roomside condensation and also minimizes heat loss in this electrically heated Residence Group of the Children's Hospital Medical Center. The Architects Collaborative, Inc. of Cambridge designed this highrise as a home for the hospital staff... and insulating units allow the use of greater glass areas so the residents' view is unobstructed the year round.

To meet "all-season" requirements, Thermoproof fabricated nearly 2000 units in 20 different sizes using combinations of two lites of % sheet and/or two lites of % plate—both with a % air space.

Therm-O-Proof insulating glass—made more ways to fit more ideas.

Full color insert in Sweets. 48 Th

Insulating glass by Thermoproof Glass Company subsidiary of Shatterproof Glass Corporation 4815 Cabot Avenue, Detroit, Michigan 48210

On Readers' Service Card, Circle No. 376

Cellular glass insulation. The technique of tapering or sloping Foamglas cellular glass insulation provides slope and positive drainage for conventional flat roof decks. Both slope and insulation are achieved in one operation. Foamglas is fabricated of sealed glass cells that cannot absorb water or moisture. The material is also fireproof and verminproof. Installation details, drawings, and specs are provided. Brochure, 4 pages. Pittsburgh Corning Corp., One Gateway Center, Pittsburgh, Pa. 15222. Circle 210, Readers' Service Card

School integration-ceiling style. Three ceiling systems are offered as solutions to problems encountered in coordinating air distribution, lighting, and acoustical control for school buildings. The C-60 Luminaire System combines all of the above, plus fire protection, into one ceiling assembly that is said to permit maximum design flexibility, including rearrangement after initial installation. Data charts various lamp requirements to achieve a lighting level of 100 ft-c maintained in a typical 30' x 30' area with a 9' ceiling. Conditioned air fed into the plenum is said to be distributed evenly through perforations in the ceiling's surface. Rated fire protection is up to 2 hrs. Inclined ceiling panels are said to give the same acoustical control surface as a flat ceiling without lights and air handling capabilities. Also
Luxury is standard equipment with a Jacuzzi Whirlpool Bath - built right into a 5 or 6 foot colored, contoured tub. Two recessed controlable whirlpool inlets. Installs like any other tub. Write us for details.

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On Readers' Service Card, Circle No. 390

"Weathering" as specified...

Cabot's BLEACHING OIL

Architect demand is great for the unique "driftwood" look, an effect heretofore found only in seacoast areas after years of exposure to salt air. Cabot's Bleaching Oil, when applied to untreated wood surfaces, imparts a delicate gray tone which weather in but a few months to a natural driftwood gray. Bleaching Oil, available in oil or creosote base, will not crack, peel, or blister. Everybody talks about the weather; Cabot's has done something about it.

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Cabot's Bleaching Oil

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379 S. Terminal Trust Bldg., Boston, Mass. 02210

Please send information on Cabot's Bleaching Oil.

For wood chip samples, write on your letterhead.

March 1969
Would you believe this is a toy manufacturer's testing laboratory?

It is. For Fisher-Price Toys Inc., the nation's largest manufacturer of preschool playthings. Children's acceptance of new toys is measured by company engineers without the youngsters' awareness. The secret is in the mirror. From the tots' viewpoint, that's just what it is. But for the engineers behind it, it's a window. And the "see-thru" mirror is Mirropane®, a product of many uses.

Mirropane is used to train future teachers. To observe reactions of patients in clinics. To protect stores against shoplifters. For more information on Mirropane, call your L-O-F Distributor or Dealer (listed under "Glass" in the Yellow Pages). Or write Liberty Mirror Division, Brackenridge, Pa. 15014.
Koppers super woods span lots of worlds.

Laminated arches and beams of Koppers super wood offer a world of practical and esthetically satisfying design possibilities in school, church, commercial and even industrial construction. Inherently fire-and corrosion-resistant, these Unit® laminated members perform beautifully as cross vaults, domes, two-hinged or "V" arch frames—thus providing large unobstructed interior space, excellent acoustics and spectacular ceiling effects. Engineered to be strongest where stress is greatest, Unit laminated wood arches, beams, and roof decking provide economical yet imaginative and exciting solutions to a wide range of design and building problems. Write for our 1969 Unit Manual of Design. Forest Products Division, Koppers Company, Inc., 815 Koppers Building, Pittsburgh, Pa. 15219.

In addition to adding beauty and dignity, the use of laminated wood beams and arches in the roof construction of this new Presbyterian Church at Independence, Ohio, saved some $33,000 over an originally specified system of other materials.

Unit laminated wood beams, each 116 ft. long support the roof of this $2 million skating rink in Overland Park, Kansas. The wood beams plus gluelam purlins and tongue-and-groove decking, all combined to create an authentic mountain-chapel look, and well within budget requirements.

Unit laminated wood arches and wood roof decking give the Smyly Buick Showroom in Malden, Mass., a lot of eye appeal. The charm and warmth imparted by wood is particularly appealing to the woman buyer.

Unique, eight-sided bank building in Bergen County, N.J., is supported by unit laminated wood arches. The laminated materials and wood roof decking blend naturally with appointments and add a suburban touch.

Unit laminated wood 108 ft. diameter dome framing system, resulted in a spectacular ceiling effect in the Senior High School, Holland, Michigan. Wide spanning provided large unobstructed interior spaces. Dome has excellent acoustical qualities.

KOPPERS Architectural and Construction Materials
Construction dust is part of construction. Even the most careful sealant mechanic can't keep it out of every joint.

Never mind. MONO has been proving itself against construction dust as well as other job-site hazards for more than 10 years.

MONO is a "deliberate" sealant. In its own good time it penetrates any construction dust that may have gotten in its way. It surrounds the dust particles — actually swallows them up — and takes a firm adhesive grip on the joint surface.

MONO's distinctive ability to remain pliable and adhesive gives it a life expectancy of 20 years or more in moving joints. MONO meets government specifications U.S. TT-S-230a and Canadian 19-GP-5.

See this minor dirt-eating miracle for yourself. Ask your Tremco representative to show you the MONO demonstration while he fills you in on all the rest of the Tremco sealant family.

THE TREMCO MANUFACTURING COMPANY
Cleveland, Ohio 44104 • Toronto 17, Ontario

Mono eats dirt
(...if it has to.)
Sit this one out in comfort.

These Cosco contemporary chairs stack easily for quick storage. They also gang. And they’re so comfortable, anyone will feel at ease in them.

The series also includes a folding chair. Both models come with solid steel frames. With molded fiberglas seats and backs available in seven colors. And with a very reasonable price tag.

For complete information on the Cosco “1200 Series” of utility seating, write Hamilton Cosco, Department PA-39, Gallatin, Tennessee.
...where ZERO weather stripping has an important place in the race for space.

At Cape Kennedy the watchword is "dependability."
Which explains why they use ZERO products.
ZERO products are favored not only because they stand the test of use. But because they're delivered when promised, which is nice to know.
You'll find ZERO weather stripping, lightproofing, soundproofing and thresholds almost everywhere. Not just "far out" places like rocket proving grounds. But in air line terminals, government and office buildings, shopping centers, motels — you name it.
Write for the 1969 ZERO Catalog. It's chock full of full-sized detail drawings — 177 of them — and join ZERO's boosters.

Our 45th year of service to architects.

Zero Weather Stripping Co., Inc. 415 CONCORD AVE., BRONX, NEW YORK 10455 (212) LUDLOW 5-3230
AN AUTOMATED DRIVE-IN RESTAURANT

by W.C. Muchow Associates, Architects

One of a series of design innovations commissioned by Weyerhaeuser Company
Weyerhaeuser Company has commissioned a number of leading architectural firms to create design innovations which highlight the potential of wood in public and commercial buildings. This original design by W. C. Muchow Associates, Architects, Denver, Colorado, is the 18th in the series.

"We propose a structure that attracts customers by its appearance and by the unique nature of the services it offers."

Most drive-ins, unfortunately, resemble the wreckage of a conventional restaurant. The dining room is either altogether lost, or at least foreshortened, and what remains is a stubby kitchen adrift in a sea of asphalt.

Or, if it's a newer establishment, the design resembles a shake-shingled parody of a suburban cottage, hidden by its assertive partner, the great and gaudy sign.

We believe it most curious that drive-in restaurant design so seldom uses structure visually and operationally to attract and entertain customers.

And we propose a drive-in design in a contemporary idiom, based on a universal "building block" fabricated with an aluminum-faced plywood.

The restaurant would attract customers through unique services, including:

1. Choice and convenience. The customer could remain at his car and be served instantly by large-capacity, automatic, coin-operated vending machines housed in the structure.

2. Entertainment. While eating, the customer could watch any of several film shorts projected on a private screen directly in front of his car. The film would be selected and activated from the vending machine panel, in a manner similar to the operation of a "juke-box."

W. C. Muchow

GEORGE HOOVER: PROJECT ARCHITECT
Automatic vending machines provide instant food service. Console operates movie projector from vending machine area. Rear screen projection system gives individual viewing at each stall. Angled stalls fit traffic flow, adapt structure to narrow site.

Tower sign. Screen wall. Advertising kiosk. Panel 15 sun shades, deep overhang provide privacy.

1. 5/16" Prefinished Siding/Panel 15 laminated to honeycomb paper core.
2. Aluminum edge trim factory-applied to four edges of panel. This trim has continuous slot for job attachment of loop inserts.
3. One-inch-wide aluminum loop inserts job-applied by slipping into aluminum edge trim slot and twisting 90 degrees.
4. Steel pin key job-applied through staggered loop inserts joins adjacent panels in a hinged joint.

Exposed joints covered with Panel-15 trim accessories with roofing tape laminated to rear sides.

Steel tension cable with turnbuckles.

Truss constructed of Panel-15 core panels—all panels are 5' x 10' x 2".

Precast footing.

Automatic vending unit in booth 15.

Automobile in booth 15.

Booth 2 projector.

Booth 2 rear projection screen.

Hanging Panel-15 core panels form sun screen and provide base for booth identification graphics.

Hinged joint allows unlimited number of possible panel positions.

"First we designed a basic building block. Then, the restaurant."

The single building block can be used with other such units in unlimited combinations to construct walls, roof, tower, kiosk and display systems. Thus, one business could use the system for structures with almost no resemblance to those of his competitors—even though the competitors were using the same building block. It's like a brick—except that brick cannot be used to span horizontal space.

The material is Weyerhaeuser® Prefinished Siding/Panel 15, in 5' x 10' size. Thickness, 5/16". At Weyerhaeuser, we do everything possible to make this kind of inventive application of our products possible. For example, we can provide Panel 15 in the size required here—and in virtually any color required, including a full range of colors to match anodized aluminum.

To make our products more useful to you, we maintain a nationwide network of specialists who offer the most comprehensive body of technical data available from a single source in the wood products industry.

For more information, call on your Weyerhaeuser Architectural Representative. Or write to Box B-5764, Tacoma, Wash. 98401.

Weyerhaeuser

(On reader service card: Circle No. 308.)
Why coat stainless steel?

... because proper soldering of stainless steel requires an extra step of pretinning or use of corrosive fluxes. These fluxes must be removed after soldering to prevent attack on the stainless. TCS solders perfectly using a non-corrosive rosin flux. Pretinning is unnecessary.

... because architectural metals are subject to corrosive attack in severe chemical, industrial or marine environments. TCS enhances the proven ability of stainless steel to resist corrosive attack under these conditions.

... because the reflective surface of stainless steel may sometimes be undesirable in architectural applications. TCS weathers naturally to a predictable, uniform and attractive dark gray. If color is desired, it can also be painted.

TCS, Terne-Coated Stainless Steel, is 304 nickel-chrome stainless steel covered on both sides with terne alloy (80% lead, 20% tin). It is a product of Follansbee Steel Corporation, Follansbee, West Virginia.
In 1928, the architectural firm of Shepley, Rutan & Coolidge specified Hope's windows for installation in Langdell Hall, Harvard University. A partial list of buildings at Harvard in which Hope's windows were specified and installed in the following forty years is recorded below. We are proud of this record of continued confidence.

1928  Langdell Hall (Addition)  
Architects: Shepley, Rutan & Coolidge

1937  Lowell House and Eliot House  
Architects: Coolidge, Shepley, Bulfinch & Abbott

1949  Botanic Garden Apartments  
Architects: Des Granges & Steffian

1949  Graduate Center  
Architects: The Architect's Collaborative

1951  Gordon McKay Applied Science Laboratory  
Architects: Coolidge, Shepley, Bulfinch & Abbott

1953  Observatory  
Architects: Harvard University

1958  Quincy House  
Architects: Shepley, Bulfinch, Richardson & Abbott

1959  Leverett House, New Dormitories  
Architects: Shepley, Bulfinch, Richardson & Abbott

1960  Andover Hall Library—Harvard Divinity School  
Architects: Shepley, Bulfinch, Richardson & Abbott

1961  Arnold Arboretum Head House  
Architects: Griswold, Boyden, Wylde & Ames

1961  Gordon McKay Applied Science Laboratory  
Architects: Shepley, Bulfinch, Richardson & Abbott

1962  David & Arnold Hoffman Laboratory of Experimental Geology  
Architects: The Architect's Collaborative, Inc.

1964  Computing Center, (Alterations & Additions)  
Architects: Shepley, Bulfinch, Richardson & Abbott

1967  Law School Faculty Office Building  
Architects: Benjamin Thompson & Associates, Inc.

1968  Law School Classroom & Administration Office Building  
Architects: Benjamin Thompson & Associates, Inc.
The Carpet Enhancers

Rubber cove base—toeless or topset—53 colors

Colorful new idea where carpet meets wall. Textured (nubby, non-directional) or smooth surface. No-shrink, thermoset rubber. Clear-through no-fade colors are molded in, never need painting. Easy to clean. The perfect finishing touch for a beautiful floor.

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The reasons are many. You doubtless know most of them. Superior craftsmanship heads the list, probably. You can't specify any door better than The "OVERHEAD DOOR". There aren't any. Then consider the vast selection of doors from which you can choose. Regardless of the kind of building on your drawing board, we have the door or doors that can help make it the ideal design you envision. (It's made even more ideal by the fact that we install and service every door we sell.)

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On Readers' Service Card, Circle No. 356

March 1969 P/A
Create an oasis with PLEXIGLAS®

A tranquil oasis for weary shoppers was created practically and with economy in this shopping center with a series of transparent domes of PLEXIGLAS acrylic plastic.

A new solar control color of PLEXIGLAS filters the sun's heat and glare from the daylighted area. The bronze PLEXIGLAS used transmits 27% of visible light and filters 65% of total solar energy, providing maximum comfort.

The skylight assembly spans 26' and is 104' long. It consists of 104 individual domes, each measuring 4' by 8'. The light weight and rigidity of PLEXIGLAS plus sound engineering of the frame permit the assembly to be self-supporting.

PLEXIGLAS has year-round resistance to weather, breakage and discoloration. It is an approved safety glazing material.

PLEXIGLAS offers many advantages for daylighting any type of building. For more ideas and data on PLEXIGLAS, send for our brochure, "Transparent PLEXIGLAS Solar Control Series".

Kern Plaza, El Paso, Texas
Architects: Fouts, Langford and Associates, El Paso, Texas
THE PROBLEM SOLVER...

...in the restaurant where people come to eat, drink, and be merry...

to spill foods and beverages...
to drop lighted cigarettes on the carpet
A few months ago, conventional carpeting had covered the floor of Pippie's Restaurant in Hartford, Conn. Problems developed. Lighted cigarettes were carelessly dropped on the carpet and delectable foods and beverages were accidentally spilled.

Then came The Problem Solver with an easy solution to the problems that plague conventional carpeting. His recommendation? New Heugafelt loose-laid, totally-interchangeable carpet squares—one of three fine Heugatile carpet products.

Today, Pippie's Restaurant is carpeted with Heugafelt.

Lighted cigarettes still fall, but Heugafelt shrugs them off without a trace of scorch or burn. Foods and beverages still spill, but Heugafelt carpet squares can quickly be removed and washed under running water. Permanent damage from spilled oil? Just remove the square and replace it in seconds.

Don't you know a restaurant where Heugafelt should be the carpet du jour?

TELL THE PROBLEM SOLVER ABOUT YOUR FLOOR-COVERING PROBLEM!

Write us a brief letter—100 words or less—describing a flooring problem that could not be solved by conventional carpeting. If your problem is selected to be featured in future advertising, your Heugatile carpeting will be installed free of charge. Don't wait! Tell us your carpeting problem today! Mail entries to: The Problem Solver, Van Heugten U.S.A., Inc., 185 Sumner Avenue, Kenilworth, New Jersey 07033.

Heugatile carpet squares are unconditionally guaranteed to remain in place... will not curl... will not buckle... will not shift under foot, wheel, vacuum or cleaning machinery when installed according to the laying and maintenance manual.

Everything about new Heugatile is different, even the name. Heugatile (You-Ga-Tile)—the unconventional carpet.

School Board chooses Gas heat over

(That's just on first costs. So it's just first savings.)

The School Board of Ridgewood High in West Lafayette, Ohio got Gas and electric heat bids from independent contractors. Here's what they found: Electric came in at $2.59 per square foot for the 60,000 square foot school. The Gas bid was only $1.95. The difference adds up to a big $38,200.

Another first-cost savings came from the $15,000 that the school didn't have to spend on heavier wiring and the sophisticated controls needed with electric heat.

But the savings from Gas heat go on. Because the
electric and saves over $50,000.

Operating economy of Gas goes on for as long as you use it. This school is no isolated case. There are many other studies that have proved the value of competitive bids when you want the best heating value. So if you're looking for a heating system for a school or any other installation, take a good look at Gas heat. Just call your local Gas Company. AMERICAN GAS ASSOCIATION, INC.

For school heating, Gas makes the big difference.
The power of attraction...

CARADCO
Wood Patio Doors and C200’ Casements

CARADCO Patio Doors and C 200 Casements are powerfully attractive to both single dwelling and multiple unit clients. C 200 Casements, for example, are double weatherstripped. Hinges are concealed. Insulating glass with vinyl glazing and removable vinyl grilles are featured options. CARADCO Patio Doors offer 7/8” insulating glass, complete weatherstripping and easy operation. For eye appeal and for satisfaction ... specify CARADCO: the best in windows and doors.

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DIVISION
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EASTERN ASSEMBLY PLANT,
Pemberton, New Jersey

Caradco Windows and Patio Door products are further detailed in Sweets Ca and Canadian file Ca8
On Readers' Service Card, Circle No. 420
Stanley, America's top architectural swingers! The hinges that set the standard for aesthetics, for smooth functioning design, for enduring, trouble-free quality. Choose from the widest line of ball bearing, contemporary paumelle, traditional olive-knuckle, chastely wrought steeple-tip and swing clear designs. All in an unequalled range of standard and custom finishes.

For the very latest, choose the CB1900 LifeSpan* (featured above) with the all-new LifeStan concealed bearing—guaranteed for the life of the building! Never needs lubrication. Slimmest three knuckle barrel and only two horizontal lines—an architect's dream!

For the exciting details on all of Stanley's swinging hinges, contact your Stanley distributor or write for "Architectural Hardware Fact File" to Stanley Hardware, Division of The Stanley Works, New Britain, Conn. 06050.

*Patent Pending
Centura. Ushering in an entirely new era in wall switches and receptacles.

There's never been styling like this before. Dynamic. Elegant. With the class and distinction that architects and interior designers revel in.

And color! More than ten-thousand combinations.

Is Centura’s beauty only skin deep? Not on your life. Built in behind the wall-plates are top Specification-Grade engineering and construction. So good, in fact, that Centura is backed by Leviton's unprecedented 25-Year Guarantee of Performance. Listed by UL and CSA, of course.

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“Architecture as we know it today — old-fashioned and senseless — will soon become obscure and distressing, for it is so completely inconsistent and contradictory to what it pretends to put in order.”

ZVI HECKER

“We look at models and buildings through fish-eye lenses and other devices; we make films as other means of seeing things differently. Our Field Theory is a process of looking at things differently, too.”

WALTER NETSCH
EDITORIAL

Editors of architectural magazines are privileged to watch the contest between man and his environment from a favored seat. It is not a permanent position. Magazines outlast editors and architecture outlasts them both.

Twenty years ago, shortly after the end of the Second World War, Tom Creighton became editor of P/A at a time when the odds favored traditional architecture in the environmental contest. There had been little building during the Depression, and a great deal of destruction during the war that brought back prosperity. We were filled with hope and an eagerness to build a peaceful world. Corbusier had even visited New York City to point out to Henry Kaiser the golden opportunity of producing assembly-line Modulor homes.

The future of architecture appeared to lie in simply taking up where it had left off in the late 30's. The problem appeared to be one of using available materials and technologies to attain a straightforward solution to the traditional problems presented, Creighton declared. However, this is not how the game was played.

After a tenure of 16 years, spanning the end of the New Deal, the Square Deal, the Korean War, and the Great Crusade, at the beginning of the Thousand Days, Tom Creighton stepped down from the Editorship. It had been, he said in summing up, a period that led to no final result except confusion, a degeneration into fantasy, prettiness, and deplorable urban monotony. However, the picture could not have been as black as painted, since Creighton left the Editorship to return to the practice of architecture.

When Jan Rowan took over as Editor, six years ago this month, he declared in his first Editorial that only a fixed ideology would despair in the current state of architecture. Rowan predicted the emergence of a new School of Architecture, but found instead an increasing emphasis on the environmental struggle. During the six years of Rowan's Editorship, four of which I had the privilege of serving as a member of his staff, we reported on an architectural profession that had never before experienced such problems and opportunities. At no time did Rowan refuse to seek out and document the condition of architecture, no matter what its implications for the profession. We reported technological and scientific developments such as the world in the third millennium, medical and educational philosophies that determine the design of hospitals and schools, the influence of computers and performance design, and, in a forthcoming issue, we will show how business managerial skills affect the environmental arena.

During Rowan's Editorship, we saw the tragic end of Kennedy's Thousand Days, the beginnings of the Great Society and its death amid burned thatched huts and mangled peasant bodies in Vietnam. We also saw the emergence of a new client, whose program requirements were emphasized in the gutting of our inner cities. Corbusier's idealized Modulor could no longer be predicated upon an idealized 6-ft Englishman. It was now scaled to highway clearance; the 12-ft dimension of a mobile-home unit, as architects grappled with the problems of prefabricated housing.

As I begin my tenure, the third Editor of Progressive Architecture in 22 years, it is at a time when the traditional role of the architect as the mediator in the contest between man and his environment has never been more in question. The emphasis in the environmental game has shifted from the virtuosity of the individual player, such as Corbusier, to the design team concept, the field and the stadium as the environment, and even a questioning of the validity of the game itself.

None of us know what is ahead during the coming years, I no more than Creighton or Rowan. However, I am sure we at P/A will not be charged with the job of reporting the demise of the architectural profession, as some have predicted. I believe that the confusion current in the profession is not aimlessness but rather the result of unlimited possibilities. It has been a long time in history since architects have thought of designing cities or omnibuildings.

In the inevitable reshuffling of environmental responsibilities now taking place, there is no doubt in my mind that an architectural education will prove the indispensable discipline in humanizing environmental conditions.

Jarrett Wilson
"We keep trying to find new ways to see things," architect Walter Netsch says of the design group at Skidmore, Owings & Merrill, Chicago. "We look at models and buildings through fish-eye lenses and other devices; we make films as other means of seeing things differently (p. 96). Our Field Theory is a process of looking at things differently, too."

"Field Theory" as defined by Webster's Third New International Dictionary—anyone who has heard Walter Netsch talk will not be surprised by his choice of academic terminology—is "a method of analysis in behavioral science that describes actions or events as the resultant of dynamic interplay among sociocultural, biomechanical, and motivational forces."

The architectural connotation of the term Field Theory for Netsch and the design group is, similarly, a planning analysis based on human functions. Since the term also refers to optical fields, the planning process manifests itself as a fluid, manual manipulation of geometric forms. A "field" is the spatial unit or "environmental module" that the architects use to compose a building.

**Field Theory Planning.** Clearly influenced by the ascendancy of the diagonal, Netsch and his colleagues have planned buildings over the past six years with basic square bays through which they envision an X formed by diagonals. Sometimes they add a smaller concentric square within the larger square. Sometimes they superimpose on the larger square an identical square and rotate it—that is, turn it diagonally. This manipulation provides the basic grid patterns of their structures. Most recently, the process has produced star-shaped fields as the over-all modules of their buildings. By truncating, or cutting off, the projections on the stars, octagonal forms are created. Repeating this procedure with a smaller inner square or with larger squares outside the bays, and by combining the star-shaped field, the architects arrive at a "lattice" pattern of interlocked lines. In Netsch's view, the lattice creates "a linear expansion of the progression of different activities and communications for which the building is used," so the behavioral science basis of the theory is valid to him.

To facilitate visualizing these superimposed patterns, the architects have devised a series of acetate overlays covered with various elements of the lattice. With two acetate patterns of separate squares, one layered over the other, they can visualize the rotation of the forms to achieve their lattice and star-shaped units. With two acetate sheets of interconnected larger and smaller squares, they can slide the patterns along to arrive at more complicated lattice systems of squares-with-in-squares. These simple acetates are Netsch's basic tools for Field Theory. The technique of superimposition is totally modern (photos left).

The process produces an organizing design discipline along whose lines all partitions, and, ultimately, furnishings, are laid out. The lattice system indicates all the available options for complicated design layouts, which may not be immediately perceivable with simple squares or single rectangles.

"Field Theory, as a system of way of looking," Netsch explains, "assumes that all actions are not linear, that all forms must be additive, that plans need not be orthogonal (straight-lined) to be useful or active. Field Theory is network-oriented rather than structure oriented. It is iconic, volumetric, and spatial."
FIELD THEORY FILM ON LAB PLANNING
An Animated Color Movie
Designed by Skidmore, Owings & Merrill, Architects
Produced & Directed by Walter A. Netsch, Jr.
Designed by Maris Peika and Will Rueter

[Soft focus fade-in on white “Y,” which resembles the symbol of man, against a blue field.]

1 [Camera pans back to show that “Y” was a detail of larger white lattice superimposed on blue octagonal field.] Film is a study to apply systems analysis to a building and its furniture and to combine that with the use of Field Theory. Netsch felt that film was more suitable than drawings to introduce these two concepts.

2 [Octagonal field is rotated and a white, central service core is added.] Three SOM laboratory buildings and their furniture are objects of this filmed analysis: Basic Sciences Building, University of Iowa; Science and Engineering Center, University of Illinois; and Biological Sciences Building, Northwestern University.

3 [Subsquares are added onto the corners of the basic octagon.] For the three buildings, the film examines the options to find what architect Netsch calls “a reasonable environmental module size” for a lab building — that is, a unit that would be large enough to form a suitable module yet small enough to provide privacy.

4 [Additional subsquares are added at the midpoints of the perimeter.] This first sequence illustrates the design options by manipulating a plan within the organizing discipline of the Field Theory. The film was made at the end of 1966 (in 10 consecutive hours; actual camera time, 1 hour 40 minutes). Running time, 4 minutes.

5 [Flashback to original primary octagon and central service core, to which white laboratory counter-cabinets are connected. Cabinets are sectional and additive, with plumbing services showing as a red spine down the middle.] The system recognizes the prohibitive cost of remodeling laboratory buildings.

6 [Component elbow cabinets are added and the counters extended in a radial pattern.] When scientists move to other institutions, laboratories designed especially for them are often left empty because remodeling is costly. “Labs must function for more than unique professors and unique situations at a single time,” says Netsch.

7 [Linear extensions of the cabinets are added when corner subsquares are added onto the octagon, as in Frame 4.] To find a means to permit inexpensive growth and change in laboratories, SOM/Chicago proposes this radial, additive furniture, which can create a series of work stations that are task oriented.

8 [A change in lab arrangement for other users is effected by adding subsquares to the space at the perimeter and by re-connecting the radial and linear extensions of the cabinets and their integral plumbing system. Furniture reaches into the subsquares to produce sub-labs within the larger labs.]

9 [On the same plan as in preceding frame, a new arrangement of plug-in cabinets shows a more open environment.] In all these schemes, primary circulation is outside the basic large octagon, which is the “environmental unit.”

10 [Close up of plug-in cabinet components shows linear units, elbow units, and T-ends.] The circulation theory is that one can maintain a basic corridor system and thereby permit variety for changing and shifting the furniture arrangements without extensive remodeling of the basic environmental module.
11 [More extreme close-up shows additive cabinet units with their red utility spines; they are set off against the blue octagonal field.] "Field Theory" refers to an optical field, the environmental unit.

12 [Upright plumbing service connections and overhead lighting are added onto the cabinet system.] Lighting system, like plumbing, uses plug-in-additive components. Electrical and plumbing umbilicals go back to the center core for most efficient operation. However, there are limits, such as the 40-ft limit for waste lines.

13 [More lighting and service are added along the component cabinets. A lab scientist model appears.] The filmed demonstration, one begins to recognize, is faster and more coherent than drawings; in addition, more people can look at the presentation at the same time.

14 [The camera pans back to show more of the lab plan, and more scientists appear.] The initial problem with constructing the furniture components is the connection of the extendable pipe services. This joint should be a coupling so that units can be as easily assembled as railroad cars.

15 [Other equipment, such as refrigerators or centrifuges, appears against the core of a new lab arrangement.] The following sequence shows the available options within the design organization that Field Theory offers.

16 [Flashback to the stripped cabinets in a dense radial arrangement shows large lab areas with sub-labs.]

17 [A linear arrangement of the component system, as opposed to the previous radial arrangements, is shown.] Netsch calls the linear arrangements "orthogonal" (meaning "straight line") systems.

18 [Camera pans back to show two intermeshed octagons on which two cores with linear extensions of cabinets and lighting equipment are arranged to produce a mass teaching or research environment.]

19 [Extensions of the cabinets in a linear plan provide additional facilities for teaching large numbers of students. A core-like demonstration platform is provided at the center of the plan.]

20 [Other "task-oriented" layouts for large groups of scientists can be made in cluster arrangements.]

21 [Cores here are located "in the lattice position" — that is, on the periphery rather than at the center of the augmented octagon.]

22 [Close-up as camera moves in on two cores with linear extensions and sub-units between them.]

23 [As camera closes in farther, beakers and other utensils appear on the counters as two scientists engage in conversation.]

24 [For last sequence, camera pans back to show all components of the furniture system — linear, elbow, and cross-shaped units, with Y's, T's, and others. Various connections of these elements are demonstrated. Also, "the most important component" — man — is seen between linear cabinets, recalling the symbol of man that began the film.] — CRS
Field Theory developed in practice, not as pure theory. The architects had been working toward such a design system for some time before the tools and the procedure were formulated and before the term Field Theory was adopted.

The first of SOM/Chicago’s buildings to break away from the simple rectangular grid was the U.S. Air Force Academy chapel with its composite structure, the upper part of which utilized diagonals and tetrahedrons.

Next came a design for graduate housing at Northwestern University at Evanston, Illinois, which was never built, and subsequently the library for Northwestern University (left), which was announced early in 1964 (see p. 73, JULY 1964 P/A). None of the lattice is followed in the layout of the library’s exterior walls, but the radial arrangement of stacks and study areas spreading outward from central information desks (see plan) clearly led to the planning considerations demonstrated in Netsch’s Field Theory film made in 1966 (preceding page), which is a study for three Field Theory science buildings. In addition, the pavilions of the Northwestern University Library suggest the possibility of meshing their gear-edge perimeters in the way that the star-pointed forms produced by the Field Theory can be combined. (P/A will present the library when it is completed.)

The first completed building to use elements of the theory was the “College Forum,” a community social center, at Iowa’s Grinnell College (see p. 118-125, “Grinnell’s Social Geometry,” DECEMBER 1965 P/A). The simple rectangular structure shows a lattice system reflected in its plan, layout, structural system, and even in section.

Next in the development of the Field Theory process came the design for the Art and Architecture Building at the Chicago Circle Campus of the University of Illinois. Announced in 1965, phase one of this so far incomplete building was opened this past October (with much-rumored student discontent). A&A has a spiral plan of interconnected star-form pavilions arrived at by Field Theory.
planning. It is a remarkable building, a glorification of the corridor; it is completely ambiguous in its windowless circulation route, even mystifying and alienating (which was, no doubt, the cause of student unrest). The building is also rich with thoughtful and delightful details such as a perverse, baroque stair plan, which is arrow-shaped but which, contrarily, sends one in the opposite direction from the point of the arrow.

Then came the design and construction of the twin telescopes at Northwestern University (see p. 104), with their exposed space-frame structure reminiscent of Field Theory.

In this same period, the architects designed and built the recently completed Wells College Library, which was dedicated and opened at the same time as the A&A building, and which, with A&A, is one of the two first structures designed strictly by the Field Theory process. Since the Wells College Library is a completed building, unlike phase one of A&A, which is less than half the total design, the library is especially appropriate for detailed examination (see p. 108).

From that point on, Walter Netsch's design team has never looked back to other methods. They have refined their systematic design process, have developed more sophisticated tools, and have worked toward a greater fluidity of planning within what must appear to others as a still rigid geometric approach.

Recent Field Theory Project. Among the buildings planned with Field Theory are the seven new educational facilities and one church presented on these pages. A development in the planning, toward increasing complexity, can be seen.

For the University of Iowa, which became a new client when the former president of Grinnell College assumed the presidency at Iowa, the Measurement Research Center shows the squared-off starform bays of the Field Theory (facing page, right) — a system of bays not unlike the Grinnell College Forum. Relieved on the exterior only by negative corners, recessed entryways, and recessed wall panels, the building is to be unexpectedly simple on the exterior (facing page, right).

The projected Saint Matthew Methodist Church, Chicago, has a fairly regular series of adjacent but separate octagonal pavilions, each for ancillary facilities, with larger spaces for the sanctuary and fellowship hall being composed of several octagonal units. On the exterior, the notches between octagons produce a minimal sculptural effect (left).
The next several buildings show an increasingly more intricate adjusting of these basic elements.

For the Science and Engineering Center at the University of Illinois' Chicago Circle Campus, a series of star-form pavilions is arranged around corridors somewhat like the A&A building on the same campus, but the sculpted effect of the exterior is increased by smaller octagonal-plan window projections set in the negative corners between the star points (facing page).

The Biological Science Building for Northwestern University apparently, is to have an equally simple exterior (this page), yet is composed of nine interconnected star-form pavilions derived from the lattice system. A slight manipulation of the walls at each star point produces a fin-protected window opening (top right).
The Basic Science Building for the University of Iowa (this page) continues this direction of adding projections to the exterior pavilions, having shallow, rectangular-plan bay windows at the alternate points of its star-form pavilions. Negative corners of the stars are further accentuated by windows that are recessed behind the slab line. In addition, triangular stair towers project beyond interconnections of the pavilions to give deep texture to the exterior.

From these projects, the possible variety of structural systems and cladding systems possible with Field Theory also becomes apparent.

Finally, for the Behavioral Science Center at the University of Illinois' Chicago Circle Campus (facing page), a series of interconnected star-form pavilions is augmented by smaller sub-squares at the exterior, varied by squared-off basic octagons, and in the vertical dimension varied by combining these two effects to produce an intricate pattern of overhangs and exterior notches that resembles, within the discipline of Field Theory, the faceted pavilions of the Northwestern University Library.

What Are the Advantages of the System?

If the Behavioral Science Building, which follows Field Theory strictly, turns out to look like the Northwestern Library, which was designed before Field Theory was fully developed, one may wonder what the system has added to SOM/Chicago's architecture.

First of all, in Netsch's hands, the process has produced varied buildings both in terms of visual appearance and psychological environment. Some of the exteriors appear simple and straightforward, even surprisingly bland, despite all the idiosyncratic manipulation of the plans. Others are mystifyingly complex on exterior, interior, or both. Yet even these, as Netsch notes, "avoid the willful, cute angularities that are sometimes designed in for sculptural variety." And, in fact, the very discipline of the lattice removes all suspicion of arbitrariness. On the other hand, the discipline is complex enough to permit the ambiguities that are the goal of many architects today.

A critic may ask whether the system produces more expensive structures than usual, since, quite clearly, it requires the construction of more perimeter wall and more partitions. In answer, Walter Netsch replies, "We also get more variety. And economic optimization is a reasonable price for the aesthetic and social good." Since the buildings designed along Field Theory lines can easily be admitted as being varied, the architects can claim that the system achieves their first reason for using it.

A second advantage of the system for the architects is that it produces more flexible environments. Since all the forms are additive, the system provides open-ended versus finite planning options. It provides a preestablished direction for changing the environment without disrespect to the basic unity of the original design. In regard to flexibility, the architects consider the Field Theory process and the lattice system as establishing what Louis Kahn calls "the Existence Will" of a building. In Chicago, they speak of the "E.W. of it." Besides permitting future changes to a completed building, the "E.W." provides a basis for future additions. "In this way," Netsch says, "we are trying to tackle the infinity problem." The completion of the A&A building may provide the first test of this aspect of Field Theory.

Critics may ask, however, if using forms as process is not still a method of designing from the outside in. Today, when the life-styles and the human functions are perhaps truly becoming the true determinants of designed interiors, many
may feel that Field Theory is strictly a
formal overlay, an imposed geometric
game (however romantic a geometry)
and that it is a vestige of Renaissance
designing. "I have been a maverick for a
long time," Netsch points out, "and I
keep edging further from the Establish­
ment."

The development of the Field Theory
process bears witness to this spirit of
"edging further from." What started out
in 1962 as spaces shaped with 45° angles
led to plans based on circular concentric
systems, and, by 1964, to pinwheel sys­
tems. For the 15 Field Theory buildings
designed since then, the architects' lat­
tice systems have become more compli­
cated (see p. 95, all buildings at the
same scale). Grids of different sizes have
been superimposed, arranged radially, and
offset. The command of the process is im­
pressive if incomprehensible.

Walter Netsch emphasizes that Field
Theory is a serious, conscientious system
of arriving at unified, organized designs;
it is not a frivolous geometric game. He
points out that Field Theory is also "a
self-organizing system in that it permits
anyone who is responsive to it to partici­
pate." Not many architects may be able
to make use of this personal process in
their own practices. Netsch himself ad­
mits that these are "systemized deliberation
techniques of a very personal na­
ture. To us they provide a Matrix for
Thought."

Since it is so evidently personal a
methodology, Field Theory probably
cannot be judged in itself with fairness.
The amount of effort that a design system
requires in relation to finished buildings
is not a criterion of the artworks of archi­
tecture, since the efficiency of an archi­
tect's design process is biographical and
basically irrelevant to his product. In the
final analysis, however, the real benefit
of Field Theory will be as a more speedy
organizing tool with which to design a
great number of buildings. And Walter
Netsch points out that his colleagues
have recently been responsible for build­
ing 800,000 sq ft of space per year.

In a day when, as one of this year's
P/A Design Awards jurors noted, we
must think on a mammoth scale—a
scale on which entire buildings must be
considered as details were in the past—
the Field Theory design process may
point a way. — CRS

Behavioral Science Center, University of Ill.
CIRCLES ON SQUARES

Although it is more of a structure than a "building," the Lindheimer Astronomical Research Center is planned on the rotated square concept that SOM developed for the other projects shown in this issue. It is a precursor of their Field Theory buildings. The research center houses two telescopes for Northwestern University at Evanston, Illinois. The site is filled land in Lake Michigan (see p. 130, August 1962 P/A), a situation that permits the observatory to get as far away as possible from the smoky haze of Chicago.

Each telescope is contained in a circular, domed room located atop a square shaft. Since a prime requirement for the telescopes is that they remain free of movement due to temperature changes, vibrations, or wind, the designers set each one on a pier and constructed the enclosure independently around the piers. The larger telescope is carried on a hollow pier, the smaller sits on a concrete core wall surrounding a hydraulic ele-
The university requires two telescopes, since one, a 40-in.-diameter instrument, is used for research, and the other, a 16-in.-diameter telescope, is used by students.

The enclosure is supported by a tetrahedron framework of welded steel pipes. On plan, this framework repeats the diagonal squares of the rooms at ground level and the two shafts. All loading from the framework transfers to its four bases that stand atop concrete piers set well outside the telescope foundations. This configuration gives a wide stance to the structure, and greatly assists it to resist strong wind forces driving across the lake. Shafts and telescope spaces are enclosed with corrugated steel panels.

The astronomical research center was planned before the Field Theory was fully developed, but the aesthetic image of the steel pipe tetrahedron framework indicates the acceptance of the lattice pattern that already existed in the architect's minds. — PMG
Like a lazy cloud, the roof of the Wells College library covers a field of nine stars—not the heavenly variety (though the analogy is not inappropriate), nor the performer species (though many a Wells College girl gets top billing). Instead, the stars of Skidmore, Owings & Merrill's library for the Aurora, N.Y., women's school are nine interlocking units that compose the floor plan. The grid pattern diagram (left) shows each star-shaped unit centered on a "rotated" (or diagonally placed) square column.

This recently opened Louis Jefferson Long Library is the first completed building constructed along the lines of SOM/Chicago partner Walter Netsch's design process called Field Theory. The star-shaped units—or "fields"—that are developed by this systematic process (from a "lattice pattern" of rotated squares and octagons) are intermeshed so thoroughly in the library, and the perimeter line of the building is manipulated with such
seeming freedom, that the existence of Field Theory as the basis of the design is not immediately apparent.

In addition to the plans, the sections reveal that Field Theory has also been employed in the vertical dimension, producing a billowing, angular roof. In this dimension, the architects say the Field Theory and the patterns established by the lattice system were influenced by the site.

None of this form making looks arbitrary, however, either outside or inside. Even the faceted planes of the building seem to give only slight, raised edges to the gentle setting, formalizing the rolling hillside terrain above Lake Cayuga, which is to the west.

"I am on my tenth library," Walter Netsch observes, "and the one thing I think I have learned is that there is no one way to do a library. It remains an environmental problem." Environment is what Wells College got—and environment of a highly appealing order.

The program required stack space for 250,000 volumes (all on open shelves except for those in the rare books room) seating capacity for 328 readers at one time, a wide variety of study environments (including places to study and smoke, seminar rooms, and a music listening area) as well as a permanent art gallery, and a room of the future that will accommodate electronic carrels which will one day be used for information retrieval from other library centers.

Although the building was carefully prescribed in a minutely detailed program document by library consultant Ralph E. Ellsworth, Director of Libraries at the University of Colorado, it reveals immediately that the architects were able to provide those facilities (see labeled plans) within a structure that rises, aesthetically and environmentally, above the mere accommodation of basic requirements. Further, it demonstrates the freedom that the architects have already achieved in working within a seemingly rigid geometric design system.

Beneath what Walter Netsch describes as "a wild tumbling roof, a big tent," the 55,000-sq-ft, $2-million library environment has been planned on three levels with a "pedestrian street" running through it (see circulation overlay on plans). This circulation pattern, which also serves as an exhibition space, follows the Field Theory principle of providing major traffic corridors outside the basic environmental "fields" or modules.

"Even when the entrances to the library are closed," a Wells College spokesman


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points out, "the group study room, the German Culture Room, the art gallery, and the Henry Wells Room are available for use."

Rambler and ambiguous as this pedestrian street may be, it is neither as puzzling nor alienating as is architect Neischt's elaboration of the corridor in his Art & Architecture building at the Chicago Circle Campus of the University of Illinois. By contrast, the Wells College Library's pedestrian street provided a lively and appealing environmental experience when the building opened with an exhibition of splashily colored banners by pop and op artists.

In addition, orientation on the interior is greatly assisted by great windows opening onto the wooded hillside and by the long vistas provided in the predominantly open single space on the uppermost level, where there is a constant visual relation to the tent-like roof. "The ultimate goal," according to the architects, "was to establish a participation of the environment, and the Wells College Library is greatly assisted by great windows and by the natural topology of the site."

Orientation is also provided by the layout of stacks, which is varied to create distinctive views on each floor. The ground level has a single radial system so that the space can be read from the center point; the second floor is laid out on a grid pattern; and the uppermost level has a composite plan using a grid system in the middle and a radial system on the ends.

Similarly, the structure of the building is a composite: the roof is supported by wood cluster columns resting on masonry piers (which double as air-distribution ducts) at the centers of the nine star-shaped units, by hemlock wood columns, and by masonry exterior walls, which use the brick common to the campus. The first and second floor slabs are steel-framed, the columns and beams being laid out in radial patterns centered on the masonry piers. The octagonal units are distinguished by a deeper slab.

The multi-faceted roof, composed of 84 separate irregular octagonal planes, is constructed of 3 in. and 4 in. unfinished Western red cedar decking with white rolled exterior surfacing (the seam pattern of which the architects designed, like formwork). "There are no rigid connections and no horizontal ties," the architects explain. "Wind resistance is provided by the cluster columns, which have the effect of knee braces. All connections develop shear only and utilize standard fastening devices. All surfaces are plane, and all framing members are straight. The 'broken surface' of the decking provides built-in relief from the chronic problem of wood construction — swelling."

The structural system and the Field Theory planning are reiterated by the shapes of furnishings, such as octagonal tables and square tables rotated, as well as by the radial layout of fluorescent lighting and stacks, which have been mentioned previously.

So as not to overemphasize the multi-faceted scheme, however, muted colors have been selected for the furnishings: carpeting, which is used throughout the library (except for mechanical rooms and rest rooms), is a natural gray-beige tone that is matched in the paint finish of bookstacks and conference chairs. All exposed metal surfaces of building hardware and furniture, nearly all of which was specially designed for the building, are bronze. Deep colors of mohair upholstery, elmwood work surfaces supported by dark lacquer, and bronze plexiglass carrels continue the muted scheme.

For splash, color is added onto seemingly eccentric architectural elements, such as diagonal sloping plasterboard walls, which derive from the need to enclose stairwells and to make partitions meet beams in the most direct straight line, yet which also reiterate the Field Theory lattice. On these walls, reds, purples, and oranges add lively as well as meaningful punctuation.

With this variety of form and vista, texture and color, public walk-through and private nook and cranny, the Wells College Library is a vital environment of literally, many facets. Simple as it looks on the exterior, it is entirely consistent with the complex geometry of its planning. Complicated as that design process may be, it has produced a building that is neither psychologically complicated nor formally pretentious. It has produced a building that is also sufficiently idiosyncratic, ambiguous, and interrelated to speak to the superimposed life-styles of today.

Student and faculty reaction has been one of enthusiastic delight. The girls find the building fun and exhilarating; they like the lively colors, the feeling of the tent roof, and the controlled rambling of the geometry. In fact, the library has provoked a purerful of poetry: "like a glacier sliding down the hill," said one; "like a bouquet of umbrellas" said another. We like to make an analogy with the stars, which the Field Theory suggests; for, its stargazing into the future is an essential element of good architecture. With a view toward expansion, the building was programmed to serve an increased enrollment from 550 to 800 students in 1970-75 and a future capability of serving two campuses with twice that population; in addition, the wiring for future electronic information retrieval systems has been incorporated now. This kind of view to the future may make it possible for the star plan of the Wells College Library to grow, ultimately, into a galaxy. — CRS
BEARING PLATE

NOTCH THRU ENTIRE DEPTH OF BEAM - TYPICAL

WELDED (TYP)

BEARING PLATE

2 5/8" DIA. SHEAR PLATES AT THESE BOLTS

TYPICAL 1/8" DIA. X 1/4" STEEL TUBE THREADED INSERT

4" DIA SHEAR PLATE

TWO 3/4" DIA X 3" BOLTS

3/8" STEEL PLATES X 9 1/2" DEEP

1'-10 5/8" ROOF BEAMS

(TOP VIEW) BEAM CONNECTION DETAIL

BLOCKING EXTENDS FROM UNDERSIDE OF BEAMS TO TOP 3/4" BEARING PLATE

VARIOUS SLOPING ROOF BEAMS

2'-4" DIAMETER X 3/4" THICK BEARING PLATE

WELDED 3/8" ST PLATES, FORMING SHOES

PLAN AT PIER

3/8" PLATE

1/4" STEEL ANGLE TO SECURE STRUT TO ROOF BEAM

7/8" DIA. HOLES

BASE PLATE SHOE DETAIL

3/4" BASE PLATE 2'-0" SQ

SECURED WITH 3/4" DIA BOLTS

3/8" PLATE

64" WELDED

BRICK FACED PIER

3/8" WEDGE SHAPED PLATE CONE

WOOD STRUTS NOTCHED AS SHOWN (TYP ALL FOUR STRUT ENDS)

ELEVATION

5'-10" X 5'-9" WOOD STRUTS

GROUT BED UNDER PLATES

5'-8" SQ. BRICK FACED PIER

SELECTED DETAIL

COLUMN DETAIL

WELLS LIBRARY: Aurora, New York
SKIDMORE, OIWINGS & MERRILL: Architects

MARCH 1969 P/A
WHAS RADIO AND TELEVISION STUDIOS: Louisville, Kentucky
LOUIS & HENRY: Architects and Associates

SELECTED DETAIL
FOUNTAIN DETAIL
The designs of the Israeli firm illustrated in the following pages, but, by its own admission, the firm does not manipulate lines in an effort to reach solutions to architectural problems. Since most of their work has a strong three-dimensional quality, the designers not surprisingly make numerous models—as many as seven for a simple project—and rely upon intuition to guide their way. One of the most frequently used books in the office is Geometrical Models, which is primarily aimed at model makers.

Some of the projects were designed by Neumann, Hecker & Sharon, and others by Neumann & Hecker. Three years ago, Alfred Neumann left Israel for Canada, where he directed the graduate courses of architecture at Laval University in Quebec City until he died last November. Zvi Hecker teaches at the same school; Eldar Sharon left the firm in 1965.

Hecker says that the firm is outside the mainstream of Israeli architecture, and has run into difficulties with its geometric design philosophy. With the simpler designs, such as the vacation camps, economy carries the projects through, but the large buildings require clients with understanding of the architects' feelings about building. Hecker says, "There is a general idea in all these projects that can somehow be explained geometrically; The buildings do not express their functions, but the purpose of the buildings cannot be missed. An office building does not look like a conventional office, but it certainly does not look like an apartment building. Similarly, the engineering school building looks very precise without specifically expressing its function. There are many ways to make structures, but not many ways to express architecture; and I think that the most important thing is to be able to express yourself."

"There are many manifestations of our work indirectly linked with architecture, but having in common a concern for the formation of space patterns on different scales. The recent developments in X-ray defraction techniques and the use of the electron microscope in crystallography, three-dimensional chemistry and biology, display a new and fascinating world of structures in many polyhedral atomic patterns which were only vaguely suspected some years ago.

"But looking around us, one becomes conscious that our technological world..."
is no longer restricted to rectangular patterns. The contrary is also true: cars, airplanes, structures, the whole new range of mechanical equipment and nearly everything produced by machines, observe the same characteristics with their departure from the cube structure into more elaborate and orderly polyhedral shapes. Houses, not just their components, will be produced by machines, and their formation will certainly advance in the same direction. The introduction of the computer will extend even further the possibilities of adaptation of new forms due to the analyzing and rationalizing ability of the computer. This will be helped by the better understanding between the two instruments, the thinking and the producing machines.

"Architecture as we know it today—old-fashioned and senseless — will soon become obscure and distressing, for it is so completely inconsistent and contradictory to what it pretends to put in order. Despite our initial difficulties in visualizing the possible new patterns, we were convinced that many of them which are distinctive in strength and rigidity might be rationally used in architecture even more effectively than the much exploited rectangular patterns. Working intuitively and independently from any scientific observations, we were undisturbed by the immediate lack of confirmations, but we expected that they would come later."

Vacation Camps on the Mediterranean Coast. With hexagonal panels built into tetrahedron forms, the three Israeli architects built low-cost living quarters for recreational camps that differ strongly from the everyday conditions of rectangular room geometry. In addition to breaking the institutional mold of camps, architects Neumann, Hecker & Sharon, Tel Aviv, also wanted to produce an inexpensive construction system that could be quickly erected, and, if necessary, dismantled for storage during the winter. The cabins had to compete in price with regular, canvas tents.

At the first camp, Club Mediterrane, built at Ahziv in 1961, 350 cabins accommodate 700 people on a beach site close to the ruins of a Phoenician village. The whole camp is laid out on a hexagonal grid, which reflects the hexagonal panels of the individual cabins. These 6-ft-radius wall panels were fabricated on site with pressed reeds wired into sheets and framed with lumber.

The basic cabin unit is a truncated tetrahedron built with three slightly convex hexagonal panels. Triangular panels in the roof can be opened for ventilation. Each cabin accommodates two or three beds, but no plumbing, since dining and bathroom facilities are communal.

Two years later, the firm refined the cabin design by assembling the wall panels so that the spaces between the edges of the panels form star-shaped openings for light and ventilation. Cabins at the Michmoret camp, described by the designers as half truncated octahe-
drons, can be built on platforms 3 ft above ground to provide a shaded area beneath them.

The same year, Kiriat Yam Youth Camp was built with octahedron cabins to accommodate between 7 and 10 children. With only one extra hexagonal panel, the 110-sq-ft floor area of the previous camps cabins was increased to 300 sq ft.

Common to all three projects is a construction system that the architects describe as economical: “By exploiting the unique structural properties of the polyhedral solids, it was possible to produce low-surface-resistance hexagonal elements whose assemblage forms an extremely strong tetrahedral body.”
Bat Yam Civic Center and Town Hall.

Strictly adhering to a formal geometry, Neumann, Hecker, and Sharon created a building with ample shade and an interesting pattern of natural light. Perched on top of the building like four folded-paper sculptures, concrete hoods protect openings in the roof that admit daylight to the space below. Interior spaces repeat the diamond panels of the exterior walls, which are enclosed with tiles between the exposed concrete structural frames.
Natania City Center and Town Hall. Triangular in plan and pyramidal in section, the proposed city center would be built with truncated tetrahedron units similar to those used in the Mediterranean clubs. Offices are grouped around a central court roofed with a space structure that overhangs the building.

Designed by Neumann and Hecker, the building develops some of the space arrangements and climatic protection principles introduced in the Bat Yam Civic Center.

Synagogue in the Negev Desert. Three types of polyhedral units comprise the structure of the truncated octahedron forming the synagogue. Neumann and Hecker’s familiar hexagonal panels are the basic building unit. The designers use the triangular spaces between these units for stained glass windows at mid-height of the structure. Windows for ventilating are built into suboctahedrons projecting from the building.

The synagogue is designed for a utilitarian purpose as well as a spiritual role: It sits atop a cistern that supplies water for nearby housing. Of its aesthetic impact, the designers said, “In the special desert conditions, the synagogue, by its height and wealth of form, would stand out very strongly against the monotonous background and the surrounding buildings.”
Synagogue Project. Polyhedral shells stacked into a large polyhedral structure will enable Neumann and Hecker to parallel the traditional pyramid form for a desert site. The shells create a wall about 10 ft thick, which leaves a large space within the pyramid. As with many of the firm’s projects, natural light is introduced through triangular windows set between the hexagonal panels. Hecker thinks of this proposed synagogue as “a continuation of some trends in Gothic architecture transformed by modern means.”
Israel Institute of Technology. Triangular folded plate elements serve as bearing walls and sunscreens for the Faculty of Mechanical Engineering buildings designed by Neumann and Hecker. The precast concrete folded plates, 14-ft high by 8-ft high wide, splay at 45°, and are 5\(\frac{1}{2}\) in. thick. Wall elements are staggered to provide shade, and narrow windows are tucked into the wall between triangular units. The saw-tooth contour of the two-story buildings cast shade upon the ground to minimize heat reflection.

Apartment Building, Ramat Gan. Taking their hexagonal concept another step forward, Neumann, Hecker & Sharon built hexagonal concrete prisms and stacked them on a hillside site. Above the third floor, they changed the form and cantilevered the prisms out in overhanging stories. The top floor also bridges back to the ground to provide an upper entrance to the building.

A major feature of the apartments is the half open and half covered polygonal terraces with rooms facing and opening around them. The architects say that the building combines the local traditional small house accommodation with the many advantages of apartment living.
Apartment Building, Ramat Gan.
Jefferson Terrace Apartments for the Elderly rise imposingly from First Hill in Seattle, commanding wide-screen views of Puget Sound, the city, and the mountains. On a site that falls from some 350 ft at the east to about 250 ft at the west, the architects, Kirk, Wallace & McKinley of Seattle, ingeniously staggered the 300-unit, 17-story high-rise on the slope and created jutting undulations in plan so that each tenant room has a corner window with a view.

The building provides 283 one-bedroom apartments and 17 two-bedroom units, plus central laundry facility, manager's offices, mailroom, lounge space, and generous outdoor terraces and planting. A community center on the main level, which can also be used by elderly persons from the surrounding neighborhood, contains a recreation-meeting hall, kitchen, arts and crafts facilities, and general purpose rooms. The community center is all on one level, approached either from a public vestibule or, by tenants, from within the building.

Because of the steepness of the site, there are five floors of apartments on the north side of the building before the main entrance and community center level are reached. To accommodate the plan to the terrain, these apartments are single-loaded on the north side of the corridor. When the building leaves the ground, from floors six through seventeen, the apartments are double-loaded with the corridors running east-west. To avoid long, depressing, institutional halls, they have been designed with elbows and jogs conforming to the zigs and zags of the plan. Another considerate touch is the provision of little seating areas with windows for views at corridor terminations, an amenity that should be required in most speculative apartment buildings to prevent corridor-phobia. There are also seating provisions near elevator lobbies, where old people can chat without having to make the trip all the way down to the public spaces.
A complete prototype duplex arrangement was constructed by the Seattle Housing Authority before undertaking Jefferson Terrace, in order to analyze space allotments, built-in and cupboard arrangements, and other matters. It was found that the plan works so efficiently that each apartment unit can actually be below the maximum area permitted by public housing standards, even though each was designed with wheelchair-borne tenants in mind (the one-bedroom unit is approximately 440 sq ft). Emergency alarm and smoke detection systems are located in each apartment.

As though they feared that the expressed, board-formed, reinforced concrete structure, while somewhat awesome in the way it rides the crest of its hill like a great gray ship's prow, might seem a trifle too strong a statement for housing for the elderly, the architects provided a gentle human touch in cantilevered window box ledges outside each bedroom window. These not only serve for potted plants to enliven the severe façade and give it warmth and life; they also, with the provision of a sort of free-standing concrete spandrel extending below the support, form a sunscreen for the window below and a constantly changing play of light and shadow across the sides of the building.

Since Jefferson Terrace was planned under public housing rules for a municipal agency, it is pleasing to report that it avoids all the institutionalism usually associated with those structures and sponsors. It is quite majestic, commanding a prominent position in the downtown Seattle skyline, and at the same time appropriately residential in its intimate spaces and the thoughtfulness of many details. The architects report with pardonable pride that “the construction cost of $3,500,000 was $20,000 below the allowable budget established by the Housing Assistance Administration, and included all site work and landscaping.” Reception of Jefferson Terrace has been
Corridor jogs and bends, preventing dullness.

Views (above and right) of typical one-bedroom apartment arrangement.
The architects say that “acceptance by the elderly clients has been very successful, and all tenants are delighted with their environment.” Professional acclaim has been received in the form of a Merit Award from the Seattle Chapter of AIA and a Merit Award in the 1968 HUD Awards for Design Excellence.

JEFFERSON TERRACE APARTMENTS FOR THE ELDERLY, Seattle, Wash. Architects: Kirk, Wallace, McKinley & Associates. Client: Seattle Housing Authority; J. Ray Adams, executive director. Site: Precipitous site in older urban area of low-rise residential structures, churches, stores, clinics, and hospitals. Architect involved in site selection. Views were a factor in siting of building. Program: Provide housing for low-income elderly people, plus a meeting place for the occupants as well as other elderly persons living in the surrounding area. Structural System: Continuous 6-in. concrete bearing walls around each of the 460-sq-ft units. Cost factor prohibited interruption of bearing walls at main floor levels, so community structure was built free of main building block. Mechanical System: All areas heated by hot water, fin-tube radiation. Major Materials: Concrete and plaster for low initial cost and ease of maintenance. Neutral colors intended to provide background for exterior planting and interior paintings and furnishings. Concrete on exterior is formboard patterned. Cost: Budgeted, $3,562,000; bid, $3,542,000; actual, $3,543,000 (including community center); or $16.10 per sq ft. Consultants: Skilling, Helle, Christiansen, Robertson, structural; Benjamin S. Notkin & Associates, mechanical; Richard Hagg Associates, landscape architects; Marlene Lambert, interior designer; Sparling & Associates, Inc., electrical; Robin M. Towne & Associates, acoustical; John B. Sellen Construction Co., general contractor. Photography: Hugh N. Stratford.
A few years ago, the architect and Pickle Jones, owner of the house, took the initiative in developing its site, a four-acre parcel of wooded, hilly land, as five residential properties. By careful planning and by restrictive covenants, they have succeeded in creating a development that looks almost as if its houses had been preassembled and lowered onto virgin and undisturbed ground. A single road serves all the properties, and the driveways are as short and inconspicuous as possible.

Determined as he was to make the Jones house a graceful one in its setting, architect Schubart still did not indulge in any fake rusticity. The masses of the house are prismatic and flat-roofed, the trim detailing neat in a rather Taliesin-esque way. The woodwork, though unpainted, is manifestly machine-cut and nail-assembled. Thin, cornice-like ledges, detailed the same inside and out, pass through the broad window planes to give the house the character of an open pavilion sketched out in vertical and horizontal planes—some broad, some opaque—that intersect.

To keep the house from being overly egregious on the site, Schubart broke up its abstract character in two ways. First
From a distance, the variety of forms in the Jones house keeps its over-all geometric order from seeming too boxy. The broken rhythms of the siding and the uprights give constant variety to the composition.
of all, he broke up its over-all massing and the rhythms of its parts. He treated the house generally as a cluster of forms, rising to various heights. He varied the rhythms of supporting posts and of mullions, applied (with his own hands) a random-width vertical siding, treated the exterior balustrades and the pergola-like sunshade over a basement window as De Stijl-like or quasi-Japanese compositions of complicated form. Without making the composition seem disorderly, he thus softened the visual effect. Again, through the same means and through others, he made the onlooker constantly aware that this is a house pieced together with boards, joists, mullions, posts, and scantlings; in this way, the abstract composition has been realized in the truest sense—that is, turned into a thing. This is a house manifestly made of wood; even the concrete-block basement is nearly invisible; the chimney is covered with wooden siding. Only the fireplace allows the masonry of the house to appear in any conspicuous way.

Generally, the house is a success, but there appears to be one weakness in the plan. The living and dining areas, treated as terminal features in a monumental suite are joined by a "crossing" area, which is lighted by a tall clerestory at the point at which the steps up from the entrance terminate. As the visitor climbs these steps, he sees a tall, nearly blank wall that gives him no hint as to which way to turn. The space that opens before him as he reaches the top is a lateral extension of the dining area, and it is toward this that he will, probably erroneously, tend to turn.

In other respects, the house seems perfectly satisfactory. The detailing is handsome, and the forest stands immediately outside the windows. The views are unspoiled; even the automobile is kept at a distance, at the end of a path.
The living and dining areas (right, and below right) form a monumental suite, together with a clerestory-lighted lobby area (below) into which the stair corridor from the entrance emerges. The sunbreaker over the basement (bottom) is, like the exterior balustrades, a sculptural composition.

How are successful schools planned? Apparently, there are no rules for school design, only successes and failures that come to light after the school has been put to the test of use. The following discussion of three schools, located in various parts of the country, explains what proved successful and what did not in a traditionally planned school, a school designed to bridge the transition from fixed classrooms to open plan, and a school without walls.

**Butler County Community Junior College**

How do you transform an educational institution, barely more than an adjunct to a local high school and housed in a condemned building, into an expanding campus for 2000 enthusiastic students? Neither the architect nor the educator who performed this feat can say for sure, but on the premise that they must have done something right, we present this solution to a junior community college.

The campus plan establishes the college as a separate entity from its secondary educational buildings, identifying various building functions and providing the logical form of future growth. The matching building forms used throughout gave unity to the entire development, with the two-story library building acting as the heart of the campus.

The master plan anticipates growth of the academic, residential, and parking facilities; the remaining elements will remain as designed. The most significant architectural and planning contribution to the project, in the architects' opinion, is the development and utilization of the exterior spaces between the building elements. This theme of the inner-directed campus, combined with the strong continuity of building design, forms the basis of the architectural planning concept.

**What Was Right?** What makes this such a successful school? Why, on a site where, five years ago, 382 students occupied a condemned building, are there now 2000 students going to school and making room for more?

The school design displays little innovation in classroom planning. Stanton
Striking building façades enclose traditionally designed classroom spaces in this prairie campus whose enrollment has increased 500 per cent in five years.
Leggett, of Engelhardt, Englehardt & Leggett, educational planning consultants, characterized the approach of the college as "fairly conservative." That earmark of progressive education—"divisible space"—occurs in only one instance with the attached residence hall, but a few more of these spaces may be added, the primary emphasis will remain on the traditional fixed, individual classroom.

The most distinct aspect of the campus is the unusual form of the buildings, whose splayed walls squat over the site like a covey of prairie chickens. They supply one of the essential program requirements, that of providing a uniquely individual and appropriate form to identify this Kansas school. Yet the success of the school is not due to its architecture. There are a number of schools, not nearly as successful, with unique form, and numerous schools with traditional fixed classroom planning.

The school architecture acts as a sign to attract students, and packs them in. It gives them an identity, but what holds them there is a unique educational philosophy.

Edwin J. Walbourn, president of the college, says that the small, fixed classrooms are essential to the educational idea. First, it makes teaching in small groups mandatory. Some of the students come to the college from high schools in which the total school enrollment might be as small as 50. Obviously, a lecture hall for 300 would be much too large. The traditional fixed classrooms also act as insurance against crowding and haphazard interior space juggling. In fact, they are an ultimatum to the community that more students demand more buildings.

More important than the rights or wrongness of classroom space and build-

ing form is Walbourn's program pitched to a grouping within the community that has, for the most part, seldom had a family member complete high school, much less go to college. Forty per cent of the students begin in technical courses. Once in the school, every effort is made to encourage the student to continue on to complete four years of college. Credits earned in the vocational courses are not lost when the student transfers to a regular BA program. Pupils in the body and fender repair, welding and auto mechanic courses are integrated totally with the rest of the campus. There is no differentiation in design of classrooms, enrollment procedures, or athletic participation.

This is part of the school's larger philosophy, which helps keep the tuition low: $4 per credit hour. There is no point in pushing the tuition up to a point where the community members can not pay it, says Walbourn. A family of 14 may have a great deal of difficulty in raising the $4, and they are the ones who need education the most.

The thing that is probably the most right about the school has little to do with architecture, classroom planning, or the various paraphernalia so characteristic of modern educational concepts. It is simply a program that states that a man who can learn to repair an automobile fender can go to a college to do it, and that further implies that if he is smart enough to repair a fender he is capable of embarking on an educational journey that can lead to mechanical engineering, philosophy, and similarly rewarding courses of study.

What was done right at Butler College? In terms of movable, flexible space, and audio-visual, computerized plug-in's, Butler is all wrong. The success of the school does not detract from the value of sophisticated educational techniques, but it does illustrate that the right planning concept—i.e., movable, flexible space—must be used in the right school.

**Boldly detailed interior spaces characterize the library (left), lecture room (center), and auditorium (bottom).**

**Butler County Community Junior College, El Dorado, Kansas. Architects: Schaefer, Schirmer & Elfin. Site: 80-acre semi-rural, at the western edge of El Dorado, Kansas, located on a knoll surrounded by slightly rolling topography; buildings sited at a 30° axis from adjacent road. Program: Design a new educational facility to replace a condemned school building. Structural System: Reinforced concrete foundations and concrete floor slabs; roof framing of structural steel, long spans are rigid frames; brick walls to 3 ft high; sloping side walls above are wood framed covered with clay tile shingles; heating and ventilating units located within sloping side wall construction. Mechanical System: Hot and cold chilled water from central system supplied to unit ventilators for classrooms; air handling units for larger spaces. Major Materials: Brick; clay roofing tiles in natural tones; board-formed concrete retaining walls and concrete walls. Consultants: Professional Engineering Consultants, structural and mechanical; Englehardt, Englehardt & Leggett, educational; Bolt, Beranek & Newman, acoustical. Cost: $3,000,000; bid, $1,964,000; 85 per sq ft. Photography: Julius Shulman.**
Combined library and student activities building stands at the heart of the campus at the center of converging concrete walks and low retaining walls. Its second story overhang provides covered space for outdoor classes.
HENDERSON JUNIOR HIGH SCHOOL

What was learned from a school predicted to be a laboratory for the problems of tomorrow's schools? Henderson Junior High School was to be a flexible system of spaces in which not only the student but the institution would learn, notes its designer, Byron Chapman. The worth of the design was attested to by its winning a P/A design award (January 1964 P/A) and its subsequent publication by the Educational Facilities Laboratories. What did the students, the institution, and the designer learn in this learning laboratory?

The school, notes the principal, J. Keaton, has worked to a certain degree, but all of its objectives were not achieved. One major complaint is noise control. The school should have been carpeted, and the barrel vault ceilings are a wrong solution by the Educational Facilities Laboratories. What did the students, the institution learn in this learning laboratory?

Crowding adds to the school's difficulties; originally planned for 750 students, it now accommodates 937. Originally, the design called for adding facilities as they were needed, to eventually accommodate 1600 students, but the bond issue to finance the additions was defeated.

Originally, there were plans for a summer school, expanded length of the school year, and staggered vacation periods in a quarterly system framework. These innovations were predicated upon the addition and rearrangement of space as conceived in the original design, but had to be dropped due to the noise factor, overcrowding, and lack of financing, according to Keaton. Nevertheless, the school is an improvement over the traditional, fixed classrooms. Experiments have been made with its larger spaces, and new teaching philosophies have been augmented, notes the principal.

Where did Henderson fall short and why? Among the first difficulties was that the original concrete columns and long-span steel trusses had to be given up in favor of perimeter masonry bearing walls with a line of columns at midpoint, thus curtailing the original concept of completely expandable, column-free space. According to Chapman, the architects had determined that the best arrangement of partitions would be to have them touch neither the floor nor the ceiling. The post that occurred on the six foot by twelve foot module was intended to interconnect floor and ceiling. Baffles above the partitions as well as carpeting was intended to have deadened sound. When bids came in, cost cutting forced the use of vinyl flooring and the baffles were completely eliminated.

About a year after the school was in operation, it was admitted that the noise level was intolerable. As a result, half the necessary baffles were installed, and glass was used between the partition top and ceiling around two or three of the audio-visual classrooms. The result was that airborne sound became somewhat acceptable; however, at present the school is left with a "little noise," admits Chapman.

Partially because the rooms could not be arranged as had been planned, the community was reluctant to spend money, notes the designer. The client was unable to move all the walls he wanted to. Part of the difficulty was a breakdown in communication between the users and the designers.

There is still the possibility of expanding the library as originally planned, and additional classrooms could be added at the end of the building even though the construction of a special orthopedic unit for handicapped children has somewhat limited the original concept of expansion flexibility.

Henderson Junior High School as an experimental school was intended to be, and remains, a somewhat flexible, transitional teaching structure. The main difficulty — that of additional financing — began at the bidding and continues to plague this "school laboratory." The problem is not unfamiliar to either school administrators or architects. The need for flexible school design is only exceeded by the need for flexible money.

Clerestory illuminates longitudinal corridors flanking flexible classroom spaces (right).

Movable partitions and fillers divide adjustable classrooms.
PROSPECT VALLEY ELEMENTARY SCHOOL

The open-space concept is an experimental but continuously successful educational approach whose proponents are usually more certain of its rightness than has been scientifically proven. The simple concept of eliminating walls is countered by a complexity of newly engendered teachers-student relationships. The success of schools without walls depends on teacher response and student conditioning to this radical change in the traditional school space.

Open-space planning is usually introduced on an experimental basis as part of a traditional classroom package. There have been a few completely open-plan schools, but not enough to standardize problems and render solutions commonplace. The rights and wrongs are still of considerable interest to the profession. For this reason, we present this design of "Kinderlandshaft," a school that went all the way in open planning.

A primary planning objective was that of individualized instruction for all of the students. The building also sets a precedent for elementary schools in the area and is the first one without walls, with no fixed classrooms, and with an instructional materials center.

The instructional materials center (IMC) is the heart of the building. Clustered around it are the equivalent of 18 classroom and two kindergarten spaces. The school was designed for about 600 students but has not yet reached its full capacity. It opened in 1967 with kindergarten through fourth-grade classes and is in the process of adding fifth- and sixth-year students. The IMC is at the center of the fourth-, fifth-, and sixth-grade area. It is also available to the lower grades.

How Does It Work? The architects were asked to submit their comments on the function of the school after a year's operation. The following is a summary of the findings as presented by Victor D. Langhart.

Prospect Valley has functioned exactly as intended, according to the educational program presented. Although still not at full enrollment during the school year, the school has operated as a summer school and training ground for other elementary-school teachers destined for open-plan schools within the district. During this summer training period, it has operated satisfactorily at a level well above enrollment capacity.

Since the opening of Prospect Valley, Roger, Nagel, and Langhard have as coordinating architects, and in association with other architects, opened six additional open-plan school additions and are presently planning two more.

Their experience indicates that acoustical floors and ceilings are desirable, which is in conflict with the findings of the EFL report on open-plan schools. The EFL report indicates, notes Langhart, that reflective or hard ceilings are desirable for voice projection over large distances for group activities. This is true, he says; however, voice projection can be obtained electronically with small, portable voice amplification units that reduce sound reflections. As a result of this finding, open-plan schools presently under design in the district have acoustical floors and ceilings. Prospect Valley opened with many teachers trained and prepared to work in open-plan facilities with some teaming, but some of the teachers were not fully prepared for the facilities. There was also a certain amount of confusion evident in students who had previously occupied self-contained classrooms and had not been pre-
pared for the open-plan concept. By now, most of these problems have been resolved and the individualized education process is working, reports the architect.

The lights have proven somewhat unsatisfactory. One can see a great distance in open space, bringing light fixtures on the horizon into the field of view. This glare problem is under study.

One of the most unsatisfactory experiences was trying to adapt standard classroom furniture into open-plan space. Traditional individual desks and chairs present a problem in that they are not easily moved, nor are they "compressible" for group activities.

EFL provided a grant to the Jefferson County School District to study this dilemma. The architects and their interior design department researched the problem and have come up with a simple system of components that are light, movable, and compressible.

Architect Langhart concludes his summary of results by saying that "One must visit Prospect Valley while the children are in the learning process to appreciate the education program and the environment that houses it to understand the type of revolution taking place."

It has been a successful revolution as far as the architect's client has been concerned, as is evidenced by the development of the open-plan concept and the training of teachers to use this new architecturally planned educational tool.

Site: Rural area, turning suburban, in rolling hills overlooking the Rocky Mountains. Program: Design learning pods without walls for flexible small group and class-size learning spaces containing a variety of instructional media. Structural System: Built-up roofing on wood truss joists supported on masonry bearing walls for major structural system; interior steel columns and beams support wood truss joists in interior spaces. Mechanical System: Unit ventilators at all exterior walls supplemented by single and multi-zone ventilation units; pendant thermostats used due to lack of interior partitions. Major Materials: Brick exterior, interior insulation board covered with vinyl. Consultants: Edward R. Bierbach, structural; Earl L. Heckman, mechanical; Behrent Engineering Co. electrical.

Costs: Budgeted, $619,500; bid, $602,591; actual, $626,047.46; $15.61 per sq ft with landscaping. Photography: Rush J. McCoy.
In the October 1968 P/A, we showed how DMJM carefully shaped a tunnel entrance to dramatize the swallowing and expulsion of traffic. In the present DMJM work, the Worldway Postal Center, we seem, at first glance, to have an example of the opposite approach, that of Just Letting Things Happen. The raw, stained concrete construction, exposed everywhere, is Post Office standard, and the infilling is a plain brown brick: a combination that seems to promise only a brutalist quality of industrial drabness.

But there is a little more to it than that. The architects have borrowed a trick from the Romans, from Michelangelo and Borromini. Instead of standing to the rear of the bearing members, as they normally would, the screen walls of brick and grillwork are set forward so that they are flush with the floor slabs and the faces of the capitals, and nearly engulf the columns, upsetting ordinary rules of precedence. Seen on the oblique, the infilled stretches of the exterior create a volume enigmatically gashed at regular intervals, in which only the corner columns have much individual prominence. The glazed areas, relatively few in number but large, are treated in two ways. The big windows of the public area are treated as infill, and brought out flush with the floor slabs, while the windows of the offices and employee's rooms are brought forward of the wall surface as a series of low, jutting bay windows, related ambiguously to the brickwork above, below, and behind them.

Another unusual feature is the separation of the helical auto ramp from the parking deck by three bays of open construction. The ramp, straightening out at the top, is connected rather awkwardly with the top of this skeletal structure. The arrangement is actually a perfectly rational one; at this end the building will eventually expand, filling in the three bays and other ones behind.
Suggestions on restructuring architectural curricula to stimulate creative development.

By H. H. Williamson, School of Architecture Rensselaer Polytechnic Institute

Consider the current contrasting methods of teaching architectural design resource material such as structures, mechanical equipment, materials, acoustics, and so on. Some schools teach this resource material integrated with the design labs in such a way that students learn this basic information in direct association with a specific design solution. For example, wood as a material, post and beam as a construction method, and warm air as a heating medium are taught in direct relation to a specific project such as a residence design.

Conversely, other schools prefer to teach these resource materials by the capsule method. Separate courses, unrelated to a specific architectural design, are used for teaching structures, mechanical equipment, materials, acoustics, and so on, by rote memory.

Neither method has to date been supported by any evidence other than "intuitive" evaluation. In fact, there has not been one single major breakthrough in educational theories or methods supported by objective scientific proof in the hundred years of formal architectural education.

But there does exist a field upon which the architectural educator could draw—the field of the "Psychology of Learning." A research study is in progress at the Rensselaer Polytechnic Institute Center for Architectural Research with Professor Harry E. Rodman, FAIA, as architectural advisor. This study is concerned with whether or not there is a psychological basis for curriculum organization in architecture. Previous learning experiments by psychologists are being explored and new experiments are being conducted to determine what influence they may have upon the structuring of the architectural curriculum.

In an experiment conducted by the late Dr. Max Wertheimer, Professor of Psychology and Philosophy in the Graduate Faculty of Political and Social Science at the New School for Social Research in New York, two groups of students were taught geometry theorems by different methods: one group was taught the theorems as a means of solving a specific type of problem, while the second group was taught the theorems by rote memory unrelated to specific problems.

Some very interesting results were observed in follow-up tests. The first group was found to be faster than the second group in solving the specific type of problem, but was unable to "transfer" these theorems toward the solution of other problems. The second group was found to be somewhat slower, but successful, in solving the specific type of problem and was quite successful in "transferring" these theorems toward the solutions to various other types of problems.

Can the conclusions from these experiments be carried over into architectural design education? Is it possible that the integrated method would really deter the architectural student's creative development?

There is further evidence to support Dr. Wertheimer's experiments. Dr. George Boguslavsky, Professor of Psychology at Rensselaer Polytechnic Institute, is acting as research advisor for the current study. In an article in Science magazine, Dr. Boguslavsky states that Pavlov observed in experiments that responses conditioned in one context fail to occur when the context is changed. Accordingly, for the maximum transfer basic to highly creative work, Dr. Boguslavsky suggests that "such confusion may be avoided if the essential characteristic is illustrated in a variety of positions and in many contexts."

Studies in Creativity

Dr. Donald Mackinnon, psychologist and Director of the University of California's Institute of Personality Assessment and Research at Berkeley, has, in recent years, made numerous studies of creativity in architects. In a lecture given at Yale University in 1962 on "The Nature and Nurture of Creative Talent," Dr. Mackinnon recommended emphasis on both rote memory and upon the transfer of learning from one subject to another to strengthen the creative process.

A possible graphical explanation may be as follows. Concepts are learned by the individual and are stored in the human brain. According to Paul Smith's book, Creativity, the highly creative brain stores concepts in a free-floating state with the capability of being freely associated with numerous other concepts previously learned in new and unusual creative combinations (Fig. 1).

On the other hand, concepts learned in direct association with a specific reference tend to be tied permanently to that reference and never end up in a free-floating state unless relearned in a variety of different combinations (Fig. 2).

Based upon existing evidence, we could logically conclude that the capsule course method taught either by the rote memory or by stressing a variety of relationships in different contexts is more efficient in developing the creative thought capabilities of a student engaged in creative problem solving than the integrated method. Further, unless strong emphasis is placed upon "transfer" in the teaching of resource material under the integrated method by the use of metaphors, similes, comparisons, and so on, the student will be retarded in the development of his creative thought potential.

Another aspect of the learning process being considered in the same studies at Rensselaer regarding the teaching of design resource material is the time and place in the curriculum at which this material is introduced to the student.

Present curricula in most undergraduate schools of architecture concentrate the design resource material in the third and fourth years with a limited amount scheduled in the second and fifth years.
Architectural design, however, usually begins either in the first or the second year. Accordingly, the student's mental design processes are initiated and established prior to their learning the required design resource material that constitutes the vocabulary for design problem solving. In other words, the students learn to ignore many important considerations required in architectural design, thereby developing a negative habit strength. Continued repetition serves to reinforce this response until it becomes an automatic subconscious reaction. Once these responses become automatic, relearning is most difficult.

**Breaking Negative Strengths**

In an experiment conducted by psychologist Paul S. Siegel and reported in both the *Journal of Experimental Psychology* and Gregory A. Kimble's book, *Foundations of Conditioning and Learning*, it was concluded that in even a simple trial-and-error situation, the speed of learning "... is some inverse function of the initial level of absolute strength that prevails among competing reaction tendencies." Thus, the stronger the negative habit strength becomes, the more difficult it becomes for the student to learn the correct response. In his book *Educational Psychology*, psychologist Lee J. Cronbach explains the learning process quite clearly: "Learning is shown by a change in behavior as a result of experience." He goes on to say, "A person learns the misinterpretation that causes him to make a wrong response, but this is also learning and it can be explained by the same laws." But one of the most pertinent points that Dr. Cronbach makes relative to negative habit strength is the following: "There are occasions when the hardest job of the teacher is to break up a response pattern which is already fixed."

Reinforcing Dr. Cronbach's conclusion is a wealth of experimental research reported by psychologists R.W. Schulz, G. Mandler, S.K. Atwater, S.H. Heinemann, and B.J. Underwood.

Therefore, for the greatest possible efficiency in the learning process, it is important that students learn at a particular *time and place* in the curriculum, thereby eliminating the wasteful relearning process. Not only does relearning require valuable additional time, but experiments show that learning speed and effectiveness of students is reduced in relearning similar material.

To carry this conclusion over to a practical application, one would expect to find many mature architects who have yet to overcome this negative habit strength and who still design without due consideration for structure, site topography, mechanical equipment, and similar influences. Hasty evaluation might lead us to conclude that this practice is simply a personality characteristic of the individual. However, such responses are more likely a result of his educational process.

A logical solution to this problem is to move the design resource material to the first two years of the architectural curriculum and to begin architectural design sometime after the student has acquired the basic vocabulary. This is not to suggest that the student must be able to calculate and size such components as structure, mechanical equipment, plumbing, and so on, but that he has learned a visual-mental concept of the numerous varieties of components to be used by him in conceptual design.

Interestingly, virtually all recent efforts by architectural educators to keep pace with the "knowledge explosion" has been toward an increase in curriculum length. Little or no emphasis has been placed upon increasing the efficiency and effectiveness of educational methods.

Also relative to the *time and place* in the architectural curriculum is the teaching of city and regional planning. Most present curricula schedule planning to be taught in the fifth or last year, after individual building design instruction.

Earlier emphasis in architectural education was placed upon the design of individual buildings. Accordingly, curricula were structured to organize student design experience from the simple to the complex. Students begin with building programs of relatively simple requirements and progress to more complex requirements.

In recent months, however, widespread attention has been called to an existing and growing visual state of "environmental ugliness," which is defined as the result of our unplanned and undesigned total environment that includes both man-made structures and the man-machine defacing of the landscape. As a challenge, professional architects have assumed the responsibility for "environmental ugliness." To effectively combat this change in professional emphasis, the architectural curriculum will have to change.

**Move from Large to Small**

To formulate a positive habit strength that will train students to think of the large environmental scale initially, gradually reducing scale considerations to the individual building, the teaching of regional and urban planning should be moved to the beginning of the curriculum. Thus, individual building design would follow environmental planning in the *time* sequence of student experiences.

Preliminary to planning itself should be the introduction of planning concepts basic to the planning process. Planning concepts should include such information as human needs, economics, social, legal, and governmental organizations, plant materials, and so on.

Another concern in curriculum planning is spatial visualization. Experiments by psychologists on spatial visualization have to date been quite limited. An experiment conducted in Russia in 1965 by B.M. Rebus, with the results published in *Voprosy Psikhologii*, concluded that "... spatial visualization is an unlearned ability."

Contrary to this conclusion, however, was an experiment in 1955 conducted by M.F. Blade and W.S. Watson, with the results published in *Psychological Monograph*. The outcome of this experiment indicated that spatial visualization can be learned.

The investigation of spatial visualization is another phase of research being conducted at the Rensselaer Center for Architectural Research. The determination of whether spatial visualization is a learned or an unlearned ability could have a revolutionary effect upon structuring the architectural curriculum.

Whatever the discoveries in these investigations, it seems apparent that the process of learning design and planning should move from basic "tools" to the imaginative use of those tools, and from the over-all concept of community down to the building increments that combine to produce the individual community's physical form. Thus, students will be able to perceive the connectedness of their creative problem-solving devices with the various applications of those ideas and techniques, and they will be able to envision the significance of their efforts in the framework of the community at large.
For 17 of its 42 years, the Vacation Camp for the Blind has been situated in 40 acres of woods, fields, and meadows near Spring Valley, New York. The nonsectarian, interracial camp provides summer vacations and winter weekend holidays for more than 2000 blind people, who can pay what they wish, or not pay at all, according to their abilities. In addition to housing, the camp offers social services, professional counseling, and community and recreational programs.

Until recently, blind people with sighted children were placed in rather run-down cabins mingled with the housing for single people and childless couples. Now, thanks to a design by Samton Associates of New York City, they have their own compound of 12 cottages and a lodge connected to the main camp by walkways and railings.

The cottages, most of which adjoin each other to allow them to be combined for larger families, consist of two bedrooms on either side of an entry-bath element. A screened porch in front of the entry provides space for relaxing. Since the partially sighted also use the facilities, varying hues of vinyl tile on the floors indicate pathways to the rooms and bath, and brightly colored formica covers the drawers of built-in storage chests. The upper half of each bedroom is wood-paneled and the lower finished cinder block, with a portion left with a rough-textured surface to act as guide. Lighting fixtures especially designed for the cabins are faceted to permit different angles to obviate harsh shadows and contrasts. Safety handrails are provided at the sides of tubs and toilets in the bathrooms.

The lodge, which is situated to the left of the entrance into the compound, includes an adult lounge, a kitchen, and a play school-nursery outside of which is a small playground or tot lot. The parquet-floored adult lounge has overhead glass doors, which slide down in the winter to close off the screened porch, but admit maximum natural light. The playroom has a similar provision, and is also divisible into two spaces through use of a centrally-located manifold door. The kitchen, in addition to providing preparation space for children's bottles and snacks and for camp parties, is also designed for orientation programs to acquaint blind parents with effective kitchen techniques and available aids and appliances that will reduce accidents in home kitchens. There is a utility building behind the lodge containing a storage room and a laundry room for the campers' use.

A major effort of the designers in creating a vacation environment for people who are blind was the emphasis on providing stimuli for the other senses. Sounds emanate from a sculpture fountain near the lodge, and from hanging "sound sculptures" at various points along the walkways consisting of tinkling seashells, clattering bamboo sticks, and clangoring metal rods. When it
rains, water drops from especially designed gutters into shallow pools around the cabins. Pungent natural odors have been designed into the landscape by Samton and the landscape architect, M. Paul Friedberg. Campers can move from zone to zone of fern, sumac, mint, and the headier fragrance of real pine forest. The sense of touch is emphasized for its pleasurable qualities as well as its functional duties of guidance. The smooth steel pipe railings have sensuous curves to indicate approaching corners or entrances. Underfoot surfaces differ to indicate where the camper is and where he is going: fixed gravel for walkways, concrete for the central terrace, a mat to indicate the approach to a glass door in the lodge.

The generous use of color in an environment where many people will not see it prompted a question. "The blind are as interested in colors as anybody is, even more because they can't see them," said Harry Minkoff, executive director of the camp. "They know they exist and they want to know where they are. The blind are as much moved by the idea of variety as the sighted are." Architect Claude Samton added that "Architecture can work for the blind as it does for the seeing. And while you should emphasize nonvisual experiences, you should not eliminate the visual ones. We should work to give the blind the best we can of both worlds."
SYLVESTER FAMILY UNIT, VACATION CAMP FOR THE BLIND, Spring Valley, N.J. **Architects:** Samton Associates. **Site:** Hilly, well forested area selected with help of architect. **Program:** Provision of living units and a social center for blind couples with, usually, sighted children in a camp-recreation area for blind people. **Structural System:** Concrete block bearing walls with wood joist roofs. **Mechanical Systems:** Baseboard heating for bedrooms; thermostatically controlled units for bathrooms and foyers in cabins. Overhead heating for lodge. **Major materials:** Cedar boards, smooth textured concrete block, vinyl tile, brightly colored formica panels. **Cost:** $300,000. **Consultants:** M. Paul Friedberg & Associates, landscape architects; Robert Silman, structural; Paolo Squasi, mechanical; Newhill Construction Co., general contractor. **Photography:** Courtesy, Samton Associates.
HARDCOAT ALUMINUM FINISHES

BY HAROLD J. ROSEN

Knowing how hardcoat anodized aluminum is produced can help readers better specify the material. Rosen is Chief Specifications Writer for Skidmore, Owings & Merrill, New York City.

Hardcoat aluminum finishes comprise those aluminum finishes designated as A42 by the Aluminum Association and sold commercially under the trade names of “Duranodic” by Alcoa and “Kalcolor” by Kaiser Aluminum. Hardcoat anodized colors are limited to the light, medium and dark bronzes; the light, medium and dark grays; and black.

The hardcoat colored finishes offer many advantages over the natural finishes and the dye impregnated colors. They offer superior light fastness, greater durability, and higher resistance to corrosion and abrasion. The superiority of the hardcoat finishes over the older anodizing processes is due to the higher density of the oxide film obtained.

In the older, or conventional, sulfuric acid anodizing process, the electrolyte has a moderately solvent effect upon the anodic coating as it is being formed. This tends to keep the outer surface of the coating porous. But the hard coat anodizing process is considerably faster, which leaves less time available for the solvent action. Consequently, the coatings formed are more dense and provide surfaces that are more resistant to abrasion.

After being subjected to field tests and accelerated artificial laboratory tests, hard coat finishes demonstrate a longer life-span than natural finishes. Resistance to abrasion of the hard coat finishes is twice that of conventional finishes and has been demonstrated by Taber abrasive tests and jet abrader methods. Because of this hardness, these finishes can be used at entrances, handrails, pushes and pull bars.

The hard coat finishes are dependent upon three basic ingredients. First, the selection of a controlled aluminum alloy; second, the specially patented acid electrolyte; and third, the anodizing time. This results in an integrally colored coating having a range in thickness from 0.7 to 1.2 mils.

However, because of the nature of the finishing process, which includes the pretreatment as well as the anodizing process, minor shade variations can occur from one colored element to another. To minimize color variation, it is necessary to understand the factors that contribute to the variation so that specifications can be written to control and reduce the difference in color.

Pretreatment consists of both mechanical and chemical finishes that precede the anodic process. In the mechanical treatment, the aluminum surface can be either polished or buffed to obtain a texture that provides a certain uniformity. This can result in a pattern of fine, parallel scratch lines produced in varying degrees of fineness by abrasive-coated belts or by stainless-steel wire brushes. Buffering results in a mirror-like finish with the elimination of surface marking. Because a buffed surface is highly reflective, the apparent color of the finished member appears darker than the actual color of the oxide coating.

In the chemical treatment, the aluminum is subjected to an alkali or an acid etch. The alkali etch results in a matte finish. The acid etch results in a bright finish. These chemical pretreatments have an effect on the anodic finish. Matte finishes will result in a lighter apparent color, and bright finishes will result in a darker apparent color. These apparent color variations result from the reflectivity of the metal substrate as well as from the anodic coating.

Only controlled alloys should be specified for hardcoat finishes. Ordinary aluminum alloys can vary in the composition of the alloys of metals, which can include silicon, iron, magnesium, manganese, chromium, copper, and zinc in varying percentages. Each of these metals can affect the color of the final anodic coating. By specifying controlled aluminum alloys, color variation is reduced.

As an additional control, the architect should obtain representative samples from a major aluminum producer before asking for bids. He should make his selection at that time so that these samples can be used as a control against samples to be submitted by the contractor after the contract is awarded. Two samples should be selected initially to establish the light and dark range of colors that will be permitted on the project. Although the dark and light range may be too strikingly different when placed adjacent to one another, the architect may specify that adjacent members should not vary from one another by more than a certain amount. This color variation can be controlled by means of a color analyzer, known as a Photovolt Reflection Meter, made by the Photovolt Corporation of New York. This device uses three different filters—a green, a blue, and an amber—and a lengthy mathematical calculation for obtaining a quantitative value.

However, the device can be simplified to use only the green filter with a direct reading which will indicate the difference between the light and the dark samples used for control and the sample in question. By establishing these values, the architect can specify that adjacent members should not vary by more than one, two, or three points when subjected to the Photovolt Reflection Meter. The device need only be used when there is a difference of opinion between the architect and the contractor about the degree of difference in color between adjacent members.
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OBLIGATIONS OF LIABILITY INSURER

BY BERNARD TOMSON AND NORMAN COPLAN

The foregoing principle is illustrated in the case of DiMaria Construction Company, Inc. v. Travelers Insurance Co., (N.Y.L.J., December 1968). In this case, a general contractor instituted suit against his insurer to recover legal expenses the contractor had incurred in defending an action for personal injury that had been instituted against him. The general contractor had entered into a contract providing for certain work in connection with alterations to a department store. This work included general repairs to and about the premises, including the sidewalk. A pedestrian walking on the sidewalk adjacent to the street was injured and brought action against the owner, the general contractor, and the city. The contractor's general liability policy provided that the insurance carrier would, with respect to such insurance as was afforded by the policy for bodily injury liability, "defend any suit against the insured alleging such injury ... and seeking damages on account thereof, even if such suit is groundless, false or fraudulent." Both the city and the owner claimed over against the general contractor, contending that if they were deemed liable in the suit, they should be indemnified by the contractor.

The contractor forwarded to his insurance carrier the complaint and cross-complaints charging him with liability, but the carrier refused to defend on the ground that the accident occurred after the project had been completed and that the contractor's insurance did not cover "completed operations." The contractor was compelled, therefore, to defend the action at his own expense, which action was eventually dismissed.

The contractor then sued his insurance carrier to recover the costs of such defense. The primary issue for determination, therefore, was whether the insurance carrier, under the provisions of the policy in effect, was obligated to defend the action instituted against the contractor, even though the accident occurred after the project and the contractor's services had been completed, and even though there was no coverage under the policy for liability incurred for an injury sustained at such time.

The Court first pointed out the fundamental principle that the obligation of an insurance carrier to defend is broader than its obligation to pay, and that its obligation is to be determined by the allegations asserted against the insured and not by what is eventually proved. The Court said:

"The carrier's duty to defend is broader than its obligation to pay. Where an action is brought against an insured, even if false or without basis, if by the allegations of the complaint in the action brought by the injured party they fall within the coverage of the policy, the carrier is obligated to defend."

The allegations of the complaint against the contractor by the pedestrian who had been injured stated that "at and during all of the times" mentioned in the complaint, the general contractor undertook and did perform services in connection with the repair of the sidewalk, and at such time the contractor "created a dangerous condition." The only specific time mentioned in the complaint was the date of the accident. The cross-complaints of the owner and of the city stated that "at the time" mentioned therein the contractor was engaged in repair work and was in control of the work being performed to the sidewalk. Again, in these cross-complaints, the only specific time mentioned was the date of the accident. The Court therefore concluded that the allegations of the complaint and cross-complaints were to the effect that at the time of the accident the contractor was actually engaged in and performing repair work, and thus the insurance carrier was obligated to defend. The Court stated:

"Where liability is asserted against an assured on some grounds, which, if established, would fall within and some which would fall without the exclusionary clause in a policy, the carrier is obligated to defend the action. . . ."

"With these precepts in mind, an analysis of the allegations of the complaint and cross-complaints discloses a charge by the injured party that at and during all the times 'hereinafter mentioned' defendant undertook to and did perform services and in connection therewith created a dangerous condition and that she sustained injuries on June 13, 1961, which, as heretofore noted, is the only time 'hereinafter mentioned' in the complaint and cross-complaints. Since it was alleged that the injured party sustained those injuries 'at' and 'during' the time that DiMaria Construction Company, Inc., was performing its work, defendant carrier was obligated to defend since the complaints did not refer exclusively to a 'completed operation'; while if it were factually established at the trial that the operations were actually completed at the time of the accident defendant might not have been required to pay any recovery by the injured party."

The Court concluded that the question of whether the insurance company would have been under a duty to pay had the pedestrian prevailed in the negligence suit need not concern it, since, regardless of that duty, the company had obligated itself to defend if a suit were brought against its insured alleging facts that fell within the terms of the policy coverage.
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CAPRIOUS MINGLING OF ARCHETYPES

BY ERVIN GALANTAY


The recent upsurge of popular interest in cities has brought forth a flood of new publications characterized by a turned-on, journalistic style, lavish illustrations, and steep prices. Alas, the pace at which these books are written forces some authors to telescope their research and to cannibalize similar publications for ideas and handy graphic material.

Leafing through Matrix of Man, a new $15 volume on the history of urban environment, one finds that it contains nary a new diagram or a photograph that has not been scissored from familiar sources. It is the text that promises originality and one turns to it with pleasurable excitement, since the author is Sybil Moholy-Nagy, the redoubtable educator and Grand Lady of architectural polemicism.

Not to disappoint the reader, the author opens up with a resounding broadside at the “urban specialists,” a new species that maintains a “perpetual momentum of urban crisis.” This “species” is in legitimate search for a methodology to deal with problems of the city caused by quantitative changes such as dimensional enlargement and rapid urbanization. But the author quickly unmasks the “spurious scientific façade” of such quantitative concerns and summarily dismisses the “wailing brotherhood” of social scientists and planners. Overall planning is equated with an ultimately computer-controlled environment that spells Fascism.

The author’s own approach is qualitative (“figures, being necessarily unreliable need not concern us”) and purports to reassert the historical city sense of a “permanent place on earth flung at the future.” She finds the symbols of her preoccupation in the solid-concrete pinnacles outside Mexico’s Ciudad Satellite.

“From their apex, we are told, reaches a trajectory curve to the origins of urban environment.” The “origins” are important to the author’s thesis that in community design the best solutions were found at the very beginning, later attempts being impaired by compromise.

Like Edmund Bacon in Design of Cities, Mrs. Moholy-Nagy emphasizes that “man-made environment is the product of architecture.” But, in contrast to Bacon, who views urban form as the cumulative product of individual acts of will and imagination, Mrs. Moholy-Nagy’s point is that “plus ca change plus c’est la meme chose.”

Bacon’s concept is evolutionary, whereas Mrs. Moholy-Nagy rejects the banality of progress. City and village differ like man and ape, but “there is no progress in man’s urban dream except in mechanical equipment.” Cities may vary in size and complexity, but the history of urban environment is essentially a sequence of “déjà vu.” The “Eternal Return” is invoked, momentarily suggesting that the author subscribes to the cyclic theory of cultural history. But Spengler’s and Toynbee’s concept allows for a highly individual profile of each civilization, whereas Matrix of Man asserts that, irrespective of space, time, and culture, human society’s attempts at form-giving order are limited to just five basic settlement-patterns or “archetypes.” Assuming that the author uses the term in the sense of Jungian archetypes — patterns proper to the collective subconscious of mankind — it should follow logically that such archetypes as the grid-pattern are spontaneously invented by distant civilizations. However, the author also champions a “diffusionist” theory by stating that Far Eastern planning practices derive from “Assyro-Hellenistic” models, and, in turn, the design vocabulary of pre-Hispanic America derives from the Far East.

In proof of all this, the reader is referred to “obvious conceptual affinities.” The five archetypes of Mrs. Moholy-Nagy are not functional but formalistic and merely define the street and block patterns. Lacking is a comprehension of the city as a system containing sets of interrelated activities, although the nature of this relation is a major determinant of urban form. It is hinted that the espousal of an archetype by society is expressive of its social organization: “centric” schemes are favoured by absolutism, “modular” plans are fascistic, but their “linear-orthogonal” variety is an expression of the values of the tolerant middle classes (although the bloodthirsty Assyrian imperialists are credited with its invention). “Clusters” are discriminatory by nature, in contrast to “geomorphic” patterns, which are inherently democratic, and hence urgently desirable. Since the “archetypes” provide the conceptual framework in which the books’ 300 illustrations are hung, a summary of the five categories is in order:

1. “Geomorphic” plans are adapted to topography and climate; the term is mostly used for settlements on hillslopes or on strong slopes.

2. “Concentric” plans are characterized by a single, dominating core. Medieval hilltowns share the “concentric” tag with ideal cities and new capitals.

3. “Orthogonal-modular” plans are evil, since they are marked by the “roman plague” of the mathematical plat. Checkerboard and grid plans, camps and colonial cities belong here.

4. “Orthogonal linear” plans are proper to merchant cities located along some waterway. Such cities are “shaped in the likeness of the middle stratum of society” even if they look like a grid with mathematical plans like Manhattan.

5. “Clusters” are all other settlement forms that do not fit in the above categories. A social stigma attaches to them. This group includes exurban satellites; urban housing projects; institutional monasteries; company housing; medieval ghettos; and Lincoln Center.

The trouble with this terminology is that it does not conform to accepted usage and that there are few cities that could not be classified with equal justification in two if not three of the above categories. The author adds to the confusion by capriciously mingling her “archetypes.” One can play an amusing game trying to match cities with Mrs. Moholy-Nagy’s categories. Let’s see.

Corbusier’s Ville Radieuse: Continued on page 166
A door isn't just something to open

by C. Terence Coveng

Lorenzo Ghiberti must certainly have been thinking along these lines as he spent 48 years sculpturing Biblical scenes on the Baptistery doors in Florence, Italy. He knew how important a door could be to the looks of a building.

But Ghiberti forgot just one small detail: How to make it floodproof. When the Arno River overflowed its banks two years ago, Ghiberti's door panels ended up all over the city. Sure it's great to have a good looking door, but there are other things to consider, too.

How to be a modern day Ghiberti.

You might not be willing to give a door 48 years of your life, but you'd be surprised what a few minutes can get you these days. Take a door's looks. What most expresses the kind of structure you're designing now? Hardwood veneer? Use of color in an overlay? Plastic laminate? Today, any of these surfaces and a variety of wet or dry finishes, both clear and pigmented, are available from Weldwood.

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Is that really a door you're filling that hole in the wall with?

According to Webster a door is a barrier. Actually, that isn't always true. Noise gets through them, as do fires, X-rays, things that cause heavy sudden impacts ... even the Arno River. That's why it's wise not to accept any door on its face value.

And you won't have to when you get the inside story of how Weldwood goes about putting a door together. Behind every one of our faces is a well constructed thought.

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Get together with a Weldwood man. He'll show you why a Weldwood door isn't just something to open. Nor is it just a pretty face. Most important of all, it's also the stuff it's made of.
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The Insulation People
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Continued from page 158


Adding to the confusion about the archetypes is the whimsical organization of the material in the book’s seven chapters.

Chapter 1, on “Geomorphic and Concentric Environments,” includes discussion of Persepolis, Delphi, Peking, and Maya Tikal.

Chapter 4, on “The Orbit of Rome,” takes up the earlier Greek new towns and, by stretching diffusionist imagination, also embraces Chinese and Inca planning. A lengthy narrative on Sumerian cities triggers a salvo against the “maniacs of urban renewal” in 1960 Philadelphia who “reduced a few architectural gems to vulgar gold teeth in a poorly recapped mouth.” The book abounds in quick generalizations, such as, “Marxism and urban society are incompatible.” To say that “neither Spain nor Portugal sent out humanists with the conquistadors” is, of course, untrue, and insults the memory of such great men as Alessandro, Geraldini, first bishop of Santo Domingo (1520), or Vasco de Quiroga, who arrived in Mexico with a copy of More’s Utopia and built socialist communes in 1530.

Petty errors also pop up with some frequency: Soria y Mata’s name is consistently misspelled, and, according to George Collins, the photo used to demonstrate the “banality” of his Ciudad Lineal does not even depict its subject. Dimensions as stated are often incorrect. Thus, Persepolis sports a “2 feet wide double run staircase,” while medieval Bern is adorned with fountains “every 4000 feet” although the length of the original Zähringian town does not exceed half that distance (2000 ft).

The author treats historical persons, alive or dead, with refreshing levity. Louis XV of France is characterized as that “poor fellow”; Patrick Abercrombie, “knighed for his efforts ... wove the cutest daisy patterns from pure cluster philosophy,” Patrick Geddes, Henry Wright, Lewis Mumford all take a slap on the hand for their “unbelievable naivete,” and although William Penn “in his Quaker heaven” would approve of Bacon’s plans for Philadelphia, the author still chides Bacon for violating the “genius loci” by not using the architectural tricks typical to Karlsruhe.

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Continued from page 166

The author intimates that she "underwent the ordeal of writing the book" to exert some influence on reality. Hence, one turns with particular curiosity to Chapter 7, on "Options: A Conclusion," to see what nourishment is offered to those who per­served in this marathon through urban history. Alas, one finds little soul-food for the journey still ahead. Rather eclec­tically, a bouquet of samples is offered in each archetypal category. The samples have little in common except for a preva­lence of high densities. The "street conscious­ness" of Montreal's Habitat is praised; the insular retail core of Essen, girdled by car parking, is held up to us as an example of "the linear city of pure communications." A project for Malta—stacking identical cells in front of the rocky shore and totally dependent on elevators—is admired as being "geo­morphic," (Whatever happened to the author's dislike of the "ancient coercive grid tilted vertically"). There is no hint to all social systems. Yet if all "options" are equally available and appropriate to advanced, developing, or poor economies, to one or all social systems, yet if all "options" have universal appeal, does this not negate the idea that the preference for an archetypal expression of societal values?

At one point, the author remarks hopefully that one can "always rely on the Ger­mans to amalgamate and abstract the original ideas of others." The amalgamation of ideas is certainly a feature of the book and one can only wish that other admirable Germanic qualities, such as precision of thought and clarity of or­ganization, would have found equal repre­sentation on its pages. Yet the author effortlessly succeeds in one of her stated goals: "to set spinning a kaleidoscopic view of images." Perhaps even more than the old-fashioned kaleidoscope, Matrix of Man stimulates like a discothèque where familiar tunes are played and replayed with overlaps, blending and blurring sound and rhythm, while the flickering of harsh strobelights surprises with random configurations as themes and images are projected, flicker, blur, are erased, re­advanced, refuted.

A Giant in City Planning

BY STANLEY ABERCROMBIE


In the infant profession of city planning, Greece's Constantinos Doxiadis is a giant. Like many other planners, he is a teacher and writer; unlike many, his direct influence extends awesomely far beyond the classroom. After studying architecture in Athens and planning in Berlin, Doxiadis served as town planner for the Athens area and then as head of planning in Greece's Ministry of Public Works, a career interrupted when Italy attacked Greece in 1940. After the war, Doxiadis was instrumental in the rebuilding of 200,000 new houses in Greece, half the number destroyed in the war. The firm of Doxiadis Associates, of which he is president, has since planned development in Brazil, Canada, Ethiopia, France, Ghana, India, Iran, Iraq, Jordan, Lebanon, Nigeria, Pakistan, Saudi-Arabia, the Sudan, Syria, Venezuela, and Zambia. In this country, Doxiadis has planned housing in Louis­ville and Cincinnati, suggested a plan to the Redevelopment Land Agency for ex­panding Washington, D.C., along the Potomac, has been hired by the U.S. Urban Renewal Program to work on eliminat­ing Philadelphia's urban blight, and by
A coed from Iowa told us this:

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Continued from page 170

the Detroit Edison Company to study Detroit's role in a future urban area stretching from Pittsburgh to Chicago. In all, his work has already affected the habitation of more than ten million people, and his planning for the future, if carried out, will affect many more.

Doxiadis has now written a book outlining the principles on which his work is based. Titled Ekistics (from the Greek word for "household"), it is a large, handsome, generously illustrated book, but for an author of such reputation it is disappointing.

Not only in the title does Doxiadis indulge a taste for making up his own words. Throughout the text we meet such mongrels as "Anthropics," "Entopia," "Deepway," "Dynapolis." A word like "Dynapolis" (a dynamic city) is not just silly, as "Koffikup," "Sexational," and "Uneeda Biscuit" are silly; it is seriously disturbing because it implies an attempt to create an elaborate mystique based on the commonplace. There are also enough abbreviations to turn a government agency green: the UDA (urban Detroit area); the CID (continuously increasing dimensionality); most intriguing of all, the IDEA (which turns out to be, disappointingly, the isolation of dimensions and the elimination of alternatives). Even many of the illustrations that make the book visually interesting are more manner than matter: the sentence "Function and structure constitute the human settlement" is illustrated with three drawings: first, a tangle of spidery lines captioned "function"; second, a heavily drawn semicircle captioned "and structure"; third, the tangle of spidery lines inside the semicircle, captioned "constitute the human settlement." The drawings do not even obey Doxiadis’ own dictum as to scale; after an elaborate explanation of his ELS (ekistic logarithmic scale) by means of which the proper scale is to be found for the study of all units of human settlement from a single man through towns and cities to the entire earth (or "Ecumenopolis"), Doxiadis notes that his book’s own maps have been reduced, of course; what is unreasonable is the pedantry of having specified that any particular scale is the proper one for the study of a town or a city.

But so much artificial gravy should not keep us from tasting the meat. Much of what Doxiadis has written is substantial and worthwhile. His conception of human settlements as growing organisms is useful, and he always considers the future implications of present problems and solutions. His advocacy of residential sectors Continued on page 198
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Continued from page 196

the size of many city blocks, with limited vehicular penetration, though not novel, is sound. So is his proposal for the grouping of small communities and sharing of public facilities. His use of computers in ordering data on cities has been pioneering. His emphasis on the continuing value of the central areas of urban regions, despite residential and commercial shifts to the suburbs, is heartening.

The limitation of Doxiadis' Ekistics—and it is a very serious limitation—is that, although in countless graphs and paragraphs, man is considered in relation to rooms, neighborhoods, cities, land area, "net-works," "shells," etc., man is never considered in relation to other men. There is no mention of men's ethnic, economic, racial, or religious differences. We can see immediately what an immense omission this is if we imagine, for example, the planning needs for the Yorkville area of Manhattan. Here, the homogenous middle-class German neighborhood of a decade ago, squeezed between the rich on Park Avenue and the rich facing Shurz Park, are now also being squeezed by the overflow of Spanish Harlem from the north and the overflow of the upper middle class from the south. Beer halls and wurstshops are being replaced by department stores, tenements by giant housing blocks, and a cozy community life by confusion. Anyone who hopes successfully to guide the future development of Yorkville (or any other area, on any scale) had better carefully consider the interactions between different men and different groups of men. Not to do so (as Doxiadis, in this book, does not) is so sociologically naive as to be disastrous.

Doxiadis tells us in his introduction to the present book, however, that, while writing it, he has been preparing two others which will show "how an over-all theory of human settlements can be applied to some of the specific problems of our era" and establish "a general framework for our future action." There is reason to hope, then, that these two future books will provide the relevance and practical value missing in the present one. Until then, half buried under the avalanche of Doxiadis' diagrams, formulae, and jargon, we can only ask, "What on Ecumenopolis is it all worth?"

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NOTICES

New Addresses
ELLERBE ARCHITECTS, 1660 L St., Washington, D. C.
GUERON, LEPP & ASSOCIATES, Architects,
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NOTICES

NEW ADDRESSES

ELLEBRE ARCHITECTS, 1660 L St., Washington, D. C.
GUERON, LEPP & ASSOCIATES, Architects,
Continued on page 204

On Readers' Service Card, Circle No. 371

MARCH 1969 P/A

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Continued from page 206

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