General Electric offers new coolers, new colors...and a clever new twist.

The New Coolers—a stylish wall-mounted Space-Saver and a smartly designed PS floor model. Both with the latest in engineering excellence and designer appeal.

The New Colors—deep gray pebble charcoal textured vinyl and a soft gray regal silver enamel. Both available on the popular GE semi-recessed cooler, bringing its total color selections to five. The Space-Saver wall unit also comes in five finishes.

The New Twist—a unique removable/cleanable precooler core for improved water cooler sanitation. Only GE has it. Permits easy access to the drain...without removing side panels or basin top.

For more details on General Electric's full line offering, including capacities and color choices, see Sweet's Catalog. Or write GE, Dept. 761-44, 14th and Arnold Streets, Chicago Heights, Ill. 60411.
Precast white concrete panels were chosen to build the new Fort Wayne Public Library.

You can see why.

The stunning new Fort Wayne Public Library is another impressive example of the design latitude enjoyed by architects who work with precast concrete panels. New vistas of form and color are suddenly theirs to command...new potential there to be explored.

The concrete panels used to build the Fort Wayne Public Library are made of Trinity White Portland Cement and Polar White Quartz aggregate. The whiteness achieved is elegantly uniform in tonal purity, completely devoid of the color variations so often found when using gray cement. The panels were lightly etched with acid to produce a delicate texture. The result is a building that is as beautiful as it is practical...as aesthetically appealing as it is functional.

There's no question that white precast concrete panels are making an increasingly profound impression on today's future-oriented architects. And the most lasting of these impressions are being fashioned from Trinity White.
More than 20 million Φ No-Hub® joints were sold in 1968! That one-year total is greater than all previous years combined, and is solid evidence of its continued acceptance and popularity.

Builders and plumbing contractors know that Φ No-Hub® is quick and easy to install, fits neatly between studs without furring, offers the permanent quality of cast iron, and the neoprene gaskets reduce noise in the system to a minimum.

Specify Φ No-Hub® on your next job and see for yourself why it is fast becoming the most popular drainage, waste and vent material on the market.
Letters from page 98

practice flying during the battles of the Coral Sea, Midway, Guadalcanal and the Philippines. With commercial, single/multi-engine, land/sea, instrument/instructor ratings, I have used the private airplane for 30 years. It is the only way to pass the freeway crowd.

If you know anyone who would like to really get the supernatural feel of flying, try soaring: It is the elevator of the hawks.

DON DAVIS, AIA
Long Beach, Calif.

Helping the Handicapped

EDITOR:

It has come to my attention that the March AIA JOURNAL contained a very fine article about facilities for the handicapped. The Committee on the Removal of Architectural Barriers of the Governor’s Committee to Promote Employment of the Handicapped would be most appreciative if it could study the article with a view to expanding the program in Maryland.

I hope that you can send me eight copies of that issue. We are looking forward to working with local architects on several projects and would like to do some homework before our next meeting.

MRS. RUTH-ELLEN ROSS
Executive Secretary
Governor’s Committee to Promote Employment of the Handicapped
Baltimore, Md.

A Tribute to Bill Wurster

EDITOR:

A thank you to Richard C. Peters for his beautiful and scholarly article on Bill Wurster in May. Bill has been one of my dearest friends in the profession since I first met him in 1938 on the occasion of my first visit to the West Coast.

I had, of course, “met him” through his published works. So it was a renewed pleasure to see again the illustrations which recalled the many pleasures he has given us when his varied and most individual buildings have been published.

I shall always cherish the memory of an evening about 12 years ago, seated under the redwoods in front of the old house in Berkeley, looking over the lights of the city with Bill and Katherine, Mary Russell and my wife, Louise, just talking about his plans for having various, carefully selected younger architects build on the lower reaches of that property out in his front yard, as it were. I hope that this project turned out well as I have never had a chance to return and see it except at a party for the brainwashing experience of “Dr. McKinnon in search of creativity,” and that was hardly the time or the place to inquire.

Having known and loved Bill through so many and rich experiences, I am sure that many of us in the profession are deeply appreciative of the article.

HARRIS ARMSTRONG, FAIA
Kirkwood, Mo.

The Coast of France, Anyone?

EDITOR:

Eight years ago when I was helping John Smith of the United States Travel Agency organize tours in Europe for the Institute, I knew most of the staff at the Octagon, for I once spent two months there.

But since then, as I subsequently started my own architectural practice in the south of France, I have lost touch with my AIA connections; and so I wrote to my old friend, Leon Chatelain (a member of one of my first tours) for your address.

The reason for writing at this time is that I am thinking of semi-retirement and hope to find a younger, energetic architect or firm to negotiate a partnership with me to expand my practice.

It may be of interest to note that I am the only British (or American) architect with a legal license to practice on this coast in an area stretching from Marseille to the Italian border. I am also an associate of the Royal Institute of British Architects and a member of the French Ordre des Architectes.

Vacation villages and yachting ports offer opportunities for imaginative development, apart from the usual villa jobs. And there are the climate, the sea, and the olive trees to boot!

RICHARD WALKER
Nice, France

Correction

Kennard & Kennard should have been credited in the July issue (p. 24) as the husband-and-wife architect team of Chevy Chase, Md., who won the 1969 Forest Products Industry Award for Wood Structure Design.
Why tangle a floorplan around a steel forest. Behlen's Dubl-Panel Roof-Ceiling System eliminates all columns in flat deck buildings up to 300 feet wide.

Keep your space options open... at a practical price. Behlen's stressed-skin system spans 300 feet... over twice as far when arched. Bolts together fast. Provides a low-maintenance steel roof, functional enclosed ceiling that's strong enough to walk on, easy to insulate. Ducts, conduits, mechanical units fit between roof and ceiling chords... out of sight.

See Sweet's Architectural File 1B/Be, or write direct to factory for complete information.
Independent Aerial Surveying

To order single copies of items listed:
circle number on card that corre-
sponds to number beside each of
the listed items you want. Send no
money now. The charge, if any, for
a single copy is noted for each item,
and you will be billed for this amount.
Minimum billing for reprints is $1.

Current Issue Reprints
single copies free
1 Forward-Guarded People and
processes—p. 51
2 Choice for the Senior Citizen—
p. 62

Previous Issue Reprints
single copy prices as noted
20 Modular-Jointed Education of
Joe's Boys—4 pp.; 25¢
Progress report on the Princeton
Project
21 Practice Profile: Frank Grad &
Sons—8 pp.; 25¢
Meeting the challenge of the new
age through expanded services
22 Contractual General Conditions
—6 pp.; 25¢
Viewing basic legal relationships
23 Where is Architecture Going?—
12 pp.; 50¢
Digest of the Future of the Pro-
fessions's conference at Airlie
24 Testing the Rainbow—4 pp.; 25¢
An aid in visual matching of
colors
25 The Western House—10 pp.; 25¢
A portfolio of 10 of the best
projects in the Western Home
Awards program
26 Buildings for All to Use—14 pp.;
50¢
Standards for barrier-free archi-
tecture
27 Professional Development Pro-
gram—12 pp.; 25¢
Background and purposes of the
AIA program
28 Decision Maker 1985—12 pp.; 25¢
Review of the AIA Task Force
on Elementary and Secondary
Education
29 New Dimensions in Air Rights—
5 pp.; 25¢
An analysis of two dual-purpose
structures
30 Dialogue and Discovery—5 pp.;
25¢
A look at VPI's Inner College of
Environmental Design
31 The Sheer Joy of Sketching—7 pp.;
25¢
A portfolio with random notes

To order manufacturers' technical
data: Circle number on card that cor-
responds to number beside each of
the products advertised for which
you wish additional specific
printed technical data sent to
you. Information will be sent from
the appropriate producer.

11 1969 Steel Deck Institute Design
Manual
40 Clearinghouse for Federal Scien-
tific and Technical Information,
subscription price
43 1966 Design Award Program
(H.EW-AIA-EFL), brochure of
higher education facilities
44 Your Building and Your Archi-
tect, 18-page booklet for clients
45 Checklist for Cities, a working
guide for urban analysis
46 NACA Ceiling Systems Hand-
book, order form

Architects Awing

EDITORS:
James L. Haecker's article in the
May issue was of great interest to
me since I am an instrument-rated
pilot and aircraft owner and do
some flying in my business.

I would have to agree with most of
the statements as I am cer-
tainly an enthusiastic flyer. How-
ever, I think that anyone 'starting
from scratch' should realize that
an instrument rating is almost a
necessity if the use of private air-
craft in business is to be practical
in most parts of the country. There
are too many times when the
weather will not permit a strictly
VFR operation and making ap-
pointments becomes a problem.
The instrument rating does not
solve this problem entirely, but it
does greatly help. Also, a large
safety factor is added.

Total experience of 200 hours is
required for the instrument rating
as well as additional dual instruc-
tion, written examination and
flight test. However, this extra in-
vestment of time and money
should be considered by anyone
who intends to be a serious flyer.

Contrary to the advertisements
commonly found in the news-
papers and magazines these days,
earning to fly is not as easy as
earning to drive a car, but it is
much better way to travel.

ALVIN L. FARNsworth, AIA
Lansing, Mich.

EDITORS:
I agree with Mr. Haecker 100
percent on the advantages of pri-
vate flying. My perfect example is
a project [hotel/motel, etc.] we
are doing at Lees Ferry, Ariz.
It is the last point on the Colorado
River: you can hop on a rubber
craft and shoot the rapids through
the Grand Canyon.

From Long Beach, Calif., to
Lees Ferry via a 200-horsepower
Arrow, the 420 air miles take 2
hours 45 minutes. Via commercial
airliner, with flight connections,
It is an overnight trip. Via the
private car, it is an 18-hour drive.

Needless to say, the jobsite visits
are made by private aircraft.

I am one of those lucky archi-
tects who acquired his flight train-
ing free as a naval aviator from
the US Government. We had
Continued on page 102
When you are in a position to make the choice.

Transition by Stow/Davis is a collection of office furniture created to maintain one corporate look in many executive levels. The look is keyed to a subtle line of gleaming chrome or bronze—the balance between modern and traditional that Stow/Davis calls Transition. STOW/DAVIS New York, Chicago, Dallas, Los Angeles, Grand Rapids. Write for a Transition Brochure: Stow/Davis, Grand Rapids, Michigan 49502, Dept. 81.

Circle 317 on information card
This is Fire on the job. At Corporate Square Office Park in Georgia. Everyone loves the magical torchlight effect. Would you like to see the elegance of Fire in action? The sparkling glitter of Crystal! We'll be happy to arrange a private showing.

**KEENE CORPORATION**

**STONCO LIGHTING**

© 1969 KEENE-STONCO, KENILWORTH, N.J. 07033

Circle 316 on information card

---

**Calendar**

**National**

- **Sept. 16-19:** Producers' Council Annual Meeting, St. Francis Hotel, San Francisco
- **Sept. 24-26:** Conference on Precoordination — the Basis for Industrialized Building, National Bureau of Standards, Gaithersburg, Md.
- **Oct. 16-17:** AIA Architects/Researchers Conference, Houston
- **Oct. 26-30:** AIA/ACSA Teachers' Seminar, Miyako Hotel, Japanese Trade Center, San Francisco

**AIA Regional and State Conventions**

- **Sept. 18-20:** Central States, Cornhusker Hotel, Lincoln, Neb.
- **Sept. 25-27:** Pennsylvania Society, Hilton Hotel, Pittsburgh
- **Oct. 1-3:** East Central States, Ramada Inn, Evansville, Ind.
- **Oct. 2-4:** New Jersey Society, Chalfonte-Haddon Hall, Atlantic City
- **Oct. 9-11:** Architects Society of Ohio, Commodore Perry Hotel, Toledo
- **Oct. 11-14:** Northwest Region, Salishan Lodge, Gleneden Beach, Ore.
- **Oct. 15-19:** California Council, El Mirado Hotel, Palm Springs
- **Oct. 17-19:** New England Region, Wentworth-by-the-Sea, Portsmouth, N.H.
- **Oct. 20-23:** New York State Association, Nevele Hotel, Ellenville
- **Oct. 23-25:** Illinois Region, Wagon Wheel Lodge, Rockton
- **Oct. 23-25:** Middle Atlantic Region, Lord Baltimore Hotel, Baltimore
- **Oct. 24-27:** Florida Association, Grand Bahama Hotel, West End, Grand Bahama Island
- **Oct. 29-31:** Texas Society, Hilton Palacio del Rio, San Antonio
- **Nov. 9-14:** Western Mountain Region, Dunes Hotel, Las Vegas

**International**

- **Oct. 13-25:** UIA Assembly and 10th World Congress, Buenos Aires

**Continuing Education**

- **Nov. 1:** Applications due, Fulbright-Hays scholarships. Contact: Information and Reference Services Division, Institute of International Education, 809 United Nations Plaza, New York, N. Y. 10017, or Fulbright Program Adviser.

**Tours**

- **Sept. 14-27:** Mexican Architecture and Interior Design Seminar-Tour, meeting in Mexico City. Contact: T. H. Hewitt, P. O. Box 2292, San Francisco, Calif. 94128.
- **Oct. 7:** Architecture and Garden Tour of Japan, departing from Los Angeles for 24 days with optional extension to Hong Kong and Bangkok. Contact: Kenneth M. Nishimoto, AIA, 263 South Los Robles Avenue, Pasadena, Calif. 91106.
- **Oct. 7:** Architects' Trek to South America, departing from Miami for 21 days with optional excursions. Contact: United States Travel Agency, Inc., 807 15th Street, N.W., Washington, D. C. 20005.
Now you can have perfect door control without one bit of clutter. Use the LCN Pacer® that fits inside a 1\(\frac{3}{4}\)" x 4" transom bar. The "Pacer" is compact, concealed, fully hydraulic, easily and permanently regulated for general speed, latch speed, spring power, and back check. For quality performance in contemporary frame styles the "Pacer" merits consideration. See Sweet's or write LCN Closers, Princeton, Illinois 61356.

Circle 301 on information card
Facts on Facades

1. There is more design flexibility with Alumicast
2. There are unlimited textures with Alumicast
3. Alumicast is much lighter in weight
4. With Alumicast, colors won't fade
5. There is no maintenance with Alumicast
6. Alumicast is non-porous

Alumicast™

an aluminum facade.
HOPE'S
HEAVY
INTERMEDIATE
STEEL
WINDOWS

GYMNASIUM (Arthur Keating Hall), ILLINOIS INSTITUTE OF TECHNOLOGY—CHICAGO, ILLINOIS
Architects: Skidmore Owings & Merrill
General Contractor: A. J. Maggio Co.

Custom Heavy Intermediate Steel Windows were selected by the architects and furnished by Hope's for the exceptionally large window walls in this handsome structure. Installation of all components including entrances (furnished by Hope's) was included in Hope's contract thus eliminating divided responsibility and insuring proper coordination and installation — Hope's would welcome the opportunity to discuss the windows for your next building — no obligation.

Our catalogs are filed in Sweet's Architectural file and our sales offices and representatives are located in principal cities.

HOPE'S WINDOWS, INC. Jamestown, N.Y.
HOPE'S WINDOWS ARE MADE IN AMERICA BY AMERICAN WORKMEN
This is not a book about the theater in America, however. The principles it enunciates are more universal. The book provides a guide to the contemporary forms of stage: center, thrust, end and the variously related forms. There are chapters also on adaptable theaters; on multipurpose halls; on seating, sightlines and lighting; and on size, scenery and cost.

Although not primarily oriented to architectural design, the book will interest the architect. Not only will it provide him with a great deal of practical information that he can use in designing theaters, but it will also help him understand how the form of the theater affects everyone concerned with a theatrical production from playwright to designer to producer to actor.

Architect in Michigan: A Representative Photographic Survey.

This is a photographic survey of Michigan's architecture from 1837 to the present. Andrews says this is the first book to appear on the subject of architecture in Michigan. This is difficult to understand, for the book reveals unmistakably that "the architecture of Michigan has an ancient and honorable tradition" and that the buildings by the Saarinen, Wright, Kahn and others should make any state proud.


Traditional use of church buildings embraces many functions other than worship, Davies outlines in this book. He shows that churches from the pre-Constantine era on down to post-reformation structures have been used for living and sleeping, eating and drinking, dancing and theatricals, storing and stabiling, game playing and making legal proceedings, sanctuaries, commerce, teaching, etc.

To ignore the secular use of church buildings is to miss an important element in understanding their function, he believes. There is no dichotomy between the sacred and the secular, as Davies' fascinating study proves. Davies, professor of theology at the University of Birmingham, England, has written several books on the subject.

The drawings were selected and the exhibition prepared by Jean-Claude Lemagny of the Bibliothèque Nationale in Paris, where the exhibition originally opened in 1964. He is responsible as well for the informative and sensitive comments about the architects and their work.


A young Boston architect who went with a friend to many parts of the globe gives details about his impressions of people and places in this travelog. If you are under 25, the book will make you yearn to be in a sleeping bag under the stars in Finland. If you're older, the exuberance may be slightly exhausting.

Aerofin's helical wound fin coil is a first generation idea that's still first in heat transfer application

Amidst our fast-changing technology, it may come as a surprise that a 46-year old fin/coil design still dominates today's high-performance heat transfer systems.

Aerofin's helical fin is wound on its tube under pressure, with fin and tube ending up as an integral unit. Each finned tube in the coil is then free to expand or contract independently of its adjacent finned tube.

When such expansion/contraction occurs, there's no individual tube movement restriction or interference with parallel coils. Aerofin's fin/tube contact is positive. Its thermal bond provides constant called for thermal performance.

Back in 1949, Aerofin introduced the smooth, tapered fin design—14 fins to the inch. The taper added tube-contact area, with the entire fin becoming effective transfer surface. And that improvement made a good coil even better.

So you can see why Aerofin and its fan system sales specialists maintain their enthusiasm for the helical wound fin coil. It's been a big factor in our 46 years of coil application problem solving—and keeping Aerofin's first generation leadership.
Nothing defines the character of a church better than an exterior of red cedar shingles.

All successful buildings should evoke some sort of positive emotional response in the observer, but few have the unique visual requirements of a church.

Perhaps that's why so many architects and church building committees today are selecting red cedar shingles and handsplit shakes for their churches' exteriors. Red cedar has a rare ability to link history and modernity: to convey a feeling of tradition while dressing a structure in the clean, contemporary lines and subtle, rich colors of the present.

Shingles and shakes are among the most practical materials available, too. Low in maintenance. Naturally insulative. Completely weather resistant. Beautifully compatible with a wide range of other building materials.

For natural beauty and lasting practicality, next time insist on the real thing: Certigrade shingles or Certi-Split shakes. They're worth it.

For details plus money-saving application tips, write: 5510 White Building, Seattle, Wash. 98101. (In Canada: 1477 W. Pender St., Vancouver 5, B.C.)
Like everything else, costs are spiraling for health care. As a matter of fact, medical care has risen at an even faster rate than general consumer prices. In 1966 the index of medical care prices rose 6.6 percent; the Consumer Price Index saw a 3.3 percent rise. In 1966 expenditure for health exceeded $40 billion.

Among the reasons for the high cost of health care cited in this book are the following: Hospital construction is unduly expensive; coordinated planning is lacking; design is often faulty; economy through innovations is prevented by restrictive building codes; manpower is insufficiently used. The cost of service is affected significantly by the physical facilities.

With this fact in mind, the Department of Health, Education and Welfare asked the National Academy of Engineering to convene a conference that would review design and construction practices and develop recommendations for at least the curtailment of rising costs through “better planning, more efficient design, and improved construction of health care facilities.” Consequently, in December 1967, various persons from engineering, architecture, contracting, management, construction trades and unions came together with a common concern.

This significant book reports the conference. Problems were examined from many sides: 1) programming of services vis-a-vis facilities; 2) planning and design of facilities; 3) regulations and requirements related to building, plumbing and electrical codes, construction practices and site selection; 4) construction scheduling, materials and practices; and 5) operation and maintenance of the facility.

Both general and panel sessions were held over the two-day period. Formal presentation of papers, discussion sessions and formulation of conclusions and recommendations were included in the panel sessions. A presentation on the relationship of information to technological alternatives and summaries of the panel sessions as well as of the entire conference were given in the final general session.

The book contains the conclusions and recommendations. “These deserve careful study, and no summary can do justice to their full scope and significance,” states Chester P. Siess in his concise summary of the conference. The entire book should be read and pondered by planners of health facilities.


Before his death in 1967 at the age of 46, Joseph was one of the leading exponents of the theater in the round. He was a pioneer who put his theories into practice at great personal sacrifice. In this book he has stated his case both reasonably and provocatively. The book had its origin in a study tour Joseph made of the United States, where he made a visual record with a camera of the new theatre forms included on page 92
"When I call for a vote from the school board on any purchase, I want to be sure that I get 'real value'. In Operable Walls, it's not just the initial cost that must be considered, but all the hidden costs of repairs and maintenance over the years that might be necessary to keep the operable wall working. In the long run, the quality product has the lowest overall cost."

That's why R-W Operable Walls are specified for so many schools. They're quality built. The R-W Wall rides free and clear on ball-bearing hangers that glide in heavy-duty ceiling track. It's completely free of any floor contact; no floor track, guides, slides or "gadgets." Maintenance costs are the absolute minimum semester after semester.

So, if you're considering an operable wall for your next school job, write us! Your R-W Sales Engineer will contact you and assist you where possible. In addition, he'll deliver our latest operable wall information—including Bulletin A-600.

MAKE NO PRICE CONCESSION WITH QUALITY... CONSULT

Richards-Wilcox
MANUFACTURING COMPANY
223 THIRD STREET • AURORA, ILL, 60507
Wall urns by Rambusch provide the soft, indirect light from the ceiling of this unique banking room. Each of the graceful, column-mounted fixtures contains a 500-watt quartz lamp. Note that all the light is accurately and uniformly reflected to the ceiling without hot spots on the columns. No lenses are used.

Rambusch designs and manufactures recessed and exposed downlights, wall washers, accent lights, and luminaires for churches and other interiors with medium to high bay ceilings. Address: Rambusch Lighting, 40 West 13th Street, New York, N.Y. 10011.
Caterpillar specified 24 Montgomery elevators and 3 elevators to move people to their new Administrative Center.

Caterpillar proved a new idea: **escalators** provide the most long-term-economical vertical transportation within the new Caterpillar Administration Building and Employees Parking Garage. Three high speed Montgomery passenger service elevators also serve the building. However, the majority of inter-floor traffic is carried by a battery of 8 Montgomery two-steps-level escalators in the Administration Building core and by 8 Montgomery escalators in the Employees Parking Garage. This unusual application of high-rise office escalators provides many benefits: instant traffic flow; minimum space requirement of the elevator plant, and greater efficiency of elevators functionally locking out certain floors; elimination of an onal stairway; increased staff efficiency; and lower term costs. Caterpillar Administration Building and Employees Parking Garage — with creative new ideas in moving people.
Fast new dry shaft wall reduces deadload up to 64%

New USG® Dry Shaft Wall System weighs only 16 lbs. per sq. ft. compared to masonry shaft walls that weigh up to 45 lbs. per sq. ft. Saves tons of structural steel.

Other system features: Faster, all-weather installation for shaft completion ahead of schedule. One-, two-, and three-hour fire ratings. Sound control characteristics to meet code requirements. Savings on space. Savings on material and labor. Designed for wind pressure loading from 5 to 15 lbs. per sq. ft.

Consider this high-performance system for plumbing and air shaft enclosures, stairwells, mail chutes, elevator shafts, and equipment rooms. See your U.S.G. Architect Service man for details, specs, design data. Or write us at 101 S. Wacker Dr., Chicago, Ill. 60606, Dept. AIA-98

In non-bearing assembly, laminated gypsum coreboard 2" thick is installed between metal H-studs or C-channels; 24", 16", or 12" o.c. J-runners anchor panels to floor and ceiling. SHEETROCK® SW Gypsum Wallboard is screw-attached to coreboard.

United States Gypsum


Circle 292 on information card
NO EQUAL

Von Duprin 66 series. The original stainless steel devices. And still unequaled in design, quality and engineering. Rim, mortise lock and vertical rod type. See your Von Duprin representative or write for detailed catalog material today. Compare for value by any standards. There is no equal.

Von Duprin

Von Duprin, Inc. • 400 W. Maryland St. • Indianapolis, Ind. 46225 • Von Duprin Ltd. • 903 Rue Simard • Chambly, Que.
Mahon Long-Span Steel Deck

is your structural roof support, your finished ceiling, your light fixture recess, and your sound-conditioning surface all in one strong, low-cost system!

Mahon Long-Span Steel Deck offers the designer a unified construction system. In a single step, you specify a ready-to-surface roof outside and a finished acoustical ceiling inside, complete with recesses for light fixtures. If desired, open-beam sections can be used, or alternated, for decorative effects.

The lightweight strength of Mahon Long-Span Steel Deck offers design advantages in both flat and pitched roof construction. It offers economic advantages, too, through reduced labor costs and construction time compared to conventional roof construction.

In addition, horizontal-diaphragm functions are possible where resistance to lateral forces is desired against possible seismic, wind or blast-shock loading.

For complete technical and engineering information, write The R. C. Mahon Company, 34200 Mound Road, Sterling Heights, Michigan 48090.
We make a strong case for calling a Formica man.

Your Formica man has a case with a variety of complete pre-packed systems such as bath and wall paneling, doors and toilet compartments... yours at a single source of supply.

Specify FORMICA® laminate for any scheme your imagination creates... in any interior that calls for design to defy wear.

Time saving Spec-Data® forms give accurate fingertip information for many FORMICA® brand products and applications, technical back-up and qualified sources of supply for all types of product uses.

More patterns and woodgrains give you virtually unlimited design versatility. Sixty-eight solid colors are new, coordinated to mix, match or blend.

Want to discuss surfacing? See the man with this case. Your Formica man. He can give you fast, accurate information about FORMICA® brand product uses and reliable sources of supply. Call him soon. He'll be there promptly with a case full of answers and idea-starters.

Leadership by design

© 1969 • Formica Corporation • Cincinnati, Ohio 45232 • subsidiary of CYANAMID
Arthur C. Risser, AIA, reports on results of the work in this field. Architects who replied to the Theater Architecture Survey Questionnaire published recently in the Newsletter supplied information about 92 theaters. In addition to this material, the AIA Committee on Auditorium and Theater Architecture (CATA) has collected considerable data about other theaters as a result of the Institute's joint venture with the American Educational Theatre Association in the two Theater Architecture Exhibits.

The information from the Newsletter questionnaire has been assembled and is now ready to be punched into IBM cards for storage and retrieval. There are several categories in which desirable data is incomplete or lacking. An attempt will be made to fill this in. In preparation for storing the information, several decisions were more or less arbitrarily made. The United States was divided into seven geographic regions (North Atlantic Coast; South Atlantic Coast, Ohio and Pennsylvania; Gulf States; Central US north of Kansas; Central US south of Nebraska; Southwest; Far West and Pacific Coast including Alaska and Hawaii, plus separate regions for Puerto Rico and Canada). Each theater will be listed both by state and by region.

An outline was made of the kind of information believed to be of interest and help to architects who are planning and studying theater facilities. A program for preparing the storage cards was then made. The Theater Survey Material Computer Storage Information stores information in the categories contained in the theater questionnaire. A copy of this appears here.

Experience with the storage system and the nature of the requests for information which are received may necessitate revisions in the proposed system.

A brief summary of some of the data submitted is given in the Summary of Returns table. This also illustrates the kind of information available.

As the committee continues work on this project, it may find it necessary to contact architects who have furnished material in order to clarify information or request additional data.

### SUMMARY OF RETURNS

<table>
<thead>
<tr>
<th>Location — Geographic Area</th>
<th>Theaters</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. North Atlantic Coast</td>
<td>14</td>
</tr>
<tr>
<td>2. South Atlantic Coast, Ohio and Pennsylvania</td>
<td>24</td>
</tr>
<tr>
<td>3. Gulf States</td>
<td>11</td>
</tr>
<tr>
<td>4. Southwest</td>
<td>3</td>
</tr>
<tr>
<td>5. Far West and Pacific Coast</td>
<td>17</td>
</tr>
<tr>
<td>6. Central US north of Kansas</td>
<td>18</td>
</tr>
<tr>
<td>7. Central US south of Nebraska</td>
<td>3</td>
</tr>
<tr>
<td>8. Canada</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Theater Form</th>
<th>Theaters</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Proscenium</td>
<td>35</td>
</tr>
<tr>
<td>2. Proscenium thrust</td>
<td>4</td>
</tr>
<tr>
<td>3. Platform</td>
<td>24</td>
</tr>
<tr>
<td>4. Thrust open</td>
<td>8</td>
</tr>
<tr>
<td>5. Arena</td>
<td>10</td>
</tr>
<tr>
<td>6. Combination of forms and theaters where information is not complete enough for classification</td>
<td>11</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Principle Form in 34 College and University Theaters</th>
<th>Theaters</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Proscenium</td>
<td>21</td>
</tr>
<tr>
<td>2. Platform</td>
<td>13</td>
</tr>
</tbody>
</table>

Fourteen of these 34 theaters have been constructed since 1964; five are proscenium and nine are platform theaters. The other 20 theaters were built before 1964.

<table>
<thead>
<tr>
<th>Principle Use of Theater</th>
<th>Theaters</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Secondary School</td>
<td>13</td>
</tr>
<tr>
<td>2. College/University</td>
<td>46</td>
</tr>
<tr>
<td>3. Community</td>
<td>5</td>
</tr>
<tr>
<td>4. Civic</td>
<td>11</td>
</tr>
<tr>
<td>5. Professional/Commercial</td>
<td>11</td>
</tr>
<tr>
<td>6. Other</td>
<td>9</td>
</tr>
</tbody>
</table>

Included in this category are those theaters where information was not complete enough to place it specifically in one of the other groups.

### THEATER FACILITIES SURVEY

<table>
<thead>
<tr>
<th>Theater Name</th>
<th>Location</th>
<th>Architect</th>
<th>Use: Secondary School</th>
<th>College/University</th>
<th>Commercial</th>
<th>Community</th>
<th>Civic</th>
<th>Professional / Commercial</th>
<th>Year Built</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Theater Form (actor-audience relationship)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROSCENIUM</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Seating Capacity</th>
<th>Orchestra Pit</th>
<th>Size</th>
<th>Orchestra Lift</th>
<th>Size</th>
<th>Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size: Proscenium opening</td>
<td>Width between stage side walls</td>
<td>Arena acting area size</td>
<td>Depth front edge stage to rear wall</td>
<td>Wing Space: Left</td>
<td>Right</td>
</tr>
<tr>
<td>Fly loft</td>
<td>Height floor to grid</td>
<td>Kind of rigging system</td>
<td>Number scenery lines</td>
<td>Number circuits in stage electrical distribution system</td>
<td>Number circuits in lighting control system</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shop Size: L.D.H.</th>
<th>Number dressing rooms</th>
<th>Average Size</th>
<th>Storage: Floor area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume</td>
<td>Airconditioning: Auditorium</td>
<td>Stage</td>
<td>Workshops</td>
</tr>
<tr>
<td>Dressing Rooms</td>
<td>Lobby (foyer)</td>
<td>Lounge</td>
<td>Public Areas: Lobby Size</td>
</tr>
</tbody>
</table>

Coat Check | Box Office |

80 AIA JOURNAL/AUGUST 1969
People come and people go. That's why we're always working on better ways to open doors.

- HYDRA-SLIDE®
- ELECTRA-SLIDE
- HYDRA-SWING®
- CONCEALED OVERHEAD CLOSERS
- R&K PITTCOMATIC®

More efficient, more dependable ways of opening and closing doors... more attractively. That's our ever-present goal. But we don't stop there. We insist on making sure there's always instant service available... just in case. Door controls by Ronan & Kunzl, you can be sure, will meet your needs for design, safety and function. Let us tell you more.

RONAN & KUNZL, INC.
1225 S. Kalamazoo Ave., Marshall, Michigan 49068

Circle 250 on information card
Now from Cheney... A COMPLETE LINE of Aluminum Fascia Panels and Gravel Stop available in 8 colors

Two new Cheney Fascia Panels (Nos. 100 and 500) in addition to the original Cheney Fascia Panel No. 250 (illustrated above) plus the Cheney Mansard Batten Panels No. 150 (shown below) provide architects with a greater selection than ever before. All Cheney Panels are factory prefabricated in one piece with automatic expansion joints and simple concealed nailing that form an absolutely foolproof watertight closure. Cheney one-piece construction eliminates the unnecessary material and installation costs of separate pans and battens.

Formed of .040 aluminum, the new Cheney Panels are available in heights up to 96" in 8 standard colors which are baked on after fabrication. They are also furnished in Fluoropon colors or your special color. Standard bottom channel closure strips are included.

Cheney Gravel Stop also is factory prefabricated in plain metal or colors, with built-in expansion joints and concealed splice plates. Deep ¾" corrugations give extreme rigidity, eliminate exposed cover plates and highlights.

The complete line of Cheney Panels, Gravel Stop, Reglets and other flashing products are illustrated and described in detail in a colorful and comprehensive new catalog. Send for it today.

Cheney Flashing Company

623 PROSPECT STREET, TRENTON, N.J. 08605. PHONE: 609 394-8175

Newly introduced MANSARD BATTEN PANELS No. 150

DESCRIPTION:
The new Cheney No. 150 Mansard Batten Panels are factory prefabricated with 1½" battens 20" o.c. Formed of .040" aluminum in heights up to 96" in 8 standard colors which are baked on after fabrication (send for color card). Finish is a modified acrylic enamel. Also furnished to your special color and in Fluoropon colors. Standard bottom channel closure strips are included.
Are you utilizing this man on your design team?

He is your trained All-weather Crete sales engineer. This specialist can assist you in planning the most economical roof drainage patterns utilizing All-weather Crete insulation. He can illustrate many successful types of plaza systems so that you may select the one design most appropriate for your building. He can provide your staff with scaled detail drawings illustrating the many roof deck and plaza system components adjacent to All-weather Crete such as drain types, membrane systems and wearing surfaces.

This man is also your trained All-weather Crete applicator who helps make your design come true. He is a highly specialized contractor licensed by Silbrico Corporation. This skill and selective licensing protects designers and owners alike with the assurance of expert All-weather Crete application and its exceptional performance for years to come.

Consider the importance of roof and plaza insulation... hidden from sight, covered by membranes and wearing surfaces, applied over every conceivable sub-strate, this insulation is asked to perform many functions. Contact your local AWC specialist to assist you. Use his special knowledge on your next building project. (There's no obligation, of course.) If you don't know his name, write us—we'll have him contact you.

SILBRICO CORPORATION
6300 RIVER ROAD • HODGKINS, ILLINOIS 60525
CHICAGO PHONE (312) 735-3322

Circle 212 on information card

Hillyard ONEX-SEAL can handle even Texas-size jobs! That's why it was specified as the seal/finish for terrazzo floors in the Houston Intercontinental Airport which will total more than half a million square feet.

Houston Intercontinental represents a passenger/air traffic solution so revolutionary that design experts are already calling it "the Houston Concept." Individual unit-terminals contain everything within a 600 ft. radius—parking, ticketing, plane boarding, baggage pickup. Two unit-terminals are currently serving passengers; two more will be added in the near future and additional units can be added whenever traffic warrants. Houston Intercontinental is one of only two airports in the country that will not become obsolete with the advent of the B-747 and the supersonic transports.

ONEX-SEAL seals and finishes even white floors without the danger of destroying the appearance with a yellowing, discoloring film. Floors sealed with ONEX-SEAL will stay light and bright to eliminate the need for frequent stripping and resealing caused by seals that yellow with age. Lustre buffs back through repeated scrubbings.

HILLYARD SPECIFICATIONS MANUAL

Write for your copy today. Loose-leafed and numbered, each file will be kept up to date for you.

Also ask, at no obligation, for the services of a Hillyard architectural consultant. He's trained to recommend proper, approved treatments for the floors you are specifying and also to supervise application at the job site.
Your building. More than a building. A vital, life-supporting environment, shaped by the design, energized by electricity—an Electro-environment.

Your design. More sophisticated than the last one because that's the nature of technology. Particularly electrical technology.

Your challenge. To profit from the benefits of the Electro-environment—and to make your design statement with the confidence that the industry is ready to support you.

The Qualified Electrical Contractor is ready. Ready to translate your ideas, your designs into a working, functioning reality.

Supplying, installing and maintaining the Electro-environment is his business. The Qualified Electrical Contractor advances with the state of the art.

Your challenge is his challenge.

The challenge of the Electro-environment

The Qualified Electrical Contractor makes the Electro-environment work.

NECA. National Electrical Contractors Association.
1730 Rhode Island Avenue, N.W., Washington, D.C. 20036
Climatic conditions have a decided effect on the outdoor theater and most are found where summer evenings are generally pleasant. But now, architects and engineers have had some degree of success in providing comfortable conditions for the performers and for the audience seated under cover. The new Miller Outdoor Theater in Houston, Texas, is an example: Both its stage and auditorium are airconditioned.

In 1926, a prominent citizen by the name of Miller willed the city $40,000 for a band shell, which was demolished to permit construction of the new facility. The name of the theater was passed on to the new structure, which is owned by the City of Houston. Money for the $1-million theater was provided through bond funds voted for the use of the Park Department.

The design criteria required a facility suitable for the annual series of summer concerts by the Houston Symphony Orchestra and for all other performing arts as well. A special requirement was that the two magnificent 30-foot diameter oak trees on the site be saved. The design scheme, by Eugene Werlin & Associates, was shaped by these two oak trees.

Weathering steel made possible a roof with a clear span of 195 feet; the height of the apex is approximately 76 feet above the finished stage floor. Both the 1,800 inside and the 8,000 outside viewers thus have clear views.

Attached upside down in a planned pattern under the ceiling is an acoustic dampener consisting of 750 fiber glass seats, miniatures of those in the audience.

The roof actually consists of three sloping planes with the roof decking fastened beneath the structural framing members. It rests on two main supports on the universal joint concept. The universal joints are 30-inch diameter hollow spheres to which the main framing members are attached by six claws at each support. These rotate on the sphere to resist the tremendous uplift created by several of the loading conditions.

Miller Outdoor Theater has basic steelwork and paneling that oxidize to a brown, rust-protective film.
positioned to meet the back edge of the stage or the back edge of a large lift, which, besides being used for transportation, sometimes forms part of the stage. These stairs connect the stage level with the next lower level and are used for important upstage entrances through the back of the stage.

The $3-million Santa Fe Opera was built with private donations, except for a contribution of $80,000 from the National Endowment of the Arts.

Several universities in the US operate outdoor summer theaters. There are also summer Shakespearean festival theaters both in the US and Canada. The Oregon Shakespearean Festival Association theater at Ashland, Oregon, is an entirely open-air facility.

Starting as a small civic event in 1935, this theater has grown into an organization which is renowned artistically, technically and educationally. Part of its success is probably due to community spirit as well as to the impetus given it by its originator, Angus L. Bowmer. It is one of the few theaters in the country operating “in the black” without subsidies.

Through the years, the stage house structure and facade were altered and around 1959 a new theater, by Jack E. Edson, AIA, was completed. The design of its stage is based on the contract which Henslow executed for the construction of the Fortune theater in England about 1599.

The stage facade is three stories high as specified in the Fortune contract. The three floors contain an inner stage and a penthouse with light-bridge and stage machinery. Costume and property storage and dance rehearsal rooms are in the rear portion of the building, costume and scene shop, actors’ dressing rooms and a large rehearsal room are in a wing attached to the stage building. On a raised terrace behind the 1,140-person seating area, performers entertain before curtain time.

The Oregon Shakespearean theater has an approximate value of $560,000, privately financed.
The stage, which can accommodate various types of performing groups, has a 100-man orchestra pit across the front. The pavilion is of the "open end" design concept and until additional facilities such as rehearsal rooms etc. have been added, a truck entrance and parking area adjacent to the stage wing hold airconditioned trailers for ballet and opera companies.

One million dollars has been allocated to the project, of which about $449,000 for the pavilion. The theater, which was financed by the Rouse Company (the site was a donation from James W. Rouse) is leased to the Washington National Symphony, which makes it its summer home. It is named for music lover and philanthropist Mrs. Marjorie Merriweather Post, who has made large contributions to the National Symphony.

Blossom Center is designed for symphonic concerts; Saratoga, Garden State and the Merriweather Post pavilions have provisions for a variety of entertainment events. The new Santa Fe Opera, on a piñon-covered hill a few miles north of Santa Fe, New Mexico, is specifically designed for opera.

Owned by the Opera Association of New Mexico, the new facility, by McHugh & Kidder, replaces the original structure which was destroyed by fire during the 1967 season. The loggia and stage roofs of the new opera leave only seven rows of seats under the stars, but the height and sweep of these roofs, the view over the wing and garden walls and directly through the open-back stage give a feeling of openness and empathy with the velvety New Mexico nights, even to the audience under the protecting roof.

Sight and acoustics determined the size and shape of the auditorium, which seats 1,500. The angles and curves of wing walls, the stage canopy, the garden walls and the loggia roof were selected to provide for well balanced sound. Amplification is used only for special sound effects.

An especially interesting feature is a movable stair which can be

Santa Fe Opera, with massive concrete walls and redwood accents, suggests the old Pueblo architecture.
used for symphonic concerts, may be removed for other forms of entertainment. To reduce traffic noise from the road, the bowl of the theater was dug deep into the hillside, the removed earth banked up behind the indoor seating area as a noise protector (and as a lawn for the outdoor audience).

One of the most recent additions to our outdoor theaters is the Merriweather Post Pavilion in Columbia, Maryland, by Gehry, Walsh & O'Malley. Located in a 40-acre park within the town among birch, beech and oak trees, the structure is pivoted on a north-east axis to protect the audience from prevailing winds and the setting sun.

Suspended over the orchestra and extending 30 feet out over the audience is an adjustable fiberglass reinforced polyester canopy with humped, reflective surfaces. This makes possible the “tuning” of the house to accommodate various types of performances.

No amplification is used within the 3,000-seat pavilion. For the audience of 5,000 seated on the grounds surrounding, amplified sound is provided by five speakers mounted in the rear fascia. The distance between the stage and the grounds is 150 feet. Therefore, unimpeded amplified sound would arrive immediately. In order to make the amplified sound coincide with the natural sound, stage sound is recorded on tape, delayed as required and then played over the speaker system. Actually, the speakers are used to reinforce, not override, the sound from the stage.

The fan-shaped seating area has two longitudinal aisles and is sheltered by a trapezoidal wood decking covered with gravel. This 35,000 square-foot roof is supported by six steel columns, four at the rear of the structure and two in front of the stage house. The 150-foot long span steel joists supporting the roof are exposed from below. An 11-foot fascia of unfinished Douglas fir extends down from the roof. Below it, the audience area is open on all three sides.

Merriweather Post Pavilion is of rough-finished Douglas fir, exposed steel I-beams and concrete.
forms a function similar to the Blossom Center. Although the structure concept of the pavilions differs, the general scheme of the two sites has a resemblance.

A wider variety of performances are produced at Saratoga, hence the stage is equipped to handle the conventional scenery used with musical comedies, dance performances and operas. The pavilion, which includes a balcony, seats 5,100. An additional 7,100 can be accommodated on the lawn.

Electronic amplification is provided for the outdoors, while no sound reinforcement is used within. An acoustical cement stucco canopy on steel framing extends 50 feet over the auditorium from the proscenium arch, joining with the orchestra enclosure to form a sound projection chamber.

At present, the center is owned by the quasi-public Saratoga Performing Arts Center which is negotiating with the State of New York to be fully under state authority. The theater itself was privately financed at a cost of $2.3 million. The $1.5-million cost of associated site work was assumed by New York State.

Using income from its turnpikes, the New Jersey Highway Authority built the $6.75-million Garden State Arts Center at Telegraph Hill Park by the Garden State Parkway to give the public a home for all the arts. Edward Durell Stone & Associates designed the opensided amphitheater with covered seating for 5,084. There is room for an additional 4,000 on the surrounding slopes.

The roof over the circular seating area is supported by fluted, white hollow concrete columns, cantilevering 30 feet out, 17 feet in, from these. The columns support a 9-foot-high box girder ring which in turn supports a 200-foot diameter compression ring. From this, 784 high-strength steel cables from 56 stressing stations extend into a small 25-foot diameter tension ring. The central concrete roof section is made of 224 pre-fabricated wedge-shaped panels.

The acoustical shell, which is Garden State Arts Center, of cast-in-place white concrete, is in vast public picnic and recreational area.
behind the covered seating space. The trusses rest on a huge, inclined steel arch which bears on two massive underground footings. The arch is supported by 10 sloping tapered steel columns, held free of the pavilion walls. Arch and columns are of welded weathering steel. Border lights and spotlights are positioned integrally with the shell ceiling.

Although designed primarily for orchestra and choral use, the pavilion's rear and side walls are movable to make room for other performing groups such as ballet and opera. The stage will hold about 200 performers; the orchestra pit has room for 110 musicians.

A large orchestra shell on the stage helps diffuse, blend and project sound to the audience. The enclosed volume of the pavilion and the roof members act as "micro diffusers" of sound waves; clusters of speakers concealed in the fascia of the roof may be used to reinforce sound to the lawn, which has capacity for about 12,000 persons.

Service buildings are adequately screened and removed enough so that they will not create a noise problem. Ancillary facilities are under and behind the pavilion, housed in a partly underground concrete structure, thereby sound-isolated from the pavilion.

The center, on a wooded bluff between Akron and Cleveland, was built to bring summer concerts by the Cleveland Symphony Orchestra to the people of this potential megalopolis. Owned by the Musical Arts Association, parent organization of the Cleveland Symphony, the $6.5-million center was financed by private contributions and by the Ford Foundation. It is named in honor of a well-known Cleveland family.

The Saratoga Performing Arts Center in Saratoga Springs, New York, by Vollmer Associates, per-

Saratoga Performing Arts Center has prestressed plywood walls. Site is on 2,000-acre state reservation.

The author: Mr. Risser is chairman of the Institute's Committee on Auditorium and Theater Architecture.
Outdoor theaters in the United States have increased in recent years for several reasons: There's the desire to escape from the city to a cool summer evening under the stars; there's the highway to ease that escape; and there's the growing interest in the performing arts — in some cases no doubt enhanced by the thought of a snack or a picnic on a dewy lawn. The random selection of outdoor theaters shown here — some of them formal, some not so formal — have highly varying pricetags but all have one thing in common: a very sophisticated mechanical system.

The first US outdoor theaters were used primarily for musical events and were usually just a shell and a platform in front of which the audience sat. Names such as Interlochen and Tanglewood, the St. Louis Outdoor Opera and Ravinia come to mind.

Summer theaters used by groups most often were renovated barns or old and seldom-used structures which accommodated both audience and performers. Some universities, however, produced plays in the open. Some were given in exceedingly simple environments, others made modest attempts to copy the Greek theater form with the audience around a circular or semi-circular stage — a form which still serves as the basis for all contemporary theaters, indoor or outdoor.

Suggestive of the Greek plan is the Blossom Music Center north of Akron, Ohio, designed by Schafer, Flynn & van Dijk with Pietro Belluschi, FAIA, as adviser on sight lines and acoustics. But here, both performers and audience — there are 4,642 seats — are protected from the elements by a shell which could only have happened in the 20th century.

Twenty-one foot-long-span welded steel pipe trusses support the roof and cantilever out to provide a covered, curved promenade over the audience.
ments of the total environment which are capable of allowing choice must be fully exploited. Before elaborating possible means, it may be interesting to investigate this function of choice.

Philosophically, it may reasonably be argued that the exhibition of choice reaffirms the self (cogito, ergo sum being the archetypal model). In an "other-ordered" total environment, an individual choice and the consequent action assume new significance. "People-centered planning recognizes the inescapable fact that every action shapes its own consequences and that deliberate choice, however tenuous its basis, is preferable to no choice at all," to quote Dr. William H. Itelson. The ability to relate an action to a reaction through the first person is perhaps a small measure of freedom, but there is another aspect of choice which has relevance to creativity — both to the architect and to the patient.

Elements of Change

Individual man is potentially a creative person, although societal pressures rapidly decrease the exercise of such creativity with age. The architect, too, would not defer, in such an important decision-making process involving esthetics, to a nonprofessional and would prefer to impose his own standards of appropriate materials, proportion, scale, etc., on all of mankind. We encourage — with our progressive eye toward human development — creativity in the very young. In succeeding stages of life, we slowly deny the capacity and relevance of creativity and in its extreme stages attempt to apply it to meaningless tasks.

Another aspect of choice and the ability to change the personal environment is the fact that the individual, no matter what age, is a constantly changing organism. Everyone recognizes that the young gravitate toward a constantly changing cultural milieu. Although the rate and scale of the change may be different in the elderly, the desire to express a changing condition and disposition may not be.

The practical aspects of a patient's choice over his personal environment may seem at first an unrealistic ideal in the traditional context of the nursing home facility. It is impractical to allow completely individual interior decoration for each patient in terms of furniture and memorabilia. But it is possible to allow for a medium situation. Because physical limitations seriously limit the scale of personal possessions, other elements must be provided which function better in the institutional setting. The designer's decisions concerning style, form, etc. will limit such possibilities. It is not the physical reality but the meaning of an object to which one relates. That meaning derives importance from personal communication between object and person. Choice may be the all-important key to communication.

Inevitably related to choice is the already mentioned function of change. Although change in its simplest application may merely consist of a re-location, it has more subtle implications in terms of environmental stimulation. If choice gives an almost intellectual gratification, then change of the environment may satisfy the psyche. Although a too frequent rate or scale of change may deny consistency or the sense of control realized through stability (relatedness), minor and comprehensible changes can do much to enliven an existence too full of routine. If the individual patient needs familiar surroundings in order to relate, he also needs a variety of environmental stimulations.

Sensory stimulation through change and control through the personal choice must be carefully studied in terms of the influence upon the personality. It is known from experiments with selected subjects that, in conditions of extreme sensory deprivations, hallucinations, perceptual distortions and mental impairment are evident. It is concluded by one experimenter that normal functioning of the brain depends upon a continuing arousal reaction produced in the recticular function, which in turn depends on constantly varying sensory stimulation. In further studies, this stimulation has been seen to be more important in terms of meaningful stimulation rather than changes in the perceptual field per se.

Avenues of Concern

Much work is necessary to translate in terms of applicability and feasibility the already existing body of information on visual perception, perceptual and social psychology in general into working elements of the architect's vernacular.

Some of the questions that need to be answered relate directly to the feasibility of the changes in the environment in terms of contemporary construction techniques. Some directions which may be taken indicate the ability of building technology to produce cheap and disposable units. This would allow a simple and fixed structural framework within which environmental modules could be placed. Visual illusions through the use of two-dimensional grids, patterns, etc., and the imaginative use of color can do much to alter environment further. At its highest potential, it is feasible that almost all of the senses be involved, at the patient's choice, to regulate the personal environment to his needs.

Today, the function of architecture is perhaps not to relate to a society which has become out of scale and beyond comprehension for many. In fact, its new importance may lie in providing psychological shelter from it.
large our environmental studies for another five years. This permits us to increase the number of candidates for Master of Architecture and Master of Planning to bring additional visiting faculty to campus for several days at a time. This year we have invited four distinguished psychologists and architects for such visits.

In the summers of 1967 and 1968, special six-week institutes at the USC Gerontology Center attracted about 100 participants each from all over the country for nine intensive courses, one of which was an environmental design for the elderly, conducted by Noverre Musson, AIA, co-author of one of the few books in this field. Another institute course by this writer was on architectural implications of urban ecology. These summer institutes also operate under federal grants, aimed at increasing the number of trained personnel in the field.

One of our students and the author of the accompanying article, Hans Proppe (B. Arch. '67), now in his second year of graduate study, has had a paper published in the specialized journal Gerontologist — quite an accomplishment for an undergraduate. It demonstrates the particular combination of immersion in the literature and observation in the field which we try to promote. Underlying it as well are viewpoints discussed at length with mature faculty in the several disciplines readily available in the center headquarters, as well as with trainees struggling with similar problems in their own context, and with professional researchers with active projects under the center's aegis.

Our architectural trainees have attended national conventions in Florida and in Denver at center expense to report on their program and to participate in technical meetings. They are on their way toward becoming effective bridge builders between our profession and those who are faced with meeting the needs of this ever-increasing sector of our population.

PROFESSOR ERIC PAWLEY, AIA
Preceptor for Architecture
USC Gerontology Center

cently proposed [AIA], Jan. '67, the environmental unit must be flexible so that every need can find expression in some change.

The underlying principles of the current state of design, then, are based upon deeply entrenched design motives. The lack of concern for human needs is not so noticeable in the typical residential environment but the effect is more severe upon persons unable to personalize their space or ameliorate their sterile environment. The average individual homeowner is able to exercise choice over his immediate environment on many different levels and thereby express his need. If he is of a particular mood and chooses to leave that environment entirely, he may do so and derive the necessary stimulation. No matter how unconscious the choice, the individual is open to a range of involvements on all levels. For

the institutionalized elderly, that choice rarely presents itself.

If the major fallacy of modern design has philosophical roots in the technological approach to architecture, a new direction requires the architect's involvement with the social sciences. Although the architect may not be able to relate to each individual need, he can utilize data for an identifiable group for which he is designing. In planning nursing home facilities, he relies often upon the traditional and numerous "architectural checklists" which underline rather mundane and purely functional requirements for the facility. The checklist may sometimes be supplemented by the architect's intuitive sense of design and, of course, the administrative program.

Design Validity

One problem hindering a more comprehensive approach to design already alluded to is the owner/architect relationship which often echoes economic overtones. The problem of economics plays a most important role in the design of the proprietary home, and it is often argued, usually quite defensively, that "good design costs money." This may be a tenable position if there is no direct agreement between owner and architect on what constitutes good design. It is much more a question of the premise behind the design, what it is attempting to accomplish, than a question of the precise nature of implementation.

A more relevant aspect of the owner/architect association involves design validity. Depending on their competence and familiarity with the problems of nursing home design, the owner/architect team may produce a solution derived from any number of possible variables. A more comprehensive and logical design process would involve the participation of an interdisciplinary team, each member contributing the specialties of his discipline. A priority list needs to be evolved to determine the magnitude and relevance of each different requirement. By far, the single factor which can produce better design for nursing homes will be the education of the architect in the findings of the social sciences.

The preceding discussions on architecture have underlined some problems in current design practice. What are some alternative solutions?

In the institutionalized setting practicing group care, there are many elements relating to individual choice which are ruled out. Certainly, there can be only minor variations in the facility's total schedule of care since the primary orientation is toward efficiency. But if one determines that the freedom to make choices and express needs is an important aspect of psychological security, especially in a framework where it must constantly be denied, then those compo-
tutionalized elderly. The physiological disability of having grown older, although not necessarily debilitating in itself, produces a profound series of changes in the way of life for the individual. Milieu therapy may be achieved by recognizing the psychological status of the patient and then making the appropriate decisions in the design. There can be no doubt that the immediate environment has measurable effects upon its inhabitant, a point to which participants in the 1964 "Who Designs America?" conference at Princeton University addressed themselves.

The Bauhaus Influence

Without sketching the entire history of the philosophy of modern architecture, it is of some relevance to investigate some underlying currents which determine many present architectural practices. The derivation of much of our modern architecture is still the result of the Bauhaus movements of the 1920s.

Although the influence of this movement is still very much in evidence today, it has increasingly come under attack from within and without the profession for its failure to relate to the needs of modern man. The functionalists' vernacular has developed into a "look at what it can do" attitude and consists of "assembling greater and greater groupings of brittle glass boxes where complete exposure and disclosure of the body and the intellect are thought to constitute a moral value," according to Charles Colbert, FAIA. Criticism was put into even stronger terms by a participating architect of the "Who Designs America?" conference, Laurence B. Holland, when he said that "the absolute negation of human value is being built into architecture."

The "anarchical reaction" to this sterility, as one architect termed it, has been the highly expressionistic and subjective work of the brutalists or Neo-Sensualists. Although tremendously rich and powerful forms are evolved, they are equally idiosyncratic and based on the architect's sense of the revolutionary. In neither instance is there any proof that the architectural form evolved responds to the needs of society rather than to the personal whims of the architect.

Although the needs of society may not be readily objectified in purely empirical terms, the state and direction of man is verifiable if one but listens to the findings of the social scientists, as planners are learning to do. McLuhan's concept of the "tribal world" with a global involvement through electronic media follows an earlier existential appraisal of man in isolation. Whereas one concept implied the complexity of the world with

Architectural Implications of an Institute on Aging

A center which began in 1965 as an interesting exploration of a special field for environmental design — that of facilities for the elderly — has become at the University of Southern California an active program of advanced architectural study with a positive contribution to knowledge. It is by no means a narrow specialty, but the context gives an essential focus; and its scope results from the interdisciplinary nature as well as from the potential for study tailored to the individual.

USC's Gerontology Center is under the direction of Dr. James E. Birren, formerly head of the gerontology program of the National Institute of Child Health and Human Development, a part of the National Institutes of Health in Bethesda, Maryland. In these few years it has become the largest such interdisciplinary center in the country, with preceptors and faculty in the fields of psychology, sociology, social work, biology, physical education/physiology, public administration and architecture. Presently, there are over 30 trainees under federal grants for work toward master's and doctoral degrees.

During 1968 the Gerontology Center was the recipient of a $2-million grant from private sources, to be matched equally, for a new research and training building on the USC campus. Extensive programming studies are proceeding now under the direction of Louis E. Gelwicks, AIA, who has been at the center for two years as a visiting professor.

Three of our trainees are candidates for Master of Architecture, and we have some undergraduates heading toward that objective. The grant provides full tuition plus variable stipends of $2,000-4,000. The environmental studies section of the original grant to the center is phasing out after four years, but the work has recently been encouraged by a new grant from a different government agency — the Administration on Aging — to extend and en-

The operation and primary responsibility of the facility, at least in nonproprietary homes, is directed toward the maintenance and, if possible, rehabilitation of the patient. His care and well-being should be not only a function of administrative operations and building budget but should also govern the design of the physical environment in which the patient must exist. This design conflict between staff, administration and patient, along with their concomitant functions, will be discussed more fully later. Even in extreme cases where efficiency of operation is essential (in large hospitals, for example), the designer often does not realize the doubly important therapeutic function of the patient room.

Immediate environmental aids such as color, lighting and texture should be consciously designed for the patient's benefit. Often, they are realized only in terms of utilitarian functions, and by habit the architect relies upon traditional and often irrelevant criteria to "decorate" the institution.

Spatial organizations are often totally unrelated to the function they are to serve. The entire transition from the public or large group space through an intermediate small group space to the private room should be a carefully designed sequence. Whereas a corridor system should be planned for what Dr. Humphrey Osmond calls "sociofugal" relationships (a space which encourages human movement but discourages formation of social groups), the smaller spaces, which should encourage interactions, should be "ana-social" (those which foster or build up social relationships). A traditional but needless conflict between efficiency and personalization of spaces occur at the point where the private room joins the public corridor. Usually there is a lack of smooth spatial transition between private and public space.

Frequently the idea of the institution as a homelike environment is mentioned as an ideal for the conscientious designer. The danger with a too literal interpretation is that the particular version of the home created may not relate to the residents' diversity of backgrounds. It is questionable whether any 80-year-old woman except Gertrude Stein would feel quite at ease sitting in her Barcelona chair staring at a Mondrian. A care facility consists of a range of interactions and functions. Some are extremely public and others completely private, each conducive to certain types of interactions and behavior. One might best approximate the home environment by allowing choice and providing a range of environmental possibilities.

Summing up these cause and effect relationships, one notices first the various changes which occur and the problems which arise for the insti-
What can be done to humanize the physical setting of the elderly subjected to involuntary environments, especially the private room itself — that last extension of an individual's identity?

BY HANS PROPPE

The primary components of the institutionalized setting are related to the psychological, physical and sociological conditions which contribute to the patient's alienation and withdrawal in the nursing home. The mere fact of institutionalization for care constitutes the basis for an interrelated series of potential problems.

Some of the contributing factors are an inevitable result of the total care concept. Although many consequences of institutionalization are unavoidable regardless of the effects upon the individual, there are others (the components of the physical environment, for example) which need not have such an effect and, when properly designed, may in fact be instrumental in relieving pressures and strains.

Many factors contribute to the deteriorating image of the self. The process of disengagement is a function of a number of forces acting on the individual and manifests itself at many scales. For instance, the intensity of the "personal space" or "life space" with which the patient surrounds himself is a function of the individual's psychological ability to extend himself into the particular social and physical environment. The loss of independence and the relegation of previously private functions to others results in a significant loss of privacy: It contracts and hardens the personal space boundary.

An equally significant change occurs in the effective life space, which is the extent of the world the person is willing to accept as relevant to his conduct. With age, life space constricts; with institutionalization of the elderly, not only does it decrease further but fewer types of interactions permit personal choice.

The often disputed disengagement theory of gerontologists Elaine Cumming, William Henry and others nevertheless illustrates the result of the components of care. Disengagement from the social fabric of society occurs when the older person can no longer relate socially or psychologically and gradually resigns himself to that condition. This disengagement of the institutionalized elderly reflects a loss of independence, loss of freedom of choice and privacy, in addition to the more general factors associated with the disengagement theory. The individual regresses and exists in a depersonalized and alienated world, which the young student of existentialism could not possibly romanticize.

This begins to indicate the importance of a careful understanding and consequent thoughtful articulation of the private room. The elderly person in a nursing home eventually spends more and more of his time in his own room, eating and sleeping, which is constantly invaded by "others" and is located within a highly organized, depersonalized system.

Another aspect of the care institution which contributes to the loss of identity has several extensively conflicting aspects. The physical plant
building program. The firm has no design responsibility.

In New York, the average age among staff members probably comes close to their fast-growing number. Two of the firm's seven design groups are in this office which, Chuck Thomsen says, "offers a peek at what the world is like without the construction documentation albatross—and it's a better world." While New York has design, project management, planning and systems analysis capabilities, Houston produces its working drawings and specifications and provides the building type specialists who happen to travel widely and often.

Offices removed from Houston have, in CRS' experience, tended to "grow people." It is pointed out that anyone in a leadership position in the firm has served with two or more offices.

And there may be more offices to grow more people. To quote again from the goals statement: "Future design offices on the West Coast, Chicago, as well as a plan for worldwide affiliations could be programmed. Thinking might be along the lines of a CRS-Los Angeles, CRS-Chicago, CRS-New York, CRS-Houston or even a CRS-Beirut."

CRS is "conservatively" anticipating at least 500 employees by 1978 and a fee volume of $16 million.

That's a long way from the ferry ride on which Caudill and Rowlett, both still in Navy uniform, conceived the idea for the firm. And it's a long way from the firm's first, part-time offices above an Austin grocery store.

The firm was later to move to the Texas communities of College Station and Bryan, respectively, before locating in Houston in 1959, arriving as the largest architectural office in town.

It is not with reference to Houston or any place else that CRS asserts it is "here to stay," however. It is an assertion made in terms of time and it is intended, along with a no-nepotism policy, to reassure staff members of continued opportunity, and to assure clients of delivery without discontinuity.

CRS' purpose, its partners say, is not to see how far it can get from that Austin grocery store. Its purpose, as they see it—and the purpose of all architecture—is people, people serving in architecture, as well as those who are served by architecture.

Neil Gallagher

UNDER THE TRAY, 'MIX'

The office building CRS is scheduled to move into this fall is a great car tray resting over a glass box. The glass box is to permit staff a view of the dense rain forest that follows the Buffalo Bayou—"the last great natural building site in Houston"—and the car tray is to avoid the marring of that view. The latter is a roof parking deck which is connected with a service highway by a level bridge, made possible by a 40-foot differential in topography. The partners will not reign in the concrete frame's prestigious corner and perimeter locations; these are "zoned" for the use of everyone.

"We do these things because we believe in the team concept," says Caudill. "If we have chiefs, they are in the open." Interaction is another criterion of the new building's design. "We want the directors to have contact with the mail clerks. We want the interdisciplinary mix. We want the engineers to mix with the planners and the graphics people to mix with the estimators. We want to honor not so much what a man does but how well he does it," Caudill explains. Added to the emphasis on view, worth of task and interaction is one other consideration in the interior design approach to the CRS Office Building—change. The basic furniture system is a series of movable panels which provide privacy and support working surfaces and storage components. The system, Herman Miller Action Office 2, is designed on the premise that changes in task, and thus in the space and facilities for that task, are certain to occur. Change, then, should be made gracefully. The system includes a drafting table designed for work in a sit-down position, which both brings the draftsman and designer off high stools and down to executive level and provides surface for desk and conference uses. While the plan is open, no bland loft spaces are intended. Strong contrasts are basic to the interior—rough concrete against polished glass, brick paver floors against soft carpet, etc. "Mix" is the key word, precisely as it is for easy personal relations and direct communication. The library and lobby are waterholes, the latter displaying CRS' latest work and its only bulletin board.
those closest to the technology readily allow that it may be the byproducts of the computer—not unlike the byproducts of research—that in the end weigh heavier. The mere use of the computer, they say, imposes a rigor and a discipline and stimulates a logic which has a profoundly beneficial impact on the practice of architecture.

Moreover, the use of a computer gives the firm a reputation for systematic problem solving—and this has been instrumental in obtaining new work.

The need for creative management and good personnel relations has mounted not only with the growth in work volume but with the dispersal of operations. In addition to the office in New York, the firm has offices in Hartford and Baltimore and an operation in Saudi Arabia. It will decentralize to whatever extent is necessary to meet project goals—"We're project-oriented, not office-oriented," is the gospel word in Houston.

"Being all in one location," the firm has said in its goals statement, "is no assurance of unity." Adds Bullock: "The firm would rather seek a unity of the whole in which anyone from anywhere in the organization can work with other CRS personnel on a project team."

In Hartford, CRS is sole architect for two of six schools in a $45 million program and is in association with Hartford firms on the other four.

In Baltimore, the firm is serving as consultants to the city's school board in an $80 million crash build-in program. CRS competed against three other firms—management consultants, all—to win a 15-month contract to coordinate the...
ties, perhaps most notably those of the firm’s design review board, of which Scott and Bullock are members. The board examines each project in schematic and design development stages and seeks high design quality not solely for its own sake but for its contribution to the firm’s overall performance image.

CRS has become a large operation with a half billion dollars worth of construction under contract, a fee volume running over $5 million and a staff of 287. As the operation continues to grow, the need for creative managerial control and communications techniques grows with it.

The firm is a partnership of 10 partners, eight of whom are general partners. Otherwise it is a corporation with the general partners the directors and major shareholders. The board meets four times a year and its executive committee once a month.

Paseur is secretary to the executive committee along with being vice president and general manager, the third person to hold the latter positions in the brief time it has taken the firm to pass through two office-size classifications — small and medium — and into large-office status.

The computer through information systems identifies problems for top management. A project reporting system, for example, has staff members reporting their time allocations by project on a two-week basis; the progress of jobs and the efforts they are eliciting can be measured against their fees and necessary adjustments made in the project flow.

In terms of control of the individual project, computer-aided cost estimating has brought estimates “close” to low bids on recent projects. The computer is said to be helping CRS’ cost control even more than its cost estimating.

In any event, there is a continuing effort to reduce turnaround time. This does not, however, discourage the design review board, which includes the members of the executive committee, from rejecting the work of a design group and telling it to start all over. The message is conveyed through cool numbers rather than emotive dismay, this made possible by a triadic scoring instrument — form/function/economy — and a system of assigning judgmental number values to each of its three legs.

Much enthusiasm for the computer is to be found at CRS, yet CRS is committed to the multioffice form of practice with total firm unity. Concentrated effort should be made to search for methods of unifying decentralized and diversified situations with special consideration given to the “circuit manager,” revolving design board, etc.

CRS is committed to both socially significant architecture and great-example architecture.

CRS is committed to nonbuilding services — programming, surveys, feasibility studies, computer applications, research and planning. An effort to promote programming and research should be accelerated. CRS must have more superconsultants and nationally known experts.

CRS is committed to a diversified practice. Hardly any building type will be off-limits, for future schools will be mixed with housing, offices, stores and civic centers.

CRS is committed to a serious study of urbanization in keeping with the nation’s effort to solve the problems of the inner city.

CRS is committed to setting up an aggressive recruiting program.

CRS is committed to a thorough personnel evaluation process. In order to judge individual performance, this is essential, especially in periods of fast growth.

CRS is committed to developing professional growth. The idea of a “CRS school” has been discussed for years. Now we must set one up in order to keep up with technological, procedural and even philosophical changes. In addition, a CRS sabbatical for professional growth must be established.

CRS is committed to making a profit and practicing architecture in a businesslike manner.

CRS is committed to further exploration and refinement of the design board and the separate design groups concept. Past performance indicates that design is improving and promotion is benefitting. The design board also has great worth as a coordinating device for giving unity to the separate and scattered design groups, but serious consideration should be given to returning to the broader scope of the quality control board idea.

CRS is committed to a spirit of openness — sharing CRS developments with all people, including the profession.

CRS is committed to the development of national leaders with the capability and dedication to make a significant contribution in all facets of architecture.

(A 13th commitment, on building systems, is in preparation.)
Waverly Elementary School in Hartford with open-plan units to house four classes of 25 pupils each in team teaching.

which are constantly updated as either the market or technology changes. An array of 10 subsystems having five alternatives apiece yields 30,000 possible combinations, notes the report. By adding three variations in the building geometry the range of possibilities goes to 90,000.

A 10x5-foot matrix is envisaged in the study, and it is explained that the hardware technology will be a matter of filling in the alternatives when the system is to be actually designed and engineered.

Elevator design program: Running the program at left gives the least expensive solution, top line above, followed by options running up to 50 percent more expensive than least expensive. The CRS library includes systems of programs such as the management control system and the campus planning system (this alone contains some 80 related programs), etc. The computer is used in economic feasibility studies, cost estimating, specifications, engineering and in such miscellaneous programs as the one shown here. HC is handling capacity; WT-SEC is waiting time in seconds; RTT is round-trip time; and NRSF represents the net rentable square foot area.

UBS must be thought of as a "comprehensive systems approach" to the delivery of a project," the report says. "In this sense, perhaps, it is universal as a system model. Every application will require model adjustments.

Thomas A. Bullock, AIA, is partner in charge of the study. William M. Peña, AIA, is special consultant and John W. Focke is project manager. Focke, 24, took over the assignment after having been with the firm for only six months.
Bullock has said, “is not a dirty word with us. We don't leave the welfare of the firm to indirect promotion alone. Frankly, we try to develop work among good clients; good clients increase the chances of good architecture and good architecture is what we think we're all about.”

Rowlett, Scott, Bullock and Charles B. Thomsen, AIA, co-manager of CRS's New York office, share prime promotional responsibilities, highly organized efforts which include extensive analyses of marketplace potentialities.

Indirect promotion absorbs half the time of the vertical specialists who speak and write and develop contacts in their specialty areas. It is also a factor in other activi-

Negotiable programming relies on the premise that the building system is developed from user requirements and performance criteria and that it will leave net space requirements “negotiable” within a fixed gross area. Explains the report:

“Through the use of the building system every program requirement remains negotiable throughout the entire delivery process, and because of the inherent flexibility in the building system the functional organization of the interior remains forever negotiable.”

Design procedures, the report says, must be analyzed as a subactivity of the PDS. The interrelationship of programming to design, it adds, is critical to the success of design decisions. As system buildings are introduced, design becomes specialized and even more vital to the success of the project.

Traditionally, there has been a break in the PDS at the point where responsibility transfers from the architect to the contractor, the report notes, then ventures: “Construction management could be a subfunction of the coordinating architect while still maintaining a competitive environment for subcontract bidding. Construction management is a necessary function of the architect to maintain continuity in cost, time and quality control.”

Industry might participate heavily — on a competitive basis but with a guarantee of substantial markets—in the design and development of subsystems. Detailed performance specifications would form the basis of subsystem design; the interface of such systems would be the responsibility of industry, the report says.

Industry would take the place of the general contractor at bidding and would bid on the basis of unit and interface costs. The architect would manage the contract letting and fill the management role of the general contractor during construction. Nonsystem work would be let as a subcontract.

Fast-track scheduling, a technique which overlaps activities normally found in sequence, would give to the PDS a significant time/cost control mechanism and a scheduling flexibility not possible in traditional linear scheduling. As far as decisions are concerned under fast-track scheduling, each activity becomes a two-phased process involving conceptual decisions and detail decisions. There are several bidding procedures that fit fast-tracking, the study says.

The building system hardware must first be open; that is, it has to be a versatile collection of subsystems which are interchangeable, adaptable to variations in code, market and climatic conditions, and must be dimensionally and otherwise coordinated for “agglomeration” into a complete building.

The system developed in the study is divided into 10 subsystems, each having three to five alternatives
planning and other topics related to the role of architecture in today's society."

The CRS desire to publish was seeded in the field of education, a field with which the office has had considerable connection: Rowlett was with universities when they established the firm. Rowlett with the University of Texas and Caudill with Texas A&M. Caudill until recently headed the School of Architecture at Rice University.

At the age of 26, Caudill wrote a little book called Space for Teaching which created an immediate stir and was to become a factor in the post-World War II school design revolution. This and writings to follow helped to move the firm into the limelight of educational facilities construction.

The lesson on the value of being published was plain as school and college commissions accrued; along with its work in health care facilities, commercial buildings and such projects as Houston's Jones Hall for the Performing Arts, CRS to date has done more than 600 containers for the educational processes.

While designing for the education of others, the firm has been aiming toward more education for itself, regarding in-house education so seriously as to look toward the creation of formal training courses with an educational administration responsible for the supervision of the program.

In the interim, brown-bag sessions are held in the drafting room every two weeks or so as one CRS device to further professional growth. But before professional growth must come recruitment — getting the kind of people referred to as "the right people."

University connections have been important to recruitment, and so has the firm's progressive image. But the firm believes recruitment and the holding of key personnel have been best served by its commitment to growth. The attraction of the right people, as a matter of fact, is No. 1 on the list of reasons for its "expansionist" policy. What is a "right" person?

"We believe that to succeed in CRS," the partners have jointly said, "one must first be a good guy, and second know his stuff."

Growth means personal opportunity, one index of which is the fact that 18 associate partners have just been made owners — a near trebling of the number of partnerships-with-ownership which now stands at 28.

And it necessitates skillful promotion of the firm. "Promotion,"

**SYSTEMS WITH SOFTWARE**

Universal Building Systems (UBS), a continuing research project of CRS, places particular emphasis on "software" under which an interim report on the study lists programming, planning, design and management procedures. "Hardware" is described as the technology to develop the physical building system.

The open-ended study applies the systems approach which is defined here as a way of viewing something — of seeing the problem solving process, for example, as a sequence of activities, interrelated and serving the ultimate objective of problem solution. The problem/solution sequence of architecture is seen as a Project Delivery System (PDS), and to the PDS, with its variables of people, process, communications and project, is applied a technique of systems analysis, model simulation.

The study is concerned with the integration of programming, planning and design in order to implement the building systems approach. The first of programming's three phases under UBS (short form, long form and detailed programming) precedes master planning, the second precedes schematic design and the third comes before design development of interior building systems. There is flexibility in time here, and thus emerges the concept of negotiable programming.

---

```
Jones Hall for the Performing Arts, alive at night both inside and out, with radiant Richard Lippold sculpture in its grand lobby. Theater changes configuration to meet the needs of differing events with the touch of the finger.
```

56 AIA JOURNAL/AUGUST 1969
The technique yields a better feel of the site, of the region and of the people for whom the firm is designing. It has also given CRS a nonparochial outlook, indeed a nonprofessional way of collaborating.

Similarly, CRS is broad in terms of in-house specialists; among staff specialists are an urban affairs specialist, a systems analyst and a behavioral scientist who was also trained as an architect. Meanwhile, the firm is preparing for the day when economists, lawyers and practitioners of disciplines yet to be connected with architecture may be added to its staff.

As a matter of claim, CRS was founded on the belief that better buildings result not only from problem analysis but from research, and it is to be recalled that the previously mentioned “Problem Seeking” report numbered 18 in the firm’s continuing series of investigations.

There is a two-way openness about this research, as there is an intellectual ventilation about the firm itself — ideas are free to flow in or out. Research findings are shared, and while there is some professional altruism in this, there are also some practical benefits to be enjoyed.

For one, the distribution of findings generates feedback. For another, an image of progressivism accrues to CRS with all the advantages in job-landing and recruitment that this implies. For a third, it is an approach which nudes staff members toward creative undertakings.

But if you are going to research and publish, publish well. That this is axiomatic at CRS is testified to by the publications themselves. Handsomely bound, beautifully printed and illustrated, they are often conversational, and sometimes almost chatty in their readable texts.

With the emphasis CRS places on research and publications, the announcement of several months ago that Stephen A. Kliment, AIA, was joining the firm in the new post of architect in charge of research and information was hardly a surprise.

Kliment, editor of Architectural & Engineering News since 1961, at CRS will “establish and coordinate a systematic program of research activities, both outside-funded and in-house,” the announcement said, adding that he will “pinpoint short and long term research needs and seek to fulfill these with the use of existing CRS personnel and outside consultants. Kliment will develop a qualified, full-time staff of practice-oriented researchers.”

Also under Kliment’s direction is the “planning, coordination and production of CRS’ continuing program of publications on technical, professional altruism in this, there is a two-way openness about this research, as there is an intellectual ventilation about the firm itself — ideas are free to flow in or out. Research findings are shared, and while there is some professional altruism in this, there are also some practical benefits to be enjoyed.

For one, the distribution of findings generates feedback. For another, an image of progressivism accrues to CRS with all the advantages in job-landing and recruitment that this implies. For a third, it is an approach which nudes staff members toward creative undertakings.

But if you are going to research and publish, publish well. That this is axiomatic at CRS is testified to by the publications themselves. Handsomely bound, beautifully printed and illustrated, they are often conversational, and sometimes almost chatty in their readable texts.

With the emphasis CRS places on research and publications, the announcement of several months ago that Stephen A. Kliment, AIA, was joining the firm in the new post of architect in charge of research and information was hardly a surprise.

Kliment, editor of Architectural & Engineering News since 1961, at CRS will “establish and coordinate a systematic program of research activities, both outside-funded and in-house,” the announcement said, adding that he will “pinpoint short and long term research needs and seek to fulfill these with the use of existing CRS personnel and outside consultants. Kliment will develop a qualified, full-time staff of practice-oriented researchers.”

Also under Kliment’s direction is the “planning, coordination and production of CRS’ continuing program of publications on technical,
design group, a partner in charge and the various internal consultants appropriate to the project type and its execution.

The kinds of vertical or "building type" specialists the firm has currently are architects expert in schools, community colleges-urban, community colleges-general, colleges and universities, health care facilities and urban design.

The horizontal staff includes designers, design developers, planners, architectural programmers, computer personnel, mechanical, electrical and structural engineers, interior designers, landscape architects, researchers, graphic designers, specification writers, civil engineers, construction administrators and accountants.

Vertical and horizontal staff constantly criss-cross in their work relationships and this requires adroit managerial coordination and a strong sense of team.

Another team aspect of CRS, this one elegantly referred to as the "squatters," brings the client/user into participation. The squatters technique had its origin early in the firm's 23-year-old life.

CRS' first big job happened to be 525 miles from the office and occasioned a number of trips back and forth with plenty of pretty sketches but nary a sign of progress. Summarily, a drafting board was tossed into the back of a car and off went Caudill, Scott and an associated architect to "squat" with the client until concepts could be hammered out right there in his own backyard.

It was a successful stroke both in terms of the job at hand and, more enduringly, for its revelation of a new way of working with clients, a way that now seems a remote forerunner of advocacy planning, and a way that has aided the conservation of time and money for both client and firm. Today CRS squatters will go anywhere to join clients in concentrated day-and-night sessions.
test the results of real world options.

The firm’s abilities with the computer have become so well developed that they have brought about the birth of CRS2, an autonomous corporate affiliate with a separate board of directors and its own officers (see box, p. 52). Well developed but not dominating, and for two reasons:

First, because the use of the computer has been kept in perspective: it has been deployed as an aid to architectural and planning processes and not as something for its own sake. “Play the useless game of following the numbers,” someone said, “and you get into trouble.” Second, because CRS is a kind of arena in which many forces are in suspended contention — this is the way the owners want it — and in which no one force is likely to dominate or even dominate for very long.

There is a push-pull between propensities, between systems and design, management and practice, process and product. “We want process-oriented people and we want product-oriented people, too,” says C. Herbert Paseur, AIA, executive vice president and general manager.

CRS would have the architectural process include the “man on the street.” The process then would have a better chance of giving him what is appropriate, and, adds Caudill: “We’d have a better process and a better product. It is wrong for the architect to play God in a project. But we’d better make darn sure we have creative, artistic people on that team, too.”

CRS has seven design groups, each consisting of a leader and three or four other designers. It seeks to strengthen its design performance through directions rather than solutions. “Styles and frills” will decay but a sound direction or approach to design will remain, runs the firm’s philosophy.

The search, someone added, is for a simple thing: “What do we really believe in?”

In support of the design groups is a horizontal/vertical system of specialists: those involved with design, technology and management and those concerned with a specific building or project type.

Project teams are typically made up of a team leader, who is the project manager, the leader of the
tainty on the expansion question. The growth commitment at CRS is total. And if it is to grow and prosper quantitatively, the firm is convinced, it must first grow qualitatively.

For example, CRS believes quantitative growth requires more than the meeting of high performance standards in traditional roles, that it also requires the furnishing of the kinds of services — most crucially for the present such nonbuilding services as programming, planning and feasibility analyses— which clients are increasingly demanding. It knows, too, that it is in precisely such areas of practice that the "outside experts" are pinching hardest. It is to both accommodate clients and compete with the encroachers that the firm is engaged in furthering its nonbuilding capabilities.

William M. Peña, AIA, who followed William W. Caudill, FAIA, John M. Rowlett, FAIA, and Scott into the partnership and who on the name-in-the-firm's title question answered that "three names are enough," is credited by Caudill as being "the big guy in the firm, the guy who has given CRS strength through programming." Peña and John Focke have just produced the firm's Investigation Report No. 18. Appropriately called "Problem Seeking" — design is viewed as problem solving, programming as problem seeking — the report describes the firm's processes in determining what the client/user should build (if indeed he should build at all), along with the two-phase CRS approach of schematic programming and detail programming and its concept of programming generations. (It is treated separately on p. 55).

The investigation stemmed naturally from another steadfast principle of CRS' practice which holds that from thorough analyses come better buildings. It stemmed more pointedly from a declaration made a little more than a year ago by the general partners. This assertion, one of 12 goals to which the firm was pledged (a condensation of the goals appears on p. 59), says in part:

"CRS is committed to nonbuilding services: programming, computer applications, feasibility studies, surveys, research and planning."

Computer applications are not something apart. For more than a year before CRS got its IBM 1130, programs and attitudes were prepared; now, with little more than two years having passed since the computer's installation, every department of the firm has found at least one job for the equipment to perform. These are jobs which make it possible for the firm to practice better — but not necessarily any easier. In programming, for example, the computer, with its speed and ability to handle large amounts of data:

• Calculates space requirements, allowing for a continual updating of parameters, and enables the architectural programmer to generate detailed and accurate user requirements and to test parameter alternatives.

• Generates affinity circle diagrams and circulation frequency/ load displays which facilitate analysis and the organization of very complex interrelationships.

• Performs in model simulation in which a real and complex system is described or approximated as a mathematical equation and in which changes in the values of variables are introduced and processed to determine their consequences — many sets of numerical data can be introduced swiftly to

**MOVE-UP, SPIN-OFF MONTH**

For CRS, last month was a memorable one. Eighteen associate partners became stockholders in CRS Design, Inc., a corporation established by the firm in 1957 after 11 years of practice solely as a partnership. The partnership was continued, however, to accommodate the states that do not recognize corporate life for professionals. It is responsible for signing contracts, in return receiving 2 1/2 percent of the fee for assuming liability and for expenses. Representing CRS to the outside world, it is made up of general partners Caudill, Rowlett, Scott, Peña, Bullock, Nye, Lawrence and Paseur, and partners Gatton and Williams. The general partners constitute the board of directors of CRS Design. Corporate officers are Caudill, chairman of the board; Bullock, president; Paseur, executive vice president; and general manager; with the other directors being vice presidents. The day-to-day operation of the firm is the responsibility of Paseur who has the backing of the board's executive commit­tee — Caudill, Bullock, Scott. There are 36 key staff members who are associates and who are expected to become qualified for corporate ownership sometime in the future. Bullock believes the status and framework of the part­nership will diminish and eventually vanish as the corporate professional firm is accepted by more states. A hint of this is in the firm's brand new logo which, unlike the old one, the CRS tree, appears above the names of Caudill Rowlett Scott.

CRS2 is a spin-off of CRS Design with its own stock­holders and directors. No CRS2 officer is either a partner or director in CRS. CRS2, which also happened last month, is a group of architects, planners and systems analysts using the computer as a tool to solve problems in space planning. The firm offers de­veloped computer programs for specific applications, as well as software development services for new applications as required by such clients as architects and planners, health and educational institutions, and housing agencies. Robert F. Mattox, AIA, 30, president of CRS2, headed CRS' computer operations.

AIP; G. Norman Hoover, AIA; James M. Hughes, AIA; Paul A. Kennon Jr., AIA; Brawley M. King, General; William F. Perry; Bob H. Reed, AIA, ASLA; Jack W. Smith, AIA; William T. Steely, AIA; Joe B. Thomas, PE; Charles B. Thomsen, AIA; Michael H. Trower, AIA; Robert E. Walters, AIA; Donald B. Wines, AIA.

Associates: The firm has 36.
Forward-Geared People and Processes

When CRS people write or speak they do so in short, down-to-earth sentences. Such plain talk, however, is often in the company of repeated allusions to various luminaries; and so it is not surprising that an engaging brochure describing the firm’s work should contain a reference to one Leonardo da Vinci. What is a bit startling about this particular reference is that CRS, after acknowledging da Vinci to have been “quite a guy,” lets it be known that were he around today “we’d like to hire him.”

Mock deigning? Yes. perhaps — and no. No, because you suspect that the vigorous Houston-based firm of Caudill Rowlett Scott would try to corral a hale and hearty da Vinci. No, because you suspect that perhaps even now CRS could well have a budding latter-day da Vinci among its bright young men.

The genuine article, the da Vinci of old, might have made a good fit at CRS even as a generalist, in the sense of developing problem-solving methods and systems of general or universal application. A major involvement in systems, both in “systems analysis” and “building systems,” is in emergence at CRS today.

Da Vinci, however, would have to be a team player. The Renaissance man was fine for his time, but he soon would become lost amid the complexities of today’s practice, CRS believes. The only way to cope with these complexities and to produce what it calls “total architecture,” avers the firm, is through “a team of strong individuals.” With the possible exception of its willingness to change as people and conditions change and its rigidly held notion that “architecture is for people,” no trait or tenet is so fundamental to this complex firm as is the concept of team.

A superficial understanding of the nature of CRS yields an easy montage of schoolhouses, of which the firm has done hundreds; of on-site project teams or “squatters,” for which it is well known; and of that handsome symbol, the orange tree, with which the firm is readily recognized.

A closer look complicates the picture, and this is due as much to the elusiveness of some CRS aspects as it is to the complexity of others. These mercurial qualities confront even CRS partners. Thomas A. Bullock, AIA, the firm’s president, suspects that “there are things about CRS that none of us realizes.” Wallie E. Scott Jr., AIA, a man who attaches great importance to intangible matters, would welcome anyone able to explain to him “the magic that holds this thing together.”

But there is no uncer-
areas. The cost was about $1.7 million (27 million pesos), financed by the Bogota Power Company. The World Bank helped finance the dam-project.

Only 50 miles from Bogota and at an altitude of 8,800 feet, Guatavita, we expect, will be the heart of one of the major resort areas in Colombia. While it has always been a commercial center in the middle of a rich farming region, the old town was slowly dying as its residents were attracted to the richer life of Bogota. Today, not quite two years after completion, the new Guatavita is alive with activity.

The Guatavitans have warmly received this infusion of new life. Last summer, for example, the town had its first regular program of theater, concerts and other events for visitors. The tourist traffic has also spurred courses for residents in wood and metal working, jewelry-making and other artisan skills as well as the opening of a new school of music which now has 100 students — all learning to play the guitar.

Lake Guatavita, which is now 10½ miles long and nearly 1 mile wide, is quickly becoming a major recreational asset. It has already been stocked with fish; boating is in full swing.

The future of Guatavita seems bright. Its population downturn has been reversed; in fact, there is not now enough housing for all who would like to make their homes in the new town.

To meet the demand for new homes for week-ending families from Bogota or others who want to move from country to city, construction of 100 new homes will soon be underway. The town now has its first restaurant; a hotel is planned for the immediate future so that the daytime tourists will have a place to stay instead of having to return to Bogota each night.

Guatavitans and the municipal government have provided a firm footing for the city's future through the organization of a community corporation, the Corporacion de Vecinos para el Desarrollo Socio-Economico de Guatavita (Corporation of Neighbors for the Social and Economic Development of Guatavita), a public corporation which is managing the business activities for the development of the new town.

Our firm helps seeing to it that the future of Guatavita is not left to chance. New housing developments are already in the planning state, and the town council has taken steps to insure that the architectural and design harmony of the new town will remain.

The council has enacted municipal regulations that forbid the use of roofing materials other than tile and which regulate the colors used for exterior painting.

New developments and additional buildings are also planned so as to maintain the separation of automotive and pedestrian traffic, so carefully designed in the original town.
How do you build a planned new town for 140 different clients, all of whom want to live in the same community but all of whom have different ideas?

This was the basic problem architects and planners of the new town of Guatavita, Colombia, had to solve. It arose when the Empresa de Energia Electrica de Bogota (the Bogota Power Company) started to carry out its plan to dam the Tomine River. The purpose of the dam—the Sesquile—was triple: to provide inexpensive hydroelectric power for Bogota, to put an end to the serious annual flooding in the Bogota River Valley and to provide water for downstream cities and farms during the dry season.

But behind the Sesquile Dam a lake would form, eventually flooding the old town of Guatavita. So, as soon as construction of the dam was underway in 1960, the power company began to plan the future of Guatavita with its residents, offering double the appraised value for each house in the old town and to construct a new house in the new town for that amount.

Out of 172 families, 140 preferred to remain in the area and voted to rebuild their town on a bluff above the old one.

After our firm was retained by the power company as architects/planners for the new Guatavita, we went through three schemes but still could not reach an agreement with the citizens on the design. With time running out, we decided that the only course was to sit down with each family, work out individual plans and then incorporate these in the overall town plan. It took us six months, but we finally found a solution that the town council as well as the residents accepted.

Because each house was made to order, we had to develop 28 different basic plans, with houses ranging from one to six bedrooms and with or without shops and workshop facilities.

Many of the residents had seen Bogota's modern buildings with their glass and steel and brick and told us that this was exactly what they did not want. They liked their own old architecture with its thick walls, tile roofs and extensive use of wood. Our principal aim, then, was to avoid so-called modern architecture.

We developed a plan using the same construction systems and building materials as in old Guatavita but added modern lines. Architecturally, the most important thing was to give the town harmony. The new Guatavita has architectural unity without the dreary sameness of most planned towns.

Another important component in the planning of Guatavita is the layout of its streets, plazas and squares. We developed two entirely separate circulation systems, one for people and one for motor vehicles. It is possible to walk through the core of town without crossing a traffic artery. These are all outside the core area and have bridges across for pedestrians.

Planned as a center for more than 17,000 people, Guatavita contains all elements and many facilities to make both town and region more self-sustaining, among them a municipal building, three schools, a church and rectory and a hospital. In addition, it has a structure almost unanimously requested by the residents: a bull ring. A Greek-style outdoor theater and a host of plazas and public squares provide attractive and functional places for recreation and entertainment—something new for Guatavitans.

A public market with both open and covered stalls is now a busy weekend spot as outlying farmers and artisans open shop to sell their products. The bull ring is constructed to double as an arena for cattle shows and sales.

Our experience proved that traditional architecture is still relatively inexpensive in Colombia. The new town, on about 53 acres, has more than 160 buildings with 129,000 square feet under roof and, in addition, plazas and public areas.

The author: Dr. de Leon, a partner in the Bogota firm of Llorente & Ponce de Leon, directed the design and construction of Guatavita, Colombia.
POINTERS FROM SOUTH AMERICA

Guatavita: New Town with Potentials
masses livelier. Some structures are elevated from the ground, others intentionally squat, so that their restrained horizontality might contrast with the center of the city.

As for the administrative and collective part of the city, i.e., its monumental axis, it consists of different escalated levels: the greenery; the Plaza of the Three Powers; the ministries; the cathedral; the cultural center; the traffic center where the axis of the city cross each other on three levels; and the mound of the TV tower. This scaling into successive plateaus was caused by the moving of earth made necessary by the vast cross-sectioning at different levels. Unlike adapted cities, adjusted to the landscape, Brasilia created the landscape in the middle of the wilderness.

The geometrical orderliness of the blocks and the spaciousness of the monumental axis allow for the integration of the old Le Corbusier principles of a “radiant city.” The Plaza of the Three Powers, open like La Concorde, is the only contemporary square comparable with the famous traditional ones in Europe.

The architecture of Brasilia has to us Brazilians a dear and special attraction: It has not broken loose from the baroque of our old colonial architecture. This without copying it, without even using its most characteristic elements, but just preserving its graceful unconstraint, without functional limitations, without ever fearing a curve, aiming at beauty as the only true function. The architecture, stripped of adornment and somewhat abstract, gradually and naturally becomes part of everyday life, private and administrative, thus giving the city a character all its own, attractive and charming.

I still keep in my heart and in my mind the emotion I felt on the day of inauguration of Brasilia. About half a million people rushed inland from all directions to be present at the great event. Thousands camped under trees or bridges, sleeping in the open or in their cars, anxious to witness the historic occasion, the crowning of a great collective effort aimed at national development. More than 3,000 feet above sea level and about 700 miles from the coast we built our capital city where before there was only jungle.

I am quite aware of the cost of the struggle to transplant the heart of Brazil from its periphery to its center. But Brasilia is there today. The results have exceeded all expectations. Millions of people, attracted by Brasilia, are now settled in the interior of the country. Thousands of miles of roadways built by my government, connecting the new capital with the extremities of Brazil, now have new farms sprouting along them with thousands of heads of cattle and producing millions of tons of grain; there are scores of new towns with schools, hospitals and churches — in short, comfort, civilization and joy of living.

True, Brasilia has its problems, but they are the consequence of the contrasts consisting in a country with a recent tradition of an agrarian economy based on slavery and a rather belated and nonplanned industrialization which both have left those inevitable characteristics of a developing nation—a huge proletariat and peasantry submerged in ignorance and poverty, and a small, rootless socially irresponsible elite, traditionally fond of easy money, given to financial exploitation but not to investment. Just the moving of the capital could not do away with such fundamental contradictions. Powerful private interests take advantage of this chronically anomalous climate, and this is clearly visible in the shantytowns both inside and outside Brasilia. This does not mean that the city’s urban plan or its architecture is faulty. There was not time to take the necessary social measures, to introduce an agrarian reform which would attach a man to his land, which would give him land and the appropriate means to fill it.

If that had been done, the land along the new roads would have been expropriated, and today there would be large agricultural cooperative societies which Brazil feels it needs. But, while still as poor as before, people are optimistic, aware of the greatness and richness of their land and hopeful that this land will belong to them some day. And the success of Brasilia has done its part in the development and encouragement of this spirit of optimism.

Main business street has private duplexes on one side (left), stores on the other. All homes face front to front.
the most daring Brazilian undertaking of this century. Already, over 1 million people live along the Brasilia-Belem road alone, in improvised, self-generated towns, the fruits of progress, which is rapidly changing the face of the so far uninhabited interior.

Brasilia today is a motorized city. Its highways, with distance-reducing overpasses and cloverleaf intersections, discipline traffic; it is a city without crossings and traffic jams. Costa's plan is conceived on three different scales: the collective or monumental, the daily or residential and the concentrated or gregarious. The interplay of these scales will give the city its definite and proper character.

The plan is shaped like a bow and arrow, with the two houses of parliament and parliamentary offices at the arrowhead, the railway station at the arrow base. Close to the latter are sites for light industry. Nearer the head, along the straight monumental axis (or arrow shaft), follow a municipal plaza, a sports center, a radio and television tower, hotels, an entertainment center, banks and offices, a trade center and a traffic center on three levels. Theaters, movie houses and stores will all be served by a dual system of side streets and little squares for pedestrians. They will be accessible to cars and buses through the traffic center and to trucks from the opposite side on a lower level.

This nucleus of urban activity was deliberately conceived in contrast to the free and peaceful spaces of residential blocks along the highway axis, or in the curves of the bow. These blocks, framed in a dense green strip of large trees, were first of all created to make the residential sections match the monumental scale of the rest of the city.

Each set of four of these superblocks has a common accessway to the service road contiguous to the highway axis and constitutes a "neighborhood" with its necessary components: a primary school, shopping, a club, etc. Churches, high schools, movies and retail stores are placed on broad strips which join the service and residential axis roads at intervals and are served alternately by one or the other. The pilot plan proposed — and this was the most important social characteristic — to join in each neighborhood the different categories of the present social order to avoid the stratification of the city into rich and poor districts.

The emphasis on the highway/residential axis is another peculiarity of Brasilia. Usually, modern highways stop at the gates of a city and get diluted in a tangle of streets and crossroads. In Brasilia the highway leads to the heart of town and goes on from one extremity to the other, south/north and east/west, without ever losing impetus because the modern layout techniques make traffic lights redundant.

In the residential blocks the opposite takes place. Forewarned by the restrictive character of the access, the motorist slows down instinctively and the car becomes naturally integrated, as if tamed, in everyday family life.

The secondary system of back and service traffic has a bare minimum of traffic lights and signals.

The different levels of the side streets of the highway axis, their gentle, gradual curvature and their adaptation in the north wing to the upward and downward sloping of the topography make the sequence of the great erected
over the great rivers. The vast plateau could be reached by air only, and only with difficulty at that.

The opposition took advantage of this to attack me violently, and a legend was fabricated according to which only air transport was used to build the capital. But when it became known that roads connecting Brasilia with São Paulo and Rio were being laid, my opponents regretted ever having supported me. Alas, it was too late.

To understand why they were opposed was simple: It was hard to leave the enchantment of Rio for the wilderness of the plateau.

At first, I'll admit, I was thinking in terms of an international competition for the planning of Brasilia, which I thought should be an expression of the latest ideas of world urbanists. Yet a quite understandable reaction from Brazilian architects made me give up the idea and instead have a competition among architects registered in Brazil only.

To judge the projects I set up a committee of three: Professor William Holford of England; Professor André Sive of France; and Professor Stamo Papadaki of the United States. Professor Holford pointed out to me the entry which he considered the likely winner. It was presented on a small sheet of paper with hand-drawn sketches. The other entries — there were 26 in all — were detailed and elaborate. The committee needed barely five minutes to declare the hand-drawn plan the winner. It was designed by Lucio Costa!

Besides Costa, I called in Oscar Niemeyer as architectural adviser. Years before, when I was mayor of Belo Horizonte, the capital city of my state of Minas Gerais, Niemeyer, who had just graduated as an architect, collaborated with me. He planned the urban and architectural development of the district of Pampulha, today an international tourist attraction.

On summoning Niemeyer I let him have a free hand with just one condition: His work, a hundred years hence, should convey to our great grandsons the greatness and the powers of conception of Brasilia's builders. They should be made aware that these builders were conscious of the future of Brazil as one of the most powerful nations on earth.

In the beginning everything seemed difficult. For example, we had to transport an electric generator weighing over 70 tons to the site. Halfway to its destination it sank in the middle of a great river. Four months went to extricate it, but when at last it was set on the plateau, illuminating the principal points of the town to be born, it was a day of giving thanks.

The incident made it clear that it was imperative to link the new capital with the rest of the country by roads. Consequently we laid out a road system radiating in all directions from the new capital, especially the Brasilia-Belem highway through almost impassable jungle to the Amazon port of Belém, and the Brasilia-Acre highway to our undeveloped western jungle areas — an enterprise which is now considered
has been, an evenly populated country. In some ways it resembles a series of islands with 80 percent of the population concentrated in the narrow coast belt in population nuclei not even properly linked to one another, communications-wise. Most of the rest of the population is in the hinterlands immediately behind these nuclei. The vast interior is — or was — almost uninhabited. To begin the development of this interior it was necessary to build an inland capital. Although the original plan to move the capital to the plateau was almost 150 years old, it had never been carried out.

For 10 long months the bill aroused impassioned debate. But changing their tactics suddenly my opponents resolved to pass it, being sure that it would never be fulfilled and that consequently, they might be able to use it as a political weapon against me.

Nevertheless, 10 priceless months had been wasted and I was worried. I had had enough experience to realize that if, when I handed over the power to my successor, Brasilia had not been consolidated as the capital of Brazil and could not function as such, the government would not stay there. Brasilia would become just a ghost town with skeletons of steel and concrete, attesting to the irresponsibility of someone who had tried, but failed, to transform a dream into reality.

As soon as the bill had been passed, I signed the new law. It also stipulated how to finance the building of the new capital through credit operations and from the sale of real estate in its vicinity. The cost of building Brasilia was thus not as high as my opponents would have it, even with the inflation in Brazil.

Had it been necessary to ask the congress for new laws or new credits to complete Brasilia, I would have obtained nothing. If my opponents had known that the building of the new capital would really be carried out, their opposition would have been quite ruthless. Soon I realized, however, that a new bill was necessary: The constitution stated that congress alone could fix the date of Brasilia’s inauguration.

That caught me unawares. I asked an opposition congressman — representing the state of Goiás, in whose territory Brasilia was to be located — to see me. I demonstrated to him what a great service he would do his state and Brazil if he presented a bill in the congress setting the date for the inauguration. This was in the year 1956 and not a single stake had yet been driven into the ground on the new capital’s site. When the congress heard my suggested date, April 21, 1960, for the inauguration, they thought it was a joke and passed the bill. From that day on I felt that Brasilia was real.

A few days later I visited for the first time the exact spot where the new capital was to be erected. Around it the plateau stretches away, limitless and silent as in genesis. The site had been carefully screened and investigated by the American firm of Donald J. Belcher & Associates, Inc., to determine soil fertility, water table, rain and wind, temperature and humidity, etc.

A makeshift runway had been laid on the virgin soil for our antiquated DC-3. I was seeing about a shelter to use temporarily during the initial building period when I found that some friends, although there were not even roads leading to the place, had brought in the necessary materials and built a seat of government, the crudest and simplest ever. It was the first presidential residence erected in Brasilia and still stands there, now with a plaque on it with this inscription: “Here, for the first time on the plateau, an electric light bulb was turned on.”

Brasilia is the most recent of the 15 new cities built during the last 5,000 years to become capitals. All of them have been built near settlements, which have been their support. Brasilia is an exception. It is 760 miles from Rio de Janeiro and 690 miles from São Paulo. It had at first no roads leading to it; there were no bridges...
Wherever I go, people ask me why Brasilia, Brazil's new capital, was erected in the middle of a wilderness, and how, in less than four years, it was possible to build and inaugurate it.

My answer is that it was imperative to build it; that it was a geographic, social and political necessity. More than that, it was Brazilian "manifest destiny." Its message above all is social, a necessity. More than that, it was Brazilian "manifest destiny." Its message above all is social, a necessity.

In spite of this, Brasilia was born in the middle of debate, arousing right away the strong and backward opposition so frequently faced by great innovating enterprises.

I don't think I shall exaggerate if I compare the building of Brasilia, and the daring it required, to an epic. It was made possible thanks to the joint effort of thousands of Brazilians, to the united hope of millions. To erect it, legions of nameless men gathered, bringing in their hearts the fire of enthusiasm, in their souls something like the mysticism of the medieval workman who offered the effort of his entire life to construct a cathedral. Faith only set Brasilia on the plateau, like a cathedral in a wilderness, like a beacon of hope for the whole nation.

The building of Brasilia was the climax of my life as a statesman. After President Getulio Vargas' ousting and suicide in August, 1954, and a turbulent 17-month interregnum under three different interim presidents, I was elected by popular vote to the presidency in October, 1955, and took over on January 31, 1956. On February 9 there broke out a rebellion of a few Air Force officers. For a fortnight I did not leave the seat of government but concentrated fully on dealing with this seditious movement. I was afraid it might spread and make my carrying on with normal government activities impossible, so I hastened to send to the congress bills giving substance to the promise I had made to the people.

Among those bills was one already contained in the 1891 and in several subsequent constitutions of the Republic of Brazil, deciding that the capital should be moved to the central plateau of the country's interior.

To understand the necessity for this move, it must be realized that Brazil is not, and never will be, a country. Clearly, Dr. Kubitschek understands urbanization as a resource, how cities can generate the economic and social energies that will advance a nation's development. His statement has bearing on a number of concerns that confront the United States today.

As an agent of development, the city of Brasilia has worked wonders, as anyone knows who visits it today. Too many critics saw Brasilia too early, before it became institutionalized even in a small way. They found it a frontier town and not a city. Today's visitors view some of the most magnificent architecture of modern times. Any person who visits a school in one of the urban units will never mention the absence of institutions in Brasilia.

Far too many critics have written about the slums of the nearby Free Town and pointed out shabbiness in some of the construction of Brasilia itself. But they miss the point of Dr. Kubitschek's city. He had it built to cause change and induce development. He was so successful that the rural-oriented opposition pulled him down from the presidency to prevent the changes that Brasilia began to cause.

The US evolved differently from Brazil, its giant counterpart. The settlements that opened our West were transformed into cities slowly under the impact of entrepreneurs who sued the towns for economic gain. The towns, at the same time, produced social development.

There was never the same entrepreneurial spirit in South America; Dr. Kubitschek was faced with an undeveloped hinterland. It was in the true entrepreneurial tradition and with great imagination he thrust Brasilia into the wilderness.

America likes to believe that it thinks big. Yet, when James Rouse projects the city of Columbia, Maryland, people are perplexed at his audacity. For several years there was talk of an experimental city of one-half million in the wilds of northern Minnesota. Uninterested investors abandoned the project. Recently the National Committee on Urban Growth recommended the building of 100 new cities of 100,000 and 10 new cities of a million to take care of the urban problems of the US. These recommendations by a responsible committee were regarded as not only unrealistic but ridiculous.

Yet Dr. Kubitschek undertook the largest and most dramatic urban development of our time against all the forces marshaled by his powerful political opposition. Tragically, the last time I was in Brasilia I witnessed his monument being defiled. But Brasilia will prevail, and Dr. Kubitschek will be considered a hero of his country.
POINTERS FROM SOUTH AMERICA

Brasilia: New Town with Bravura
Comment & Opinion: The American Institute of Architects in its concern for "promoting the best interests of the United States abroad" has for many years maintained membership in the International Union of Architects (UIA) and the Panamerican Federation of Architectural Associations (FPAA). As with most international organizations, the intervening years have been filled with highlights and depressions. More recently, the enthusiasm shown by some AIA members in concert with colleagues from other lands holds promise for the rebirth of the two more vital and relevant societies.

Effectively serving international aspiration on the one hand and influencing the practice of the individual on the other has always been the great challenge. Ironically, in this past year, both organizations have undertaken studies containing new proposals for more effective structuring. The UIA, much like the United Nations, has sought to define its supranational duties on a worldwide basis, successfully providing neutral opportunity for the interchange of professional experience and knowledge within a variety of political vantage points. The FPAA, more accurately dedicated to the Western Hemisphere, seeks a greater involvement with hemispherical affairs in partnership with the many inter-American groups.

These commitments have for us potentially long-term consequences, both in terms of national interests and of individual practice. At all quarters the collective architectural societies of the world are seeking to define new relationships between their practice and society's needs. We are each trying to communicate more clearly and effectively and to focus on those relative issues that, among other things, widen the gap between client and user.

Considering the extraordinary limitations of the AIA Committee on International Relations, it is indeed remarkable that so few have been able to effectively participate in these functions to the successful degree that they have. The committee continually seeks to intensify participation and new programs as it simultaneously reappraises that to which it is presently committed.

It is particularly appropriate to remind architects of this modest area of activity prior to the 10th UIA World Congress in Buenos Aires in October and in an issue of the AIA JOURNAL that turns its attention to the significance of planning principles in two new towns — one large, the other small — in South America.

RICHARD SHARPE, AIA
Chairman, AIA Committee on International Relations
Make your ideas concrete... with Mo-Sai®

Whether you're planning a new office-plant in the Connecticut woods (like Torrington), a high-rise office building (like Hartford), a modest but distinctive headquarters office (like National Farm Life and Wausau) ... you'll find it pays to ask your architect about Mo-Sai®.

What is Mo-Sai? Your architect will tell you it's a very special kind of precast concrete product ... made to rigid quality-control standards in licensed plants located in major cities of the United States, Canada, and Japan. He may tell you it's a facing panel ... or a window wall ... or a load-bearing structural unit ... a curtain wall ... a decorative material ... or even a component building system ... all with the unique Mo-Sai exposed aggregate finish that can be produced in a variety of colors and textures limited only by your own or your architect's imagination!

The Cost? You may be surprised when you learn how you can have all the aesthetic values of Mo-Sai and still save money with new Mo-Sai structural units. Savings continue on erection time, interim financing, and maintenance.

Where can you see it? There are examples of infinite variety in major cities across the nation. Call your local licensed Mo-Sai manufacturer, ask your architect, or write to the address below:

Mo-Sai Institute, Inc., / 110 Social Hall Ave. Salt Lake City, Utah 84111

You can do more with versatile...
Unified with white.
MEDUSA WHITE.

Precast units in the low rise shopping complex include 14,000 lb. arches, 7,000 lb. parapets, 2-piece columns. In the high rise office complex; 610 window units (5' x 12'). All are precast in Medusa White, the aristocrat of white portland cements, for design unity in color. Use Medusa White to bring faithful reality to any color theme in any concrete structure. Write for White Precast Bulletin, Medusa Portland Cement Company, P.O. Box 5668, Cleveland, Ohio 44101.
Call to Reorder National Priorities

In an unprecedented move the new Board of Directors, at the post-convention meeting in Chicago, passed a resolution calling for Convention Resolution No. 10, on National Priorities, to be published as a full-page advertisement in the New York Times and the Washington Post.

The board also indicated that copies of the ad were to be sent AIA component presidents with a request that they consider publishing quarter-page versions at chapter expense, in local newspapers with leading circulation and in state capitals.

Copies of the national ads are being sent to congressmen, senators and other leaders of the federal government. Chapters are encouraged to distribute copies of the ads they publish to their state leaders and others.

The full-page ads appeared in the nationally distributed edition of the New York Times on July 8 and in the Washington Post the following day. Response was immediate and enthusiastic. Telephone calls, wires and letters to the Institute indicated that it was "heartening to see a concerned, humane, professional group express itself in this manner."

As this is written, the lone negative response was from a State Department spokesman who was concerned that the ad might impair the department's relationship with other countries and encourage isolationism in the United States.

Typical of the many unsolicited, complimentary responses was that of Senator Alan Cranston (D-Calif.), who said: "You have eloquently expressed the sentiments of millions of Americans and I want to commend you for this forthright position. You can be sure that I, along with many of my colleagues, will be working hard toward those goals which we all share."

This advertising effort is but one example of the Institute's accelerated program of speaking out with positive recommendations on matters of national concern. The enthusiastic response from the public indicates that the image of the profession, which some have described as a gentleman's club, a trade union, or a blueprint maker, is changing to an image of a profession that is vitally concerned with man and his environment.

AIA member individually and AIA component organizations can make a major contribution by participating in this and other comparable Institute efforts.

It has become clear in both moral and economic terms that our nation can no longer afford or pretend to intervene in the political and military affairs of nations throughout the world, maintain a military and weapons establishment of unlimited size, explore the moon and, at the same time, rebuild our decaying cities, provide an adequate supply of housing, and finance domestic programs needed to solve pressing social problems.

THEREFORE,
BE IT RESOLVED BY THE ARCHITECTS OF AMERICA THAT:

One. We call upon the President and the Congress to assume responsibility for a comprehensive reexamination and reordering of our national priorities, recognizing that we have neither unlimited wealth nor wisdom, and that we cannot sensibly hope to instruct other nations in the paths they should follow when we are increasingly unable to demonstrate that we know how to maintain a viable society at home.

Two. We call upon our leaders, at all levels of government, to recognize that an efficient and humane environment is basic to the maintenance of a harmonious and prosperous society and that the skills to produce it are well within our grasp. At the same time, we wish to remind our representatives that neither hope, time, nor technology will solve the problems that presently make urban life a dirty, difficult and dangerous experience. Only a wholehearted commitment of will and money will enable us to apply the skills needed to erase the shame of urban America.


The American Institute of Architects
1735 New York Avenue, N.W., Washington, D.C. 20006
-Edison
Day or night, styled lighting systems provide a bright, friendly welcome

The outdoor lighting system that surrounds your building introduces it to the world. At night it collects people, protects them and gives them a bright, friendly welcome. But during the day it must be just as good a host, because your outdoor lighting system is an important part of that first overall design impression.

That's why McGraw-Edison pioneered the development of outdoor lighting systems that complement building designs. You have the choice of a wide range of styled luminaires—from the most contemporary to Early American carriage lanterns. One of these styles can best complement your design.

At night, McGraw-Edison styled luminaires provide from 100 to 4,000 watts of controlled lighting per pole. You can develop a variety of IES lighting patterns with mercury vapor, metal-additive or ceramic-discharge lamps, and with mounting heights that range from 15 to 50 feet.

We would like to work with you on your next project to explore styled lighting system designs. In the meantime, we'd like you to have our book, "Ideas in Lighting." In it you'll find lighting systems that provide a bright, friendly welcome. Our styles are also shown in Sweet's catalog. Contact your authorized distributor, or write McGraw-Edison Power Systems Division (formerly Line Material Industries and Pennsylvania Transformer), Box 440, Canonsburg, Pennsylvania 15317.
Only Haws has precast stone drinking fountains—in five colors to match your ideas. Ask your Haws representative to show you a color sample kit and specifications today, or write: Haws Drinking Faucet Company, 1441 Fourth Street, Berkeley, California 94710

Model 90-C at right, 50-C below, available in all five colors. Ask about Haws remote chillers for hidden cold-water source.
School, Hospital, Office or Factory... there's a Cordley Cooler that fits!

ANY TYPE of busy building is a better place to be in... a better place to work in... with a Cordley Cooler close at hand. Select from more than 50 styles, many sizes, many types, and be as meticulous as you will. Plan for today's traffic or for the years ahead. Plan for style-hungry clients or "nuts and bolts" executives. You can do more with a Cordley than you may have dreamed of. The Cordley lends itself to creative planning.

You'll find detailed specifications on the complete line of Cordley quality water coolers in Sweet's Architectural File. Or, we'll send you our complete new Catalog No. C-161.

NECROLOGY

EGBERT BAGG
Utica, N. Y.

CLINTON M. BARRICK
Arlington, Tex.

BERNARDET T. BERNMAN
Malverne, N. Y.

SALVATORE T. CALTABIANO
New York, N. Y.

EARL L. CONFER
Detroit, Mich.

EARLE S. HARDER
Glen Burnie, Md.

EDWARD M. PITI
Fall Church, Va.

W. STUART THOMPSON
Old Greenwich, Conn.

ROBERT P. WALSH
Cambridge, Mass.

LAWRENCE S. WHITTEN
Birmingham, Ala.

Members Emeritus

FREDERICK C. BACKUS
Buffalo, N. Y.

LAWRENCE HILL
St. Louis, Mo.

GERALD L. KAUFMAN
New York, N. Y.

FRED L. KNOBLOCH
Washington, D. C.

ROSS G. MONTGOMERY
Los Angeles, Calif.

NORMAN S. O'SULLIVAN
Lexington, Mass.

RALPH E. SEEGER
Grand Rapids, Mich.
ARCHITECTS CAN REALLY DO THEIR thing

with FENESTRA Steel Doors, Frames and Pre-Engineered Component Parts

SCHOOLS become more attractive, colorful and functional when Architects use Fenestra doors, frames and pre-engineered component parts. Add the total design flexibility offered by these components to the unique fabricating talents of local Fenestra distributors — and Architects can really do their design THING... all within budgets that appeal to school boards. These unusual entrance "packages" are ideal for any building. Architects design them... the local Fenestra distributor fabricates them. Call him for your next building project. He's listed in the Yellow Pages under "Doors, Metal." Also write for literature or see us in Sweet's Architectural File — 17b/Fe.
to the Enlisted Men's Barracks for the Naval Facilities Engineering Command, San Diego, Delawie, Macy & Henderson, architects; Courthouse for Tangipahoa Parish, La., Desmond-Miremont-Burks; and Clinic Building for Dr. C. K. Liao, Harvey, Ill., Y. C. Wong & Associates.

Awards of Merit have been earned by Hilo State Office Building, Hilo, Hawaii, Anbe, Aruga & Associates, Inc.; County Office Building, Monterey County, Calif., Wallace Holm & Associates; Apartments for Plymouth Harbor Inc., Sarasota, Fla., Frank Folsom Smith & Associates; and Office Building for the Life Insurance Company of Virginia, Richmond, Va., Marcellus Wright & Partners.

Dual Use Is Key: Jurors George E. Kassabaum, FAIA, St. Louis, immediate past president of the Institute; Leon Brown, FAIA, Washington, D.C.; Jules Gregroy, FAIA, Princeton, N.J.; James F. Shivler Jr., engineer, Jacksonville, Fla.; and James E. Roembke, OCD engineer, looked for projects demonstrating both design excellence and employing effective and economical dual-use fallout shelter space.

"Dual-use shelter" was defined by A. Stanley McGaughan, FAIA, professional adviser to the awards program, as referring to a room or space having as its primary function an important peacetime use, but also capable of providing emergency protection from radioactive fallout.

"OCD has often pointed out that such dual-use shelter can be achieved at very low cost and frequently at no additional cost when planned as part of new building construction," the Washington architect said.

Thumbs Down in Baltimore: While the delegates to the AIA convention in Chicago voted down a motion advocating the Institute's complete withdrawal from any activities connected with the program, both individual and collective voices of opposition were making themselves heard elsewhere.

The Baltimore Chapter AIA in a 46-7 vote resolved that its members are "opposed to any chapter involvement in the fallout shelter program, and we further urge that the national AIA oppose any activity in this program."

The Schools React: The MIT architectural faculty, at a meeting attended by a majority of its members, by resolution asked "the AIA to repudiate OCD's fallout shelter program and to discourage any further use of professional talent to design instruments of military policy."

The resolution commended the Yale architectural faculty for canceling the Nuclear Defense Design Summer Institute to be co-sponsored by the AIA and OCD and suggested that other schools do the same.

The Fellowships Go On: Meanwhile, OCD Graduate Student Development Program will provide assistance to 37 students for the 1969-70 academic year. This makes a total of 107 fellowships awarded since the program began in 1966 under the administration of the American Society of Engineering Education and supported by OCD.

Engineers Give Top Design Award to Virginia Job

First place in the Chief of Engineers 1969 Architectural Design Contest has gone to the Dispensary and Dental Clinic at Fort Myer, Va., designed by McGaughan & Johnson, Washington, D.C., under the supervision of the Norfolk Engineer District.

From a field of 16 entries, architect-jurors also picked three honorable mentions:

- Army War College Auditorium, Carlisle Barracks, Pa., by Haines, Lundberg & Waehler, New York, for the Baltimore Engineer District.
- Shaw Air Force Base Composite Medical Facility, S.C., by Lyles, Bissett, Carlisle & Wolff, Columbia, S.C., for the Savannah Engineer District.
- Wheeler Air Force Base Chapel and Annex, Hawaii, by Hogan & Chapman, Honolulu, for the Honolulu Engineer District.

In selecting the Fort Myer project as best, the jury praised the "strong, powerful and yet calm exterior treatment in a building which houses complex functions. The restraint in the use of color and material results in a dignified and most pleasing simple statement, with the main entrance facade having good scale, and the other elements equally well handled. The arrangement of main corridors permits convenient access to the various services and clinics in the building."

Church Sessions Reflect Turmoil of the Times; Future Role Questioned

The social responsibility of the church seemed to emerge as the dominant theme of the National Conference on Religious Architecture, but there was little agreement among the speakers as to how to go about fulfilling that obligation.

Percival Goodman, FAIA, urged the 500 registrants at the St. Louis sessions to start designing buildings for hippie and radical youth rather than for the present power structure.

Said the professor of architecture at Columbia University: "We have to ask ourselves who shall be our clients — those with long beards and long hair who look something like the disciples of Jesus or the Jewish patriarchs — or the others who have brought about war and water pollution."

"For most of us there isn't much question," Goodman continued. "We ask ourselves who has the money, and the power structure has the money. But the most serious question we must ask ourselves is who has the future?"

Tear Them Down: A Concordia Seminary theologian, on the other hand, suggested that churches in urban areas tear down their structures and erect office buildings on the sites.

Dr. William Danker, professor of missions at Concordia, ex-
The number is Corbin 4726

Your number for security. Corbin exit devices operate at a finger's touch. Dependable, safe and whisper-quiet. This is only one of many designs. It displays the style, quality and security built into the complete Corbin line of door closers, locksets and exit devices.

Your Corbin distributor can furnish you with complete data on this design, or write P. & F. Corbin, Division of Emhart Corporation, New Britain, Connecticut 06050. In Canada—Corbin Lock Division.
Now you can specify all brass or stainless steel hardware.

No matter what style of compartment you prefer—ceiling hung, overhead braced, floor braced or wall hung—you can specify your hardware preference in either of these strength-proven metals: ALL BRASS or STAINLESS STEEL.

Wise move—call your Weis man.

Write for Catalog
See Weis in Sweet's
INTRODUCING...THE BATH THAT HAS EVERYTHING!

FROM AMERICAN-STANDARD


Three separate components make up the Spectra 70* Bath Group...each loaded with features that give your clients’ homes or apartment houses the best of the future right now.

1. The Spectra 70 Tri-Wall*. Three classically styled walls and ceiling made of tough, high-gloss fiberglass. Trend-setting features include a convenient built-in storage compartment with a cover that becomes a drop-down table. Two soap dishes...a high one for showering, a low one for bathing. A drop-down seat at the end of the tub. Two safety grab bars attached through the walls to the studs. Two recessed lights included in optional ceiling.

2. The Spectra 70 Shower Tower* Column. Fully styled unit combines all fittings, all pre-piped and fastened to central column. It's all pre-piped and fastened. Can be ordered separately. Deluxe features include high and low Stereo® Shower Heads, pressure shoulder height controls, handsomely silhouetted Rinsing Spray in a revolving storage compartment.

3. The Spectra 70 Bathtub. Slimmer, trimmer, fully designed to stay in style for years to come. Cast iron construction. Luxury features include beveled edge, new easy-rest back and seat which is more slip-resistant than regular tub liner.

For details on the Spectra 70 Bath Group and the UltraBath® Group, see your American-Standard representative or write us.
Architects Look to UIA Congress in October; Students Plan Sessions

The Institute will be officially represented by seven delegates and as many alternates at the 10th World Congress of Architects in Buenos Aires this fall.

But an invitation to all AIA members and to architectural students as well has been extended by Daniel Schwartzman, FAIA, the Institute's representative to the Executive Committee of the International Union of Architects.

Prior to the Oct. 19-25 sessions, the UIA Assembly will convene to consider a change in statutes and bylaws, the result of an in-depth study by an ad hoc committee chaired by London's Sir Robert H. Matthew, former UIA president.

A post-congress meeting of town planners will take place Oct. 27-29 in Mar del Plata, Argentina. And an "Architect's Trek to South America," departing Oct. 7, will be held in conjunction with the Congress. (see AIAJ, April, p. 16).

The Student's Secretariat of the congress will gather young architects from all parts of the world Oct. 11-16, with "Housing of Social Interest" to be the main theme.

Now representing architects from more than 75 countries, the UIA has, according to Schwartzman, continuous liaison with the United Nations in relation to housing, building and planning; UNESCO in relation to education and research; the World Health Organization in relation to health care buildings; and most other prestigious world groups in related fields.

Its principal work is carried out through yearly meetings of commissions and study groups in the fields of housing, town planning, recreational buildings, industrial buildings, schools, and professional practice made up of a limited number of members especially qualified in these fields. The Institute is represented on every one of these commissions and study groups, Schwartzman explained.

Volpe Bars Federal Funds For Vieux Carré Highways

Federal funds for a riverfront expressway through New Orleans' famed Vieux Carré have been withdrawn by Transportation Secretary Jo A. Volpe.

The Secretary's action in withholding the funds was expected to have impact in cities across the country which are involved in similar controversies over urban highways.

Opponents of the New Orleans expressway charged that it would inflict irreversible damage on the famed French Quarter.

Volpe refused to approve near $30 million for 90 percent of the cost of the 3'/2-mile roadway, part of Interstate Route 310. He said an alternate site avoiding the Vieux Carré would be approved.

The action came shortly after the AIA convention which adopted a resolution in support of the Advisory Council on Historic Preservation which urged that an alternative route be sought for Interstate 310.

Fallout Shelter Awards Are Made as Opposition To the AIA's Role Grows

Seven projects incorporating fallout shelters in their design have been honored in a nationwide architectural awards program conducted by the AIA — a role that is drawing criticism at the request of the Office of Civil Defense.

First Honor Awards have gone to...

Continued on page...
CONCRETE brings the wide-open spaces inside!

When your design calls for a broad sweep of column-free floor space, prestressed concrete gives you the long span muscle you need. Without premium cost.

Ceilings have a clean, modern appearance because mechanical and electrical systems can be channeled between the stems of well proportioned structural members, providing easy access.

Get in touch with your nearest PCI producer member for complete information on how prestressed concrete can give you more design freedom in your next project. His experience can help you most in the earliest stage of planning.

Professional membership in PCI can be of value to you in many ways. Send for membership information.

PRESTRESSED CONCRETE INSTITUTE

ARCHITECTURAL

205 West Wacker Drive, Chicago, Illinois 60606

Circle 295 on information card
Colorful, durable, versatile Glasweld for skyscrapers or low-rise buildings.

Look almost anywhere today. You’ll see evidence of the ever-widening acceptance of Glasweld.

Why the upsurge in its uses? For one reason, Glasweld comes in a choice of 26 colors that retain their integrity for years on exteriors and in interiors. Regardless of the most rigorous climatic or environmental conditions.

In fact, Glasweld installed on buildings more than ten years ago still retains its original condition—a testimonial to the material’s long “life expectancy.” Indeed, the surface of Glasweld is comparable in durability to the best grades of exterior porcelain enamel and ceramic tile.

But durability and looks aren’t everything. Equally important, Glasweld is easily and quickly installed. It’s also simple to cut and drill. Only ordinary power tools are needed.

Glasweld is economical, too, when it comes to maintenance. It requires no painting or refinishing for at least 15 years. Cleans easily, too.

It keeps a visually flat appearance when properly installed according to U.S. Plywood instructions. Rustproof, incombustible (U.L. fire hazard classification 0-0-0), waterproof and virtually impervious to stains.

Glasweld is also noted for its immense versatility. It has been widely used for curtain wall panel facings, fascias, soffits, opaque window inserts, balcony panels, and interior linings. Moreover, it is an excellent material for use in rooms—such as laboratories—that must be kept dust-free. Since Glasweld is virtually free from static buildup, dust will not readily cling to its surface.

New textured Glasweld.

In addition to standard Glasweld in a range of 23 colors, U.S. Plywood, recognizing that architects have many uses for textured materials, now offers new sand-surfaced Glasweld with a distinct textured appearance. The new textured designs of Glasweld include Rhine Sand, Moselle Sand and Champagne White Sand. (As shown at left.) And the aggregate is adhered with an inorganic bond.

These new textured designs retain all the qualities for which standard Glasweld is noted: durability, decorative value, and economy.

Plain or textured, Glasweld is a product of unusual practicality in terms of initial cost, installation savings, long-time service and durability for either new construction or modernization.

For further information on Glasweld, call the Architects Service Representative at your nearest U.S. Plywood office or write:

U.S. Plywood

A Division of U.S. Plywood-Champion Papers Inc
777 Third Avenue, New York, New York 10017

Circle 239 on information card
Among recent additions to Manhattan’s skyline, one of architectural distinction is the 24-story building of the New York Telephone Company.

One of its unique features is the way in which black Glasweld® was incorporated in its window wall design. Glasweld was used as an opaque panel behind glass in the spandrel area. (See installation diagram on the next page.) Why put Glasweld behind glass when it retains its look of newness for years on exteriors with no protective cover at all? Because it enabled the architects to emphasize the verticality of window treatment—an element of design that greatly enhances the building’s striking appearance.

This unique use of Glasweld exemplifies the versatility of the material or how—in the hands of innovative architects—it can be used to achieve distinctive effects.
Newslines from page 16

hind the scenes by student and AIA leaders, was described by Rex W. Allen, FAIA, the Institute’s new president, as the convention’s most significant action.

It provides that the AIA Task Force on Equal Opportunity—since renamed the Task Force on Social Responsibility and now headed by a newly elected Institute vice president, George T. Rockrise, FAIA—“supplemented by a voting student social-concern team, meet with the express purpose of establishing programs and an administrative structure for operating and disbursing funds.” Such a meeting was scheduled for late last month and was to take up, among other things, the question of collecting contributions and the programs to be funded. Weighing heavy in student concern, it appeared, are efforts to aid seven predominantly black and non-accredited schools of architecture, community design centers and black students of architecture.

Among more than two dozen other convention resolutions was one that was to occupy a full page in both the New York Times and the Washington Post (see Unfinished Business). The AIA board of directors decided in its post-convention meeting that the resolution, which calls for a “re-examination and reordering of our national priorities,” be published in the two newspapers as full-page advertisements.

Officers Are Elected: Besides installing Allen, who took over as president from George E. Kassabaum, FAIA, the convention elected Robert F. Hastings, FAIA, as first vice president. Hastings, of Detroit, will succeed Allen with the start of 1971, the convention having adopted a bylaw which puts the terms of national office on a calendar basis.

For vice presidencies the delegates chose Francis D. Lethbridge, FAIA, and George M. White along with Rockrise. Rex L. Becker, FAIA, was elected treasurer.

Convention delegates heard and participated in a discussion on proposed changes to the Standards of Professional Practice.

The changes, touching on such sensitive areas as building contracting and contingency fees, were presented to the convention for discussion rather than action.

September’s AIA JOURNAL will carry a complete convention report, and that was exactly the way delegates wanted it. They voted to have any action deferred for one year. Then, after full discussion among members, they can be presented for action at next year’s convention in Boston.

Delegates supported a resolution backing bills in Congress to establish a national institute of building sciences. The proposed institute would evaluate the performance of building materials and techniques and work toward consistency in the formulation and administration of building codes.

However, they rejected consideration of a resolution calling upon the Institute to disdain “any official involvement in the fallout shelter program” of the Office of Civil Defense. But there was a considerable number of voices heard in support of the resolution. The AIA involvement concerns an OCD design program and design courses on the incorporation of fallout protection in facilities intended for peaceful use.
PRECAST PUTS UP A GREAT FRONT... WITH ATLAS WHITE

All Saints Church, Cedar Rapids, Iowa. ATLAS White Cement has uniform physical properties, so all 379 precast sections in this modern Mid-Western church are the same white color. The exposed white marble aggregate is a special variety known as Wyoming White. The precast contractor used ATLAS White Cement because it is uniform from batch to batch with perfect results... every time. Precast Contractor: Wilson Concrete Co., Omaha, Nebraska. Architect: Leo C. Peiffer and Associates, Cedar Rapids, Iowa. General Contractor: O. F. Paulson Construction Co., Cedar Rapids, Iowa. For our new "White Concrete in Architecture" brochure, write Universal Atlas Cement Division of U. S. Steel, Room 6218, Chatham Center, Pittsburgh, Pa. 15230. ATLAS is a registered trademark.
TERRAZZO MAKES A GRAND ENTRANCE... WITH ATLAS WHITE

Northview Junior High School, Indianapolis, Indiana. Terrazzo can take just about any shape or appearance you can think of. This handsome staircase is more complicated than it looks, full of symmetrical and elliptical curves. The chips are red Levanto marble. The contrasting floor contains light and dark greens, whites, a small amount of dark red chips, and green pigment. Throughout, the contractor used ATLAS White Cement to bring out the true colors of the chips and pigments, because ATLAS White has the whiteness needed to do the job right. Terrazzo Contractor: Midwestern Terrazzo Company, Indianapolis, Indiana. Architect: Everett I. Brown, Indianapolis, Indiana. For our new "White Concrete in Architecture" brochure, write Universal Atlas Cement Division of U. S. Steel, Room 6218, Chatham Center, Pittsburgh, Pa. 15230. ATLAS is a registered trademark.
So you think Plaster can't compete with Drywall's price?!

Until recently, drywall enjoyed a big price advantage which took job-after-job away from plaster for 2-hour elevator and vent shaft walls in hi-rise structures.

Then K-Lath introduced an entirely new and very competitive plastering system using Gun Lath code-approved for 2 hours with either 16" or 24" spacing of supports, plus a special absorbent paper between the wires to serve as a form.

The results? On five different hi-rise jobs**, K-Lath's new plastering system was used to bid against drywall for these areas...and won. Batting average: 5 bids, 5 jobs...since virtually every architect prefers plaster if bids are even reasonably close. *For less than $1.35 per square foot, you can bid plaster's superior quality with the K-Lath system.

If you're sacrificing plaster's quality for drywall's economy and would like complete information on K-Lath's economy system, a K-Lath representative will supply the facts.

K-LATH CORPORATION/204 W. Pomona Ave., Monrovia, Calif. (213) 359-9361 / Post Office Box 275, Beltsville, Md. (301) 474-1434.

---


Circle 219 on information card
Call for Massive Funding For Social Program Gets 'Aye' Vote at Convention

The numbers were big. Total registration was nearly 5,000, the largest ever. But the most pervasive number in Chicago's Palmer House was 15,000,000.

Representing dollars, that figure was popped early in the joint convention of The American Institute of Architects and the Royal Architectural Institute of Canada as what architects might tax themselves to ameliorate the urban crisis and to make the disadvantaged less so. It remained on the tips of most tongues throughout the June 22-26 sessions.

In the end the issue proved as persuasive as it was pervasive. Virtually without opposition, convention delegates adopted a resolution which declares that there must be "individual realizations of responsibility (for the nation's environmental maladies) in the form of economic commitments," and which calls for the creation of machinery to get programs started "in line with the $15 million goal."

It was during a student-AIA officers "dialogue" session on the Sunday opening the convention week that the $15 million figure arose. Taylor Culver, president of the Association of Student Chapters/AIA, in going after some kind of tithe commitment from the profession, struck a positive chord with the officers and a number of members, including Frank B. Hunt, AIA, San Francisco.

Rate Times Hours: "Ten percent is the answer," said Hunt, who then presented a breakdown that began with 10 percent of the work week, or four hours, which Hunt suggested could be contributed as either time or its monetary equivalent—$20, on the basis of $5 an hour. The yearly contribution in either services or funds, then, would be $1,000 from each participating architect. Estimating the number of participating architects — those who could, should and would make contributions — at 15,000, Hunt came up with the $15 million total.

However, in the convention's second business session, Culver scrapped the idea of time contributions. The students had been thinking along lines that the least a man could do was give 10 percent of either time or money, Culver said, but then got to wondering: "Would we really want his time if we thought he couldn't really solve the problem? So we decided that we would keep him home." The delegates laughed good-naturedly.

The resolution, worked out be-
Continued on page 20

Replace 'Graveyard Oratory' with 'Fiesta' Says Gropius in Testament; Works Almost Until End at TAC Offices

"One must be always progressing to the future. Live longer — through endurance you may become somebody!"

Those words were spoken by Walter Gropius, FAIA, on the occasion of his 85th birthday a year ago May at a festive party on the Harvard University campus (see AIAJ, July '68).

Until just seven weeks before his death on July 5, Mr. Gropius had worked at the Cambridge, Mass., offices of the Architects Collaborative, the firm which he founded with a group of younger men in 1946 and which has been commissioned to design the Institute's new headquarters.

A truly modest man who received worldwide honors, including the AIA Gold Medal in 1959, he had, of course, become "somebody," and his influence today is felt far beyond the realm of architecture.

When Mr. Gropius was awarded a Doctor of Philosophy of Arts at the University of Illinois, Urbana, last year, Dean Leonard J. Currie of the College of Architecture and Art, Chicago Circle, put it this way:

"Skilled shaper of human environment, of cities and buildings and artifacts to serve the spiritual and material needs of mankind; philosopher, teacher, beacon and guide for generations of students and practitioners seeking order and clarity of principle; environmental theoretician and strategist of the urban order; 20th century counterpart of the ideal Renaissance man."

Mr. Gropius established the Bauhaus in Weimar, Germany, in 1918, which he moved to Dessau in 1925. It was closed by the Nazis eight years later.

In 1934, he and his wife fled from Germany to England, where he entered into private practice as a partner with Maxwell Fry.

Mr. Gropius came to the United States in 1937 to join Harvard's Graduate School of Design as a professor of architecture. He became department chairman the following year, a post he held until 1952.

Through all the years he was always close to the drawing board, and his projects can be found around the globe, such as the University of Baghdad, Iraq, a personal favorite, and a satellite city named Gropiusstadt outside Berlin, one of the most recent.

In a testament written in April 1933, to be read after his death, Mr. Gropius declared:

"Cremate me, but ask not for my ashes. The piety for cinders is a half-way thing. Out with it. "Wear no signs of mourning," he admonished. "It would be beautiful if all my friends of the present and of the past would get together in a little while for a fiesta — à la Bauhaus — drinking, laughing, loving. Then I shall surely join in, more than in life. It is more fruitful than the graveyard oratory."

The funeral was carried out according to his wishes as friends and associates joined his widow Ise, who carried a single, long-stemmed rose, in sipping champagne in the TAC offices.
Atlanta’s C&S Bank didn’t need a perimeter HVAC system.

They used a PPG Performance Glass instead.

PPG Solarbronce® Twindow® units enabled the designers of Atlanta’s C&S Bank to eliminate a perimeter HVAC system—and reduce original equipment and annual operating costs.

Based on a comparison with single tinted glass, engineering studies indicated that the application of double-insulating Twindow units would eliminate the need for supplementary perimeter heating and cooling units. Savings realized by eliminating the auxiliary system—in equipment, operation, and maintenance—more than justified the initial capital costs of the Twindow units.

Because the insulating and heat-reducing properties of Solarbronce Twindow units lower the burden on a heating and cooling system, a simpler ceiling HVAC system for the bank is sufficient to bring year-round comfort to the building’s occupants. This system reclaims about 60 percent of the lighting energy. The redistribution of this energy avoids the need for a separate hot-air duct system. Below 40°F, electric heaters are the only extra heat source required.

Solarbronce Twindow also meets strength requirements. And its color complements the bronze tone of the structure’s exterior metals.

Put the financial advantages of PPG Performance Glass to work for your clients. Contact a PPG architectural rep for technical data or write: PPG Industries, Inc., One Gateway Center, Pittsburgh, Pa. 15222.


PPG is Chemicals, Minerals, Fiber Glass, Paints and Glass. So far.
DAP Butyl-Flex is an outstanding caulk that can live up to the performance of higher-priced sealants in construction joints where movement is not excessive... accounting for 90% of all caulking-sealing applications. DAP Butyl-Flex delivers all the sealant advantages inherent in butyl rubber. It has 50% elongation factor for exceptional flexibility plus adhesive qualities second to none. Makes a long-lasting, trouble-free seal between similar and dissimilar materials such as aluminum, concrete, steel, glass, marble, wood, vinly, painted surfaces. What's more, Butyl-Flex is easy and fast to use, cutting application time and costs. Guns on without mixing, heating, priming. To receive complete technical information and specifications, please send coupon.
The ubiquitous sealant

DAP* Butyl-Flex* installations are everywhere. It delivers best all-around caulking service in 9 out of 10 installations, staying on the job as long as 20-year sealants in many applications, when applied according to instructions.

Four new buildings for the Dayton, Ohio metropolitan area proposed by Brown and Head & Associates, Dayton. (A) Architect's conception of City Convention Center, consisting of a 50,000 square foot arena and 20-story, 250-room motor hotel. Lorenz, Williams, Williams, Lively and Likens, also of Dayton, were associated architects on the project. (B) Good Shepherd Lutheran Church, Washington Court House, consisting of 300-seat sanctuary, 20,000 square foot education wing, 3000-square foot administrative quarters. (C) City Transportation Center for rapid transit, bus, airline, and rail travelers, conceived for feasibility study. (D) Horticultural Center, including a 180 foot round dome for flower conservatory, single-story structure housing meeting rooms, green houses, and caretaker's quarters.
For information on bare USS COR-TEN Steel, the original weathering steel, contact a USS Construction Marketing Representative through the nearest USS sales office, check your Sweet's Architectural File, or write to United States Steel, Box 86, Pittsburgh, Pa. 15230. USS and COR-TEN are registered trademarks.
Union Gas Company of Canada's new headquarters building is located in a setting of natural beauty on the north bank of the Thames River near Chatham, Ontario, Canada — Architect J. W. Story of Chatham, Ontario chose natural cleft Buckingham® Slate for the exterior facing of the lower floor and for the spandrels between the white concrete panels at the second and third floors. The beauty and dignity of the natural cleft Buckingham® Slate forms a perfect balance with the green surroundings and the technological efficiency of the gas company's functional architecture.
Asides

Next Month: The 101st convention of the Institute, held jointly with its Canadian counterpart, was the biggest ever, as reported on page 16. While that story wraps up the news highlights of the June 22-26 sessions, the September issue will focus on the broader aspects of the entire program: major addresses, workshops and social events — the Great Train Shed Party had to be the greatest ever.

In addition, we will feature the first piece of architectural criticism written by an AIA member of another firm’s work as developed in collaboration with the AIA Committee on Design; and since the subject is the Chicago Civic Center, it seems only fitting to include it in the Convention Report issue.

Off the Press: The 1969 edition of the Directory of Behavior and Environmental Design provides a biographical listing of more than 250 professionals in 34 disciplines concerned with research in that area. It is of particular interest to our staff since a survey made a few years back among the individuals listed indicated that the AIA JOURNAL is a chief source or outlet for environmental behavior research. The directory is available at $3 a copy from the Research and Design Institute, P.O. Box 307, Providence, R.I. 02901.

And Out of Print: The Potomac, the report of the Potomac Planning Task Force which was reviewed in our November 1967 issue, is no longer in print, according to the Department of the Interior.

Back in the Office: The growing influence of office landscaping, the leadoff presentation in July, is reflected in this year’s Royalmetal Student Design Competition. The program called for planning a general office for 12 people using the landscaping concept. The top $500 award was given for a scheme by Richard A. Richards, a June graduate of the New England School of Art, Boston.


THE AMERICAN INSTITUTE OF ARCHITECTS

BOARD OF DIRECTORS

Officers

President
Rex W. Allen, FAIA
San Francisco, Calif.

First Vice President
Robert F. Hastings, FAIA
Detroit, Mich.

Vice Presidents
Francis D. Lethbridge, FAIA
Washington, D. C.

George T. Rockrise, FAIA
San Francisco, Calif.

George M. White, AIA
Cleveland, Ohio

Secretary
Preston M. Bolton, FAIA
Houston, Tex.

Treasurer
Rex L. Becker, FAIA
St. Louis, Mo.

Executive Director
William H. Scheick, FAIA

Directors

(Terms expire 1970)

East Central States
A. Bailey Ryan, AIA
Louisville, Ky.

New England
Philip W. Bourne, FAIA
Boston, Mass.

New York
Max O. Urbahn, FAIA
New York, N.Y.

North Central States
Joseph H. Flad, FAIA
Madison, Wis.

Ohio
Joseph Tuchman, FAIA
Akron, Ohio

Western Mountain
Sidney W. Little, FAIA
Tucson, Ariz.

(Terms expire 1971)

Gulf States
Arch R. Winter, FAIA
Mobile, Ala.

Michigan
Walter B. Sanders, FAIA
Ann Arbor, Mich.

Middle Atlantic
Milton L. Grigg, FAIA
Charlottesville, Va.

New Jersey
Robert R. Cuyem, AIA
Summit, N.J.

Northwest
John L. Wright, FAIA
Seattle, Wash.

South Atlantic
S. Scott Ferree Jr., FAIA
Charlotte, N.C.

(Terms expire in 1972)

California
Arthur Froelich, FAIA
Beverly Hills, Calif.

Central States
Floyd O. Wolfenbarger, FAIA
Manhattan, Kan.

Florida
Hilliard T. Smith Jr., AIA
Lake Worth, Fla.

Illinois
Frederick W. Salogga, AIA
Decatur, Ill.

Pennsylvania
Russell O. Deer, AIA
Pittsburgh, Pa.

Texas
Daniel Boone, FAIA
Abilene, Tex.

HEADQUARTERS

1735 New York Ave., N.W.
Washington, D.C. 20006
Telephone: 202/393-7050

Executive Director
William H. Scheick, FAIA

Secretary
Mabel Day, HON. AIA

Assistant to Executive Director
James M. Fenelon, HON. AIA

A complete staff listing appears in Structures and Services, which is available to any AIA member upon request.

Administrators

Institute Services
J. Winfield Rankin, HON. AIA

Public Services
M. Elliott Carroll, FAIA

Professional Services
Frank L. Codella, AIA

Business Management
W. C. Wolverton

Circle 293 on information card
The versatile Sundberg Chair—a graceful design of cast nylon

This is the Sundberg Chair—designed for American Seating by Carl Sundberg of Sundberg-Ferar, noted design consultants. The planned simplicity of this chair lets it quietly blend into any modern architectural decor. It achieves design flow throughout an entire installation through the use of the shell on fixed lecture room furniture, movable classroom units, and a stackable chair that goes anywhere.

The Sundberg Chair is made of tough stuff. Cast nylon. A new material that resists cracking, chipping, scratching. Cleans easily. Comfortable. Mounting and upholstery options add even more breadth to its great versatility. Bold colors anticipate style trends of the future.

And there's Duramatte®—a new non-glare finish for metal legs and pedestals that wears almost six times as long as ordinary enamel.

We've got a handsome new brochure that tells the whole story about this new chair. Write Dept. AIA-680, American Seating Company, Grand Rapids, Mich. 49502.
Comment & Opinion ........................................ 41
Growing in importance: exchange of professional experience with colleagues from other lands

Brasilia: New Town with Bravura ......................... 42
Its original purpose forgotten, it had strong opposition but now is a monument to clear vision

Guatavita: New Town with Potentials ..................... 48
Its original purpose forfeited, it has nevertheless succeeded and is now a going concern

Forward-Geared People and Processes .................... 51
Practice Profile: Caudill Rowlett Scott, a growing, viability-minded firm that is "here to stay"

Choice for the Senior Citizen? .......................... 62
Institutions: Where our aging lose their identity, architects their imagination and skill

Alfresco Spectaculars ....................................... 67
The outdoor theater: a scene of ever-increasing sophistication, diversity and popularity

Theater Facilities Survey ................................ 80
The result is a storehouse of information

Departments
Asides ........................................... 8 Calendar .................................. 96
Newselines .................................... 16 Letters .................................. 98
Unfinished Business ............................ 38 Information Service .................. 98
Books ......................................... 90 Advertisers ................................. 102

Cover: Blossom Music Center north of Akron, Ohio, designed by Schafer, Flynn & van Dijk
Elkay offers fully recessed styling! No projections to block the passageway or take up valuable floor space! These gleaming coolers are quality built of 18 gauge (type 302) nickel-bearing stainless steel and have a deluxe LK-6K satin finish. Won't chip, crack, wear, or stain. Exclusive stream-splitter basin is splash-resistant. Sound dampened on underside. Delivers 9.5 gallons of 50° chilled water per hour when ambient and inlet water temperature is 80° F. Measures 22” wide, 55” high and 12½” deep. Provides ample head room. Front grill available in stainless steel, laminated charcoal vinyl, or prime coated steel. Wide choice of models in Elkay's complete line. Write for Catalog DFC-2 or see our listing in Sweet's Architectural File. Elkay Manufacturing Company, 2700 S. 17th Avenue, Broadview, Illinois 60153.

Easy to Install! Easy to Service!
Front grill removes with the turn of 3 screws. Self-contained cooling unit requires two plumbing connections and an electrical connection. Easily removed without disturbing drain.

Space-Saving Designs in Stainless Steel Water Coolers!
It took a lot of undercover work for us to run down all the causes of hydraulic elevator noises. But when you've been building hydraulic elevators as long as Dover has—35 years—you have time to follow up on every clue.

We stop noise at the source with a special coupling and sound-isolating seal ring between the oil line to the jack and the power unit. We designed our own silencer to go into the oil line for further noise elimination. And what noise we couldn't stop, we muted with soundproof panels enclosing the entire power unit.

In the process of doing all that, we improved the whole power unit itself. Special valve porting, for example, gave us both lower noise generation and more precise elevator control.

Overall, it's a quiet, dependable economical elevator. But it's unlike other hydraulic elevators, and that's why we call it by a different name—the Dover Oildraulic® Elevator. Use it for maximum economy of elevator service in buildings to six stories. If you're going higher, Dover offers comparable quality in electric traction elevators. Write for catalogs or see Sweet's Files. Dover Corporation, Elevator Division, Dept. E-4, P. O. Box 2177, Memphis, Tenn. 38103. In Canada: Dover/Turnbull.

Dover
the elevator innovators
ments. Wherever possible, we accommodated the behavioral requirements. When they were in conflict with the operational requirements, we made adjustments that seemed to be in the best interest of the overall project.

The furnishings of the new accounts offices illustrates such a compromise. This is where a prospective depositor makes his first, and most sensitive, contact with the association. Dr. Lasswell suggested that the normal barrier between customer and staff—a desk—be eliminated here in order to establish the feeling that the new accounts officer was allied with the depositor in working out his problems rather than acting as the agent of an impersonal corporation. The operations of this department are such, however, that flat surfaces for the signing of documents are essential. As a consequence, we introduced a round table in the cubicle which will accommodate a group who might open a joint account and still permit the individual who wants a conspiratorial privacy to shift closer to the attendant.

The examples cited here are indicative of the types of questions that were raised and our efforts to resolve them. It does not cover the full range of questions by any means. We were, in fact, greatly surprised that so many social-psychological issues could be identified in what is essentially a normal kind of architectural project. Our surprise does not mean that we have ignored the needs of the people we were providing facilities for in the past. On the contrary, we have labored hard to resolve their requirements as we understood them, but it is now clear that good intentions and intuitive solutions are not an adequate substitute for systematic investigation.

While this study resulted in many detailed changes in our schematic plans and affected our design solutions significantly, it did not lead to any unique physical forms or arrangements. The visitor to the building will find it difficult to identify any unusual features that can be attributed to the social-psychological factors' study, though he may conclude that the overall impression is somewhat different from other planning. The one exception is in the division of department size, where we have the result of an analysis that involved more than nine employees.

The division has been designed as a line of equipment areas—each accommodating from one to nine employees. These "imaginary offices" were grouped in a series of interrelated rooms in almost an equal number of total divisions. The operational requirements were made to provide individual offices for the managers or those persons who function as the agents of the corporation. The behavioral requirements, on the other hand, indicated that the individual can relate to his supervisor or to a group of nine. Beyond the division of the area, we have provided the possibility of division of the area so typical of a business establishment. The division of the area, however, is the final result of our "imaginary office" study. Based on this study, we were able to make a systematic inventory of each operation and to develop an appropriate technique for each. While this was done with obvious results, it was only in the extremely productive spirit of the cross-disciplinary experiments we were able to identify a solution for the problem. Certainly the study was more productive if it had been carried out under a more formal process, before the architectural design had been made. A comparison, however, is the fact that the full potential of the behavioral requirements was considered.

The positive result was substantial. Not the attitudes of all the employees were considered.

Even the custodians were queried as to how much they took into accounts the psychological aspects of their work. The results had an obvious effect in clarifying the relationship between the architect and the employees. Quite a different approach to the grouping of work areas was established, which a choice was made.

The behavioral approach to the architect's work enables him to consider a better description and, in some degree, the inclusion of more factors to take into account. The conflicts to resolve, thus, are more substantial. Not only the technical aspects of his work, but the attitudes of the people involved in the project are also considered.

One of the problems that we were concerned with primarily was the increase of the number of employees involved in the project. The architect is concerned with people's attitudes, and what the architect is concerned with, that is, the social-psychological factors, was considered a development.
CENTRALIZED GROUP NETWORKS

Wheel

"Y"

Chain

Variations

DECENTRALIZED GROUP NETWORKS

Circle

All-Channel

Variations
UNOBTRUSIVE

EXTENDS JUST 10 INCHES FROM WALL — NEEDS ONLY A 4½" BACK RECESS FOR MOUNTING. IDEAL FOR HIGH TRAFFIC LOCATIONS — CORRIDORS, LOBBIES AND OTHER PUBLIC AREAS.

ONE-PIECE BACK-SPASH AND RECEPTOR IS OF SATIN-FINISH STAINLESS STEEL — GRACEFULLY STYLED — EASY TO KEEP CLEAN AND SANITARY.

CAN BE FURNISHED WITH ATTRACTIVE VINYL CLAD STEEL CABINET, GLEAMING STAINLESS STEEL, OR IN STANDARD GRAY BAKED-ON ENAMEL. TWO MODELS RWM SERIES COOLERS AVAILABLE IN TWO CAPACITIES — 8 GPH OR 13 GPH OF 50° WATER. SEND FOR NEW CATALOG.

THE HALSEY W. TAYLOR COMPANY - 1566 THOMAS RD., WARREN, OHIO 44481

LETTERS FROM PAGE 160

BECUASE I HAD TRAVELED EXTENSIVELY IN EUROPE SERVING THE FRENCH AND US ARMIES AND LATER AS A STUDENT.

MEANWHILE, I ANSWERED THE LETTER AND RECEIVED A REPLY FROM WILFRED HARMAN, THEN A NOVICE AT THE BENEDICTINE ABBEY OF FORT AUGUSTUS, SCOTLAND, WHO HAD TRAINED AS AN ARCHITECT AT MIT.


MAURICE LAVANOUX
HON. AIA
EDITOR, LITURGICAL ARTS
NEW YORK, N.Y.

TRIBUTE TO A PHOTOGRAPHER

EDITOR:

I WOULD LIKE TO SHARE A FEW THOUGHTS REGARDING THE PRESENTATION OF THIS YEAR'S ARCHITECTURAL PHOTOGRAPHY MEDAL.

JULIUS SHULMAN HAS DURING THE LAST ONE-THIRD OF A CENTURY BECOME PART OF MY PAST LIFE. IT IS HARD TO CONCEIVE THAT ALL FORMER SKETCHES OF ARCHITECTURAL HISTORY DEPEND, ACCORDING TO THE ROMAN PROVERB, ON STONES: THEY WERE SUPPOSED TO TALK FOR THEMSELVES AND FOREVER: Vox loquitur. THIS IS MORE PAST, AND BYGONE.

FILM IS OF THE STUFF TO TALK! WHICH MAKES A MAN LIKE SHULMAN AN EDUCATOR OF MILLIONS WHO BECOME — IF NOT NEIGHBORS OF MOMENTOUS IMPRESSIONS, AT LEAST PASSERS-BY — WHILE THEY PAGE THROUGH A BOOK, A MAGAZINE, A JOURNAL.

THIRTY-THREE YEARS AGO JULIUS SHULMAN AND I MAY HAVE Fought A LITTLE AND AGREED MUCH LESS THAN IN OUR LATEST YEARS OF COOPERATION. TOO BAD THAT LIFE IS SHORT. BUT HE AND SURELY HIS WORK WILL SURVIVE ME. FILMS ARE STRONGER, AND GOOD GLOSSY PRINTS ARE EASIER SHIPPED THAN BRUTE CONCRETE AND STAINLESS STEEL — OR EVEN IDEAS.

RICHARD J. NEUTRA. FAIA
VIENNA, AUSTRIA

ED. NOTE: MR. NEUTRA, WHOSE FIRM OF RICHARD & DION NEUTRA HAS BEEN DESIGNING PROJECTS IN SEVERAL COUNTRIES, DIVIDES HIS TIME BETWEEN AUSTRIA AND THE UNITED STATES.

CIRCLE 337 ON INFORMATION CARD

Hillyard TERA-SEAL was used on the exposed aggregate floors in the foyer and exposed breezeways in this new office building. TERA-SEAL is a penetrating non-buffing type seal that resists stains and oil; provides a lustrous hard, long-wearing surface; and retains its "like-new" appearance through repeated cleanings.

For any type of floor you may specify, look to Hillyard for a seal or finish that will enhance the floor's structural beauty...provide long-lasting protection...and require minimum maintenance.

HILLYARD SPECIFICATIONS MANUAL

Write for your copy today. Loose-leafed and numbered, each will be kept up to date for you.

To ask, at no obligation, for the services of a Hillyard architectural consultant. He's trained to recommend the proper, approved treatments for the floors you are specifying, and also to supervise application at the job site.

Circle 272 on information card
Books (from page 96)

nessmen, labor unions, civic and service organizations, and educators—insisted on good community design and sound planning for orderly growth and development."

Such awareness and involvement have existed in the older and much slower growing cities of Europe, where for some time now the citizens and their elected officials have been vitally interested in the day-to-day architectural development of their community. This important book on an extremely important subject will greatly contribute to the understanding of the forces of architecture in socio-economic development of America and is of great value to all who really care about improving "a place to live," not only for themselves but also for their fellowman.

The book makes an excellent gift, and it is very much to be hoped that it will command the attention of the members of the new Nixon Administration so that in the fateful years ahead architecture can again assume its rightful place in economic development for all—black and white. JULIAN E. KULSKI, AIA


About one-third of the nation's total land area, or approximately 770 million acres, is federally owned. Some of this land is given over to national parks, wildlife refuges and other uses, but more than half of this amount, which has never left federal ownership, has never been dedicated to a specific use. It is "vacant and unappropriated" public domain land. What happens to these some 385 million acres is important to all of us.

The Public Land Law Review Commission, authorized by Congress in 1964, "thought it advisable to have an intensive examination of every part of the public land laws" before reforms in land use could be brought about. The commission concluded that, if future problems are to be considered intelligently, the past must be studied. This present history of public land law development is intended "to serve as a background for all those considering future public land policy."


This American edition of a work previously published in London in 1965 is revised in text. Although the "superstructure" is modified, state the authors, the purpose of the book has not been altered. "It is to examine how far town planning has gone toward its true objectives, which in our view are the welfare of man, his health, happiness and convenience."

And they state in one sentence precisely what they accomplish in the book. "We have tried," they write, "to outline the background, the pioneering ideas, the problems, experience and lessons of designing and building towns, concentrating on Britain as the main area for case study." They begin with a consideration of the transport revolution and proceed from there to discuss pioneers and prophets in planning; to give a historical background to the motor age; to evaluate fourteen British new towns; to consider urban renewal and urban centers; and to set forth principles for the sake of better planning. The authors have a lively, readable style.

Continued on page 100

Aerofin is very strong on field service! Knowledgeable sales engineers representing Fan System Manufacturers—Heating and Air Conditioning Distributors—and Aerofin Headquarters principals—are ready to work with you on the most efficient application of Aerofin Coils.

That's the sales and service practice of Aerofin's Heat Exchanger Specialists

The fast-changing technology of heating and air conditioning calls for a basic grasp of components and systems. The Aerofin representative has those answers. You'll get professional cost-cutting ideas on pressure drop, tube length, fouling factors, flexibility of coil selection and mechanical design. Aerofin has the people and the product to give you a confident feeling about your coil specification or investment.

Your Aerofin Specialist delivers his "Intensive Care" all the way from preliminary planning to operational performance.

And that's a fact!

AEROFIN CORPORATION

Lynchburg, Virginia 24505

Aerofin is sold only by manufacturers of fan system apparatus. List on request.

AEROFIN OFFICES: Atlanta • Boston • Chicago • Cleveland • Dallas • New York • Philadelphia • San Francisco

Circle 321 on information card
HILLYARD
FLOOR TREATMENTS
Used in America's
Newest, Most
Modern Buildings

Hillyard TROPHY, the finish of champions, was
chosen for the New Trier high school gymnasiums.
Trophy forms a hard, smooth, slip-resistant surface
that offers unprecedented wearability, beauty and
ease of maintenance, even when subjected to the
abuse of multiple use. It preserves the natural
beauty of the wood with a no-glare sheen.

ADD THIS SPECIFICATIONS MANUAL TO YOUR REFERENCE FILE

It contains: a Sweets Architectural Catalog; Spec-Data Sheets on
seven widely specified products, and a floor treatment folder (long
form) for every type of floor (includes short specification and long
step by step form for contractors).

Each copy of the ring binder is numbered and will be kept up to date.
Write for your copy on your own letterhead.

Hillyard architectural consultants are located in principal cities. Each
is trained to recommend proper, approved treatment for floors you are
specifying, and to supervise application procedures at job sites. A call
or letter will bring one to your office promptly.

Circle 272 on information card
Architects Information Service

To order single copies of items listed:
circle number on card that corre-
sponds to number beside each of
the listed items you want. Send no
money now. The charge, if any, for
a single copy is noted for each item,
and you will be billed for this amount.
Minimum billing for reprints is $1.

Current Issue Reprints
single copies free
1 The Nature of Office Landscap-
ing—p. 40
2 Making Room for the Atom—p. 62

Previous Issue Reprints
single copy prices as noted
20 Modular-Jointed Education of
Joe's Boys—4 pp.; 25¢
Progress report on the Princeton
Project
21 Practice Profile: Frank Grad &
Sons—8 pp.; 25¢
Meeting the challenge of the new
age through expanded services
22 Contractual General Conditions
—6 pp.; 25¢
Viewing basic legal relationships
23 Where is Architecture Going?—
12 pp.; 50¢
Digest of the Future of the Pro-
fessionals' conference at Airlie
House
24 Testing the Rainbow—4 pp.; 25¢
An aid in visual matching of
colors
25 The Western House—10 pp.; 25¢
A portfolio of 10 of the best
projects in the Western Home
Awards program
26 Buildings for All to Use—14 pp.;
50¢
Standards for barrier-free archi-
tecture
27 Professional Development Pro-
gram—12 pp.; 25¢
Background and purposes of the
AIA program
28 Decision Maker 1985—12 pp.; 25¢
Review of the AIA Task Force
on Elementary and Secondary
Education
29 New Dimensions in Air Rights—
5 pp.; 25¢
An analysis of two dual-purpose
structures
30 Dialogue and Discovery—5 pp.;
25¢
A look at VPf's Inner College of
Environmental Design
31 The Sheer Joy of Sketching—7
pp.; 25¢
A portfolio with random notes

To order manufacturers' technical
data: Circle number on card that cor-
responds to the number beneath or
beside each product advertisement
for which you wish additional spe-
cific printed technical data sent
you. Information will be sent from
the appropriate producer.

32 Library Buildings 1968 Awards
Program—4 pp.; 25¢
A portfolio of seven projects
107 Practice Profile: Pancost/Feren-
dino/Grafton of Miami—6 pp.;
25¢
An unusual contract with a
school board
108 Practice Profile: Wallace K. Har-
rison, FAIA—6 pp.; 25¢
Study of the 1967 Gold Medalist
112 An Architect’s Sketchbook—8
pp.; 25¢
Drawings from Japan and India
114 The Big Ground Wave—5 pp.;
25¢
Challenge of supersonic travel
117 Adventures in the Pursuit of
Excellence—5 pp.; 25¢
A review of the controversial
Bard Awards
118 "Let’s All Go Down to the Jail
and See Andy Warhol"—4 pp.;
25¢
Finding room for the arts in re-
sourceful communities

Special Offers
33 AIA JOURNAL subscription in-
formation and prices. For regis-
tered architect rates, see sub-
scription card.
34 Binders for AIA JOURNAL, in-
formation and prices
35 AIA JOURNAL Annual Index,
1967 and 1968, single copy free
36 Reprints in quantity, information
and prices
37 1969 Steel Deck Institute Design
Manual
38 Clearinghouse for Federal Sci-
entific and Technical Information,
subscription price
43 1966 Design Award Program
(HEW-AIA-EFLJ, brochure of
higher education facilities
44 Your Building and Your Archi-
itect, 18-page booklet for clients
45 Checklist for Cities, a working
guide for urban analysis
46 NACA Ceiling Systems Hand-
book, order form

Heritage from page 77
of the old Ramage printing press
and is a special attraction.
Despite careful maintenance, the
interior plastering had become so
defective that the building could
no longer be shown. The HMCS saw
the necessity of more than a mere
replastering job and asked us to
undertake a complete restoration.
The major part of our work was
aimed, then, at preserving the origi-
nal structure while preventing fur-
ther deterioration, including efflo-
rescence which seemed to stem
from a number of factors. Among
them were capillary action due to
porous coral foundations; sur-
rounding soil which had been hard-
packed through a century and a
half and then drained toward the
building; and the poor condition of
walls and lack of gutters.
A new drainage ditch has been
provided with deep gravel fill and
a subdrain to a dry well. The coral
foundation walls were too rough to
install a membrane, so we built a
masonry dam and filled the space
between it and the existing founda-
tion with molten asphalt.
The exterior will be protected
with a Portland cement water-base
coating which will simulate the ap-
pearance of the early whitewash.
The excavation for the drainage
ditch was set up as an archaeological
project and was being executed by
students from the University of
Hawaii. Exploratory pukas, or
holes, revealed pieces of broken
pottery, early glass and hardware,
hundreds of square nails, bits of
slate, glass beads, an 1883 Kalakaua
coin and a rare ulumaike, a stone
disc used by the ancient Hawaiians
in a game similar to bowling.
Another Honolulu group vitally
interested in preservation and res-
ervation is the Mayor's Historic
Building Task Force, organized by
volunteers in 1965. It came about
as a result of a series of articles
written by Nancy Dannick, now the
group's chairman.
The task force presently is seek-
ing to get official recognition of
some 50-odd buildings. It also ar-
ranges exhibitions to stimulate pub-
ic interest in local landmarks.
Another task force project has
been the publication of a guide to
what makes a building a landmark.
In general, this follows the princi-
pies developed by the National
Trust, but we have tried to make it
meaningful for Hawaii's special
history and culture in the hope that
it will make the public increasingly
aware of the islands' heritage.
The cheetah, a streak of color on the endless plain, is synonymous with speed, speed with grace. We like to feel that this is also an apt description of the kind of service afforded Monarch/Marshall customers. Both plants offer exceptionally fast service, through the use of conveniently located warehouses. Yet it's speed with a grace — a flair for putting you, the customer, uppermost in our daily work day. You can depend upon Monarch/Marshall to give you fast service, without risking any of the little “extras” that make doing business a pleasure. Write today for full color catalogs and information.
The need: a cure-all carpet.  
One that complements any decor, any color.

Cabin Crafts’
Carpets of
Acrilan Acrylic Pile

Cabin Crafts® Spicepoint and Cimarron carpets, to be exact.
Selected 8 times for Eli Lilly and Company by interior design firm Business Furniture Corporation of Indianapolis. Jerry Lakin, Sales Director of that firm, tells why. “These carpets are unique. Just what we needed: a wide variety of color mixtures in a luxurious, durable fabric. We wanted each room to be in perfect harmony with the next, yet retain a sense of individuality. And that's exactly what these Cabin Crafts carpets gave us. The overall design effect is stunning!”

The special color magic of Spicepoint and Cimarron comes from a handsome blending of colors...eight in Spicepoint, four in Cimarron. The resulting tweed effect picks up and accents each color in the room.

Maintenance is no problem. Both carpets owe their great durability to the combination of a tough, tight-loop texture and a rugged, easy-to-clean fiber—Acrilan® acrylic.

Spicepoint and Cimarron are but two of many contract carpets you may select from. All specially engineered for heavy-duty installations. Cabin Crafts can offer you the fiber, the color, the texture, the price, the backing, your installation needs. And when you need it.

For more information send in the coupon below.

Please send me information on your complete contract/commercial carpet line.
Please have a contract specialist call to make an appointment.

Name __________________________
Title __________________________
Firm __________________________
Street Address __________________
City __________________ State ______ Zip Code ______
Keeping Time in Perspective

BY BERNARD LEMANN

Worthwhile buildings kept in preservation, kept as active, integrated parts of our lives, can give a dimension to history no reconstructed landmark can give.
Schwarting's medium-density housing complex with underground parking, a community center and stores has a large central space to provide light to apartments and a green spot for outdoor enjoyment. Three old buildings are incorporated in the design. His Roman Curia, on a site hypothetically derived from parts of an 1870 plan of an area near S. Maria Maggiore and superimposed over some of the later grid-iron development, makes use of the office walls as a backdrop for the church.
For nearly sixty years leading architects and architectural firms have specified Hope's windows for the many styles of buildings at Yale University. A partial list of buildings at Yale in which Hope's windows were specified and installed is recorded below. We are proud of this record of continued confidence.

912 Sloane Laboratory  
Architect: Charles Haight

912 Wright Dormitory  
Architects: Delano & Aldrich

913 St. Anthony's Hall  
Architect: Charles Haight

923 Sterling Chemistry Laboratory  
Architects: Delano & Aldrich

924 School of Medicine  
Architects: Day & Klauder

924 School of Forestry  
Architects: Delano & Aldrich

928 Yale Record Building  
Architect: Lorenzo Hamilton

930 School of Medicine  
Architect: Henry C. Pelton

31 Sheffield-Sterling-Strathcona Hall  
Architects: Zantzinger, Borie and Medary

32 Payne Whitney Gymnasium  

32 Library & York Dormitories  
Architect: James Gamble Rogers

1934 Berkely College  
Architect: James Gamble Rogers

1939 Sterling Hall of Medicine Ext.  
Architect: Grosvenor Atterbury

1952 Art Gallery & Design Laboratory  
Architects: Douglas Orr and L. I. Kahn, Associates

1952 Accelerator Laboratories  
Architects: Saarinen & Saarinen, Douglas Orr, Assoc. Architect

1954 Edw. S. Harkness Memorial Hall  
Douglas Orr, Architect, Gugler, Kimball & Husted, Assoc. Architects

1955 Josiah Willard Gibbs Labs.  
Architects: Douglas Orr and Paul Schweiker, Associated Architects

1957 University Theatre Library  
Architects: Davis Cochran & Miller

1957 Helen Hadley Hall  
Architect: Douglas Orr

1960 Mansfield St. Apartments  
Architect: Paul Rudolph

1962 School of Art and Architecture  
Architect: Paul Rudolph

1963 Kline Geology Laboratory  
Architect: Philip Johnson, Assoc.

1967 Josiah Willard Gibbs Labs (Addition)  
Architects: Office of Douglas Orr, deCossy, Winder & Associates
Weis hardware is solid brass with the added protection of brilliant chromium plate. This rugged, handsome hinge mounts on the interior surface for inswing, or exterior for outswing, and is adjustable to stand in any position.

The lasting strength of SOLID BRASS HARDWARE...a quality feature of Weis Toilet Compartments
Thin translucent marble panels, lighted from within, turn a building into a glowing jewel at night. The natural veining stands out dramatically and gracefully against the softly lighted background. And during the day, marble's classic beauty lends dignity and permanence to the structure. Day or night, it holds people spellbound.

Translucent marble can be used expansively in curtain wall construction or discreetly as an accent. In either case, initial cost is surprisingly low and maintenance is practically nil. As for colors, you have a wide range of whites and pinks from which to choose. For a Technical Report on translucent marble, including design details and case histories, look in your Yellow Pages for the nearest MIA Certified Member. MARBLE INSTITUTE OF AMERICA, PENNSYLVANIA BUILDING, WASHINGTON, D.C. 20004.
Dover has a secret idea in hydraulic elevators