



A · I · A

May 1960

Journal

OF THE AMERICAN INSTITUTE OF ARCHITECTS



The Stones of Italy · Chandigarh Reconsidered · The School of Architecture, 1984
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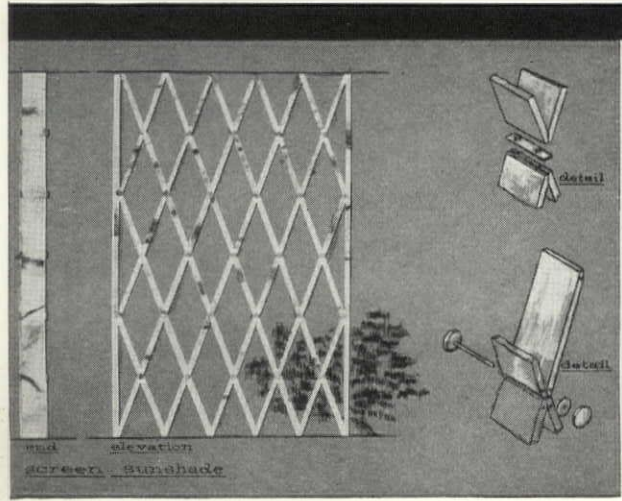
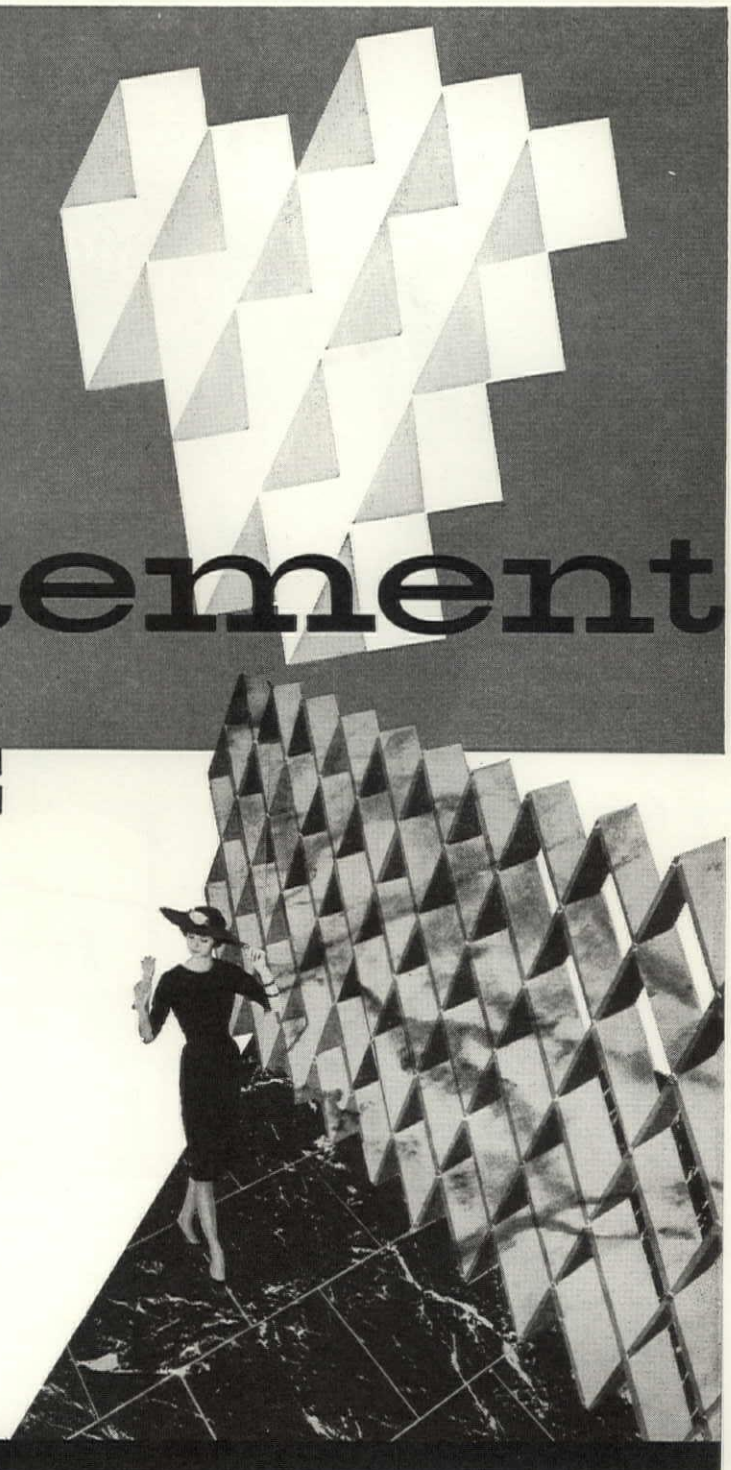
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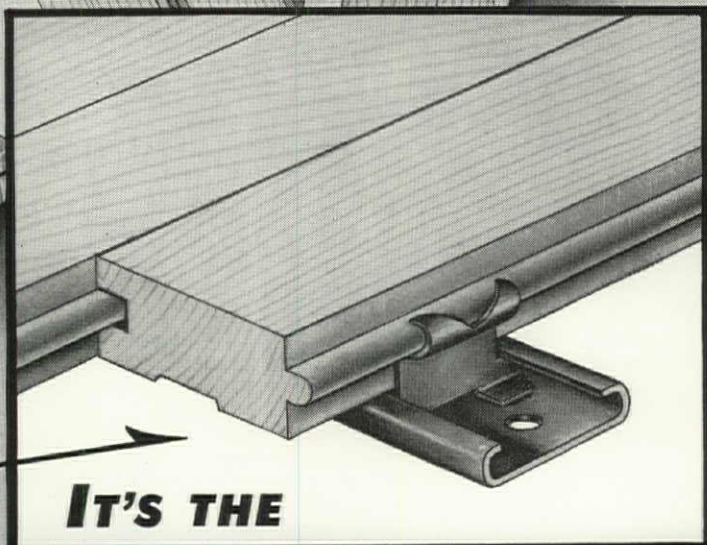
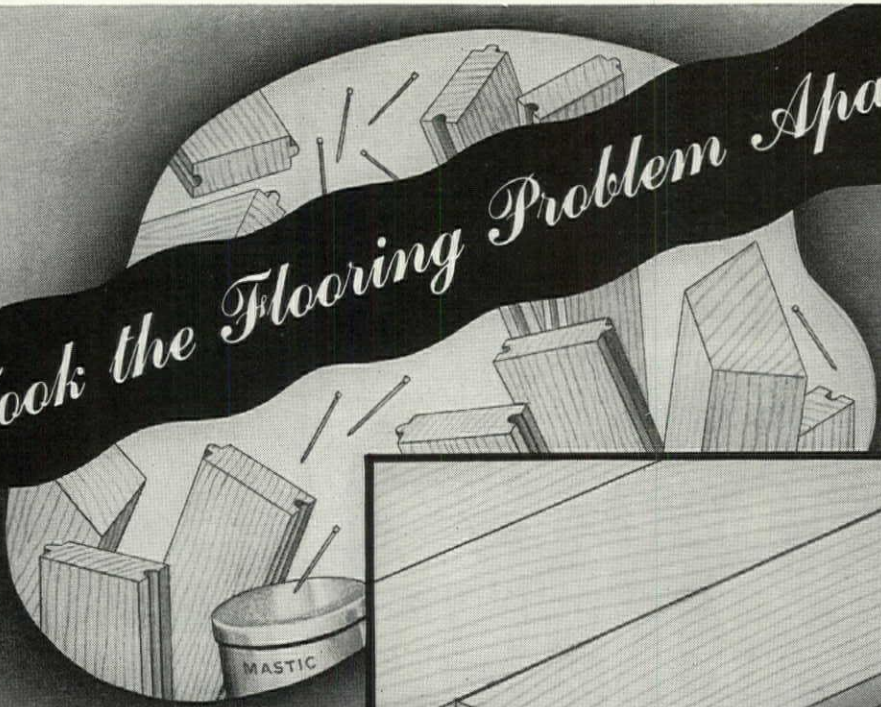
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VOLUME XXXIII, NO. 5

MAY 1960

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- 8 Letters to the Editor
- 14 News
- 21 Nestlé Administration Building—1960 Reynolds Memorial Award
- 24 *James A. Hatcher*, AIP and *Gordon G. Wittenberg*, AIA: Little Rock, 1969
- 27 *Herbert A. Lattes: The Stones of Italy*
- 32 *David A. Crane: Chandigarh Reconsidered*
- 40 The Great Seal of the United States
- 41 *Neoscopos: Tracings from an Oaken Table—No. 3*
- 43 *Walter A. Taylor*, FAIA: The School of Architecture, 1984
- 50 Arts and Cultural Centers

THE INSTITUTE

- 52 *William Stanley Parker*, FAIA: Do You Know Your Documents?
- 53 *John Noble Richards*, FAIA: ¡Gracias, Architectos Mexicanos!
- 54 From the Executive Director's Desk
- 56 Students
- 58 Library Notes
- 59 Book Reviews
- 62 The Editor's Page
- 106 Calendar, Necrology
- 110 Allied Arts

TECHNICAL

- 63 *Clinton H. Cowgill*, FAIA: Facilities for the Aging and Infirm
- 73 *Eugene F. Magenau*, AIA and *Victor C. Gilbertson*, AIA: Tornados

THE COVER

One of the figures of the *dioscuri* on the Capitoline Hill in Rome, photographed by Herbert Lattes.



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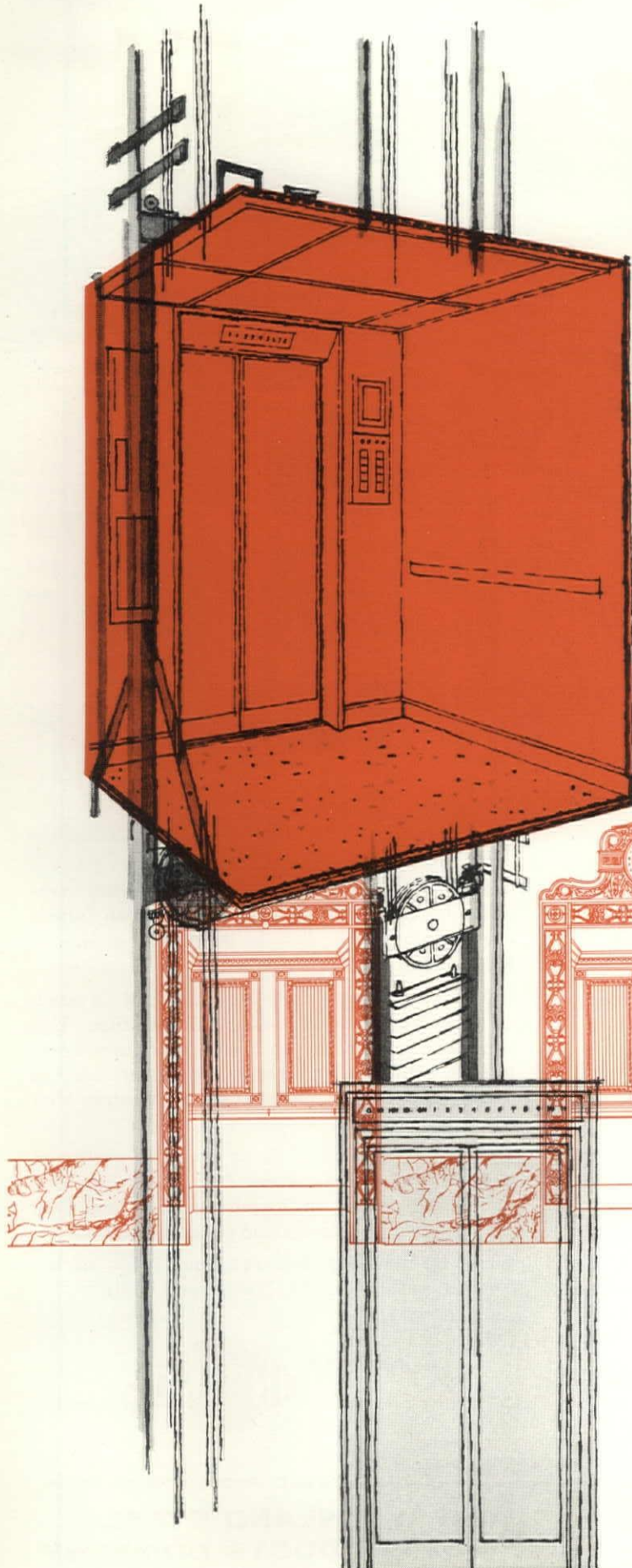
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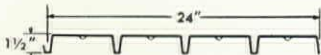
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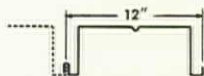
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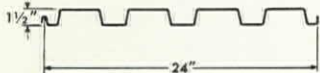
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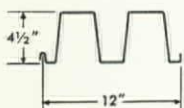
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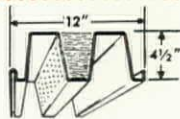
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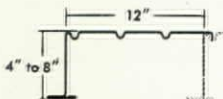
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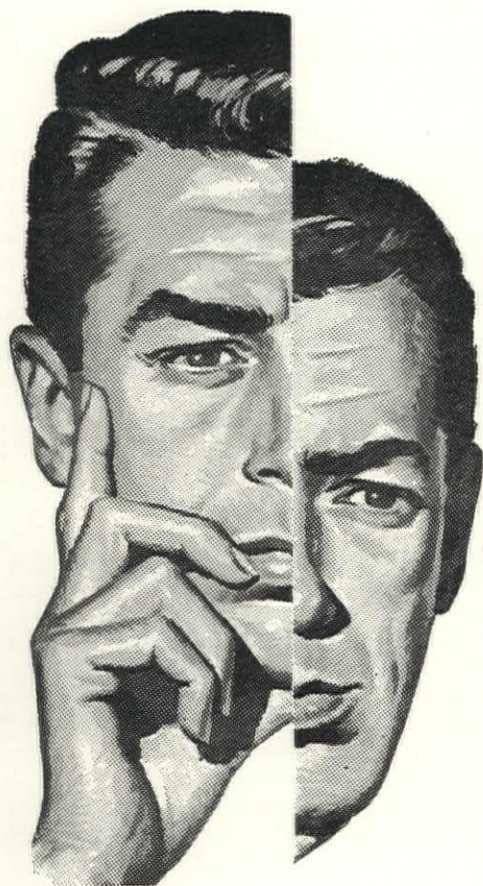
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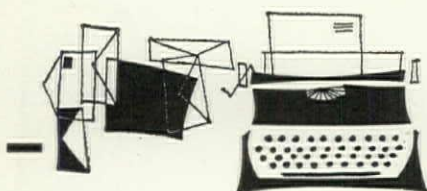
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L E T T E R S

An Author Defends His Book

EDITOR, *Journal of the AIA*:

I note with interest the substantial review by Professor Currie of my book, "The Synthetic Vision of Walter Gropius," in the AIA Book Supplement of November, 1959.

The reviewer takes me to task on several points. Where these are matters of opinion, I cannot dispute with him, but there are one or two matters of substance which, perhaps, need further clarification.

The concept of Holism is surely not as unknown and obscure as Professor Currie would have us believe. If *Holism and Evolution* is unknown in the United States—and the book did run to two editions—then I can only recommend the very adequate 5,000 word summary on a lay level under the heading "Holism," which appears in the 14th edition of the Encyclopaedia Britannica. J. C. Smuts, being a classical scholar, derived the term "Holism" from the Greek "*Holos*" (meaning whole), which is the solution to the enigma of the missing "w." Smuts's work is referred to, not necessarily for its own intrinsic merit or for its world stature, but because together with the better-known philosophy of Whitehead, it represents a complete system explanatory of relationships of part and whole.

The analogy between Gropius, Smuts and Whitehead is referred to in order to relate Gropius's thinking to the general current of thought of his time. Gropius recognized the importance of these parallels in the thinking of philosopher, statesman and architect and wrote to me—"It helps my own thinking that you have strengthened its basis by pointing out other nuclei of thought akin to my own."

The late 19th century and the first three decades of this century have seen tremendous changes in the history of ideas. Schwann's basic work on cells and organisms, Darwin's theory of evolution, and Einstein's theory of relativity exemplified what Needham has called "the great transition from the Renaissance or Newtonian outlook in science to the modern, dialectical or organic." Engels and Marx were revolutionizing political and economic thinking. The Gestalt psychologists were emphasizing the importance of relationships in psychology, and Alexander, Lloyd-Morgan, Smuts and Whitehead were exploring similar problems of organic relationships in science and philosophy. Frank Lloyd Wright was giving form and shape to his theory of Organic Architecture, and Buckminster Fuller was developing his concept of Synergetics. These are all different facets of a general climate of ideas prevalent at the time. These ideas permeated all fields of thought, and it is not surprising, as Professor Currie points out, that in listening to Whitehead, "nearly all the listeners felt that Whitehead's remarks were pointed to their own areas of special interest." Whitehead is a beacon, towering

above many of his great contemporaries. The stature of Gropius is such, however, that his independently conceived philosophy of unity in its more specific applications, and in its consistency, can be measured against the yardstick of Whitehead's general propositions.

Of his relationship to Whitehead, Gropius wrote to me: "Nor did I know about Whitehead's work before I came to the USA in 1937. I invited him once to my house where he quietly looked around for quite a while, and then stated, 'I suppose here I face a whole new set of aesthetics of the future, but I am afraid I am now too old to assimilate it fully in my mind.'" As Gropius's theories were fully worked out before 1937, it seemed unnecessary to labour these later incidental contacts with Whitehead which, while doubtless delightful, can hardly be considered fundamental.

If Gropius were an *isolated* figure, he would negate his own philosophy. His relationship to other prominent thinkers is an essential factor in an organic culture, and substantiates and underlines his beliefs. To point to these relations has been an important aspect of the task I set myself: To have left them out would no doubt have facilitated your reviewer's task, but would have made meaningless the thesis of this book.

GILBERT HERBERT
Johannesburg, South Africa

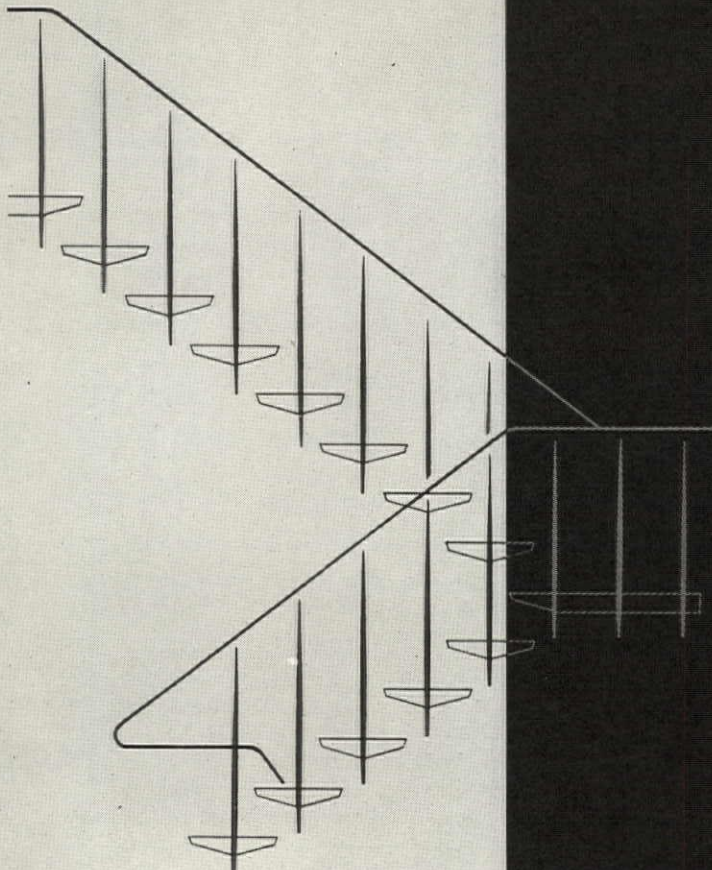
(Ed. note: The following letter was written to Mr Herbert, the author, by Mr Currie, the reviewer, after the letter above was received in the *Journal* office.)

Dear Mr Herbert:

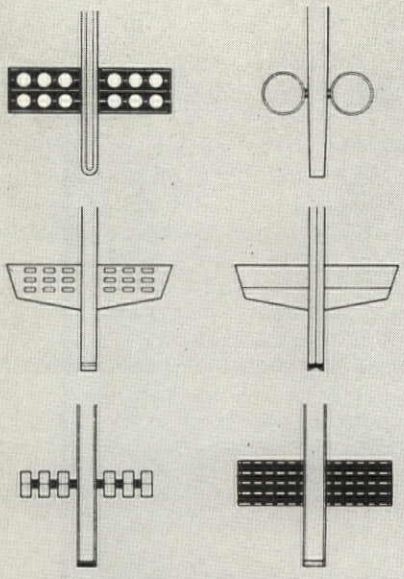
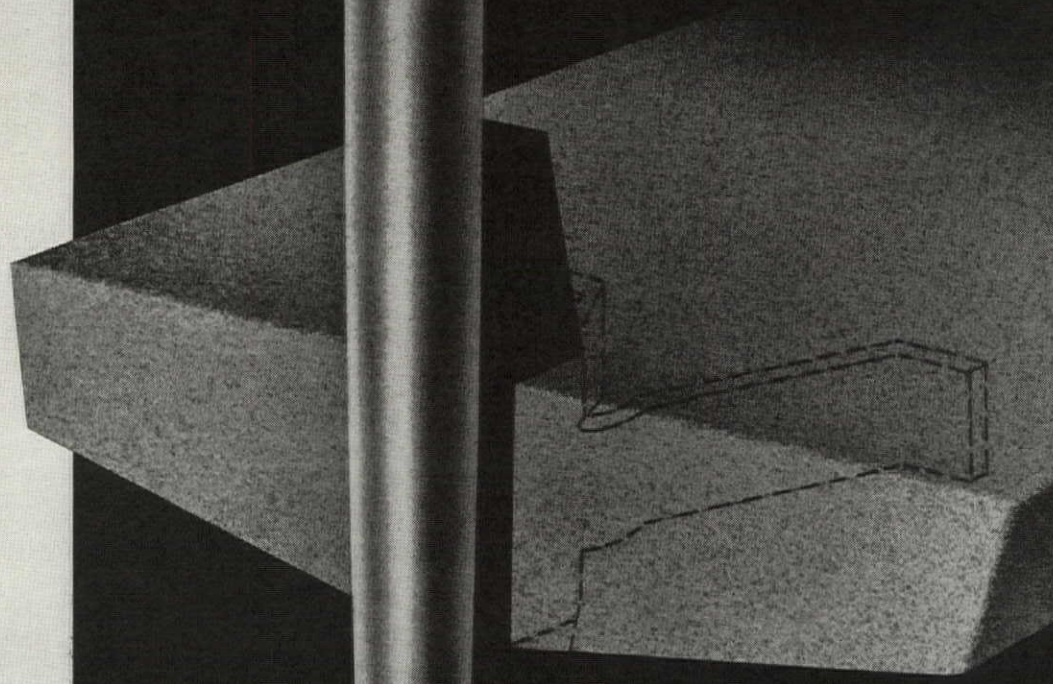
The editor of the *AIA Journal*, Mr Joseph Watterson, has sent me a copy of your recent letter and asked for my comments.

I am glad that you have not taken grave offense at my candid review of your scholarly treatise on the philosophy of our mutual friend, Walter Gropius. You will appreciate that my remarks were necessarily directed to American readers. To be honest with them, and with myself, I had to take into account our particular frame of reference—which is doubtless parochial. I could not say that they would enjoy a literary effort which all but a few would in fact find somewhat incomprehensible. Incomprehensible, because you apparently presupposed an audience with a reading background similar to your own and thus able to follow your numerous literary references.

It is futile to argue the extent to which *Holism and Evolution* and the concepts of J. C. Smuts are known in this country. Since my review was published, I have discovered that one of my architectural colleagues had indeed heard of Smuts and his work.



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LETTERS

Needless to say, more of us *should* know about *holism*, and I sincerely appreciate your having called my attention to this important philosophical concept.

Having received a hint that students of the natural sciences were more versed than most of us in the theories of General Smuts, I recently quizzed a friend who is a leading American biochemist, a member of several committees of the National Research Council, a consultant on national and international projects of the National Institutes of Health, and a world traveller. I have heard this man discuss genetics, evolution, heredity and mutations (important areas in the formulation of the basic *holistic* theories) with evident authority. He confessed that he had never heard of J. C. Smuts or *holism*. Should this surprise you? In the Encyclopaedia Britannica reference which you gave in your letter, General Smuts seems to anticipate such a response when he says, "The concept of wholes is by no means unknown to philosophy or even to science, but no systematic use of it has been made by either of them."

Your South African audience is doubtless much more aware of Smuts, and perhaps even better acquainted with the works of Whitehead than are Americans. The latter, in spite of the fact that Whitehead spent many years in this country.

The problems of communication grow apace as the literate population of our planet increases explosively and as the quantity of written words multiplies in some sort of geometric progression. The time is long past when an educated man could assume that the understanding of any other educated man encompassed the same body of (classical) knowledge as his own.

That which each of us knows is so evident and obvious to us that we are often surprised and pained (and even disdainful) when we find that our knowledge is not shared by our associates. Meanwhile we are each blissfully unaware of the moment and magnitude of that vaster body of knowledge to which we have not been exposed.

On brief acquaintance, I find *holism* fascinating, and I now regret that it seems to be so little appreciated in America. I am pleased to thus join your own select company, but I shall not be dismayed if I find even scholarly persons who do not share this knowledge. I can now see how the theory of *holism* may have had an indirect influence on my convictions on such subjects as freedom, self-determination, individuality, and creativity. Such indirect influences could be likened to those exerted by Mondrian on innumerable advertisers, printers, and provincial builders who have never heard his name. I readily agree to the validity of your analogy. The concepts of Gropius, Smuts and Whitehead indeed seem to flow in the same stream of contemporary thought.

We must be concerned with the problems of communication in a world in which no man's mind and memory can begin to encompass the manifold ramifications of philosophy, art, music, literature, psychology, economics, history, politics, branches of science without end, and current affairs. Unless writ-

ing for a very special audience, such as for students who have completed specific reading assignments, it might be prudent to assume that readers are normally intelligent, but without specialized knowledge, and therefore start with a brief summary of the ideas to be compared.

If published, this exchange of letters may pique the curiosity of many who would have passed over a perfunctorily complimentary review of your book, and thus may tempt them to read it. I surely hope so!

I am looking forward to meeting you and continuing our discussion in person.

LEONARD J. CURRIE, AIA
Blacksburg, Virginia

Art by Legislation—No

EDITOR, *Journal of the AIA*:

I read with dismay of Mr Von Eckardt's endorsement of the new Philadelphia "1% Art" law. Apparently the AIA officially lauds this—to me—odious piece of legislation.

Are we, as architects, so completely lacking in design abilities that art-by-legislation is necessary?

Can you imagine the monstrosities that will be foisted off on the public under the guise of obeying the law? Think of the tremendous possibilities if the mayor's daughter happens to be a sculptress. Imagine the mosaic mural of a "white wing" at work installed over the garage doors of the sanitation department shop.

Can't you just imagine a specification clause of the future such as:

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Yours for strength and joy through legislation,

THOMAS M. A. PAYNE, AIA
New Rochelle, New York

Art by Legislation—Yes

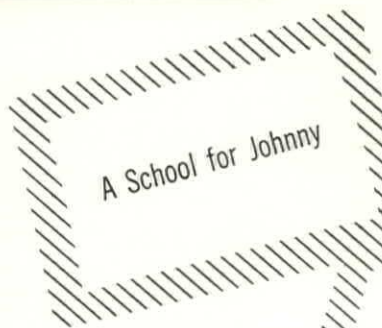
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FRANK C. DILL, AIA
Houston, Texas



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LETTERS

Give the Girls A Break!

EDITOR, *Journal of the AIA*:

... it is with pleasure that I... send you a letter regarding the resentment I feel towards modern American architecture for depriving us office help—in majority female—of God's natural daylight.

You may consider these lines as "Notes of a repatriot." Having worked so many years in private industry abroad—particularly in Switzerland—will you forgive me if I compare the working conditions in my home country, the United States, with those of Switzerland, especially in Geneva and Zuerich. Spacious, lofty, or even smaller offices with natural daylight flowing through the windows are devised for secretaries over there who have to spend most of their time behind the typewriter. Whereas over here in most instances this is something a girl-office help only dare dream of, with of course, rare exceptions.

When I arrived back in my native country, nearly 7 years ago, after an absence of more than twenty years, it struck me funny to notice that in most offices all the well day-lit corners and spaces were occupied by the strong sex, frequently even left empty when they were away for more or less important conferences—or for coffee breaks. The female employees, on the other hand, are pushed back into a dark corner having to strain their eyes with the use of neon light. It puzzled me to see so many girls—old and young—hiding their eyes behind glasses and having a masticated paper complexion, drawn features and a worried, depressed expression on their faces, apart of course, of a few very young ones—teen-agers....

You people are constructing new office buildings everywhere. No war is in sight for a possible excuse that it is safer to work with neon light way inside a building or underground. So why not change your architectural arrangements somewhat and allow us stenographers and typists also a glimpse of God's light into our offices through a window,

Or do we girls have to fight for our "daylight rights" way up to Congress so that a law be enacted for granting us so and so many units of natural daylight which the strong sex seems so anxious to take away from us?

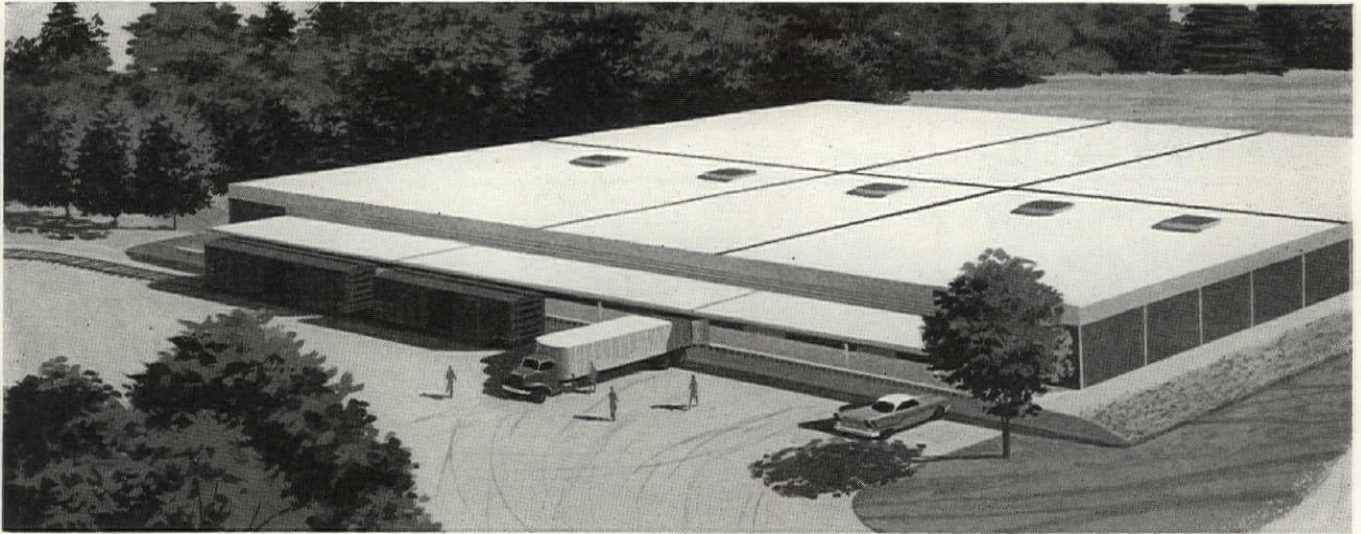
IDA M. G. KRIECHBAUM
Secretary
Robinson Newcomb Assoc.
Washington, D. C.

We Take a Bow

EDITOR, *Journal of the AIA*:

I know you have heard it a dozen times or more, but architects all over the country have nothing but the kindest things to say about our new *Journal* which is doing so well under your leadership.

J. ROY CARROLL, JR, FAIA
Secretary of the Institute
Philadelphia, Pa.



PHILIP MORRIS WAREHOUSE, RICHMOND, VIRGINIA: Architect H. C. Baskerville states as the reason for choosing prestressed concrete: "After comparison of a number of framing systems, prestressed proved to be the most economical." Archi-

ects & Consulting Engineers: Baskerville & Son, Hankins & Anderson, Richmond, Virginia; Architect Consultant to the Owner: Ulrich Franzen, A.I.A., New York, N. Y.; Prestressed Concrete Fabricator: **CONCRETE STRUCTURES, INC.**, Richmond, Virginia.



MAY COMPANY SHOPPING CENTER, WEST COVINA: Rockwin Prestressed Concrete Corporation, states, among other reasons for the choice of this method for this \$12,000,000 development: "... long spans with minimum intermediate columns permitting maximum unobstructed areas... low cost and elimination of maintenance." Architect Engineer: A. C. Martin & Associates, Los Angeles; Contractor: T-S Construction Engineers, Inc., Los Angeles; Prestressed Concrete Manufacturer: **ROCKWIN PRESTRESSED CONCRETE CORP.**, Santa Fe Springs, Calif.



MAYFLOWER MOTEL, ATLANTIC CITY: Architect S. L. Malkind states: "In addition to being 25% cheaper than comparative materials, the happy union of prestressed concrete girders and floor beams and concrete columns provides a perfect foil for architectural decoration." This three-tiered motel was designed and built, from ground-breaking to opening, in five months. Architect: Samuel Lewis Malkind, New York, N. Y.; Consulting Engineer: Stresscon Associates, Newark, N. J.; Contractor: Ramat Construction Company, Spring Valley, N. Y.; Fabricator of prestressed elements: **ATLANTIC PRESTRESSED CONCRETE COMPANY**, Subsidiary of Warner Company, Trenton, N. J.

If you're planning to build almost anything First consider the benefits of prestressed concrete construction

**ECONOMY • DURABILITY • FIREPROOF • MAINTENANCE-FREE
DESIGN FLEXIBILITY • ARCHITECTURALLY PLEASING • EASY, FAST
ERECTION • PLANT-CONTROLLED QUALITY • AVAILABLE EVERYWHERE,
NOW • LONG SPANS, BIG BAYS • LOW INSURANCE**

Given here are some current examples of what is being done with prestressed concrete throughout the country. In each case you'll find at least one of the above listed benefits given as the reason for the choice of this method over all types of construction.

In 1948 Roebling placed on the market the first wire and strand made specifically for the purpose of prestressing concrete. Since that time, prestressed concrete construction justifiably has enjoyed an ever-increasing acceptance — for all types of structures — by architects, engineers, contractors, builders and *by the owners and managers who pay for them.*

John A. Roebling's Sons Corporation not only has played a major role in the development and promotion of pre-

stressed concrete, manufacturing the finest wire and strand available, but has compiled a wealth of data on design methods and tensioning details. This knowledge and experience, gained through years of research and practice, is offered to you—whether a mildly interested observer or one intent upon taking immediate advantage of all that prestressed concrete has to offer. We suggest you ask your nearby prestressed concrete fabricator for details or write to Construction Materials, John A. Roebling's Sons Division, Trenton 2, New Jersey.

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NEWS

Names in the News

A special citation of achievement by the American Scenic and Historic Preservation Society has been presented *Helen Duprey Bullock*, historian of the National Trust for Historic Preservation since 1950. The award is presented annually to persons who have distinguished themselves in the fields of conservation and preservation . . . *J. Harvey Williams*, of Cornwall, England, a graduate student in architecture at Cornell University has been awarded the Grissell Gold Medal by the Royal Institute of British Architects. The award is one of the most coveted prizes available to students in architecture in the United Kingdom . . . *Charles F. Cellarius*, FAIA, of Cincinnati, Ohio, has received the Honorary Doctor of Humane Letters Degree from Miami University in Ohio . . . *Dr F. M. Lea*, Director of the British Building Research Station, has been elected president of the International Council for Building Research, Studies and Documentation (C. I. B.) . . . *Chester Dale Camden*, AIA, member of the Columbus Chapter of the Architects Society of Ohio, has been elected Chairman of the Washington County (Ohio) Regional Planning Commission.

Architects, Take Heart

(Editor's note: The following probably should be published on our "Letters" page, but after thoughtful consideration we believe it is so unusual that it more properly qualifies as news.)

It seems that a client first approached the architectural firm of Pancoast, Ferendino, Skeels & Burnham of Miami with a request for a traditional house. Consultations with the firm, however, led the couple to place their trust in a contemporary design, with the results expressed in the letter below:

"Attached is final check, paid in full. It doesn't seem possible we are already in and settled.

"You and your associates have done a marvelous job for June and myself. We think we have a beautiful and comfortable home.

"Frankly, the only thing I wonder is how you can make out charging what you do for the countless hours you spent for and with us. We think you earned your fee several times over."

Architects, take heart!

Architectural League of New York Awards

Medals of Honor, like May flowers, burst out all over the Architectural League of New York's National Gold Medal Exhibition held earlier in the year at the American Craftsmen's Council's Museum of Contemporary Crafts in New York. Mies van de Rohe and Philip Johnson received the Gold Medal of Honor for Architecture for the design of the Seagram Building; the Gold Medal of Honor for Design and Craftsmanship was awarded Hervey Parke Clark and John F. Beuttler for Christ Church in Portola Valley, California.

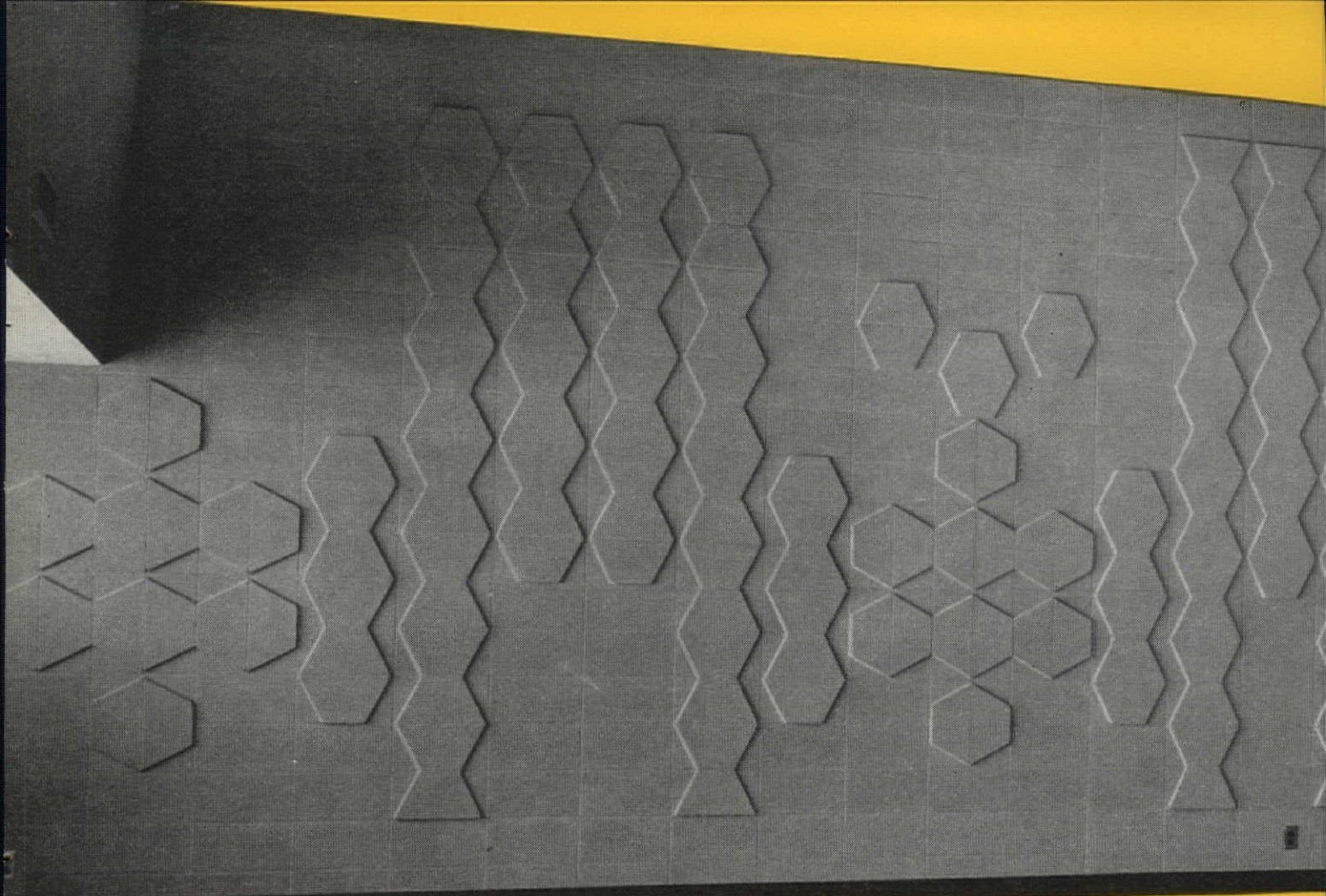
Skidmore, Owings and Merrill, and Isamu Noguchi received the Gold Medal of Honor for Landscape Architecture for their Connecticut General Life Insurance Building in Hartford, Connecticut.

A new League medal, the Collaborative Medal of Honor, was awarded to Mario J. Ciampi of San Francisco, his associate architect, Paul W. Reiter, and his collaborating structural and mechanical engineers, landscape architect, muralist, and sculptor in the design and construction of Westmoor High School in California.

Silver Medals of Honor were presented to Edward Larrabee Barnes and Eero Saarinen. Honorable mention awards went to Minoru Yamasaki, Skidmore, Owings and Merrill, Philip Johnson, I. M. Pei, Mario J. Ciampi, and Richard Dorman.

Summer Seminar

Architects who want to get away from it all and return to the classroom have been invited to participate in a one-week seminar at M. I. T. beginning July 11. The subject for discussion and study will be "Theory and Criticism in Architecture and City Planning" and is intended especially for teachers, architects, city planners, critics and historians. Lectures, discussions and tours of new M. I. T. buildings will make up the week's work. Architect Pietro Belluschi will be included among the staff of lecturers. On the concluding day two internationally known architects will discuss their recent work. Additional information may be secured from Professor Albert Bush-Brown, Executive Officer, Architecture, Room 7-346, M. I. T., Cambridge, Mass.



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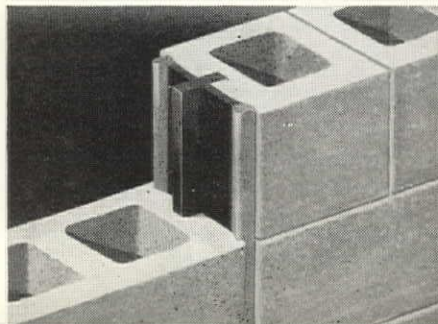
Two engineered products that meet a need. Dur-o-wal reinforcement, shown above, and Rapid Control Joints, below. Weatherproof neoprene flanges on the latter flex with the joint, simplify the caulking problem.

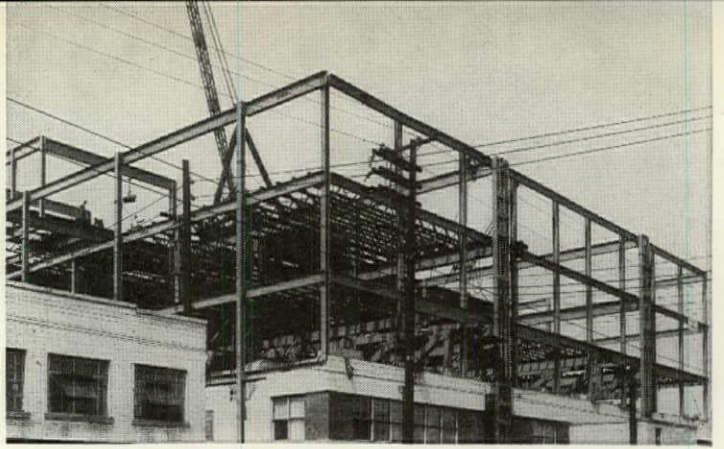
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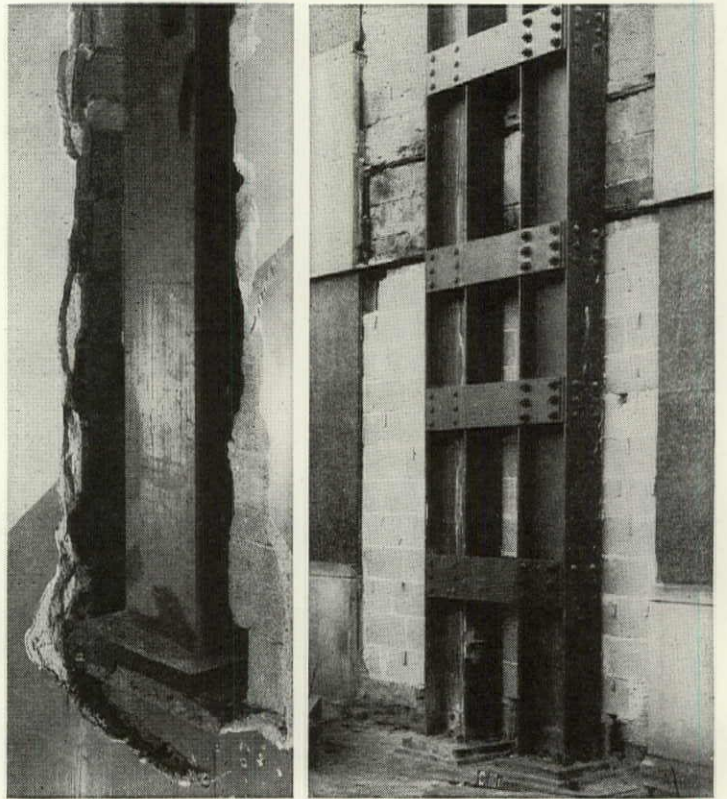
Dur-O-wal Div., Cedar Rapids Block Co., **CEDAR RAPIDS, IA.** Dur-O-wal Prod., Inc., Box 628, **SYRACUSE, N. Y.** Dur-O-wal Div., Frontier Mfg. Co., Box 49, **PHOENIX, ARIZ.** Dur-O-wal Prod., Inc., 4500 E. Lombard St., **BALTIMORE, MD.** Dur-O-wal of Ill., 119 N. River St., **AURORA, ILL.** Dur-O-wal Prod. of Ala., Inc., Box 5446, **BIRMINGHAM, ALA.** Dur-O-wal of Colorado, 29th and Court St., **PUEBLO, COLO.** Dur-O-wal Inc., 165 Utah Street, **TOLEDO, OHIO**





Designer: C. H. McCauley, Architect, Birmingham, Alabama
General Contractor: G. W. Hallmark & Sons, Inc.
Steel Fabricator: O'Neal Steel, Inc.
Owner: City of Birmingham

This building got old age security from steel



American Bridge got involved in an odd construction problem when they had to add three floors to the two-story Social Security Building in Birmingham, Alabama. The building's old foundation wasn't strong enough to support three new floors, so they switched foundations! Concrete columns were ripped out of the basement and replaced with 41 steel H-beams to give the building additional strength. And the American Bridge crew worked at night so that office business could continue during the day.

When unusual construction challenges occur, it usually takes steel to solve them. Contact us for information on construction services.

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American Bridge
Division of
United States Steel



Gymnasium at Macopin Elementary School, West Milford, N. J. Architects: S. E. Greydanus and Son, Paterson, N. J. Contractor: Thomas Construction Company, Paterson, N. J.

Space provided: thirteen classrooms; auditorium; full size gymnasium with kitchen and storage; library and storage room; science room; home economics unit; art room; woodworking shop; band room; boys' and girls' locker and shower rooms; administrative offices; guidance office; clinic; thirteen lavatory and toilet rooms. *Structural framing:* glulam timber beams resting on steel columns. *Exterior walls:* Fenestra window walls for classrooms; brick over concrete block backup for gym and audi-

torium. *Interior walls:* concrete blocks; glazed blocks wainscot high in corridors; ceramic tile in shower and toilet rooms. *Floors:* asphalt tile over concrete slab. Ceramic tile in toilet rooms. *Roof:* 5-ply built-up slag roof over Tim-Deck. *Heating:* hot water system employing Nesbitt unit ventilators controlled by outside thermostat. *Lighting:* fluorescent throughout except gymnasium and special spot lighting in auditorium. *Area:* 56,000 square feet. *Cost:* \$17.29 a square foot.



In natural finish, Glulam beams and Tim-Deck by Timber Structures, Inc.
provide a striking appearance for this modern,
flexible school that is now being considered for expansion
into a 1200-pupil senior high school.

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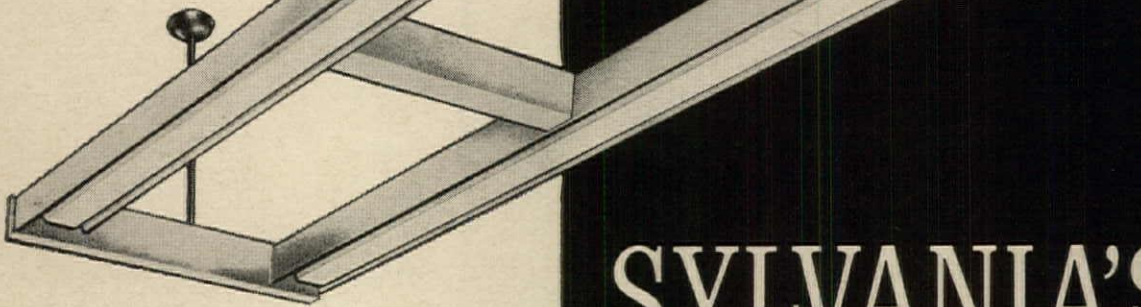
Division offices in Ramsey, N. J.; Schiller Park, Illinois; Dallas, Texas

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comfortably,
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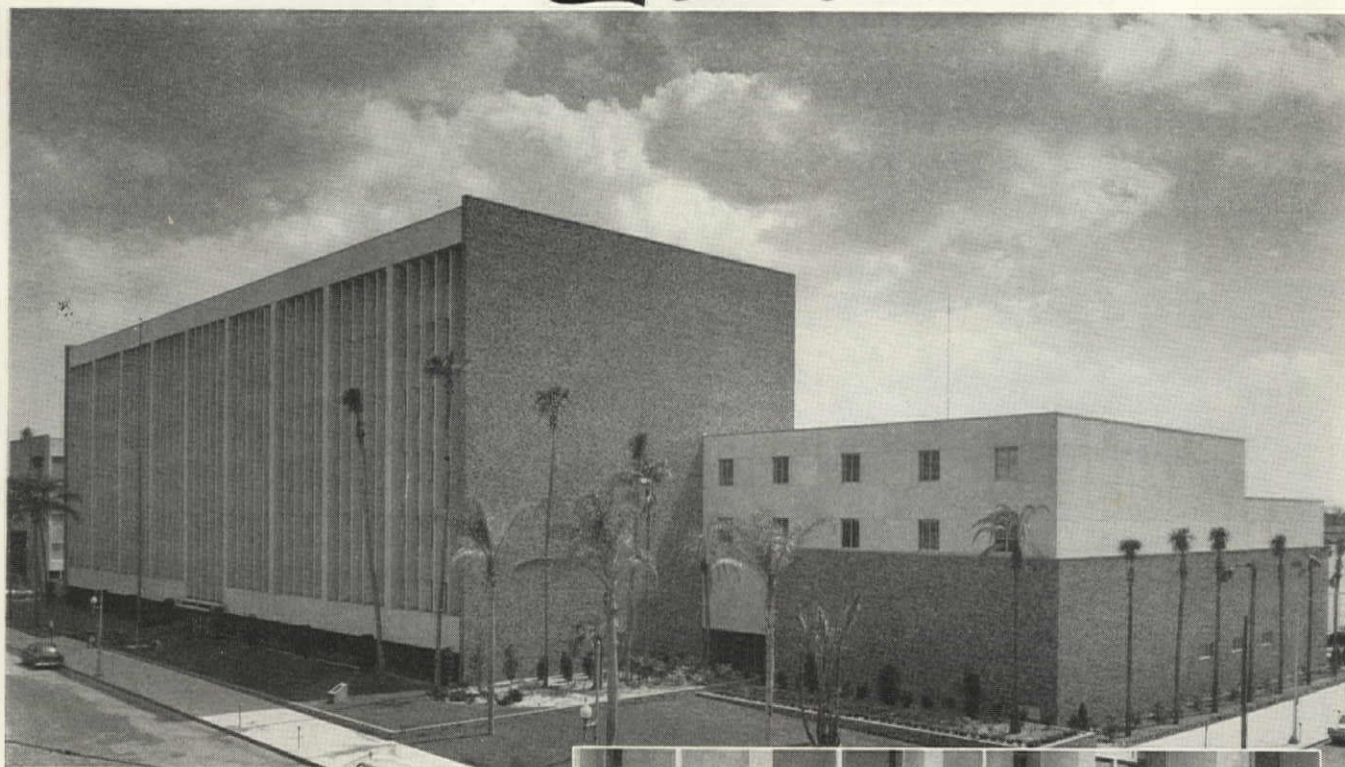
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Jacksonville, Florida

Architect:

Reynolds, Smith & Hills

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in the entrances to this modern building



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ACADEMY AVENUE ELEMENTARY SCHOOL, WEYMOUTH, MASSACHUSETTS

Coletti Brothers, Architects

Louis Proia Construction Co., Inc., Contractors

FOR THIS SCHOOL (twelve classrooms, offices, cafeteria and an all-purpose meeting room) the only available site was one broken by a steep ledge. To solve the problem of economical construction, while providing the best possible land use, the architects' design uses two stories on one side and one on the other. The long walls on both sides are Hope's

steel framed Window Wall units supporting Hope's Heavy Intermediate ventilator sash above porcelain enameled insulated panels. Their strength, rigidity and assurance of positive operation throughout the life of the building are the reasons why Hope's Windows and Window Walls are selected in school buildings that are planned with the greatest care.

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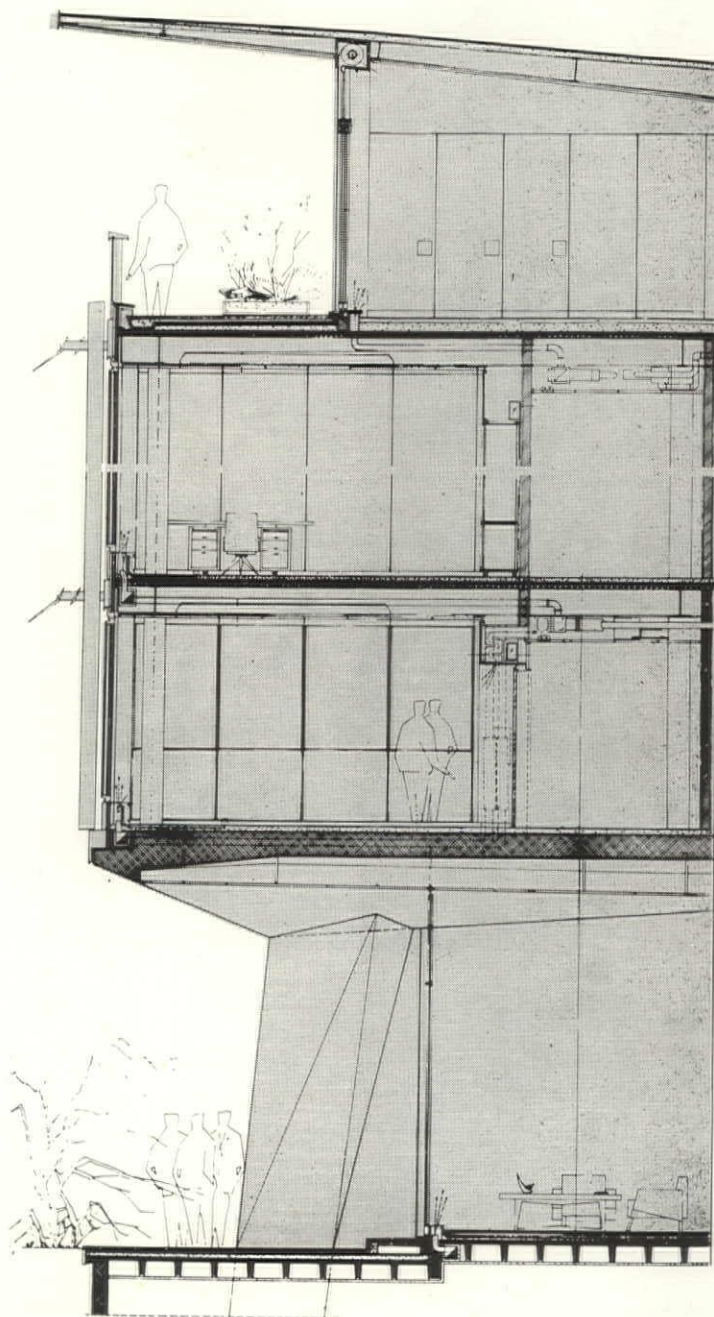
HOPE'S WINDOWS, INC., Jamestown, N. Y.

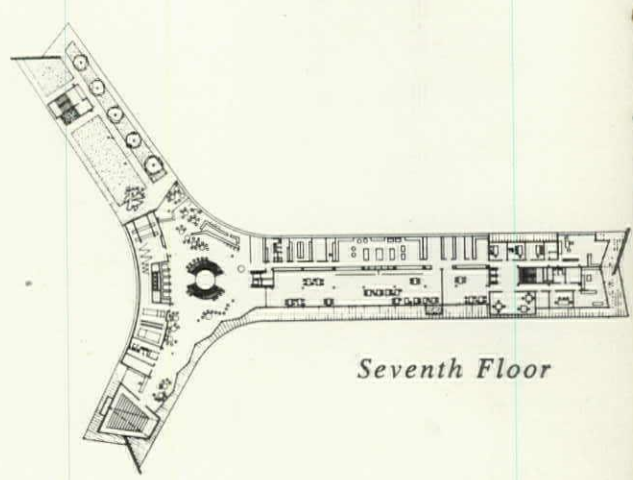
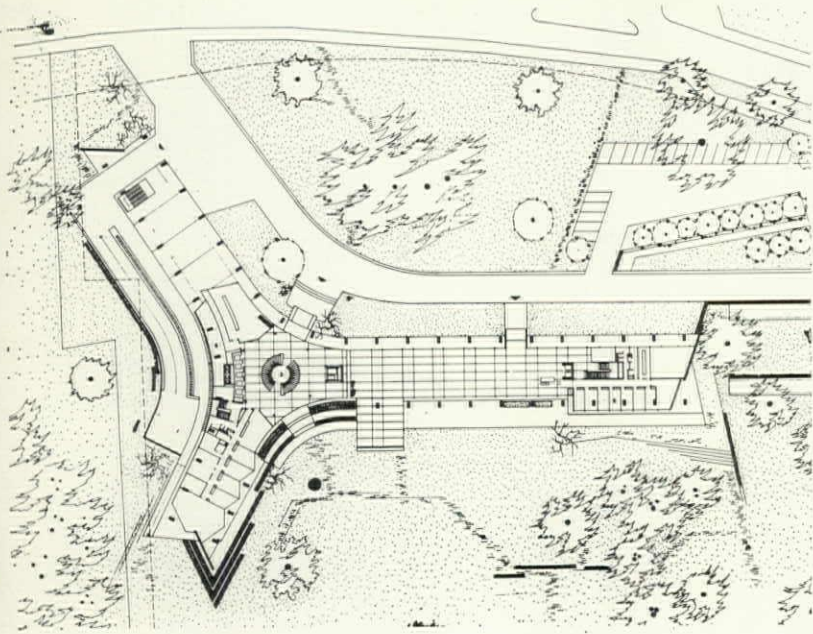
THE FINEST BUILDINGS THROUGHOUT THE WORLD ARE FITTED WITH HOPE'S WINDOWS

Jean Tschumi's
Nestle' Administration
Building

VEVEY, SWITZERLAND

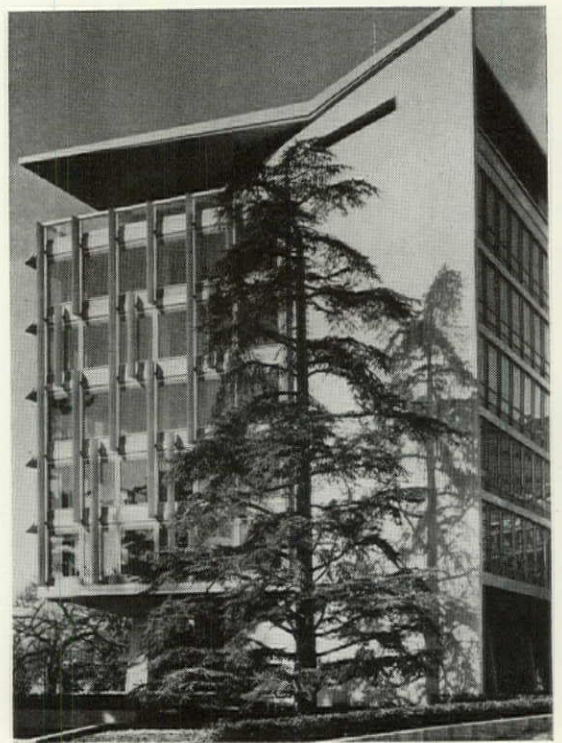
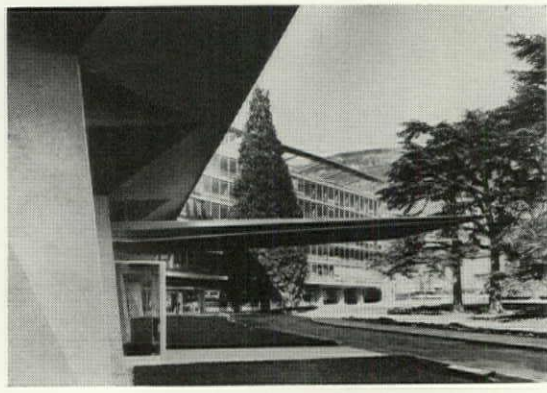
THE 1960
R. S. REYNOLDS MEMORIAL
AWARD





Seventh Floor

The 1960 R. S. Reynolds Memorial Award

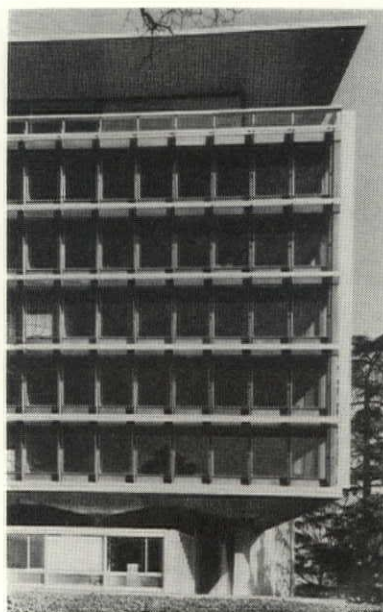
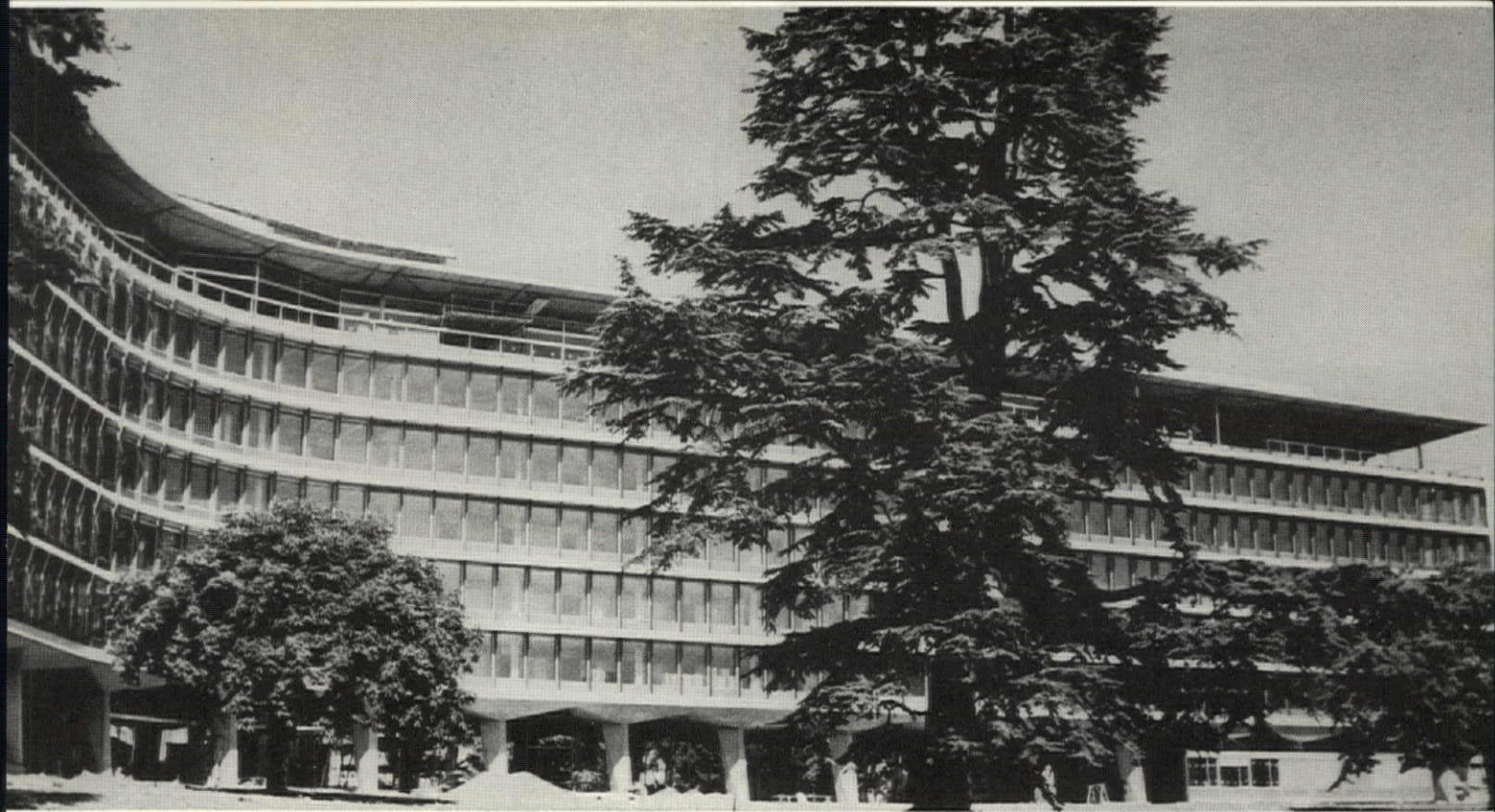


REPORT OF THE JURY

The entire building is enriched by the relief effect of its various components, causing ever-changing shadows, particularly by the varying depth of the profiling. The silhouette of the building is enhanced by the transparent first floor and the deeply undercut penthouse under the roof. The building respects its site, in which it is at home. The sensitive sculptural handling of the concrete supports harmonizes remarkably with the profiles of the aluminum canopies and sunshades. Jean Tschumi has made a sensitive use of aluminum in a previously little-explored manner. This is particularly true of the entrance canopy which makes use of a combination of extrusions and aluminum sheet—uniquely an aluminum accomplishment. By use of very delicately designed baffles and sunshades, which vary according to different orientations, he breaks up the monotony of usual fenestration. The sunshades never obstruct the view from within. Tschumi relieves the monotony of rectangular geometrics



Walter Gropius, FAIA, *Chairman*
 Philip Will, Jr, FAIA
 Arthur Fehr, FAIA
 C. E. Pratt, FRAIC
 James M. Hunter, FAIA



The Nestlé Administration Building

with curved facades. The end walls of his Y-shaped building are witty and convincing. The aluminum-sheathed, double circular staircase is also worthy of mention for its excellent design. The Jury was favorably impressed by the general high standard of design of most entries, some of which were elegant and well-proportioned. However, the Jury feels that the use of aluminum for curtain walls or as a sheathing material is well established and of itself not sufficient to qualify under the terms of the Award. The Jury assumes that the lack of imaginative use and sensitive detail in some US entries may reflect the ready availability of standard and pre-engineered building components in the US and the restraints imposed by building codes and insurance requirements. Jean Tschumi's design has utilized aluminum consistently throughout the building. The novelty of its use is not of a sensational nature, but one of quietness and serenity, which enhances his architectural conception.



Jean Tschumi, architect

Main Street — Little Rock, 1969

► On October 22, 1959, the Housing Authority of Little Rock, Arkansas, filed an application with the Urban Renewal Administration for federal participation in a proposed Central Little Rock urban renewal project.

On November 19, just 28 days later, while speaking on "Urban Renewal: National Interest and Local Responsibility" before the Arkansas Conference on Planning, Renewal and Housing at Little Rock, Senator J. William Fulbright (Dem., Ark.) was notified by telegram from Washington that the project had been approved.

The approval of the Central Little Rock Project marked the beginning of reality for a concept that had been created two years earlier by the Arkansas Chapter of The American Institute of Architects—the Main Street 1969 Concept.

"Main Street—Little Rock, 1969" was a product of the 1957 National Citizens Planning Conference held at Little Rock. It was conceived and developed by the Arkansas Chapter of The American Institute of Architects as a public service and given to the citizens of Little Rock to stimulate their vision. It did just that, and for a few short months in the summer of 1957, Little Rock was alive with a spirit of progress and achievement.

Then, in September 1957, the city was rocked by a school integration crisis that first put armed members of the Arkansas National Guard around the huge Central High School, and later armed soldiers of the 101st Airborne Division. The leadership of the community was shocked, demoralized and paralyzed. Their thoughts and plans for the future were forgotten while they marshalled their strength to meet the immediate crisis.

By **James A. Hatcher**, AIP

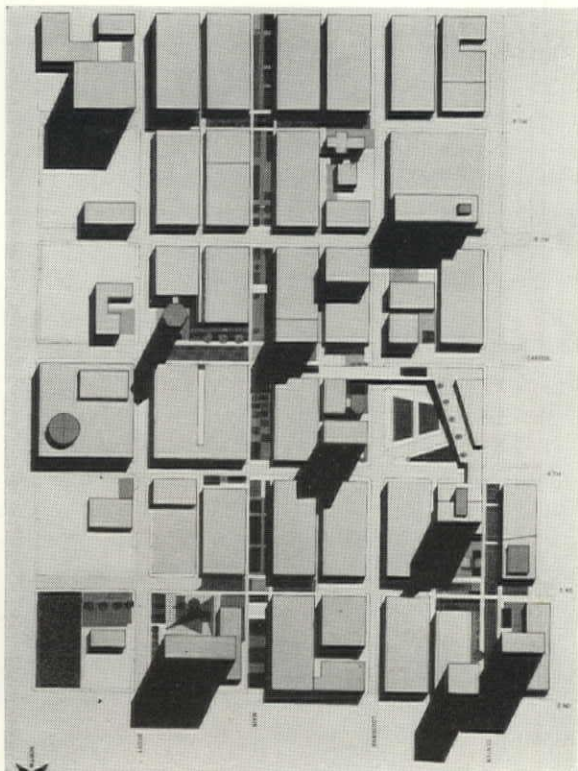
and **Gordon G. Wittenberg**, AIA

In the April 1959 Journal we ran Mr Hatcher's account of the Little Rock Chapter's effort to show the people of their city what Little Rock could be like in 1969. Here, a year later, is a follow-up outlining what has been accomplished to date. It is an encouraging story, and may brighten the hopes of other chapters who have made similar efforts

Now, two years later, with the city's four high schools opened again and a new atmosphere of confidence in the air, thoughts have turned toward molding the future into an urban representation of man's dignity and intelligence. There was concrete evidence of this new atmosphere in January, when the Urban Progress Association, Inc was organized by forty leading citizens representing the prime level of business men, private utilities, banks, department stores and property owners.

Shortly afterward, a selected group of business and civic leaders were invited to join "Urban

Earl Saunders



Central Business District, 1969
Note plaza-type streets
Round dot left center is proposed heliport



Earl Saunders

Little Rock, 1969 showing interstate highway bridge and buildings under construction or scheduled for construction

Little Rock today

Wayne Bolick



Progress," and more than a hundred responded with enthusiasm and money. In its first public statement, the group said its primary purpose was "the promotion of the commercial and industrial growth of the city, the cultural development and . . . a healthy residential development and redevelopment as well." Its immediate project, Urban Progress said, was to support a study of Central Little Rock, embracing the Central Business District. This became a fourfold study, and Urban Progress gave its active support to all four parts.

First, there is to be a study of the entire metropolitan area by the Metropolitan Area Planning Commission of Pulaski County (Metroplan), a project to define existing and potential industrial and commercial land uses. By definition, this includes the Little Rock Central Business District. This project, assisted with federal funds, is under way, and is starting with an economic analysis of the metropolitan area.

Second, there is to be a survey and planning of the Central Little Rock Urban Renewal Area by the Little Rock Housing Authority and its consultant, Wittenberg, Delony and Davidson of Little Rock, in association with Sam B. Zisman of San Antonio, Texas.

The third element in the fourfold study is a concentrated analysis of the economic base of Little Rock, particularly the downtown area, to supplement the Metroplan study and to develop information and to determine potentials that do not come within the scope of the Metroplan outline.

Urban Progress and the Housing Authority are now considering several consultants to conduct the economic analysis and will announce their choice soon.

And fourth, there is the Main Street 1969 concept, revised and revitalized.

Heartened by the organization of Urban Progress, the Little Rock members of the Arkansas Chapter of the AIA made a spectacular offer in June to the new citizens' organization—an offer that made the front pages in the next day's newspapers: To bring the 1957 version of the Main Street 1969 concept up to date, and also to make a detailed study of the eight blocks on Main Street that are the heart of Little Rock's Central Business District.

As they had done in 1957, the architects volunteered to do this work as a public service, without a fee. To lighten the burden of the architects and to show concrete evidence of their support for the Main Street 1969 concept, the Urban Progress Board of Directors agreed to pay for all the mate-

rials and incidental expenses incurred by the architects and their staffs.

Actually, there had been some major construction in Little Rock that affected the Main Street 1969 concept, and the AIA Chapter's offer was not a gesture for the sake of publicity.

Since the concept was created in 1957, these events had taken place: (1) The exact alignment of the Third Bridge and Freeway, a part of the new interstate federal highway system, had been defined; (2) The Arkansas Power and Light Company had built a new office and central headquarters on the southern edge of the Central Business District; (3) The Tower Building, the tallest office building in Arkansas, was being erected for occupancy in January 1960—150 feet from where the architects had shown a need for such a building in their original design; (4) Two savings and loan associations had started new buildings in the area designated on the Main Street 1969 concept for financial institutions; (5) A new parking deck had been built on the east side of Main Street in conformity with the Main Street 1969 design; (6) A major department store had started an extensive remodeling job, announcing its faith in "Main Street — Little Rock, 1969"; (7) A large downtown motel had been opened and another was under construction.

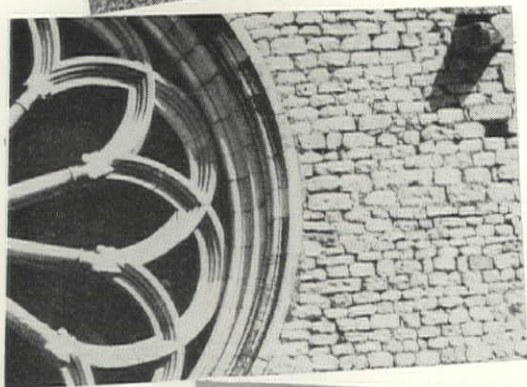
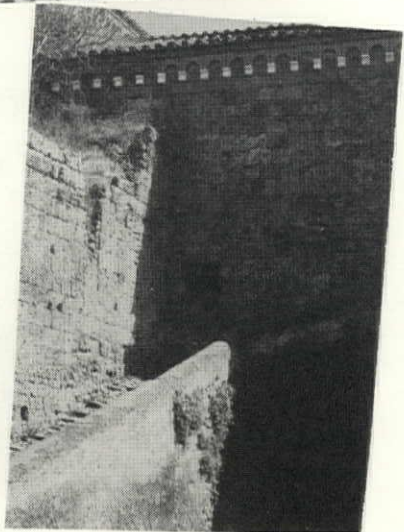
Spurred by these major efforts, the owners of some dilapidated buildings in the downtown area tore them down. Most of them opened parking lots, which were badly needed, until they decided how they would develop their properties.

But all these were isolated and private efforts, which by coincidence or the least of planning happened to fit into what had become Little Rock's major guide for downtown redevelopment.

In January, at the annual meeting of URBAN PROGRESS, the revised Main Street 1969 concept was unveiled and explained by Noland Blass, Jr, partner in the firm of Erhart, Eichenbaum, Rauch and Blass and immediate past president of the Arkansas Chapter of the AIA, who spearheaded this project since its beginning.

The revised Main Street 1969 concept has been called "At one and the same time the inspiration and the goal of the Central Little Rock Project."

During the next nine years of planning and development, a great deal of work will have to be done, but with the leadership and guidance provided by the architects of this community through their initial concept of "Main Street—Little Rock, 1969", Little Rock's successful execution of its downtown renewal program has become a logical probability instead of a mere possibility. ◀



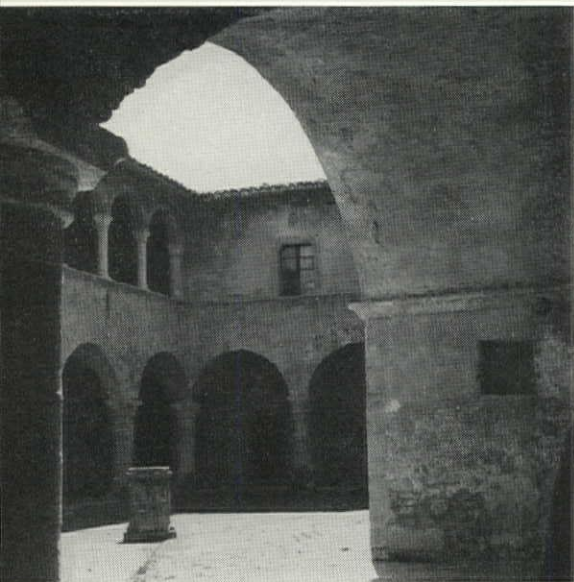
THE STONES OF ITALY

PHOTOS BY HERBERT A. LATTES

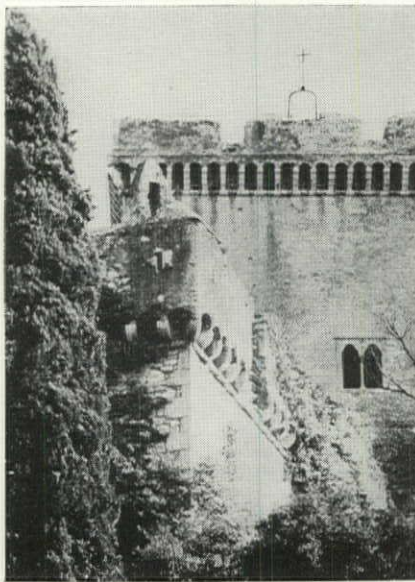
Bert Lattes is one of the most fortunate of men. He lives in Rome, which, in his words, “. . . is wonderful, first on account of its steady climate, and secondly because I'm a stone's throw from any place I want to go—transportation by air, sea or car is second to none.” A relatively young man, he has degrees from three European universities, and has been a sculptor, painter and ceramicist. He has finally chosen photography as his medium.

But he is not truly a professional photographer. He is a marble exporter. His business takes him all over Italy, Sicily and the many islands, and his camera is always with him. During the past year he has travelled to Greece, Jordan and Portugal, and the islands of Mykonos and Crete. When last heard from, early this year, he was on the island of Tinos, “. . . activating an old Greek quarry which has been obsolete for the past eight or nine hundred years and which should give us back on the market the famous old Greek green marble, examples of which are found in most Greek and Roman ruins around the Mediterranean.”

That he is a highly sensitive artist and a skilled technician is obvious from his photographs. His handling of light and shade, and his ability to capture the tactile qualities and textures of surfaces are unsurpassed. (For camera fans: He uses a Hasselblad 500 C.) We present his photographs for the first time in this country with pride. There are more to come.



1



2



3

1 *The Abbey of San Pietro
in Valle, Ferentillo, Terni*

2 *Castello Caetani,
Sermoneta*

3 *Tarquinia*

4 *Piazza de Duomo, Milano*

5 *Detail, St. Peter's,
Rome*

4



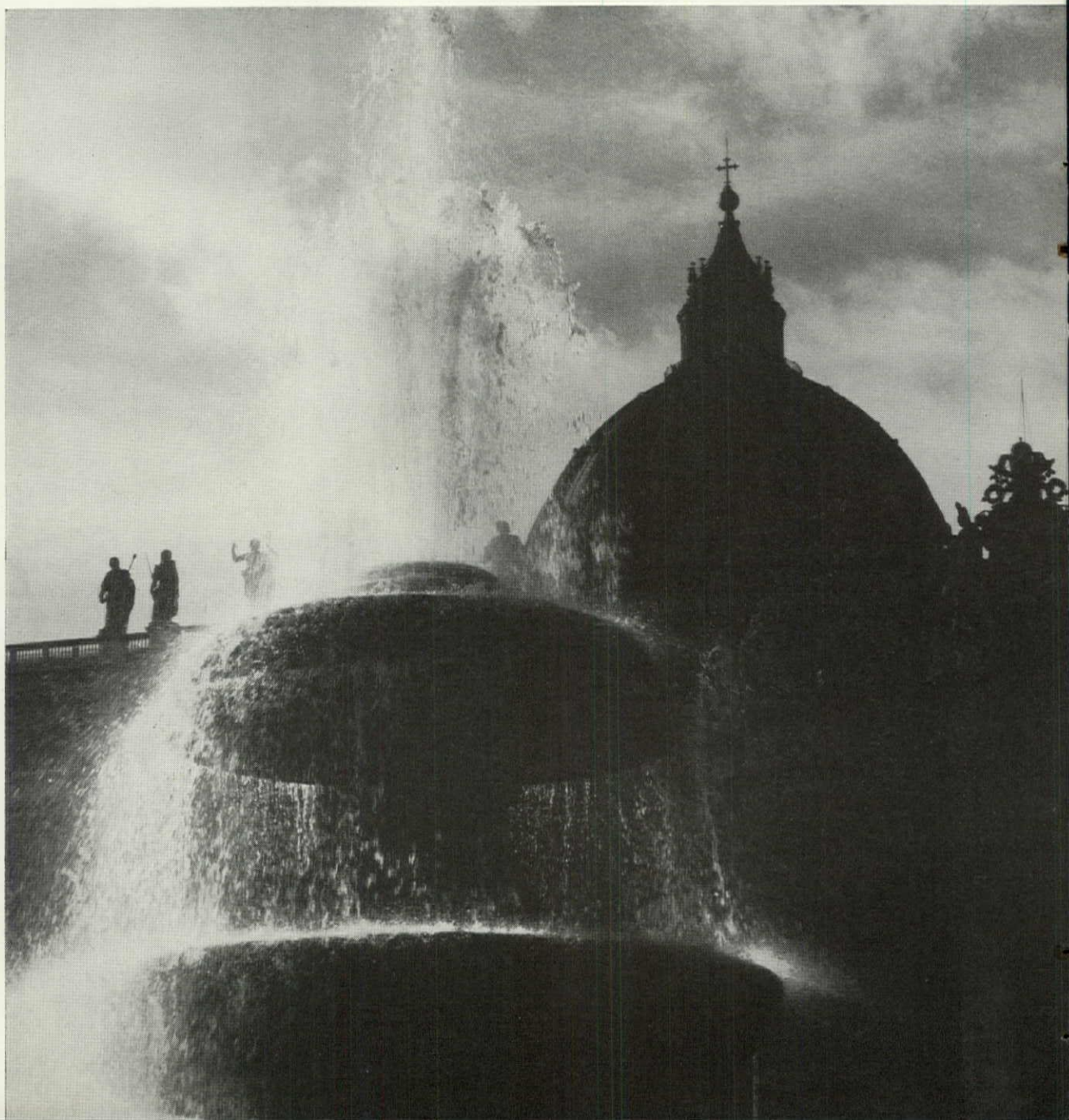




6 *Vatican City*

7 *Fountains and Dome,
St. Peter's, Rome*

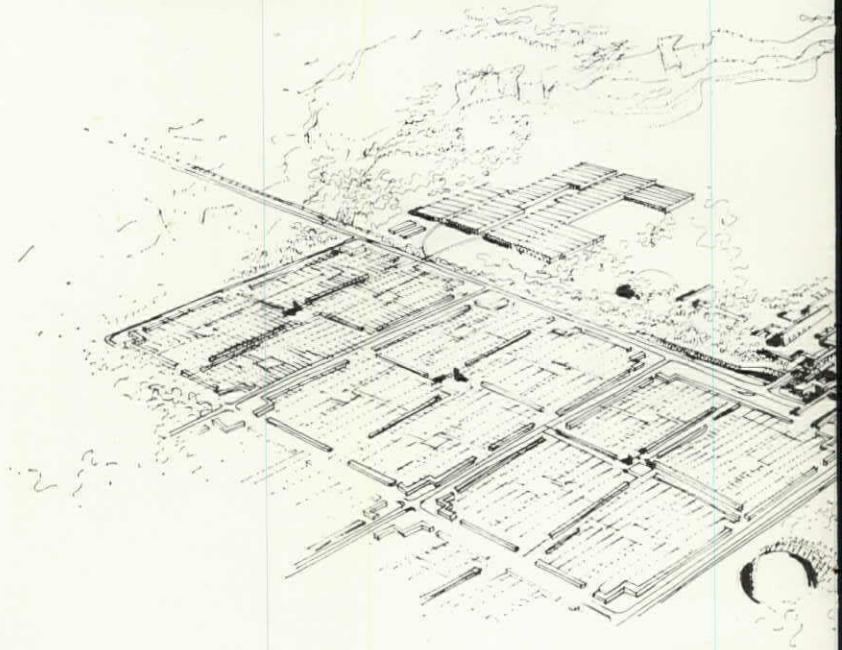
6



7



Chandigarh Reconsidered



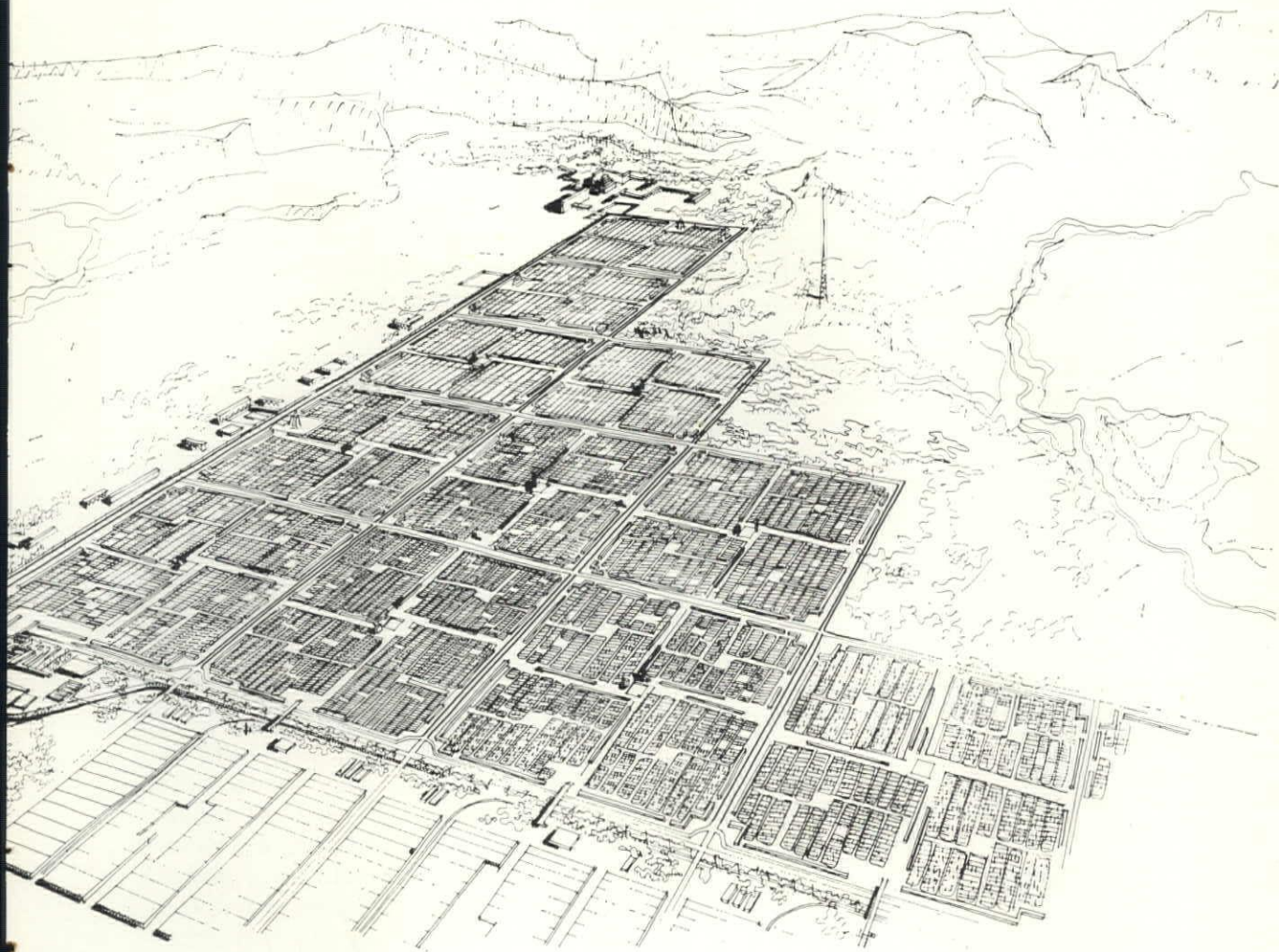
32 ► A new look at Chandigarh was taken, not to give further criticism or adulation to what has been done there, but for the purpose of exploring fundamental conditions and theories of a city-making art. We felt that an exercise involving unusually stringent conditions of economic and cultural development, a trying climate and sparse material resources, would force us to look searchingly at many things the "Affluent Society" takes for granted. The investigation of logical approaches to the particular city development problems of the "underdeveloped" countries was secondary to an interest in universal principles.

THE PROGRAM

The program given for New City differed slightly from the original conditions assigned by the Indian government to Albert Mayer (or, later, to LeCorbusier) for the Chandigarh commission. Since the actual development of Chandigarh has faltered for lack of an adequate industrial base, the class was asked to assume certain nearby raw

materials for industry and an early shift from dominant government employment to dominant manufacturing employment. To make this possible it was assumed that the main line of the Indian National Railways (Delhi to Lahore) would be re-routed to a parallel line twenty miles away, passing through the scenic site which Albert Mayer and Prime Minister Nehru had selected. It was further assumed that these industrial and transportation assumptions would then allow New City to become not only a great new symbolic seat of East Punjab State Government, but a magnet of attraction to hold excess rural population from overcrowded national centers like Delhi or Bombay.

As in the actual program for Chandigarh, the first stage 1960-70 population was set at 150,000 people. The class was given to assume that no city worth making in the first place could fail to grow or be prevented from growing. In this respect the program is to be distinguished from that assigned for Brasilia. New City population was assumed to grow steadily at 3% per year, perhaps to achieve



By David A. Crane

a continuing rate of 4% or greater in the year 2010 — rates which are modest by Indian standards. In 2010 the population would be 500,000.

It was estimated that fifty years after New City construction began, India would for the first time in history enjoy a modest economic surplus in international trade. Average per capita annual income would then be about \$260, only one-fifth present per capita income in the US, but at least three times what it is in India today. The program therefore called for special consideration to be given to two objectives: (1) means of development providing for dramatic internal change to reflect future standards and economic capabilities; and (2) means for overcoming the conflict of purposes between the symbolic needs of a capital city and the long-range economic interests of the region. If benefits of future wealth and technology were to be fully realized, New City people should not be asked to spend their future demolishing things they had once thought satisfactory. The plan should not create material images — fine

The author is Assistant Professor of City Planning in the Department of City Planning, School of Fine Arts, University of Pennsylvania. His article is an account of a planning problem assigned a group of students, the problem being fundamentally the same as the planning of Chandigarh, but with certain different basic conditions

houses or means of transport — which could not be provided to all the image-holders or which were not consonant with needs for investment in industry. On the other hand, New City should symbolize governmental devotion to public welfare and stimulate popular motives needed for technological, material, and cultural progress. The beginning of this dynamic city was envisioned as a jewelled skeleton of shining public “palaces,” holding together and supplying change incentive for a sea of mud and dung hovels.

THE GENERAL SCHEME

From among ten individual sketches, the scheme illustrated here was chosen as giving the most promise. In 2010 and afterwards, this scheme for New City takes the form of an asymmetrical cross. The northeast-southwest axis is five and a half miles long while the transverse axis, paralleling a railroad, becomes a lineal city linking the capital to what will one day be a miles-long rhythm of smaller cities in both directions.

A population of 500,000 would reside between two small rivers which articulate the site and mark the New City gateways. These people would oc-

This study was produced in the spring of 1959 under Mr. Crane's direction, assisted by Britton Harris. The graduate students participating were Denise and Robert Scott Brown, Rodman Davis, Ahmed El Naggar, Evner Ergun, Howard Kahn, Peter Lapham, Donald Peterson, Marius Reynolds, and Michael Rubenstein. The preliminary design of Marius Reynolds became the basis for the final scheme; Robert Scott Brown was the brilliant leader of the group. Mr. Brown died in an automobile accident shortly after the work was completed.

cupy a gross land area about one-fourth as great as actually proposed for the 500,000 population stage of Chandigarh and about one-eighth the area that approximately 500,000 people in Cincinnati, Ohio occupy.

New City has been conceived as a major point of attraction within a lineal regional city, offering a number of unique governmental and industrial facilities and all the commercial and cultural services that a great Indian city could supply. Relative compactness and the addition of the NE-SW axis permit the kind of concentration in the lineal city which these rich city services and low individual purchasing power, insecure employment, and primitive private transport require.

Owing to the fact that a large proportion of the population (37% in 2010) will not be able to afford a bicycle and far fewer still a motorized vehicle of any kind, the scheme is largely designed for walking and mass transportation.

Most people would live within a half-mile of trunk routes. All of the working places and other major centers of traffic generation would be placed along the two major axes of communication. The major business and commercial area and Asian market, daily goals of large numbers of New City

workers and weekly or monthly goals of outlying regional people, would occur just where the two axes cross. In the middle of the "Core" thus created would be a great Ceremonial Place carved in terraces from the earth; alongside it would be terminals for intra-city and regional movement of all types. From the Core running northeast and southwest would emanate a sequence of major public facilities and minor commercial nuclei which the class has dubbed "The Public Belt." On alternate sides of the transverse railway axis there would be a sequence of industrial districts called "The Industrial Belt." Each of these major belts is placed on lines sympathetic to anticipated lines of major travel, thus minimizing the amount of individual turning movements or breaks-in-transit at the Core. The Industrial Belt is parallel to a tier of residential districts catering to industrial workers and in line with major movement to and from outlying industrial centers in the regional city. The Public Belt is parallel to a tier of residential districts catering more to government, institutional, or business services workers of all incomes.

The Capitol and the University, terminating the Public Belt, are in good positions to control urban sprawl and act as organic beginnings and endings of New City. Since they generate substantial movement, their placement also permits the trunklines of communication to be stressed two ways. This ensures that rolling stock runs relatively full both ways and that fixed facilities are evenly loaded. The symbolic seat of Government is flung before the magnificent backdrop of the Himalayas. Due to the average 1% slope of an otherwise flat site, the Capitol is seventy feet higher than the Core, giving mutual visibility at many points.

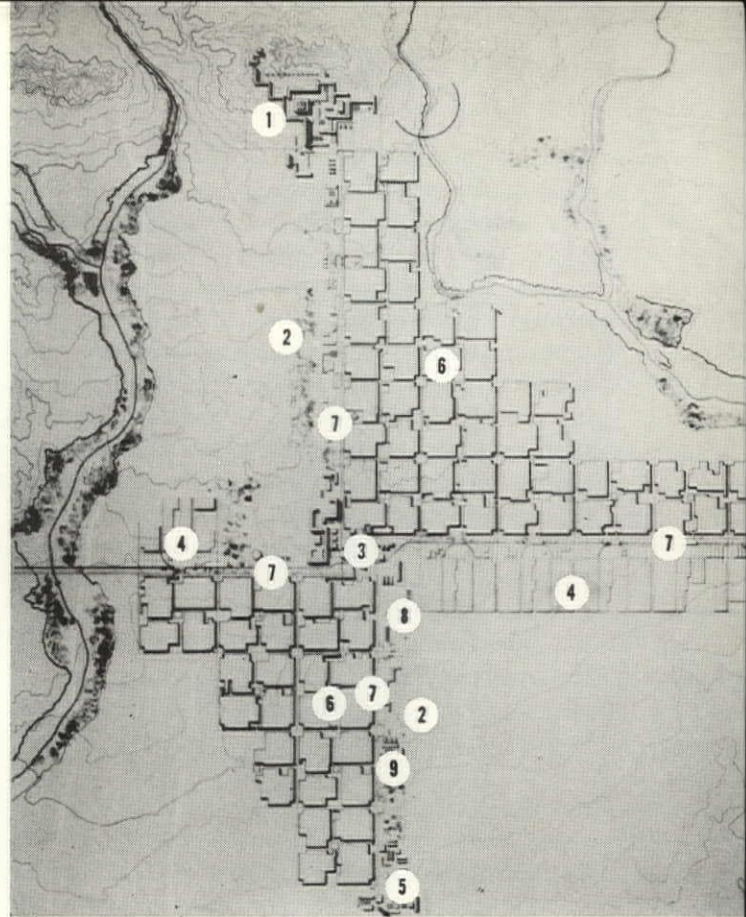
The compactness, orientation, and attenuated shapes of New City all reflect climatic and engineering conditions. In this monsoon climate there are six severe seasonal conditions to deal with, including three months of warm-humid and heavy rainfall. All other combinations are sympathetic toward compact, thick-walled construction serving multiple purposes. The plan would make the whole city into a naturally reversible oven-refrigerator for dry periods of variable temperature. For the other three humid months city mass is spread before the wind like a sail and each sector is given one great place for the wind to enter. The Industrial Belt is placed parallel to daytime winds to facilitate smoke control, while minor streets orient NE-SW in order to carry evening down-slope winds off the Himalayas alongside each lot. Streets and city run down slope for efficient utilities and natural-flow multiple uses of water and sewerage.

Artificial canals in the dry season would be used as trunk-line drainage channels in the wet season. To the maximum possible extent a perpetual cycle of water-sewerage-water would be built into the city and its region as a whole.

Viewing regional shortage of water and significant plant life, the class believed that large quantities of recreational space within the bowels of heavily-trod districts would simply revert to dust, as in other Indian applications of the English garden square concept. The designers preferred to conserve open land for food-growing. Many schools and playfields would be positioned on the open edges of residence districts while formal parks, botanical gardens or playfields would occur within and outside the Public or Industrial Belts. All land in the open quadrants would be developed as intensive food-growing areas.

The residence sectors would vary widely in content, depending upon where found and when viewed. Variations are achieved by a number of scalar mixes of structural house-types, different adjacent commons and private open spaces, and by putting some of each of the many combinations at each of several metropolitan locations. This hierarchy would be sought in order to give individual choice of living and working places and to maximize transport efficiency. Units of house-type and open space homogeneities were chosen at the "court" level (five to ten households) and roughly comparable variations of these courts would be grouped at the cluster level (a thousand households). No sector would have identical clusters in more than half its area. Each major center of employment would determine the general proportions of housing mixes nearby, corresponding to people's income levels. Exceptions to this rule were made to reflect the willingness of some more fortunate groups to pay more for transportation in order to live near the Core, the Capitol, or some particular point of attraction.

The 1960-70 stage of New City's growth would be largely concerned with the establishment of the Capitol and related services. The idea of a regional city of interdependent economic units would not be fully realized until 2010, even though scattered planned urban settlements and new "Village-Cities" would be started after 1970. These would check the exodus from villages to national centers until such time as New City acquired sufficient prestige to provide services for the region or hold its own region's rural excess. Growth would hold rigidly to the transport services of the Public Belt which link Capitol and railway. The University and marshalling yards, with necessary construc-



New City: 2010. General Plan. 1 Capitol 2 public belt 3 cove 4 industrial belt 5 university 6 residential sector 7 major bus trunk line 8 stadium 9 hospital

tion workers' housing, would be permitted to escape compact development in the interests of long-run positioning. Both could continue to operate even if the City never grew that far.

This is the scheme for New City, a reasonable one as it stands. But the class put its biggest effort into the application of a theory of city form change. The notion of future change as a determinant of present form is gaining acceptance in architecture, thanks to men like Louis Kahn, Peter Smithson, Mies van der Rohe, and those interested in prefabrication. But city planners still plan vainly for "neighborhood stability," utterly missing reality and passing up the opportunities of long run economics or a new esthetic appropriate to the pace and aspirations of our times.

A THEORY OF THE DYNAMIC CITY

The Dynamic City idea draws its material from three basic truths about the modern city:

- 1 rapid acceleration of change in city life forms and unequal physical progress;
- 2 interdependence of life and structures over great space-time scales and lack of matching scales

of change distribution

3 complexity, multiplicity, and power of the City of a Thousand Designers

The first two of these truths introduce the idea of time as a *fourth dimension of design*. The Dynamic City starts with a comprehensive view of the time dimension — past, present, and future — and relates it to space. An analogy from natural plant life ecology suggests the image of fluidity and interdependence that might well be a beginning for the philosophy of form change. Thus: the seed, flowering and early growth, maturity, death, and rebirth. In all these stages life is spatially dependent on past or future lives. A vine appears because first there was shade from a tree; the tree dies so that other seeds can find light. Over a long period of time change is more than replacement: Forms evolve to suit entirely new purposes. The time required for this kind of change in cities is now shorter than ever before, yet our predictive apparatus is only slightly better than it used to be. It is like a problem of navigating at jet speed with instruments for steamship navigation. Time may be compressed by disasters or economic and technological revolutions, putting specific predictions of the future in the category of the unimaginative or the vague. Sequence of actions becomes more important than actual dates; opportunities, escapes, and administrative choices must be arranged in advance without knowing precisely which of several courses may be chosen. The *unknown therefore becomes a criterion of form*, not vague but definite form. The planner who would leave himself or others this kind of access to future wisdom or devices would require more imagination and sense of form than now.

In the navigational analogy, the ship needs maneuverability but it also needs gyroscopes to keep it on long-run course, preventing it from bending before every temporal gust. The onrushing change in city life does not find new forms very easily, and it is destroying many useful physical resources. Planners have failed to distinguish in their minds between the *activities*, and the *structures* of a city. In not doing so they are often in the position of proposing redevelopment because they cannot see how to fit new people to existing structures or existing people to structures elsewhere.

Cities today have permanent houses in impermanent neighborhoods, along with discrepancies in change distribution as between the middle and the edges of the city. It should become possible to have relatively less permanent surface accouterments and more permanence of social or cultural attachments without wasting structures. Neither

the Geodesic House nor a “throw-away” philosophy are the answer, for desert nomads are not famous for their creative contributions to the land.

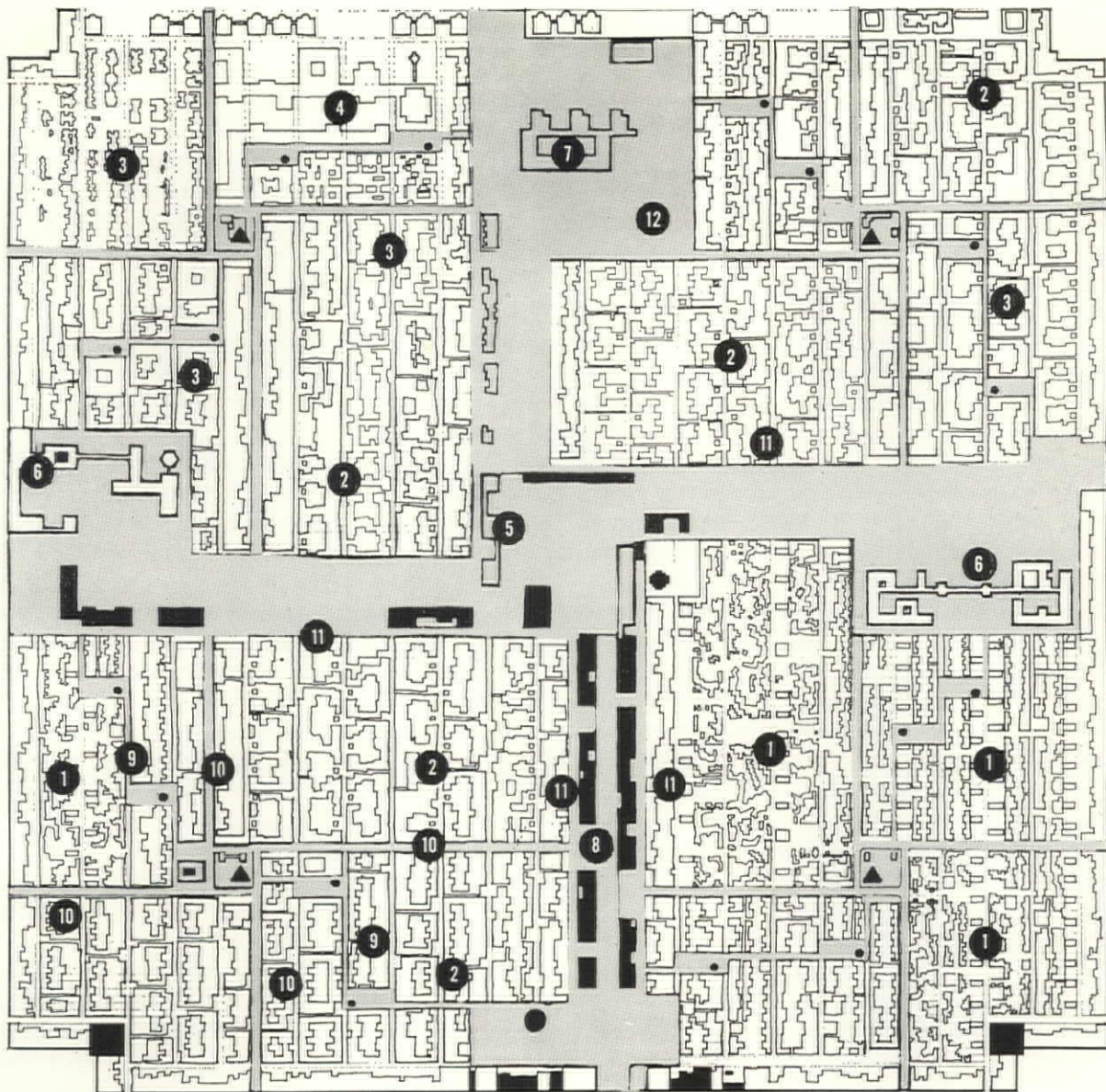
More promise lies in a philosophy of *hierarchical change in permanence*, or a recognition of selective change and organization of parts and aspects of parts related to life spans. Changes in the character of the neighbor's prefab could be accepted in a context of forty-year oaks or a fieldstone shell. Changes in the social character of a neighborhood could be absorbed if fine-textured changes came about by osmosis instead of eruption.

The process of city-making might be compared to different phases of manufacturing, each one conferring on the material a more specialized purpose than the last. Thus urban land is formed from crude land by approaches or grading, and a second step of road and utility locations determines certain ranges of use for the land.

The city-making processes which are possible in the City of a Thousand Designers do not resemble any such rational scheme of change. Once cities were produced by a complementary overlapping of three form-making disciplines: Popular use of a consistent regional vernacular; style-giving and pace-setting of architects; and concrete skeletal constructions of kings and their Haussmanns. Each of these kinds of form-makers has for different reasons dissolved into the impersonal Frankenstein that builds the modern city. The vernacular and the architect have gained access to too many techniques and half-truths and but few values, and have thus lost the regional or problem-solving attitudes. Behind pretexts of catering to private enterprise, local governments interfere with private design of private facilities through a thousand obscure regulations. Whereas uncoordinated cacophony is the present result of the Thousand Designers, music might come if local government and professionals would announce the tune.

The Dynamic City calls for tune-calling based on the process principles of *capital designing* and *townbuilding*. These notions are captioned in contradistinction to planners' preoccupations with “capital budgeting” and “town planning.” Thus, by capital designing, local government is asked to design and build its own facilities in an ordered time-space sequence as a basic control and creator of growth and changeability. This principle also asks that public facilities become a structure of esthetic and utilitarian continuity to replace restrictions placed on the Thousand Designers.

Townbuilding arises from a need for better methods of deciding about future form. The paper imagery of designers and the endless studies and



A typical residential sector showing control through "capital design"—Circa. 1970. 1 planned squatter area 2 aided self-help housing 3 private housing 4 public and experimental housing 5 health center-library 6 elementary school 7 middle school 8 shops and small industries 9 pedestrian-cycle distributor 10 vehicular distributor (sub-sector) 11 vehicular distributor (sector) 12 floating land reserve (varies different sector locations)

computing machines of the planners are unwelcome and misunderstood abstractions in City Hall. Ordinary men (and some designers) wish to see what is being decided, and they decide most things in view of the present time, not the future. The idea of townbuilding suggests the use of laboratory and prototype-scheme techniques of modern industry for many different scales and types of city planning decisions. Thus a new kind of scientific large-scale planning in the round can put a saner tone on decide-as-you-go planning.

The choices involved in the Dynamic City are perplexing. Are change forces to be resisted, officially permitted, made spontaneously possible, encouraged, or actively supported? Throughout the notion of a Dynamic City run space, time and de-

signer hierarchies, challenging the city-maker to articulate and organize form change from the stair tread to the city region, past to future, private to public. The challenge lies in finding the right place in the hierarchy for doing things about change: the right scale, sequence, life, or member of the Thousand Designers. In their designs the students have made choices within these hierarchies which contribute to the theory of the Dynamic City.

OF JEWELS, MUD, AND DUNG

Present economic conditions leave the Indian city or its citizen little room for choice. The individual must for the most part build his own house if government funds are to be available for longer-range purposes. This is a problem of crea-

tive and guided self-help, therefore it is only a dramatic case of a city truism. A basic principle used in the New City plan for housing aid was the notion of the "core house," first suggested by Charles Abrams in Ghana. Thus, the government builds a core sufficient only to put shelter over the worker's head, leaving to him the possibility of housebuilding in his spare time. The physical nature of the core would vary — a tree and some water on a well-drained site, a roof and party walls — depending on the kinds of people involved. The core idea is applied at many scales through the process of capital designing. It determines the impetus for self-growth that is needed.

At the macro-scale of the metropolis the *capital web* includes most of the Public and Industrial Belts and Core, but with provisions for individual institutions and businesses to play their part. Public buildings in these areas would be built to stay, of monumental scale, and with internal phasing of factors of change working on different parts. Also at this scale, the plan employs an idea of a *maximum envelope of development*, amounting to time-space scheduling of land units to be developed and a pre-arranged schedule for pushing out the frontiers of the capital web. A revised short-term envelope would be adopted and made public as needs and decisions could be specified. The envelopes for longer periods do not commit the city to follow any exact perimeter shown, but the envelope says in effect that if development is going to this or that place, the capital web will be as shown.

Moving down the hierarchy to residential or industrial sectors, the macro-scale capital web would include public land, road and utility location patterns, further specification of engineering standards, landscaping, and public buildings in an ordered sequence of land "manufacturing" processes, until finally the sector was fitted to a fairly specific range of purposes. Each of these steps would involve designing for the *next potential use* after the first expected. For example, in the typical residence sector shown, the designers have spaced streets and utilities to accommodate a cycle of expected uses starting with small self-built shacks and ending with two- or three-story flats. Small parts of areas so designed could begin to renew without doing it all on big scale.

The capital web as a permanent element in change would provide continuing social and cultural attachments for nearby people undergoing renewal or intra-sector relocation. A public *floating land reserve* would be left in most sectors as a device for priming the pump of local small-scale renewal. No public policy would force the sub-

jects of renewal operations to remain in situ, but the reserve would at least make it possible for the same faces to remain if they so desired.

The class has made planned squatter areas for the lowest scale of "core" aid, recognizing that failing to deal with squatters creatively is to ask preemption of all the parks and open spaces. The designers propose a corollary idea to capital designing — the *principle of obvious persuasion*. Within visibility of major roads, work centers, and parks, planned squatting is provided to keep people from occupying areas where they are least wanted.

The form of New City makes special physical commitments in order to facilitate decide-as-you-go city-making. Each major land element of the scheme and most individual major building complexes display at least *one free edge* to open country, thus allowing for unexpected dimensions. The two open quadrants reaching into the Core are free of housing in order to see how New City's services to its region will affect the need for commercial and institutional lands. Room is left on the outside of the Belts for the addition of major vehicular roads when and if needed. When these elements are determined, the city will still have a near-in land reserve to be envied by Western cities.

At lower scales, each element is given its own channel for growth and decide-as-you-go planning. Major movement channels are fixed in location but given widths allowing extra cartways. Intersections are pre-designed for a cycle of standards improvement as needed. Buildings in small commercial areas that will grow are juxtaposed to similar buildings for small industries expected to relocate into the Industrial Belt.

These pre-arrangements for townbuilding form depend on criteria of structure which the designers imposed. They are: *Predictability*, *symbolic place*, *malleability*, and *electability*.

Predictability of structure was conferred by definite locational rhythms of land units and capital web. It was also gained by regarding each step in the land "manufacture" process as having a certain degree of generality and therefore a definable range or cycle of alternative uses. The plan makes certain that future traffic can only move in pre-arranged channels, thus permitting analysis as to what would happen if thus-and-so were done.

The criterion of symbolic place draws on the value of well-ordered locations as a meaningful and underrated aspect of form. Effort was put into the establishment of symbolic and permanent places for different confluences of city events. These are conceived as local stereotypes which

everyone would understand and use accordingly, both as visual messages of psychic or utilitarian value and as places to build. The clear expression of intersections for autos or oxcarts as distinguished from pedestrian crossings are an example. Special effort was given to the marking of gateway complexes at the midpoints of residential sectors. The change significance of symbolic place is in the freedom given to private architecture and in continuity of associations which can exist despite surface changes of architecture or landscaping. Historical evolution of places like Rome's Piazza Navona furnish some precedent.

The criterion of malleability asks that forms be of varying degrees of incompleteness or susceptibility to progressive additions and modifications. Electability asks that where the fixed order is necessarily limiting, an alternative kind of environment should be provided elsewhere or nearby. The two criteria are complementary. In a sense, these criteria were applied to the overall form of the city, to major districts, and all other scales. Varying only as a matter of degree, the design of a great civic space would leave room for the city fathers to embellish it as time went along.

It is in the proposed structure of "mud and dung," however, that malleability and electability have most meaning. As described above, a hierarchy of house-types, building-types, courts, and clusters in different city locations has been arranged in the effort to provide choice. One of the main determinants of scale of these mixes was the limit to which any given population group could be given the malleability for self improvement. Planned squatter areas would be too crowded and impermanent of materials to permit individual houses to grow. Therefore these areas are placed next to an area of more fortunate people to give incentive, and just nearby would be another area of expansible core houses into which the squatters could eventually move. Malleability of the various types of "cores" would vary. Some would allow for on-lot expansion of sheltered space, others allowing progressive internal subdivision of space. Others would allow a family to take over the next-door shelter unit by knocking out pre-arranged panels in the party walls. Materials would range from mud and dung adobe to relatively permanent sun-dried brick and precast concrete lintels. Government aid in the form of permanent materials and lasting outer shells of space would be supplied where the continued residence of the same kinds of people (not the same faces) was assured. No house would be left without some room for the individual change that makes a house a home.

With this trust in the innate potentials of people for self and communal expression, there is no doubt that mud and dung will one day be jewels.

WHERE THE DYNAMIC CITY LEADS

For fifty years and more New City would be in constant flux, spreading tentacles across its site and undergoing minor skin grafts within its trunk. Government sponsored change would have a variety of scales while private change would be of finer texture than is possible in existing industrial cities. The scheme says much about Western city renewal and planning utopias. Compared with Chandigarh, Brasilia, or others, New City would be as a tropical tree is to a stone obelisk.

Beyond this claim, it must be admitted that the scheme is only an honest beginning for the Dynamic City. The drawings fail to express the fourth dimension of time, like all other design communications to date. Because of this the scheme's graphic statement fails to express the principle of townbuilding or the idea of right scale, sequence, life or designers. Each residence sector is indicated with an Aryan cross, whereas it should be enough to set the ordered rhythm, size, shape, and gateway for sectors so far from current development. Yet there is an interest in large-scale structure that has been missing before. The Dynamic City depends for its dynamism upon generality and flexibility of parts, strong and permanent locational rhythms, less permanent superimpositions, and a dynamic balance of mass. If these requirements were not met, it is perhaps owing to our failure to explore the growing science of topology.

Change is only one of several major disciplines of form which are needed if we are to have city-making instead of city-planning. Fresh thinking about the role of movement as a city-builder or as corridors of visual intelligence is beginning; more is needed. Many fields of large-scale form understanding, like climate, have been left uncovered in today's preoccupation with the City Social or City Procedural philosophies. Architects often give up contending with these diffuse and anti-form philosophies. Or they have been seduced into the role of fixers and patchers and have developed their own rationalizations: The philosophies of the City of Humanistic Chaos, the City Cosmetic, or the City of the Freestanding Building. None of these will serve the Dynamic City.

The Dynamic City raises some imponderable choices which only creative men, not nameless bureaus, can make: the right scale, the right sequence, the right life, and the right city-makers. This is a problem for a new breed of artists. ◀



THE GREAT SEAL OF THE UNITED STATES



► Not long ago, the Editor was looking through the brochure of photographs of the work of Sally Swan Carr, New York sculptor. Opposite a photograph of a woodcarving of the Great Seal of the US was what appeared to be another seal which looked completely unfamiliar. Upon questioning Miss Carr, he found to his surprise that it was the *reverse* of the Great Seal!

40

Feeling that ninety-nine out of a hundred other architects would be as ill-informed as he, the Editor decided then and there to broadcast the information. (The reverse appears on the back



of the dollar bill, but who ever has a dollar bill long enough to read it?)

This seal is carved in wood and will be gilded with 24-karat gold leaf. It is five feet in diameter, and the carving rises four inches from the surface. It will hang over the entrance to the new US Embassy in Rabat, Morocco, for which Ketchum and Sharp are the architects.

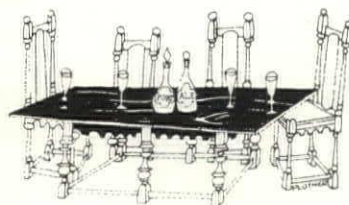
The Latin phrase at the top of the reverse of the seal means "He has favored our undertaking." That at the bottom means "A new order of the ages." The unfinished pyramid represents the United States, which is always growing, and the eye is the eye of the Lord, surrounded by the Glory Proper. The seal was designed by William Barton and Charles Thompson and was accepted by the government June 20, 1782 and adopted officially as the Great Seal of the United States of America on September 15, 1789. ◀

► Though, by force of pleasant custom, we congregate more than half-a-dozen strong each week around our Thursday luncheon table, it is also not unknown for only two or three of us to gather socially at other times and other places. Such an occasion was the "Artists' Preview" of the opening of the Guggenheim Museum last October. Tom and I gathered forces and, in escort of our still shapely wives, made the not unfamiliar but happily exceptional trek to New York.

A pleasant *diner à quatre*, overpriced to be sure; but every time we come for an evening on the town we find we must raise our sights, and yet by the next visit we have not raised them far enough. Our post-prandial mood was roseate as we progressed northward up Fifth Avenue. Past the urbane Frick mansion, now almost a house alone between the cliffs of postwar luxury tenements; past the romantic *Francois Premier* Gould chateau still somehow surviving at 79th Street. A few narrow town houses with portals or cornices projecting to catch the sensitive eye, against the pale tedium of scaleless apartment heaps dressed tightly block after block; but all too few, as the second half of the century moves on in its deadly homogeneity. Until, suddenly, just above 86th Street, something different. Something completely, entirely, totally different. Not just the lighting, not just the plaza and planting; not just the color, or texture, or scale, or form.

And just how, Mr. Arbuthnot, would you describe that difference? Well, if every great thought about the Guggenheim was not uttered there and then on that October night, surely it has been in the months succeeding. For this spectator, the loftier reaches of architectural criticism are another man's meat; as for us, we went for the show. And since neither Elsa Maxwell nor Cholly Knickerbocker were there, to our knowledge, that evening, we can think of nothing more to the point, or indeed more in character, than our endeavoring to fill their place.

There are two ways to do the Guggenheim. One might call them the European Plan and the American Plan. Under the former, hardy bands of *montagnards*, *ski-jäger*, etc, climb stalwartly up and around and around and up, ramp after ramp, higher and higher, with increasingly frequent pauses not only for the long views from points of vantage but for simple reoxygenation. As for the latter, obviously, one rides the elevator up as far as possible, dismounts, and leaves the rest to gravity. A certain *melée* is bound to result; when a catering whisky-bar is introduced for the occasion at seemingly every ramp-level, coagulation



TRACINGS

from an

Oaken Table

NO. 3

by *Neoscopos*

increases staggeringly. Our patriotism being above exception, we made for the elevator at the earliest opportunity.

Hardly had we begun our descent, the first familiar faces came in view. Appropriately enough, Charles Middleleer, with his gracious lady—among the deans of landscape architecture, he bears a remarkable distinction: The landscaped plazas and lobbies of the two most striking buildings of New York in the 'fifties are his, both this museum and the Seagram Tower. One day we must ask him his recollections of consulting with the two Great Men; for us, though we have seen them both, though we have broken bread with both, somehow we cannot imagine working with either.

For the first time in months, perhaps years, we exchanged greeting with Robert Allen Jacobs and his wife. A fine figure of a man, he has had his hand in an impressive volume of building; the total cubage, they say, is beyond belief.

Idling down the ramp, we passed familiar faces as we uncoiled. Jim Fitch unexpectedly among the excelsiors— one would anticipate greater respect for the law of gravity from such a sensible person.

But he is always so good to talk with, and listen to, his spate of pungent aphorisms and pocket analyses repaid several minutes' badinage. Only a moment later, one of our Basic Objectives attained: A real, live, charter Fellowship to query in the person of Gordon Chadwick. How great minds run together: Each of us blurting the identical threnody: "If Mr. Wright were here, he would have done it differently. . . ."

Perhaps another quarter-turn, closing in on the occasional bar now; a lusty, not to say boisterous climbing group threatened to reverse us and gravity both. The front ranks rallied gaily about Sandy Calder; but the real focus, farther back and almost wistfully quiet, appeared to be Marcel Breuer. A strange alliance indeed, this Museum of Non-Objective Art: Kandinsky after Kandinsky on the walls, also Feingers and some unsurpassed Klees from the high time of the Bauhaus, housed in a shell whose implications simply turn the world of Dessau upsidedown and inside out. Surely the pull of the Old Man and his Monument were very powerful that night. Jose Luis Sert and his *senora* formed a conspicuous pair in the main rotunda as we first came in. And very quietly, seriously, almost gravely we saw Jacques Lipchitz enter as we ourselves first drifted toward the central planting pool.

Once past the whisky-bar, we paused to partake at the next lower elevator landing; gazing over the parapet we were reminded that, not far from the top, we had chatted with Morris Ketchum and his wife as well as the Bob Jacobs. Now as we watched musingly, Morris was all alone. Descending very slowly, circling and pacing at each landing or projection, gazing skyward and into the pit from every possible vantage point, he seemed to be deeply savoring and apprehending the masterly space and scale and chiaroscuro that Wright had brought to this unique construction. But our reverie broke off sharply at the sight of the reigning magnate, for our money, among American architectural historians, the deftly initialled Henry-Russell Hitchcock. To our chagrin, perhaps the ramp slope added unduly to the professor's habitually strong forward propulsion, he passed by in his precipitous descent just beyond our reach while we breasted a crowd so tumultuous that raising one's voice was not only pointless but painful.

A new, slightly younger series of faces as we circled ever lower around the ramps. No Hitchcock, but Peter Blake, who contributed earlier in the year a superior series of appreciations of the Great Man's architecture in the *Forum*: An impressive effort from one so inevitably steeped, let

alone reared, in the axiology of the International Set. A moment later John Johansen, now sadly the center of a silly controversy over a brilliant post-modern neo-medieval skeleton castle which can only be agreed to be a *tour de force* in Fractured French as well as idiomatic—but also the architect of a whole series of finished works of major merit in various genres. While at the lowest elevator landing we renewed an old acquaintance with one of the most meteoric of the postwar group, Paul Rudolph. His company and insights would make good provocative fare any time, anywhere; this night, an additional privilege in meeting the young lady he was escorting, Phyllis Lambert, to whom all New York is indebted for Mies's Seagram Building.

Almost at the bottom at last, and time fast running out. Strange we should have caught not so much as a glimpse of any of the Lincoln Center group. In fact, we erred; others later reported an appearance by Gordon Bunshaft. But where were the other Titans, above all Wally Harrison and Max Abramowitz, and Philip Johnson, the prime movers in the great cultural project? Perhaps we came too early, to the "Artists' Preview," perhaps they were biding their time until the Society Opening the following night. Or was the cleavage more fundamental? In the months intervening, the query has often bemused us; studying especially the most recent releases as the Lincoln complex began construction, we have caught ourselves dreaming of the Great White Colonnades of 1893, rearing up again in a different century, a different metropolis. Another missing face remembered; no sign of Ed Stone either, an absence the more surprising after all the inspired accolades that purposed to drape the Great Man's mantle on his far from reluctant shoulders.

The closing hour, one final gaze up into the incredible augmenting space above, and time for just one more familiar form, for which we would go out into the night glad and grateful; Tousled, gray-haired, not to mention slightly ruffled, but still and more than ever irreplaceable, Lou Kahn. He laughed at us, and chaffed us when we told him so; but then as now, we see no grounds for apology. It is the personal imagination that makes the difference; there is no substitute for an idea.

The house lights dimmed, the doors swung shut behind us for the night. The plaza lay empty, but the floodlights still shone full and strong as the great shell whirled out over our heads. And so to the car, and home to bed. But all the way the last thought would not leave us, nor since then either: There is no substitute of an idea. ◀

1984

THE SCHOOL OF ARCHITECTURE

BY WALTER A. TAYLOR, FAIA

The Head of the Department of Education of the Institute presented this talk before the Fourth Annual AIA-ACSA Teachers' Seminar at Grindstone Lake, Wisconsin, last June. By looking back from the Orwellian year 1984, the author presents his views on architectural education as practiced during the nineteen-fifties and sixties

► It is assumed that the typical image of the AIA in the minds of the younger members of the teaching group is that the Institute is aged, moss-backed and reactionary. In a position to observe the actions and feel the pulse of not only the AIA Board of Directors and staff but also other organizations in the profession, it is my well-considered opinion that the most forward-looking group in the profession, the one most concerned about the future of architecture and the future of the profession, is the officers and committee chairmen of the AIA.

Which is the most reactionary and conservative group to which it is most difficult to sell new ideas? Perhaps first in this category would be a typical state registration board, but the schoolmen are a close second. In many areas the AIA is thinking ahead of all but a few of the schools. It is proposed to demonstrate this in part by imagin-

ing the school of architecture of the future or the state of architectural education as reviewed by the Grindstone Alumni Association meeting in 1984, assuming that the numerous proposals originating in the AIA Survey Commission, endorsed by the Board, and now in varying stages of activation, will have become standard operating procedures. What is proposed is not necessarily AIA policy except as will be noted by reference to Board-approved survey recommendations. (Fig. 1)

In a University?

The first thing to be determined about this 1984 school of architecture is whether or not it will be a part of a university. The answer will probably be "yes—if"—two "ifs."

First, architectural education will have to justify its right to be in a university. A university is not primarily a teaching institution or a collection of teaching colleges. The university as defined by Cardinal Newman and Nicholas Murray Butler and others is a place where scholars and researchers are advancing the frontiers of knowledge. The students are privileged to be there to participate in the quest and learn what they can. In an ideal university, "architectural education" as now typically carried on would not be tolerated. The university is not the proper location for a trade school nor for an atelier for the handing on of the tricks of the trade now called "design." The architectural profession, and specially the teachers of architecture must develop a body of knowledge which is rationally ordered but not frozen, subject to re-

vision, or to enlargement, or to refinement. Architectural research and architectural education must take the responsibility of ordering and stating not only what we now know empirically, called by the sociologists "practice theory," but also contributions from other disciplines and new knowledge out of architectural research. (Fig. 1; R-40) (Ref. A)

The other "if," the other condition, is whether the profession will consent to its remaining in the university. That decision rests with the profession and not with the educators.

We are members of a profession 6,000 years old. During nearly all of those 60 centuries the profession took full responsibility for the recruitment and training of the new practitioner. The first professional school of architecture in this country, at Massachusetts Institute of Technology, was established in 1868. The average age of American professional schools is probably 25 to 30 years.

It was only yesterday that the profession turned over to universities a *part* of the job of educating and training for the profession. Yet many practitioners complain because the schools do not turn out competent head draftsmen. The schools have never claimed to produce the "complete architect." (Fig. 1; R-30, R-31, R-41)

The other side of the coin is that the schoolmen must be prepared to at least accept advice, if not directives, from the practicing profession. When the college presidents' Commission on Accrediting took a high-and-mighty attitude and tried to put accrediting boards out of business, they were reminded by the NAAB and by lawyers, medics, and engineers that the professions had by no means surrendered their responsibility to the universities, and reserved the right to have something to say about what goes on in the professional schools.

Incidentally, one of the best schools in Europe, the Association School in London, was established and is maintained by the profession, with only recently a perfunctory minimum connection with an academic institution.

44

There is thus a tendency on the part of educators in all fields to take the attitude that they know all about the process as well as the end product. The architectural profession does not buy that.

If educators will be more forward-looking in terms of the needs of society and the survival of the profession, if there will be less double-talk, gobbledygook and ivory-towerism, if the educators will earn the respect of the profession and

the academic world by sound knowledge and will educate as for a learned profession, the profession and the universities may consent to the school of architecture remaining in the university. (Fig. 1; R-12-29, R-40-R-42)

Relationship of the School to the Profession

Assuming that the 1984 school will be in the university, what relationships and shared or allocated responsibilities will be found? (The serious study of these factors had begun as early as 1950.) By 1984 it is fully recognized by all parties concerned that education is a lifelong process. Assuming an active professional life-span of 45 years, the college years are only 11%. The candidate period is 6%, leaving 83% of the educational job, time-wise, to be done by and for the practitioners with the aid of the schools. (Col. 1, Fig. 1)

Administrative Relationships

How does this school fit into the university? Looking into the crystal ball we find that by 1984 the pattern of colleges and deans has become obsolete. It has been realized that the logical units of the university are departments and schools. The university is organized in terms of any number of departments grouped in divisions under vice presidents. Cutting across the pattern are "Institutes" drawing together certain faculty members from a variety of departments and disciplines. (This pattern existed in 1960 in a few cases.)

Education for the Building Industry

In this university of the future, architecture is not a branch of either engineering or of fine arts. As envisaged as early as 1954 by the survey commission and set forth as recommendation R-22, it is recognized that the building industry, largest in the national economy, should have some logical grouping in the educational phase. This has taken the form of the Institute of Building Arts and Sciences, known in the earlier days, popularly, as Operation Umbrella or Operation Circus Tent. Within this tent are two major groupings:

A The design professions: Architecture, city planning, landscape architecture, and students from structural, mechanical, and electrical engineering who choose to specialize in building.

B Other operations under the tent are specialized higher education for different elements of the building industry: The Associated General Contractors, the National Association of Home Builders, the Producers' Council. Their curricula combine training in architecture, engineering, eco-

nomics, business law, labor relations, etc. Each group has its own curriculum and the architectural curriculum is as distinct and "pure" as that for physicians in an Institute of Health along with separate sequences for nurses, laboratory technicians, pathologists, etc.

This concept had been quite well envisaged as early as 1957 at the Cornell Conference and had been endorsed nationally by the AIA, the Producers' Council and the National Association of Home Builders. The ACSA had endorsed only the original survey recommendation.

By 1984 there is a type of national membership in The American Institute of Architects for structural, mechanical and electrical men who practice professionally and work with architects.

Other 1984 patterns or titles include the Institute of Environmental Design anticipated by the University of California as early as 1958.

Relationship of Architecture to Other Units of the University

Twenty-five years hence, both the architectural educators and the university administrators have recognized that architecture had made a valuable contribution to the methodology of higher education in the form of the project method. By the middle of the century something similar to this had been adopted by schools of law, business administration, and social work. By 1984 the project method is extended across the campus to involve honor students in liberal arts and other divisions of the university. (R-20)

In the middle of the century there had been complaints that all was not well in the area of the so-called liberal arts. The general student was getting a layer cake of courses and credits which he never had opportunity to integrate.

A typical situation in 1984 is that there is to be designed a geriatrics institute. The upper-class architects function as architects, but students from medicine, nursing, psychology, economics, etc, are constituted a board of management or board of trustees of the hypothetical institution. The architectural students meet with this student board and cause them to write a workable program in terms of budget, space allocation, etc. Representatives of the student board observe the development of the design of the project and serve on the jury.

This has great value for the students of the other disciplines as well as being good public relations for the architectural profession. The student architects have the valuable experience of dealing with a corporate client whose heads have to be knocked together in order to get agreement on a program.

By 1984 non-architectural students from many

departments of the university will take a course in the history and appreciation of architecture as a humanities study. (Fig. 1, R-20)

Research

As appropriate for a unit of a university, the architectural faculty and advanced students are engaged in research which is distinctly architectural. This involves related disciplines from the social and behavioral sciences and physiology. To a limited extent this research involves the development of new materials or construction, but essentially it is human-focused. This research work is the most distinctive difference between the mid-century school of architecture and that of 1984. The architectural school serves the profession as well as society much more effectively and exercises real creative leadership in making the profession more knowledgeable and more competent. (R-40)

This had been touched off by the establishment of the Department of Education and Research in the AIA in 1946, and advanced by the AIA-National Science Foundation Architectural Research Conference in March 1959.

Educational Focus

By 1984 the magnitude and the accelerated rate of accumulation and evolution of the many demands on the profession, had caused an entirely new look at education for the profession, the creation of a completely new educational structure. Some had tried to do this as a remodeling or patch-up job, but in most cases the entire old structure was razed with salvage of some usable material, and a new structure had been created.

This 1984 educational structure has new dimensions in every direction: Higher in its philosophic and educational aims, deeper in the fundamentals to be evoked and understood, broader in the scope of its subject matter, longer in the total period of years (but not longer in the college period), larger in the quantitative sense providing enough well-trained men to meet the demands of society for professional service.

This new design for education had called for a redistribution of the educational parts: Expansion in some areas and compression in others, more emphasis in the college period on the fundamentals and more adequate attention to current answers in the post-graduate period, more efficient teaching in all areas—especially in the professional and skill courses.

By this time the architectural profession had caught up to where the medical and legal professions were in the 'fifties. At that time the American Medical Association had offered in one year

1100 courses on 49 subjects, only 10% of them free, others with fees ranging up to a thousand dollars. At that same time the Practicing Law Institute had enrolled 22,000 lawyers in a great variety of seminars and special courses concerning all aspects of the practice of law. (R-41)

The school faces up to the fundamental function of the profession: To create an artificial environment for human activities which successfully counteracts and/or capitalizes on the natural environment, and which gives maximum satisfaction to humans functionally, socially, fiscally and in terms of a total sense of well-being, the new esthetic.

The new program includes many of the ingredients of older curricula but in different proportions and relationships, most of them taught more efficiently. Also there are new elements, available in the well-rounded university but previously almost entirely unutilized. The major differences are in emphasis and focus, and in the attitudes developed in the students. Instead of "Structure" and "Art," the foci are: (Fig. 2)

1 *Nature*, (excepting mankind) against or with which we design for the benefit of man. The subject-matter includes the earth sciences; geography, geology, plant materials, climatology, solar energy, seismology, etc.

2 *Man*, as a psychological, physiological and social being. The subject-matter includes the social, behavioral and biological sciences; for an understanding of man *as he is now known*, individually and in groups, not merely what Aristotle, the Great Books and the philosophers had speculated about him. The new esthetic for the complex art now studies man's total reaction to all stimuli, his apprehension, four-dimensionally, of space, light and color, sound and heat, and his individual and group behavior in the presence of these stimuli.

It had taken a long time to realize that architecture had really very little in common with the other so-called fine arts whose impact was only visual. At last it is realized that architecture is entirely unique among the arts in that it is of superhuman scale and it is apprehended fourth-dimensionally by moving through it.

Breadth of Training

It is generally agreed that architects should have a broad, general or liberal education in order that they may function effectively as citizens, as community leaders, and in order that they may collaborate intelligently with their clients and other professionals. (R-3)

With high selectivity (and continued trend to early marriage,) it was agreed that it is not necessary that four years leading to a Bachelor of Arts degree be set apart for this purpose. Three changes had been accomplished:

A Improvement in the quality and maturity of secondary school education, especially with higher grade students whose capabilities had at mid-century been wasted or allowed to deteriorate. It was recognized that there had been a great deal of wasteful overlap and repetition between the best of the secondary and preparatory schools and the typical liberal arts college curriculum. (R-14)

B More intelligent and efficient design of the five- or six-year professional curriculum, to include time for more general subjects gained by more efficient teaching of the professional subjects.

C Recognition and improvement of certain types of courses recognized as dual-purpose, i.e., having both professional and general education values. The history of architecture had been increasingly recognized as such a dual-purpose subject and others were discovered and developed in the social sciences related to their broader application in technology and architecture.

Another previously neglected resource in the education of architects as citizens and leaders is the whole campus and student life as an opportunity for development of social and civic competence. One of the reasons why mid-century architects as a group had not functioned conspicuously in community life was that during the first half-century the educators had chained the boys to the drafting boards. A tradition of clanishness and eccentricity had been deliberately cultivated so that the students tended to become introverts or ineffectual bohemians. By 1984 they have reasonable work loads and schedules and, being attractive and talented, are "big wheels" on campus.

Natural Sciences

In 1960 another great inefficiency had been in the teaching of physics and chemistry to architects. Largely the result of the fact that architecture was under engineering college administration, they had been taught to architects in the same manner as to prospective engineers, as preparation for the various specialized engineering curricula. Now it is recognized that the architect should have a broad knowledge of the physical sciences, right up to the current theories, in order that he may expect and demand of industry new products and

SHARED RESPONSIBILITIES—SCHOOLS AND THE PROFESSION IN THE LIFE-LONG EDUCATIONAL PROCESS

PHASE		PROFESSIONAL SCHOOL	THE PROFESSION	RELEVANT SURVEY RECOMMENDATIONS
45 ↑ ↓ ↑ ↓ ↑ ↓	Preparatory		Recruitment Career Days Career Literature Aptitude Tests	R-6 Architectural Workbooks R-4 Guidance Manual R-3 Aptitude Tests
	5 College 11%	Major Responsibility Student Chapters Non-Professional Students Education for Bldg. Industry Research Technical Inst. Guidance	Advisory Committees Lecturers & Critics Part-time Teachers Teacher's Institutes Teachers in Practice Student office experience Student Inspection Trips New Schools Accreditation	R-12 Student Guidance R-13 Student Chapters R-15 Practice by Teachers R-17 Teacher's Institute R-7 Student Inspection Trips R-20 Non-Arch. Students R-23 Expansion of Schools R-23-25 Non-professional & Technical Institutes R-29 New Schools R-42 Graduate Studies
	3 Candidate 6%	Graduate degrees Enrollment in Architect-in-Training	Major Responsibility Architect-in-Training Program Advisors Educational meetings Educational seminars Registration Procedures & Examinations	R-9 On-site Experience R-30, 31 Candidate training, AIT R-32, 33, 34, 35, 36, 37, 38, 39 Registration & NCARB
	37 Practitioner 83%	Assist AIA Chapter Lecturers University Extension Promotion Facilities	Major Responsibility Educational meetings Special enrollment refresher courses	R-40 Support of Research R-41 Advanced Professional Education

resources for his art. Physics is now taught to architects with a thoroughly direct and immediate application to mechanics, strength of materials, color, light, acoustics, etc. This had been pioneered by Professor Dwight at the University of Cincinnati in a special section of physics for architects as early as 1955.

By this time it is also recognized that the architectural student cannot and should not go on to the intensive application of these sciences in engineering; but in the mid-century period he had not met these subjects until as a practitioner he found them coming around behind the barn in the form of a profusion of mechanical equipment and gadgets which he was obliged to select out of catalogs and assemble in his buildings. By 1984 the basic sciences are intelligently, adequately and efficiently taught to architects as *design criteria*. This knowledge combined with the fundamentals of human physiology enables the architect to design or indicate to the manufacturers' engineers the kind of equipment he wants for the purpose of conditioning the environment for his human clients.

Relation to Education for Engineering and Planning

There had always been a difference between engineering and architectural education in the direction of approach to problems. Typically the engineer, both as student and practitioner, started with details or gadgets and worked outward to some kind of a structure, whereas the architect had always been trained to start with the site and move through plan, structure, building elements, and finally to details and the hardware. The engineer's frame of reference was the physical sciences—the architect's, the human being—although until 1960 largely by empiricism and rule of thumb.

By 1984 it is fully recognized that architects need an even broader approach, a longer running start, and that they are trained to begin with the entire region—its geographic, economic and social factors, the metropolitan area and then the neighborhood and the site and so on to the hardware.

For these reasons all 1984 students of architecture have some training in the social sciences

and in regional and urban planning, even though they may not intend to practice planning as a distinct profession. As of 1960 most planners were architects in their basic training and for some time the architectural schools were the source which supplied much of the demand for city planners. By 1984 planning has become a recognized profession, but with sub-specialists such as planner-analyst, planner-economist, etc, and urban-designers.

Logically the graduate professional curricula in city and regional planning are closely related, physically and administratively, to the professional school of architecture, and include many graduate architects.

However the circumstances and resources of community design are vastly different in 1984. The key to all of this revolutionary change has been atomic power which permitted site locations anywhere from the arctic to the desert, as prophesied by Bucky Fuller in the fifties; no limits on industrial power. Distillation of water is possible either in great quantities from sea water or for the re-use of a limited inland supply.

Surface transportation has been virtually eliminated except for very short distances and the centuries-old dependence upon natural energy sources or on land and water transport is no longer in the picture. The basic criteria are desired social organization and desired climate with design in terms of micro-climatology.

Curriculum

Educators are of course curious about the curriculum of this 1984 school.

Mathematics is taught to architects and engineers as the history and theory of mathematics. There is, of course, a department of pure mathematics, highly specialized.

In the math department there is a museum in which are exhibited slide rules, calculators, and other manually operated devices of ancient mid-century vintage. The only applied mathematics is the development of some skill in designing problems to rig the computers. There are large numbers of mathematical technicians who are semi-professionals.

The students are given short practical introductions to the use of the electronic computers which are quite costly but extensively used in practice; therefore there are at 101 Park Avenue several rooms full of these devices, analogous to the 1950 Laundromat, the machines being available to all in the building, upon the insertion of proper coins.

The amount of time devoted to graphics is greatly reduced and the Grindstone Alumni of 1984 are amused to recall how much time had been spent in the old days, trying to make artists out of architects. The 1984 architectural students are trained for facility in various media for study and communication, but the idea of the architect as an artist in these media is considered quite irrelevant. There are probably some architects who take it up as a personal hobby, just as a lawyer might write poetry on Sundays.

There is no such thing as a course in "working drawings." Building has finally been completely industrialized, all building elements being pre-fabricated. Taught in the place of "drawing" is some facility in assembling a montage of zip-a-tone pieces on modular grids. In advanced courses, or in research projects, the students of course draw, with old-fashioned drawing instruments, new building components which they have devised, which are not yet available on the market.

Design

By 1984 the term "design" is almost a dirty word. It has become obsolete or taboo just as "Beaux Arts" and "Bauhaus" were in 1960.

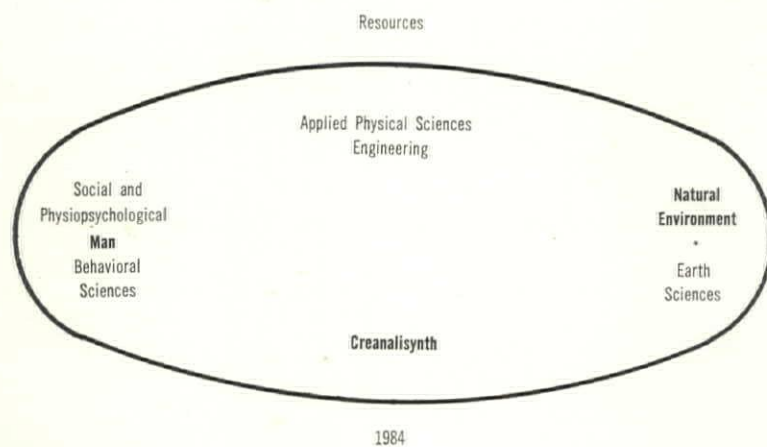
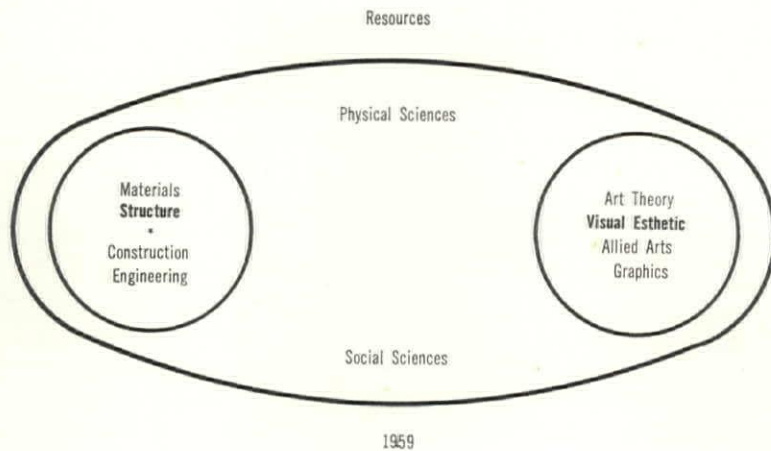
The term is avoided because of the obsolete connotations from an era when architecture was taught and appraised only as it affected the human eye. As we look back on this in our alumni gathering in 1984 we are amazed at the naïvete of this limited concept. As to what term has taken its place, the crystal ball is a little foggy but the etymology of the word implies creative analysis and synthesis. Perhaps the word is "creanalysisynth," CAS for short.

This is not a subject matter or a field of knowledge but a process involving *all* other subject matter. All faculty excepting some of the academic specialists are known simply as Professors of Architecture and all are experienced practitioners of this creanalysisynth process.

At teachers' seminars it is now redundant to ask "what do you teach?" and there are not the varied responses "I teach design," "I teach construction," "I teach mechanical equipment," etc. By this time it has been fully realized, after another decade of foot-dragging by architectural educators, that everything that goes into a building constitutes the palette of design and must be involved in the creative analytical synthesis.

Esthetics

By 1984 the quaint nineteenth century idea that creativity consists only of God-given intuition



has been pretty thoroughly discredited. Looking back, however, it is recalled that as late as 1950 esthetics was in about the same irrational, irresponsible condition that chemistry had been 300 years earlier when it consisted of black magic, alchemy, and hocus-pocus.

During the first half of the century pioneering psychologists, sociologists, and physiologists had provided some of the ingredients for a rational esthetics, but architectural researchers were almost non-existent in this field and architectural educators had clung stubbornly to their anti-intellectual shibboleths and inherited empirical rules of thumb. (Ref. B)

The students of the nineteen-eighties are armed with knowledge of esthetic theories, old and new, so that they can objectively appraise and classify each flamboyant Messiah who comes proclaiming another set of Eternal and Absolute Truths.

The architect so educated is regarded neither as the cosmetician of the building industry, nor as just another kind of technologist. He is better equipped to serve man expertly in his conquest

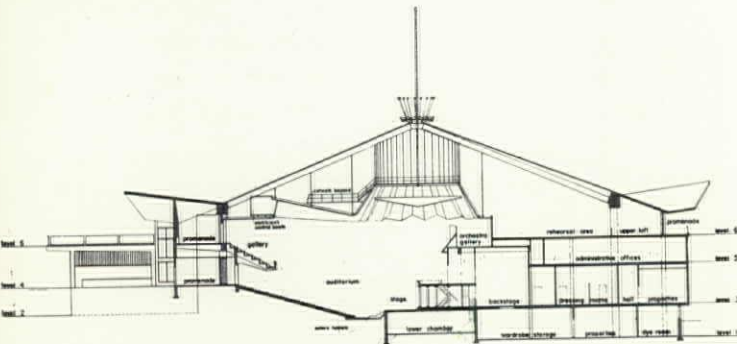
of nature, and he is an artist in recreating the environment for man's wants and needs—a creative coordinator of varied special resources—an art quite unrelated to the graphic and plastic arts and vastly more complex.

A "It is nothing short of fantastic that a recognized profession can go on for year after year and decade after decade without a pretty careful and systematic attempt to answer . . . how much difference it makes whether one designs in one way or another." DONALD FOLEY, NSF-AIA Conference, March 1959.

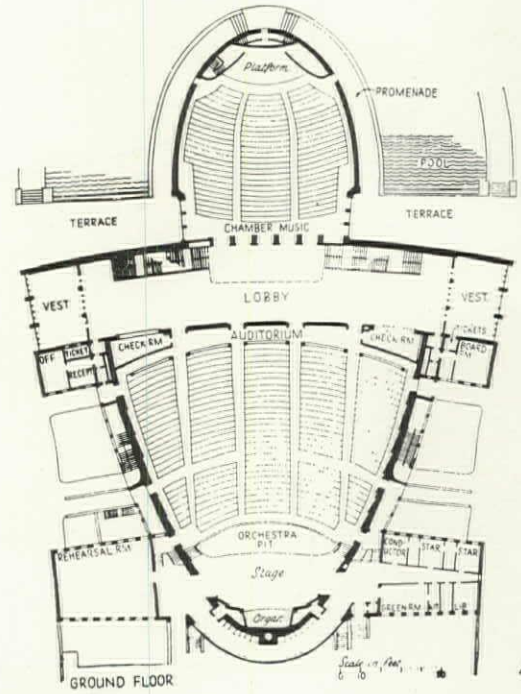
B "If we understand intuition as the use of high intelligence and a very broad background in reaching decisions on intangibles that are complicated beyond any hope of routine scientific solution, then I think the use of the intuition is an excellent way to make progress. In fact, this is the way the scientists themselves make progress. In short, I subscribe to Hastorf's view that creativity on both sides of this fence is essentially the same process." BURNHAM KELLY, NSF-AIA Conference, March 1959. ◀

Arts and Cultural Centers

AN EXHIBITION

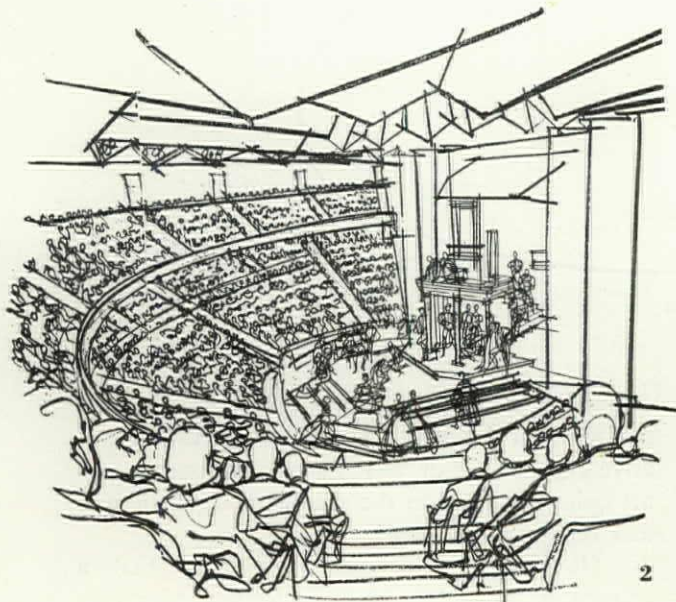


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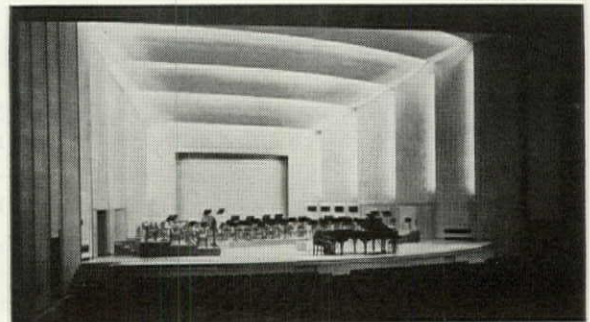


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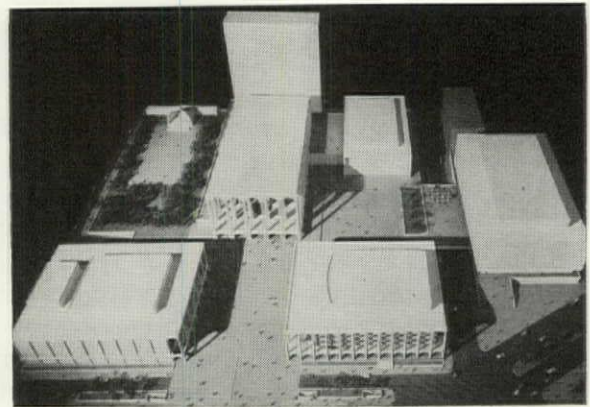
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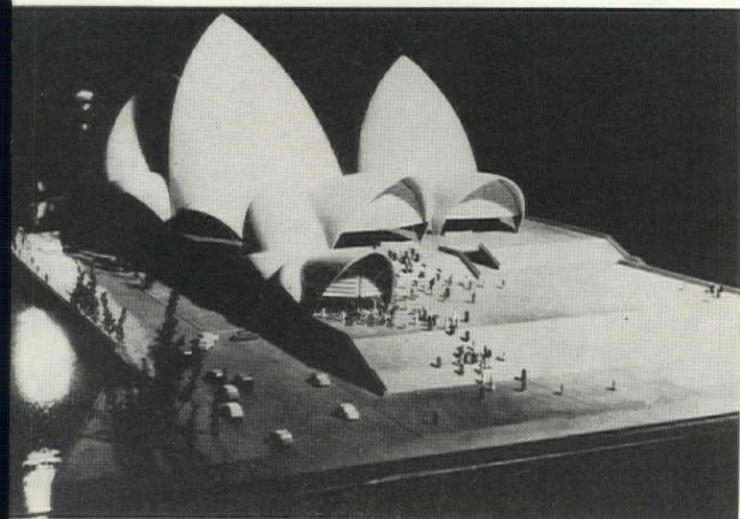


Max Fleet

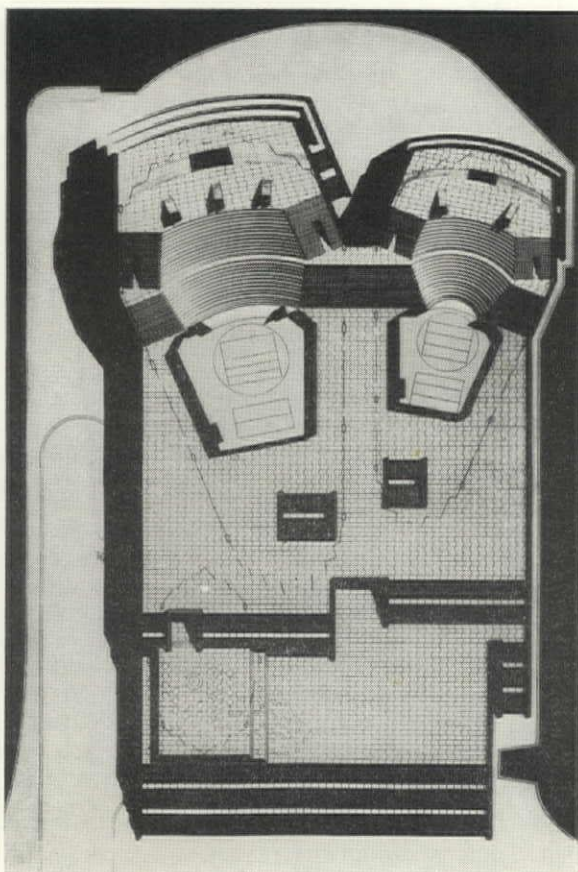


Ezra Stoller

AT THE OCTAGON GALLERY



7



8

► Photographs, plans, charts, drawings and models of arts and cultural centers recently displayed at the Octagon Gallery dramatically indicated an ever increasing world-wide awareness of this developing new building type.

Produced for the Institute under the direction of Frederick A. Gutheim, well-known authority on urban renewal and writer on architectural subjects, the exhibition included new designs for theatre, opera and concert halls with flexible stage and audience areas, and centers for housing the complete range of community art and cultural programs.

Material was assembled on large urban centers as well as college art centers, and included a section devoted to the art life of suburbia with its rapidly developing new audience and new patronage of the arts.

Calling the new awareness of the need for arts and culture centers a "cultural explosion," the exhibition included statistics showing the life expectancy increase, the additional leisure-time available for the population and the upsurge of interest in art and culture.

The entire display is now on national tour with the Smithsonian Traveling Exhibition Service. ◀

1 - 3 *Canadian Shakespearean Festival Theatre, Stratford, Ontario. Rounthwaite & Fairfield, Architects. The permanent structure echoes the original temporary tent structure, retaining its festival character. Interior sketch by Arno Sternglas and Horizon, a Magazine of the Arts.*

4, 5 *Kleinhans Music Hall, Buffalo, New York. Eliel & Eero Saarinen, Designers, F. J. & W. A. Kidd, Architects. The Kleinhans Music Hall, opened in 1940, and the prototype for many concert halls now being created, is still unexcelled. Its large concert hall and smaller chamber music hall provide perfect acoustics and sight lines. Together with the large lobby and the lounge on the lower floor they are very well adapted to a variety of uses. There is no compromise with musical requirements.*

6 *Lincoln Center for the Performing Arts, New York City. Harrison & Abramovitz, Coordinating Architects; Wallace K. Harrison, Chief Architect; Max Abramovitz, Pietro Belluschi, Wallace K. Harrison, Philip Johnson Associates, Eero Saarinen, Architects; Jo Mielziner, Theatre Consultant. A bold use of urban redevelopment powers to provide a center in which the Metropolitan Opera, the New York Philharmonic Orchestra, the Juilliard Conservatory and repertory dance and drama companies will find appropriate accommodations.*

7, 8 *Opera House, Sydney, Australia, Joern Utzon, Architect; Ore Arup & Partners, Engineers. This brilliant design won an international competition in 1956. Its site is on the bay, and its great billowing concrete shells recall the sails of ships coming into the harbor. The plan shows two opera houses under one roof, a large one and a small one, with large foyer and promenade spaces.*

DO YOU KNOW YOUR DOCUMENTS?

FOR INSTANCE— *An Architect's Liabilities*BY WILLIAM STANLEY PARKER, FAIA, *Consultant to the Institute on Contract Procedures*

► Anybody can be sued. Whether he is in any way responsible for what has happened may be highly doubtful. This situation is probably more likely to hit an architect than a good many others, because he is intimately a part of construction projects, not only as designer but as general supervisor of the construction process with all its involvements with many subcontractors as well as general contractors.

If some incident or accident occurs that injures some person, whether connected with the work or merely a member of the public, a lawyer for the injured party may very well decide to play safe and include every one in the remotest way connected with the incident in any suit that may result. This is a basic element covered in the usual owner's public liability or protective policy provided for in Article 28. Insuring against such liability by the owner is not mandatory but is at his option.

Such accidents may have no relation to any acts of the architect but they may also be caused by some structural defect in the design. If this is traced to an error in the shop drawings that was not discovered when they were checked by the architect, he may well be involved with some degree of responsibility. This was referred to on this page in the March 1960 issue.

It is possible that other errors of commission or omission may creep into the complex set of documents required for the planning and construction of a modern building. If some such error becomes a serious matter financially, the owner may have a valid claim against the architect. This has become increasingly possible in recent years and the Institute has cooperated in the development of what is known as "Errors and Omissions Insurance," or more briefly as E and O insurance.

An architect should give this hazard careful thought and recognize it as a calculated risk if he decides not to take out such a policy. It may involve a substantial sum if he is held responsible. For instance, in a one-room addition to a small

building, an erroneous assumption as to subsoil conditions led to a settlement which cost the architect \$3,000—about three times his original fee.

An error in shop drawings caused a roof collapse involving death and injuries to workmen as well as cost of reconstruction. The architect voluntarily accepted responsibility jointly with the contractor and subcontractor at a cost to him of \$15,000. It is felt that the provisions of Article 5 should have placed full responsibility on the contractor since the error was in the shop drawings which failed to conform to the requirements of the original plans. If this case had involved the protection of an E and O insurance policy, it would probably have cost the architect nothing because the insurance company would have been more careful in considering the architect's responsibility. Another case involved the architect in close to \$30,000, but he was insured and the policy carried this loss. Such a loss to an average architect's office could be very serious.

The question of insuring against such a hazard raises several questions which an architect should carefully consider. It does not relieve him of any responsibility to his clients. It merely affords him financial protection in case a client can prove a valid claim against him involving a financial reimbursement. It deals not with everyday occurrences but with those exceptional situations that rarely arise but when they do may be serious. If an architect's experience involved frequent cases of this sort, he might well find that the insurance company would refuse to renew the policy.

In a large office the architect or the partners cannot personally check the detailed work of a hundred or more draughtsmen. It is *their* errors and omissions that mostly are being insured against, not the personal errors of the partners. It is a hazard that for years went unprotected and was seldom experienced. Today this hazard can be insured against and invites careful study. ◀



¡Gracias, Arquitectos Mexicanos!

BY JOHN NOBLE RICHARDS, FAIA

► The skyline of Mexico City had changed considerably since my last visit in 1949. Even from the plane that swung low over the city prior to landing I could see many new buildings, tall and graceful and majestic.

That welcoming skyline, however, was nothing compared to the welcome we received the moment we landed. Ten Mexican architects met us at the plane, including our old friends, Carlos Contreras and Luis Gonzalez Aparicio, President of the *Sociedad de Arquitectos Mexicanos*.

We had hardly unpacked and refreshed before it was time to attend a dinner given in our honor at the Hotel del Paseo where we met another old friend, *arquitecto* Nicolas Mapiscal Barroso.

We were immediately caught up in a whirlwind of activities. *Arquitectos* Ramon Corona y Martin, Hector Mestre and Carlos Reyes Navarro took time from their busy office practice to act as our escorts, and together we visited the University of Mexico, the castle of Chapultepec, the Cathedral of Mexico, residences in Lomas, Padrigal and the new satellite housing project.

The University of Mexico must be seen to be fully appreciated. The inspiring complex of buildings exemplifies the highest coordination of the architect, the engineer, the landscape architect, the sculptor and the painter. *Arquitecto* Roberto Alvarez Espinoza, the architect in charge of the medical group at the University as well as Professor of Architecture at the Architectural School, gave us a detailed tour.

Arquitecto Carlos Obregon Santacilia arranged our trip through the Cathedral of Mexico, where *arquitecto* Antonio Munoz G served as our guide. This dedicated man has been working for the past nineteen years on the restoration and reconstruction of that great cathedral.

One of the highlights of our trip was our visit

The symbol illustrated above is a part of the Aztec Calendar. Photo at right shows the "touristos" and the hosts outside the University of Mexico

to the *Casa del Arquitectos*, the headquarters building for the *Sociedad de Arquitectos Mexicanos*. I was honored to give a lecture to the *Sociedad* and was made a member of that organization. Certificates of membership were also given me to present to Glenn Staunton, Leon Chatelain, Jr and Henry S. Churchill, and were presented at our San Francisco convention.

Arquitecto Corona, President of the *Comision de Congresos y Asuntos Internacionales*, was our host during our visit. At a cocktail party at his residence we were pleased to meet many friends outside the architectural profession.

Another outstanding memory of that memorable trip was our half-hour conference with Adolfo Lopez Mateos, President of the Republic of Mexico, and Ernesto Uruchurtu, Mayor of Mexico City. Both gentlemen expressed a deep interest in the profession of architecture.

Leaving Mexico City we spent a day in beautiful Acapulco with *arquitecto* and Senora Mariscal where we visited a hotel under construction and several residences. A luncheon was arranged with the local architects and city officials at La Concha Beach Club, where I was again honored by being made a member of the Acapulco Section of the *Sociedad de Arquitectos Mexicanos*.

When the time came to say "adios" to Mexico we were well aware of the excellent job of planning and design by our Mexican colleagues and there is no doubt in my mind that the exchange of ideas and communication between our great organizations will continue and grow. ◀





From the Executive Director's Desk

► Suggestions from the membership for subjects for these articles have been most disturbingly rare, and as my own autosuggestive fund wears thin, I fall back more and more on books and book reviews for ideas. The latter is really the better, for their brevity permits a quicker accumulation of prompts. In times of acute laziness, which are now alarmingly frequent, I fall back (figuratively speaking) on my wife.

Last Sunday afternoon, for instance, as we were sitting about after lunch engaged in that postprandial pursuit, working our separate ways through the *New York Times*, my wife took one glance at the book review section and observed with a decided note of asperity that she trusted the day was not too far distant when one could pick up the book review in any newspaper, including the *New York Times*, and not be confronted with a portrait of a Civil War General (whiskers and all), and not have it brought to one's attention that a half-dozen or more authors, known or unknown, have just produced another litter of books on that cruel subject—the War between the States.

As a youth I was bewitched by the glamour of Napoleon. I imagine every boy goes through a period of Napoleonic adoration. The sooner it strikes and is gotten over with, along with other childish ills like chicken pox, the better. At that time, some forty-five years ago, probably more books had been written about Napoleon than about anyone else in the world, including, it is shameful to admit, religious leaders, not to say the one great religious leader of all time. Today I would like to bet that the Napoleonic library has been left far behind, and to house all the accumulated panegyrics, diatribes, biographies, factual and fanciful, histories, critiques and speculations on the military hierarchy and the blunders they committed in the years 1861-65 would overwhelm any city's library.

Unlike today when the current crop of Generals, Field Marshals and Admirals are flooding the bookstalls with volumes to rationalize their actions

and point out the errors of their confreres, the US Generals and Admirals of the eighteen sixties were for the most part a fairly uncommunicative lot. One exception was Grant who, revealing a latent talent, wrote a singularly literate memoir—one of the most lucid produced by a military man. The sole non-political statement of Sherman known to posterity was "War is Hell," an observation which though accurate can scarcely be said to indicate either unusual perception or originality. After Gettysburg Lee is alleged to have said, "This was all my fault," a noble admission with which apparently no one at the time disagreed, but then Lee was a man who was not in the habit of being disagreed with. So it remained for the experts of today to becloud the narrative and confound us in a welter of charge and countercharge.

Not so the present generation of military great, for judging by the reviews, the service academies of all nations, including those of our erstwhile foes, seem to have given courses in apologetics and attack by letters.

I think I need make no apology for my position. I have known war rather intimately, both as an enlisted man in France in World War I where I saw my full share of battles, killing, carnage, destruction and all the other concomitants of armed conflict. I am told, and there is token evidence, that I conducted myself with that appropriateness regarded as one's obligation in 1917 and 1918, although I would admit that my conduct stemmed from fright rather than from élan. I knew war again from a different point of view as a staff officer in the central Pacific area. So I think I can attack this subject with a relative degree of authority.

To the best of my knowledge my side of the family did not distinguish itself much in war. I had a great uncle with a walrus mustache and a permanent aroma of Bay Rum, who was buried with military honors as a General. Just how he achieved this title is not clear, as the little research conducted by my brothers revealed that during the Civil War he was a Quartermaster Lieutenant. There is no record of any conflict in which he was

engaged that was more severe and dangerous than that encountered by any forager haggling for food and supplies. As there is no knowledge of his ever having been in the National Guard or the Reserve (if there was one in his day) and as he was known to have left the military service at the earliest opportunity, his rise to titular military eminence still remains a mystery to the family.

So I look to my wife's side for the military heritage. Naval and military heroes are among her ancestors, ancient and recent. Various great-great-grandfathers, great uncles and grandfathers were wounded and killed in Revolutionary battles, at Lundy's Lane in 1814 and all through the Civil War, on the Northern side. Her grandfather stayed on in the service. My father-in-law, born in Fort Douglas, Salt Lake City, when six months old was hidden in a pile of rubbish during an Indian raid lest he be captured for ransom.

Perhaps I have gone far from the field of this *Journal*. I have made these observations not with complete impunity, but at least with enough to furnish a reasonable excuse for the diversion.

I am somewhat bothered by the plethora of Civil War books which seems to be an indication of the tendency on our part to devour ourselves with introspection and retrogressive concentration on a past and difficult period, the lesson of which we have misinterpreted. So I dread the next few years when the centennial of that era through which we suffered, and the effects of which we are still suffering, may be commemorated. I wonder what uncouth forms the commemoration may take.

We were given a preview recently when an old gentleman, whose military history was a subject of controversy, was laid out in state in the Capitol in Austin, dressed in a uniform which he patently never earned in his career as a soldier (if he ever was a soldier) to symbolize the end of an era. It is shocking that any country faced with our issues or difficulties can devote such bathos to a spectacle so lacking in decency.

The road ahead is so fraught with difficulty and yet so challenging that it is hoped and believed that architects at least will address themselves to the future.

No other country goes in for such curious and unhealthy sentimentality. No other country devotes time, energy and self-pity to the past as we do. They look ahead. I know of no country whose battlefields are as littered with conglomerations of ill-assorted monuments as clutter our landscape. It is interesting to note that the principal battle monu-

ments scattered over Europe and elsewhere are likely to be American and not those of the countries in which the battles took place.

I have been profoundly moved by soldiers in action and I have found some monuments to possess deep and august qualities. But these were rare. The great majority of battle monuments have aroused no feeling in me save one of disappointment.

At the Octagon we have a stele beautifully designed by a name sculptor, and erected some ten or twelve years ago. It commemorates the members of the AIA who gave their lives to their country in World Wars I and II. The interesting thing is that with all the concentration on the design, no one took the trouble to learn the identities of those who were supposedly memorialized. So it has become a monument to the sculptor.

I recall, as I revisited France after World War I, the beautiful simple wood tablets found in the village churches near which the British Army had fought. Well designed, not blatant, not vulgar, but simple listings of the men who had not returned to England, headed by the inscription, "To the Glory of God and in Memory of Those Soldiers Who Gave Their Lives for King and Country." I recall too the simple tablets in the Rotunda at Charlottesville. Those lists are very eloquent.

But we seem to have missed the burden of the message and failed to have sensed the heritage of the sacrifice. Men fight for a number of reasons; chiefly among them, and running through the warp and woof, is the hope that mankind will be better off by reason of the suffering and the sacrifice. Certainly men do not fight to set the climate for an over-indulgence in sentimental retrospection and in embellishing that retrospection at great expense of time, energy and material with ceremonials and trappings which would scarcely be palatable to those who originally paid the supreme price.

Our over-emphasis on the military past in these days when the planning should be looking toward the future, toward eradication of some of the physical and social ills that beset us, is far more important. As a highly respected member of our profession observed to me not so long ago, possibly we are coming into the age of the architect, the man with the talent, the training, the competence and the comprehension.

Edmund D. Purvis

THE STUDENT'S PAGE

A REPORT FROM: UVA

All one hundred and forty Cavaliers—the entire student body of the School of Architecture—are members of the Student Chapter of the AIA at the University of Virginia.

The real record, however, is what the chapter accomplishes, and Virginia takes no back seat here. For instance:

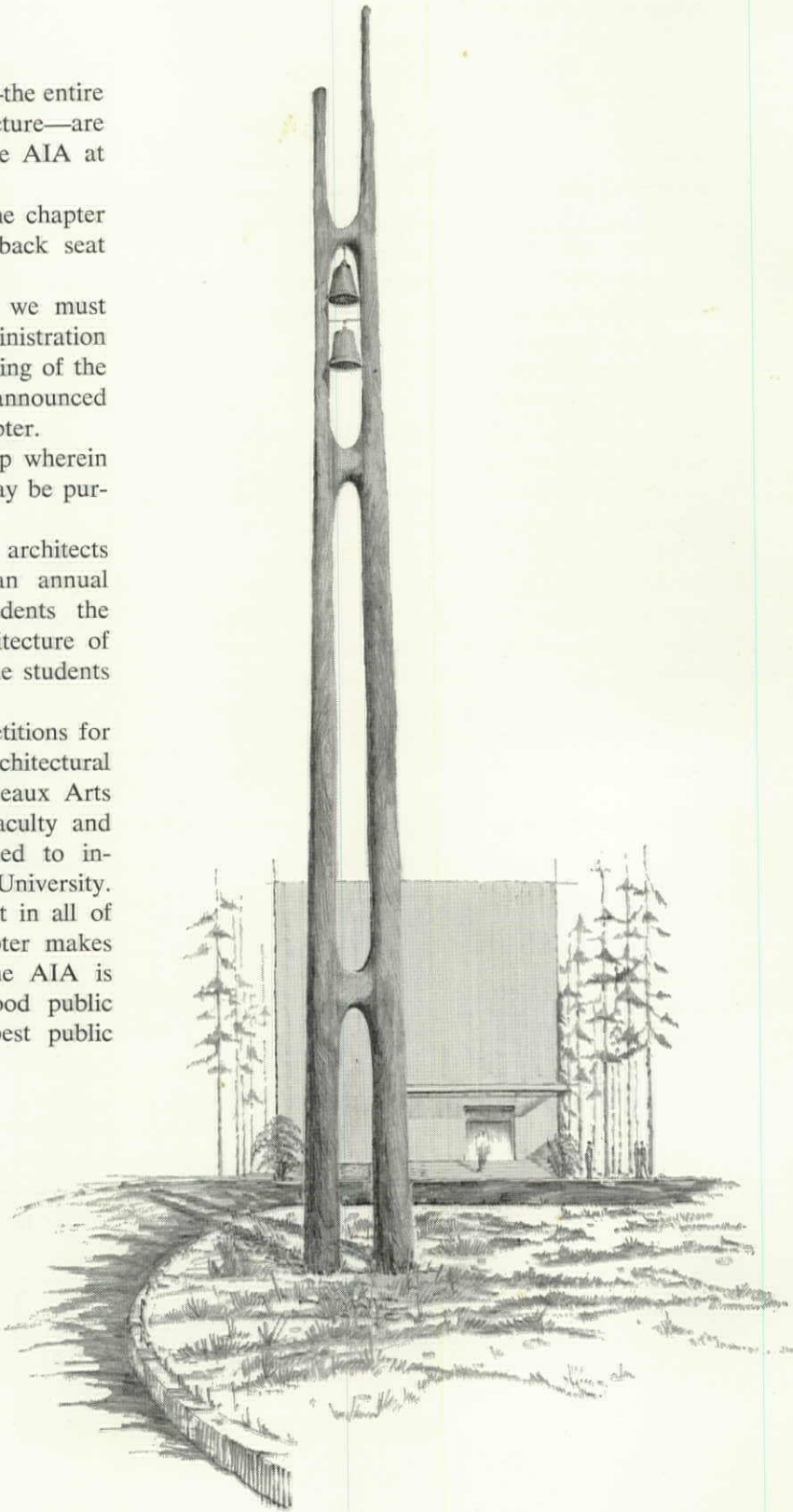
Believing that as student architects we must put into practice what we learn, the administration allowed a competition for the redecorating of the Student Lounge. When the winner was announced the redecorating was done by the Chapter.

The Chapter operates a student shop wherein all drafting materials and equipment may be purchased at reduced prices.

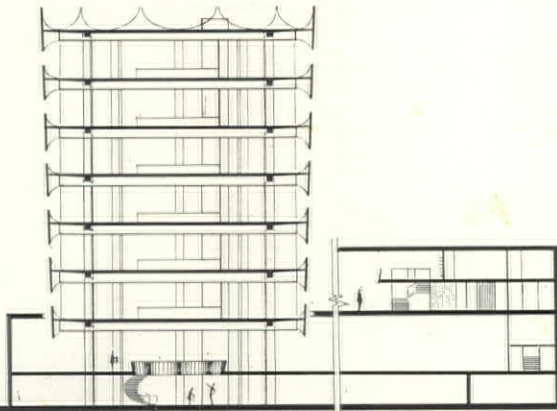
With the assistance of many local architects and friends, the Chapter sponsors an annual Fourth Year Field Trip, giving students the opportunity to see first-hand the architecture of other cities. Recent trips have taken the students to Boston, Chicago and Mexico City.

Art exhibits, speakers, design competitions for controversial projects, slide talks, architectural exhibits, sponsorship of the annual Beaux Arts Ball and the annual picnic for the faculty and architectural students—all are designed to increase architectural awareness in the University.

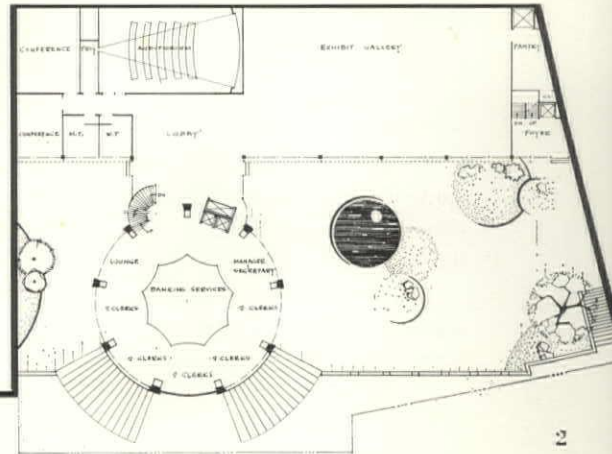
It naturally goes without saying that in all of the above projects our Student Chapter makes certain that its name and that of the AIA is prominently mentioned. After all, good public relations begins at home, and the best public relations is a worthwhile project.



*A Campanile for a
wooden board-and-batten church,
designed by G. Revell Michael,
a third year student from
Parksley, Virginia*



1



2

Edward L. Gray, fourth year student from Baltimore, Maryland, and winner of an honorable mention award in the 1959 Medallion Homes Design Competition, designed this Center for International Finance. The project as presented to the class, was to design such a Center that would be set at the top of the Spanish Steps in Rome, Italy, **3**, one of the most fashionable sections of that city. The design of the Center was to reflect

future growth and still remain in harmony with the character of the city.

The Center would serve not as the usual commercial bank, but more as a reception center for customers where banking services would be offered and where the Center could provide information to prospective customers for developments in Italy. Section **1** shows size of the building, while **2** gives first floor plan.



3



LIBRARY NOTES

Competitions

In addition to many varied duties concerned with the running of the Library, the Librarian also serves as staff executive for the Committee on Architectural Competitions. This is a most interesting assignment and one which he enjoys.

During the last few months The Franklin Delano Roosevelt Memorial Competition has engaged much of his time. Because of the stature of the American this memorial is to honor, and because of the nature of the program, this competition promises to be most challenging and stimulating. The adequate prizes will undoubtedly serve to further widespread participation.

Although by no means all the competitions that are proposed actually come to fruition, there are problems frequently with those that do. Notably there is a tendency on the part of the initiating group to wait until the last minute to submit a program for the Competitions Committee's approval. This places an undue burden on the personnel of the Committee who may often be forced to study the program hastily at personal inconvenience. Although it is apparent that time is of the essence in running a competition, a professional adviser should allow adequate time for securing approval when planning the competition schedule.

There also seems to be a lack of familiarity on the part of some AIA members with the fundamental rule governing competitions—that competitions must be approved by the Committee on Architectural Competitions to allow member participation in accordance with the principles of practice. These regulations governing competitions have been established as a safeguard for both the public and members, and it is essential that they be followed.

Library Survey

Last year, Matthews M. Simpson, a member of the Library Committee, undertook a survey in his New Jersey Chapter to determine how many members knew about the Library and its functions.

His report submitted last fall was quite interesting. Out of 232 questionnaires, 125 were completed—53.9 per cent, which is a most gratifying response. Of those responding, eight did not know that the AIA has a Library, and thirteen did not know that it is for the use of all members. About one-third did not know that members may borrow from the Library. Although this survey does indicate that not all members read their *AIA Journal* carefully ("Library Notes" has appeared in nearly every issue for three years), the picture is not all dark—ten per cent indicate that they have borrowed books or otherwise used the facilities of the Library.

From other users we have found that many of those who have borrowed return again and again for additional materials. Likewise we find that even though a person may not borrow immediately, he is aware of the Library and when he needs it he thinks of it. This has been demonstrated more than once by members, who have never borrowed before, asking for books from accession lists several months old.

If you are not already receiving the accession list and would like to do so, please let us know.

AIA Films

We have recently made an analysis of the use of the five community relations films. Eighty of the 130 chapters have borrowed or

bought at least one of these films. (The total number of chapters using is undoubtedly larger as several state associations have bought copies and other chapters could have used these.) Thirty-four chapters have bought one or more titles. Of these, seven chapters have bought all five as has one state association. Those with a perfect score are Chicago, Dallas, Eastern Ohio, Florida South, Georgia, North Carolina, Oklahoma and the California Council.

In 1959 "A Place to Worship" was the most popular of the community relations films, having been borrowed 124 times, or nearly twice that of any other film in the series. However, for sustained demand, the honors go to our oldest film, "Architecture—USA," produced in 1955, which in 1959 had 62 loans, an increase even over 1958.

Readers' Comments

As noted above, Library Notes has been appearing for three years. During that time we have endeavored to present a variety of material—lists of library books on particular subjects, some historical and some practical; notes on special acquisitions and other items of interest; one page articles on topics the writer hopes may have been of interest to some members such as "Walterana owned by the AIA" and "Book Collecting"; and lists of gifts. We have been grateful to those who have commented upon the library page and we always welcome evidence that it has been read. Just last month a member surprised us by inquiring about the Tayloe volume of reminiscences that had been presented to the Library.

If you have any comments on the page, pro or con, or suggestions as to what you would like to see included, we would be happy to hear from you. G.E.P.



Saving Dollars in Building Schools. By David A Pierce. 112 pp. 8½" x 11", New York: 1959: Reinhold Publishing Corporation. \$5.95

Originally prepared as a report to the Ohio State Board of Education on possible economies in school buildings, this book is a far-ranging study of facts, not opinions, about school construction costs.

It is organized into these chapters: (1) Introduction, which lists conclusions from the Ohio State study; (2) Planning; (3) Finance; (4) Construction Materials and Methods; (5) Operation and Maintenance; and (6) Final Cost Comparisons. Early in the chapter on Planning, Mr Pierce pinpoints true school building economy with this statement:

"Any clod can build cheaply. It takes no imagination to cut the initial cost of a school building. . . . It takes no intelligence to build wastefully. This makes the initial cost high, and often operation and maintenance is not improved. . . . The architect must know the basic fundamentals of construction materials and techniques—how much—where—to what degree to produce the best results both initially and on a long-range operation and maintenance basis. Therein lies true economy."

Mr Pierce covers such planning problems as use of stock plans, repeat plans, prefabrication, and copyrighted plans, concluding that the architect best serves his client in his capacity to design specific solutions and to make continuing improvements from project to project.

The construction materials and methods chapter is a thorough primer in school construction procedures. It analyzes structural framing possibilities, acoustics, materials, codes, and effect of wage rates on building costs. Illustrated with

diagrams and cost breakdowns, this section details initial and maintenance costs for many different methods of wall and roof construction.

During the planning stage of a two-and-one-half million dollar high school in upstate New York, this book was recently used by Board members and the Citizen's Committee to analyze, with the architect's counsel, outline specifications for the new building. It was most helpful to these lay persons in that it emphasized and proved the need of considering both initial and future maintenance costs.

This research study, as well as the 1959 Report to the New York State Education Department by Rensselaer Polytechnic Institute, indicates the great need for a concerted research program in the construction industry. Although many barriers must be overcome, it is hoped that such a program can be pursued by the AIA in cooperation with State Education Departments.

ROBERT T. CLARK, AIA

Braque. By John Russell. 127 pp. 80 plates. 7½" X 10¾". London: 1959: Phaidon Press Ltd. \$3.95.

To put a man's life between the covers of a book is an awesome thing—and to include the best examples of his life's accomplishments makes the task even more difficult. Yet, John Russell has done this and more. He has coaxed the "torchbearer of the great French tradition in painting" to make available for publication some of his paintings which (at the time of the book's publication) had not even left his studio. The entire effort is immensely worthwhile to the reader.

Georges Braque, along with Picasso, is the co-father of cubism. In fact, as pointed out in the detailed introduction to the book, it

was during an exhibition of Braque's work in Paris in 1908 that the word was first used by Vauxcelles in his now-famous article in *Gil Blas* in which he voiced the opinion that Braque "mistreats form and reduces everything—sites, figures, houses—to geometric outlines, to *cubes*."

Painting hung in the air around Braque from his earliest childhood. His father and grandfather were house-painters by profession and Sunday painters by choice, and everything was done to encourage the youngster to become an artist. Apparently he plodded along in painting until 1905 when he saw works by Matisse and Derain in an exhibition. The effect must have been electrifying, for he joyfully exclaimed later, "Matisse and Derain opened the road for me."

For two years he lived on the enthusiasm engendered by his two idols, but classical perspective was not his strongest point and from this weakness his own style began to emerge. "Limited means bring new forms into being, shape style, and prompt the artist to create," he remarked.

In thirty-four pages the reader traces the beginning, the middle and the present progress of Georges Braque in an intimate, easy-to-read manner. One realizes that here, indeed, is not only a great artist, but an uncanny observer of life whose remarks become as bold and startling as some of his paintings. Here is an artist who is as much a human as a great painter, and who has candidly admitted that "I never know how a painting is going to develop. For instance, I sometimes find myself starting a picture as a figure composition and finishing it as a still-life."

Twenty-four of the eighty plates presented are in full color and have detailed notes by René Ben Sussan that tie up in a neat little package not only what the pictures

represent but also the history behind their painting.

If you want to deepen your knowledge of cubism, an easy evening's reading of the life of a contemporary artist, and a beautifully illustrated art book at a remarkably low price, then you'll want *Braque* by John Russell.

N. C. B.

Shadows From India. By Roderick Cameron. 213 pp. illus. 8¾" x 11¼". New York: 1958: British Book Centre. \$12.50

A special nostalgia veils these perceptive photographs by a British traveler. This is the complex India—ancient Hindu, Jain, Mogul, Rajput, British—an old document with writing on it in many languages, partial or complete erasures, violent crossings-out and faded ink, often the blood of cruelty, a cheap medium in the East. It is a deed or document of ownership to a treasure of jewels which has passed from hand to hand and now no longer belongs to Britain just as it no longer belongs to those early kings whose artists left some rarely beautiful unfinished sculpture. It no longer belongs to the early Hindus whose barriers of caste prevented effective armies, or to the Mogul or Muslim invaders, or the Rajput princes, or to the British of Kipling, or even to Ghandi's do-it-yourself saltmakers and spinners.

What does remain of all this, in a babbling of tongues and sects, is the enduring record of stone in sculpture and architecture—often hard to distinguish which—parts of many of the chief examples presented in this pictorial review which has the subtitle: An architectural album.

The geometry and gardens of the Muslim are left for our time and others to come, in the durable fabric of stone treated like a rich textile—in cool and precisely carved and inlaid marble, eschewing the voluptuous human figuration of Hindu art and its excesses of naturalistic detail. The serenity of Buddhism pervades much of the rest and probably will remain when our curtainwalls have come and gone, crazed and crackling in their last corroded thermal movements.

When we consider the span of centuries here displayed, we may wonder at our own record in less than four. But when the Hindus and Jains were cutting into rock for

temples, the Maya were building pyramids and ball-courts for most bloody ritual murder. Not long after Babur sallied through the Northwest frontier to establish the Mogul Empire and extend the sway of the Koran, and, in accordance with its teachings to break up tons of exquisite sculpture, the Spanish Conquistadores cut their way to the Pacific. In their trail, the missions carried the Cross to the "Indians." When Clive turned trade into British colonialism in India our Indian-fighting pioneers were within thirty years of ending it here. The classic revivals in architecture hit British India (and collected shutters) at a not too different period than in our own country and in its Palladianism echoes some of our greater lower Mississippi River mansions. New Delhi (1931) abounds with Sir Edwin Lutyen's masterful exterior stairways. A rather bitter memory now perhaps, as we can understand, it is not given much space here.

The final section, on Kashmir, reflects availability of wood for construction and suggests Scandinavia with mountains two or three times as high. Ownership of land was denied the British and a curious unpainted and aromatic wooden stockplan houseboat type evolved (1875) for their vacation residence.

What can an architect find here? Well, at least one of the boys found some grilles and reflecting pools and now uses his full middle name. There's a lot more. For pure geometrical excitement, the Well of Bundi and the astronomical architecture of Jai Singh's observatory are hard to surpass. E.P.

Architecture USA. Ian McCallum, ARIBA. 216 pp. illus. 8½" x 11¼". NY: 1959 Reinhold: \$13.50.

A rather ivy-eye view of contributions of 33 architects, including a half-dozen imports and a few very young who show what is technically known as promise. Some 30 pages of introduction and pictorial summary lead off these well-illustrated biographies.

Photo-selection, layout, typography and technical notes are fine—as we should expect from the author, until very recently editor of *Architectural Review*, the top, if sometimes chi-chi, British architec-

tural magazine. He has also been a visiting lecturer at Yale.

Suitable bows are made to the middlewestern seed or kernel of the contemporary spirit but are followed by prostrate obeisance to more recent laminations. Obviously, architecture is an onion—there is nothing at all left when you throw away all successive layers. Usually the papery thin curtain-wall of the outer husk can be peeled off without loss.

A most pernicious aspect of this book may be its denial of regional values and encouragement of such negation. They may presently have decayed, but is this good? As shutters click and presses roll, as an individual architectural practice expands away from its original locale, as the output of architectural schools is scattered, and as building product profits outweigh shipping costs—of course we shall find the anti-regional. If it is good it will have influence, but often in superficialities. It will also, by spatial demonstration, effect acceptance of new ideas by clients—often so slow to visualize proposed originality in design. These are mixed blessings and we have known architects with rare professional integrity and individuality who are opposed to the exploitation involved in publication of their work.

One of the most unconsciously comic statements in this book is the quote about SOM: "... in 1937 the main concern of the office was to build up a practice, and the atmosphere was extremely business-like. . ."

McCallum's really flattering shocker, however, is his recognition that "... for the young European architect an American grand tour is becoming as important as the Italian was to the eighteenth century English gentleman. . . ." He is perspicacious (also!) in noting our generally "... insufficient attention to suncontrol. . ." and the value of the curtainwall "... in the urban landscape of today where a neutral backdrop can do much to tie together an environment often in danger of dissolving into anarchy. . . ." This latter value, however, is lost if there is nothing worth seeing in front of the backdrop. Certainly our finny traffic is not. McCallum did not see or was oblivious to the tarnish on some of our other thin chrome, like curtainwall expansion

and leakage problems, various air-conditioning extravagances, acoustic and illumination ignorance, the arrogant unworkability of some of FLW's architectural inventions, the paradoxical reports of unhappy clients of another master who specializes in psychology and publicity.

It is good to see Charles Eames and his wife Ray among these stars. They are bright ones but we have many others more deserving than some of those dwelt upon here (as the editor's note indicates) and the sequence of the biographies is puzzling until you notice it is age before you-know-what.

A few months after publication of this book it was reported that McCallum had been appointed first director of the first American museum abroad. It will open in the summer of 1961 in a late-Georgian house in Bath, England, supported by the Halcyon Foundation of NY, and will include a series of rooms showing development of American decorative arts (seventeenth-nineteenth centuries).

Finally, a generalization in the book's preface seems suspect: "... a prosperous and lively building industry, creative freedom and conspicuous expenditure—three conditions of great architecture. . . ." Not the *sine qua non*—it reminds us of a recent definition: "A slogan is a statement that is simpler than the truth. . . ." E.P.

Rehabilitation Center Planning, An Architectural Guide. F. Cuthbert and Christine F. Salmon, editors. 161 pp. illus. 12" x 9 1/4" University Park, Pa.: 1959: The Pennsylvania State University Press. \$12.50

A few years ago there was published a book on laboratory buildings. The chapters, each written by a different author, described in some detail various types of laboratories; pharmaceutical, medical, commercial, etc. As a treatise on this kind of building it was an interesting volume; yet, although it was apparently written for architects, it managed to omit most of the information which would have helped architects in planning such a building. There was in it, to cite one example, no mention of the size of animal cages or of the space needed for animal holdings.

This criticism cannot be made of REHABILITATION CENTER PLANNING

which, in spite of whatever shortcomings it may have, is complete in its description of those items anyone contemplating building or planning a center needs to know about. Not only does it give the dimensions of all the tables, work benches, apparatus, etc, the handicapped use, but it illustrates with great care the space the users need to get in and out among them, especially if confined to a wheel chair. Of particular interest are the illustrations of the wheel chair itself and its turning radii on pages 20 and 21. In fact, all the drawings of the equipment and the accompanying floor layouts are both profuse and beautifully done; so well drawn in fact that very little written description of them is needed.

The remainder of the text in the volume for the most part concerns itself with an attempt to explain what the Rehabilitation Center tries to accomplish, why it is needed, how it is financed, and what are the disabilities that can be treated. It is necessarily almost impossible to learn such things from a book. It has been said that an architect who undertakes to design hospitals should first work in a hospital because there is danger in trying to learn at second hand how a hospital functions.

It should hardly be necessary therefore to warn architects that they cannot learn the methods by which the handicapped are treated both therapeutically and psychologically from this or any book. It can only be accomplished by observation, by going and watching the treatments being applied. Furthermore, it seems to us that the attempted description in this book of this wide field of human care is at times foreshortened more than it need be. As an example, the pages devoted to physical therapy say nothing about what may be accomplished by the use of diathermy, hot-pack, or the various other equipment used in this section. Had these been explained in more detail it would have given the architect some assistance in the questions he would need to ask when he visits such a department.

The book should serve as a good example to others of what a volume written for the members of the profession should include. To write such a book takes careful research and a familiarity with the problems facing the architect in planning a

building for special use. The authors and their advisory committee are to be complimented on both these scores.

SLOCUM KINGSBURY, FAIA

Technical Colleges and Colleges of Further Education. By Barbara Price, ARIBA. 160 pp. Illus. 9" x 12" London: 1959: B T Batsford Ltd. 75 shillings

A competent and well-illustrated report of a vigorous planning program for specialized educational facilities in Great Britain.

Although there is considerable central control, through Ministry of Education approvals of courses and costs/sf, local sites and curriculum needs result in a variety of solutions. These are described and shown in detail in the general analytical text and in the second part of this book which is devoted to 12 examples among those planned and under construction since the war. Some of these are large projects with eventual capacities of several thousand students.

These institutions are not a new idea but have developed in the last 100 years to meet needs of industry and commerce. England and Wales have 100 million students per year in evening classes but each of these colleges typically offers several study schedules and programs.

The analytical text suffers from a mixed approach to planning data which must be dug out of descriptive prose. Certain illustrations are separated from the text because of coated-paper insertions for photo reproductions. Plans and sections are clearly presented in uniform technique — a welcome feature — but they could also have been reproduced at the same scale and at a working scale. Master plotplans for phase-construction and photos of quite elaborate models help explain the schemes. The examples include no indication of student capacities, a few of these are given, however, in other places in the book, and detailed schedules for two colleges appear in an appendix.

While this book reports many special British features it will be useful to architects concerned with our vocational schools and community colleges. Finally, we learned a lovely word: "... rubbish such as old bricks and *swarf* . . .". E.P.

There are many reasons why books are important. They give us amusement, they give us information, they instruct us, they give us sheer beauty and delight, they give some of us a living. But it seems to me the biggest reason that books are important is that they give us *ideas*. Most of us have few opportunities to come into actual contact with first-class minds, and engage in that sharp give-and-take which is so stimulating to one's thinking. A second-best—and a very good second-best—is through reading. I have said before that architects must read. I'm saying it again.

A book has come to me that has started the gray cells working (feebly, to be sure, but their best) and I haven't even read it yet. I've just read its introduction, written by Mark Van Doren. The book is "Adventures of the Mind," a compilation of twenty-one articles which appeared as a series in the *Saturday Evening Post*, by such authors as Jacques Barzun, Walter Gropius, Edith Hamilton, Lewis Mumford, J. Robert Oppenheimer, Aaron Copland, Aldous Huxley, and others. Popularization? No, don't pass it off as lightly as that. None of the contributors are of such small stature that they would stoop to the "mucker pose"—to hark back to a phrase coined in a famous *Harper's* article in 1921, none of them could contribute to the current fashion for anti-intellectualism by diluting their thought to make it publicly palatable.

To get back to Mr Van Doren's introduction: He is speaking of the several authors of the book, "... in some deep sense they all seem to have the same concern. This concern is variously phrased, and at no point is it put into words convenient for my purpose. But I should call it a concern lest man in our time go mad through the misuse or the disuse of the mind he has inherited from innumerable men before him. It is a concern felt now by the many as well as the few. In this age of science, this age that worships knowledge, can we nevertheless be said to know what we are doing? Are we preserving the world or destroying it? Are we controlling nature or is nature controlling us?"

How far can we go in exploring the universe, in taking nature apart and finding out what makes her tick, in fathoming the depths of the human mind, in creating a synthetic world for a still natural man to live in? How far can we creep out on this limb called civilization before it breaks from its trunk, which is nature herself?

How far can we architects go with this disposable container architecture we are creating—or rather, which the research departments of the

building material producers are making possible and we are bolting together? Perhaps this mood of mine has been intensified by my having just looked through a folder of Bert Lattes' photographs, photographs of structures which seem a very part of nature, not a denial of nature. The designers of those buildings lived close to the earth which produced the stone of which they were built. Nature has dealt kindly with them, even those that are two thousand years old. Most of their damage and destruction, where there is any, has been caused by man. Nature has not destroyed them because they are a *part* of nature, simply shaped and put in place by man.

We are ever restlessly searching for new materials, new forms. Do we know what we are doing? Is there not danger that our very ingenuity will be our undoing, will lead us into an impermanent and trivial architecture as hollow as our glass palaces? Is it not possible that *we* may go mad, in our own compartment of man's activity, through the misuse of the mind and the materials and the techniques we have inherited from innumerable builders before us? (Some laymen would say we already had.)

I fear we are better planners than we are designers—or, at least, our design hasn't caught up with our planning yet. Buildings are better functionally today than they were before, but can we say as much for their design? Don't tell me you can't separate design and function—I'm not talking about suspension bridges, I'm talking about buildings. We're intrigued with sandwich panels, folded plates and bituminous hyperparalleloids, all bolted together with stainless steel ribbons into pretty Christmas packages. We have forgotten how to use, and our clients can no longer afford to use, limestone, granite, marble—not in veneers but in blocks—even brick and wood in solid forms. We have forgotten how to shape and carve these materials of nature, and our clients can't afford that either. (Hurrah for Mayor Dilworth and his one per cent law!)

I'm afraid Mr Van Doren has led me into a lament, and I did not intend it to be so. But I'm committed now, so I'll close with a paraphrase of part of the quote from Mr Van Doren: In this age of contemporary architecture, this age that worships the new and different, can we nevertheless be said to know what we are doing? Are we creating a living architecture or destroying it? Are we controlling our technical progress or is our technical progress controlling us?

Facilities for the Aging & Infirm

By Clinton H. Cowgill, FAIA, Head of the Department of Office Practice, The American Institute of Architects

PART I

The Problem

Pictures of neglected and suffering old and handicapped people arouse in observers a feeling of pity and shame. If these pictures also inspire those upon whom the unfortunate are dependent to be more generous, and also move us all to wise group action to solve the problems of the aging and the infirm, they will have served their purpose. It would be good if, in addition, this emotional approach would lead more individuals still in their productive years to make more adequate provision for their own later unproductive years.

Many people are prone to over-indulge those they love. Generous emotions, however, should not be allowed to encourage either indolence or self-centered attitudes on the part of aged or infirm dependents. This leads to unhappiness as surely with mature dependents as with children. They should be given as much responsibility and exercise as their condition warrants and kept out of bed as much as possible.

Clarence W. Hall states:¹ "There are patients who, consciously or unconsciously, use their illnesses to escape from some intolerable situation, to secure affection not given them in health, to gain sympathy for their martyrdom, confounding medical wisdom by refusing to get well. Such people make up a large proportion of the chronically ill who, according to medical surveys, consume from one-half to three-fourths of busy doctors' and nurses' time." But even though better use could be made of some facilities of our hospitals, nursing homes and homes

for the aging, many communities need more beds in decent institutions. More decent places outside of institutions are needed, also, for old people who can and want to look after themselves—also facilities for maintaining and improving the health of these people.

The position of the independent oldsters is well stated by Sean O'Casey.² After appealing for continued activity and reasonable care for oldsters, he writes: "Of course, once in a while, we may regret our lost youth, but this must be quickly set aside, for we have had our day, and we must leave the world to the young. We must not resent their seeming thoughtlessness, for they are, as we were once, full of themselves; and so they must be if they are to become useful and sensible citizens of their nation."

Who are the aged and infirm? Physiologically, the average man is not old until he is 75 or perhaps 80, and many should not be considered old until their 90th year. On the other hand, age 65 has been widely accepted as a normal retirement age. This retirement age was realistic when it was adopted by Bismarck in the middle of the nineteenth century, but at that time relatively few people lived beyond age 65. Now, in each 1000, more than 86 live beyond 65, 56 beyond 70, 31 beyond 75, 15 beyond 80, 6 beyond 85 and 2 beyond 90.³ Some become physically, mentally and spiritually aged before they reach a chronological age of 65.

According to Anton J Carlson and Edward J Steighty,⁴ body tissues develop at a rapid rate in early years and progressively less rapidly

later. They begin to deteriorate immediately and the rate of deterioration increases slowly with time.

More specifically, changes in the aging process include:

- tissue desiccation
- retardation of cell-growth
- lowered metabolism
- cellular atrophy
- reduced tissue elasticity
- decreased neuromuscular reactions
- atrophy of nervous system—vision, hearing, attention, memory and mental endurance
- impaired mechanism

The more pronounced symptoms of old age, senile dementia, are escaped by many—even the oldest. They probably result in part from disease and include:

- decline of mental function
 - regression of personality
 - confusion
 - depression
 - agitation
 - delirium
 - hypochondria
 - paranoia
- | |
|-------------------|
| alternated with |
| relatively lucid |
| periods lasting |
| for hours or days |

The ability of aged persons compared to that of young people varies in different fields. Howard Wheeler⁵ states that the usual intelligence test results are not a measure of an oldster's intelligence. The creative faculty, which is not

¹ "Spiritual Therapy—Modern Medicine's Newest Ally," (*Reader's Digest*, Sept 1959, p 246)

² August 1959 issue of *Harper's Magazine*

³ Based upon estimates for 1958

⁴ *Annals of the American Academy of Political and Social Science* (V 279 Ju 52 pp 18-31)

⁵ *Annals of the American Academy of Political and Social Science* (V 229 Ja 52 pp 84-92)



The Johnson County Home for the Aged, Alathe Kansas; Mackie & Roark and John Lawrence Daw, associating architects

measured in the tests, is not related to age. An athlete is old at 40—a philosopher may be young at 80. If retirement is necessary or desirable in one field, another more appropriate field may be sought. Aging may be slowed not only by maintenance of physical health, but also by development of mental and spiritual health.

Karl M. Bowman states:⁶ "Imagination, judgment, and wisdom seem to be affected to a more variable degree (by age) than are most functions. Many older persons have profound judgment and wisdom, and seem to belong properly in the concepts of government and on the bench. Unfortunately, other persons of the same age show notable decrease in these functions and are entirely unsuited for such positions."

This aging process should not be confused with the effect of disease and accidents which we call infirmities. Thus the aged and the infirm are two different groups, but some people belong to both groups.

Insofar as is possible, each relatively well person should be allowed to classify himself as to physiological age, and there should be incentives for him to defer his retirement. In cases where retirement at a certain chronological age is mandatory, second or even third careers should be encouraged. In addition to its being beneficial to the individual, deferment of total retirement by healthy oldsters might save enough in Social Security costs to make it possible to provide more ample assistance to the infirm without increasing the total cost. Management has begun to realize that many oldsters are valuable employees, but only a few states have legislation preventing open discrimination.

At present, however, many agreements between unions and corporations covering "fringe benefits" tend to make it difficult for those in the advanced age brackets to maintain or secure employment in competition with those who are younger. In order to provide a minimum pension, the employer's hourly or annual contributions to the fund must be progressively higher with older employees. If these contributions were the same for all, employees who are over 65 (and even those over 45) would probably have inadequate pensions. Special income tax credits have been suggested as a means of equalization. If this is too expensive, equalization might be accomplished by a payroll tax for younger employees.

The attitude of both young and old toward aging is closely related to retirement customs. Dr Frederick Swartz, Chairman, Committee on Aging of the Council on Medical Services, American Medical Association, reported to the 1959 Subcommittee on Problems of the Aged and Aging⁷ that: "Retirement at the present retirement age for all of the ever-increasing older group is economically unsound and will prove ruinous in time. As physicians, we know it often interferes with optimum health for the individual;" and again: "Inflexible retirement based solely on age is unsound and unfair to many thousands of men and women who deserve better;" and: "If they retire for reasons of health, at least a portion of their retirement should be devoted to useful pursuits."

After citing the results of tests tending to show that intelligence does not necessarily decrease with advancing age, Dr Swartz goes on

to say: "The personal reactions of older people, their feelings of frustration, neglect, etc, are more the result of our cultural emphasis on youth and all its attributes, with a concomitant rejection of maturity and age . . . this constitutes the major source of dissatisfaction among older people." It might be added that these reactions and feelings may lead to mental disorders and thus increase the cost of decent care of the aged.

Measuring Needs

While the emotional approach to the problems involving people is inevitable, and is a useful means of stimulating interest for the solution of the problems presented, cold reason must eventually be applied. It may be asked:

How many of the aged and the infirm are there in the community? How many of these can care for themselves; how many can walk; how many can get along in wheel chairs; how many need at least part of a nurse's attention most or all of the time? How many of those needing long-term care will be accommodated in the homes of relatives? How many can be rehabilitated sufficiently to care for themselves and to earn their keep? How many can pay for their keep? How much financial aid will be required? What financial resources are available? What additional personnel is needed? How much volunteer service is now being used and how much more can be enlisted?

Max Shain and Milton I. Roemer, MD, point out⁸ there are always people who would benefit from hospitalization, and beds would be occupied if they were available and if the cost could be paid. For this reason, "The more hospital beds are provided in a community, the more days of hospital care will be used." A part of this demand for hospital beds is for patients requiring the long-term care provided by nursing homes. The "need" for beds in facilities for long-term care in a community, therefore, is influenced by the supply of beds in hospitals, and it expands as standards of care in the community are raised. The standards are influenced by what a community thinks it can afford. "We shall have to decide what proportion of our resources is to be devoted to hospital

and medical care, in competition with the demands for aircraft carriers and rockets, schools and roads, houses and automobiles, cigarets and television."

The average number of hospital beds is now about 4 per 1000 of population and some communities have nearly twice as many. Generally, the cost of maintaining a bed in a nursing home is less than in a hospital. This may be due in part to lower standards of care. In many nursing homes, however, where active rehabilitation programs have been instituted and substituted for the customary "custodial" services for incurable patients, it has been discovered that this improved care is not only better for the patients, but is also actually less expensive.

The late John W. Cronin, Chief, Division of Hospitals and Medical Facilities, US Public Health Services, Department of Health, Education and Welfare, stated⁹ that the cost of skilled care in nursing homes and homes for the aged averages less than half its cost in hospitals. He added that homes with skilled nursing care (0.7 bed/1000 population) provide only 29% of the beds needed.

The cost of maintaining beds with high standards in hospitals and nursing homes varies in accordance with the type of patients. The largest elements of cost are nursing care and special treatments. In general hospitals, more nursing care is required for most patients than in hospitals for chronic diseases, mental hospitals and nursing homes. In nursing homes and homes for the aged, the cost per bed in infirmary sections is higher than in other sections. But there have been many reports of patients remaining in high-cost hospitals when they could be cared for adequately in nursing homes.

It may be assumed that a large proportion of persons needing long-term care are in the homes of relatives. This is the traditional Chinese solution of the problem. Wilma Donahue¹⁰ says, "80% of non-farm people over 65 are in their own homes." Nathan W. Shock¹¹ says, "96% of oldsters are in private homes." If no nursing help is hired by the family, this arrangement requires the smallest cash outlay. In some cases, it may also be the most satisfactory. In other cases, however, this three-generation arrange-

ment may interfere with proper care of children. It is possible that if relatives of a patient were relieved of nursing duties, they could secure employment and the family income could be increased by more than the extra cost of supporting the patient in a suitable institution.

Measuring Resources

The responsibility for providing suitable care for the aged and the infirm rests upon the shoulders of earners—either individually or as a group. The total load includes the care of:

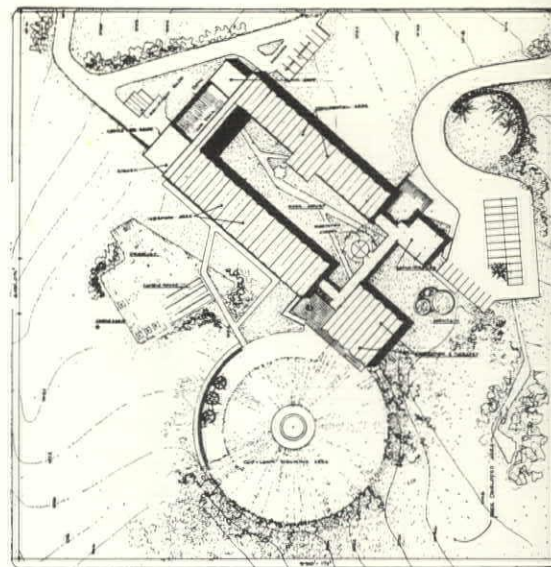
- dependent children and youths
- housewives
- the criminal
- the aged and infirm
- feeble minded and insane
- the acutely ill
- the chronically ill
- the handicapped
- paupers
- alcoholics

The number of earners is less than 70 million, or roughly 400 per 1000 of the total population of 175 million. These 400 support 600 others. About 500 of these are normally in family groups:

- under 5 years of age 100
- in school 190
- housewives (not employed) 210

Of the remaining 100, about 50 are retirees over 65 years of age (not counting those in institutions); about 10 are in institutions, and 30 are unaccounted for. Two of the 10 in institutions are in correctional institutions, one in juvenile institutions, 4 in hospitals, 2 in institutions for the aged, and one in an institution for the handicapped. Even though the ratio of persons under 5 years of age and those over 65 continues to increase, it appears that the burden of their support will not become unbearable. As is indicated above, the cost of care of the aged and infirm is small compared to the support of other dependents. If the current movement to encourage those over 65 to continue work picks up momentum, the number of retirees may stabilize or even be reduced.

If the number — 3 persons in



Plot plan of Johnson County Home. Construction is to be concrete frame, slab, joists, and folded plate roof

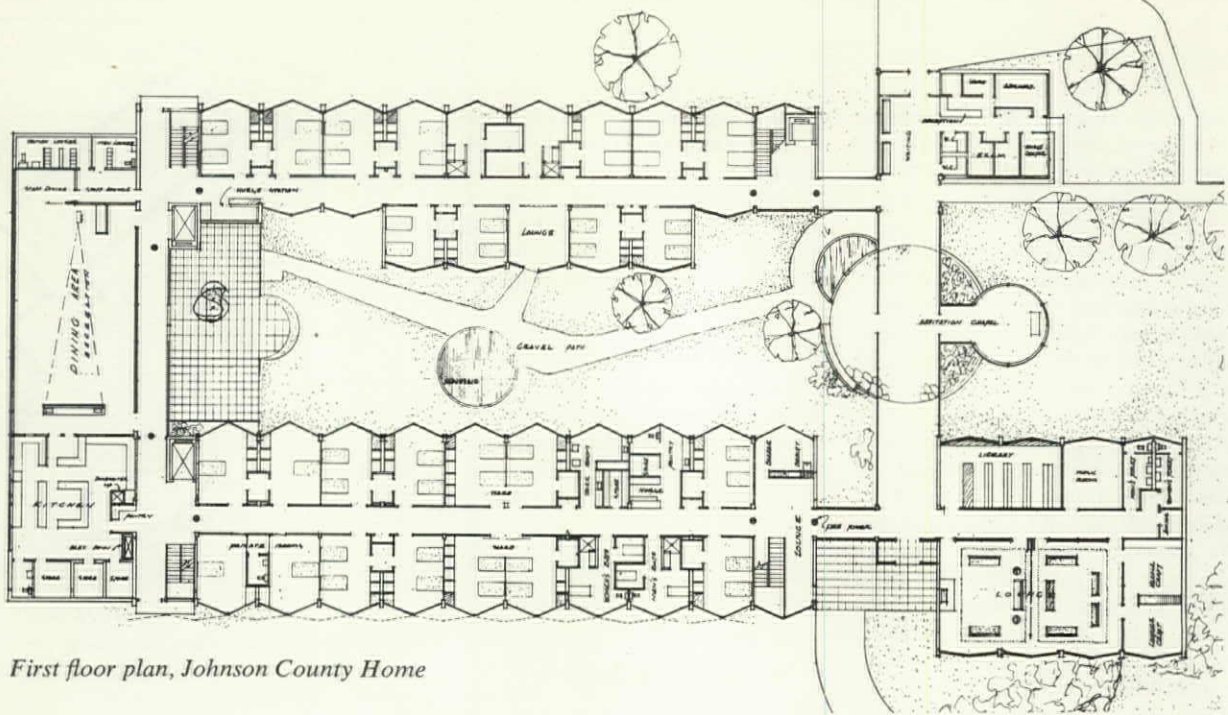
1000 — now in institutions for the aged and the handicapped were doubled, it would add about ½ million beds to the nearly 2 million at present in hospitals of all kinds.

The extent to which increased facilities for long-term care are to be provided should be decided by the earners. Other demands for their support include:

- schools
- religious organizations
- maintenance of international peace
- improved housing for workers
- food and clothing
- transportation
- amusements
- cultural activities
- government

The greater part of the load carried by the 400 earners in each 1000 of the population in support of families is accepted and largely paid for directly in accord with the family budget. The support of institutions, on the other hand, is direct when the use of their facilities is purchased, when personal service is volunteered, and when donations are made. Indirect support may come from taxation, trade union dues, or religious or social organizations. About \$28 out of each \$100 of income on the average is now taken by taxation—local, state and federal.

⁹ *Studies of the Aging and Aging*, v 2 p 101, '56
¹⁰ *Housing for the Aged*, U of Mich. Press, Ann Arbor, 1954
¹¹ *Trends in Gerontology*, Stanford Univ. Press, 1951



First floor plan, Johnson County Home

Our Duty

On the other hand, as Louis Kaplan, Executive Secretary of Citizens' Advisory Committee on Aging of California, stated to the Subcommittee on Problems of the Aged and Aging¹²:

"Decent, sanitary, safe housing for older people is a major need, especially in view of their low economic status. Smaller and poorer nations are doing better in providing housing for retired persons than this country."

In general, the aged should be encouraged to take an honored place in community life and their segregation should be discouraged. By active participation, those who are old chronologically may remain spiritually, mentally and physically young, and thus avoid becoming infirm.

Safety in Public Buildings

With the increased attention now being given to problems of the growing number of aged and infirm, it is proper that in the design of public buildings thought be given to the safety of these people, including the many millions who are handicapped by injuries, heart disease, blindness, etc.

The American Standards Association Committee A-117: Facilities in Public Buildings for Persons with Physical Handicaps, is encouraging the study of this problem and attempting to bring about a wide dissemination of the results of this study.

In the category of public buildings there should be included:

- capitol buildings
- post offices
- court houses
- government office buildings
- churches, etc
- schools (adult education facilities)
- libraries
- museums
- theaters, auditoriums, arenas, stadiums, etc
- commercial office buildings
- merchandising buildings
- hospitals, nursing homes, etc
- transient housing
- transportation terminals and stations

Many safety precautions are needed as much by the young as by the old and infirm. These precautions are covered by building codes and are generally taken by competent architects as a matter of course:

- fire resistance
- earthquake resistance
- wind resistance
- structural soundness
- facilities for entrance, circulation and egress

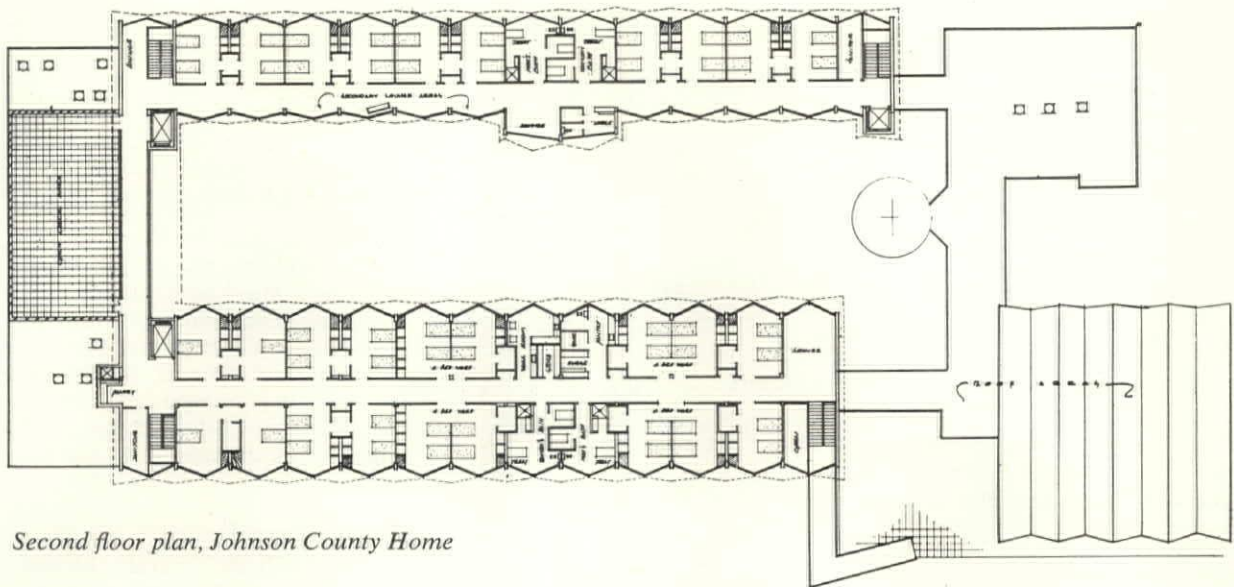
- ventilation and airconditioning
- heating
- illumination
- separation of pedestrian and vehicular traffic
- adequate toilets

For persons with handicaps but who are able to walk, the following additional safety precautions should be considered:

- clearly marked directions
- non-skid walks and floors
- high level of illumination
- avoidance of crowding
- even surfaces for walking, no booby traps, no curbs at street crossings
- facilities for melting ice and snow at entrances, etc

If public buildings are to be made safe for persons confined to wheelchairs, the following additional matters should receive attention:

- electric switches, elevator signals and automatic elevator controls within reach
- corridors not less than 8'-0" wide, doors from 3'-0" to 3'-6" wide with electronic control or other operating devices
- ramps no steeper than 8%, 2'-5" between curbs, with hand-rails
- no steps in essential circulation area
- toilet stalls 3'-6" wide



Second floor plan, Johnson County Home

Many ambulant persons are less able to overcome some obstacles than are those in wheel-chairs. Buildings cannot be designed for the optimum convenience of all people—some compromise is necessary. For example, arthritic wheel-chair patients might not be able to reach elevator controls at a height which could be reached by a small child.

Housing for Healthy Retirees

When a family unit is dissolved (perhaps with the establishment of one or more other family units by the children) four choices may be considered:

- the older parents may continue to live in the house in which they reared their family
- the older parents may acquire or rent a more suitable dwelling
- a three-generation family may be established with one of the new sets of parents living with the older parents, or with the older parents living with one of their married children and his or her family
- the older parents (or parent) may go to a (cooperative, philanthropic or commercial) nursing home or home for the aged.

It is natural for an old person to want to remain in the house in which he has lived with his family, and this desire is usually stronger in women than in men. Everett E. Ashley, III,¹³ writes that 68% of households headed by persons 65 or

older own their own homes. For an older couple, ownership of a home undoubtedly represents their own social security program that assures both members a roof over their heads in their later years. This ownership, however, is a financial burden to some, and a trouble to many others because of their physical inability to take care of the property. In many cases the old houses become dilapidated. Deterioration of houses rented by the aged is more rapid than those owner-occupied and these blighted houses are more hazardous for old people than for the young.

The second possibility of securing a house which more nearly meets the needs of the older persons, often proves difficult. Due to an older person's relatively short life expectancy, monthly payments on borrowed capital are large, and financing costs are high. Because of diminished earning power it may be impossible for older persons either to buy or build a suitable house. The savings of many oldsters have reduced purchasing power because of inflation, but if sufficient funds are available, the question of whether to buy or build may be considered.

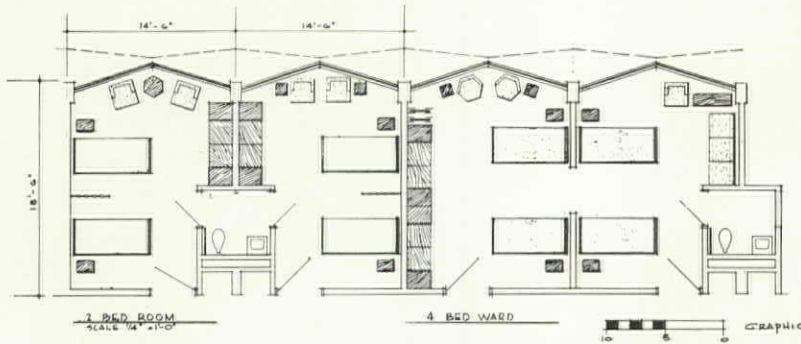
If a suitable place may be purchased, this procedure may be preferred. The property may be possessed more quickly—it is easier to see (at least on the surface) what one is getting—and the procedure seems simpler. However if the house being considered is old, its condition should be carefully checked,

and the price should be compared to its replacement cost. If a newly constructed house is considered, the reputation of the builder, the soundness of its construction, and the probable maintenance cost of materials and appliances should be weighed. It may be expected that by building, one will get a house to fit his special needs. This is more important for oldsters than others. If a house is purchased, it may be remodeled, but the possibilities and cost of a remodeled house should be compared to what one would get in a new house and its cost.

For many older people, ownership of a house meeting their needs is out of the question. They may remain in or acquire a house which is unsuitable or perhaps they may rent. But for the majority, rents for new houses based upon current construction costs are out of sight. There is a need for more rental housing for the aged. Since space needs are less than for young families, some rental housing for oldsters may be economically feasible without a subsidy.

With encouragement from the Federal Housing Administration, builders should be led to include dwelling units suitable for older people in their plans. With the present scarcity of these units and the indicated increase in the number of people in the upper age brackets, these buildings should be in continued demand. In public housing programs, also, the needs of the lower-income group in this category should be considered. By these two

¹³ "Where and How Older People Live Today," in *Housing the Aging*, Wilma Donahue (ed), U of Mich. Press, 1954, pp 13-29



Typical room plan, Johnson County Home. Airconditioning will be by means of a convector system with individual room control of circulated chilled or hot water, thus avoiding transmission of respiratory infections

means, some of the 97% of old people who want to live in their own homes may be enabled to maintain decent living standards. At present those over 65 are less well housed than other age groups.

The third choice open to parents, when all their children are ready to establish their own homes, is to pool their assets with those of one of their children. In rare cases this may be a pleasant and economical arrangement. In "The Older Person in The Home," the US Department of Health, Education and Welfare¹⁴ advises that successful three-generation life depends on how well the needs of each member of the family are met. Thoughtful planning of living quarters, helping the older person find and use services that will promote physical and mental health, make adjustments easier. There should be privacy without isolation, and opportunity for each to entertain self-selected friends. The special needs of oldsters, such as living quarters on the ground floor with bath, some of his or her own possessions, plenty of heat in winter, and the safety measures discussed herein should be provided if possible.

In "Where and How Older People Wish to Live," Wilma Donahue¹⁵ advises against the old tendency to plan for the older person by imposing standards of our own age. There is strength in the person's own drive for what he many want and for evaluating his ability to carry out his own plan. There are divergent points of view as to what older individuals want—from a

house large enough for visiting children and grandchildren to a place in a campus layout of small dwelling units and a central building with all the necessary facilities and personnel at hand.

The fourth possibility, life in a nursing home or home for the aged is discussed later.

Whether an elderly person continues to live in the house to which he is accustomed, or buys, builds or rents a suitable house, he should think out a long term program.

Oldsters' Program

Even if an older person has escaped disability, he will not regret having provided for the contingency—even to the extent of anticipating use of a wheel chair and reliance upon nursing care. Thus the oldster's house should be suitable both for relatively healthy persons and for persons with varying degrees of infirmity. At the extreme the following units would be desirable:

- bedroom with two single beds with 4' between (for turning wheel-chairs) and 3'-0" between each bed and wall—night tables, reading lamps, dressers and chairs (including an easy chair)
- living room with wide opening into bedroom
- kitchen and dining space in either kitchen or living room
- bathroom arranged for use of a wheel-chair
- utility room with space for automatic washer as well as heater, hot-

water tank and possibly an airconditioner

- housekeeper's room
- hobby room
- carport with a landing at car floor height (Allow door clearance)

While in good health, the occupants could use the housekeeper's room as a guest room. If relatives live in the same community, the oldster's dwelling should be located at a convenient distance. It should also be near public transportation facilities, shopping center, church, and other points of interest to the retiree.

Housing Types

The sketch in Diagram 1, and those which follow are only to illustrate the discussion. Each actual project, of course, has its own special problems. Diagram 1 is for a detached house. All openings are wide enough for a wheel-chair. The movable partition between the master bedroom and living room provides seclusion when desired and roominess when open. The utility room is large enough to serve as a passage from the garage and a hobby room, and to contain heater, airconditioner, hot-water tank, and laundry equipment. The living room is large enough for the kind of entertaining done by many elderly couples. The coffee table with extension legs may double as a small dining table. In most cities, building lots from 60' to 64' would be required. If the garage were omitted a 50' lot would suffice. The same plan (without garage) could be used for a semi-detached or row house, using lots 45' and 40' in width respectively.

If a detached house were built to meet the needs of older people, as described above, it would probably be offered for sale when one or both of them died. Unless it were located in a large city with a brisk real estate turnover, it would probably be difficult to secure full value for the property. Real estate operators state that houses with three bedrooms are in greater demand than smaller houses. In the case of the house illustrated by Diagram 1 it would be possible to convert the living room to a bedroom and add a living room, dining room and kitchen as indicated by the dotted line.

¹⁴ Public Health Service Publication No. 542, Washington 1957, 34 pp
¹⁵ *Housing the Aging*, U of Mich. Press, 1954, pp 21-36

A less expensive house is illustrated by Diagram 2. While it is indicated as a row-house, the plan could be used for a semi-detached or detached house, and the frontage required would be 28', 34' and 40' respectively. The second-story bedroom and bathroom could serve as a guest room during the time the occupants are active, and with the installation of an electronic communicating device might be used by a housekeeper at a later date. For better utilization, the second floor could be replanned providing two bedrooms. The scheme shown in Diagram 4 is the lowest cost and requires 2' less frontage than the scheme shown in Diagram 2, for either a row-house, a semi-detached house or a detached house. Since only one bed is accommodated, it is suitable only for a man or woman living alone. He or she should be able to walk without assistance, and/or visited regularly by a nurse, housekeeper, or relative.

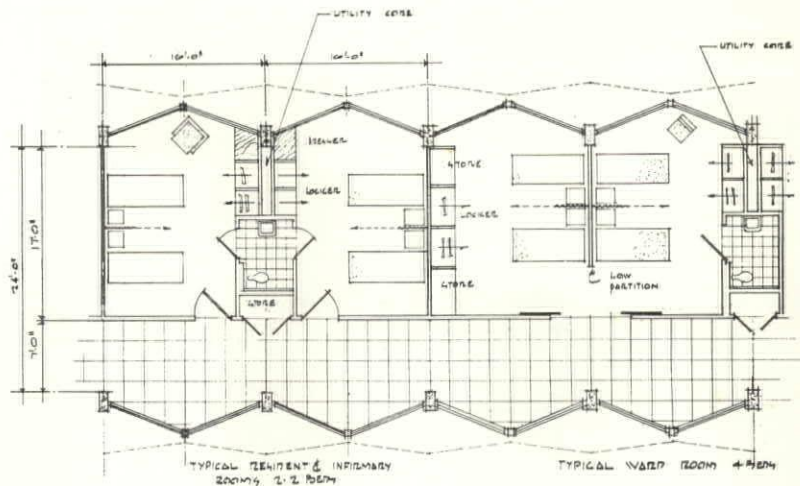
An alternative to the three-generation family is the housing of the oldsters and the younger family in separate apartments under the same roof. This gives each the privacy needed and makes it possible for the younger family to look after the oldsters. The two-story scheme illustrated by Diagram 3 is a possibility. To accommodate a couple, the movable partition between the living room and bedroom should be moved, reducing the size of the living room and increasing the size of the bedroom. This also could be developed either as a row-house, a semi-detached house or a detached house.

While units of semi-detached or row-houses may be purchased separately, detached houses are preferred by most speculative builders. They are also preferred by many purchasers in spite of the wasteful land utilization.

For buildings designed to be rented, however, (especially small houses) the row-house is not only the most economical in land use, but is also less expensive to build.

In "Housing for the Independent Aged," Jane Jacobs¹⁶ says:

"There are not enough well-located small houses available for purchase by those whose present homes are burdensome. Among elderly home owners, 29% have houses of six or seven rooms and



Typical ward room

another 11% have eight rooms or more. FHA in 1956 liberalized its regulations on mortgages and on trade-in down payments for purchasers over 65—it estimates that about 2500 to 3000 homes a year are now bought under these provisions. There is not enough suitable rental housing close to town with at least some helpful services, such as housekeeping aid included."

In considering the amount of rent which could be paid by an aged tenant, attention might be given the reported discussion on *Housing the Aged* by New York Commissioner of Housing, Joseph P. McMurray,¹⁷ who gave his opinion that as much as 30% of income would be reasonable, as against the usual 20%, because other items in the oldster's budget (except medical care) are usually proportionately less.

Other types of rental housing for the aged include walk-ups (ground floor only), and high-rise apartment buildings.

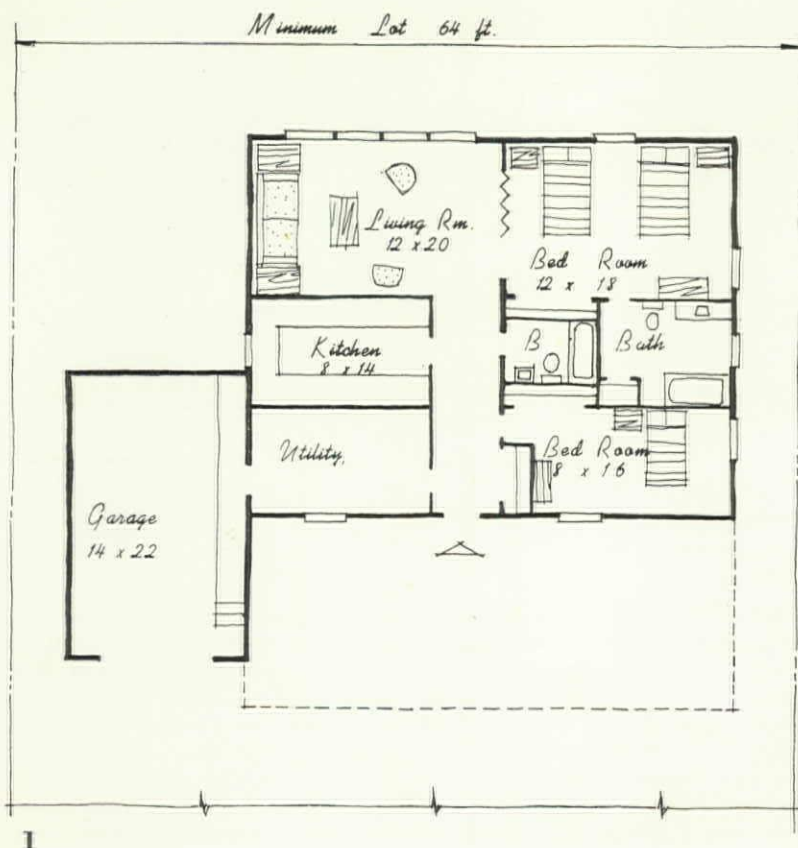
Ground floor apartments in walk-ups may readily be planned for the aged and infirm, as is indicated by Diagram 5, and apartments on any floor of an elevator building as indicated by Diagram 6. Dwelling units for oldsters in row-houses and apartment houses should be intermingled with those for the young.

In general, it is considered unwise for old people to become separated from the life around them. Since this life is largely dominated by young people, however, many old people feel more self reliant

when in the company of their contemporaries. Some, enamored of the freedom of movement thus achieved, purchase trailers and move with the birds or whenever and wherever their interests take them. Wherever they stop they make friends of those with similar interests. Ownership of a boat with living accommodations offers the same possibilities, but at somewhat more expense and with somewhat more danger.

Trailer camps may provide utility connections, bathing and toilet facilities, and laundry equipment. They may also have such communal elements as a general purpose room for meetings, movies, games, a snack bar, space for outdoor games, etc. Since many residents at trailer camps settle down (and even add on such features as porches and awnings), and since many trailers deteriorate rapidly, it seems logical that trailer camp advantages might be had without the disadvantages by building a permanent community. (See reference on independent facilities in bibliography.)

A general scheme is illustrated by Diagrams 7 and 8. Separate living accommodations are reduced to a minimum for two occupants each and facilities for the use of the group are added. The latter include an all-purpose activity room, reading room, game room, offices for supervisor and nurse, and canteen. In a large layout a cafeteria and kitchen might be included. Ideally, such a self-help center should be connected to a rehabilitation center and hospital.



Another possibility, which has been made a reality in several places, is the conversion of a no-longer-popular commercial hotel or a large outdated private house into a rooming place for oldsters. In passing, also, it should be recognized that many clubs provide living accommodations for some of their elderly members. Perhaps the formation of clubs by and for the aged might deserve consideration.

Projects for the Aging

The *Journal of Housing* (Oct 1958) reports on a number of subsidized developments for the aging. One is a three-story row house development in Basel, Switzerland, with rents of \$20 and \$22 per month including utilities. Average age of tenants is 72. In a larger development at Zurich which includes one-room and two-room units, rents (including utilities) range from \$21 to \$28 per month.

In a Netherlands development, housekeeping apartments rent for \$10 per month, and board, laundry and lodging for a single person is \$43 per month. Upsala, Sweden built two-story housing for old people near a home for the aged

and including a dining room where tenants can take meals to their apartments.

As a result of ten years' experience with a successful oldster's housing project in England the following advice is offered:

- secure a competent person (perhaps a housewife with common sense, interest and sympathy) to oversee operation of the project
- work with health and welfare authorities and relatives of tenants
- form a panel of persons who may be called upon to care temporarily for sick tenants while they await admission to a hospital
- provide safety devices and take other precautions for safety

The Churchill House plan in England provides for the conversion of big outdated private houses. Each house has its housemother—". . . usually an elderly woman who gets her rent free—who is willing to lend a hand to a tenant in a pinch, or call in the necessary 'outside' services in an emergency." "Outside services" may include

visiting nurses, housekeeping help and "meals on wheels." An infirmary or "rest home" with matron, nursing staff and meals is available to ill tenants.

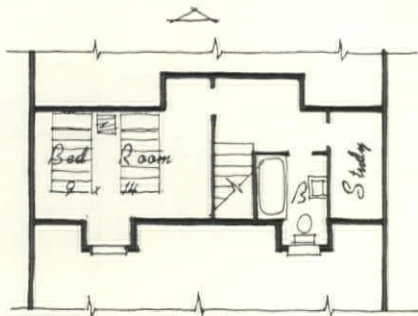
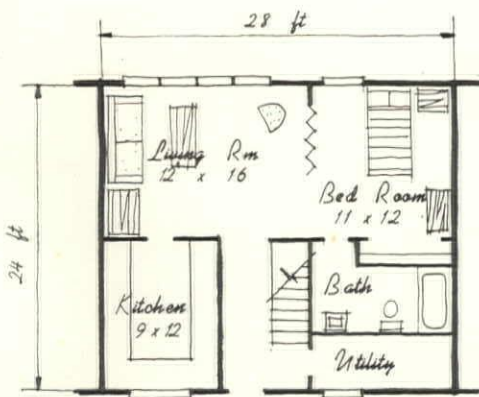
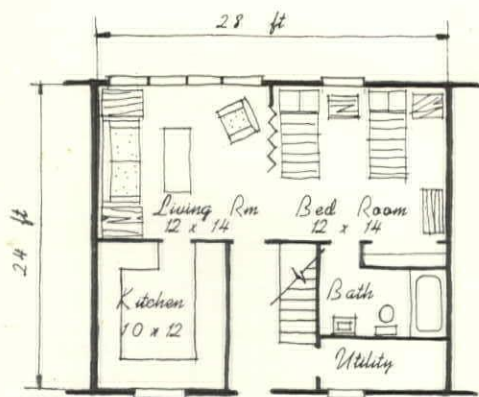
Massachusetts has pioneered in housing for the aged in this country. After experimenting with smaller units, units 450 sf in area have become standard for both single and double occupancy. Safety measures include two exits for each apartment and a buzzer button in each bedroom and bathroom which both sounds an alarm and unlocks the door. Each unit has a cooking range, refrigerator, hot water, group heating, bathroom, bedroom, living room, and connection to a master television antenna. Buildings have from 30 to 75 dwelling units each, and are placed so as to accommodate tenants in their old neighborhoods. Maximum tenant income is \$2500 for a single person and \$3000 for a couple. Average income is \$1100 for single persons and \$1600 for couples and rent (including utilities) is \$47.50 per month. Nearly half receive old-age assistance.

In New York, single occupancy units are 220 sf in area, and double occupancy units have 330 sf. The following features are standard:

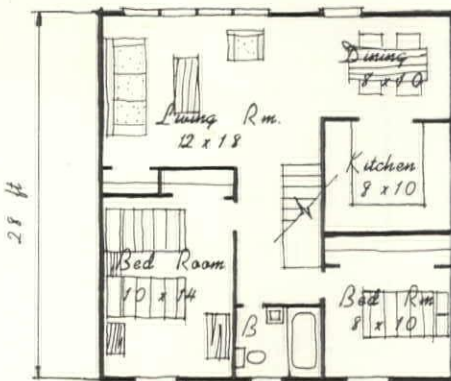
- non-slip tile floors in bathrooms
- grab bars next to water-closet bathtub and shower
- electric ranges
- electric outlets 2' above floor
- mechanical operators for casement windows
- leveled door saddles
- heating capacity to maintain temperature at 80°F
- ample closet and storage space

In multi-story buildings with upwards from 250 dwelling units, special rooms are provided for communal activities. Buildings for the aged are parts of larger housing projects.

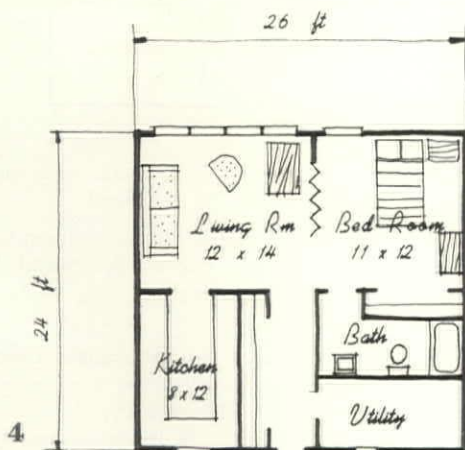
Connecticut has come into the picture recently with programs for moderate incomes and for low incomes. For the former, family income must not exceed \$4000 on entering and if it increases to \$4800 or more, the family must vacate. Units, typically, are 500 sf in area, and rent for \$57 per month. The low-income program has not yet gotten under way.



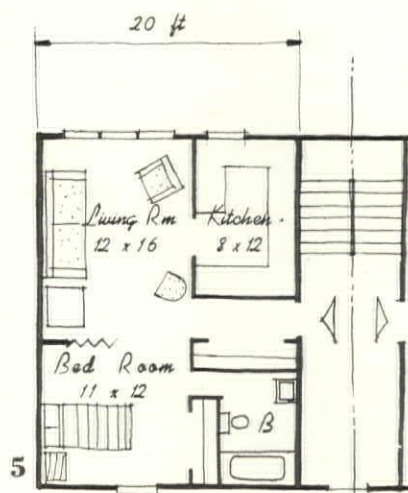
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3



4



5

In San Antonio, Texas, a 185-unit, high-rise housing project for old people will include a recreation room, lounge and library for use of the neighborhood, and provide counselling on health, employment, and legal, financial, social and psychological problems. Elevators are automatic and have cabs 5' x 7' with wide doors to admit stretchers and wheel-chairs. Wood screens 6' high take the place of partitions except for bathrooms. Shower compartments with seats and handrails

are used instead of bathtubs. Ceilings are acoustic tile on concrete slabs.

San Francisco has a project, scheduled for completion in 1960, to provide 730 units. A recreation center with classrooms, social hall and public nursing offices is included. Columbus, Ohio is also developing a large project.

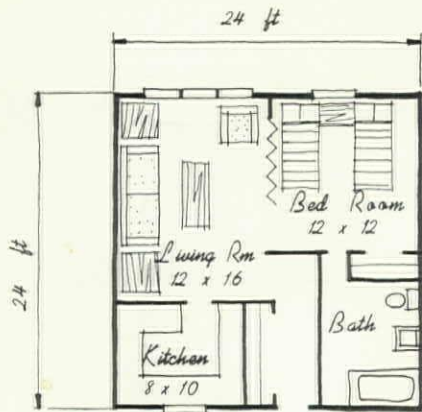
Built-in Safety

Whether the dwelling for the aged or infirm be a remodelled

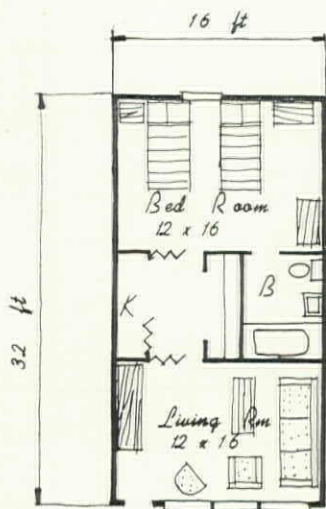
house, a self-help center, a specially designed apartment, or a detached house, some of the following precautions should be taken:

The entrance to the building should be at ground level, if possible—otherwise a ramp with grade not exceeding 5% (1'-0" in 20'-0") and slip-proof surface should be provided or its future construction anticipated.

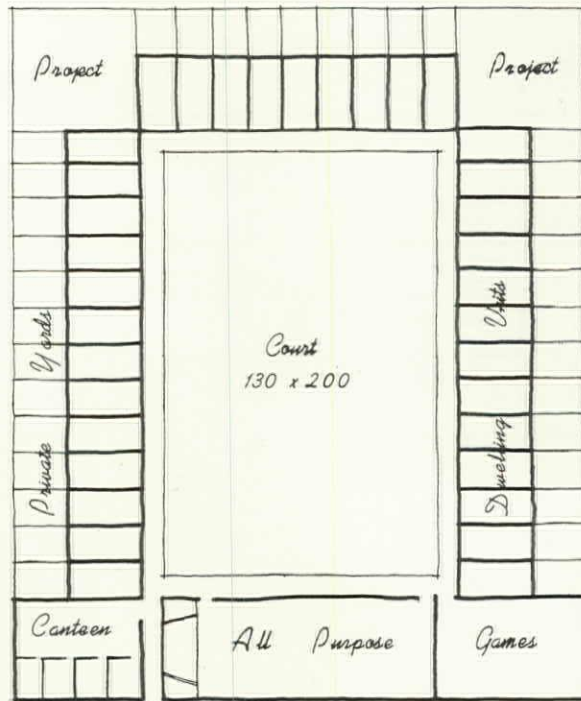
* for apartments above first floor, an automatic elevator large enough for cots should be available



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7



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72

- orientation providing some sunshine each day is more than ordinarily important and air-conditioning is desirable in most localities
- higher winter room-temperatures and increased general illumination should be provided
- a protected sun-terrace and a small garden might be considered, but unless a caretaker is to be provided, the labor required to look after a large garden may become a worry
- crank-operated windows should be chosen which may be opened and closed by wheel-chair residents
- corridors, where required, should be at least 3'-6" wide and should be as short as possible
- doors should be omitted from openings when not needed for privacy and in some cases a fixed screen in front of opening may provide sufficient privacy
- doors should be 3'-0" to 3'-6" wide (without thresholds) and should be either electric-eye oper-

- ated, sliding or folding, or have hardware for convenient hand operation from a wheel-chair
- all electric switches should be within reach of a wheel-chair occupant
- open planning may give effect of spaciousness
- steps should generally be avoided
- stairs and corridors should have hand rails 30" above floor on both sides
- a desirable feature is a covered automobile entrance with platform the height of the car floor
- floors should be slip-proof
- bathroom should be large, and arranged so that it may be used conveniently by a wheelchair patient
- it is desirable to have a space 3' wide at one side of the WC
- grab-bars should be securely fastened over bathtub and wherever support is needed.

- square bathtub with seat and shower may be preferred
- electric ranges are recommended, and kitchen cupboards should be within easy reach

Not all of these precautions need be taken by or for the aged couple or person while healthy, but when an investment is made to provide for remaining years, provision should be made for later addition of those needs which are not included in the immediate plans. Grab-bars and other devices which are not needed immediately may be psychologically depressing.

Since two-thirds of oldsters live in cities, leadership should be taken by urban agencies. Using Chicago as an example, one of the greatest needs seems to be more housing in which old people can live independently. Even with services of visiting nurses and housekeepers, maintaining an individual in his own home is less expensive than in a nursing home or hospital. ◀

Tornadoes

AIA TECHNICAL REFERENCE GUIDE (TRG) 13-2

By Victor C. Gilbertson, AIA, and

the AIA Committee on Disaster Control*

Eugene F. Magenau, AIA, Staff Executive

Second of a planned series of Technical Reference Guides on the following disasters:

HURRICANES • TORNADOES • HIGH WINDS • FLOODS • SNOW AND SLEET • BLIZZARDS • HAIL • EARTHQUAKES
CLOUDBURSTS • FIRES • FOREST FIRES • LIGHTNING • TERMITES • AVALANCHES • ENEMY ATTACK

Tornado Terrors and Territories

The sudden, savage fury of a tornado is one of the most awesome spectacles of nature. Even Webster displays more than usual emotion by defining a tornado as "a violent whirling wind; especially in Central United States, accompanied by a rapidly rotating, funnel-shaped cloud that usually destroys everything along its narrow path."

The characteristic funnel-shaped cloud is not always seen because of darkness, terrain, clouds, etc. The Weather Bureau varies this definition slightly by saying that "a tornado is a violent local storm with whirling winds of tremendous speed. It is usually recognized as a rotating funnel-shaped cloud which extends toward the ground from the base of a thunder cloud. Its color varies from gray to black."

Tornadoes are the most destructive of all storms and may appear with little warning. Although Weather Bureau forecasting is constantly improving, yet as the population increases, the average number of people within the path of a tornado will increase and the potential death-dealing of unannounced tornadoes is a grim probability. The following are basic facts concerning tornadoes:

* Committee Members
Jeffrey E. Aronin
Ernest T. H. Bowen, II
Thomas F. McDonough, FAIA
Melbourne Mills
Herbert J. Powell, FAIA
George W. Tresler
Joseph W. Wells

- Tornadoes occur at any time of day or night but 82% of them happen between noon and midnight. About 42% are between 3 and 7 pm. More occur between 4 and 6 pm than any other hours. (See Figure 1.)

- Tornadoes occur in any month of the year. Normally they are most prevalent in the south and southeast during March and April and in the central plains and north central states during May and June. (See Figure 2.) Overall, about 21% have occurred in May, 19% in June, 17% in April, 10% in March and 10% in July.

- Tornadoes approach from all directions, but 7/8 of them come from a westerly direction. Nearly 60% approach from the southwest. (See Figure 3.)

- Tornadoes have occurred in 49 states (Alaska has had none reported), though they are more prevalent in the central plains states. (See Figure 4.)

- For the period 1916-1958, 9167 tornadoes were reported in the US which killed 9241 persons and caused nearly \$1 billion worth of property damage. (See Figure 5 and 6.)

- Tornadoes' average path is 750' wide but the width of destruction has been reported as narrow as 9' and as wide as a mile.

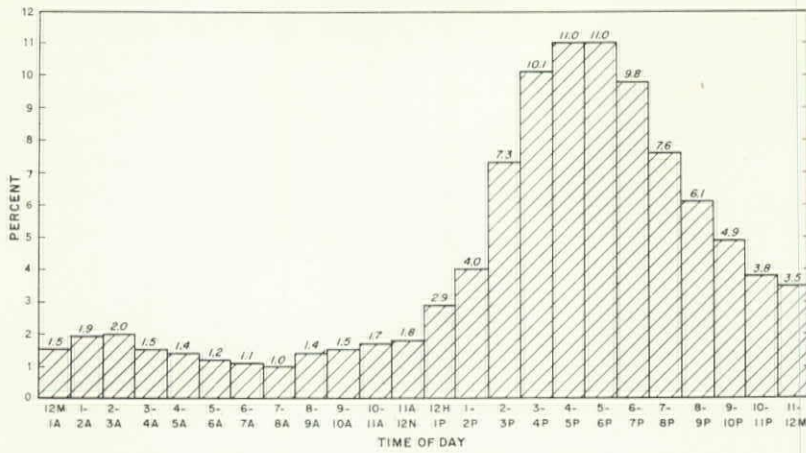
- Tornadoes' average destructive length is 13 miles but they have

been reported in excess of 300 miles.

- In some cases the dangerous core may not even touch the ground, or does so only momentarily, but in other cases contact may persist for hours, leaving a large path of destruction.

- Tornadoes' forces are two-fold: (1) *Motion*. Average forward speed of tornadoes is 25-40 mph but has ranged from 0-68 mph. The winds' speed in the whirling interior has been measured only up to 280 mph due to inability of instruments to go higher. Calculations of the penetrating power of wind-driven objects indicate that speeds on the order of 500 mph may occur. These tremendous winds exert enormous positive and negative pressures on buildings. (2) *Barometric Pressure Gradient*. A sudden pressure-drop in the middle of the storm acts as an explosive force in bursting buildings. This low-pressure center sometimes approaches so rapidly that buildings are unable to lose air fast enough to permit a compensating pressure-drop on the inside of the structure, resulting in outward pressure estimated as high as 1000 psf.

- Tornadoes normally form during unusually warm and humid weather, particularly if combined with an ominous sky and light winds. Exact weather conditions necessary to form tornadoes are not completely known, but frequently several tor-



1 Percentage of tornadoes beginning during the specified hours in the entire United States 1916-58. Based on the 8,508 or 93% of all tornadoes for which time of day was reported. (USWB)

nadoes instead of a single one result from "favorable" conditions.

• Waterspouts are tornado type disturbances occurring over coastal or inland waters and may become tornadoes if they move over land.

Extent of Damage or Loss Due to Tornadoes

Damage to property and loss of life are left in the wake of tornadoes. Both are indicated by states in Figure 5 and are recorded (in part) by years in Figure 6. It should be noted that loss of life has tended to decrease while the number of reported storms has increased. Both are attributed to the US Weather Bureau forecasting and warning procedures.

Figure 2. Monthly Number of Tornadoes and Tornado Days by States and U. S. Totals and Means, 1916-58
See Figure 5 for State Totals

	January		February		March		April		May		June		July		August		September		October		November		December	
	Tor-na- does	Days	Tor-na- does	Days	Tor-na- does	Days	Tor-na- does	Days	Tor-na- does	Days	Tor-na- does	Days	Tor-na- does	Days	Tor-na- does	Days	Tor-na- does	Days	Tor-na- does	Days	Tor-na- does	Days	Tor-na- does	Days
Ala	31	16	40	22	72	39	60	32	31	17	18	4	2	2	3	2	3	3	8	6	30	9	22	12
Ariz					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Ark	16	10	33	19	68	38	111	58	75	32	46	20	12	10	3	3	9	5	12	9	36	16	27	8
Calif	4				6	5	10	6	4	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Colo			1	1	5	2	15	12	36	27	51	41	32	24	8	7	2	2	4	3	2	2	3	2
Conn																								
Del																								
D C																								
Fla	18	11	19	15	22	20	36	30	23	23	28	21	24	24	21	34	19	23	17	13	11	16	10	
Ga	24	13	23	17	49	23	93	36	20	17	14	11	5	5	10	7	8	7	23	17	15	9	4	
Idaho																								
Ill	4	3	2	1	53	24	52	30	60	35	27	13	12	23	17	9	7	9	5	12	5	29	6	
Ind	4	3	13	1	25	47	21	43	35	51	33	34	28	5	4	8	7	4	4	8	4	2	2	
Iowa	3	1	6	3	28	16	61	39	170	89	158	70	47	37	26	30	16	20	11	4	2	8	1	
Kans					51	25	137	74	309	128	300	153	92	65	61	49	33	33	28	13	19	8	1	
Ky	6	4	1	1	15	11	12	9	10	4	4	9	6	1	1	1	1	1	4	2	6	4	6	
La	11	10	25	16	40	25	47	30	44	26	12	10	12	11	8	7	4	14	11	41	22	21	17	
Maine					1	1	1	1	2	2	2	2	2	3	3	5	5	5	1	1	4	3	2	
Md					1	1	6	4	13	10	7	4	13	11	13	11	3	3	1	1	3	3	2	
Mass					1	1	1	1	5	5	14	8	16	12	7	7	5	5	4	3	4	2	2	
Mich	1	1	1	1	6	2	16	11	46	23	52	34	17	13	20	13	14	13	2	1	2	2	2	
Minn					2	2	8	6	37	25	74	55	46	37	26	18	7	6	2	2	2	2	2	
Miss	13	12	41	19	79	41	95	33	132	19	14	10	8	8	4	4	5	4	4	30	16	23	19	
Mo	13	8	18	9	70	32	73	38	113	51	60	45	20	19	10	25	17	15	13	16	10	13	4	
Mont			1	1	1	1	1	1	7	23	19	24	21	8	8	1	1	1	1	13	2	19	4	
Nebr					2	1	47	30	109	66	145	60	86	55	33	26	19	11	7	4	2	2	2	
Nev																								
N H																								
N J					1	1	4	4	2	2	4	3	4	4	2	2	2	1	1	1	1	1	1	
N Mex					1	1	5	2	35	24	14	11	6	6	6	6	4	4	4	1	1	1	1	
N Y																								
N C	4	3	4	4	18	11	25	17	17	15	11	11	8	7	7	5	4	4	1	1	1	1	1	
N Dak					1	1	1	1	13	43	32	46	39	16	14	13	6	4	3	3	5	5	1	
Ohio	5	5	4	2	21	12	18	12	31	25	33	27	16	12	16	13	12	10	1	2	2	2	3	
Oklia	16	9	22	14	56	26	213	89	265	114	146	77	47	34	22	18	23	18	16	15	26	12	4	
Oreg																								
Pa	1	1	1	1	4	4	18	12	21	15	31	24	28	24	13	13	14	10	1	1	1	1	1	
R I																								
S C	2	2	7	6	19	15	37	28	29	24	20	19	3	3	13	8	7	7	3	3	3	3	1	
S Dak					1	1	19	7	30	21	71	58	36	31	22	20	9	9	3	3	1	1	3	
Tenn	12	9	23	10	70	31	30	18	25	17	14	9	7	6	3	3	3	3	2	2	9	8	6	
Tex	24	14	35	17	101	52	266	116	256	143	108	65	55	48	43	37	17	10	39	24	30	20	3	
Utah																								
Vt					1	1	1	1	2	2	4	3	3	4	2	2	2	2	1	1	1	1	1	
Va	1	1	2	2	5	4	12	10	17	11	7	7	3	6	8	9	4	1	1	2	2	1	1	
Wash																								
W Va					1	1	2	2	3	3	3	3	3	1	2	2	1	1	1	1	1	1	1	
Wis					3	3	30	16	27	20	53	37	36	26	12	10	20	14	6	4				
Wyo					1	1	1	1	18	15	35	31	17	14	5	5	2	2						
Alaska																								
Hawaii	1	1			1	1																		
U.S. Total	208	94	316	120	882	272	1,534	426	1,951	582	1,713	595	876	451	525	326	365	213	247	131	331	117	219	85
U.S. Mean	4.8	2.2	7.3	2.8	20.5	6.3	35.7	9.9	45.4	13.5	39.9	13.8	20.4	10.5	12.2	7.6	8.5	5.0	5.7	3.0	7.7	2.7	5.1	2.0
U.S. Mean tornadoes per tornado day	2.2		2.6		3.2		3.6		3.4		2.9		2.0		1.6		1.7		1.9		2.8		2.6	

* Corrected for boundary-crossing tornadoes.

This should not lull us into complacency, however. On 10 February 1959 a tornado hit St. Louis at 2 am not only without warning but had there been a late warning, very few people would have been up to hear it.

The destruction of and damage to buildings is enormous. An estimated damage in the US of almost \$1 billion in 43 years is a figure that will increase as the density of buildings and building values become greater, *unless construction methods are improved.*

In the path of a tornado, buildings suffer damage varying from minor breakage to total destruction. Near the vortex, damage to most buildings of inadequate construction is very nearly complete. Wind pressures and suction in the vortex are generally believed to be so great that construction to withstand them is not considered economically feasible. At some distance from the vortex, damage will be less.

A great deal of damage occurs outside the path of the vortex, especially on the sides where the rotary direction of wind within the tornado parallels the overland direction of travel.

Types of Damage

Loss of Life

Injury and loss of life are shown in Figures 5 and 6 but other types of loss and damage resultant from this phase of destruction are not indicated. Activities of people suffer drastically. Transportation, communication, business, farming, manufacturing and education are disrupted in varying degrees, with tremendous economic loss.

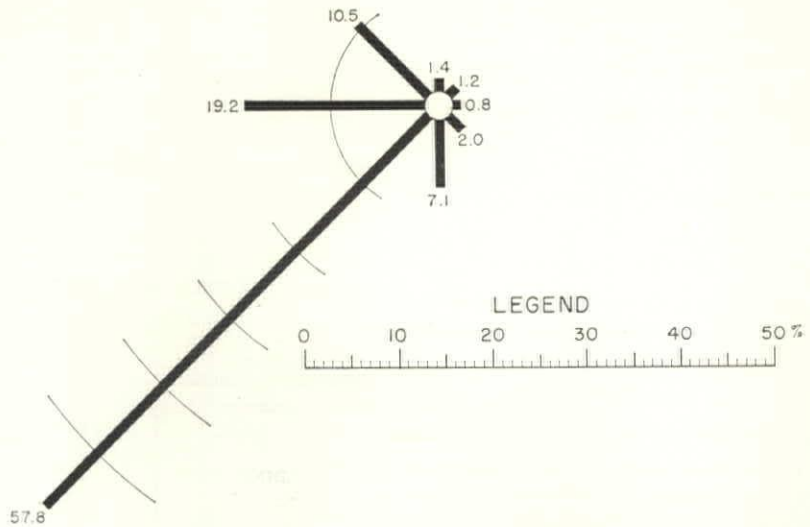
Damage to Equipment & Utilities

Automobiles, farm equipment, communication towers, windmills, hydrants, telephone lines, power lines and everything that is not securely anchored may receive heavy damage. A tornado at Fergus Falls, Minnesota, once split a huge tree, hurled an automobile into the split, closed it and held the automobile there as if in a vise.

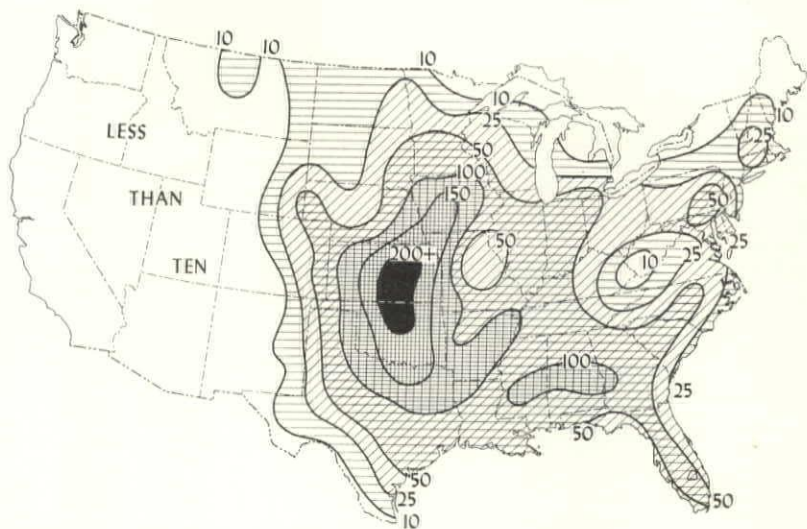
Damage to Buildings

Wind and Air Pressure

The extreme violence at the vortex of a strong tornado with wind in excess of 150 mph and possibly 10% pressure drop, exceeds the



3 Tornado rose for the United States, giving percentage of tornadoes moving from indicated directions. Based on 5,746 tornadoes, 1930-58.



4 Tornado distribution in the United States per 2° square of latitude and longitude during 40 year period 1916-55. (USWB L. S. 5703)

capacity of many buildings to resist damage. Typical damages from wind and pressure drop are:

- complete destruction
- windows broken or entire sash blown out
- built-up roofing blown off because of inadequate bonding to roof
- roofs blown off for lack of anchorage
- walls of upper stories collapsed from lack of bracing
- shingles or tiles blown off roof
- steeples and penthouses blown off
- houses moved off foundation for lack of anchorage
- sprinkler pipes bent and broken causing water damage to buildings and contents

Flying Debris

Automobiles, trees, sheet metal, roofing, gravel and building materials hurled through the air may cause great damage to buildings that might otherwise withstand the tornado. One of the most impressive instances of flying debris occurred in May, 1931 at Moorhead, Minn., when an 83-ton railroad coach with 117 passengers aboard was carried through the air and set down in a ditch 80' away—with only one death resulting. At the opposite extreme, a piece of wall-paper about 2" x 3" was once observed driven edge-wise into a box elder tree.

Rain

Heavy rain very often accompanies a tornado, though not necessarily. Where rain is present additional damage occurs in building

interiors that have been exposed by the storm.

Existing Code Provisions

There are four major codes in general use throughout the US:

NATIONAL BUILDING CODE of National Board of Fire Underwriters

SOUTHERN STANDARD BUILDING CODE of Southern Building Code Conference

UNIFORM BUILDING CODE of International Conference of Building Officials (formerly Pacific Coast Building Officials Conference)

BASIC BUILDING CODE of Building Officials Conference of America, Inc

These codes require buildings to be designed to resist the following

HORIZONTAL WIND PRESSURES (psf)

Ht. above ground in feet	National		South Unif.		Basic	
	A	B C	D E	F G		
0	29	15 25 35	10 25 15	*		
30	49	.20 30 45	20 35 15	*		
50	59	25 40 55	24 45 15	20		
60	99	25 40 55	24 45 20	20		
100	199	30 45 70	28 50 20	**		
200	299	30 45 70	30 50 20	**		
300	399	30 45 70	32 50 20	**		
400	499	30 45 70	40 50 20	**		
500	1199	35 55 80	40 50 20	**		

A. For areas subject to moderate wind conditions.

B. For areas subject to moderately severe windstorms.

C. For areas subject to severe windstorms.

D. For Southern inland regions.

E. For Southern coastal region, within 125 miles of coast.

F. No exceptions.

G. Except in unusually exposed positions and in geographical regions subject to higher wind loads than herein specified.

* Except in locations subject to hurricanes, cyclones, tornadoes or similar unusual winds, the wind load on buildings may generally be neglected except when height exceeds 4 times the minimum width or when walls, floors, partitions or roof do not provide bracing for structural frame.

** Increase 0.025 psf for each foot of height in excess of 100 feet above the 100 foot level.

The first two codes contain provisions for adequate and effective resistance to lateral wind forces anticipated in various parts of the

country from hurricanes, but not from tornadoes. This is evident from a comparison of the tabular wind speeds with typical tornado winds of 150 mph and upwards.

Both the National and Southern codes conform with "American Standard Building Code Requirements for Minimum Design Loads" (Reference 8). However the wind

Figure 5. NUMBER OF TORNADES, DAYS, DEATHS AND DAMAGES 1916-58

States	Totals for the Period 1916-1958			
	Number	Days	Deaths	# Damage \$000's
Alabama	320	164	776	30,111
Arizona	21	19	—	31
Arkansas	448	238	984	28,209
California	35	27	—	2,068
Colorado	156	120	27	2,602
Connecticut	20	18	—	766
Delaware	10	10	—	232
Dist. of Col.	4	4	—	301
Florida	277	218	34	5,653
Georgia	278	151	550	73,506
Idaho	14	14	2	45
Illinois	301	172	943	69,388
Indiana	269	171	258	35,187
Iowa	599	315	89	33,788
Kansas	1,041	553	270	35,559
Kentucky	76	57	181	10,071
Louisiana	279	189	334	18,560
Maine	22	20	1	2,508
Maryland	62	50	30	197
Massachusetts	56	44	96	55,678
Michigan	177	114	175	54,417
Minnesota	204	153	181	31,612
Mississippi	307	189	869	49,595
Missouri	446	256	536	63,150
Montana	70	60	5	1,643
Nebraska	450	275	91	16,341
Nevada	1	1	—	Slight
New Hampshire	15	14	1	496
New Jersey	25	23	2	1,941
New Mexico	75	58	6	940
New York	32	32	5	6,341
North Carolina	113	91	55	7,920
North Dakota	129	103	54	13,579
Ohio	159	121	176	52,713
Oklahoma	856	429	724	73,963
Oregon	8	7	—	17
Pennsylvania	140	112	62	10,268
Rhode Island	1	1	—	5
South Carolina	154	121	191	10,866
South Dakota	189	148	20	4,385
Tennessee	204	119	366	28,556
Texas	999	560	844	111,677
Utah	8	7	—	24
Virginia	70	53	35	102
Vermont	11	12	—	3,176
Washington	11	11	—	38
West Virginia	13	11	110	3,039
Wisconsin	187	130	155	25,950
Wyoming	78	68	3	680
Alaska	—	—	—	—
Hawaii	2	2	—	11
United States average per yr	*9,167 *213	**3,412 **79	9,241 215	981,905 22,742

NOTE: The losses (in thousands of dollars) are based on values estimated at the time of occurrences; consequently, comparisons of damages cannot be made without adjustment. (USWB)

* Corrected for boundary-crossing tornadoes.
** Tornado days for country as a whole.

pressure map published in this document¹ has been rendered obsolete for some localities by recent research reported by H.C.S. Thom, Chief Climatologist of the US

Weather Bureau, and reproduced here, in part, by special permission.

A study of Boston city office and airport data showed that the probability of exceeding 60 mph

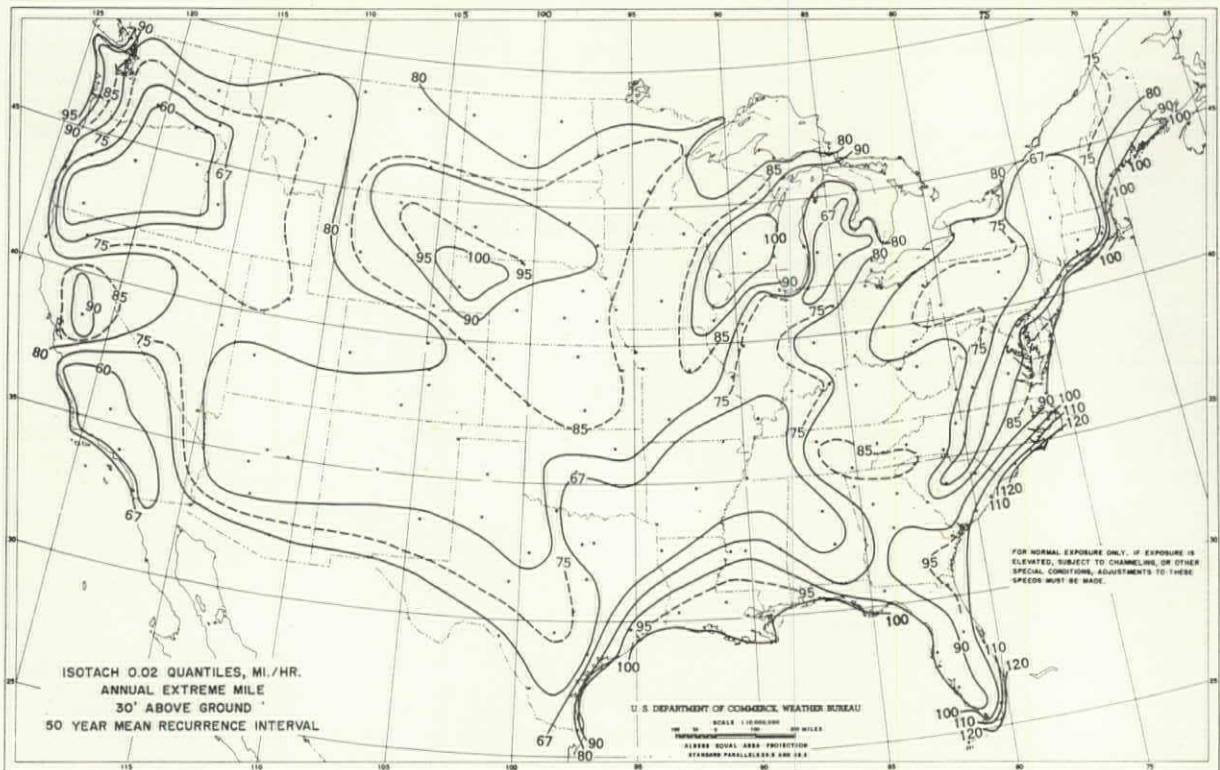
at the airport was twice that at the city office. New compilations using only airport observations (and a few city stations near large bodies of water to reflect coastal

Figure 6. SOME OUTSTANDING TORNADOES SINCE 1925

(Where loss of life was 10 or more, or where estimated property loss was two million dollars or more)

Date	Place	Time of Occurrence	Lives Lost	Injured	Estimated Property Damage
1925, Mar. 18	Mo., Ill., Ind.	1:00-4:00 pm	689	1,980	\$17,000,000
1926, Nov. 9	LaPlata, Cedarville, Md.	2:35-3:15 pm	17	—	100,000
1926, Nov. 25	Belleville to Portland, Ark.	4:30-9:30 pm	53	—	630,000
1927, Apr. 12	Rock Springs, Tex.	—	74	—	1,200,000
1927, May 9	Randolph Co., Ark., Poplar Bluff, Mo.	2:05 pm	92	—	2,300,000
1927, Sept. 29	St. Louis, Mo.	—	72	—	22,000,000
1928, Sept. 14	Rockford, Ill.	3:22 pm	14	—	1,200,000
1929, Apr. 25	S.E.-Central Ga.	4:00 pm	40	—	850,000
1930, May 6	Hill & Ellis Co., Tex.	3:30 pm	41	—	2,100,000
1932, Mar. 21	Ala. (series of tornadoes)	3:15-7:00 pm	268	1,874	5,000,000
1933, Mar. 14	Nashville, Tenn.	7:30 pm	15	scores	2,200,000
1933, May 1	Webster-Bienville Parishes, La.	4:00 pm	23	400	1,300,000
1935, Apr. 6	Wilkinson-Amite Co., Miss.	7:30 pm	11	75	190,000
1936, Apr. 2	Cordele, Ga.	7:30 pm	23	500	3,000,000
1936, Apr. 5	Tupelo, Miss.	8:55 pm	216	700	3,500,000
1936, Apr. 6	Gainesville, Ga.	8:27 am	203	934	13,000,000
1938, Sept. 29	Charleston, S. C.	6:45 am	32	150	2,000,000
1939, Apr. 16	Drew Co., Ark.	3:10 pm	27	62	20,000
1940, Feb. 10	Dougherty Co., Ga.	4:20 am	18	397	3,200,000
1941, Oct. 26	Dardenelle to Hamburg, Ark.	11:15 pm	19	95	200,000
1942, Mar. 16	Central to N.E. Miss.	4:00 pm	75	525	1,400,000
1942, Apr. 27	Rogers & Mayes Co., Okla.	3:45 pm	52	181	2,000,000
1943, Apr. 27	Akron-Cleveland, Ohio	7:30 pm	3	214	3,500,000
1944, June 23	Ravenna, Ohio, Pa., W. Va. to Cumberland, Md.	6:00-9:30 pm	150	867	4,200,000
1945, Apr. 12	Okla.-Ark.	3:25-6:00 pm	102	689	4,000,000
1946, Jan. 4	N.E. Texas	2:10-9:00 pm	30	335	2,700,000
1947, Apr. 9	Texas, Okla. & Kans.	6:00-10:00 pm	169	983	9,800,000
1948, Mar. 19	Bunker Hill & Gillespie, Ill.	6:38-7:35 am	33	449	3,800,000
1948, Mar. 20 and 25	Oklahoma City, Okla., Will Rogers & Tinker Fields	10:00 & 6:00 pm	0	9	16,000,000
1948, Mar. 26	Terre Haute to Redkey, Ind.	5:00 pm	20	200	3,000,000
1949, Jan. 3	La. & Ark.	3:00-6:00 pm	58	439	1,500,000
1949, May 15	Amarillo, Tex.	6:30 pm	6	83	4,800,000
1949, May 21	Cape Girardeau, Mo.	6:55-7:00 pm	23	130	3,500,000
1950, July 19	Van Wert & Allen Co., Ohio	afternoon	0	30	2,000,000
1951, June 26, 27	Gove & Trego Co., Kans.	11:10 pm-12:30 am	5	100	2,100,000
1951, July 20	Hennepin Co., Minn.	9:00-9:30 pm	5	scores	6,000,000
1952, Feb. 29	Fayetteville, Tenn.	4:30 pm	2	150	3,000,000
1952, Mar. 21, 22	Ark., Mo., Tenn. (series of tornadoes)	3:00-12:00 pm	208	1,154	14,000,000
1953, Apr. 18	Columbus, Ga.	6:15 pm	2	300	15,000,000
1953, Apr. 30	Warner Robbins, Ga.	5:15 pm	18	300	15,000,000
1953, May 11	Waco, Texas	4:10 pm	114	597	41,000,000
1953, June 8	Flint to Lakeport, Mich.	8:30-10:30 pm	116	867	19,000,000
1953, June 8	Northern Ohio	7:00-9:30 pm	17	400	20,000,000
1953, June 9	Central & Eastern Mass.	3:25-5:00 pm	90	1,288	52,000,000
1953, Dec. 5	Vicksburg, Miss.	5:35 pm	38	270	25,000,000
1954, Mar. 13	Taylor, Crawford and Bibb Counties, Ga.	10:00-11:35 pm	5	75	3,000,000
1954, Mar. 13	Ft. Mitchell, Ala.,-Ft. Benning, Ga.	8:40-9:45 pm	2	20	6,000,000
1954, June 1	Cottle Co., Tex.	7:30 pm	1	14	2,600,000
1955, May 25	Blackwell, Okla.	9:30 pm	20	280	8,000,000
1955, May 25	Udall, Kans.	10:30 pm	80	270	2,200,000
1956, Apr. 3	Southern Mich.	6:30-7:41 pm	18	340	11,000,000
1956, Apr. 15	Birmingham, Ala.	3:00 pm	25	200	1,500,000
1957, Apr. 2	Dallas, Tex.	4:30-5:10 pm	10	200	4,000,000
1957, Apr. 8	S-Central N. C. & N-Central S. C.	5:30-9:00 pm	4	130	2,100,000
1957, May 15	Silverton, Tex.	10:35 pm	21	80	500,000
1957, May 20	Williamsburg, Kans. to Ruskin Heights, Mo.	6:15-8:30 pm	44	531	Millions
1957, May 21	Des Loge to Cantwell, Mo.	3:45-4:15 pm	8	50	7,000,000
1957, June 14	Springfield area, Ill.	2:00 pm	2	50	3,000,000
1957, June 20	Fargo, N. D. to Moorhead, Minn.	6:40 pm	10	103	13,000,000
1957, Nov. 7	Groves, Jefferson Co., Tex.	9:15 pm	2	59	2,200,000
1957, Dec. 18	Jackson, Williamson, & Franklin Counties, Ill.	4:45 pm	11	200	2,000,000
1958, June 4	Woodville & Colfax, Wisc.	5:30 p.m.	19	110	17,000,000
1958, June 10	El Dorado, Kans.	5:44 pm	15	50	3,000,000
1959, Feb. 10	St. Louis, Mo.	1:40-2:15 am	21	345	5,000,000 to 50,000,000

¹ . . . and in TRG 13-1 "Hurricanes", AIA Journal, October 1959.



7 Isoline map of design wind speeds in miles per hour

conditions) resulted in the map, figure 7, showing wind speeds in miles per hour that recur on the average of at least once in 50 years in open country situations. These wind speeds may be converted to psf pressures by use of the following

CONVERSION TABLE

mph ¹	psf ²	mph	psf ²
60	20	130	95
67	25	140	110
75	30	150	125
80	35	160	145
85	40	170	160
90	45	180	180
95	50	190	205
100	55	200	225
110	70		
120	80		

¹ map values, wind speed at 30' level
² min allowable resultant wind pressure at 30'

78

It should be noted that in sheltered urban situations, these design loads can be safely reduced by up to 20% depending on local records and judgment of the individual designer. Also these figures still do not reflect the abnormal loads induced at or near the center of tornadoes, which are usually very localized.

For elevations higher than 30' above ground level, it is necessary to increase the isoline values shown

on the map, Figure 7, before using the conversion table. This may be done with the nomogram of Figure 8 which solves the "Hellman one-seventh power formula" for converting wind speed at 30' level to that at any other elevation up to 850' (or vice-versa).²

For special code provisions relating to outward and inward pressures on walls and roofs, eaves and cornices, anchorage, chimneys, tanks, towers, signs, shielding, unusual exposures, overturning and sliding, and stresses during erection, reference should be made to A58.1—1955 (Reference 8).

Finally, map values are for "standard" conditions at sea level and 59° F temperature. Variations in the density of air will occur at other altitudes and temperatures. Adjustment is made by multiplying velocity pressures in conversion table above by the following factors:²

air temp °F	elevation above sea level (feet)		
	0	5000	10000
-30	1.21	1.00	.84
0	1.13	.94	.79
30	1.06	.88	.74
60	1.00	.83	.70
90	.95	.79	.66
110	.92	.76	.63

² For a more complete discussion see Reference 18.

"Minimum Property Requirements" of FHA include provisions for sill and plate anchorage, with wide regional variations in some cases subject to the discretion of regional office. However, anchorage requirements are so minimal that they are inadequate for abnormally high winds.

Where local codes do provide for anchorage requirements, attendant problems of enforcement especially in rural and residential buildings, often render them ineffectual. There are many areas not regulated by building codes.

Customary Construction Practices

In the case of architect-designed buildings or where code requirements exist with enforcement, there is some regard for construction to withstand high winds. Only special purpose structures and shelters have been designed to resist maximum tornadic forces.

There is a continuing trend towards the use of lighter systems of construction for all buildings. The merchant builder in a highly competitive market might feel that \$100 more cost for bracing and anchorage will not help him to sell a house and their omission will enable him to "sell for less."

Lack of knowledge of good construction principles on the part of local builders particularly in rural areas yields a large number of buildings unsuited to withstand even the fringes of a tornado. But some houses appear capable of weathering a fullscale tornado, suggesting that adequate construction practices are realizable and were often applied in the past. Selected observations will point up some definite possibilities for the architect to use as additional criteria in his every-day work.

- no structural damage is known to have resulted to a reinforced concrete building in a tornado

- steel frame buildings built according to AISC Standards have withstood tornadoes without structural damage

- curtain walls must be well braced to withstand full tornadic forces

- monolithic roofs will probably be undamaged in tornadoes while deck material may be severely damaged unless *securely* attached to the frame

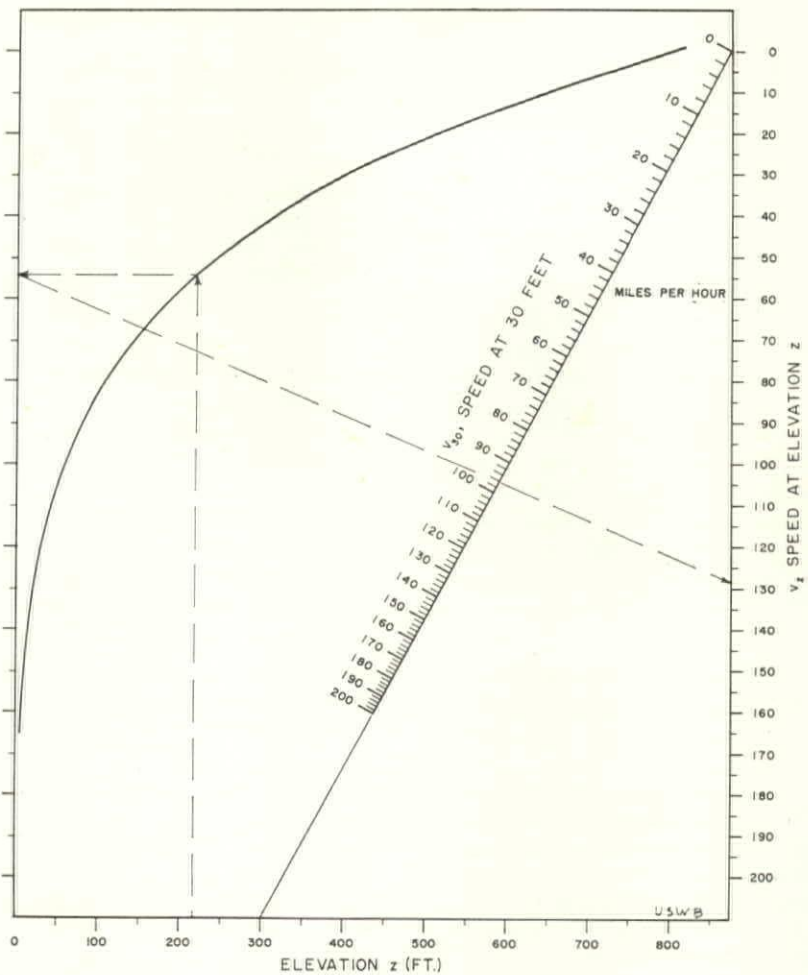
- fire protection—and freedom from water damage—can be continuous if sprinkler piping is supported by building frame

- roof and top story of buildings with load-bearing masonry walls and roofs of plank and timber or light deck material on joists will be severely damaged by the *full force* of a tornado

- most wood frame buildings in the vortex of a tornado suffer complete destruction but some survive where there is total devastation all around them. The fact that these survivors are often older buildings suggests that structural deficiencies are common in the newer homes and this is borne out by observations of (a) inadequate foundation and roof anchorage, (b) inadequate wall bracing and (c) lighter weight

- where houses leave their foundations there is seldom any sign of anchorage, and the basement ceiling usually goes with it. Except for this fact, basements provide good shelter for inhabitants

- pump-rooms and other such rooms extending beyond the normal limits of the house and having an anchored concrete slab above them, provide very fine shelters



8 Nomogram for wind speed conversion at different heights. Example: Assume wind speed of 96 mph at 30' level as determined from map, Figure 7. To find wind speed at height of 215', follow dotted line from $Z = 215$ to the curve, thence to left edge, thence through V_{30} scale at 96 mph to find $V_{215} = 128$ mph. From conversion table page 78, resultant wind pressure = 90 psf (by interpolation).

- basementless houses provide little protection from tornadoes unless they contain an area specially designed to resist tornadoes. Areas with plumbing offer the best protection in houses without basements

- an old fashioned underground storm shelter is still one of the most reliable places of refuge

- there is little doubt that venting saves some buildings from the explosive feature of tornadoes. Lowered shutters to protect windows and to allow opening of windows during storms has been proposed as a means of aiding resistance. Pop-out windows for pressure relief are available from at least one manufacturer of metal windows. Recommended area is 1 sf of window per 1000 cf of building volume, on at least two sides of building

- windstorm insurance is available for any property owner. It is not a cure for inadequate construction practices. The underwriters have never found a way to bring back a life snuffed out by the collapse of a poorly constructed building. Windstorm insurance is included under "extended coverage" of fire insurance policies with six other perils (hail, explosion, riot due to civil commotion, riot attending a strike, aircraft and motor vehicle damage, and smoke from heating and cooking appliances). "Additional extended coverage" is available for residences, covering breakage of heating and plumbing pipes, falling of trees, and other hazards

Safety - engineering service is available to policy holders from some insurance companies, giving detailed recommendations for storm

damage prevention measures. This can be particularly beneficial with respect to existing buildings. For example in one such study the following points were among those covered:

- small window vents in airconditioned buildings would be inadequate to equalize sudden pressure changes, leading to excessive glass breakage and water damage
- only one of three buildings had any basement area for shelter
- cars parked in southwest quadrant are more likely to be hurled against buildings like a missile
- clips for attaching concrete planks to purlins develop only 30-45 psf resistance to uplift, equivalent to 135 lbs per clip in a typical case, as compared with 1000 lbs each for self-tapping screws in 1/8" thick steel

Conclusions and Recommendations

Recommended Basic Principles

While *conclusive* data is still lacking which would serve as design criteria and basis for code provisions, it becomes increasingly clear that application of the following basic principles will go far towards minimizing the hazard to life and property. (Numbered references refer to bibliography):

- see that your community has a local warning system and definite advance planning for disasters. See Ref. (1)
- realize that a tornado could hit *your* building and defense measures are your responsibility
- provide shelter for building occupants. See Ref. (11, 22, 30, 31). If in basement, "fail-safe" construction is provided by (a) physical separation and independent anchorage of ceiling and upper frame, (b) floor strengthened to resist impact and weight of collapsed superstructure, and (c) venting of basement
- anchor roofs to superstructure and superstructure to foundations. Standard framing anchors which will tie rafter or stud to *both* top and bottom members of wall plate, are available and should be used. See Ref. (16, 19, 20, 24, 25, 27, 32)
- consider utilization of probability theory to limit the risk of failure within a given period of time along with linear programming procedures to obtain solutions giving maximum economy. See Ref. (23)

- brace buildings for high winds. Ref. (8, 18, 23, 27)
- make certain that designed safeguards are properly installed
- consider venting of buildings. See Ref. (6, 24)
- encourage inclusions in codes of provisions for anchorage and bracing based upon structural analysis, and encourage communities to adopt them. See Ref. (23, 28, 33, 34)

Recommended Procedure at Time of Disaster

At this time the architect can do nothing more for the buildings he has designed, but everyone can do the following for himself:

- keep radio or TV tuned in for warning notices. If warnings are being issued, *don't call authorities!*
- advise your neighbors
- tie down loose articles, and turn off fuel and electric lines while the tornado passes
- get into a storm shelter
- get away from tornado if adequate shelter is not available. Such storms seldom travel at more than 40 mph and in open areas it is possible to escape at right angles to the approaching storm
- if escape is impossible, seek shelter in the corner of a basement toward the direction of storm's approach. If in a basementless house, seek shelter elsewhere—in a concrete or steel frame building or even in a ditch or culvert
- leave some windows open on the lee side of the building to provide venting
- have Ref. (24) on hand

Recommendations to architects following disaster

Like other citizens, the architect should cooperate with organized relief agencies, take every precaution against safety and health hazards and join the fight against unnecessary destruction, injury and loss of life. He can help materially by:

- investigating, photographing and reporting to AIA examples of damaged structures, construction details, etc, both successes and failures
- offering, collectively with other architects in the disaster area, recommendations to public officials and the public for replanning and rebuilding

- influencing insurance companies, Red Cross and other restoration agencies to restore damaged structures in a better manner than they were before, or to permit the abandonment of marginal structures

Additional Research Needed

What are the pressure gradients, wind speeds and wind speed gradients experienced during tornadoes? To answer these questions, new measuring devices and techniques, capable of functioning through the full range of tornadic forces, must be developed.

Since the probability of a tornado striking a particular structure is extremely small, it would take many decades to get results from controlled tests of building products or construction methods. This suggests promising areas for research in (a) methods of developing tornadic forces under laboratory conditions, and (b) large scale methods of controlling the weather whereby incipient tornadoes could be dispelled or destroyed.

Detailed joint investigations of damaged structures by architects, structural and safety engineers, and weather experts would refine our present knowledge of proper principles of building design, construction and operation.

Conclusions

The often-voiced opinion that it is impossible to design against tornadoes, is without basis in fact. Sufficient evidence exists to prove that proper construction will successfully resist tornado forces.

Tornadoes vary in intensity from possibly 150 to 500 mph at the vortex. Furthermore, speeds diminish progressively outward from the vortex. It is much more likely that a building will be struck by a moderate tornado or by the fringes of a severe one, than by the maximum vortical forces. For these reasons it is practical to take the simple precautions to strengthen a building that may save it. At the least, a considerable reduction in the amount of damage will be effected.

Beyond this minimum — which means ordinary sound construction, firm anchorage, lateral bracing of the frame, securely fastened roofs, and provision for venting — the architect can incorporate any desired degree of windstorm resistance.



Source Material and Additional References

* Asterisk indicates material used for this article hereby gratefully acknowledged.

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3 Jay Street
Boston 8, Mass.

6 * Venting and Other Building Practices as Practical Means of Reducing Damage From Tornado Low Pressures. George W. Reynolds, Engineering Research Inst. of Michigan, Ann Arbor, Jan. 1958; 7 pp. illus. 7½ x 10¼.

7 * A Common Wind Damage Pattern in Relation to the Classical Tornado. George W. Reynolds, Jan. 1957; 5 pp. 7½ x 10¼. Analysis of wind speeds and air pressures with formulas, charts and graphs.

American Standards Association, Inc.
70 E. 45th Street
N. Y. 17, N. Y.

8 Minimum Design Loads in Buildings & Other Structures. Sponsored by National Bureau of Standards. ASA Publication A58.1—1955; 29 pp. illus. 8½ x 11, (\$1.50). Contains recommended building code requirements and data on live and dead loads, wind loads, earthquake loads. (NOTE: See more recent design load recommendations in Figures 7 and 8, this report).

Disaster Planning Institute
Catholic Hospital Association of US & Canada. Detroit. April 1959

9 Emergency Feeding in Disaster. Agnes C. Bannister. 15 pp. typed 8½ x 11. Detailed operational principles for food storage, water supply, rubbish disposal, sanitation, etc. Bibliography.

10 Public Relations & Publicity Procedures in Disaster Programs. Marie Aubuchon. 7 pp. typed 8½ x 11. Guidance on information center, identifying casualties, communications, press, radio and TV relations, etc.

Oklahoma State University
Stillwater, Oklahoma

11 Storm Cellars. OSU Plan Service, 1958. Plan No. R-5801.

STANDARD BUILDING CODES

12 * Basic Building Code. 1955 and 1957 supplement. 422 pp. 6 x 9. (New ed. ready late 1960). Building Officials Conference of America, Inc., 1525 E. 53rd St., Chicago 15, Ill.

13 * National Building Code. 1955 and Dec. 1957 amendments. 389 pp. illus. 6 x 9. National Board of Fire Underwriters, 85 John St., N. Y. 38, N. Y.

14 * Southern Standard Building Code. 1957-58 Revision. 330 pp. 5¼ x 7¼. Southern Building Code Congress. 1116 Brown-Marx Bldg., Birmingham, Ala.

15 * Uniform Building Code. 1958, 404 pp. 5¼ x 8. International Conference of Building Officials, 610 Broadway, Los Angeles 14, Calif. (Pacific Coast Bldg. Officials Conference, subsidiary.)

FEDERAL & STATE AGENCIES

Building Research Advisory Board,
National Academy of Sciences
2101 Constitution Avenue, N.W.
Washington 25, D. C.

16 Anchorage of Exterior Frame Walls to Various Types of Foundations. 1956; 71 pp. typed: charts, tables, 8½ x 11. Analytical study with formulas, design data. \$1.50,

17 Report on Climatic & Weather Information Needed by the Building Industry. 1955; 17 pp. typed, charts, 8½ x 11. A building industry survey requested by US Weather Bureau.

National Bureau of Standards
Washington 25, D. C.

18 * Wind Pressures in Various Areas of the US. Guttorm N. Brekke. BMS Report 152, April 1959; 8 pp. illus. 8 x 10½ (15c) Sources of strong winds, derivations of wind pressure map, applications & adjustments for certain localities.

US Department of Agriculture
Washington 25, D. C.

19 Observations of Damage to Houses by High Winds, Waves & Floods, and Some Construction Precautions. R. F. Luxford & Walton R. Smith. Forest Service Report No. 2095, Oct. 1957; 13 pp. illus. 8 x 10½. Authoritative and practical notes on foundations, anchorage and framing details.

20 Preventing Storm Wind Damage to Farm Buildings. 1956; 32 pp. illus. 8 x 10¼. Examples and causes of building failure, recommended details for wood & masonry construction.

US Weather Bureau
Washington 25, D. C.

21 * Tornado occurrences in the United States. 1960 (in press) Technical Paper No. 20, revised, 65 pp. 8½ x 11. Detailed data on location, date, deaths, damage and tracks of all known tornadoes 1916-1958.



22 * "It looks like a Tornado." Official handbook for tornado network observers. Jan. 1959: 11 pp. illus. 8 x 10, 10c.

23 Tornadoes—What they are and what to do about them. Jan. 1959: 4 pp. illus. 8 x 10, 5c or \$3.75/100.

24 Tornado Safety Rules. Jan. 1959: Single sheet 8 x 10, \$1.50/100 or 11 x 17, \$3.75/100 (from Supt. of Documents, Government Printing Office, Washington 25, D. C.).

25 * Distribution of Extreme Winds in the US. H. C. S. Thom. July 1959. 23 pp. typed. Manuscript of US Weather Bureau. Corrects previous data, discusses probability theory and includes height nomogram for conversion of wind speeds.

TRADE ASSOCIATIONS & PRIVATE CORPORATIONS

*Factory Mutual Engineering Division
1151 Boston-Providence Turnpike
Norwood, Mass.*

26 Handbook of Industrial Loss Protection. McGraw-Hill, New York 36, N. Y. 864 pp., 7¼ x 9¾, illus. \$20.00. Recommended practices against fire, explosion, lightning, wind and earthquake.

27 * Tornado at Worcester, Mass. & Vicinity. June 3, 1953. 12 pp. typed. illus. A well documented investigation.

*National Board of Fire Underwriters
85 John Street
N. Y. 38, N. Y.*

28 * Property Insurance Fact Book. 1959. Background data and facts on catastrophe losses.

29 * Recommended Code Provisions For Windstorm Resisting Construction. July 1956: 10 pp. 6 x 9.

30 * Windstorm Damage Prevention. 1956: 40 pp. illus. 6 x 9. Popular presentation of what to do, effects on buildings, wind-resistant construction, suggestions for public officials.

*Portland Cement Association
33 W. Grand Avenue
Chicago 10, Ill.*

31 Concrete Footings and Reinforced Concrete Masonry Walls. Contains suggestions for areas subject to severe wind storms.

32 Cast-In-Place Concrete Storm Cellar. C-2010; Nebraska Type Cyclone Cellar. C-2472; Farm Storage Cellar. C-331; Arched Roof Underground Storage Cellar. B-332. Standard plans.

*Structural Clay Products Institute
1520 18th Street, N.W.
Washington, D. C.*

33 * Resistance of Structural Clay Masonry to Dynamic Forces. Report No. 7,

C. B. Monk, Jr 1958. 64 pp. illus. 8½ x 11. Resistances of various types of masonry. Formulas and charts.

MISCELLANEOUS

34 Stormproofing Series. Practical Builders Magazine Feb., Mar., April, June, August, October and November 1957 issues. Excellent outline of procedures for building anchorage.

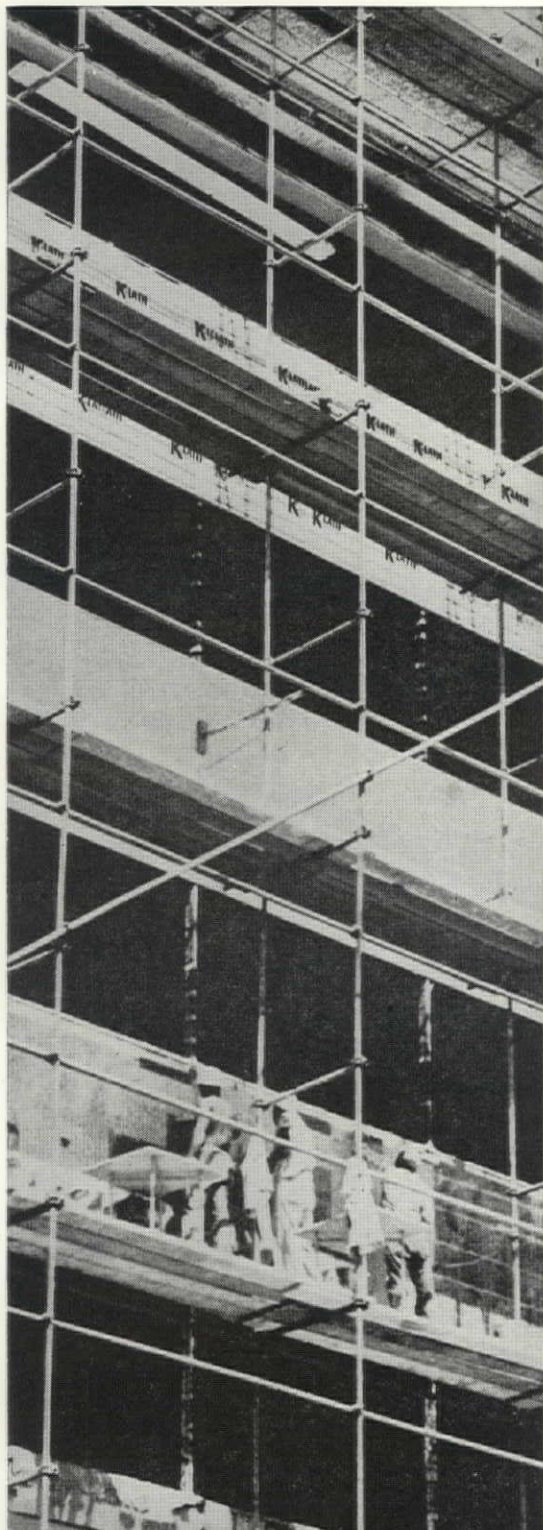
35 * Tornadoes and How to Handle Them. George W. Reynolds, Consulting Engineer Mag. May 1958. 6 pp. illus. 8½ x 11. Discussion of tornado forces with formulas and diagrams.

36 * Tornadoes and Building Codes. M. L. Clement, Southern Building Mag. March 1959.

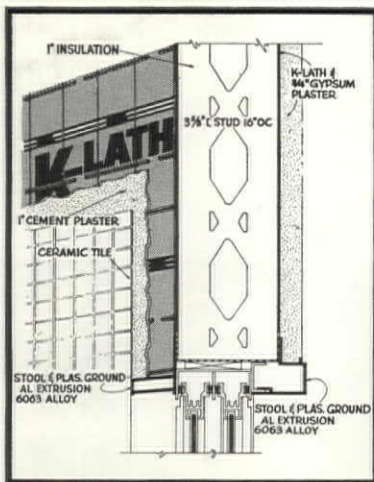
37 Manual on Disaster Emergency Service. Salvation Army, La. & Ark. Divisions. 1957. 16 pp. typed. Contains directory of officials, instructions for guidance, report and inventory forms.

38 * The Effects of Tornadoes on Structures and the Protection of Plant Personnel. Liberty Mutual Fire Insurance Company. Aug. 1958. Typed, 45 pp. illus. 8½ x 11. Special report for IBM giving specific storm damage prevention measures.

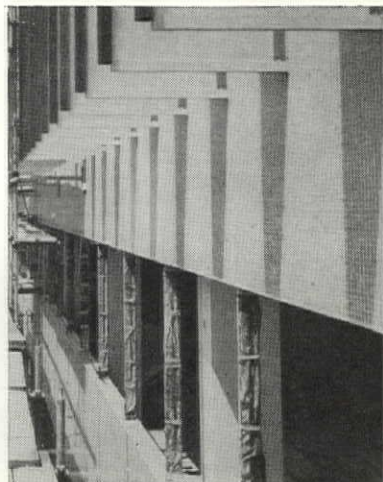
39 Tornadoes of the United States. 2nd ed. Snowden D. Flora, Oklahoma Press 1954.



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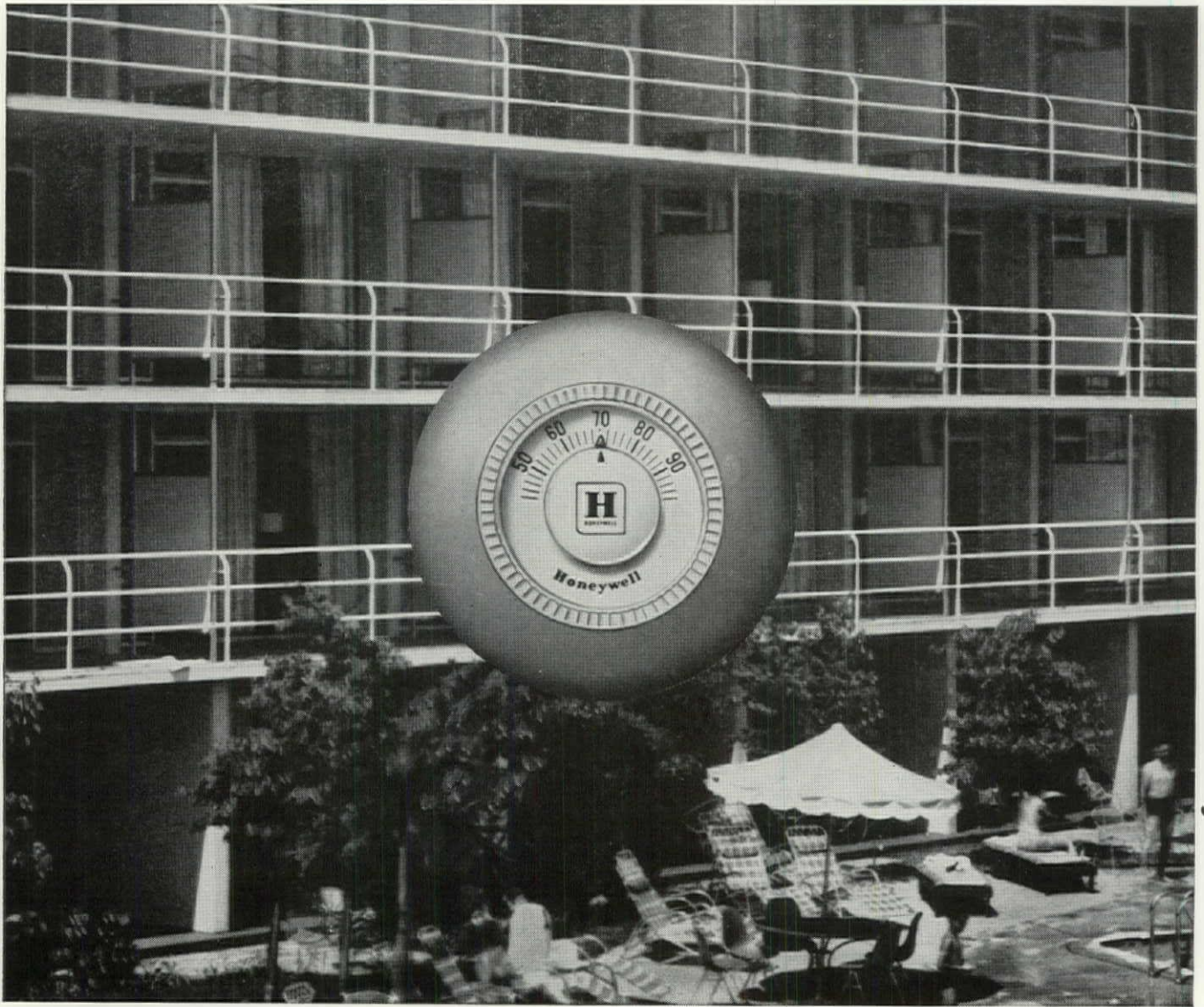
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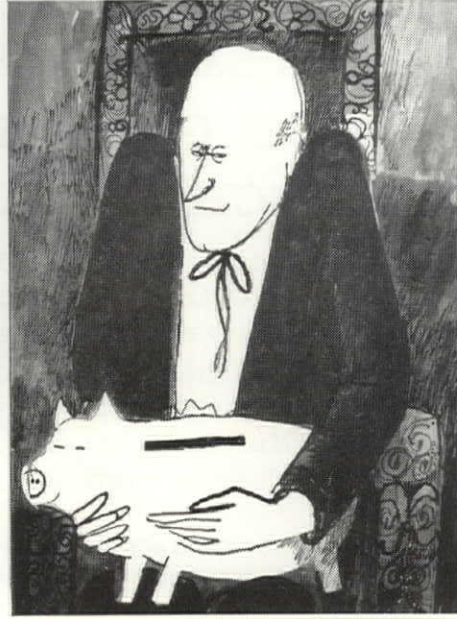
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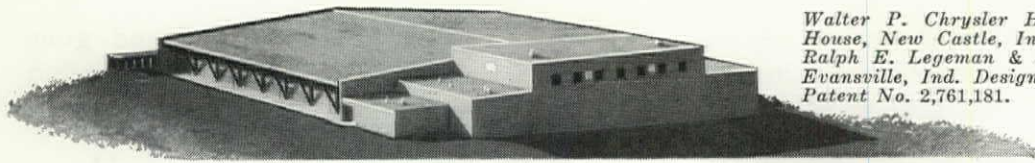
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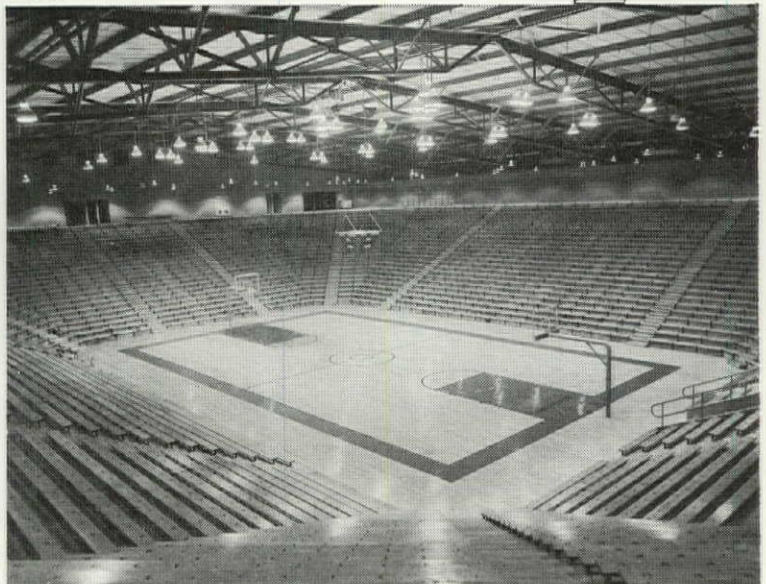
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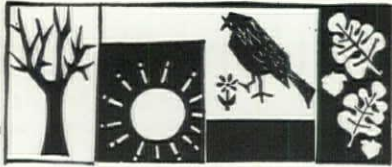
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C A L E N D A R

May 1-4: Forty-eighth Annual Meeting, Chamber of Commerce of the United States, Washington, D. C.

May 3-5: 1960 National Joint Conference on Church Architecture sponsored by The Church Architectural Guild of America and the Department of Church Building and Architecture, National Council of Churches of Christ in the USA in cooperation with the Minneapolis and St. Paul Chapters, AIA. Leamington Hotel, Minneapolis, Minn.

May 11-16: World Design Conference, Sankei Kaikan, International Hall, Tokyo, Japan. (For full information write Wo-De-Co — Tokyo, Room 301, International House of Japan, 2 Tariizaka-Machi, Tokyo, Japan.)

May 21-26: American Society of Planning Officials, Miami, Fla.

May 28-June 3: Twenty-fifth World Planning and Housing Conference, San Juan, Puerto Rico.

June 12-24: AIA-ACSA Teaching Seminar, Sagamore, N. Y.

June 15-18: British Architects' Conference, Manchester, England. (For information write G. R. Ricketts, Secretary, Royal Institute of British Architects, 66 Portland Place, London W. 1, England.)

July 23-August 15: AIA—US Travel Agency Tour of Europe (to August 23 if Russia included).

September 27-30: Sixth Annual Convention of the Prestressed Concrete Institute, Statler-Hilton Hotel, New York City.

October 2-13: International Seminar on Industrial Architecture, Kazimierz, Poland.

October 5-7: Thirty-ninth Annual Meeting, The Producers' Council, Inc, Drake Hotel, Chicago, Illinois.

October 10-11: Construction and Civil Development Committee, US Chamber of Commerce, The Cloister, Sea Island, Georgia.

AIA District and Regional Meetings

May 12-14: South Atlantic Regional Conference, Winston-Salem, North Carolina.

May 19-21: Indiana Society of Architects Convention, Indianapolis, Ind.

June 9-11: Sixtieth Annual Convention of the New Jersey Society of Architects and the New Jersey Chapter, AIA, Berkley Carteret Hotel, Asbury Park, N.J.

October 1-5: Northwest Regional Conference, Sun Valley, Idaho.

October 2-4: Gulf States Regional Conference, Hot Springs, Arkansas.

October 11-15: New York Region Annual Convention, White Face Inn, Lake Placid, New York.

October 19-23: Annual Convention, California Council, AIA, Yosemite National Park, California.

November 2-5: Twenty-first Annual Convention of the Texas Society of Architects, Cortez Hotel, El Paso, Texas.

NECROLOGY

According to notices received at the Octagon between February 17, 1960 and March 17, 1960:

CARSON, ROBERT, FAIA, New York, N. Y.

DEGELLEKE, GERRIT J., FAIA, Milwaukee, Wis.

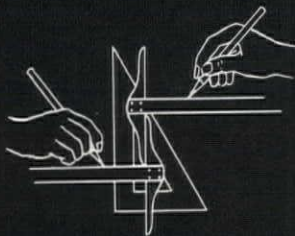
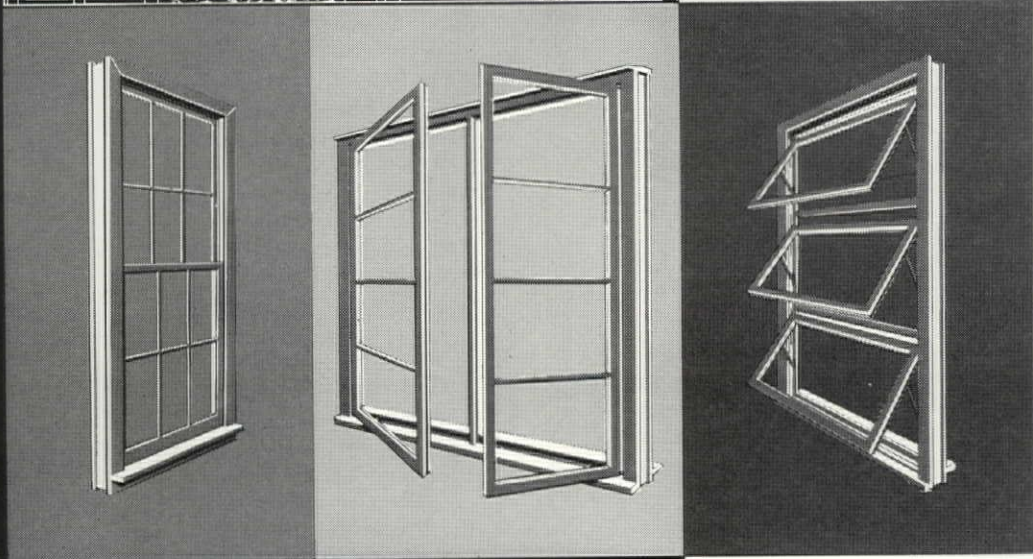
OLDS, F. C., Abilene, Texas

SORENSEN, ROY E., LaCrosse, Wis.

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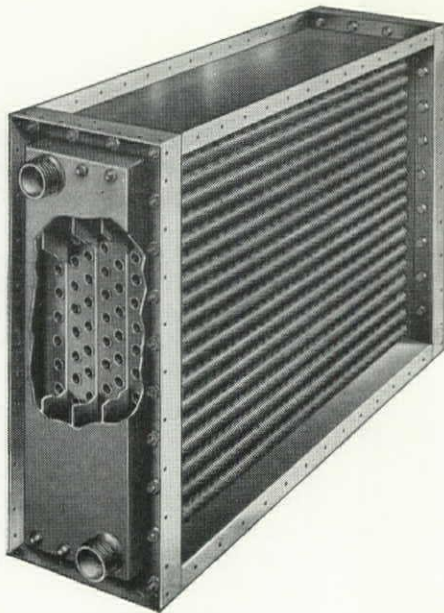
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INDEX TO ADVERTISERS

Aerofin Corporation	108
<i>Richards & Webb, Inc</i>	
Acme Metal Molding Company	88 & 89
<i>Paul Wilson & Associates</i>	
American Art Metals Company	83
<i>Lowe & Stevens</i>	
American Brass Company	11
<i>Kenyon & Eckardt, Inc</i>	
Armstrong Cork Company	105
<i>Ogilvy, Benson & Mather, Inc</i>	
American Gas Association	84 & 85
<i>Ketchum, MacLeod & Grove, Inc</i>	
Armco Steel Company	93 & 94
Azrock Floor Products Div., Uvalde Rock Asphalt Co	2nd Cover
<i>Glenn Advertising, Inc</i>	
Blumcraft of Pittsburgh	9
Dur-O-Wall	15
<i>Roche, Richard & Cleary, Inc</i>	
Ellison Bronze Company	19
<i>Griffith & Rowland</i>	
Gerwin Industries, Inc	7
<i>Paul L. Brown & Associates</i>	
Hillyard Chemical Company	104
<i>Fardon Advertising, Inc</i>	
Hope's Windows	20
<i>The Moss-Chase Company</i>	
Inland Steel Products Company	6
<i>Hoffman, York, Paulson & Gerlach, Inc</i>	
K-Lath, Inc	101
<i>R. W. Webster</i>	
Loxit Systems, Inc	2
<i>Brindley-Roth, Inc</i>	
LCN Door Closers, Inc	96 & 97
<i>D. K. Morrison</i>	
Marble Institute of America	1
<i>Moore & Company</i>	
Minneapolis-Honeywell Regulator Company	102
<i>Foote, Cone & Belding</i>	
Monarch Metal Weatherstrip Corporation	107
<i>Charles W. Bolan, Inc</i>	
Mosaic Tile Company	91 & 92
<i>Farson, Huff & Northlich</i>	
Otis Elevator Company	5
<i>G. M. Basford Company</i>	
Pittsburgh Plate Glass Co	3rd Cover
<i>Batten, Barton, Durstine & Osborn</i>	
Precision Parts Corporation	12
<i>Culbertson Advertising</i>	
Red Cedar Shingle Bureau	99
<i>Botsford, Constantine & Gardner</i>	
John A. Roebling's Sons Div., The Colorado Fuel & Iron Corp	13
<i>Hazard Advertising Co., Inc</i>	
Schlegel Mfg. Co	95
<i>The Rumrill Company</i>	
Sylvania Lighting Products	18
<i>Sullivan Advertising Agency</i>	
Timber Structures, Inc	17
<i>Arthur E. Smith Advertising</i>	
Trinity White Div., Gen. Portland Cement	98
<i>Harris & Wilson, Inc</i>	
Weyerhaeuser Company, Lumber & Plywood Div.	86 & 87
<i>Colle & McVoy Advertising</i>	

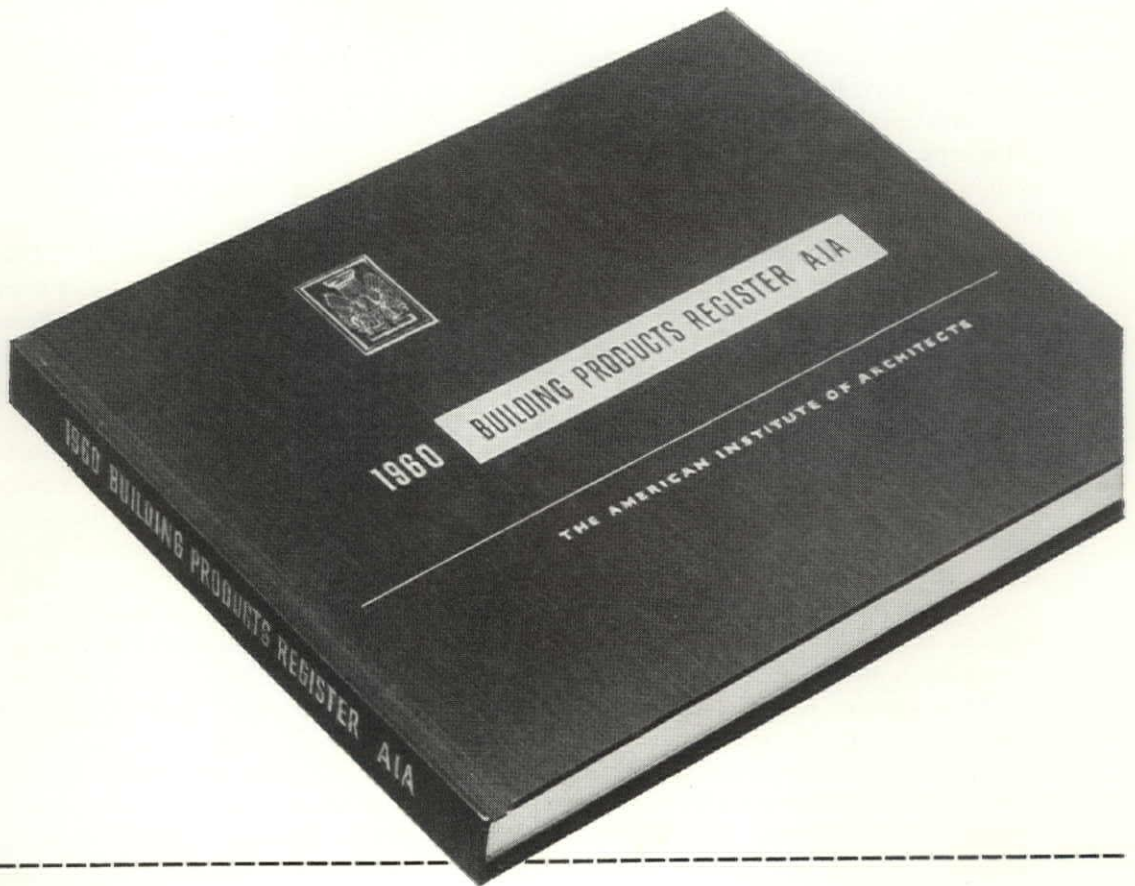


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"The truly creative man has faith in his time." Thus spake the sculptor Richard Lippold in a "conversation" arranged by John E. Burchard for a special issue of *Daedalus*, the Journal of the American Academy of Arts and Sciences, devoted to "The Visual Arts Today," which you should by all means get hold of.

How, then, goes it with our faith? "Are the present relations between art and architecture, or art and the city, less rich than they have been in other great periods?" Burchard asks.

Perhaps even richer, replies sculptor Harry Bertoina. But he concedes there is less unity and the irrelevant is still with us. Pietro Belluschi thinks "we are trying too hard to contrive personal esthetic images of the kind of universe which science is progressively unveiling to our perceptions." And Walter Gropius doubts our time can be called "great." The average man, he says, is not much interested in the relation between art and the city.

But does it matter? asks Burchard.

Yes, says Gropius. We need the challenge and incentive to become articulate. But Reg. Butler, also a sculptor and an architectural author to boot, sees no absolute reason for collaboration between architect and artist. It should not be treated as a moral imperative, he says. "Men like Mies van der Rohe have a perfect right to their classic simplicity and economy."

"If you want to use sculpture as such," Butler continues, "as opposed to making use of sculptural decoration, I think you have to face the pre-occupations which are in the minds of contemporary sculptors, and they are as strong as those in the minds of the architects." So don't sit down, scratch your head "and conjure up some kind of stylized device which fits in in some way with the conception of contemporary architecture. Use sculpture as it comes, when you like it, and when you do not like it do not worry."

But Gropius does worry. He *does* see collaboration as a moral imperative. "One of the bequests

of the nineteenth century which handicaps us today," he says, "is the obsession with the idea that individual genius can only work in exalted isolation, a view which was quite foreign to other periods. It prevents the public from understanding the new efforts at collaboration among architects, and between architects and artists, and constantly throws us back into unwarranted jealousies and confusions. Slow and painful are the attempts at seeking points of contact again after the long alienation between the different branches of the arts. . . ."

Slow and painful, indeed. Gropius has been saying this for just about forty years—ever since he founded the Bauhaus—and with few notable exceptions there has been little integration of architecture with the allied arts. "Can we blame the difficulty on the determined overindividualism of the painters and sculptors?" Burchard inquires.

They are no different today than ever, ventures Bertoina. If they do behave differently it may be the "lack of a dominant social goal." Artist Irene Rice Pereira is more original, more penetrating in her answer to this one: In the "great" days of the Renaissance, for instance, she says, "'conformity' . . . was a general or universal concept within which the artist's intellectual curiosity and senses were stimulated." Perhaps, then, we need more of this kind of conformity. No one, I take it, asked Michelangelo to be original or different—just better.

But will conforming to a common concept of art do it alone? Says Lippold: "I believe there must be three-way collaboration between architect and artist and public. Any one can fail."

And all three do. Burchard writes that "the artists find the architects arrogant, ignoring the other arts or trying merely to add them when the project is really finished, while the architects find the artists uncooperative." And both push the blame on the rest of us. States anthropologist Margaret Mead: "We turn a blind eye to ugliness. . . . People . . . expect beauty to be a piece of private property for which they take no responsibility."

Well, responsibility means to respond. Respond to what? Could it be to a faith in our time?