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AND ARCHITECTURE

JULY

1937

1936 "Good Housekeeping House", designed by Dwight James Baum, Architect, and built in Wychwood, Westfield, N. J.

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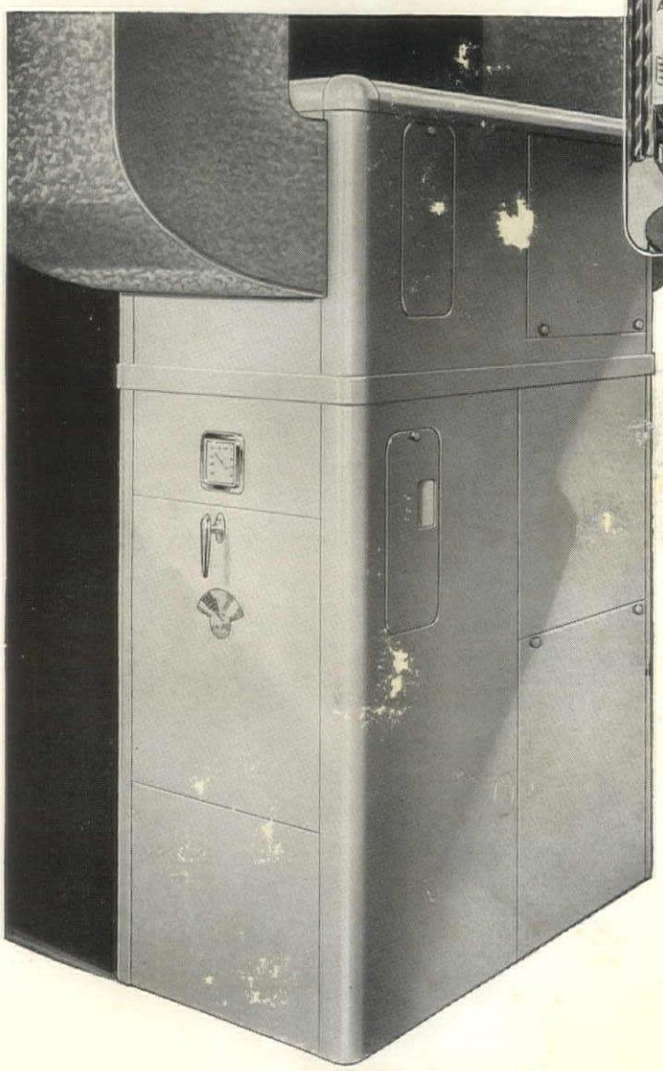

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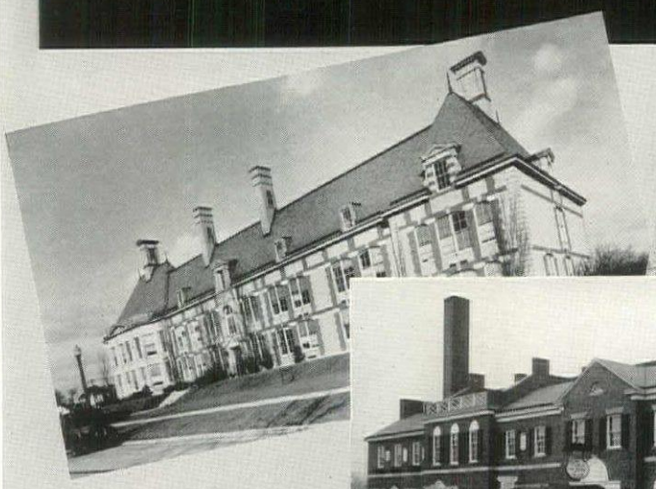
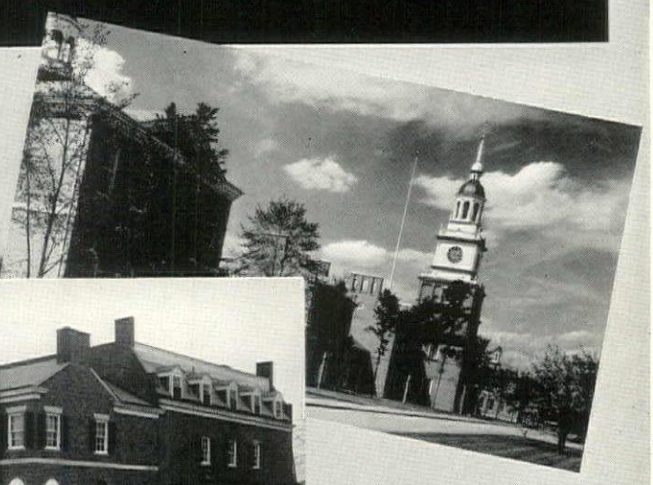
specified for ornamental uses and corrosive piping services



Pere Gabriel Richard School, Grosse Pointe, Michigan. Genuine wrought iron specified for soil, waste and vent piping above ground for plumbing system.

The Punch & Judy Theatre, Grosse Pointe, Michigan. Genuine wrought iron pipe specified for hot and cold water lines.



Edison Institute, Greenfield Village, Dearborn, Michigan. Genuine wrought iron pipe specified for heating supply and return lines. Also the expansive gates to Greenfield Village are made of Byers Wrought Iron.

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AMERICAN ARCHITECT AND ARCHITECTURE

CONTENTS
JULY 1937

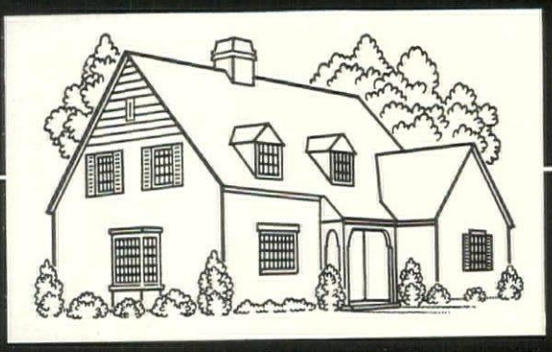
Vol. CLI No. 2659

AMERICAN ARCHITECT (Trade-Mark Reg. U S Patent Office), with which is combined ARCHITECTURE (Reg U S Patent Office). Published monthly by Hearst Magazines Inc., 572 Madison Avenue, New York. Other Offices 919 N Michigan Avenue, Chicago, General Motors Bldg., Detroit, 132 Newbury Street, Boston. William Randolph Hearst, President, Richard E. Berlin, Executive Vice President, John Randolph Hearst, Vice President, Earle H. McHugh, Vice President, R F Gardner, Vice President, T W Towler, Vice President; W R. Peters, Treasurer, Arthur S. Moore, Secretary Copyright, 1937, by Hearst Magazines Inc. Single copies, $1.00. Subscription: United States and Possessions, $3.00 per year, Canada, $4.00, Foreign, $5.00 Entered as second class matter, April 5, 1926, at Post Office, New York, under Act of March 3, 1879 American Architect and Architecture is protected by copyright and nothing that appears in it may be reproduced either wholly or in part without special permission.

PROBLEM No. 8

Architect, JOHN J. KEIL, Lima, Ohio

Mr. Graves and Mrs. Graves have



OK'ed your plans for this house

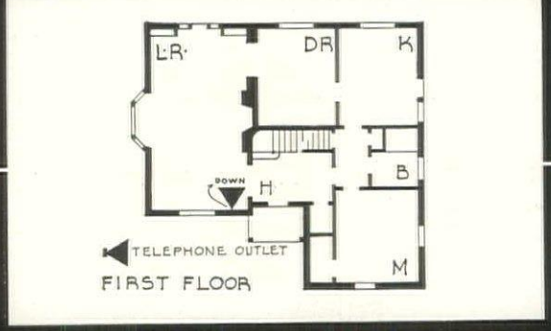
STUART GRAVES is a lawyer, and making out well. He and Betty asked you to design a house that would meet all of their requirements—present and future. With their needs in mind, what should the telephone arrangements be for the approved plans below?

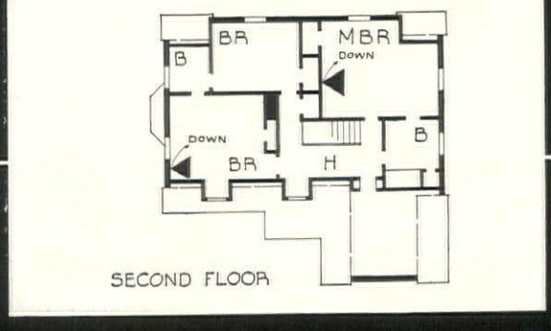
Telephone conduit in the walls, of course, to avoid exposed wiring and protect against certain types of service interruption. Leading to strategic points throughout the house, it will mean that the Graves can have their telephone arrangements changed easily and quickly without piercing walls or woodwork.

For the present, one outlet in the master bedroom is ample for the second floor—to afford step-saving convenience during the day and protection at night. Later on, as conditions change, the outlet in the second bedroom may be equipped for use. Of course, an outlet in the living room for family use is an absolute necessity. It is located so that it may also be conveniently reached from the maid's room. . . .

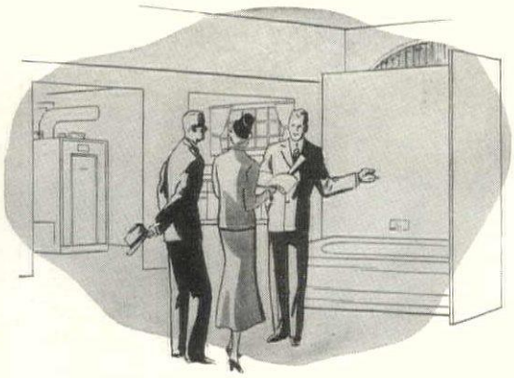
This is a suggested approach to a typical problem. Our engineers will be glad to help you in developing efficient, economical conduit layouts. No cost. No obligation. Just call your local telephone office and ask for "Architects' and Builders' Service."

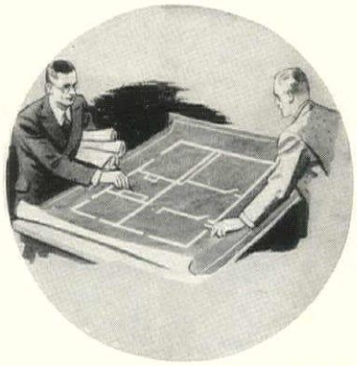
what telephone provisions





will you recommend to them?





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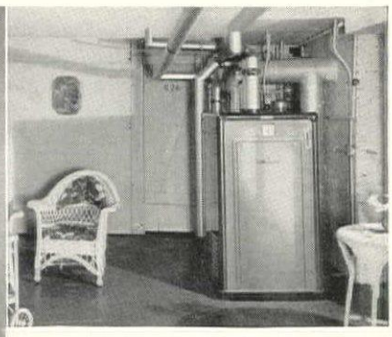

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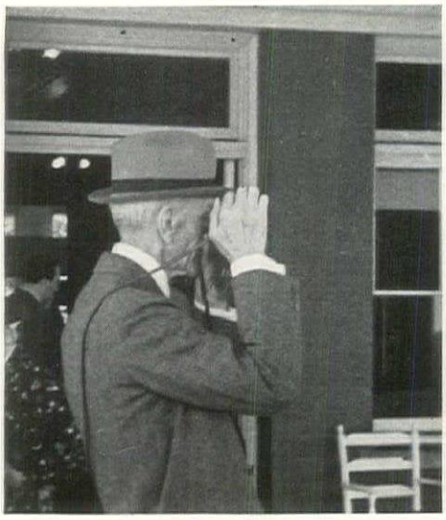

Dan Everett Waid of New York past president, A.I.A., has joined the ranks of the camera enthusiasts

President-elect Charles D. Maginnis, who was being photographed from all sides

B. D. Andy Anderson of Chicago, with three cameras and a unipod, must have exposed many yards of film

THE BOSTON CONVENTION

THE Sixty-ninth Convention, American Institute of Architects, was held in Boston, headquarters at the Hotel Somerset, June 1, 2, 3, 4. A period of four days instead of three, tried for the first time, would, it was felt, not only obviate the necessity of sessions two or even three times a day, but would enable the delegates, members, and guests to see more comfortably and more fully the architectural and archaeological treasures that the convention city had to offer.

There were 580 persons registered as compared with 530 at Williamsburg last year. This number, of course, includes not only the delegates and members, but guests, Producers' Council members, family accompaniment, and the press.

Since the full and official account of the Convention proceedings will doubtless be published by the Institute, we shall attempt merely a summary of the results.

TUESDAY, JUNE 1, MORNING SESSION

Edwin Bergstrom, reporting as treasurer, pointed out a gain in income from members and from the sale of documents of approximately $22,000 and $11,400 respectively. Members to the number of 352 owing $6,259.50 automatically suspended their memberships on December 31, 1936, but are being carried on the rolls during 1937 without privileges.

The end of the year 1936 showed the elimination of all notes payable, including the last of the indebtedness connected with the Press of the American Institute of Architects. The total amount paid out to cover that publishing venture since its discontinuance is over $113,894.67.

LUNCHEON

Former students of the School of Architecture, Massachusetts Institute of Technology, gathered in the Rogers Building on Boylston Street for a buffet luncheon which gave an opportunity to inspect the work of students. Dean William Emerson reported that the old Rogers Building is to be torn down shortly, and a new building for the architectural department will be designed by the department, and built as part of the Institute group in Cambridge.

AFTERNOON SESSION

In buses and private cars the delegates and guests followed the route of Paul Revere through Cambridge to Lexington and Concord. The president's reception, which has come in recent years to be an important social event in the Convention proceedings, was held in The Gore Place, Waltham, a stately Georgian mansion which, until now, has been little known as one of our outstanding early American monuments.

EVENING SESSION

Boston's Pop Concerts are perhaps as much a local institution as is the Rose Bowl in Pasadena. Here one may enjoy the Boston Symphony Orchestra while sipping cool beverages at a floor table—and a large block of these tables were surrounded by architects.

WEDNESDAY, JUNE 2, MORNING SESSION

Nominations for officers showed no doubt in the minds of the delegates as to their candidates, so that, in place of the usual written ballot, the whole ticket was elected by acclamation without a dissenting vote: president, Charles D. Maginnis of Boston; vice president, Frederick H. Meyer of San Francisco; secretary, Charles T. Ingham of Pittsburgh, treasurer, Edwin Bergstrom.

Nominations were offered for regional directors: John R. Fugard of Chicago to succeed Gerrit J. deGelleke for the Illinois-Wisconsin District; Richmond H. Shreve of New York who had been appointed to fill an unexpired term, was nominated to succeed himself for the New York District; Albert Harkness of Providence, R. I., to succeed Hubert G. Ripley for the New England District. All were elected.

Francis P. Sullivan reported as chairman for the Committee on Public Works. He spoke of the efforts that had been made through a discussion with Messrs. Louis Simon, LeRoy Barton, and Max Dunning as a committee on behalf of the Procurement Division. As a result, the Board of Directors offered a resolution to the effect that the Convention reaffirm its belief that the best results in public architecture are obtained through the employment of private architects, and that a commission should be appointed to pass upon the qualifications of architects for employment in work under the Procurement Division of the Treasury Department. After considerable discussion, the Convention adopted a resolution to this effect with the additional provision that the possibilities of the competition idea be explored and examined still further as a logical means of selecting architects for public works. This

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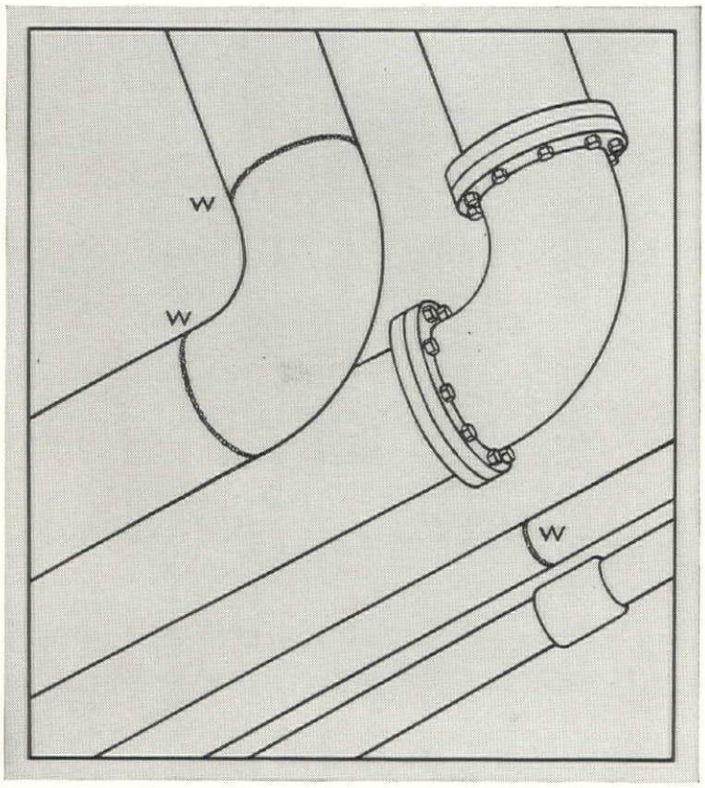

The welds, "W", are smooth inside and flush with the pipe wall on the outside. Each weld is inherently more simple than any other joint can possibly be.

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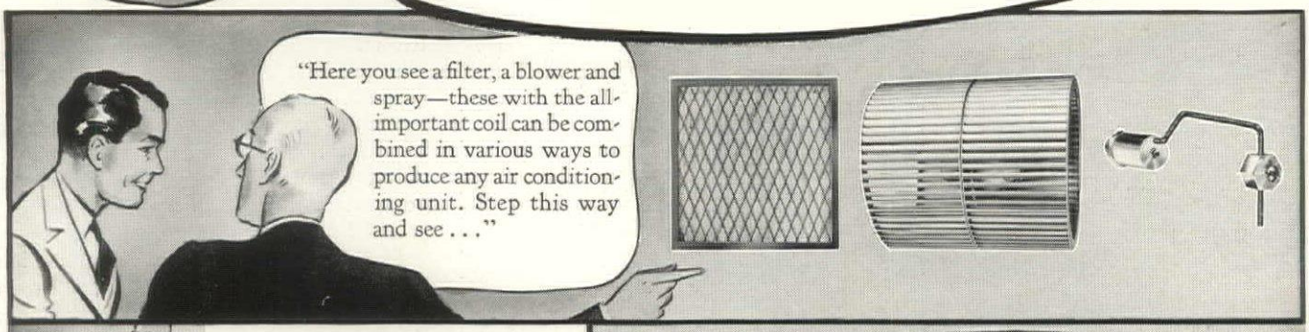

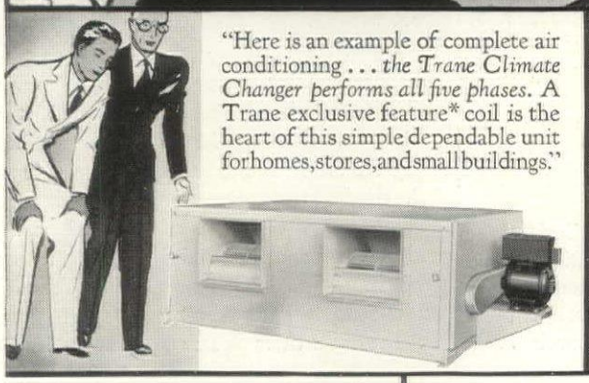

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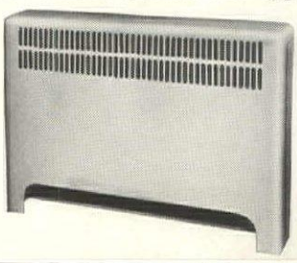

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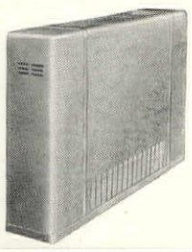

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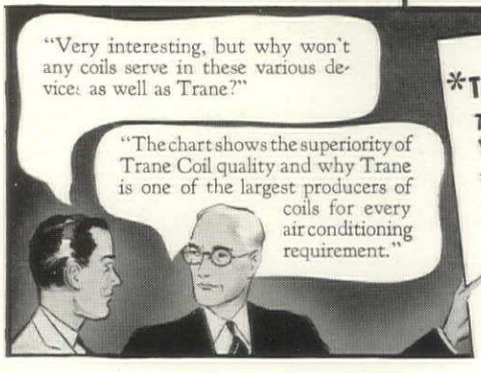

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resolution was passed with such a show of strength that the younger men who have been waging the war for the competition principle were doubtless somewhat regretful that the resolution had not been couched in much stronger terms.

After some discussion on the progress of unification and the general movement toward integrating the architectural profession as a more efficient force in public affairs, the resolutions offered by the Board were adopted. These provided that the Institute shall adhere to the plan of unification as established in its by-laws, and that the Institute shall not promote any plan for a nation-wide organization of state associations separate and distinct from the Institute.

LUNCHEON AND AFTERNOON SESSION

For the second time in two days the Convention visitors embarked in chartered buses and private cars and set out for a run down to Marblehead, luncheon at the Eastern Yacht Club, and visits to some of the historical architectural treasures of Marblehead and Salem.

EVENING SESSION

With Dean William Emerson presiding as chairman of the Institute's Committee on Architectural Education, the Convention Hall was filled to capacity, with many visitors standing, to hear three able addresses. Dean Emerson urged the limitation of architectural education to those institutions which, by reason of their location near museums and large metropolitan centers, might be better able to supply the historical background needed in a well rounded architectural training. Dean Meeks of Yale traced the development of architectural education in America from its beginnings, with particular emphasis on our dependence upon the architectural knowledge and skill of other men in other lands, particularly France. In his opinion we are in the process of emerging from such dependence, and are developing teachers of our own who are fortified with a better knowledge of American needs, techniques, and students' predilections. Dr. Gropius, displaying an astonishing knowledge of and facility with the English language, made it clear that he accepted Harvard's invitation to teach, not in the hope of imposing anything like an international style upon her students, but rather in the hope that he might build upon certain fundamentals, such as the correlation of hand and mind in construction methods, and design based upon these practical considerations.

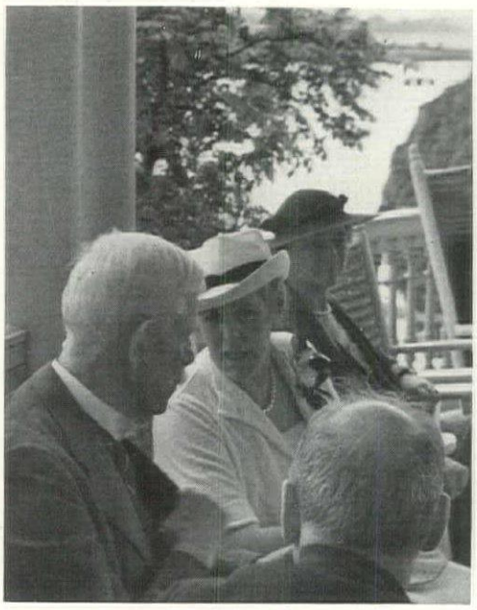
THURSDAY, JUNE 3, MORNING SESSION

In the absence of Eliel Saarinen who was to have reported for the Committee on Civic Design, Arthur Holden of New York, with vice president Louis La-Beaume in the chair, discussed some phases of the broad question of how we are to pay for city planning. Professor Frederick J. Adams, son of Thomas Adams, who is now teaching at Massachusetts Tech, spoke for the landscape architects concerning the necessity for collaboration between the various forces that must direct the designs of our future communities.

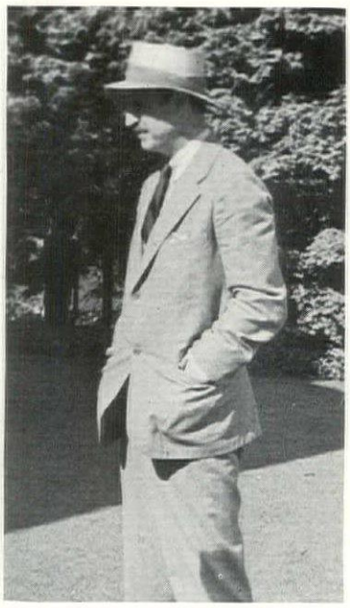
The greater part of the morning was given over to Walter R. McCornack's report on the Committee on Housing. He pointed out that the 1936 Convention had, through a formal resolution, directed that the A. I. A. urge upon the nation the immediate creation by the Government of a central agency to undertake systematic and co-ordinated research in all matters pertaining to housing; that it further urge the immediate creation of state and municipal authorities in housing, and that the Government continue to assist such authorities to carry on a long range nationwide large-scale housing program. Mr. McCornack pointed out that the Wagner-Steagall Bill now before Congress was the most constructive measure thus far undertaken to carry out such a program; that there might be differences of opinion as to detail provisions of the measure, but that there could be little difference of opinion as to its intent and basic worth. The Convention put itself on record as approving in principle the basic provisions of the Wagner-Steagall Bill, and directed that copies of this resolution be sent to those concerned with its passage into law.

Mr. McCornack also directed the attention of the delegates to the fact that the profession's efforts to find some way of serving the small client involved necessarily a long-range program. He could hope for no material results within five years, but urged a continuation of experiment and research into methods that would finally solve this great problem.

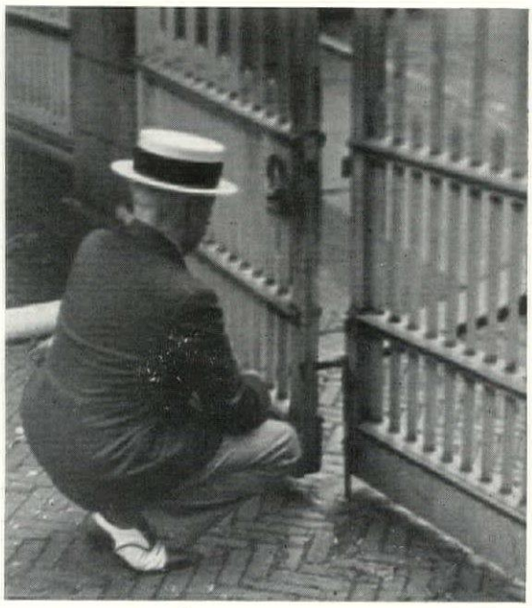
In rapid succession the Convention passed resolutions proposed by the Board of Directors as follows: 1. Approving the continuation of co-operation between the Federal Housing Administration, the Federal Home Loan Bank, the Home Owners' Loan Corporation, and the A. I. A. Housing Committee in continuing the study of the small-house problem; 2. Urging the formation of a committee composed of members of the various interested national agencies for the purpose of investigating completed projects of low-cost housing, and to report upon these in all their phases to the constituent



I. K. Pond, veteran past-president and acrobat, talking to Mrs. Maginnis. The head in the foreground is that of Edward S. Hewitt



Albert Harkness of Providence, the new regional director who succeeded Hubert G. Ripley



Hubert G. Ripley, chairman of Boston's Convention Committee, architect, and bon vivant, drops all cares to examine an old gate in Providence

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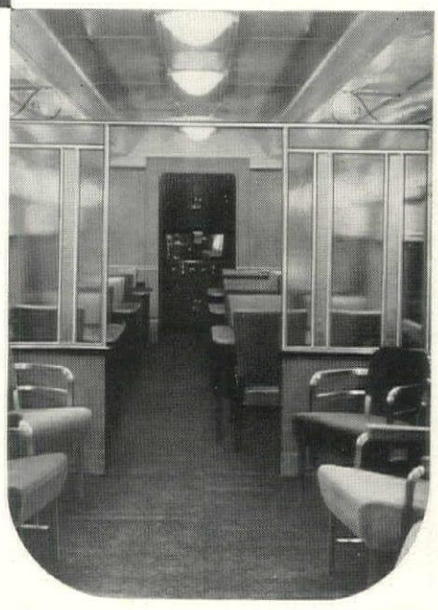
Showing versatility of Revecon in applicability to cars, busses, trailers, airplanes.

NEW YORK CENTRAL SYSTEM. Giant American railroad. The interior of a new New York Central modern Diner-Lounge car with its dividing partition, using decorative glass and metal panels, built with Revere Revecon Structural Sections. Stationary or mobile, Revere Revecon contributes to beauty, strength and economy. See illustration below.

Miss F. D. Allen, Designer

Showing one of many applications of Revecon in store buildings, displays, fixtures and window designs.

R. H. MACY & CO., INC. World's largest store in floor space and dollar volume is that of R. H. Macy & Co., New York. An interesting feature is this demonstration booth of Macy's "Bureau of Standards," using glass and decorated sheet material panels erected with Revere Revecon Structural Sections.



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INCORPORATED

FOUNDED BY PAUL REVERE
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EXECUTIVE OFFICES: 230 PARK AVENUE, NEW YORK CITY

Revecon Handbook: Write on your own letterhead for the Revere Revecon Technical Handbook. Contains full-size illustrations and descriptive text showing how Revecon Structural Sections are used to apply rigid sheet materials of any thickness up to ½-inch to exterior or interior surfaces over any type of superstructure. Address your inquiries to our Executive Offices, 230 Park Avenue, New York City.

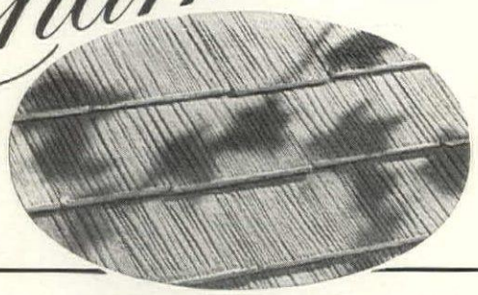
*U. S. Patents No. 1,973,795; 2,005,994; 2,012,070; 2,073,277; 2,073,278. Canadian Patents No. 360,122; 365,274.

WORK-SAVERS

In numbering pages of a specification instead of starting with 1 and continuing consecutively, there are advantages to breaking up the pages into separate subdivisions according to the type of work. Each of these is given a letter prefix, as for example: "General Conditions—A," "Excavation—B," "Masonry—C," etc. If there are five pages to the mason work, the last one would be designated "C-5." The contents page should give a list of all subdivisions with the total number of pages in each, so that each subcontractor would know at once where to find his section, and how many pages there are which concern his work.

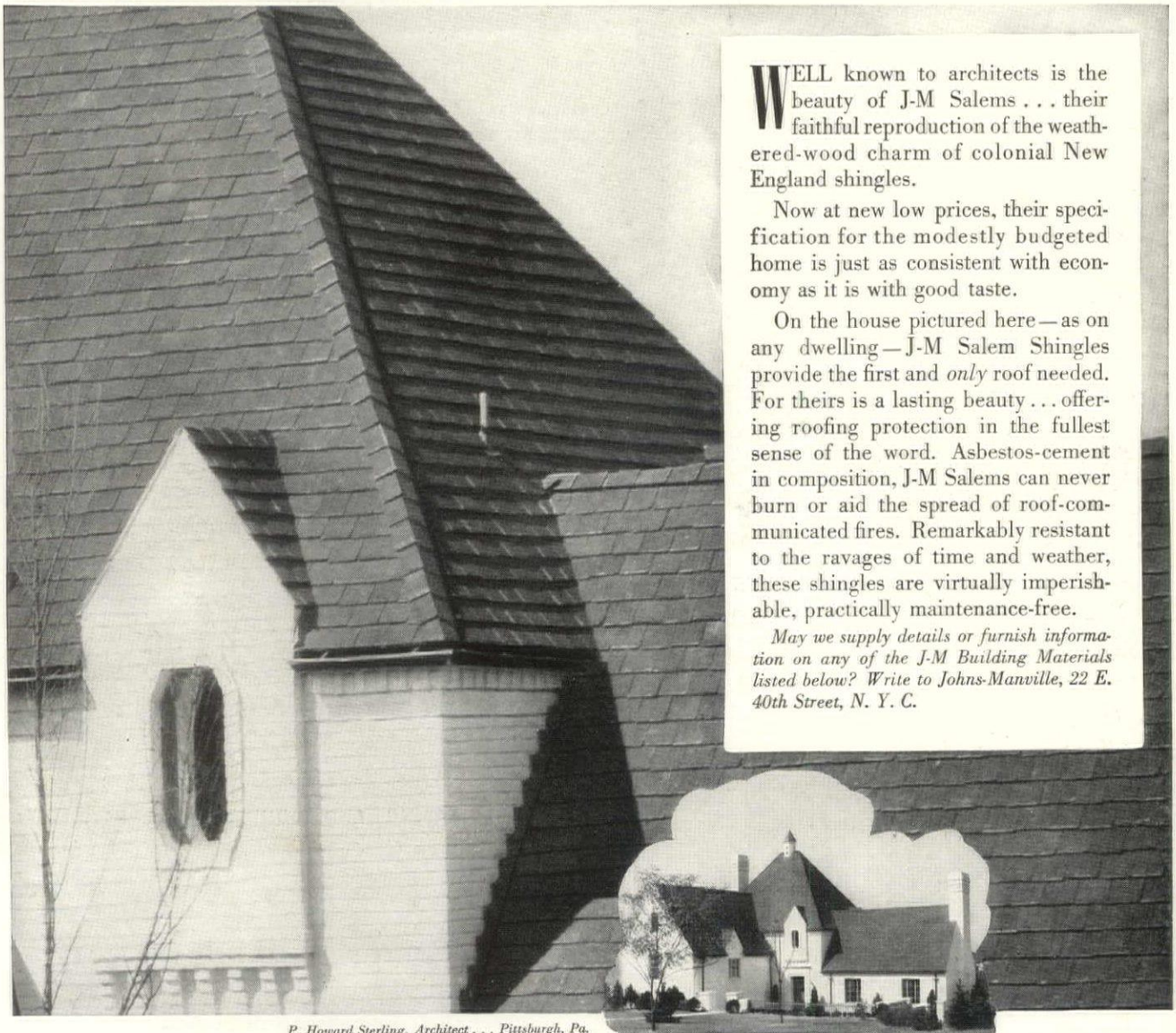
GERALD K. GEERLINGS.

THE *Charm* OF OLD WEATHERED SHINGLES



permanently preserved in a modern, imperishable material!

NOW... J-M SALEM ASBESTOS ROOFING SHINGLES AT NEW LOW PRICES



WELL known to architects is the beauty of J-M Salems . . . their faithful reproduction of the weathered-wood charm of colonial New England shingles.

Now at new low prices, their specification for the modestly budgeted home is just as consistent with economy as it is with good taste.

On the house pictured here—as on any dwelling—J-M Salem Shingles provide the first and *only* roof needed. For theirs is a lasting beauty . . . offering roofing protection in the fullest sense of the word. Asbestos-cement in composition, J-M Salems can never burn or aid the spread of roof-communicated fires. Remarkably resistant to the ravages of time and weather, these shingles are virtually imperishable, practically maintenance-free.

May we supply details or furnish information on any of the J-M Building Materials listed below? Write to Johns-Manville, 22 E. 40th Street, N. Y. C.

P. Howard Sterling, Architect . . . Pittsburgh, Pa.

Do Your Clients know about Triple Insulation?

Triple Insulation means a house that has been "insulated" or protected against fire, weather and wear with these 3 J-M materials: 1—Asbestos Shingles on the roof and Asbestos Siding provide a fireproof, permanent shell. 2—Rock Wool Home Insulation in walls and attic protects against winter cold and summer heat, gives added protection against fire. 3—J-M Steeltex Plaster Base retards the spread of inside fires and reduces plaster-upkeep expense. Write for details.

Johns-Manville BUILDING MATERIALS

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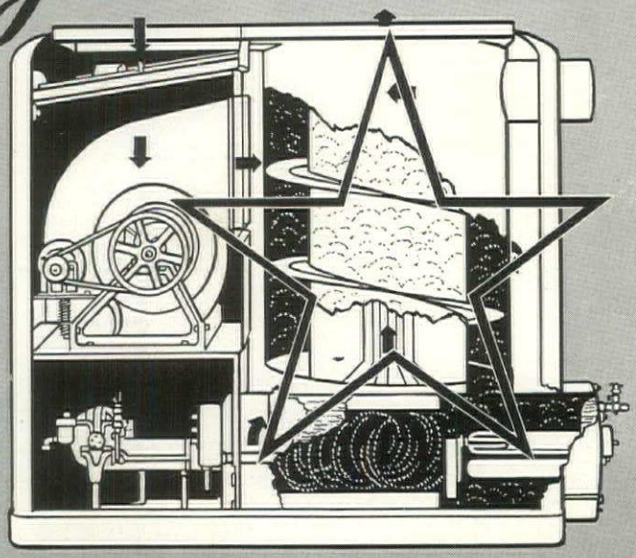

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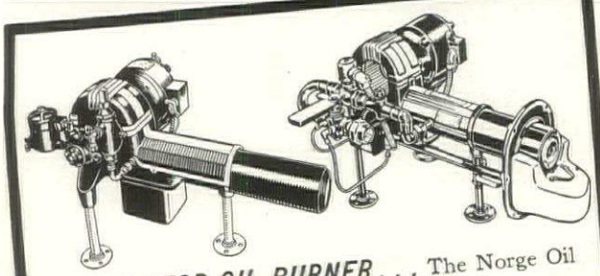

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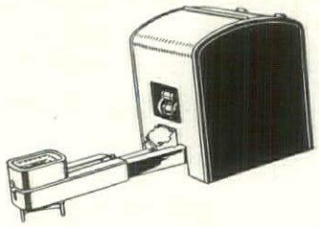
NORGE GAS BURNER... Cuts gas heating costs as much as 50%. Triple-control gives economy never before possible with gas. Be sure to get full details about this amazing burner.



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The heart of a furnace is the heat transfer unit. Norge engineers have developed an amazingly efficient, all-steel unit that delivers the maximum volume of heat for the fuel consumed. The hot gases travel in a spiral over 36 lineal feet of surface. The warmed air that is delivered into the house wipes every square inch of the seamless area of the unit. The Norge Fine-Air Furnace, because of this ultra-modern design, is able to deliver up to twice as much heat as an old-fashioned system from the same amount of fuel. Get full details at once! Write or wire:

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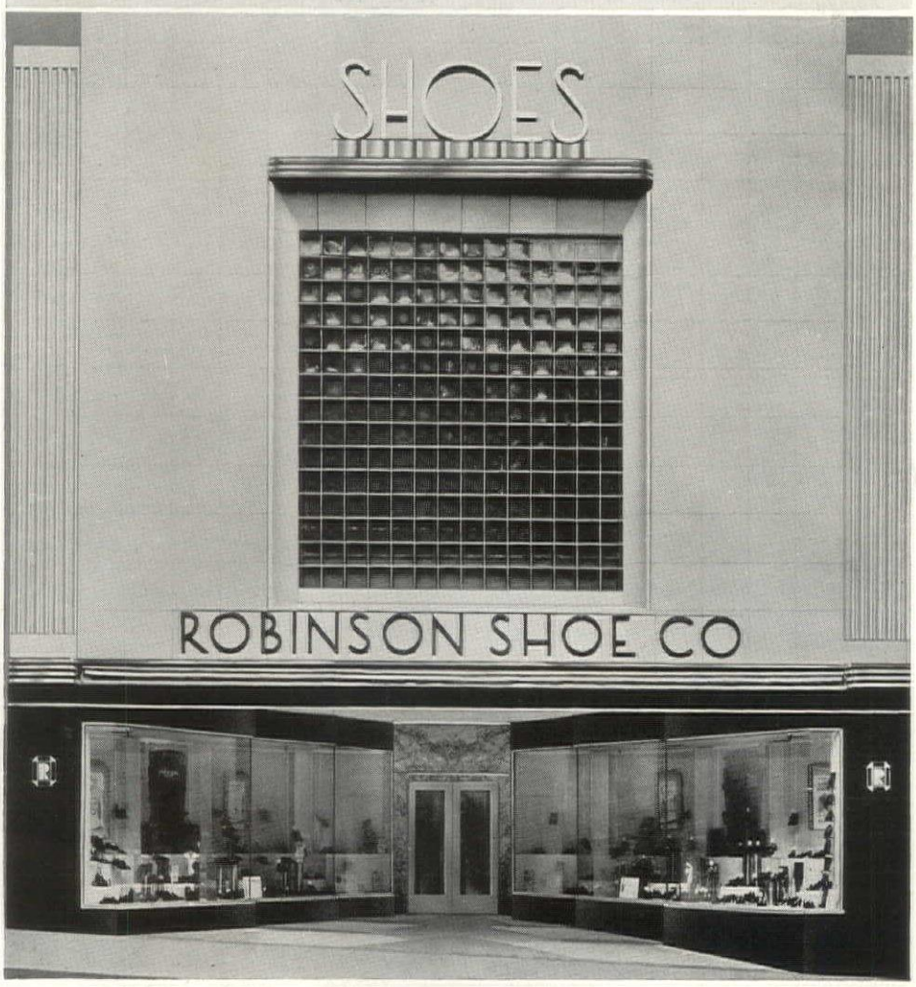

Here's a shoe store in Kansas City, Mo., designed by Architect Jas. F. Tierney. This front was built with Pittco Store Front Products . . . which insure a more harmonious, unified appearance because they are meant to be used together.

PITTCO Store Front Products were designed to supplement and complement each other. They are coordinated . . . a complete line including all necessary materials for store front construction. They create harmonious, unified store fronts which appear in reality just as you visualized them. And all Pittco Store Front Products are of fine quality, are extremely versatile, are calculated to widen the scope of possibilities for modern, distinctive designs. Investigate these products . . . send for our free booklet "Producing Bigger Profits with Pittco Store Fronts." It is profusely illustrated, contains helpful facts and figures. Pittsburgh Plate Glass Company, 2194 Grant Building, Pittsburgh, Pennsylvania.

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Paint. PITTSBURGH PLATE GLASS COMPANY *Glass*

Stephen F. Voorhees, retiring president, with Philip D. Orcutt who is largely responsible for the restoration of Gore Place

Millard B. Gulick of Boston and Edwin E. Cull—one of our Providence hosts and guides

Wallis Eastburn Howe, a Fellow of the Institute since 1923, talking with another of the Providence hosts, John H. Cady

organizations; 3. Favoring the allocation of $200,000 to the Department of Commerce for the purpose of conducting a study of methods of reducing the cost of housing construction, with the reservation that the A. I. A. favors an attempt to develop a new technological approach, as well as an examination of present processes; favoring a study by the Bureau of Standards of technical data to be used in the development of building codes by local authorities for low-cost, low-rent housing based on the principle of minimum reasonable requirements for safety and health; 4. Suggesting a committee of architects to consult with the National Housing Authority as provided in the Wagner-Steagall Bill, in working out a program of basic principles for the national housing movement; 5. Urging the development of moderate cost housing for rent rather than for sale; 6. Providing for an effort through its Housing Committee and the chapters to arouse public and local authorities to the necessity of adopting in each city a minimum standard for dwelling units below which condemnation and destruction become mandatory; 7. Expressing its appreciation to FHA, FHLB, HOLC, the Housing Division of PWA, and the RA for the co-operation extended to representatives of the Institute and for their steadfast adherence to the principle that the large portion of the American public dependent upon Government aid to secure adequate shelter are entitled to architectural service to be rendered by the architects of their own communities.

After a short tilt on the subject of co-operation with real estate men, and particularly the National Real Estate Boards, in the attempt to find some answer to public problems with which both groups are concerned, a resolution introduced by Arthur Holden of New York, was passed urging such co-operation.

LUNCHEON AND PRODUCERS' COUNCIL

With William Stanley Parker presiding as toastmaster, a joint meeting and luncheon was held with the Producers' Council. During the Institute's deliberations the Producers' Council had been developing the basic details of what promises to be a campaign of great significance. It envisages the establishment of better standards in design and construction for the homes of America.

Russell G. Creviston, newly-elected president of the Producers' Council, brought a proposal of the Manufacturers' Housing Promotion Council, of which he is chairman, to the effect that Producers' Council assume the leadership in co-ordinating the activities of various organizations in the building industry having similar objectives. As a result there was created a Division of Sales Promotion and Education, to be the spearhead in a war against shoddy building in the residential field.

This brings together a combination of forces hitherto lacking centralization and unification—the fifty-seven manufacturers of building materials and equipment comprising the Manufacturers' Housing Promotion Council, now joined with the forty-four manufacturers in the Producers' Council membership. No such power has ever before been put behind the cause of better building.

It is planned to continue the encouragement and regulation of home owners shows, to provide a clearing house for the many schemes now being submitted to individual manufacturers, to study various problems calling for joint action, and to conduct a publicity campaign to educate the public in demanding quality materials, sound construction, good design and proper location of their buildings. Many suggestions for such a campaign were made by Marshall Adams, sales promotion manager of The American Radiator Co.

It was the feeling of those who attended this fourteenth annual meeting of the Council that a goal and a task worthy of its ideals and energies has been set before the membership.

Officers elected for the ensuing year, in addition to Russell G. Creviston of the Crane Co., succeeding in the presidency F. R. Gilpatric of the Stanley Works, the latter becoming chairman of the Board, are the following: First vice president, F. J. Plimpton, Vermont Marble Co.; second vice president, P. F. Keatinge, Universal Atlas Cement Co.; secretary, O. O. Oaks, American Radiator Co.; treasurer, J. J. Matson, General Electric Co. Directors for two years: F. P. Byington, Johns Manville Corp.; G. C. Denebrink, Armstrong Cork Products Co.; R. G. Wallace, Masonite Corp.; C. E. Spencer, Casement Hardware Co., R. T. Tree, Carrier Corp. Directors for one year: A. B. Tibbets, National Lead Co.; J. H. Young, H. H. Robertson Co.

AFTERNOON SESSION

There was an embarrassment of opportunities offered to the delegates and members: a seminar session in the Convention Hall on housing; a visit to Harvard University to see the old and new buildings; tea at Lowell House; tea with Dean and Mrs. Emerson in the Judge Lee House, Cambridge; cocktails at the Boston Architectural Club as guests of the Boston Society of Architects.

The seminar on housing, which was the present reporter's conscientious choice of activities, proved to be a long session, with many thoughts contributed by men in the Government service, housing authorities, and representatives from the architectural service groups; reports of attempts at certification of buildings in the effort to enlist a public demand for architectural services, news of the possibility that the building of small houses

would be taken over by one great operating corporation or a series of them. The seminar was too diversified in the subject matter it discussed for any definite conclusions to be reached.

EVENING SESSION

In the evening those attending the Convention were invited to a reception at the Boston Museum of Fine Arts, of which the former Harvard architectural dean, George H. Edgell is now director.

FRIDAY, JUNE 4, MORNING SESSION

The Convention plunged directly into the highly controversial question of what, if anything, should be done in remodeling the east front of the U. S. Capitol. Francis P. Sullivan, chairman of the Committee on National Capitol, reviewed in great detail the historical considerations and other testimony that had been brought out in a Congressional hearing.

Leicester B. Holland, chairman of the Committee for the Preservation of Historic Monuments, made the point that since the Institute appointed such a committee from year to year, it might be assumed that the Institute was interested in the preservation of historic monuments and desired the Committee's findings and opinions on such matters. He pointed out that the U. S. Capitol was unquestionably an historic monument, and that his Committee felt it should be preserved.

The Board of Directors, feeling that there might be a difference of opinion among architects in this matter, recommended that no action be taken by the Convention.

Several speakers made rather clear the fact that a large part of the Institute membership believed that the Institute should unquestionably go on record in matters of this kind. The public looks to the profession for guidance in a matter as technically involved as this. If such guidance is not given, the public is justified in thinking that questions relating to architecture are of no particular importance to anyone.

Even though president-elect Maginnis suggested that a decision in the matter might possibly be deferred until the membership could have more time to form its opinions, the Convention voted overwhelmingly in condemnation of the proposed alterations to the east front, and directed that copies of these resolutions be sent to the President and others who might have the direction of this proposed legislation.

Invitations were tendered by New Orleans for the Convention of 1938, and by both San Francisco and New York City for the Convention of 1939, the year of two World's Fairs.

Frederick J. Woodbridge of New York read, merely for the information of the Convention, the report of the New York Chapter's Membership Committee, painting a rather dark picture of how the Institute is regarded by many of the younger men outside of its ranks.

Albert Simons of the South Carolina Chapter, who knows all about the architecture of Charleston

Carleton Monroe Winslow, Los Angeles, discussing with Nicola D'Ascenzo of Philadelphia, the good old days of stained glass

Maurice M. Feustmann of Scopes & Feustmann, who came to the Convention from Saranac Lake, N. Y.

AFTERNOON SESSION

A reception had been arranged by the Boston Chapter at Fenway Court, which is better known as the home of the late Mrs. Jack Gardner. Architecture, sculpture, and painting, gathered in long and discriminating search throughout Europe, now form a permanent collection arranged as Mrs. Gardner left it.

EVENING SESSION

The culminating function of the Convention, as usual, was the annual banquet, held at the Somerset. President Voorhees, as one of his last official acts, summoned all Fellows of the Institute to the platform back of the speakers' table, to welcome newly elected Fellows. An unusually large number of these was announced, and their names and citations follow.

HARRIS C. ALLEN—Northern California Chapter: For public service, devotion to the high ideals of The Institute and unceasing effort in its cause, given freely, often at great personal sacrifice.

JOHN BAKEWELL, JR.—Northern California Chapter: For distinction in design, notably in public buildings, the excellence of his executed work, his record in civic and national affairs.

RALPH B. BENCKER—of Philadelphia: Honored with the presidency of his Chapter, an able executive, sincere in public services and his high standards of an extended practice.

FREDERICK BIGGER—of Pennsylvania: For his many years of self-sacrificing and highly intelligent leadership in city planning in his own community and State as well as his devoted aid in every progressive movement for better land utilization, his broad minded approach to the problem of community housing and his disinterested service to his profession.

JOHN HUTCHINS CADY—of Rhode Island: In acknowledgment of his unsparing and important effort in bringing to many problems of city and community planning in Rhode Island the influence of his enthusiasm for the preservation of its traditional culture.

RALPH HAYWOOD CAMERON—of West Texas: His professional training and practice, his unusually wide range of civic and military activities, his influence in the improvement of the practice of architecture in the State of Texas, his standing as a practicing architect and his sterling qualities as a citizen entitle him to advancement to Fellowship.

H. DALAND CHANDLER—of Boston: By reason of his notably effective service in support of the honorable standing and authority of his profession through his membership and presidency of the Boston Chapter.

ROLAND E. COATE—Southern California Chapter: For his distinguished contribution to the field of domestic architecture, the beauty and excellence of his work and his high professional standard.

JAMES R. EDMUNDS, JR.—of Baltimore: A record of sustained effort in the interest of the profession, the distinction of his contributions to design, and the care shown in his executed work entitle James R. Edmunds, Jr., to Fellowship.

G. CORNER FENHAGEN—of Baltimore: A sincere student, an artist of recognized talent, with an honorable record of public service.

HENRY A. FOELLER—of Wisconsin: For his many years of service and adherence

Ballrooms, Too, KNOW HARD MAPLE as The Longest-Wearing *Comfortable* Floor

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To visit the Main Ballroom at Chicago's Drake Hotel is to be struck by the beauty of the ebony-black floor, striped and scrolled in silver. To dance, is to be impressed by its velvety "feel" underfoot, so smooth that dancing seems effortless.

Like most ballroom floors, this floor is Northern Hard Maple, selected for three reasons: its beauty, its resilient smoothness, its remarkably long life.

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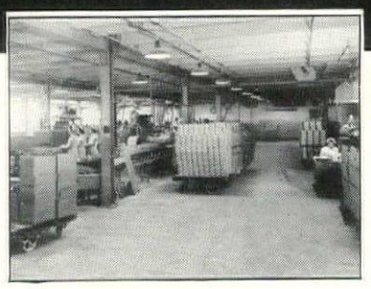
On a cost-per-year basis, Hard Maple offers unequalled economy. Outwears any other comfortable floor. So tough-fibred, tight-grained, its resistance to indentation and abrasion is remarkable. Does not splinter, sliver, or develop ridges. Speeds up traffic. Simplifies alterations, lowers maintenance costs.

Moreover, Hard Maple offers unsurpassed comfort in use. Warm, dry, resilient, sanitary, it reduces fatigue, aids efficiency. And always, its light cheery color presents pleasing appearance. With the heavy-duty finishes available, Hard Maple's beauty is maintained under most severe traffic. These penetrating finishes seal its surface, keep out dirt, eliminate scrubbing. In "natural" or colors, to match any decorative scheme.

In buildings of *many* different types, **MFMA*** Northern Hard Maple is your insurance that your clients' flooring will give lasting satisfaction year after year. Write for A.I.A. File Size Grading Rules and complete specifications for laying and finishing.

MAPLE FLOORING MANUFACTURERS ASSOCIATION
1784 McCormick Building, Chicago, Illinois

See our catalog data in Sweet's, Sec. 17/66.
Write us for folder on Heavy-Duty Finishes.



No other flooring equals Hard Maple's versatility. In the Drake Ballroom, it offers a perfect floor for dancing; matches its surroundings in beauty. For the Cracker Jack plant, it provides foot comfort, remarkable resistance to the wear of heavy truck traffic.

For display rooms and stores, Hard Maple flooring is an ideal choice. It offers resilience, good appearance, cleanliness, sanitation, easy maintenance, durability, economy. This unique combination of qualities makes versatile Hard Maple equally suitable for factories, bakeries, mills, warehouses, schools, and homes.

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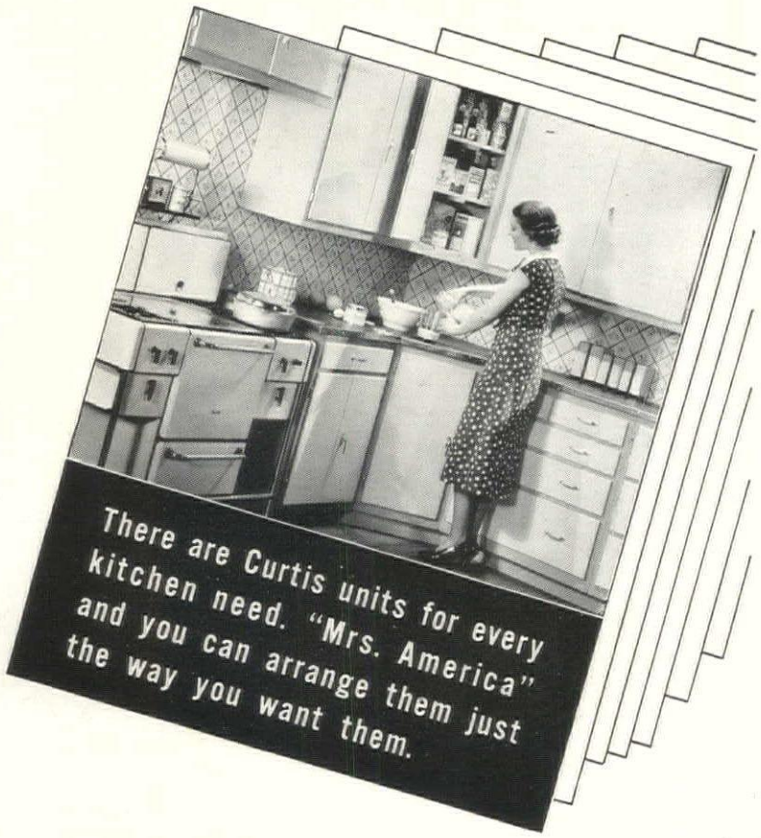
WILL HELP YOU PLAN

Successful Kitchens



THE first to study kitchen planning in terms of convenient cabinets—the first to develop kitchen arrangements that save time and steps for "Mrs. America"! And that experience lists over 50,000 kitchen plans—by Curtis, nationally known woodwork makers for 71 years!

Only Curtis offers you such a wide background of kitchen research. It will make your kitchen planning easier!

There's a color to specify just the way you want it. For Curtis Cabinets come to the job in dustproof cartons ready to assemble. Your client gets a matched color scheme—certain satisfaction.

And the Curtis arrangement is flexible—provides a place for everything; appliances, brooms and ironing boards. It fits today's needs and allows easy adaptation to the changes that may be needed in the future.

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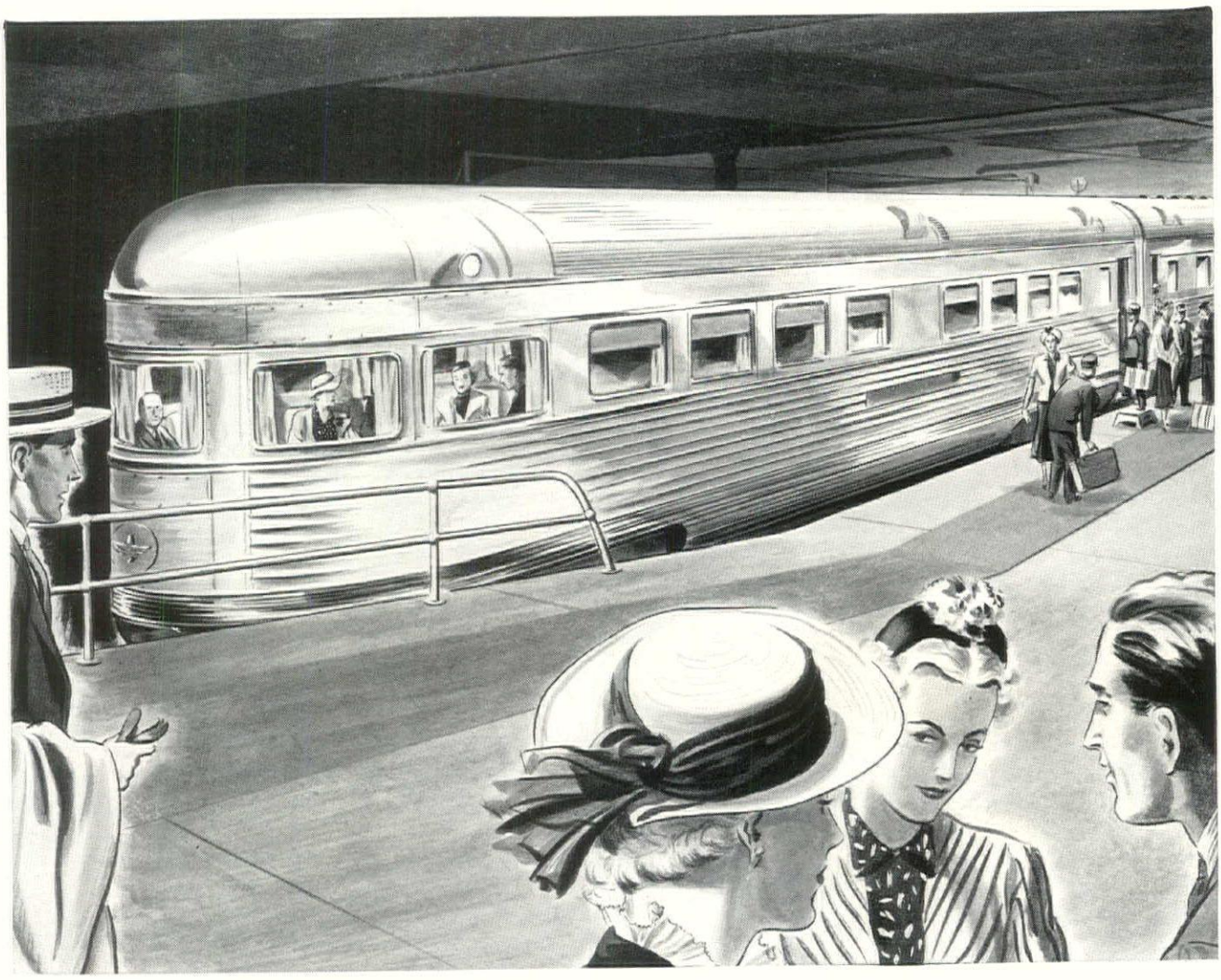


WHAT A PLEASURE NOW TO "TAKE THE TRAIN"!

BESIDE the carpeted platform the new stainless-steel train stretches its gleaming length. Passengers are arriving, laughing, chatting and saying good-byes. The colorful, luxurious observation lounge is filling. In the flower-gay diner the white-clad waiters stand at their posts. Again in this modern day there is the thrill of travel—the happy anticipation of a delightful railroad journey.

This is the reality which thousands of pleased travelers experience today —every day. Five years ago only a vision in the mind of a great engineer —four years ago only plans on the draughting table—today there are ten of these light-weight stainless-steel trains in operation, covering more than two million scheduled miles per year.

They are fast trains, because the Budd type of construction reduces the weight to be pulled by nearly one-half. And they are supremely *safe* trains because the corrosion-proof stainless steel of which they are built has four times the elastic strength of ordinary steel.

Herein lies the chief difference between the various kinds of streamlined trains. Some are conventional heavy equipment with streamlined exteriors. Others compromise on alloys which give medium weight. But Budd-built trains are *truly* light weight, combining modern streamlining with the strength of stainless steel, welded by the exclusive Budd SHOTWELD process.

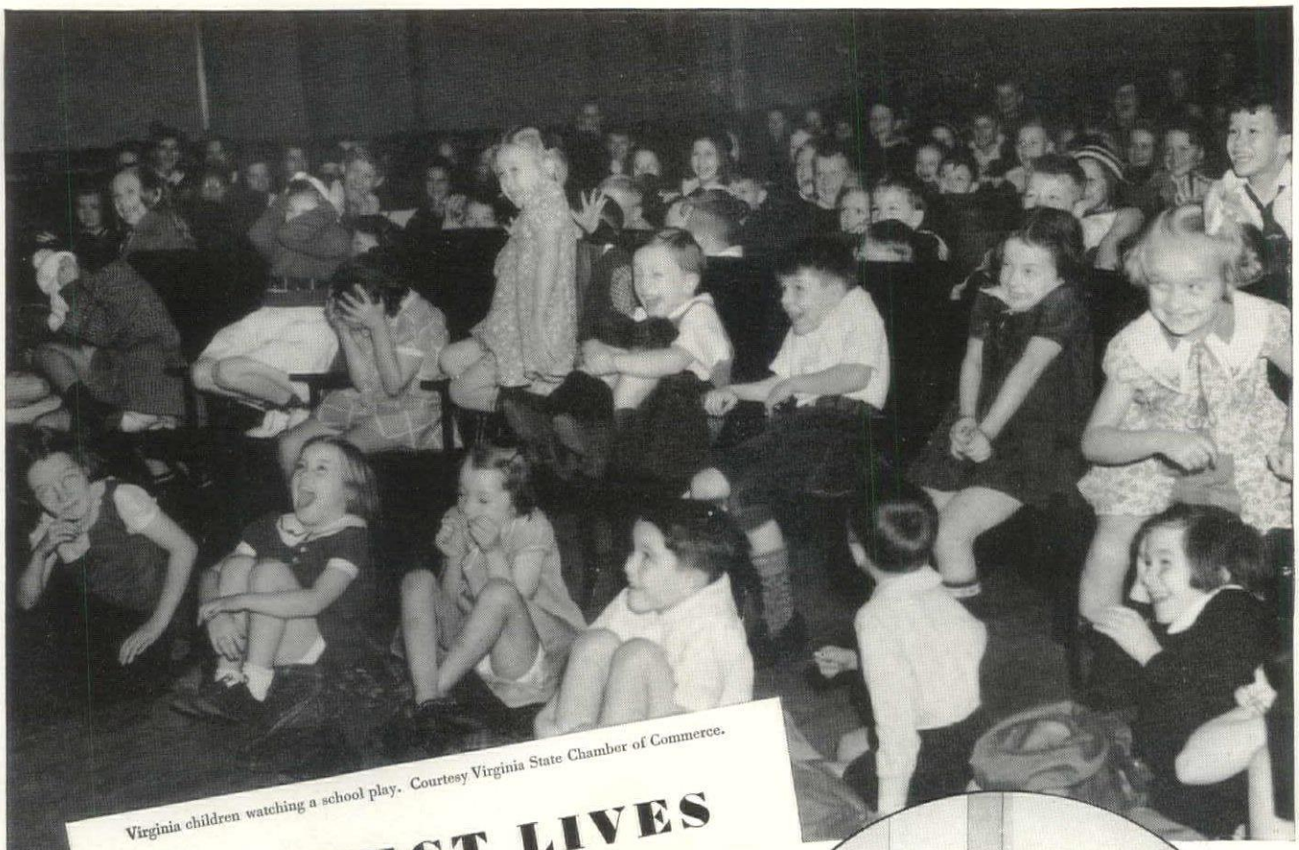
And best of all, these trains are filled. They have stimulated rail travel. Whether drawn by steam, diesel-powered or electric locomotives, they decrease cost of operation by eliminating excess dead-weight. They are profitable to the railroads as well as an immense service to the traveling public.

Originator of ALL STEEL bodies for automobiles, now used almost universally, the Edw. G. Budd Manufacturing Company has pioneered modern methods in the design and fabrication of steel products.

EDW. G. BUDD MANUFACTURING COMPANY

PHILADELPHIA AND DETROIT

BUDD METHODS SAFELY ELIMINATE DEAD-WEIGHT



Virginia children watching a school play. Courtesy Virginia State Chamber of Commerce.

PROTECT LIVES LIKE THESE . . .

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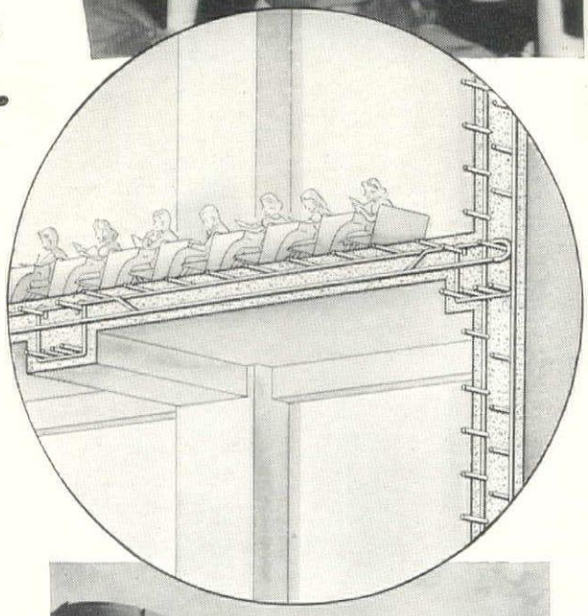
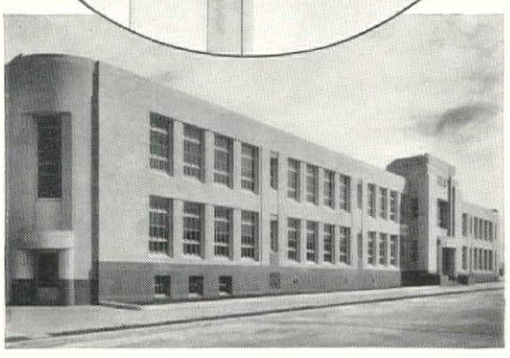


THE occupants of a reinforced concrete building are protected against fires, tornadoes, hurricanes, explosions and even earthquakes.

And no wonder! Walls, frame and floors are a monolith of concrete and embedded steel bars. Such a structure has the strength, rigidity and toughness to withstand terrific twisting, bursting and other forces that might spell disaster in a split second for less sturdy construction. It is the *safe* way to build.

Your community can enjoy this security if it can afford to build at all. Concrete's reasonable first cost and low maintenance will satisfy the thriftiest buyer. It is enduring, weather defying. And its beauty possibilities are unlimited.

Send for your copy of "Concrete in Schools—Educational and Architectural Planning."



Francis Scott Key School, San Francisco—one of 12 new concrete buildings recently completed under this city's $3,500,000 school building program. William Mooser, Edward A. Eames and Dudley Dacre Stone, architects; James M. Smith, structural engineer; Dinwiddie Construction Co., contractor—all of San Francisco.

PORTLAND CEMENT ASSOCIATION
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A National Organization to Improve and Extend the Uses of Concrete

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Safest Way to Build

to and constant advocacy of the high ideals of architectural practice among members of his profession and the public, for his achievement as an architect, and for his unselfish efforts to improve the welfare of his community.

LAURENCE HALL FOWLER—of Baltimore: For notable contributions in service to his profession, the distinction of his executed work and the high esteem in which he is held by his community.

HUGH M. G. GARDEN—of Chicago: For excellence in design, for his achievement as an architect and artist, and for his sympathetic collaboration in the field of sculpture as related to architecture.

HAL F. HENTZ—of Atlanta: For the high standard of his professional work, distinguished in many fields; for his leadership in civic causes and his support of governmental and professional betterment.

EDWARD SHEPARD HEWITT—of New York: Because of his keen interest and his many years of participation in architectural education, and for the quality of his work as artist and as a practicing architect.

ROY CHILDS JONES—of Minnesota: For his service in the field of education, not only in his own State but in the country at large, as well as for his support of a wider view of the obligations to the public of the profession of which he is a member.

ERIC KEBBON—of New York: For his admirable work in the field of domestic architecture and public buildings, as well as the studied yet gracious quality he has given to this work.

GEORGE SIMPSON KOYL—of Philadelphia: For distinguished contributions in the field of architectural education, his indefatigable work in the interest of the student and the profession.

SAMUEL LAPHAM—of South Carolina: For his studied and charming adaptation of the distinctive architecture of his State to the needs of present day building, as well as the preservation of the precious structures of the region of Charleston.

JOHN REID, JR.—Northern California Chapter: For his valuable contribution to the field of school house architecture; for distinction in design, excellence of construction, his sincerity in civic affairs and devotion to the profession.

JOHN WELLBORN ROOT—of Chicago: For distinguished design, the excellence of his executed work and particularly the application of intelligent and studied composition in form, plan and construction to the solution of modern problems.

LOUIS A. SIMON—of Washington, D. C.: Since 1896 he has participated in the growth of the office he now heads as Supervising Architect of the Treasury Department, Procurement Division. During this time his great interest has been in the development of an expressive Federal architecture, the observance of high standards of architectural design and construction, the establishment of a better relationship between the Office of the Supervising Architect and the architectural profession, and a closer co-operation with other agencies of the Government having to do with Federal construction, so that his influence has always been one to stimulate a respect for the dignity of the profession of architecture. Because of his successful administration of an important public office, and his sympathetic understanding of problems of his fellow practitioners, his associates and the profession hold him in affectionate esteem and proudly advance him to Fellowship in The Institute.

SEYMOUR WILLIAMS—of New Jersey: For untiring endeavor in forwarding the policies of The Institute; for notable public service and the esteem in which he is held by fellow practitioners.

Only two Honorary Members were elected by the Institute this year. Excerpts from their citations follow:

GILMORE DAVID CLARKE, Landscape Architect, Planner and Teacher, has had a varied and extensive practice over many years on large scale work in collaboration with architects, sculptors and engineers. He has had an important part in shaping the development of some of the country's most notable public properties and his work has been distinguished by a broad grasp of the esthetic and the practical problems involved and by the sympathetic understanding of varying points of view which constitutes true collaboration .

Since his graduation from Cornell University, he has added to his own experience, and has increased the esthetic riches of the nation through his participation in the development of its parkways, parks and driveways, and through his creative work with numerous planning councils.

GEORGE WHITE MARSTON. Mr. Marston was born in 1850 and is now eighty-six years old. He has lived for many years in San Diego and has devoted himself to community service. He is considered by the architects of his city to be its outstanding citizen, father of San Diego's city planning, employing John Nolen some twenty-five or thirty years ago to lay out a city plan.

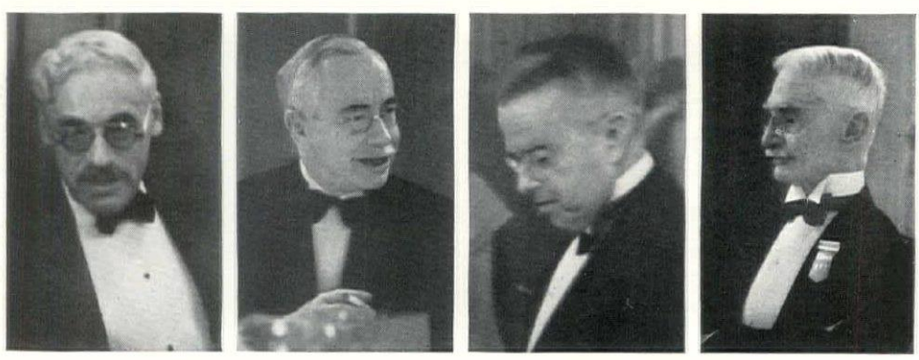
President Voorhees made a ceremony of having the newly elected directors and officers come forward to take the places at the table occupied by their predecessors—Messrs. Ingham and Bergstrom remaining undisturbed in their respective offices and chairs.

With a particularly felicitous address, such as we have come to expect from him, Mr. Maginnis took the chair and assumed the direction of the Institute for the coming year.

SATURDAY, JUNE 5

The delegates and members attending the Convention this year were offered two attractive alternates for prolonging the Convention period by an extra day. The architects of Maine had urged a visit to see some of their own architectural treasures in which they claimed Maine had achieved a distinction no less significant perhaps than her political one.

On the other hand, the Providence Chapter had urged those attending the Convention to come to Providence to see particularly some of the fine old mansions built before or just after the founding of the Republic. Your reporter followed the greater number in accepting this latter invitation. Members of the Providence Chapter met the morning train from Boston, drove the visitors to Brown University, and on a carefully routed trip through the older parts of the city and on up the coast. A shore luncheon was served to seventy-five, including guests and hosts, at the Squantum Club—a gustatorial event which will go down in Institute history. Then on to see the Moses Taylor house and gardens near Newport, designed by the Office of John Russell Pope, with a final tea at the home of Mrs. Nicholas Brown, Harbor Court, designed some years ago by Mr. Cram's firm. After another run back along the shore to Providence the Sixty-ninth Convention had become a treasured page in the book of memory.



Some shirt-bosom highlights at the annual banquet: Robert D. Kohn of New York; George S. Koyl of Philadelphia; Lawrence H. Fowler of Baltimore, and Frank R. Watson of Philadelphia

4025 TONS OF AIR PER HOUR

Handled by Sturtevant Fans and Air Washers in St. Louis Auditorium

Architects: The Plaza Commission, Inc., and LaBeaume & Klein. *Engineer:* George E. Wells, Inc. *Heating and Ventilating Contractor:* Midwest Piping and Supply Company. All of St. Louis.

Largest thoroughly air conditioned structure of its type —St. Louis Auditorium seats over 17,000 people.

46 Sturtevant Supply and Exhaust Fans and 14 Air Washers handle over 4000 tons of air per hour. Sturtevant equipment also includes 27 Unit Ventilators.

Total of about 2,000,000 cubic feet of air per minute is handled by the entire Sturtevant equipment.

B. F. STURTEVANT COMPANY, Hyde Park, BOSTON, MASS.
Branch Offices in 40 Other Cities
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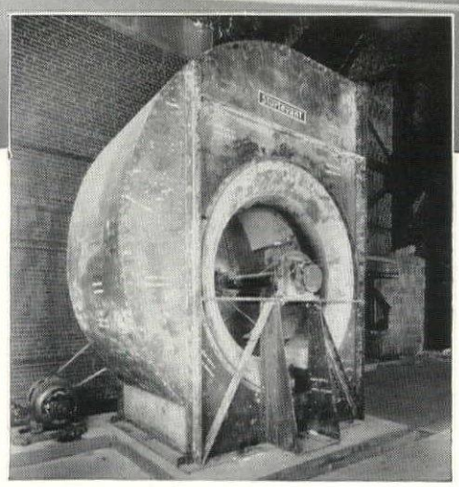
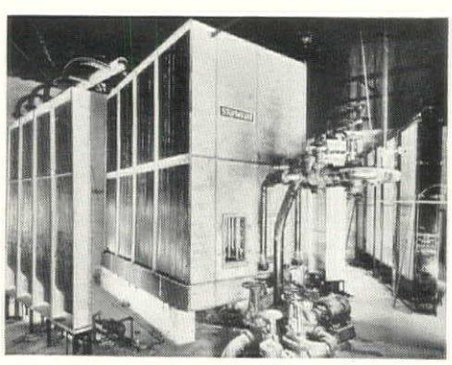


One of 14 Sturtevant Fans supplying 980,500 c.f.m. of fresh air, 2200 tons per hour.



Some of the 14 Sturtevant Air Washers which have a total capacity of 980,500 c.f.m.

Sturtevant
REG. U. S. PAT. OFF.
Puts Air to Work

Fans, Blowers, Air Washers, Air Conditioning, Heating, Vacuum Cleaning, Drying, Mechanical Draft Equipment

ARCHITECTURALLY SPEAKING

by

OTIS ELEVATOR COMPANY

IT WOULD be a strange sight indeed if, all of a sudden, wide cars, narrow cars, cars of every shape and size appeared on the railroad tracks of the country.

But railroad cars must all be able to operate on the same gauge track — that one restraining factor has helped set a precedent of car standardization.

Every elevator, however, has its own individual hatchway and tracks. Because of this, elevator standardization has not been an absolute necessity. But in the interest of economy and quicker delivery and installation of new equipment, there has been, this long while, a need for Elevator Standards.

Take, for instance, the small freight machine with a capacity of 2500 pounds at 50-feet-per-minute speed. Careful checking has disclosed that the dimensions specified for the car platform for this machine have varied only a few inches over a period of years. Obviously, this variation can be eliminated in favor of a standard for this machine. Obviously, a standard-size hatchway would mean a saving, all the way along the line, from the architect's office — through the engineering and order departments — the factory — and the installation.

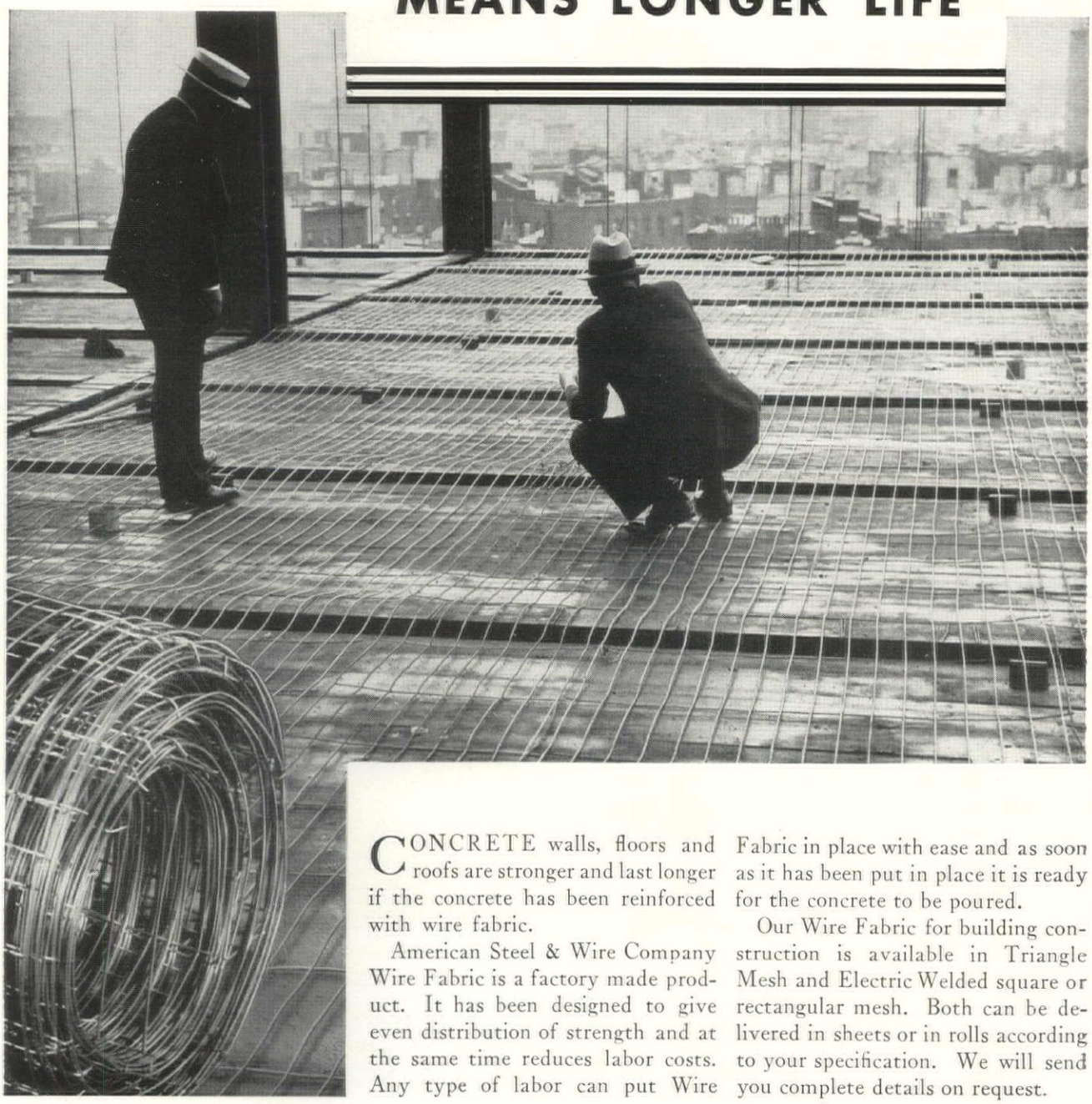
And most installations can readily conform to standards determined as best suited to conditions under which the machines will operate. Good examples are the standards established for apartment houses.

After a great deal of study and research, as in the cases mentioned, Elevator Standards have been determined for many types of Otis machines, both passenger and freight. More and more of these machines will be available, as the work of research on standard data progresses. And where a standard will fit a given installation, it will most assuredly mean a considerable saving to the man who buys it.

And may we mention the fact that Elevator Standards are not confined to equipment for a new installation? A standard of excellence has also been determined in the matter of maintenance of elevators. Otis Maintenance offers a life-extension service that cuts elevator depreciation to the bone.

The details of this service are definitely established — its quality is the same every day in every part of the country. Which means that the service contemplated in the specifications of an Otis Elevator can be delivered no matter where the job is located.

Extra STRENGTH
MEANS LONGER LIFE



CONCRETE walls, floors and roofs are stronger and last longer if the concrete has been reinforced with wire fabric.

American Steel & Wire Company Wire Fabric is a factory made product. It has been designed to give even distribution of strength and at the same time reduces labor costs. Any type of labor can put Wire Fabric in place with ease and as soon as it has been put in place it is ready for the concrete to be poured.

Our Wire Fabric for building construction is available in Triangle Mesh and Electric Welded square or rectangular mesh. Both can be delivered in sheets or in rolls according to your specification. We will send you complete details on request.

U·S·S WIRE FABRIC

AMERICAN STEEL & WIRE COMPANY

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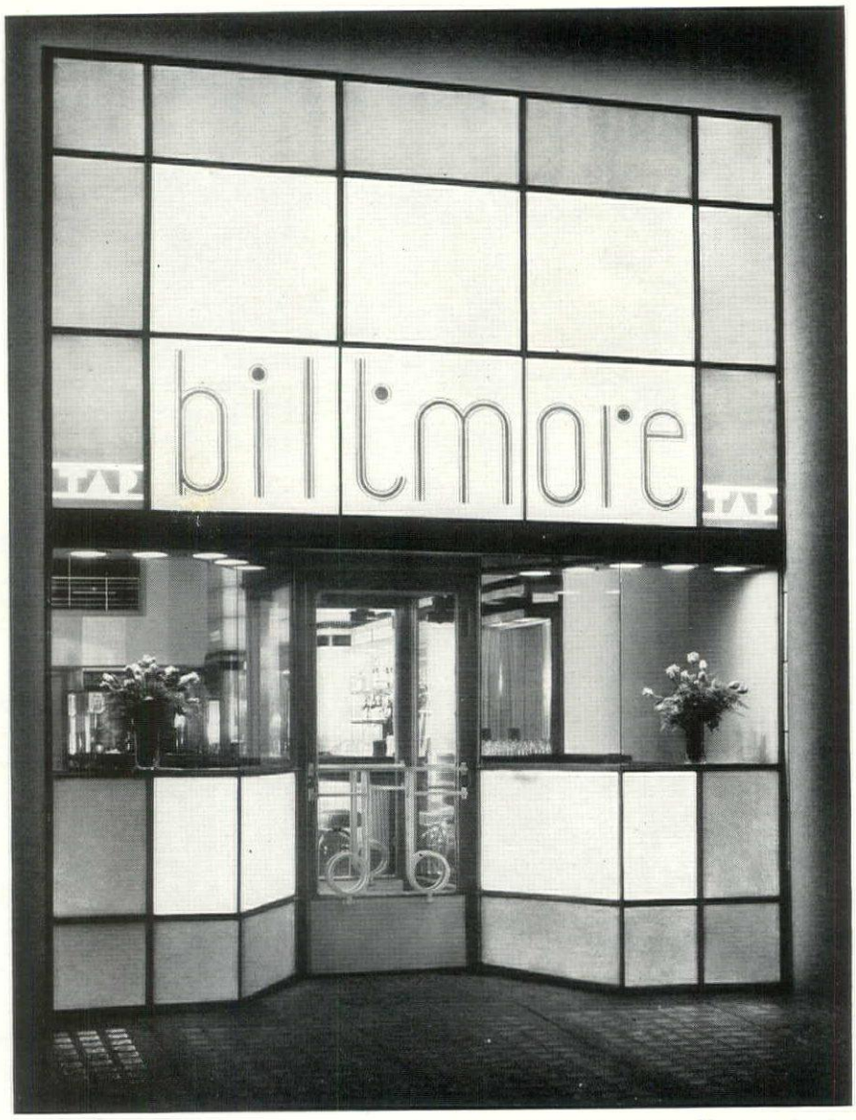
United States Steel Products Company, New York, *Export Distributors*

UNITED STATES STEEL

NIGHT IS BRIGHTER THAN DAY

WHEN WALLS ARE BUILT ☆ WITH VITROLUX ☆



The Biltmore Tap Room, Chicago, designed and erected by Palmer Personal Service. This night photograph illustrates the highly luminous effect of colorful translucent Vitrolux.

"Welcome ever Smiles, and Farewell goes out Sighing."
— SHAKESPEARE

Vitrolux, the New Color Fused Tempered Plate Glass, offers a definite means of adding high visibility at night in addition to maintaining an attractive, colorful front by day. When walls of translucent Vitrolux are lighted from behind at night, they offer a brilliant welcome to all who pass—spotlighting your place of business and marking it as modern and ultraprogressive.

Vitrolux is available in almost any color or combination of colors, in varying degrees of translucency. It is also available in opaque colors. The colors are fire-fused on the inner surface and become an integral part of the glass itself. Translucent Vitrolux gives remarkable light diffusion.

Vitrolux has unusual physical characteristics—it is from 3 to 7 times as strong as ordinary plate glass and, because of the tempering process, is highly resistant to physical and thermal shock.*

The use of Vitrolux for exterior walls or for ceilings opens up unusual opportunities to make your place of business more attractive after dark and to add to its luster during the day. Complete data is available to architects on request.

LIBBEY·OWENS·FORD GLASS COMPANY, TOLEDO, O.
Member Producer's Council, Inc.

** The special treatment given Vitrolux greatly increases its strength but prevents its being cut or ground like ordinary glass. Care must be taken to avoid striking exposed edges or puncturing its surface with pointed objects. Cutting the surface or chipping the edges causes this glass to disintegrate and fly into relatively small crystals.*

VITROLUX
Color Fused Tempered Plate Glass
A LIBBEY · OWENS · FORD PRODUCT

AMERICAN ARCHITECT AND ARCHITECTURE

THIS MONTH

A PHOTOGRAPH BECOMES A COVER — not just an ordinary photograph but the first in a series of outstanding photographic records of sometimes well known and sometimes little known but always excellent examples of the world's architecture. As a matter of fact, we think that these pictures are so good that they can stand on their own merit without relationship to the contents of individual issues other than their importance as good architecture.

MILLIONS OF AUTOMOBILES (to make modern mankind motorized satyrs), buses, railways, and other forms of transportation all combine to inhibit the Topsy-like growth of cities even without scientific town planners crusading for better city planning. Tracy B. Augur gives us a glimpse of the future in Transportation Systems in the City Plan.

GOOD DESIGN is a weapon in helping to merchandise various types of transportation facilities. This is proven in the Toronto, Hamilton and Buffalo Railway Station in Hamilton, Ontario, by Alfred Fellheimer and Steward Wagner, Architects; the National Trailways Bus Depot in Chicago by Graham, Anderson, Probst & White, Architects; the bus station and theater in Helsinki, Finland, by Kokko, Rewell & Riihimäki, Architects; and by Paul P. Cret's interiors for the Santa Fe's new Super Chief.

IRELAND has a sentimental appeal but it also has an architecture that should be of inspiration to us in domestic work.

THREE HOUSES in three sections of the country offer excellent comparative material for study of some current trends in architectural taste.

SUMMER AIR CONDITIONING was a badly misunderstood term until J. C. Hardigg wrote an article that clearly explains the entire subject.

AUDITORIUM SEATING and Horizontal Sightlines, if worked out according to the Unit Planning Series No. VII, should result in nothing but satisfied audiences. The Time-Savers are on the same subject.

NEXT MONTH

LOUIS B. SIMON tells us about the sensible effort on the part of the Procurement Division to design the new post offices for their setting instead of just letting loose screaming eagles on Main Street.

DETROIT'S ARCHITECTS EDIT a sixteen-page section including work and architectural thought in their section of the country as the second in an interesting bi-monthly series.

THE REST OF THE MENU will be varied and helpful.

PHOTO ON PAGE 30: CHARLES PHELPS CUSHING


WARNING
ALL TRUCKS
USE DOWN RAMP
USE RAMP
N.J. RT.1—U.S.9W
POINTS NORTH
BAYONNE
USE RAMP FOR
KEARNY
HARRISON
NEWARK
BAYONNE
BRIDGE
NEW JERSEY
US
1
NEW JERSEY
US
9

TRANSPORTATION SYSTEMS IN THE CITY PLAN

By TRACY B. AUGUR

CITIES, contrary to appearances, are not mere accidents. They result from a deep-seated desire on the part of human beings to live together. And this desire, in turn, is not just a matter of gregarious whimsy, but is born of economic necessity. We have cities, in short, because we cannot get along without them.

This simple fact rests on another. The human race, in its long effort at civilization, has lost much of its early independence. Man is sorely dependent on his fellow men. The complex business of living requires a great number and variety of contacts between different members of society; requires that those contacts be made easily and quickly. The reason that we cannot get along without cities is that we have not yet found any other device through which these contacts can as well be made.

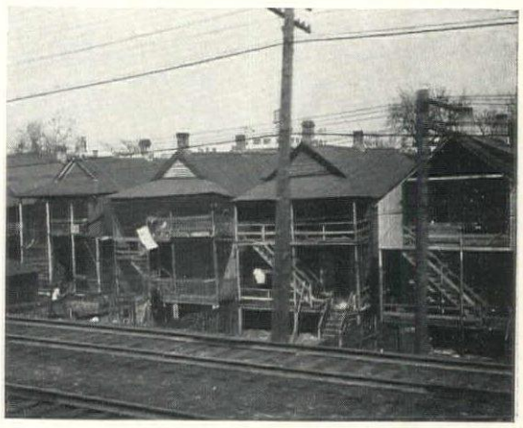
Despite all the wonders of telephone and television and the mechanisms of remote control, we still rely on contacts that are personal. The board meetings and conferences of modern business can not be carried on by telephone alone. Workers can not operate the machinery of modern industry by sitting comfortably at home and pushing buttons. An evening of bridge by television, while having all the attributes of novelty, does not completely satisfy the social urge. Technology, with all of its advances, has not reduced the need for people to meet face to face.

By bringing together many people of diverse pursuits, cities make possible the variety of contacts that modern times demand. But they do so only at the price of an elaborate and costly system of transportation to enable their citizens to move about and meet their fellows. As they grow to metropolitan size and life within them becomes more complex, free and easy circulation is more and more difficult to maintain, and the dilemma of transportation rears its ugly horns.

It is a real dilemma. If a city keeps up with the demand for transport facilities, it faces bankruptcy. If it does not, it faces strangulation. Most cities have chosen to tackle the first horn, and are emptying their treasuries on new and wider streets, bridges, subways and all the other devices that serve the flow of traffic. They have chosen to risk their fortunes in a race with death, and as it is generally being run, it is a losing race.

It is a losing race because the emphasis is being put all on one side of a dual problem. There are two ways of keeping abreast of the demand for transport. One is to increase the facilities. The other is to reduce the demand. In embarking upon the first, cities generally have overlooked the second. The demand increases faster than facilities can be built to meet it, costs become prohibitive, and the problem is still unsolved. It looks like a very hopeless business. And it is.

The fact is that large cities have not lived up to expectations. They were supposed to offer the ultimate in transportation efficiency, to provide for the widest possible variety of contacts among the greatest possible number of people. By bringing more and more people together in less and less space, it was assumed that contacts between them would be automatically facilitated. Instead they have been rendered more difficult. The needs of one set of people have come in the way of the needs of another. The commuter, the factory worker, the housewife, all have found that to reach their daily destinations they must go around or through busy areas in which they have no interest. The multiplying of traffic streams on single arteries, the criss-crossing of alien streams, has built up congestion and delay. Cities reared to meet modern demands have failed to meet modern needs.



Instead of the legitimate transportation demands of a well-organized urban society we are faced with the excessive demands of a badly organized society. It is this excess that is producing the modern transportation dilemma. And it is the effort to provide for the excess, rather than to remove the reason for it, that is leading modern cities, counties and states on their expensive and futile race.

Because the dilemma has appeared in its most terrifying form where the complex of city life is thickest, it has naturally been looked upon as a city problem. Municipal engineering and city planning are expected to concoct some

abracadabra any city can use to banish the monster from its midst. But there is no magic formula to turn the trick. There is no rule of thumb, not even a whole code of rules, that will specify the widths of streets, the location or design of terminals, the placing of traffic lights or circles, or the manifold other items needed to keep the dilemma from the door.

Each community has its own special requirements for transportation both within and beyond its limits, for the internal contacts that serve its daily life and the external contacts that make it a part of the national or international urban family. These requirements are conditioned by the special functions of each community, by the topography of its site, by its position in the regional and national pattern. For each community there is a special form of organization that will best serve its particular needs, a form of organization in which rail lines, freight and passenger stations, streets and bus lines, airports, docks, bridges, warehouses,—all the components of the transportation system have their appropriate place. But to plan that organization is a custom job. There are no sets of standard blueprints, requiring only a little altering around the neck and adjustment of the trouser legs to fit any town or city that comes in the shop.

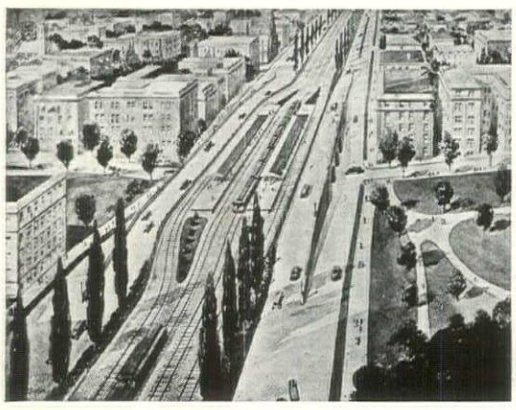
City planning can be of genuine assistance in our modern traffic muddle only by asserting its fundamental role, the role of designer. For until we have cities that are designed to function as modern times demand, we shall have no solving of the transportation problem. The purpose of city planning should be,—although too often it has not been,—to deal with the causes of traffic, rather than the effects alone, to evolve a functional scheme of organization that will eliminate unnecessary travel and thus make possible an adequate provision for necessary travel.

Shorn of all details and qualifications the problem that faces us is this: to so group the activities of modern society that the usual daily contacts of each citizen will fall as far as possible within his immediate neighborhood where they may be served by simple local means of transportation, that whatever regular travel is advisable beyond the neighborhood, such as commutation between home and employment, may be kept as short and direct as possible, and that other necessary contacts beyond that scope will be served by adequate arteries flowing between and around urban centers. The problem is to give to the metropolis the character of a cluster of semi-independent villages, each carrying on to the greatest possible extent its own life internally, and gaining the advantages of metropolitan location by free travel between the units for the contacts that require it.

It is interesting to note that the germs of such organization are beginning to appear in many places as a natural result of the transportation problem. Skyscraper business centers offer to certain business men opportunity for all their usual contacts within a single group of buildings. The sheer difficulty of reaching down-town stores has created satellite shopping centers carrying full and attractive lines of goods needed in their locality. The hopelessness of subway travel has built up the walk-to-work movement in New York. The difficulty of operating in the midst of urban congestion has forced industries to move to suburban centers.

Most of this decentralization has to date been haphazard and unplanned. It has in it no guarantee of permanence. The new centers are accidental in location, and often so patterned on the older sections that they quickly inherit the congestion they are attempting to escape. The problem is not only to create, but to keep a more logically planned city structure.

To fulfill this role the planners and administrators of cities, states and regions need much more effective controls over the use of land than they have heretofore enjoyed. Streets have long been looked upon as public business, but the land on which their traffic originates and finds its destination is private property. It has been an axiom of the American way that the owner of private land is free to do with it as he pleases, while the community solves any and all traffic problems that he creates. If he erects buildings that cause more traffic than the streets will carry, it is up to the city to provide more streets, and to pay him damages if some of his property is used in the process. If he chooses to disrupt a down-town residential neighborhood with commercial and industrial buildings, forcing the people to move to the suburbs, and the city to build streets to take them there, he is free to do so, and not infrequently is called a public benefactor for aiding the progress and development of his community. As a nation, we are only beginning to understand the inner workings of our cities. The task of city planning is to produce order, and not merely to grease machinery that lacks it.

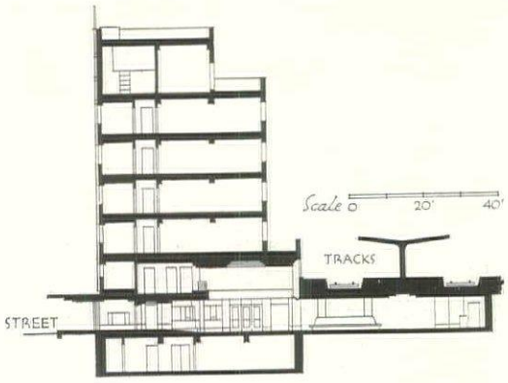


PHOTOS: WILLIAM J. MILLER

TORONTO, HAMILTON & BUFFALO RAILWAY STATION

HAMILTON, ONTARIO

ALFRED FELLHEIMER, STEWARD WAGNER, ARCHITECTS



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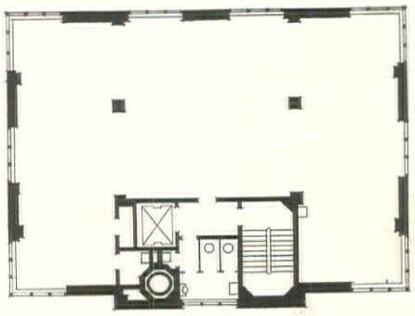
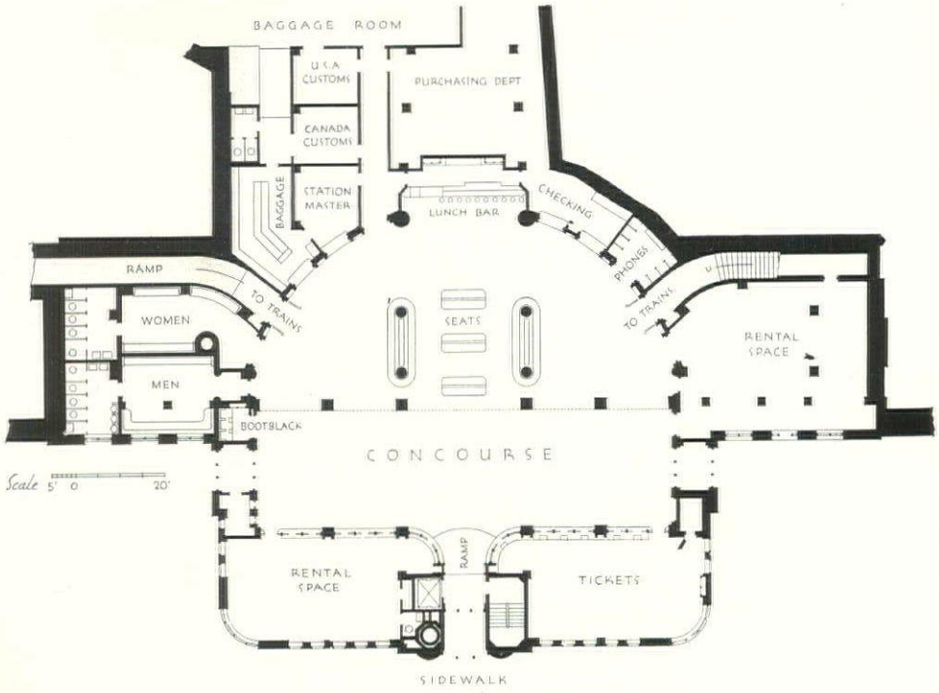
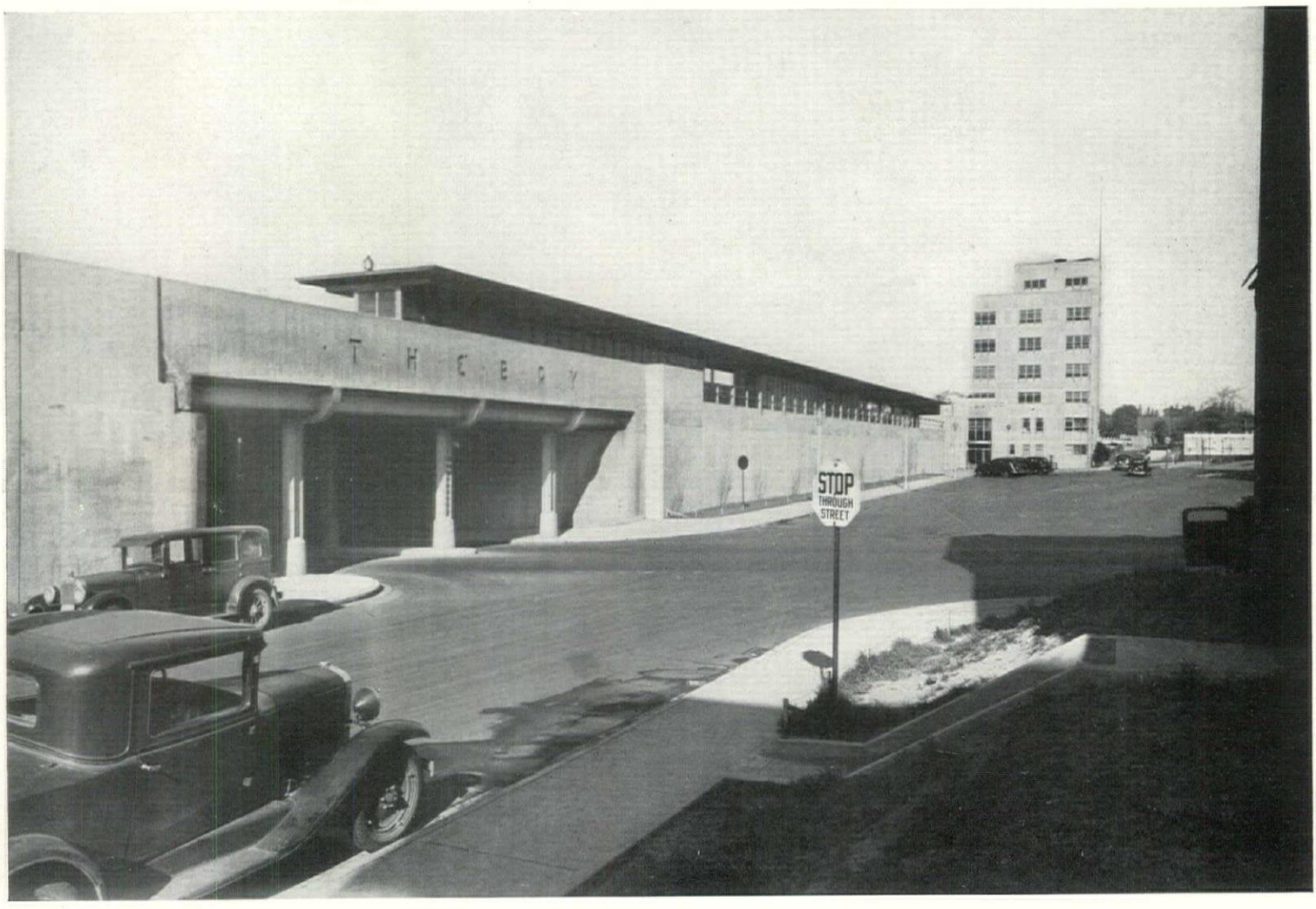


TYPICAL OFFICE FLOOR PLAN



MAIN FLOOR PLAN

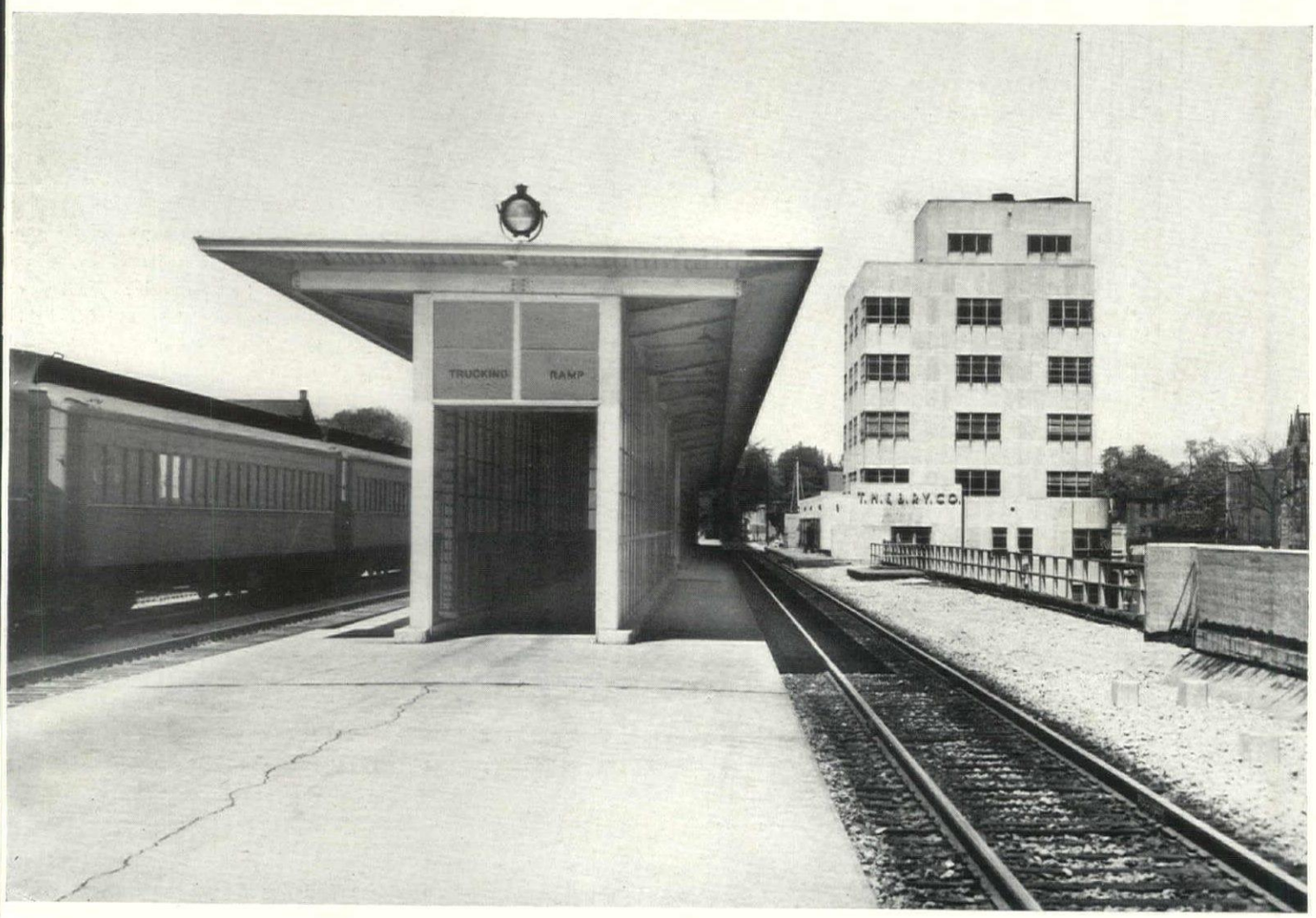


T. H. & B. RAILWAY STATION

HAMILTON, ONTARIO

FELLHEIMER & WAGNER, ARCHITECTS

Part of a large grade crossing elimination project, also designed by the architects, this station with offices above for the railway company is an extremely practical solution to a specialized and complex problem. Built of Queenstone, a native Canadian stone that has characteristics of both limestone and granite, and accented by aluminum trim, the building is in complete harmony with the concrete used for the remainder of the development



Semi-circular in form, the plan of the concourse consists of a series of logical sequences for travelers either entering or leaving the station. Warm and friendly in color, the walls are covered in enameled steel in shades of red and yellow, while the terrazzo flooring repeats this color scheme. Seats are upholstered in red leather and the many legible signs in aluminum lettering form an integral part of the decorative scheme

T. H. & B. RAILWAY STATION

HAMILTON, ONTARIO

FELLHEIMER & WAGNER, ARCHITECTS

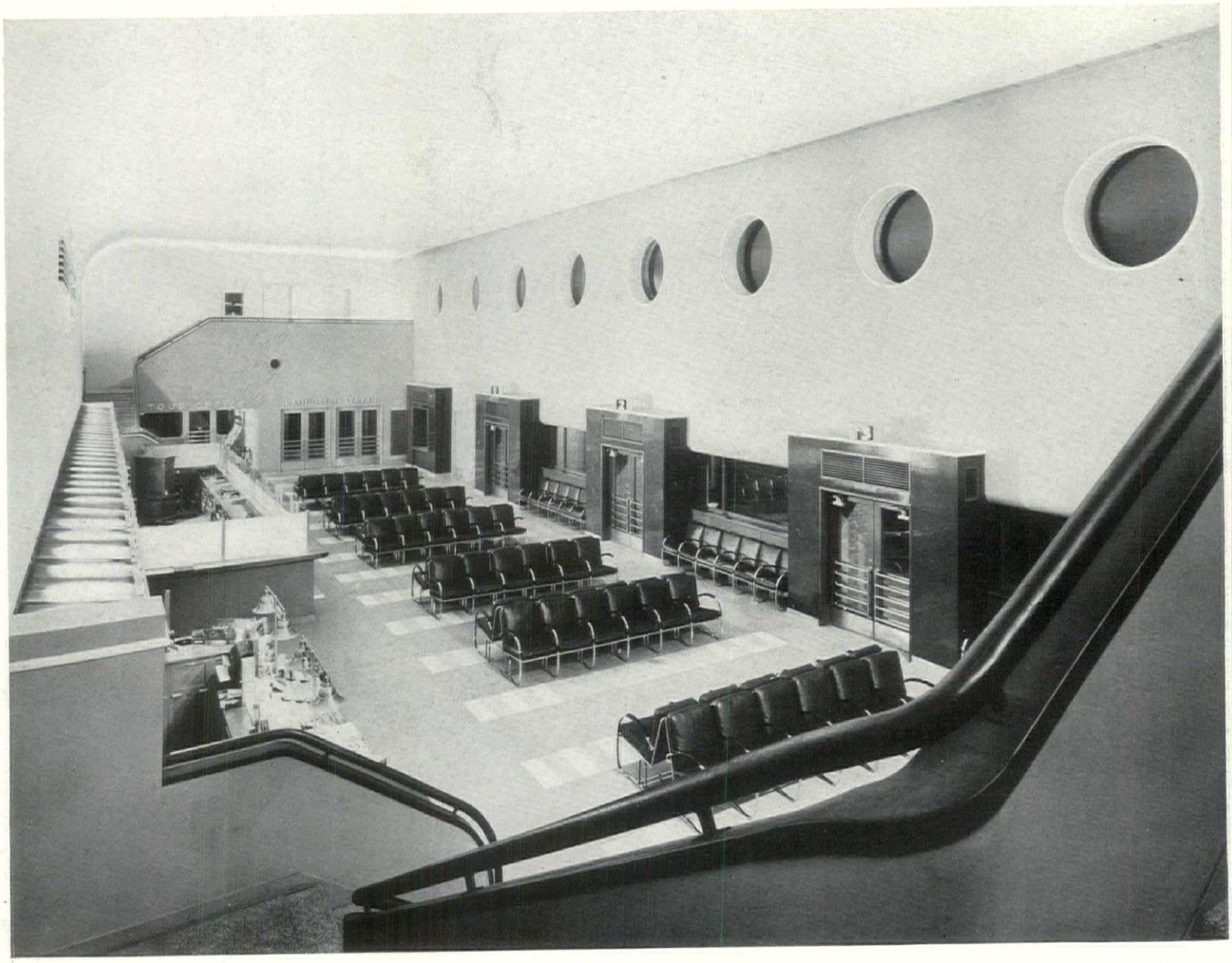
PHOTOS: HEDRICH-BLESSING

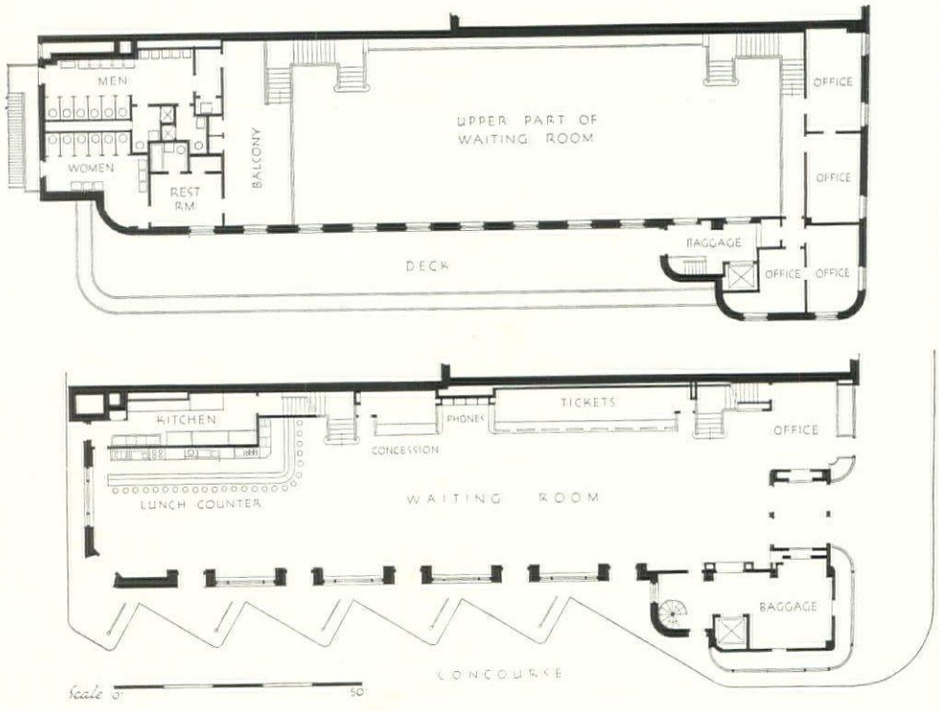
NATIONAL TRAILWAYS BUS DEPOT

CHICAGO, ILLINOIS

GRAHAM, ANDERSON, PROBST & WHITE, ARCHITECTS

Serious consideration of the design problems of bus terminals is a comparatively recent development in this country. Fortunately, however, the value of architecture as an advertising medium was sufficiently well recognized by the designer, Alfred Shaw, so that when serious work was done the building was not created in the image of a minor railway station. Each bus company has taken pains to have its buses decorated externally in a readily identifiable manner. The same theory of decoration has also been applied to the bus stations. Bedford stone colored terra cotta (above) is used on the street front in a manner to concentrate attention on the entrance and vermilion-backed window displays





NATIONAL TRAILWAYS BUS DEPOT
CHICAGO, ILLINOIS

GRAHAM, ANDERSON, PROBST & WHITE, ARCHITECTS

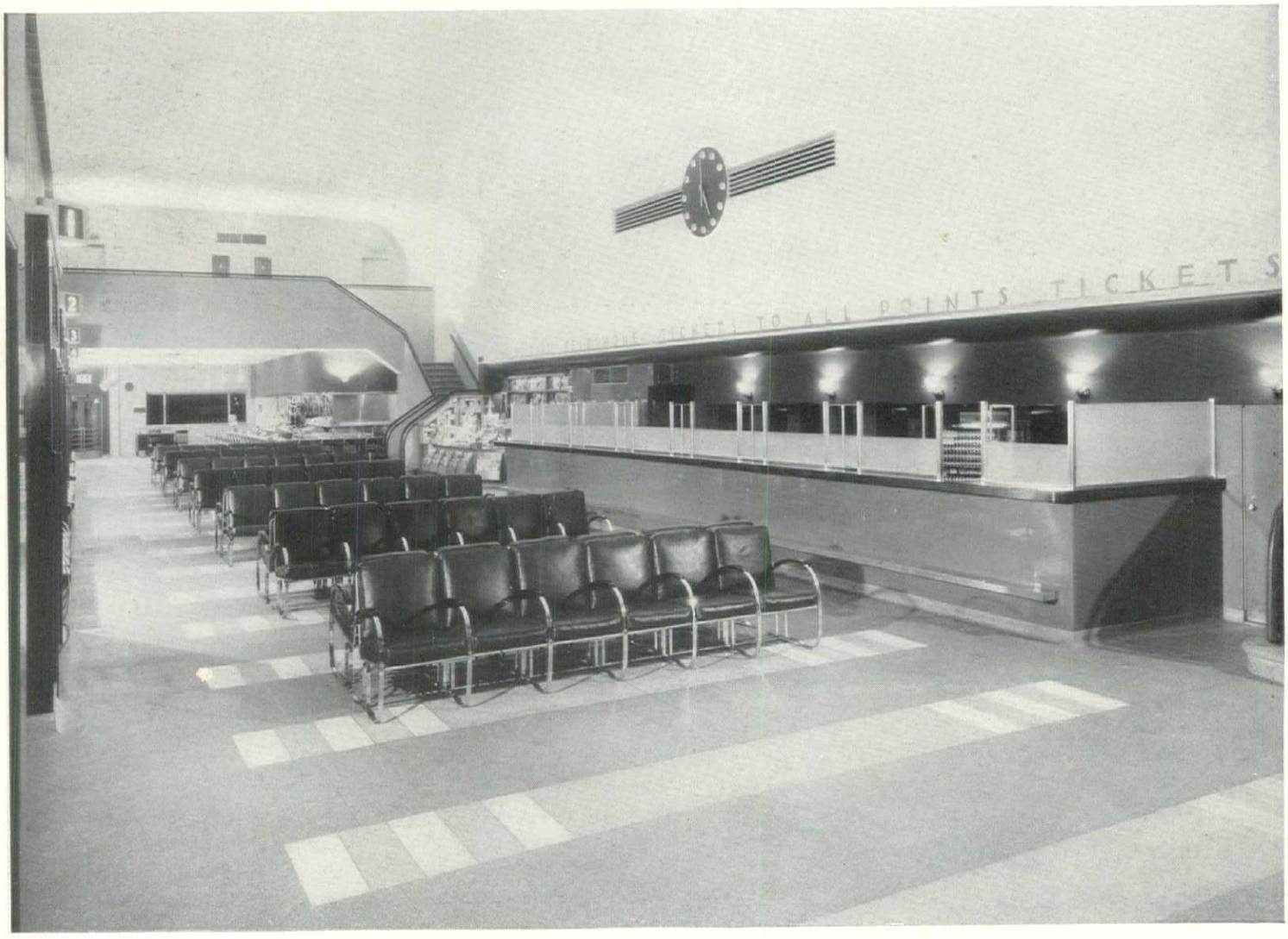
Absolutely direct in design, the interiors are enlivened by a color scheme of soft blue, white and brilliant red. Walls are of plaster above red Formica wainscoting. Counters, counter tops and trim at the doors are also of this material. Plaster surfaces are painted blue, except for the side wall facing the bus platforms and the ceiling, which are white. Lighting is indirect. Chromium tube furniture is upholstered in red leather. Flooring recalls the red, white and blue scheme in terrazzo

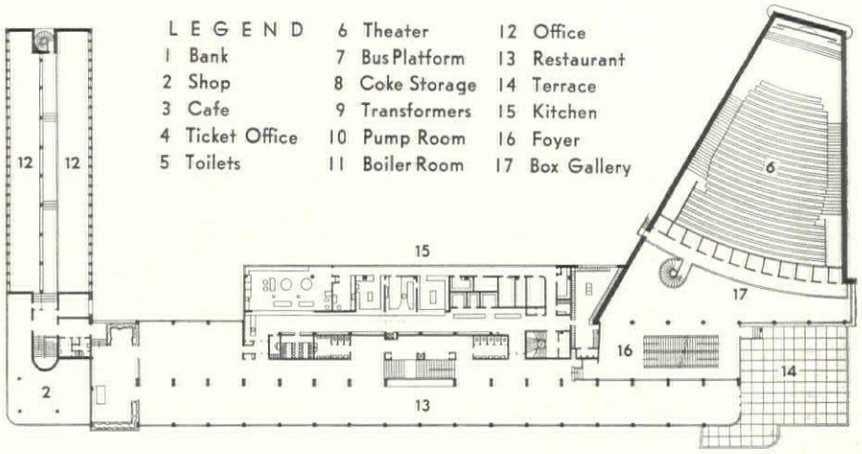
NATIONAL TRAILWAYS BUS DEPOT

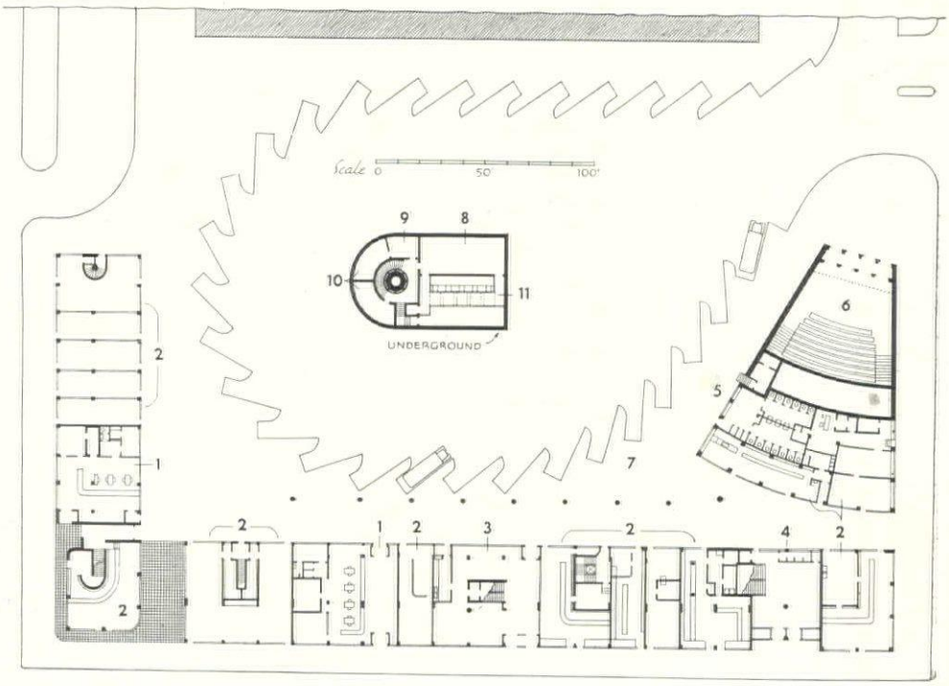
CHICAGO, ILLINOIS

GRAHAM, ANDERSON, PROBST & WHITE, ARCHITECTS

The only source of light in the waiting room is concealed above the wainscot behind the ticket counters. Light is thrown along the white wall which coves into the ceiling. In the background under the rest room space (below) is the lunch counter







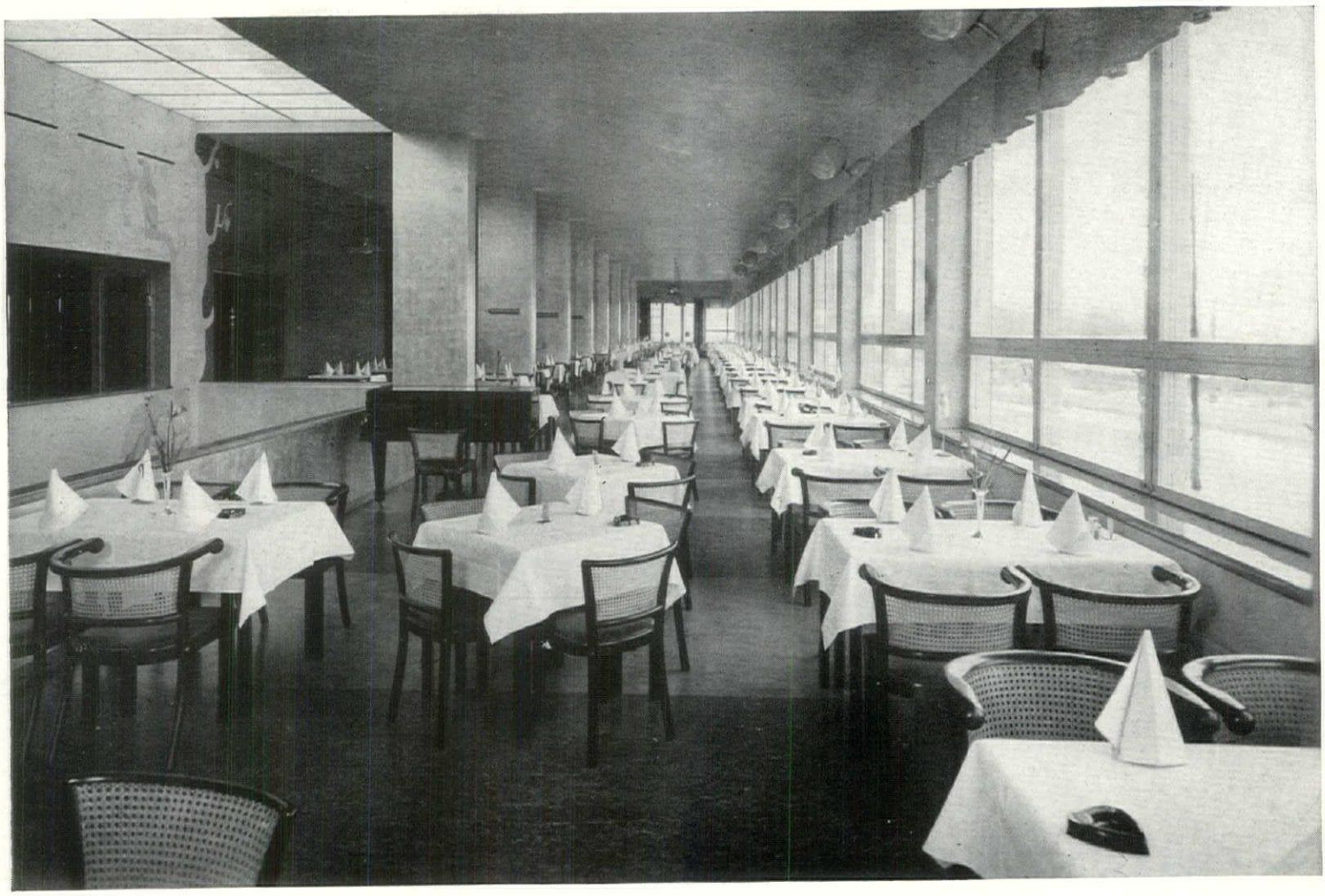
The quarter where the building is located is owned by the City of Helsinki, and until 1934 was nearly vacant. Owing to the direction of growth, however, this area was rapidly becoming one of the most central in the city. In order to be able to use this area productively, and yet reserve the possibility of later erecting a public building (city hall, concert hall or the like), the city accepted in 1935 the plans presented by the architects. These called for the erection of a bus station, service station, shops, restaurant, seating 800 people, and a theater, seating 800 people; entire cost to be amortized within a period of ten years when the area could then be used for a more permanent building

BUS STATION AND THEATER HELSINKI, FINLAND

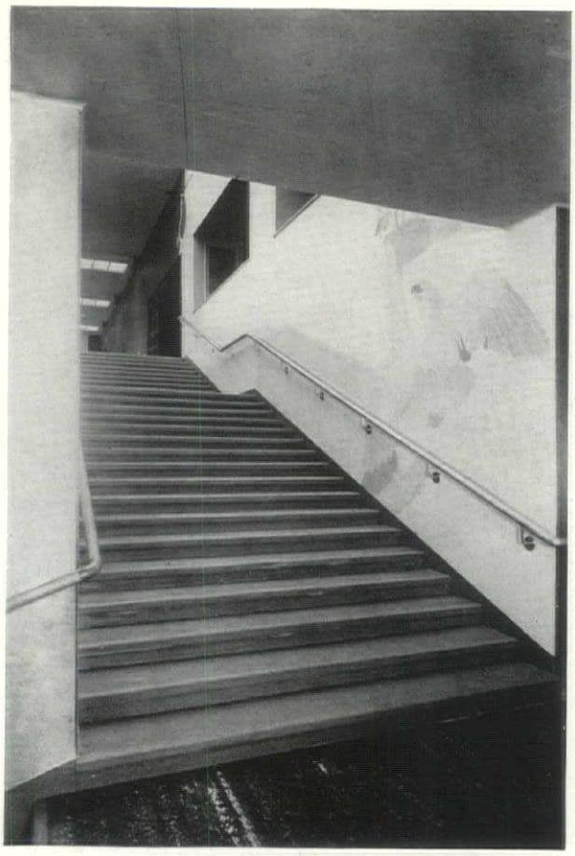
KOKKO, REWELL & RIIHIMÄKI ARCHITECTS

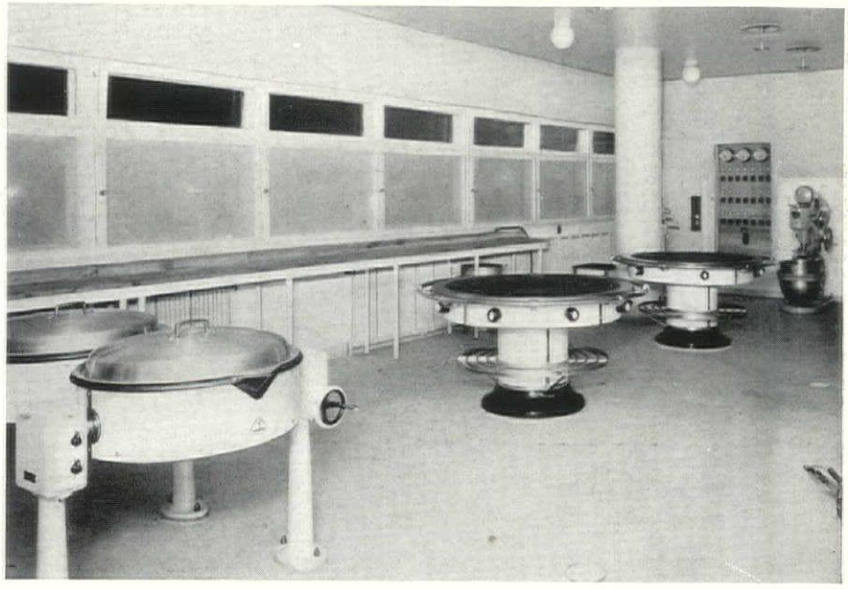
The structure consists of reinforced concrete frame with light weight brick, cork, heraclith and insulite used as fill and insulation. Exterior surfaces are finished with a very thin coat of plaster and painted white. The large restaurant (below) is located on the second floor and runs almost the entire length of the building

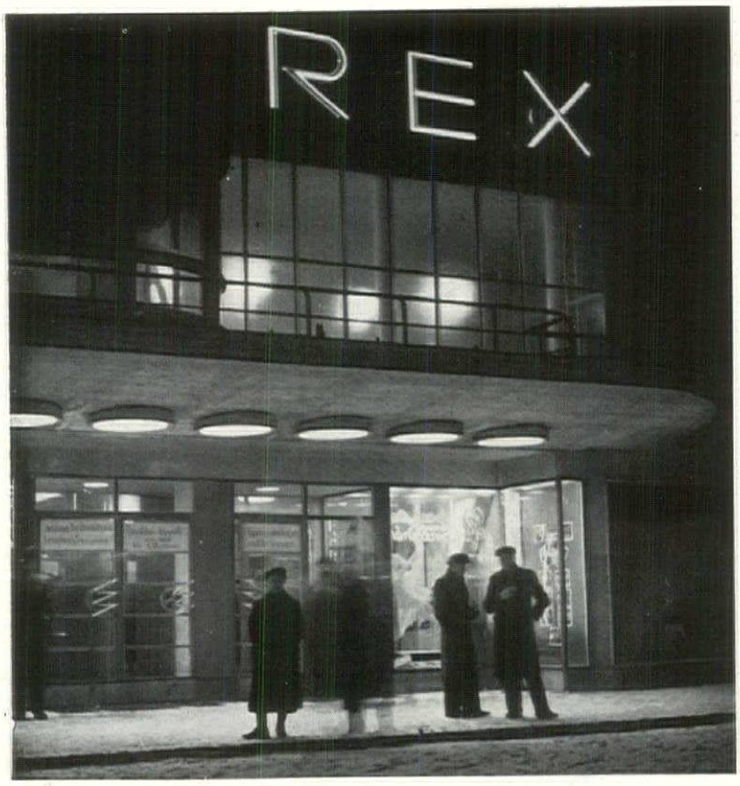
Ample stairways (right) give access to the restaurant from the ground floor. The kitchen is complete from generous storage facilities to recently developed radial ranges. The cafe, on the ground floor, is separated from adjoining florist shop by a large plate glass wall, lending a permanently decorative, open quality to the room



BUS STATION AND THEATER, HELSINKI, FINLAND
KOKKO, REWELL & RIIHIMÄKI, ARCHITECTS



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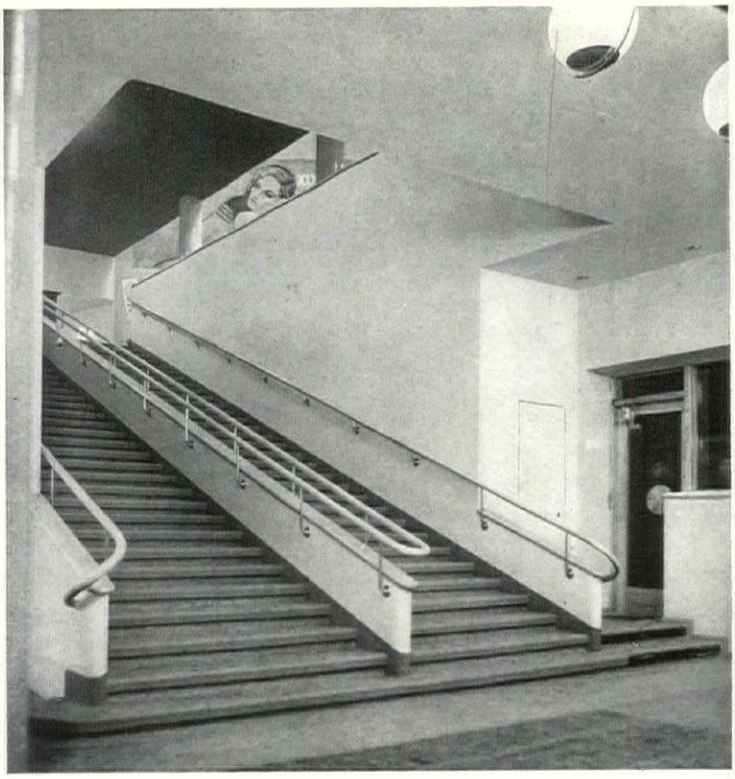

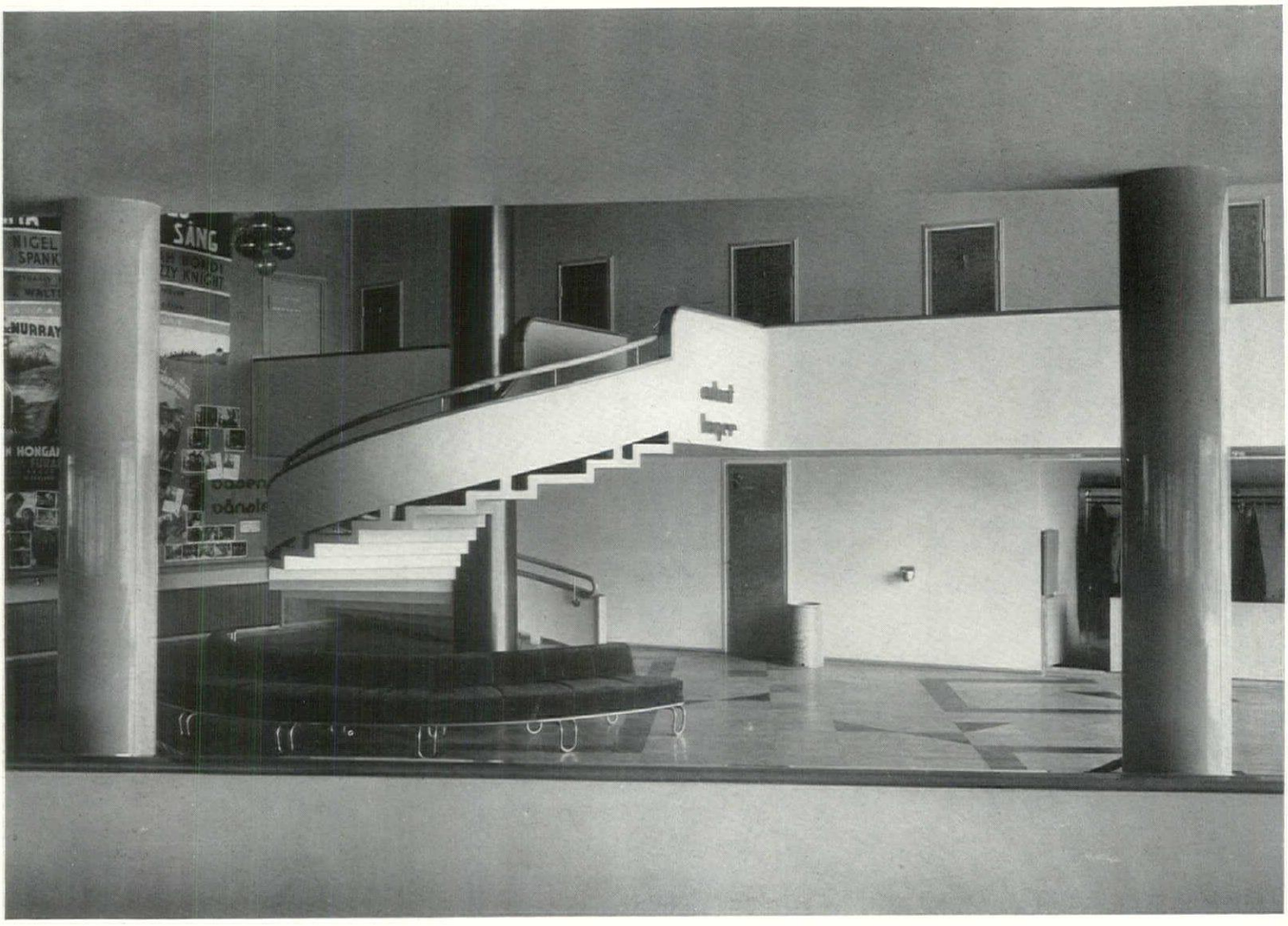
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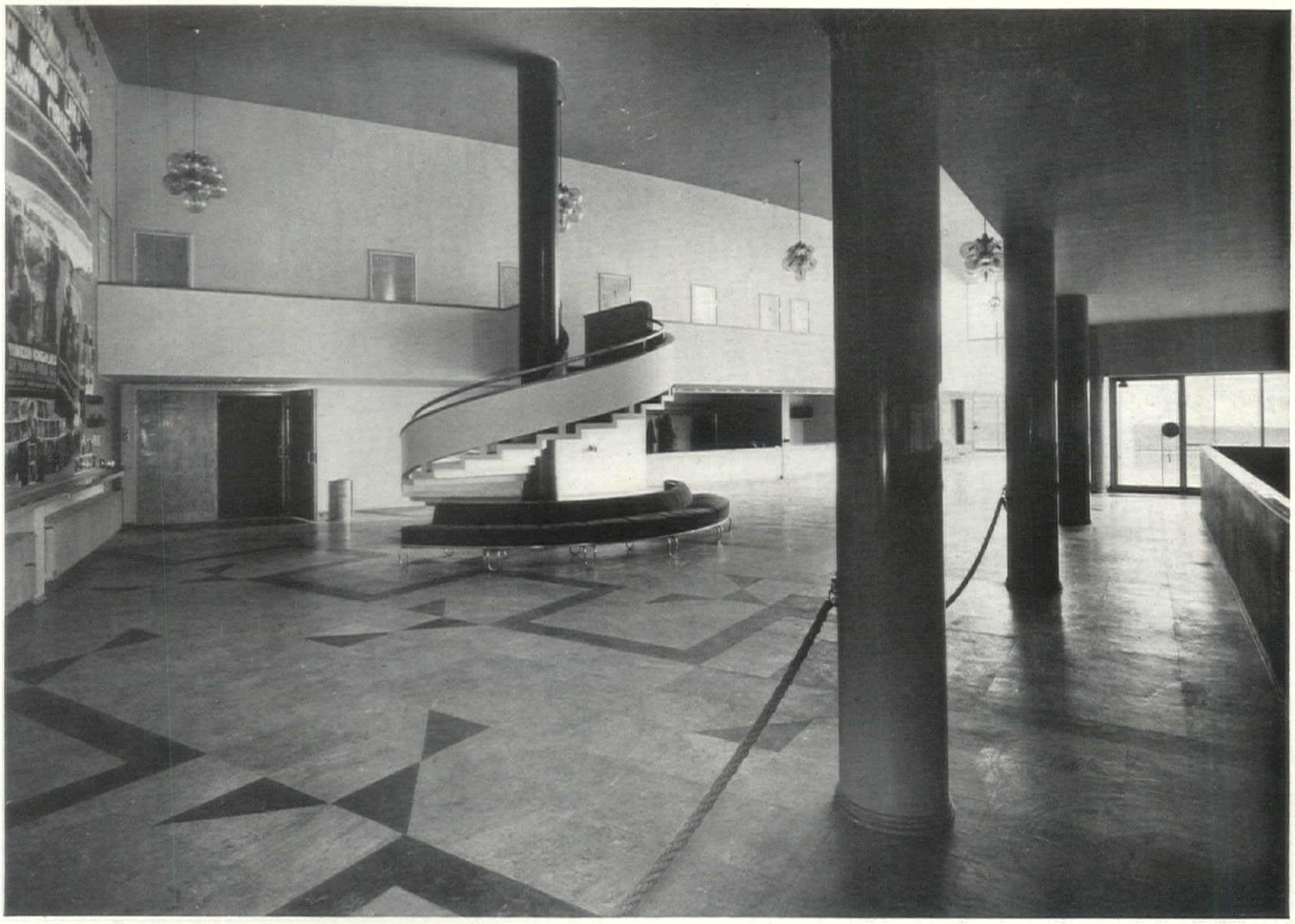


Access to the "stadium" type theater is through a ticket lobby located on the street facade. A wide, double stairway leads from the lobby (left) to the foyer on the second floor. From this level the theater is reached by vomitories at either side, and the boxes by a circular stairway leading to a small balcony. (Right) Detail of one of the entrance doors

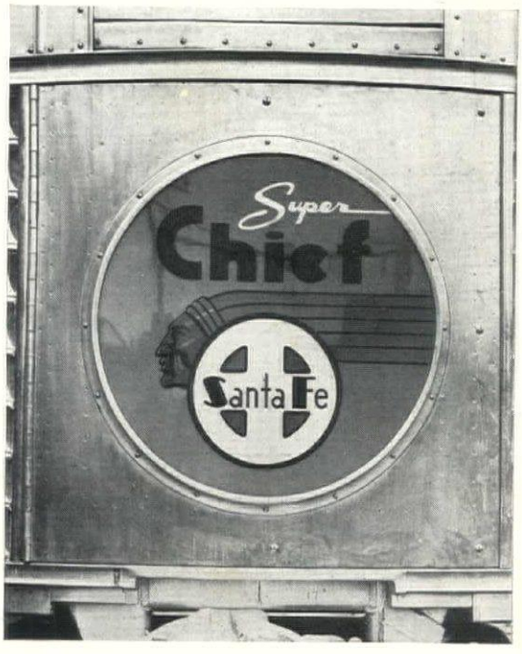
BUS STATION AND THEATER, HELSINKI, FINLAND
KOKKO, REWELL & RIIHIMÄKI, ARCHITECTS

BUS STATION AND THEATER
HELSINKI, FINLAND

KOKKO, REWELL & RIIHIMÄKI
ARCHITECTS

The upper part of the foyer as viewed from the box gallery (below) lends a gay spirit to the design. Finishing material in the auditorium proper is heraclith sheets, fixed semi-rigidly on a lath foundation. Boxes may be seen at the rear of the auditorium, and the entrance vomitories at the side. Exit is through doors located at the front of the theater under the screen

Competition between various forms of transportation has created a greater need for competent designers. Railroads have discarded the old theory that passenger traffic does not pay. Today they are putting into service de luxe, high speed, streamlined trains. Latest of these is the Super-Chief. Metal furniture is upholstered in pigskin and the other materials carry out an Indian theme in red, black, gray and sand. A large Navajo rug based on a sandpainting design, decorates the zebra wood paneled wall of the lounge, and sets the atmosphere of the entire train

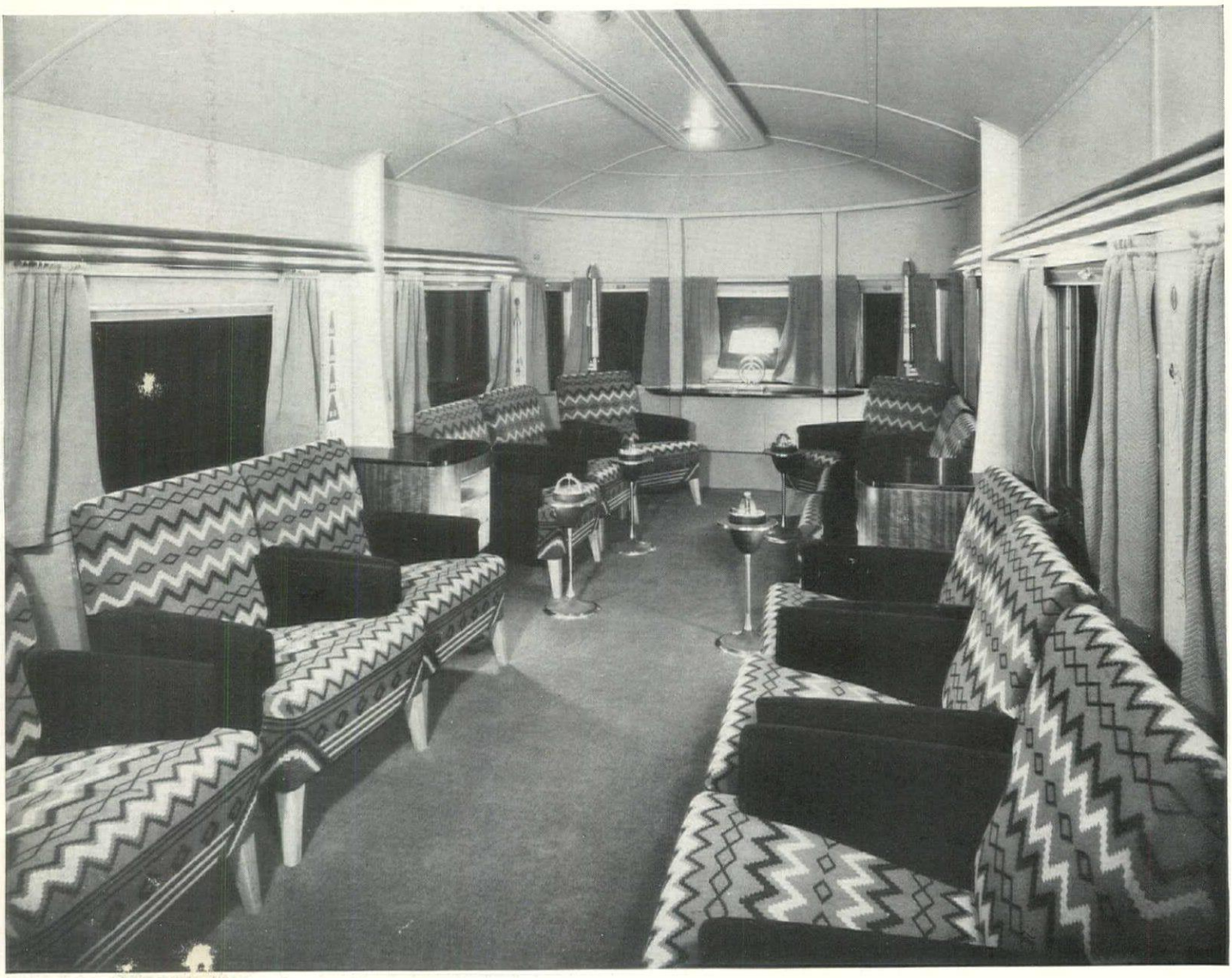


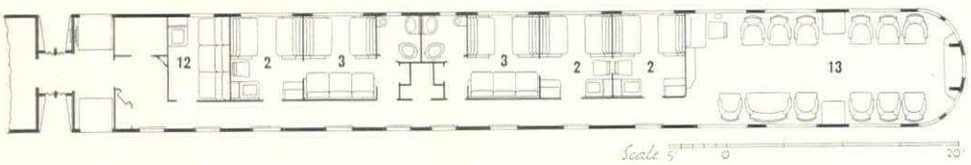
ATCHISON, TOPEKA AND SANTA FE TRAIN

BUDD MANUFACTURING COMPANY, FABRICATORS

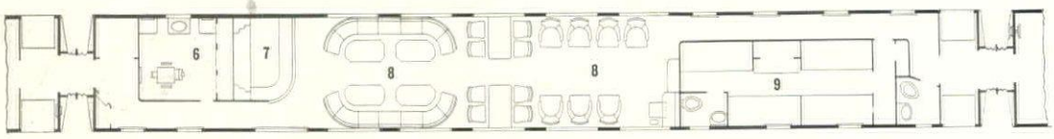
INTERIORS BY PAUL P. CRET, ARCHITECT,

AND S. B. McDONALD, DESIGNER

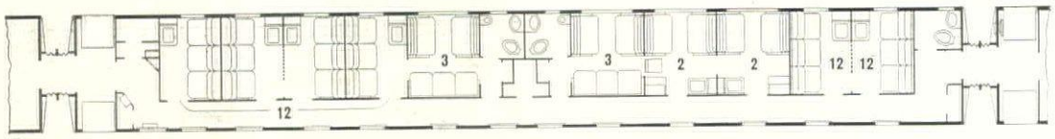




2. Compartments
3. Drawing Rooms
12. Bedroom
13. Observation Lounge



6. Barber Shop
7. Bar
8. Cocktail Lounge
9. Crew



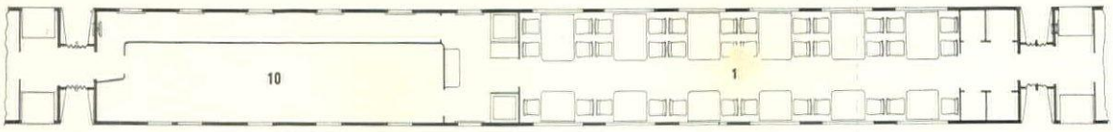
2. Compartments
3. Drawing Rooms
12. Bedroom

A sky blue ceiling combined with large glass areas gives a feeling of space and openness in the observation car (opposite page and top). Chairs are upholstered in a fabric that reproduces in color and pattern an old Bayeta Navajo blanket. Between the windows are reproductions of ceremonial sand paintings used in the "Mountain Chant." Carpeting is sand color. Compartments and drawing rooms are decorated with considerable individuality. All are equipped with rheostats for individual control of heat and air, reading lights and many other conveniences. These rooms may be thrown together into suites of any desired combination. In a Number 2 type stateroom (below) seal brown velvet upholstered seats are placed against Macassar ebony walls. Floor covering is also brown

THE SUPER CHIEF

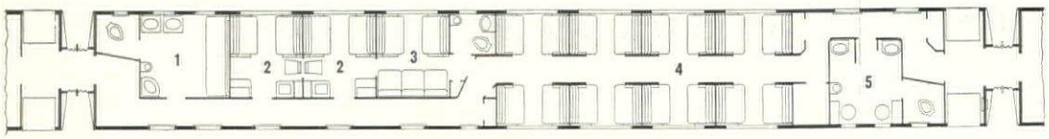
PAUL P. CRET, ARCHITECT

S. B. McDONALD, DESIGNER



10. Kitchen and pantry

11. Dining Room



1. Men's Lounge
2. Compartment

3. Drawing Room

4. Sections
5. Women

African rosewood is used to panel the dining car. Chairs are upholstered in dusky red leather and the carpeting of red and black is based on an ancient Indian motif. The side lighting is especially effective

THE SUPER CHIEF PAUL P. CRET, ARCHITECT S. B. McDONALD, DESIGNER

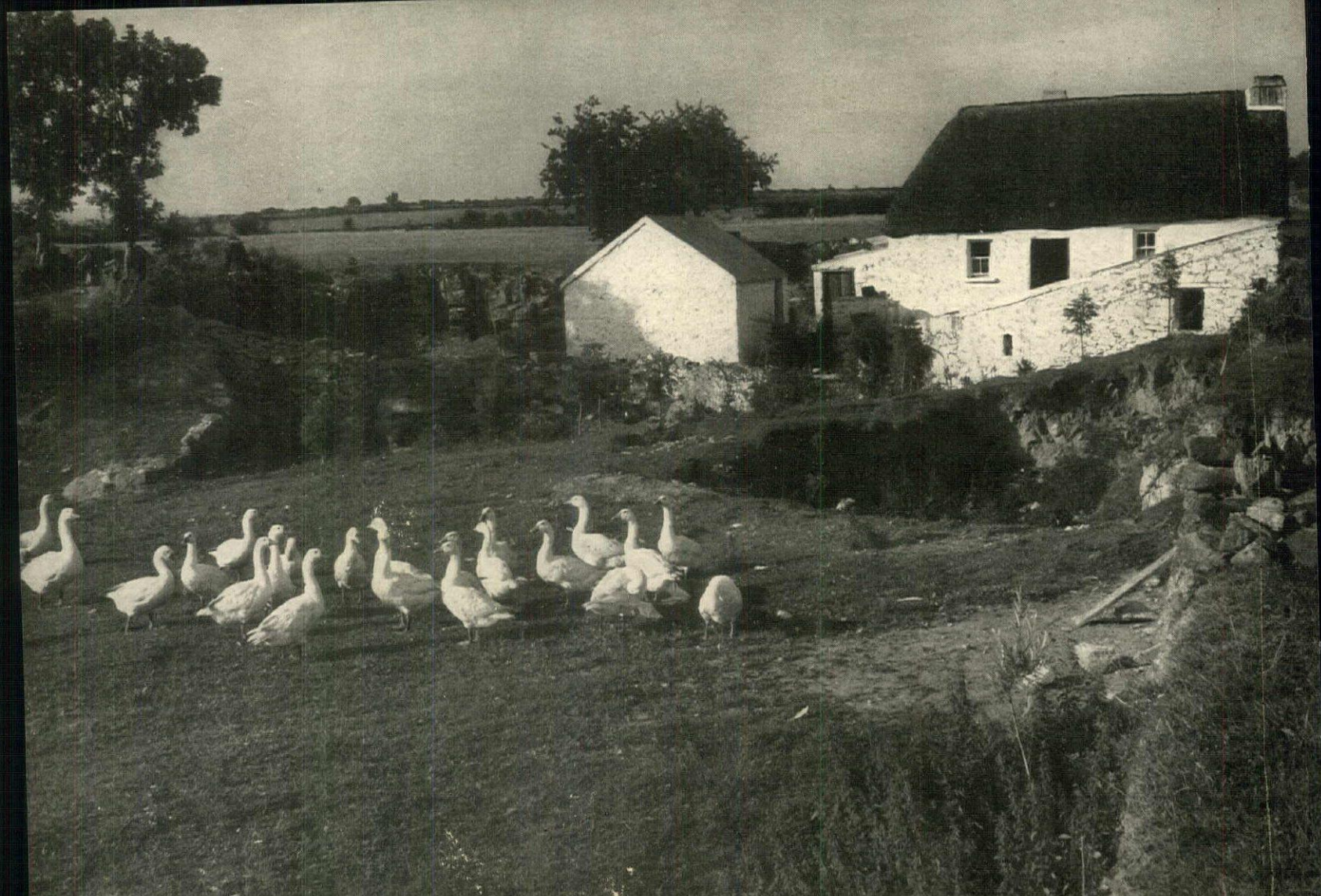
PHOTOS: L. J. HEFFERNAN FROM GENDREAU

ARCHITECTURAL OVERTONES . . . IRELAND

No matter whether it is a peasant's simple cottage, an ancient ruin or a Palladian "great house," the architecture of Ireland is usually in a fine setting. (Above) A typical farm house near Athlone. Coins for the Irish Free State decorate these pages. Designed by Percy Metcalfe, they have on the obverse a harp with the legend "Saorstat Eireann" and on the reverse the animals of Ireland, the nobler beasts on the higher denominations.

ROCK OF CASHEL was once the stronghold of the kings of Munster. According to a legend, dating from the Fifth Century, two swineherds after having seen an angel bless the rock led Corc Mac Linghdheach, King of Munster, to the spot. Today its ruins consist of St. Patrick's Cathedral, a round tower, unusual in that it is built of free stone, an ancient cross and Cormac's Chapel, a relic of the Twelfth Century.

BLARNEY CASTLE includes the famous stone the kissing of which supposedly bestows the gift of a flattering and persuasive tongue. Built in 1446 by Cormac McCarthy, some of its walls are 18 feet thick. . . . It was an important stronghold in both the Civil War and the War of the Great Rebellion.



FARMYARD near Donegal in the province of Ulster. The house is of whitewashed limestone and has a thatched roof. This is a section of Ireland that has small farms and rather meager crops.

FERMOY in County Cork is typical of the Irish market town. A center for trout and salmon fishing in the river Blackwater, which runs through the town, it did not become important until the Nineteenth Century.

AN OLD FARMHOUSE near Dublin. These simple whitewashed stone buildings with thatched roofs could well serve as inspiration for the American architect engaged in the design of smaller country houses. Their free fenestration and simple design is particularly attractive.

ROSS CASTLE, old fortress of the O'Donoghues, stands amid a beautiful setting on Ross Island in Lough Leane, lower lake of the Killarney Basin. The Lakes of Killarney are surrounded by mountain groups covered from peaks to water's edge with shrubs and trees.

A view of Trinity College, Dublin

PRESSURE FROM WITHOUT

WE ALL KNOW that in numbers the architectural profession is about the smallest in the country, even though the amount of control it exercises over building is tremendous, and the amount of money expended under its specifications and supervision is great. There are various groups which seek to limit the power and the potential amount of work given to this comparatively small group, the architects in private practice. These attempts at limitation take three forms—direct competition, limiting legislation, and organized coercion. The price of survival for independent architectural practice is eternal vigilance and consciousness of these impinging movements, plus active measures, both local and national, to meet each situation as it arises.

■ To meet the competition of designers and engineers and builders of various sorts, who are working in the architectural field, either directly or with the aid of employes who are registered architects, the only means seems to be a program of education of the public to the value of real architectural service. Such a program includes publicity and advertising, plus a record of competent performance on the part of individual architects, and of the profession as a whole.

■ Each year, in many states, legislation is introduced which is as detrimental to the practicing architect and as prejudicial to the interests of the public as it is advantageous to the special groups which inaugurate the bills. In New York State, three acts were introduced and passed, and probably all would have become law had not the architectural and engineering organizations presented their cases to the Governor. A bill[1] which would have automatically eliminated the architect in private practice from designing buildings erected by the state or its civil divisions or cities and would have given this architectural work to bureaus, was fortunately vetoed.

■ Governor Lehman stated "This Bill would place the state, its cities, and all other civil divisions of the state in a strait-jacket insofar as the employment of architects and engineers is concerned. . . . While the bill contains an exception, the exception is far too restricted and narrow. In effect, if approved, this bill would unduly hamper administrative officials of the state and local units of government from exercising judgment as to the use of private architects or engineers. In my opinion it is important to keep the door open so that if a unit of government desires to use private architects or engineers to do an entire job in special cases, government may do so. It is important that the State of New York and its municipalities maintain the highest standards of architectural and engineering achievement."

■ However, a bill[2] was passed and signed which changed a mandatory clause of the City Charter to a permissive clause, so that the Department of Public Works of the City of New York is no longer *required* to employ private architects for projects exceeding $100,000, but *may* do so.

■ A third bill[3] was signed and becomes a law *requiring* that all designing, drafting, and inspecting in connection with the construction of schoolhouses in the city of New York, shall be performed by a bureau under the Board of Education. . . . The bill provides that such school work "*may* be otherwise performed," when, if and as the Board of Estimate may approve in special cases.

■ These latter bills in practice circumscribe and limit the employment of architects in private practice in a way that amounts to virtual elimination.

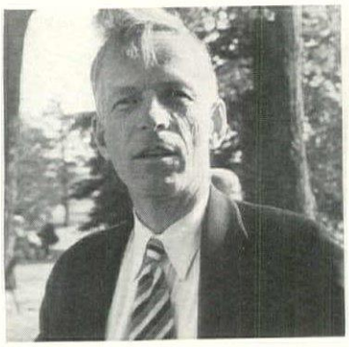
■ In the far west, a movement to limit the independence of private architects is sponsored by labor unions who are striving for a closed shop in all architects' offices. To make their edicts effective union groups may develop lists of "approved" or "disapproved" architectural offices. Through the refusal of union masons, plasterers, electricians, plumbers, et cetera, to work on buildings emanating from a disapproved architectural office, the unions would be in a position of absolute dictatorial control.

■ We believe that the work of independent architects in private practice is essential to the greatest progress of the art and science of building, and that the sooner the profession becomes aware of the forces at work to eliminate this independence, the quicker and more effective will be its measures to maintain its place as an independent profession.

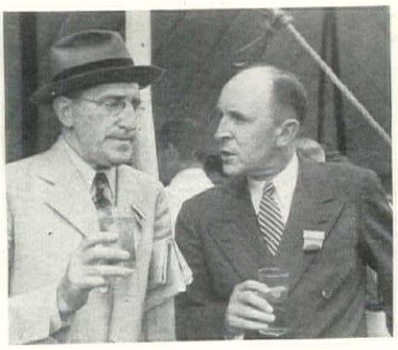
Kenneth K. Stowell

Editor

[1]Senate Bill Introductory 2021 (McNaboe).
[2]Senate Bill Introductory 1556, print number 1829 (Buckley).
[3]Senate Bill Introductory 488 (Feld)

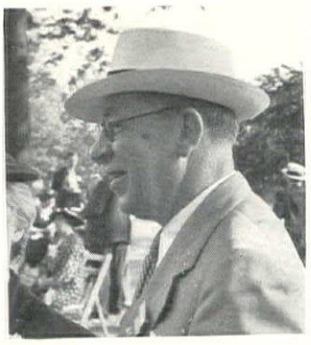


William Roger Greeley, who helped to represent not only his firm of Kilham, Hopkins & Greeley, Boston, but the Class of Massachusetts Tech 1902



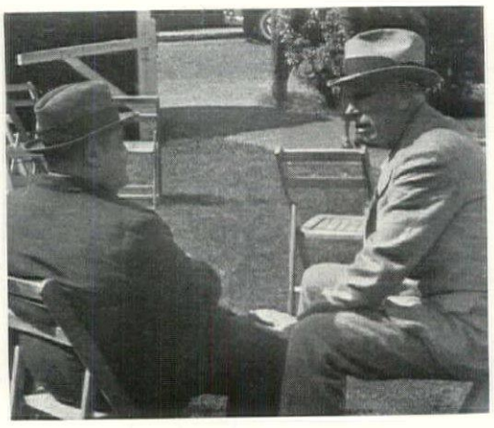
Moise H. Goldstein of New Orleans and Albert J. Evers of San Francisco discuss geographical differences of practice over a glass of punch at the Gore Place

Walter T. Karcher, whose Philadelphia firm is Walter T. Karcher & Livingston Smith, inspects the route of Paul Revere



Dana Somes, who has devoted a great deal of energy in the past two years to the Boston Small House Architectural Associates

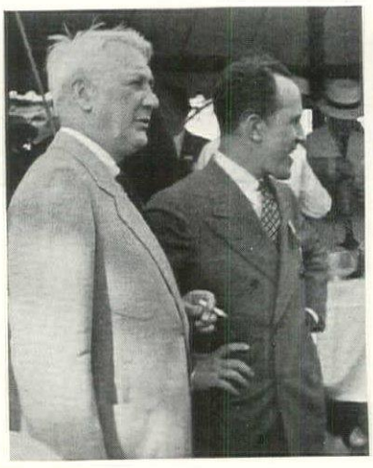
Edwin Hawley Hewitt, Minneapolis, whose firm, Hewitt & Brown, has recently been changed to Hewitt, Setter & Hamlin, Inc.



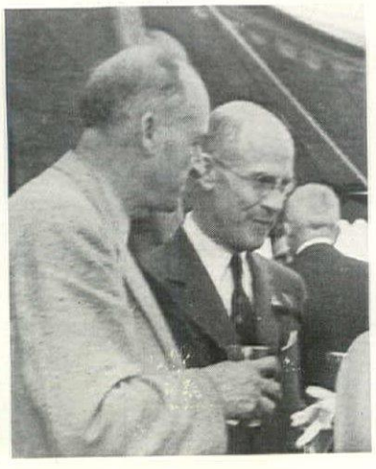
Dean Everett V. Meeks and Frederick A. Godley carry on their discussion as to how the architectural student at Yale should be taught, while at ease on the grounds of the Eastern Yacht Club

Frederick W. Garber, of Cincinnati, tells an interested guest about his son who is also an architect, now in Pope's office

Gerrit J. deGelleke, of Milwaukee, Wis., the retiring regional director of the Illinois - Wisconsin District



Detroit sticks together—Alvin E. Harley, president of the Detroit Chapter, and Clair W. Ditchy — in the shelter of the Gore Place marquee



Frank Chouteau Brown and Edward H. Prichard, two of the Boston hosts, at the president's reception—the Convention's first social function

J. Edgar Willing of New York, who, while out of active practice, finds time to attend the Convention

Albert Kelsey, of Philadelphia, caught in a gesture which may have had something to do with the competition for the Christopher Columbus Lighthouse

ARCHITECTS AT THE BOSTON CONVENTION

SUMMER AIR CONDITIONING SYSTEMS

Eight ways to produce summer comfort in buildings are reviewed by a Consulting Engineer of wide experience, who surveys present trends in modern equipment design and its use . . . . . by J. C. HARDIGG.

AIR CONDITIONING today has reached the stage of development where there is satisfactory and efficient equipment for every type of building. It remains only for the architect to decide the type best suited to the geographical location, kind of building, degree of comfort required and amount of money to be spent. A review and evaluation of equipment now available may prove helpful in making such selections.

Several years of experience have taught the fallacy of creating too great a difference between the outside temperature and that of the inside treated space in summer air conditioning. There still remain many examples of over cooling in large department stores and theaters where the incoming patron is struck by an unpleasant chill and a consequent feeling of depression. Return to the heat outside is often accompanied by a sensation of dizziness until the body adjusts itself to the sudden change. Generally speaking, an inside temperature not more than 10°F. to 15°F. below that of the outside air and a relative humidity of 40% to 60% produces the greatest comfort on a hot day. A better way of expressing requirements that will minimize shock to the human body is to say that the difference between outdoor and indoor *effective temperatures* (which reflect the relationship between air motion, temperature and humidity) should not exceed ten degrees.

Development of methods and perfection of equipment makes it possible now to produce these desired comfort conditions in a number of ways. The selection of method and equipment will vary with local conditions and prices, as well as with particular requirements of the building or space to be treated.

MOISTURE REMOVAL METHODS

There is a trend among some air conditioning authorities to look upon dehumidification and air circulation rather than cooling as the major factors in producing summer comfort. Some of these authorities believe that maximum comfort and minimum shock to the human body can be achieved by reducing outside temperatures not more than 5°F. in stores and other buildings briefly occupied and from 5°F. to 10°F. in conditioned space occupied three hours or longer at a time, provided that the relative humidity of the conditioned space is maintained in the neighborhood of 50% with comparatively frequent air changes. If this trend of thought is further confirmed in practice, it may considerably affect future summer air conditioning design, especially in those sections of the country where high summer temperatures are frequently accompanied by high relative humidities. It means, in effect, that more emphasis will be placed on reducing excessive moisture than on reducing excessive heat.

Two methods of removing moisture are now available. Unfortunately, the technical terms defining these systems—adsorption and absorption—are confusingly similar in spelling and pronunciation. Adsorption connotes the process of removing moisture from the air by material that has a physical affinity for water but does not dissolve in the water it acquires. The adsorbing material is chemically unchanged by its acquisition of moisture. Absorption connotes the process of removing air-borne moisture by materials that have a chemical or physical affinity for water—the two combining together usually in the form of a solution. Both methods operate independently of cooling and, if used alone, would raise the temperature of the treated air. They are therefore normally combined with cooling equipment capable of reducing temperatures only to the comfort range.

1. Adsorption Method. In equipment of the adsorption type air-borne moisture is absorbed by a granular material which is revivified by heat and then cooled. There are two cells or compartments, each of which is alternately adsorbing moisture and then being revivified. See Fig. 1. These machines are adapted to locations where cold water is available for cooling service and where climatic conditions require removal of humidity without a large amount of cooling.

Commercially available equipment of this character is available for all classes of buildings from residences and small stores to large buildings. The size suitable for the average residence is about the size of a heating boiler. Connections required include a flue for waste heat and gases from the regenerating chamber; piping connections for gas, steam or other heat sources; and usually a water connection to coils that remove the heat released by adsorption. The unit, of course, is connected into the usual duct system.

2. Absorption Method. The newest development in summer air conditioning is the introduction of equipment that dehumidifies the air by passing it through chemical sprays which have the property of absorbing moisture. The absorption machine is offered in suitable sizes ranging from small homes or apartments to large public buildings. The machine simultaneously cools and absorbs moisture to a predetermined temperature and relative humidity. The moisture of the air is removed by a liquid absorbent and the latent heat of the removed moisture is given up as sensible heat to the air. The cooling water removes this heat as well as additional heat taken away to lower the incoming air temperature.

The cycle of the absorption system is: hot, humid outside air is blown by a fan through a water-cooled coil. The liquid absorbent flows over the coil and on coming in contact with the air removes the excess moisture. The air then passes through a filter and into distribution ducts to the space that is air conditioned. Excessive moisture collected from the air is removed from the liquid absorbent by pumping it over a low pressure steam heated coil, which concentrates it by evaporation. The liquid is then passed over a cooling coil and returned to the system. See Fig. 2.

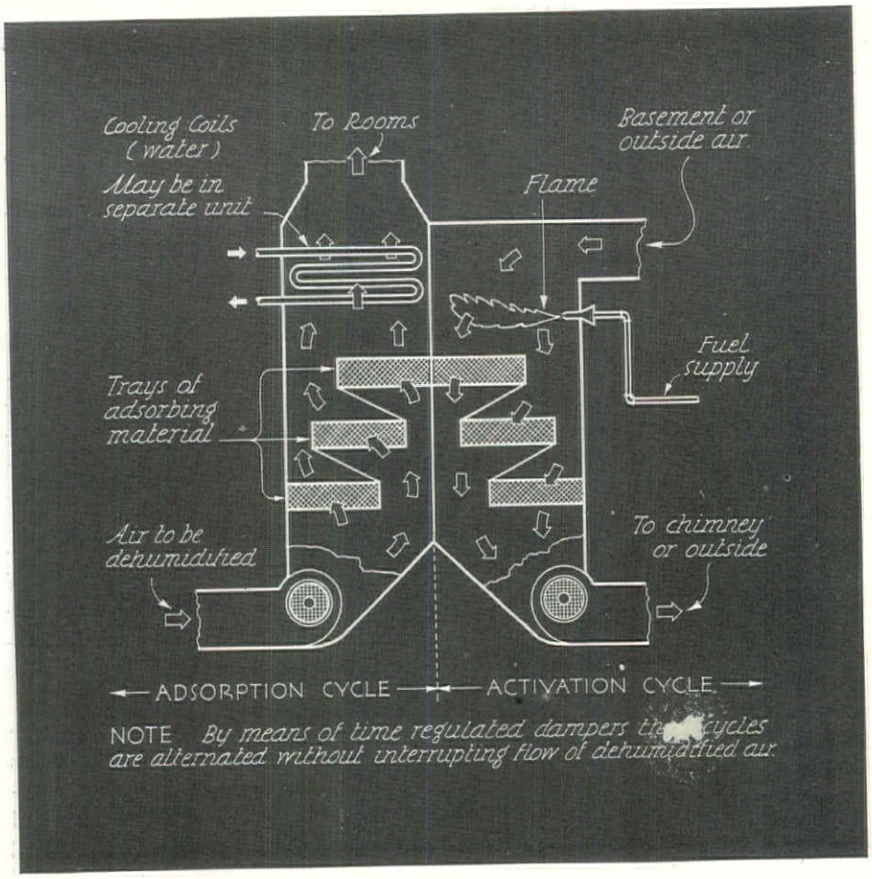


FIG. 1

TWO METHODS BASED ON DEHUMIDIFICATION

At Left: **ADSORPTION SYSTEMS** employ inert chemicals that have a great affinity for water. Air passing over and through trays of these substances is dried (dehumidified) and its temperature rises. Cooling coils then reduce the dry-bulb temperature enough for comfort. The adsorbing chemical is periodically reactivated by drying out the accumulated moisture with heated air.

Opposite Page: **ABSORPTION SYSTEMS,** newest of all summer air conditioning methods, dehumidify the air by a chemical spray that allows only a predetermined amount of air-borne vapor to pass through it. Depending on the concentration of the spray any desired relative humidity can be maintained. Heat given up when the circulating air is dried, including excess heat from the rooms, is removed by cooling coils in the spray chamber. A complete high-efficiency system is here shown. The indoor cooling tower at the top is a water cooling and conserving unit in one. If cold water can be cheaply obtained from other sources no tower is needed. The concentrator at the right uses heat to evaporate excess water and maintain the desired concentration in the spray fluid.

The relative humidity of air leaving the machine is controlled by the chemical composition and concentration of the liquid absorbent; the temperature of the air by the quantity and temperature of the cooling water. The temperature zone of the cycle just described does not go below the air temperature required for cooling the air conditioned space.

Normally the steam used to revivify the liquid absorbent is supplied by a low pressure heating boiler, which may be kept in operation for domestic hot water supply purposes or for use during border line weather conditions where both heating and cooling may be needed in the same day. The machine is equipped with a control that automatically heats or cools, humidifies or dehumidifies, as the outside weather requires.

In localities where water is expensive, the cooling water is pumped to an indoor cooling tower in which air with a low dew point, exhausted from the conditioned space to make room for fresh air for ventilation, absorbs the heat from the cooling water. This use of a cooling tower is applicable to other systems as well but is not essential where cold water is cheaply available from other sources. In places where large amounts of hot process water are used or where the cost of water is low, the cooling water is pumped to the process heater or just allowed to waste.

Space requirements are no greater than for an ordinary air washer or heat transfer chamber in the usual duct system, with a small pump for re-circulating the absorbent liquid and a small regenerator connected to the boiler. If a unit cooling tower is employed to minimize water consumption it takes the form of an enclosed chamber with a separate vent to the outdoor air (through a chimney or some other provision) and requires electrical connections to operate its own pump and fan.

METHODS OF COOLING AIR

Conventional methods of summer air conditioning cool the air by passing it through cold water sprays or over cold surfaces—usually heat transfer coils—containing cold water or a refrigerant. When dehumidification is sought (as it should be in practically all parts of the country except where outside air is exceedingly dry) the temperature of the cooling medium is brought well below the prevailing "dew-point" temperature of the incoming air. At this temperature, moisture carried in the air is condensed on the cold surfaces and drained away. Air chilled to this temperature usually must be re-heated by passing over supplementary heated coils or by mixing it with warm, untreated air before it enters the conditioned space. Typical equipment of these two basic types is shown in Fig. 3. Such equipment is normally used with well water, ice, mechanical refrigeration and steam jet refrigeration cooling systems.

3. Cooling with Well Water. Cooling and dehumidification with 50° F. to 55°F. well water is being used more and more extensively. The equipment required is simple: a pump to pull the water from a well and force it through the cooling coil; the coil; and a fan to blow the air over the coil, to draw in the air of ventilation and to distribute or circulate it. Often unit heaters are used for summer cooling and dehumidification and for winter heating. In most instances the heating capacity of the coils is greater than required when the size is right for the cooling load. For this reason operation of the

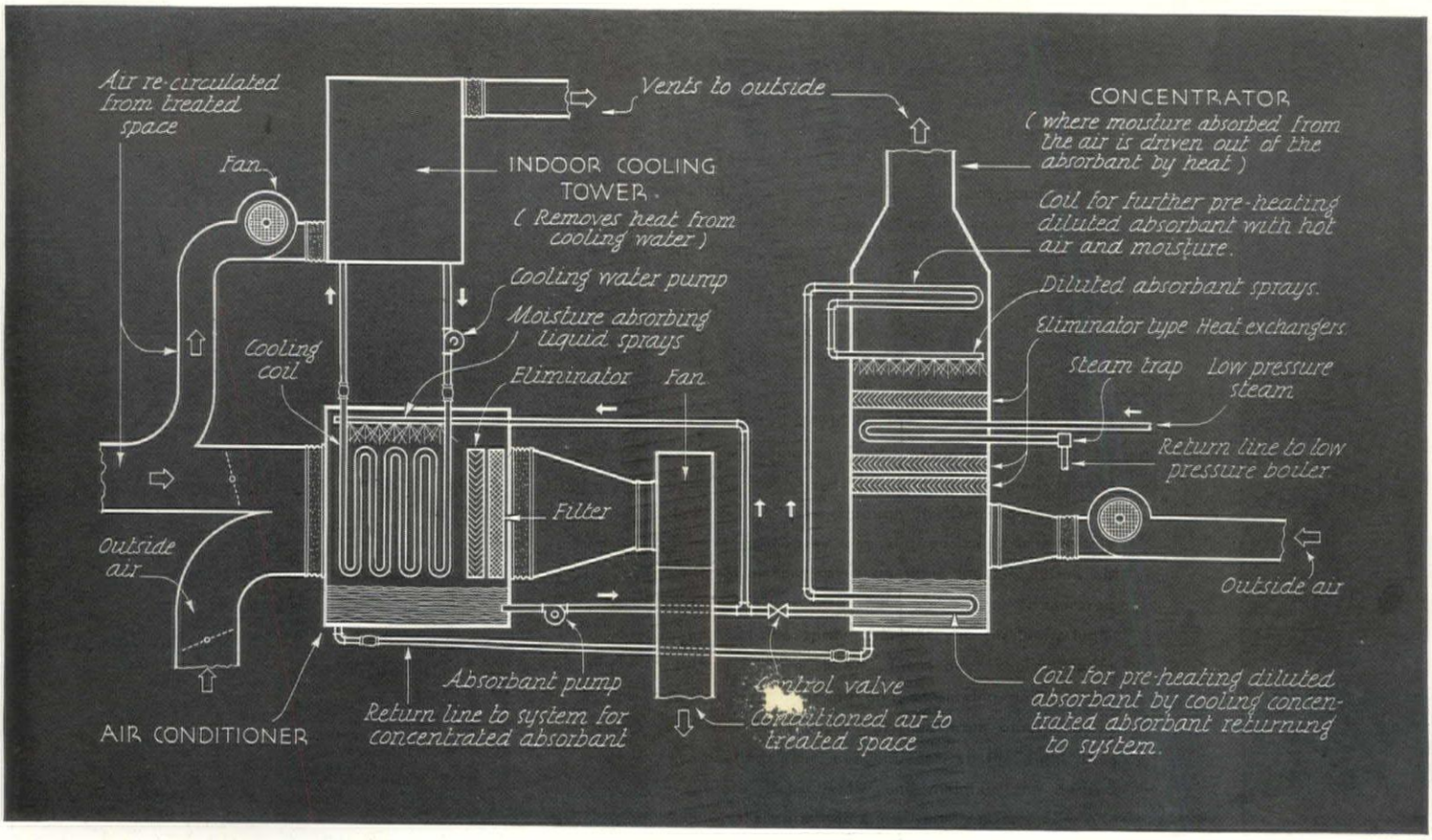


FIG. 2

unit heater is thermostatically controlled in winter. The addition of evaporators or humidifiers makes this equipment an all-year air conditioning system.

4. Cooling with Ice. In localities where water is expensive or the supply limited, as well as where colder temperature is required, ice often can be used to advantage to chill and re-use the water. The operating cost—the cost of ice—is high but the first cost, maintenance and fixed charges are low. For those sections of the country where summer cooling and dehumidification season is approximately 120 days, ice is a strong competitor of the other methods of air conditioning on a cost basis. The water is chilled by spraying part of it over ice in a well insulated box. The temperature of the chilled water is maintained constant by varying automatically the amount sprayed over the ice. The rest of the water is by-passed around the ice sprays into the chilled water reservoir. The only water sent to waste is the surplus created by the melted ice.

For efficient operation, an ice system requires a thoroughly insulated ice bunker, or chamber, built more or less like a modern ice box. It should be able to carry over a supply of ice from day to day so as not to waste the supply during cool night periods. Underground tanks, or other chambers lacking thorough insulation, have been used in the past but do not show satisfactory economy.

5. Mechanical Refrigeration. Mechanical compression refrigeration, though well known to everyone, also should be outlined to make this survey complete. It is based upon the fact that a relatively large amount of latent heat is absorbed by a refrigerant when it changes from liquid to vapor or gas. The system consists of: compressor, condenser, expansion valve, and evaporator. The compressor draws the low pressure refrigerant vapor or gas from the evaporator, compresses it, and discharges it at high pressure to the condenser. Raising the pressure of the gas increases its boiling or condensing temperature. The cooling air or water passing through the condenser removes from the gas the heat absorbed by it. Upon this cooling the gas under pressure condenses and passes either into a reservoir or into the line to the expansion valve. The refrigerant liquid passes from the high pressure of the condenser, containing only the sensible heat of the liquid form, through the expansion valve to the evaporator where, because of the lower pressure, it evaporates and absorbs the latent heat of vaporization, producing the required low temperature.

The air to be cooled and dehumidified is passed over the evaporator coils in some systems. In others water or brine is chilled by passing it over the evaporator and pumped through coils or sprays where it cools and dehumidifies the air.

6. Cooling by Steam. Steam jet refrigeration is based upon the fact that water in a vacuum boils at a low temperature. That is to say, 60°F. water when pumped into a tank where a vacuum of 0.3 inches of mercury absolute pressure is maintained, will give off vapor (latent heat) until it lowers its own temperature to 45°F. If the absolute pressure in the tank is lowered further the water temperature will drop; conversely, an increase in the absolute pressure will produce a higher water temperature.

The steam jet refrigeration system consists of three circuits: the refrigerant or cold water; the steam; and the condensing water circuit. The refrigerant water is pumped through spray nozzles in the top part of the vacuum tank and from the bottom

TWO BASIC AIR CONDITIONING UNITS

ALL SUMMER AIR CONDITIONING systems that cool and dehumidify the air with cold liquids or refrigerants employ equipment of one of these two types. Top diagram shows the components of an air-washer or spray chamber installation in which cold liquids sprayed into the air stream absorb its heat and condense air-borne water vapor. Below is a coil-type air conditioner in which the air does not come in direct contact with the refrigerant or cold fluid circulating through the cooling coils. Note typical precautions against transmitting vibrations and machine noises. Different types of systems are largely distinguished by their methods of producing low temperature fluids for the sprays or coils. See opposite page.

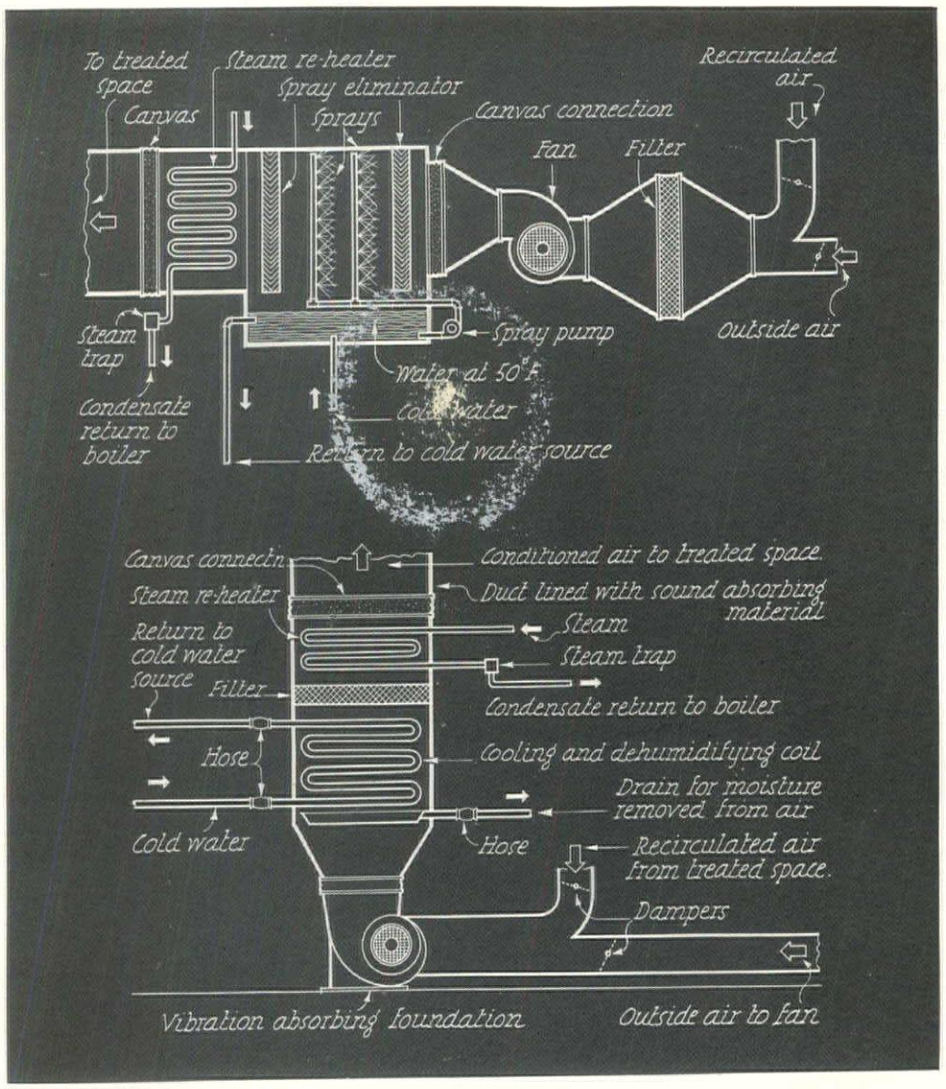


FIG. 3

of the tank through the cooling coils or sprays. The high pressure steam is expanded through a nozzle to become high velocity steam that creates a vacuum on passing through a diffuser into a condenser where it is condensed to water. This condensate is pumped back to the boiler or it may be re-employed elsewhere in the building when the steam is bought from the street mains of a public utility company. The water used to condense the steam is pumped from the condenser to a cooling tower where it gives up the heat it has absorbed from the steam and then returns to the system.

Obviously steam jet refrigeration systems are applicable only where high pressure steam is available throughout the cooling season. This often occurs in large buildings where steam is used for power generation, and in some hotels, commercial buildings and industrial plants where steam is needed for cooking or process work. The equipment itself is relatively compact and practically noiseless in operation. Its installation, however, requires a thorough knowledge of the engineering factors involved and thus should be made only under the direction of competent engineering counsel.

In any method of air conditioning where the water is removed from the conditioned air by bringing the temperature of the air below the dew point and thus precipitating the excess moisture, some method of reheating this air to bring it within the comfort zone must be provided. On maximum summer days this is usually provided by the sensible heat load of the job. In spring and fall or on summer days of moderate dry bulb temperature and high relative humidity this source of reheat is not available and reheating of the air must be done by means of steam heating coils. For instance, on a day that has a temperature of 72° F. and a relative humidity of 80%, the dehumidified air would have to be reheated before going to the conditioned space.

7. Cooling by Humidification (Dry Climate). Evaporative cooling is used in a climate of high temperature and low humidity. The relative humidity is raised by spraying water into the air; the heat to evaporate the water is absorbed from the air and cools the air. The spray water is used again and again, losing only the amount evaporated by the air. This system is capable of producing comfort conditions of proper humidity only in arid regions. When the outside temperature is 110° F. and the outside air has a relative humidity of 20% evaporative cooling can produce an indoor temperature of 90° F. with 50% relative humidity.

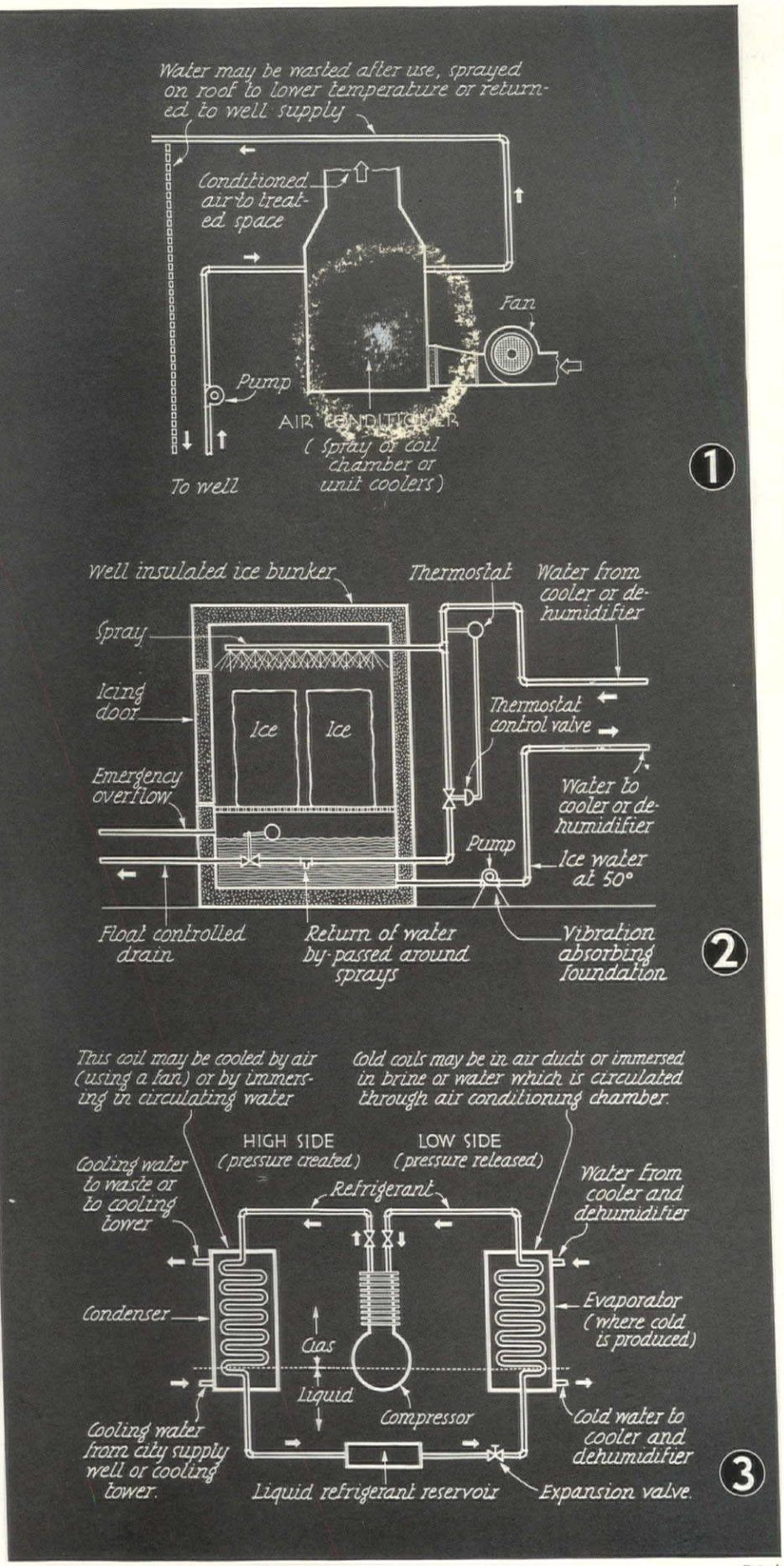


FIG. 4

THREE SOURCES OF COLD WATER USED WITH CONVENTIONAL AIR CONDITIONERS

1. WELL WATER may be used as a cooling medium if cheaply available in adequate quantity and at a sufficiently low temperature. In adsorption and absorption systems, shown on the two preceding pages, the well water temperature need only be five or ten degrees below the desired room temperature. In all systems that dehumidify by cooling below the dew-point temperature, well water below 55° F. is generally required.

2. COOLING WITH ICE is practical where natural or artificial ice is relatively inexpensive and the initial cost of the installation must be kept to a minimum. Principal requirements are an accessible and thoroughly insulated ice bunker, spray heads and pump. The chilled water is then used in either of the air conditioning chambers shown on the opposite page.

3. MECHANICAL REFRIGERATION is the standard source of low temperatures for air conditioning purposes, greatly exceeding in present use all other types of systems. As this diagram shows, several variations in equipment are possible: the condenser may be air cooled or water cooled to dissipate the heat absorbed in the evaporator; the latter may be placed directly in the path of the air stream (as in the cooling coils opposite), or may be immersed in water or brine which is then pumped through similar coils or sprays.

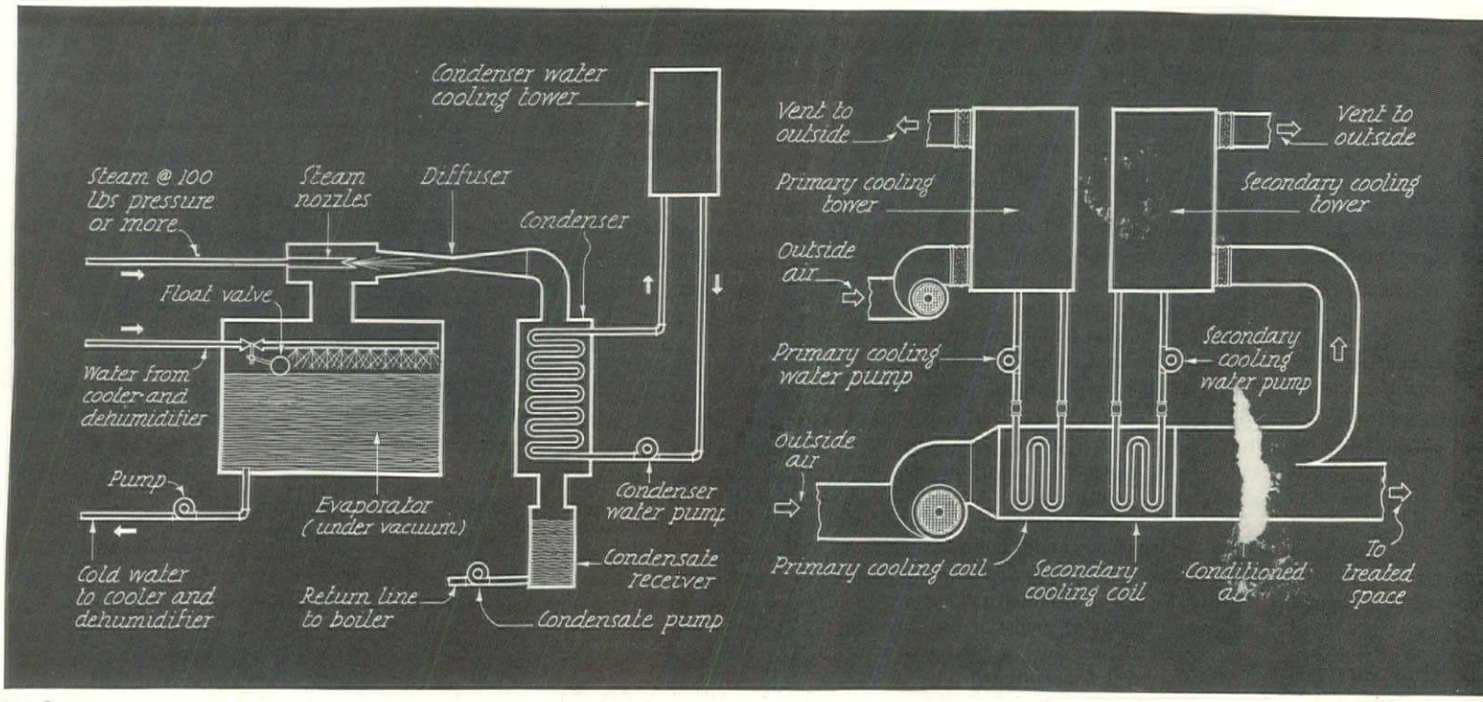


FIG. 5

STEAM JET Refrigeration is another form of mechanical cooling which is applicable where high pressure steam is available in summer. There are three circuits in this system: (1) Steam is used to produce a vacuum by high velocity and subsequent condensation; (2) Cold water from a cooling tower or other source is used to condense the steam; (3) Water to be chilled is sprayed in the vacuum chamber where its partial evaporation (low temperature boiling) cools the remaining water to about 45° F. This cold water is then circulated through air conditioning chambers of conventional type.

EVAPORATIVE COOLING is a practical and simple method of air conditioning primarily suited to very dry climates. Two types of equipment may be used. The first is a spray chamber (identical with the conventional spray-type conditioner shown in Fig. 3, except that reheating coils are not needed) in which water sprays add humidity to the air and cool it by evaporation. The second, above, uses two or more cooling towers to chill water by evaporation of sprays in separate air streams. The cooled water is then employed to lower temperature of the air to be conditioned. Climatic conditions govern the choice between these and other systems.

8. Indirect Cooling by Evaporation. Another method which can be used in a dry, hot climate is to cool the air by blowing it over coils which are cooled by water from which heat has been removed in a cooling tower. Further cooling to bring the temperature and humidity conditions into the A. S. H. & V. E. comfort zone can be done by repeating this cycle. That is, excess air treated in the first stage is used in another cooling tower to reduce part of the cooling water to a still lower temperature.

The ultimate limit beyond which cooling can not be effected by this method is the dew point of the outside air. Practically, air can be cooled by this method to within 15° of the dew point. For instance, with air at 110° F and 18% relative humidity, it can be cooled in this manner to 75°F and 60% relative humidity.

OTHER NEW TRENDS

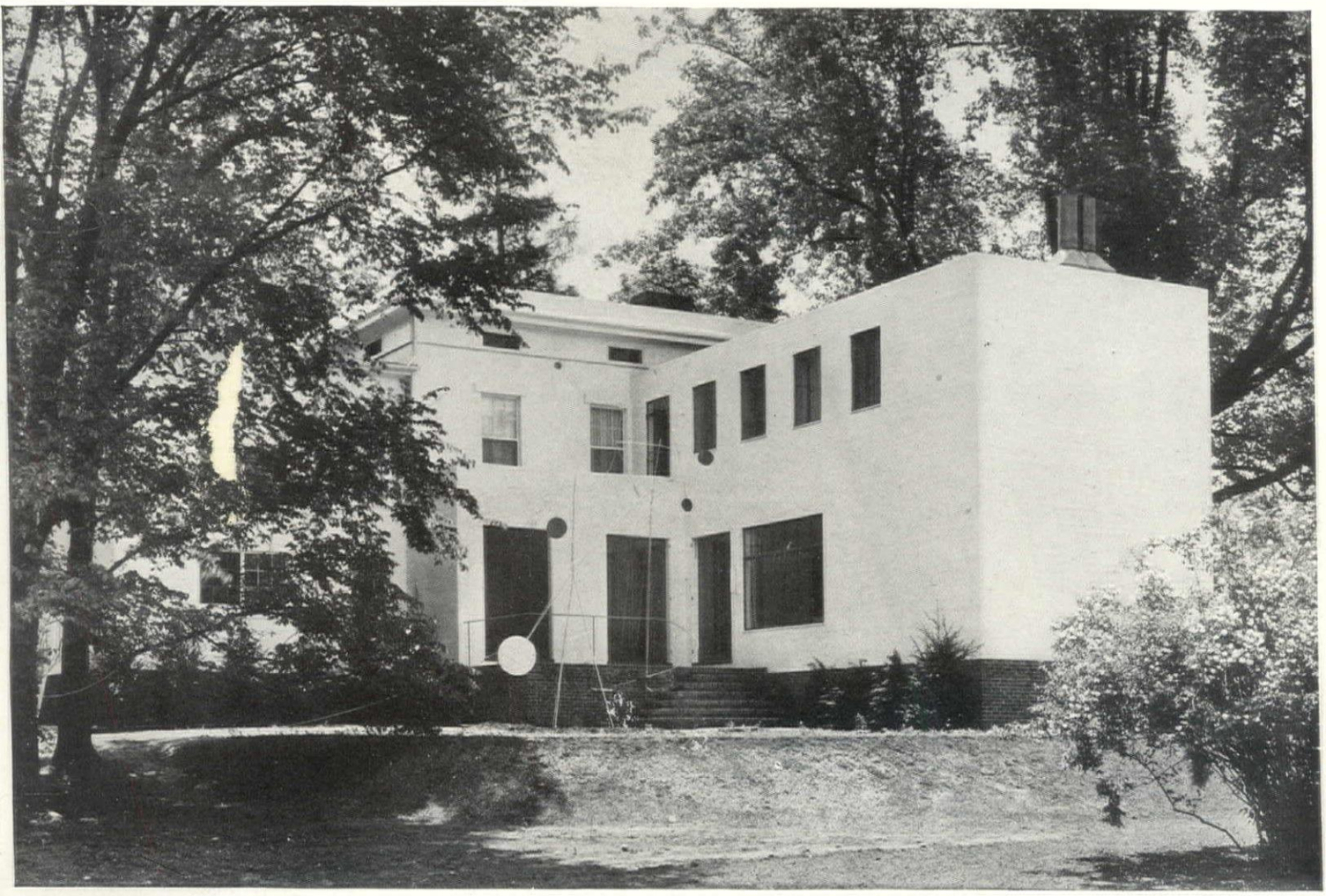
Experience with existing summer air conditioning installations has brought about at least two new trends in the design of equipment.

The first relates to exfiltration, which connotes forcing air to leak outwardly from the building by creating a greater air pressure inside than exists outside. It is just the opposite of infiltration, which proves so troublesome in winter practice that the weather stripping of windows and doors has become almost a prerequisite in efficient heating.

It has been found that by designing an air conditioning system to take in a larger amount of outside air than the amount of air released from the conditioned space, more positive control can be gained and there is less tendency for unconditioned air to diffuse into the conditioned space.

The second important trend relates to noise elimination in all air conditioning equipment. The best method of eliminating noise is not to make it. This requires the selection of a fan which can handle the required volume of air silently—a matter of both fan design and speed of operation. Special electric motors and motor drives have been developed for the extremely quiet operation desired in any air conditioning system.

When these precautions do not suffice to eliminate the telephoning of noise through the duct system or apparatus, two alternatives are available. The use of a sound absorbing lining, known as acoustical felt, for a distance approximately five times the diameter or larger duct dimension, will remove practically all noises generated in advance of the lining and prevent their transmission to the conditioned space. The use of sound absorbing or vibration dampening bases for motors, blowers and other moving elements, is also an effective recourse that is becoming standard practice in air conditioning work.

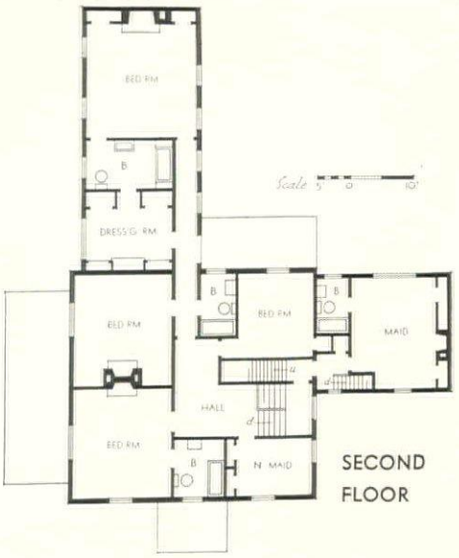


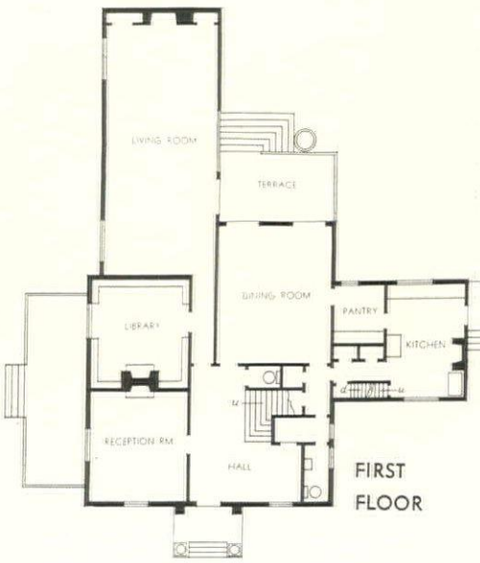
Neo-Grec in style and built about 1835, the original house is of heavy wooden frame construction covered with a flat sheathing of matched boarding. The purpose of the remodeling was to rehabilitate the house, which had fallen into a serious state of disrepair; to adjust it technically for modern living, and to provide ample, well-lighted wall space for the owner's important collection of modern French paintings. Additions consist of a new living room wing at the rear and an extension of the dining room. Construction is consistent with that of the original house. A mobile sculpture by Alexander Calder was placed at the head of an old well

HOUSE AT FARMINGTON, CONNECTICUT

REMODELED BY

HENRY-RUSSELL HITCHCOCK, JR.





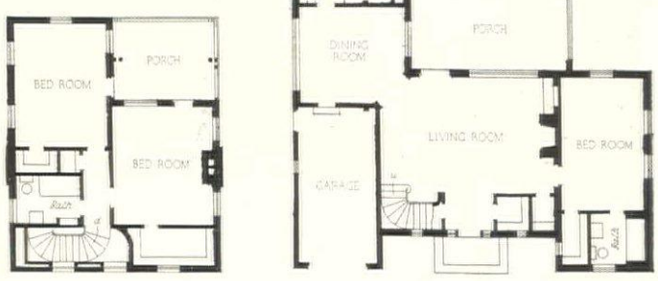
Downstairs the new wing provides the chief living room of the house, particularly prepared for the larger and more important paintings. Ceiling and side walls are of plaster painted white; the chimney breast and opposite end wall are covered with gray fabric. Curtains, of the same fabric, which at night cover about a third of the walls from floor to ceiling, are of dull grass-green. The library is fitted with specially designed movable wooden shelving, and preserves the original Grecian black and gold marble mantel

HOUSE AT FARMINGTON, CONNECTICUT **REMODELED BY HENRY-RUSSELL HITCHCOCK, JR.**

PHOTOS: SAMUEL H. GOTTSCHO

HOUSE OF CARRIE S. FLOETHER
MIAMI BEACH, FLORIDA
CARLOS B. SCHOEPPL, ARCHITECT

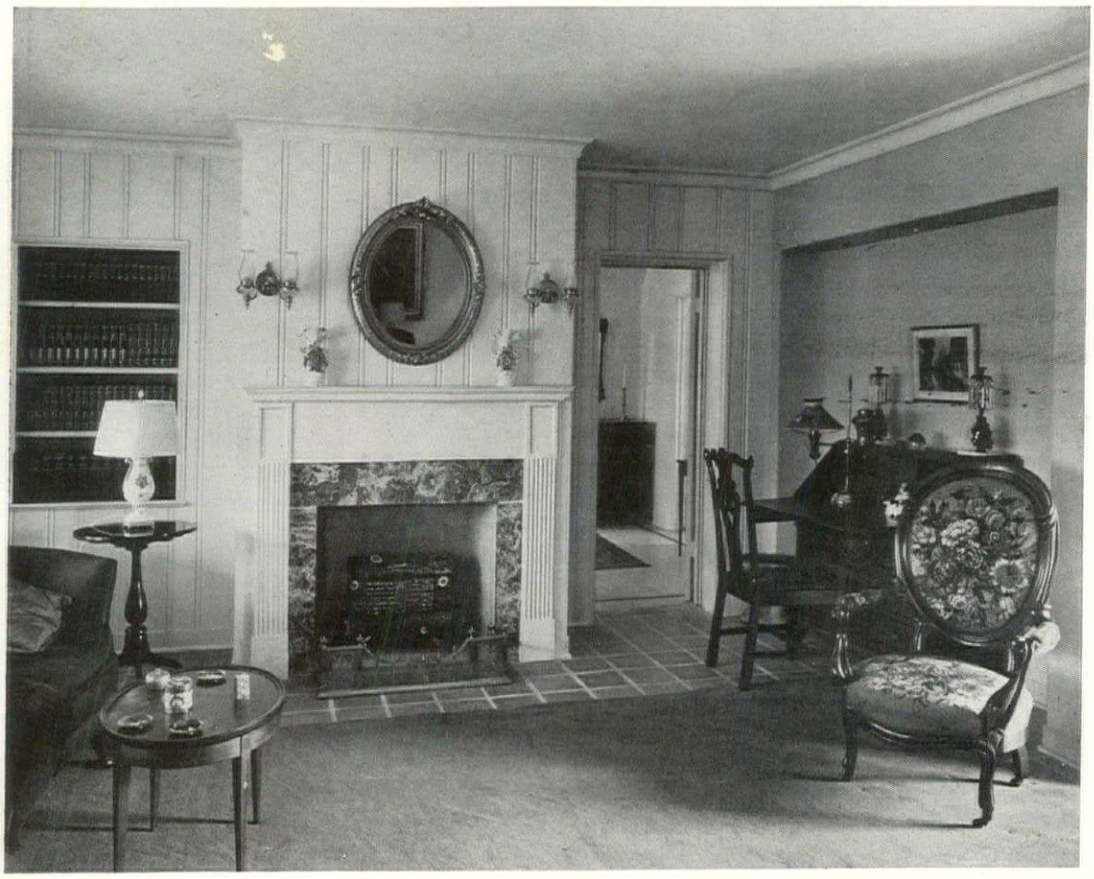
During the past few years there has evolved, notably in California and in Florida, a domestic architecture, which while obviously of eclectic inspiration, is characteristic of contemporary America. This house is a case in point. Compactly planned, it is built of concrete and cement block, stuccoed. Roofing is of Ludowici white interlocking shingle tile and all windows have Fenestra steel sash



SECOND FLOOR

FIRST FLOOR

Interiors of the living room indicate the same borrowing from precedent that characterizes the exterior. Random width vertical boarding is used on the fireplace wall of the living room while the remaining walls are painted plaster. Tiles are used for flooring



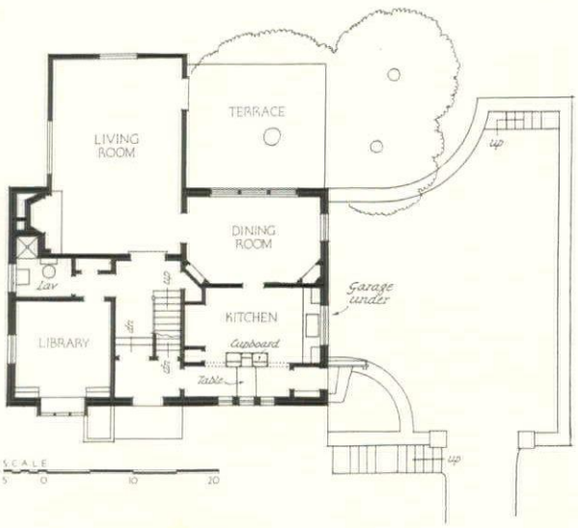
HOUSE OF CARRIE S. FLOETHER

MIAMI BEACH, FLORIDA

CARLOS B. SCHOEPPL, ARCHITECT

HOUSE OF EDWARD F. RATE
IOWA CITY, IOWA
HENRY L. FISK, ARCHITECT

New England precedent is well adapted to a mid-west setting. Built on a sloping site, a garage under the house provides direct access to the entrance vestibule and to a recreation room on the basement level. Constructed of brick veneer and redwood siding over frame, the foundation walls are concrete block and retaining walls are of native stone. Cedar shingles are used for roofing

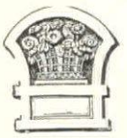


White painted wood siding and trim, red brick and native stone offer a pleasant and discriminating choice of textures. Leaded glass steel casement windows have been used in the library (below), although double hung windows have been used throughout the rest of the house

HOUSE OF EDWARD F. RATE
IOWA CITY, IOWA
HENRY L. FISK, ARCHITECT

THE DIARY

Henry Saylor



Boston, Tuesday, June 1.—The Sixty-Ninth Convention of the American Institute of Architects: Bishop William Lawrence opening with a surprisingly wide knowledge of American architecture and architects . . . Stephen Frank Voorhees getting out from under his burden of responsibility . . . Edwin Bergstrom bringing the glad tidings that we are in the best position financially for some years . . . tables, investments, consolidated funds, operating budget and other figures.

The Somerset Hotel on the edge of Boston's Fenway, a happy choice of our Boston hosts . . . surrounded by trees and plenty of parking space, filled inside with hand-shaking reunions on the part of men with orange, blue, green and red badges.

Former students of architecture at Massachusetts Tech gather in the old Rogers Building for a buffet luncheon and to hear Dean William Emerson tell us that Tech's already high tuition goes up next year to six hundred dollars . . . Surprising how many architects one has long known who now turn out to be Tech men.

Piling into buses and private cars to follow the route of Paul Revere . . . Informed impressively by megaphone that Paul Revere was not the only rider—there were two others, and only one of these two got through to give the warning. Too hot for suitable enthusiasm about early Massachusetts houses and history . . . The Gore Place, a revelation . . . Why has it been so long hidden from the architectural world? . . . Particularly festive today with hosts and hostesses dispensing a collation under a marquee on the lawn . . . Hubert Ripley, Gordon Allen, J. Lovell Little, and others in bar aprons ladling punch worthy of much cooler weather.

Symphony Hall filled with tables and clinking glasses for the Pop Concert . . . An attempt on the part of the architects to sing Les Pompiers with rather distressing results —Ken Murchison says that the music of Les Pompiers is fundamentally wrong and that he has made the only effective orchestration of it . . . Far into the night renewing friendships with men from the Middle West, the Pacific Coast, and the South.

Boston, Wednesday, June 2.—Convention wheels well oiled and running smoothly . . . New officers elected by acclamation instead of usual secret ballot . . . Readymade resolutions by Board of Directors adopted in rapid succession . . . Robert Kohn and Arthur Holden in their annual bout declaring warm friendship and differing diametrically on policy . . . The delegates, feeling their oats, overruling the Board in the latter's apparent wish to keep the idea of competition for public works tucked away in a dark closet . . . Unification urged—united we stand, divided we fall.

Off for Marblehead . . . Lovely old houses . . . The satisfying beauty of simplicity . . . Cocktails for some of us at Frank Chouteau Brown's, followed by much seafood at the Eastern Yacht Club . . . Many discovered I. Howland Jones' house fairly near the Lee Mansion, and its wisteria-covered upper porch lured us away from the hurried trip on to Salem.

Standing room only in the Convention Hall tonight—a surprisingly large number of Bostonians apparently interested in architectural education . . . Dean Emerson urging better and fewer architectural schools . . . Everett Meeks tracing the history of our educational methods and pointing out our dependence heretofore on France . . . Gropius dispelling the widely spread impression that he would build on the tenets of the Internationals—a well considered paper which, however, seemed to me less satisfying than his informal talk some weeks ago at the League in New York.

Boston, Thursday, June 3.—Housing, housing, housing, inspired by Walter McCornack's report . . . Not enough about one of the biggest problems facing the profession—how to provide service for the small-house client.

Luncheon with the Producers' Council . . . Delegates off to Harvard, with tea as Boston takes it at Dean Emerson's home in the Judge Lee House . . . The more conscientious housers attending an afternoon session . . . Talk of civic planning, talk of Governmental activities in housing, talk and more talk . . . and the small-house problem not yet solved.

Boston, Friday, June 4.—Francis P. Sullivan dealing with historical, technical, and archeological items to justify altering the east front of the National Capitol . . . Leicester B. Holland asking why have a Committee on the Preservation of Historic Monuments if its findings are merely filed . . . Resolution indicating the Board's desire to softpedal the question . . . Charles D. Maginnis, beloved incoming president, suggesting postponement of action . . . Delegates listening quietly and respectfully, then exploding in a practically unanimous vote for hands off the Capitol.

The late Mrs. Jack Gardner's palace overrun with delegates inspecting European loot . . . Various estimates as to the number of pounds of sandwiches per square inch on the massive tea table . . . Ambitious camera fiends photographing art treasures . . . One delegate with three cameras and unipod.

The architect dressed up . . . A banquet menu simplified and glorified as only Hubert Ripley could do it . . . Announcement of new Fellows . . . Irving K. Pond demonstrating the architect as eighty years young . . . The new officers taking their places, the old ones fading out . . . Charles D. Maginnis speaking of the present as a lenten period in which architecture apparently likes to sit in dust and ashes while clothed merely in its skin . . . Congratulations . . . Farewells . . . Moving on to cafes and bars . . . The Sixty-Ninth Convention really enjoying itself.

Boston, Saturday, June 5.—Up early and on to Providence . . . Providence architects showing us Brown University . . . Grand old houses built out of slave trade and privateering . . . Shore dinner at the Squantum Club . . . Seeing the Moses Taylor house designed by the Office of John Russell Pope, with a magnificent forecourt hedge of square-clipped lindens . . . Tea on the terrace of the Nicholas Brown house—designed some years ago by Cram—with the cup defenders and challengers at anchor before us . . . Final leave takings from our Providence hosts—See you next year at New Orleans.

Cambridge, Monday, June 7.—Massachusetts Tech seems to be on the verge of turning her thoughts upon this matter of housing. An auditorium was filled this morning to capacity with housers who wanted to hear what Sir Raymond Unwin, John Ely Burchard, Robert D. Kohn, and Ernest J. Bohn had to say about housing.

It is positively amazing, considering the number of times we call upon Sir Raymond for his thoughts, that he never fails to throw the powerful searchlight of his mind into some unexplored corner of the subject or else upon some outstanding principle which has hitherto been less brightly illuminated. For instance, today he pointed to the fact that with the onward march of civilization it becomes increasingly important that all of the individuals concerned with our complex community life must play their proper parts therein. It is, then, a community obligation to see that all of its individual members are enabled to live decently and be equipped to play those parts properly. We recognize this in the maintenance of a certain standard of education. Sir Raymond points out that a certain standard of living conditions has been proved equally necessary if people are to co-operate freely with other members of the community and lead the lives of good citizens.

Sir Raymond continues to argue for less dwelling units to the acre. In England they

build them about twelve to the acre which allows about three hundred yards of garden space for each family, and while Sir Raymond does not directly criticize our mass housing, I think there is no doubt of his conviction that the individual unit with its individual plot of ground is infinitely better. Sir Raymond has a habit of bringing his hearers up with a jolt by some such provocative remark as this: "The area of the United States exceeds three million square miles; the present population may be estimated at thirty-two million families; if they were all gathered in cities laid out on the low average of ten dwellings only to the acre; and if a like space—a very generous allowance—were allocated for industrial, commercial, and other uses; only ten thousand of those square miles would be needed. In other words, an insignificant patch on a map of the United States measuring one hundred miles each way, would suffice to hold the whole population in urban areas on a generous scale in which every family could have its own dwelling with land attached."

Not only did Sir Raymond bring significant facts and stimuli to his audience, but Messrs. Burchard on "How Better Homes Will Be Built"; Robert D. Kohn on "The Future of Housing," and Ernest J. Bohn on "Housing and the Government"; contributed to what was perhaps the best rounded exposition of the subject that even housers have heard for some time.

Vannevar Bush, Dean of the School of Engineering at Tech, summed up the symposium and even reduced it all to a formula which he chalked on the blackboard. It comes pretty nearly to this: "There should be established a minimum standard of housing, this standard being so set as to impose the minimum current costs on society," which when you look at it in the round, is a rather comprehensive statement.

Wednesday, June 9.—The legislative ax has fallen upon the architects of New York State, though its weight was measurably lightened by the Governor's veto of the McNaboe Bill. The latter would have prevented the employment of architects and engineers in private practice for any architectural, engineering, or technical services to be performed in the construction or maintenance of any public work instituted by the State or its civil divisions or cities. Governor Lehman couldn't quite stomach it.

Nevertheless, he did sign the Buckley Bill which practically prohibits the employment of architects in private practice in connection with the designing of buildings for the City of New York. He also signed the Feld Bill which prevents the employment of architects in private practice by the Department of Education of the City of New York, excepting in special cases.

Friday, June 11.—Over to the grassed and planted roof of the French Building to see what the Pittsburgh Glass Institute competition had brought forth. The entries were of unusual interest and effectiveness, particularly emphasized by the uniformity of the photographic presentation. The competition suggests a whole series of them, to show what can be done in marble, terra-cotta, stone, brick, wood. It remained, however, for one of the youngest members of the building family—the glass industry—to set the pace.

Monday, June 14.—His Majesty's Office of Works had its own troubles in seating the coronation throngs. If anyone imagines that the task could have been solved merely by providing *x* number of seats he little knows the British capacity for detail. There was, for instance, the Broadest Peeress for whom the standard 1 ft., 8 in. seat would not do at all. H.M.O.W. contrived to run an aisle past her seat on one side, and to pry it loose from its neighbor on the other side, thereby preserving the comfort of the Broadest Peeress and the dignity of the Empire.

Tuesday, June 15.—Would you like to help save the mosaics of St. Sophia in Istanbul? The Byzantine Institute, Sears Building, Boston, Mass., has undertaken to preserve these mosaics, and needs $50,000 for the next two years, in addition to funds now in hand.

Thursday, June 17.—One becomes accustomed to startling ideas in these days of rapid change. Nevertheless, it was something of a shock to hear a definite proposal today, at a meeting of representatives of the architects and allied arts, that we form our own big union. The idea behind the suggestion was that apparently it is only large combinations of persons whose views can be heard in the public councils.

Nevertheless, a union certainly presupposes identity in interests and singleness of purpose, which is something that architects, painters, sculptors, decorators, draftsmen, and industrial designers are "fresh out of."

Saturday, June 19.—Frank Lloyd Wright has designed a good many things, not to overlook some effective printed matter in his books and announcements. This month, however, he blossoms forth as a designer of magazine covers with what I judge to be an abstract conception of the flag as it might be waved on the Fourth of July. See *Town & Country's* July cover.

Tuesday, June 22.—Until a few years ago this country had never thought architects of sufficient importance to confer upon one of them an honorary degree. These have been coming thick and fast in recent years, however, to Magonigle, Maginnis, Butler, Corbett, and others. Today Princeton conferred upon Stephen Francis Voorhees the degree of Doctor of Engineering. A day or so ago the French Government honored Albert Kahn by membership in the Legion of Honor. Moreover, there is a well substantiated rumor that Harvard, in a few days, will honor Sir Raymond Unwin with a degree, Doctor of Arts, and Charles Moore, veteran chairman of the National Fine Arts Commission, also with the degree, Doctor of Arts.

Thursday, June 24.—Now that Title I of the National Housing Act is a matter of history, its provisions having come to an end at midnight March 31 last, it is instructive to see just what it accomplished in its two and three-quarter years of a busy life. Instituted as an emergency measure to provide a quick stimulant to the building industry, it insured something over half a billion dollars worth of modernization and repair notes. This money was spent upon nearly one and a half million properties.

Friday, June 25.—We are undoubtedly too close to the new development in Seattle to comprehend its full significance. The architects and engineers of that city have been notified that these professional offices are to be organized as a union. Seattle, of course, is now one of the most fully organized union cities in the country, including its police force and a sympathetic mayor. It is proposed that after this organization of the professional offices, a seal will be lent by the union to each office in good standing, all drawings emanating from that office to be marked with this seal. Drawings not so marked will not be built by union labor. It seems hardly likely that this move toward unionization of whole offices is the work of the Federation of Architects, Engineers, Chemists, and Technicians. Presumably the members of this organization, both in Seattle and elsewhere in the country, realize that their interests are far more closely knit to those of the architects or engineers who employ them, than to any organization of the trades. If our professions as a whole are not to be galled with a yoke of unionization enforced from the outside, both principals and associates will have to agree upon the comparatively insignificant details in which their interests are thought to clash. The profession must set its house in order lest someone else does it with a big stick.

Monday, June 28.—I hear on all sides, particularly in New York State, the sad wail that the architect is in danger of being legislated out of existence. From other and less numerous sources I hear that many of the architect's troubles today are due to his own shortcomings. One architect told me the other day that the last three jobs given to him were each the result of some fellow practitioner's inability to carry out a commission to the owner's satisfaction. Proficiency over the drafting table is not always—perhaps too rarely—accompanied by smooth-working business procedure.

THE PORTFOLIO

Tombstones and Mausoleums

© H. H. SAYLOR

Lorimer Rich

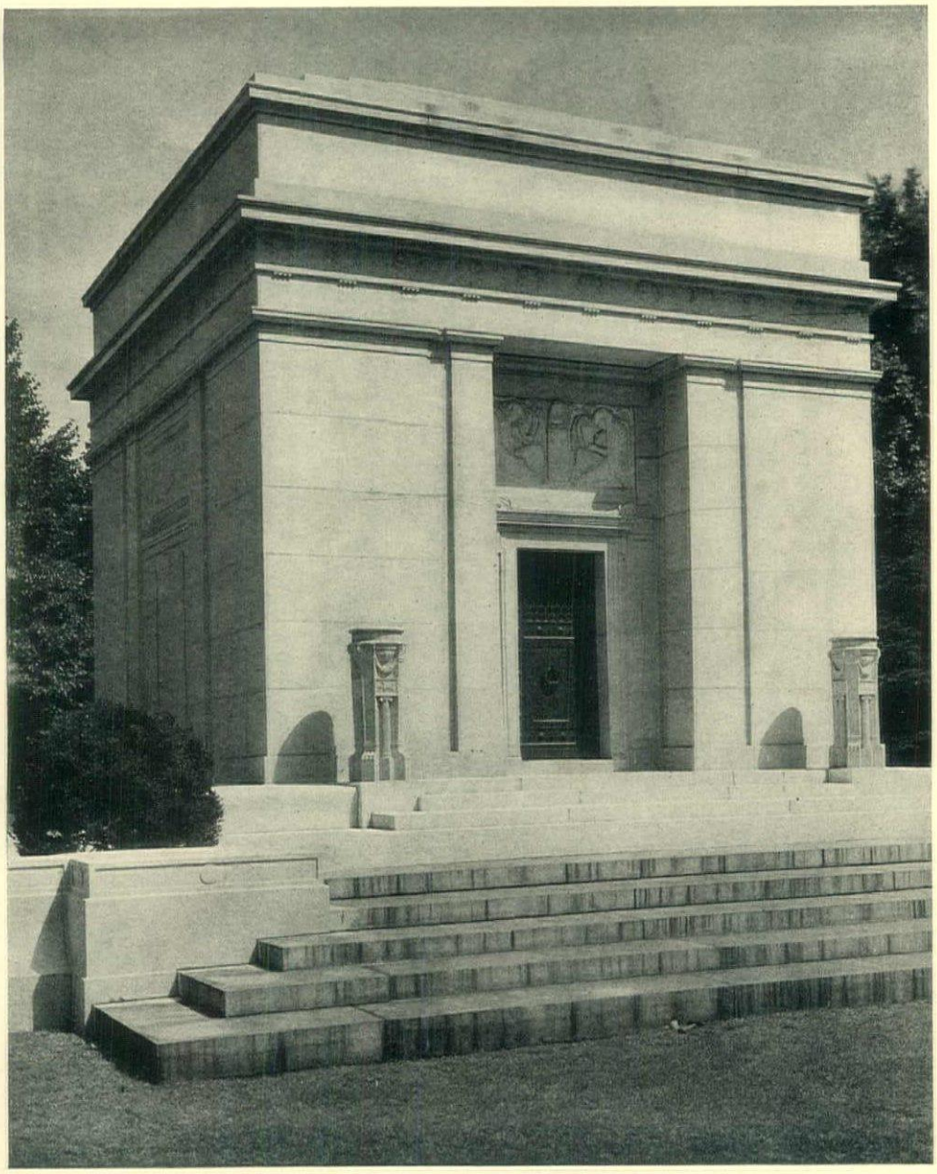
HERE RESTS IN
HONORED GLORY
AN AMERICAN
SOLDIER
KNOWN BUT TO GOD

Thomas Hudson Jones

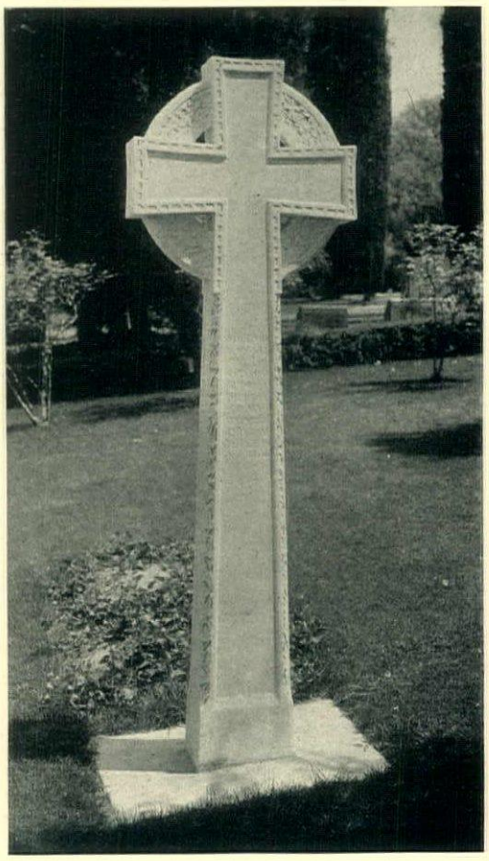
PORTFOLIOS IN PREPARATION—Vertical Sun Dials, August . . . Wall-face Dormers, September . . . Door Steps, October . . . Shutters and Blinds, November

The Editors welcome photographs of these subjects. . . . Forms close eight weeks in advance of publication. A list of the subjects that have appeared will be sent upon request. Certain of these past Portfolios are available to subscribers at 25 cents each; or five subjects for one dollar

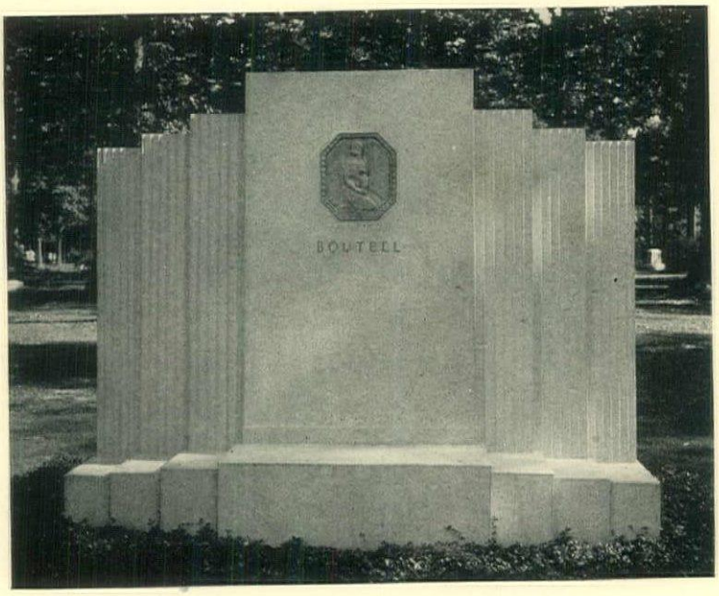
NUMBER 129 IN A SERIES OF COLLECTIONS OF PHOTOGRAPHS ILLUSTRATING VARIOUS MINOR ARCHITECTURAL DETAILS



Leeds Mausoleum, Woodlawn Cemetery,
Woodlawn, N. Y.
Office of John Russell Pope



Redlands, Calif.
I. N. Phelps Stokes



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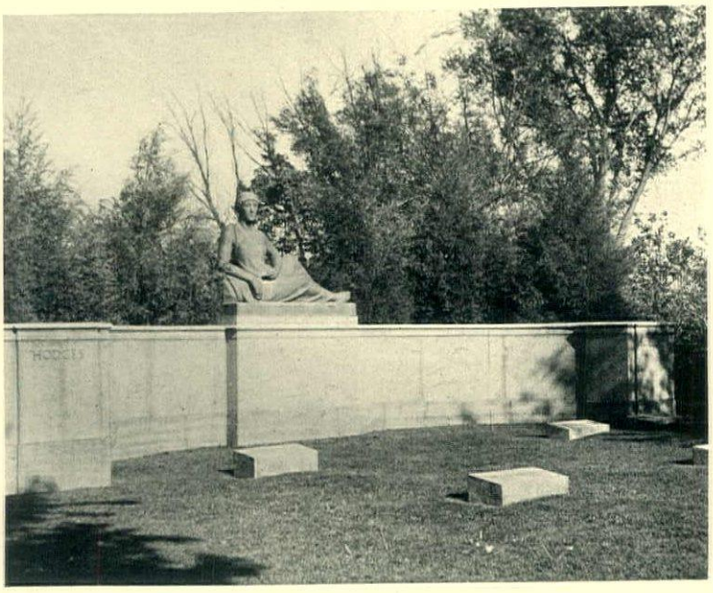
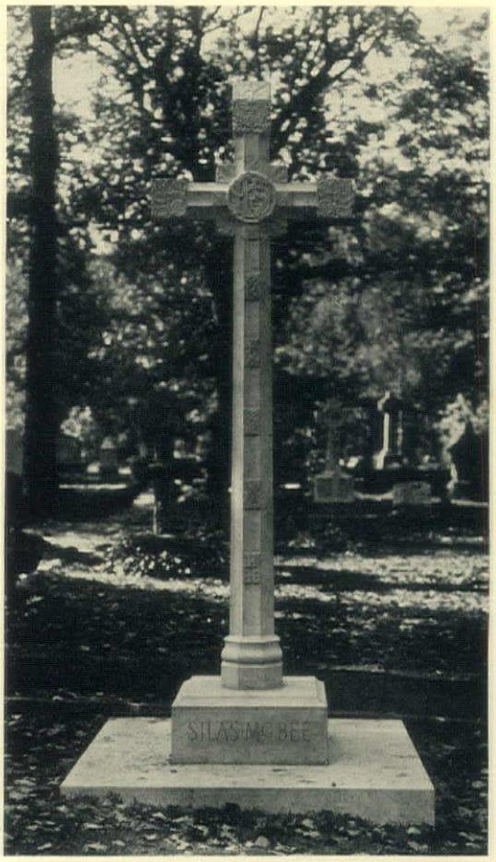
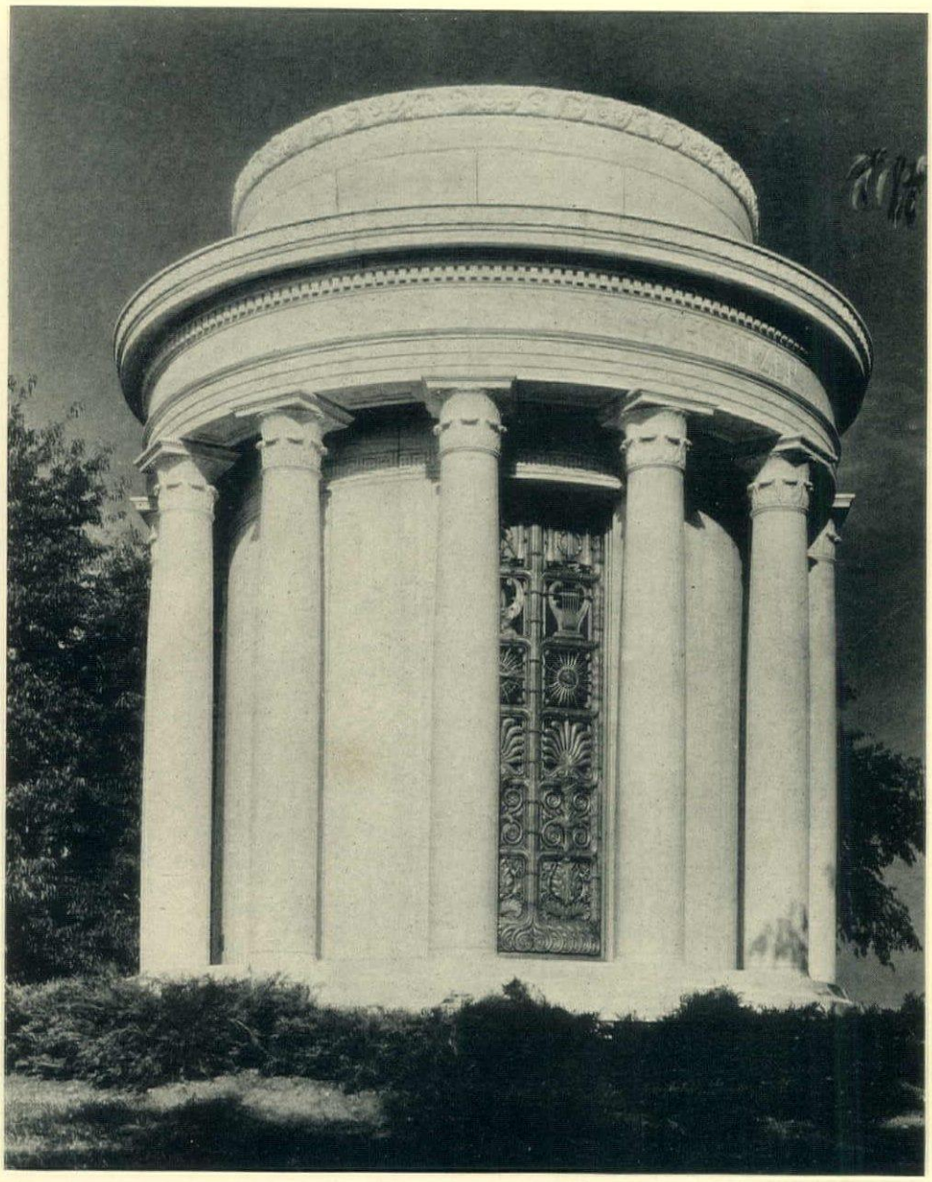
Thomas E. Tallmadge; Emory Seidel



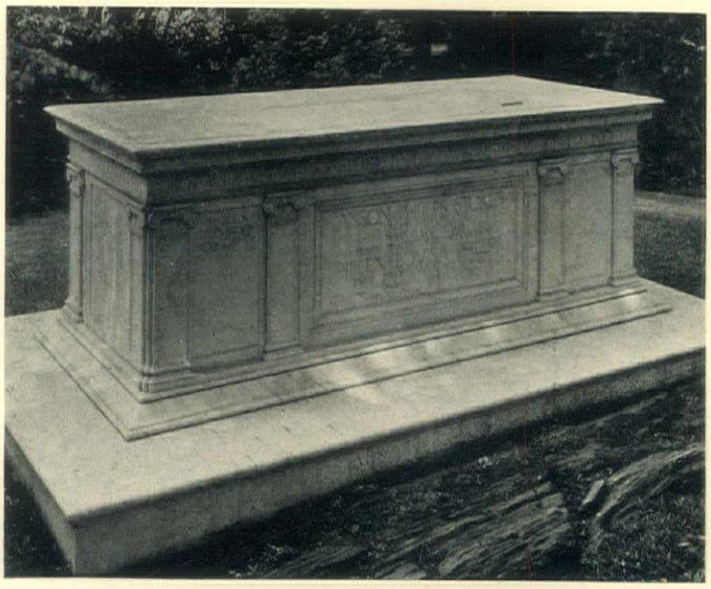
Denver, Colo.
William E. and Arthur A. Fisher



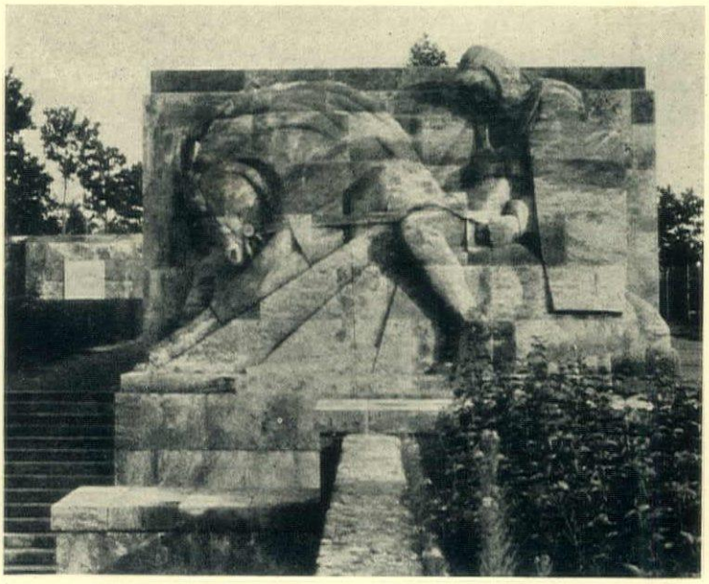
Sewanee, Tenn.
Cram & Ferguson



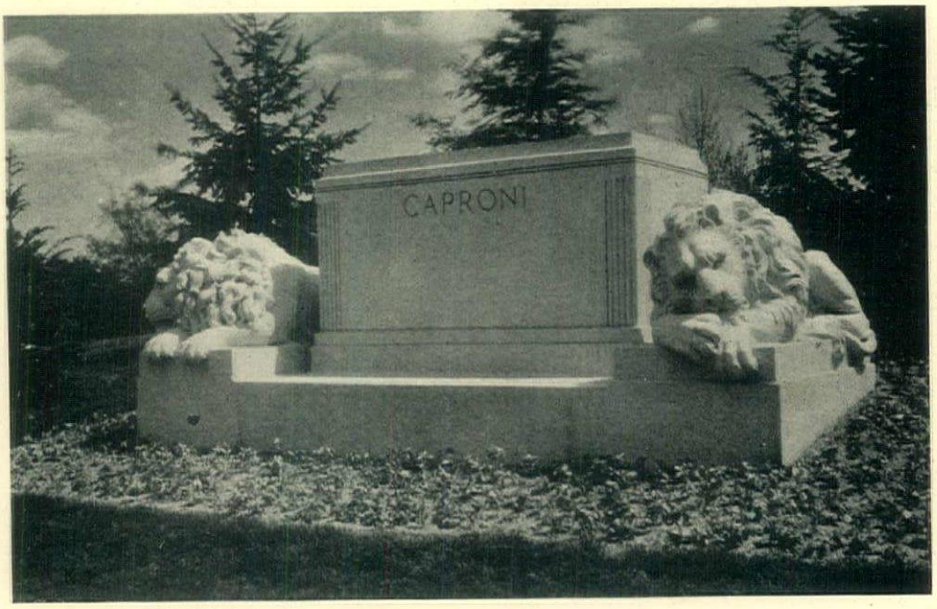
Schwitzer Mausoleum, Crown Hill Cemetery,
Indianapolis, Ind.
J. E. Kopf



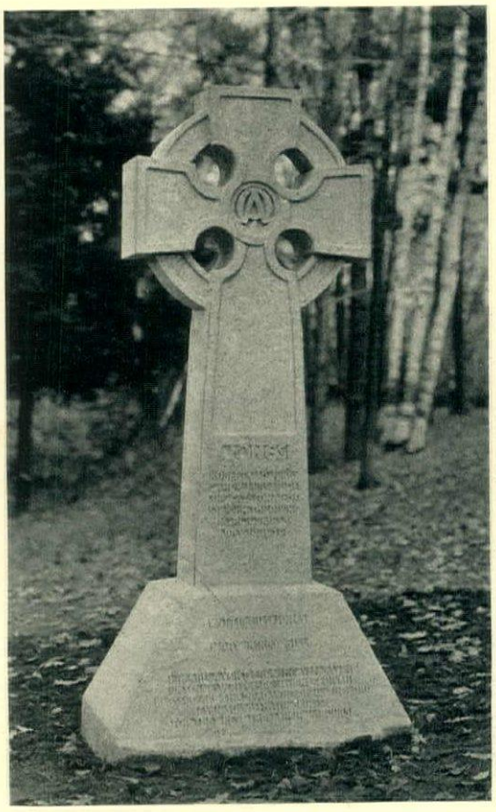
Woodlawn Cemetery, Woodlawn, N. Y.
Howells & Stokes



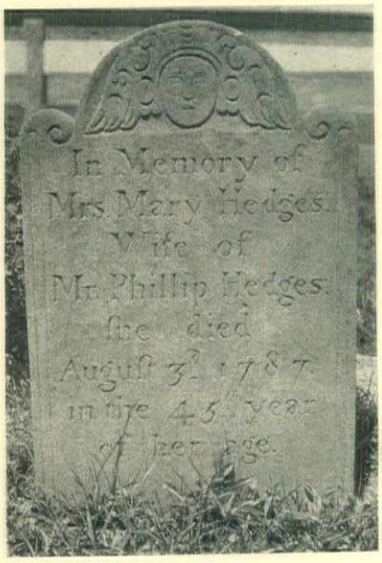
Detail of mausoleum, Riga, Latvia
Herr Zale



Forest Hills, Mass.
Cram & Ferguson

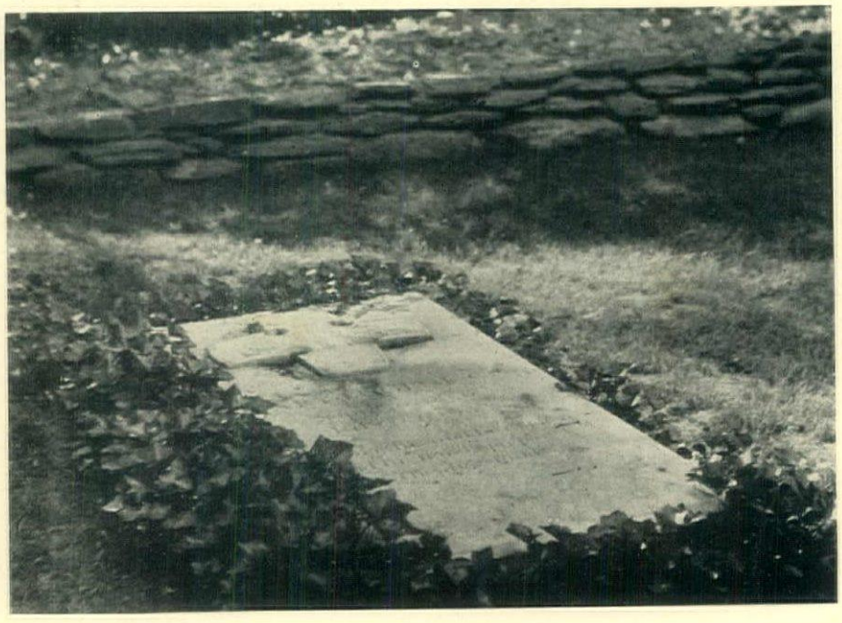


Ashfield, Mass.
Cram & Ferguson

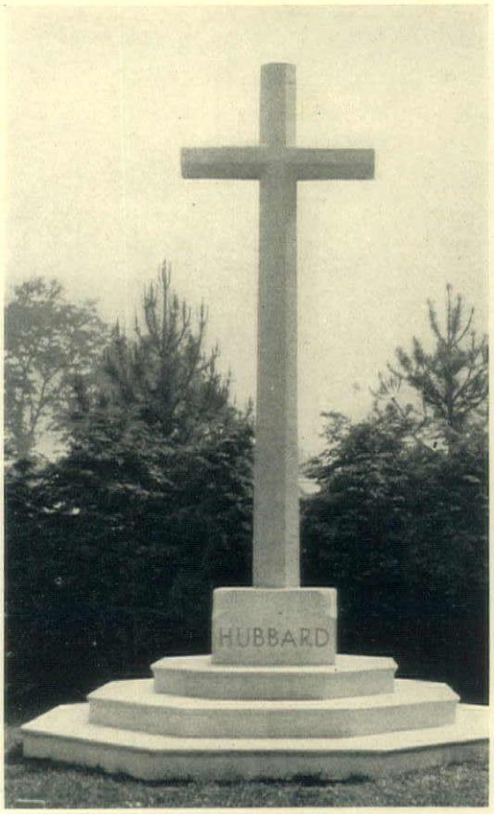


Montauk Point, N. Y.

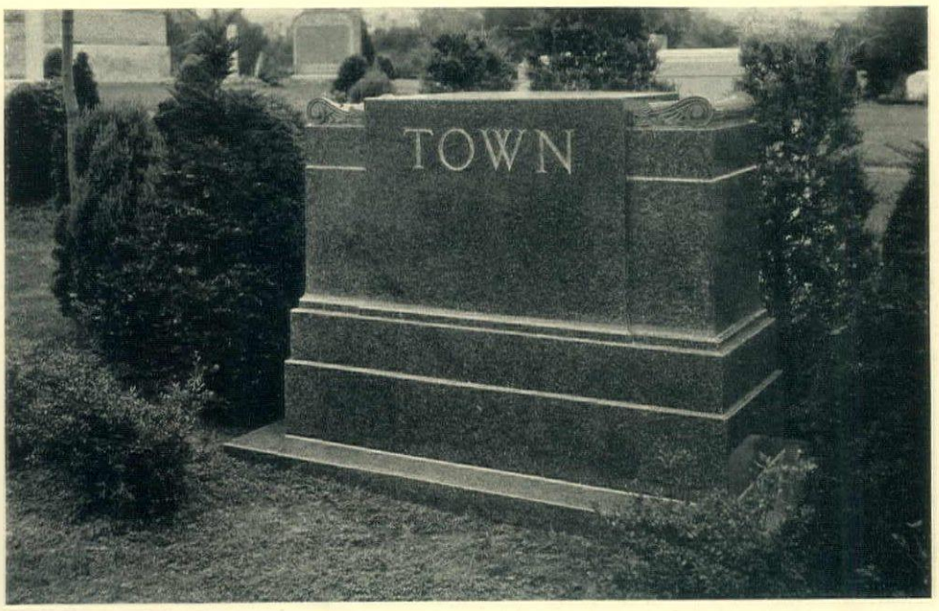
Memorial Cemetery,
Cold Spring Harbor, N. Y.



Graceland Cemetery, Chicago, Ill.
Thomas E. Tallmadge



Woodlawn Cemetery, Woodlawn, N. Y.
Mayers, Murray & Phillip

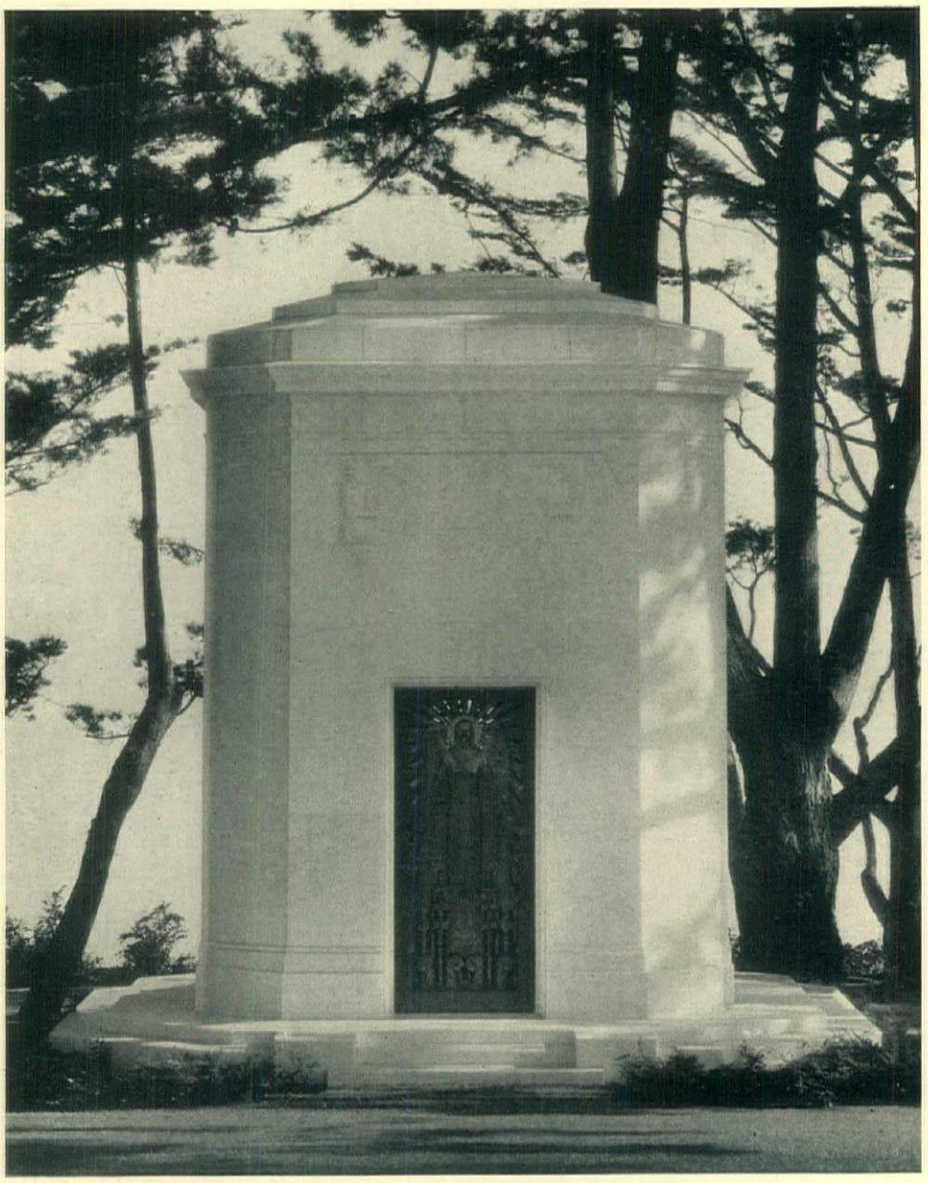


Woodlawn Cemetery, Woodlawn, N. Y.
Ralph S. Myers

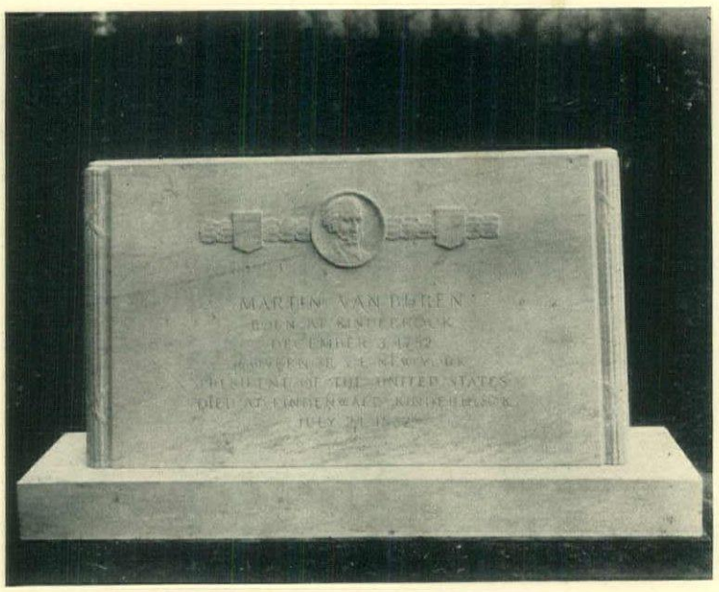
Plymouth, Mass.

Rock Creek Park, Washington, D. C.
Augustus St. Gaudens; Stanford White

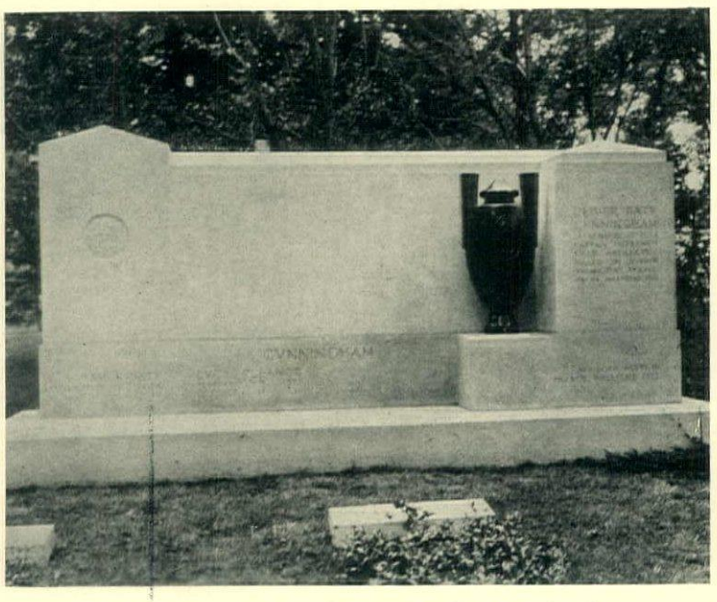
Memorial Cemetery,
Cold Spring Harbor, N. Y.



Boldt Mausoleum, Santa Barbara, Calif.
Reginald D. Johnson

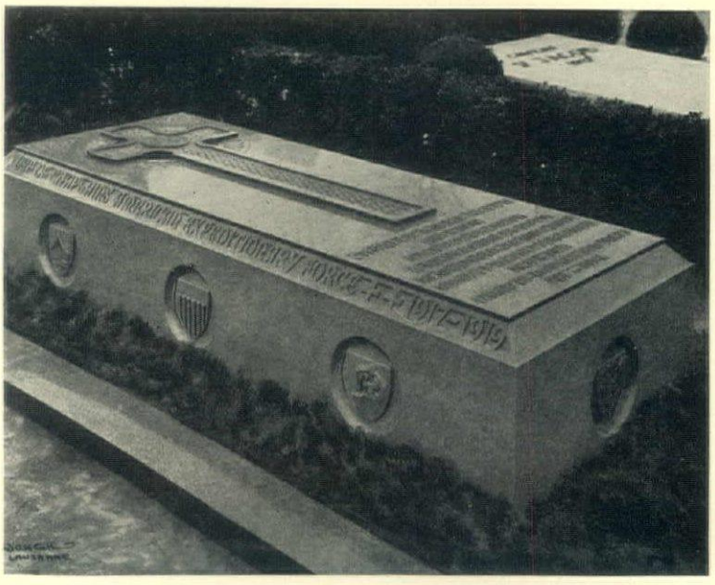


Kinderhook, N. Y.
L. A. Whitehouse

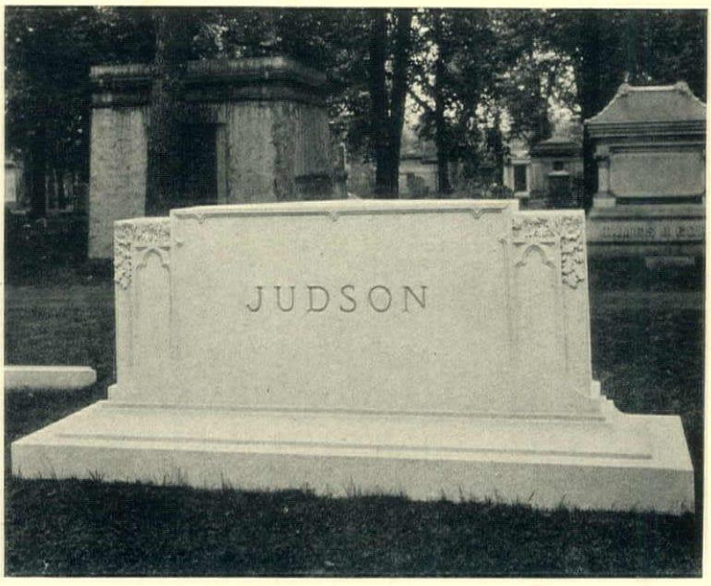


Rosehill Cemetery, Chicago, Ill. (Detail shown above)
Earl H. Reed

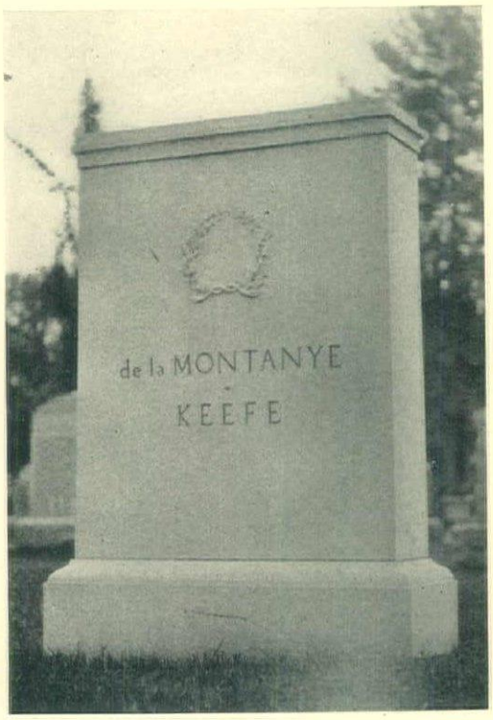
Cornish, N. H.
The ashes of Augustus St. Gaudens
McKim, Mead & White



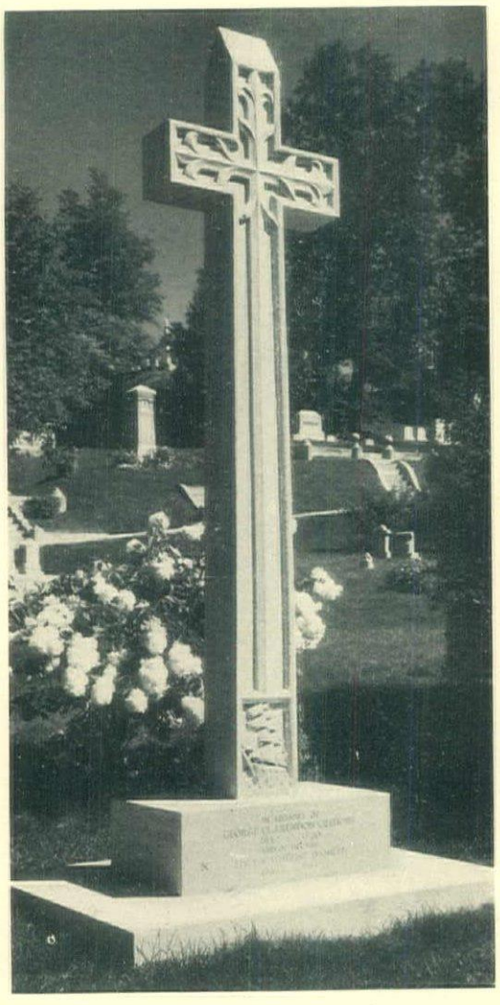
Lausanne, Switzerland. (Another view shown above)
Cram & Ferguson



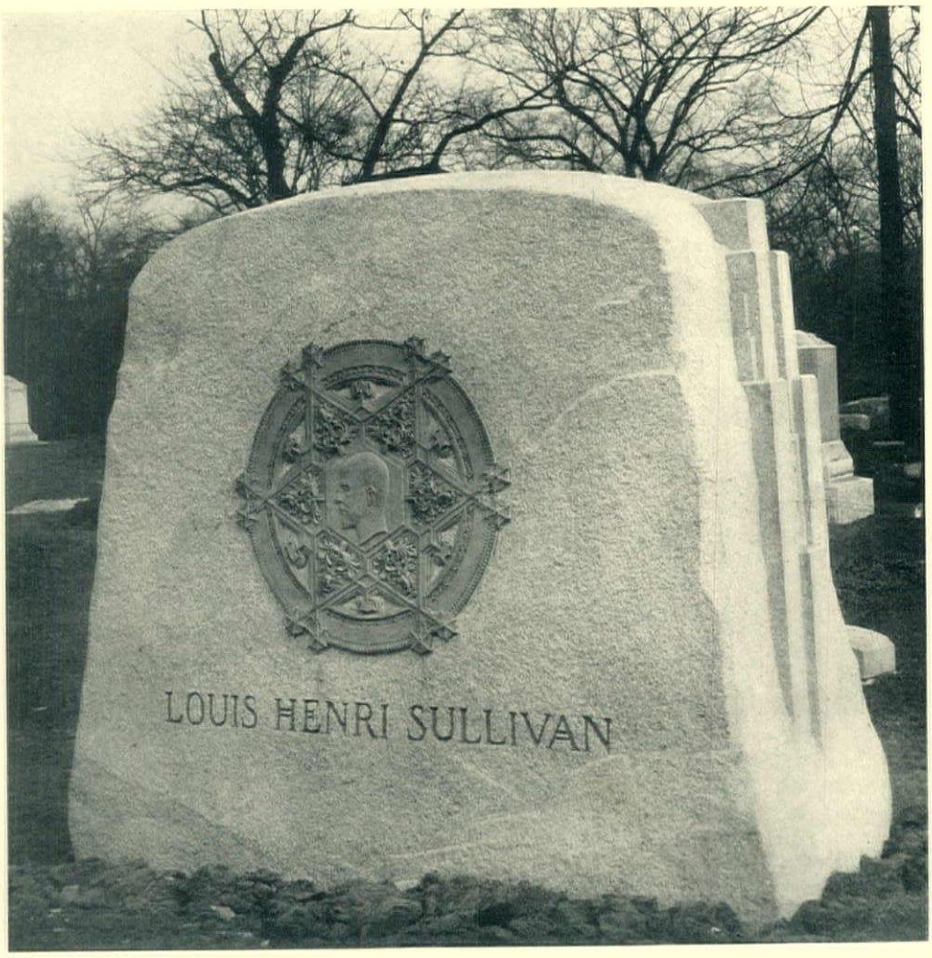
Oakwoods Cemetery, Chicago, Ill.
A. Harrison Barr



Wiltwyck Cemetery, Kingston, N. Y.
Charles S. Keefe

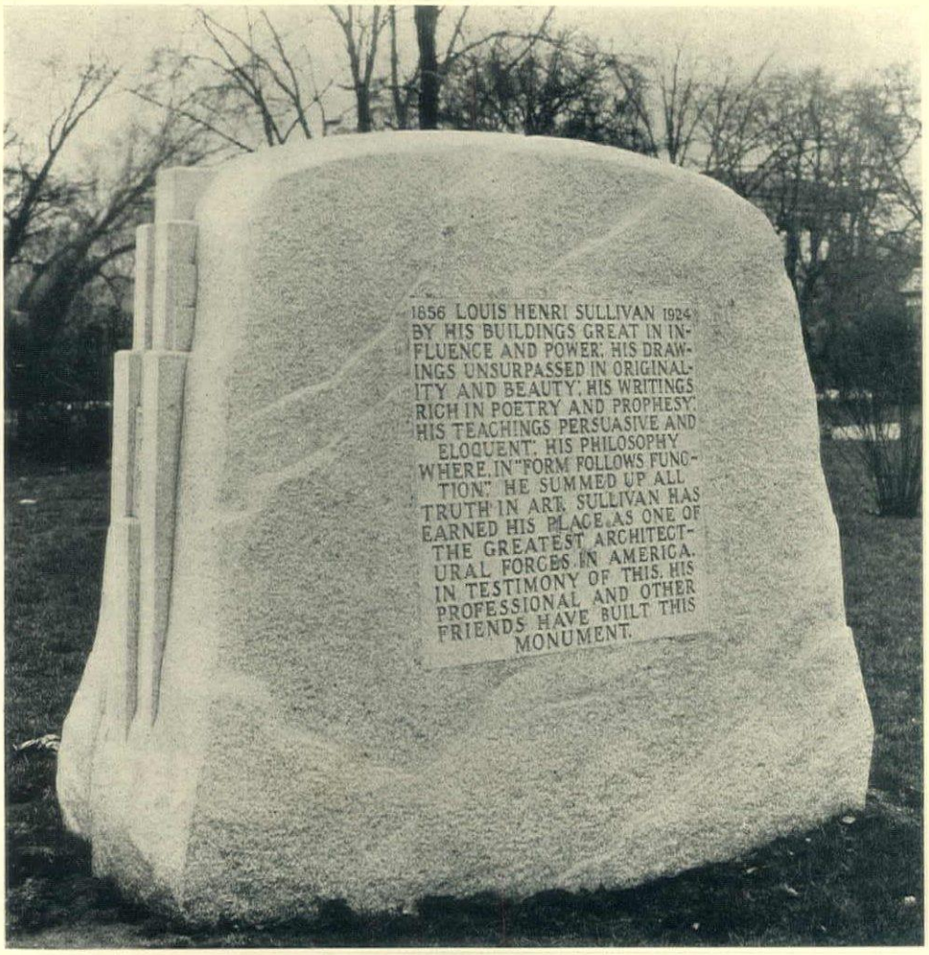


Mt. Auburn Cemetery, Cambridge, Mass.
Cram & Ferguson

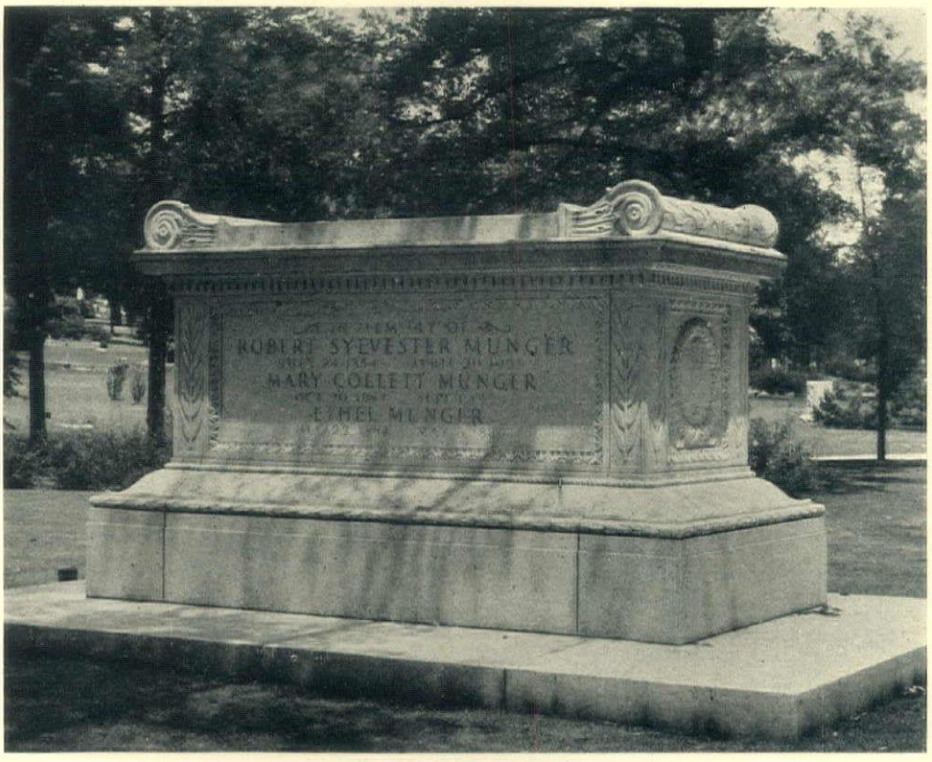


Graceland Cemetery, Chicago, Ill.
Thomas E. Tallmadge

Rear of the Munger sarcophagus
shown on the page opposite

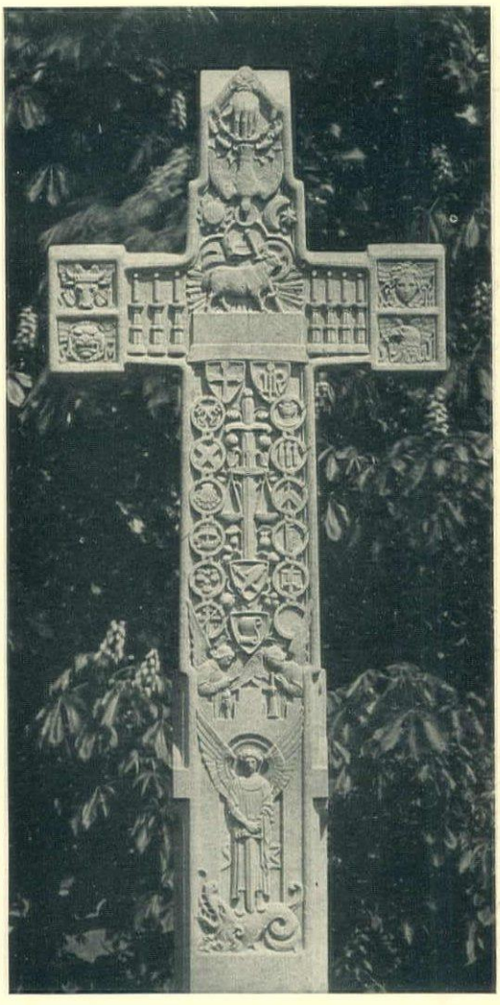


Rear of the Louis H. Sullivan tombstone
shown on the page opposite



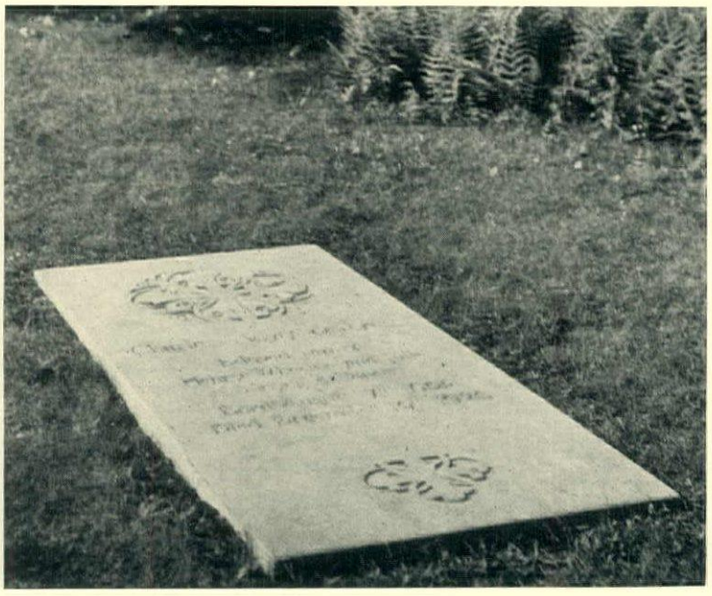
Munger sarcophagus, Elmwood Cemetery, Birmingham, Ala.
McKim, Mead & White

Saranac Lake, N. Y.
Maurice M. Feustmann



Trinity Church Cemetery (uptown), New York, N. Y.
Bertram G. Goodhue

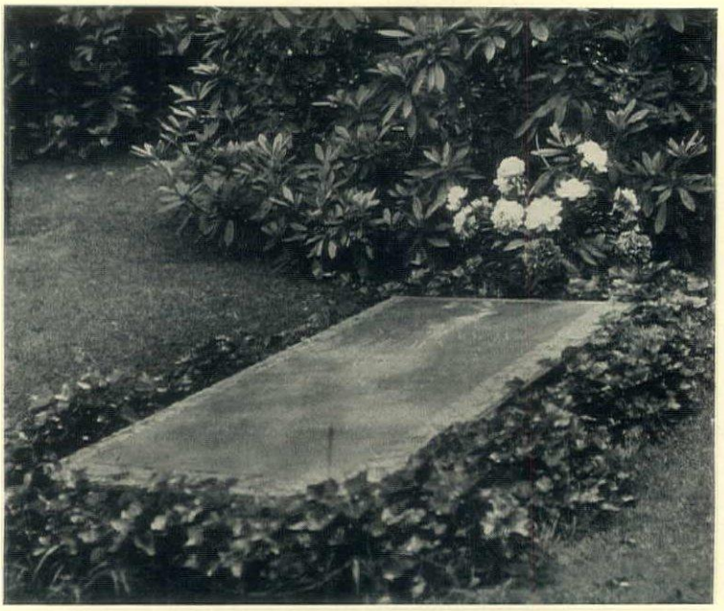
Forest Lawn Cemetery, Buffalo, N. Y.
A. Harrison Barr



Memorial Cemetery, Cold Spring Harbor, N. Y.

National Cemetery, Arlington, Va.
James Earle Fraser

Porter Mausoleum, Woodlawn Cemetery, Woodlawn, N. Y.
Trowbridge & Livingston



Memorial Cemetery, Cold Spring Harbor, N. Y.

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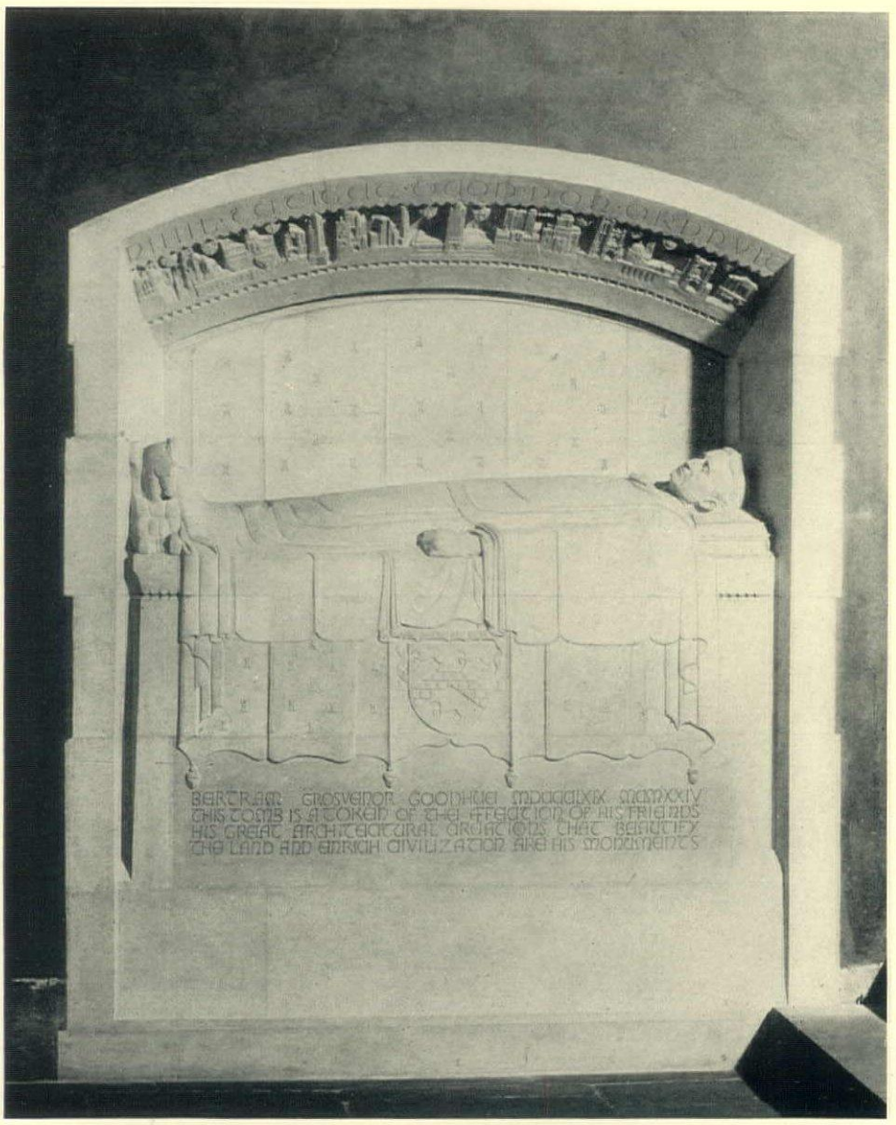
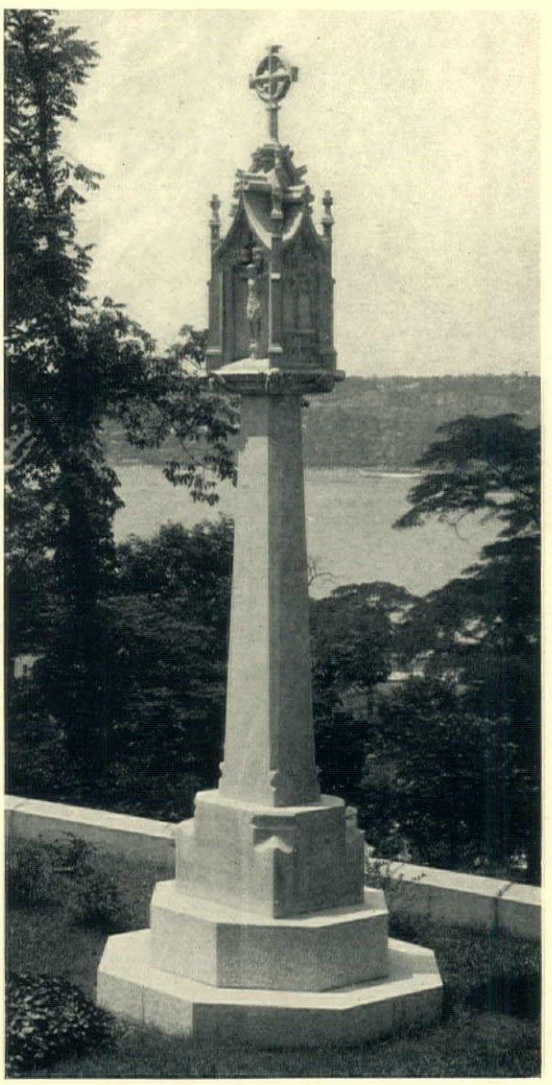
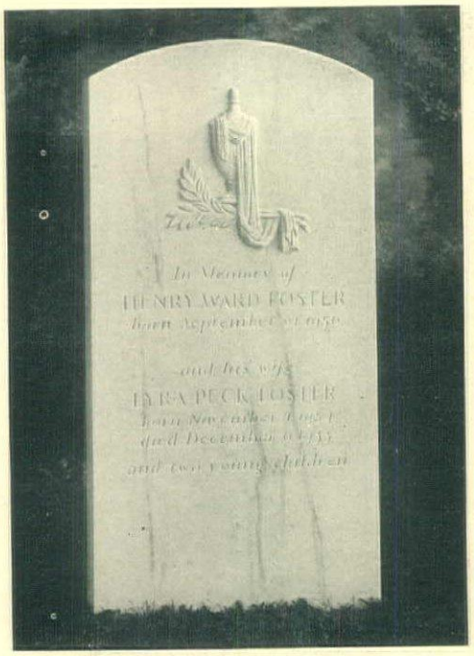
National Cemetery, Arlington, Va.
James Earle Fraser



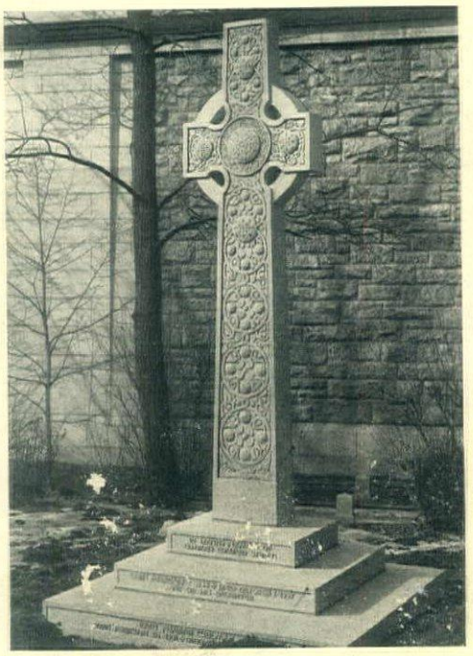
Bertram G. Goodhue's tomb, Chapel of the Intercession, New York, N. Y.
Lee Lawrie



Trinity Church Cemetery (uptown), New York, N. Y.
Thomas Nash

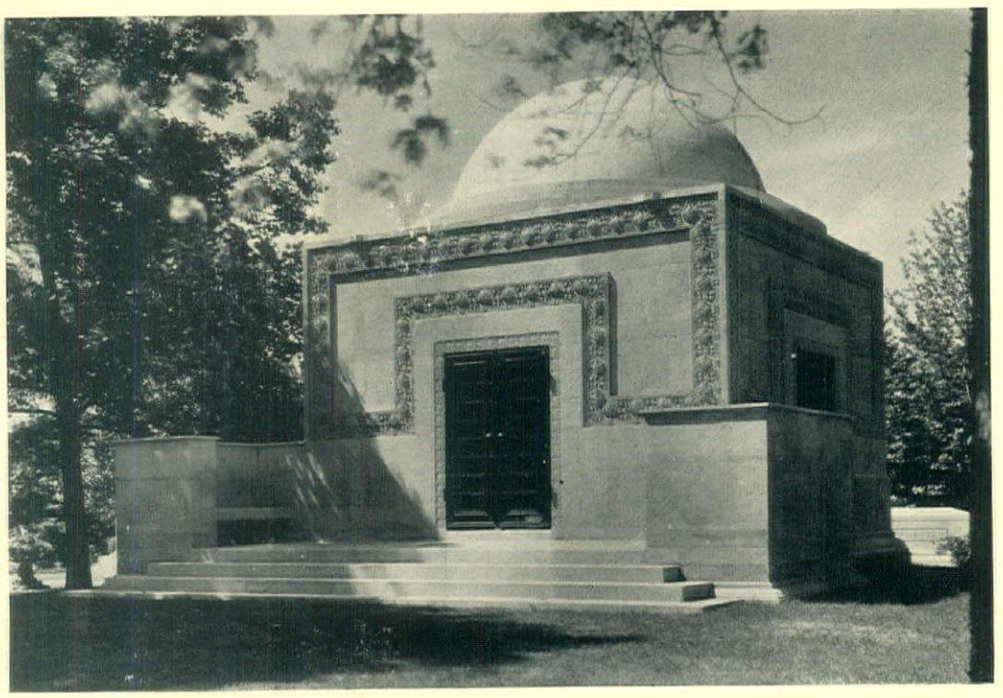


Pluckemin, N. J.
Lorimer Reich



Trinity Church Cemetery (uptown),
New York, N. Y.

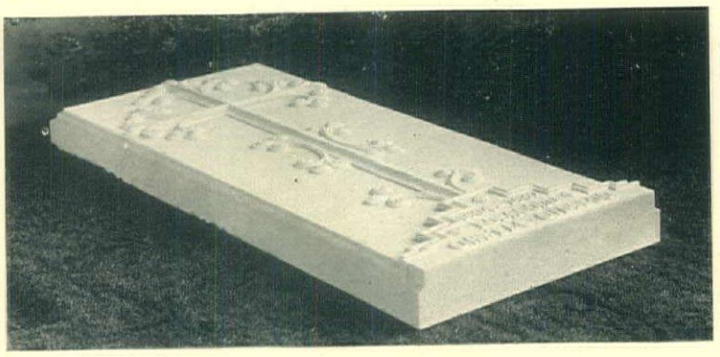
National Cemetery, Arlington, Va.
Warren, Knight & Davis

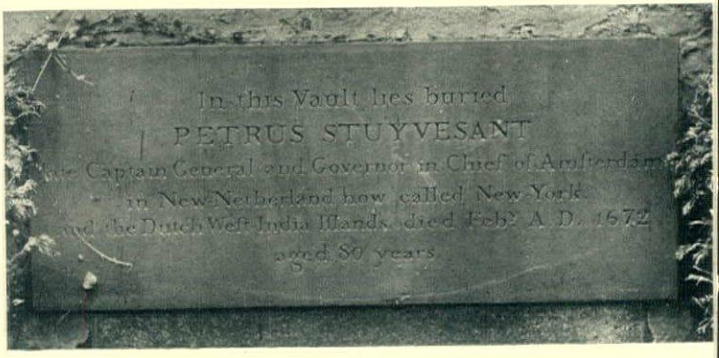


Oak Hill Cemetery, Washington, D. C.
Adapted from a 13th Century cross

Wainwright Mausoleum, St. Louis, Mo.
Louis H. Sullivan

St. Marks in the Bowery, New York, N. Y.





UNIT PLANNING—VII

AUDITORIUM SEATING AND HORIZONTAL SIGHTLINES

BY FREDERIC ARDEN PAWLEY

DIMENSIONAL planning factors affecting auditorium seating are all related to a basic unit, the seat. Definite limitations imposed by standard seat sizes, code requirements and layout schemes are obviously developed in multiples of individual units. Approached from this angle, solutions to problems of auditorium seating become a matter of planning for installation of proper seating units. Part I of this article and the accompanying Time-Saver Standards deal with such definite dimensional data.

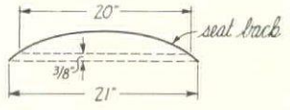
The more theoretical limitations based upon horizontal sightlines are discussed in Part II. These, being susceptible of study in plan, should be constantly in the designer's mind when making seating layouts. Methods of staggering seats and of determining distances from front row seats to stage or screen are developed from requirements for unobstructed vision.

In Time-Saver Standards are presented concise dimensional and tabular data adapted to the practical solution of common seating problems. No attempt is made to show theoretically ideal conditions or to standardize theater plan types. These vary with each job. They are often governed by economic, structural or esthetic considerations beyond the scope of this article.

PART I—SEATING

Theater chairs are manufactured in a range of stock sizes sufficiently wide to permit utmost freedom in making seating layouts. Seats are sized by width, center-line of arm to center-line of arm. They vary also in pitch of seat back and in material.

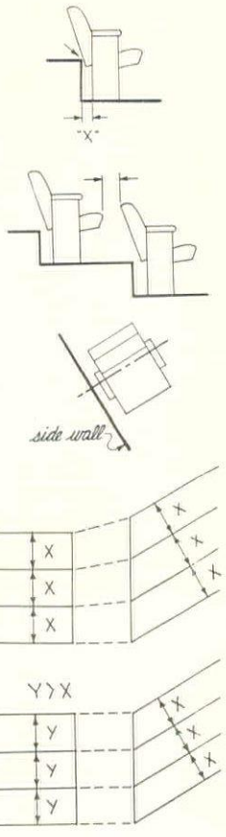
Seat supports are called "standards," those at ends of rows being *end standards* and those between seats, *middle standards*. Stock sizes of seats vary from 18″ to 24″ wide by inches. Size and back-to-back seat or row spacing are measured on the "chair-size" or datum line, which is approximately 2″ in front of the rear of middle



seat backs increase in depth by about 3/8" per 1" of increase in width

AUDITORIUM SEATING . . . . UNIT PLANNING

NUMBER VII



standards. Depth of seats varies only slightly.

Pitch of seat backs is measured either in degrees from the vertical or inches of horizontal projection. Provision of a variety of tilts is necessary to permit a comfortable view of the center of interest from seats in all locations within the auditorium. Selection of pitch, in general, should be made as follows: Portions of level or reverse-curved floors closest to center of interest require greater pitches. Steep banks such as balconies require more nearly vertical backs. Greater pitches also require increased back-to-back row spacing for easy passage.

Seats vary as to material from fully upholstered to veneered, including such types as *spring-edges, spring-back, box-spring, padded back,* and *veneer-back.* Combinations of spring edges and backs form the most luxurious and most expensive type. Box-spring chairs are almost as comfortable and less expensive. Veneered seating is suitable only for conditions of hard usage such as schools.

Upholstered chairs improve auditorium acoustics tremendously, particularly in halls not having capacity audiences at all times. Fully upholstered seats can be obtained designed for acoustic absorption when empty equal to that when occupied. Use of non-absorbent seating such as plain veneer chairs necessitates installation of increased amounts of acoustic plaster or similar materials.

Exact dimensional data relating to stock sizes, pitches and clearances are given in T-S.S. Serial No. 84 and No. 85.

CLEARANCES

Clearances are necessary for three principal reasons: to accommodate pitch of seat backs; to provide room for mechanics on jobs properly to secure seat standards to the floor, and to provide sufficient room for end seat standards.

Pitch. Horizontal projection due to pitch of seat-back must be checked carefully when laying out seats on risers. The back of the seat starts to slope at 12 inches above the floor, so that an increase in the height of a riser over 12 inches causes a direct increase in "X," the distance seat standards must be placed in front of the riser. With cramped back-to-back spacing, the worst condition exists when the top of a seat-back comes to the knee of a person in the next row back. This occurs when risers are approximately 12 inches high. Clearance necessary is normally small, since risers exist ordinarily in balconies where seats with small pitches may be used. Typical minima are shown on T-S.S. Serial 84.

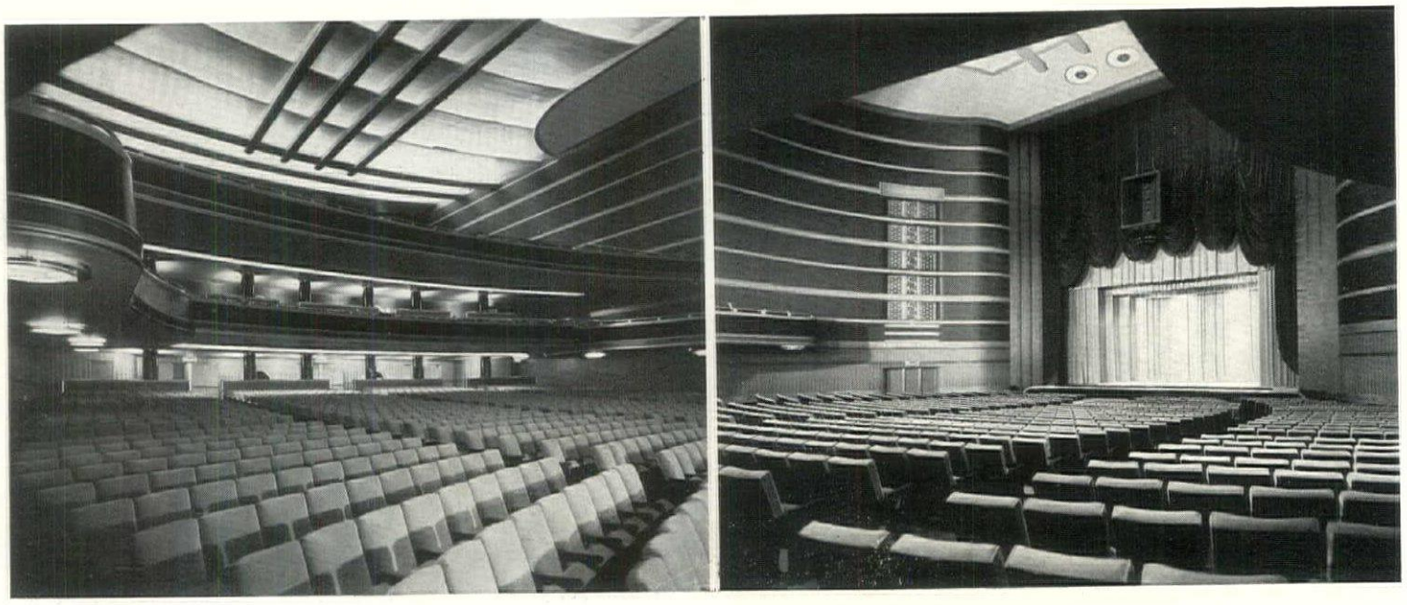
Clearance at side walls illustrated in Time-Saver Standards and required by pitch of backs, is unnecessary in a fan-shaped auditorium with side walls approaching radial lines, if seating is laid out in curved rows having the same center. This is not a usual solution but need for this clearance is minimized in any fan-shaped hall even though auditorium wall centers and row centers do not coincide. In all cases, there should be preferably 1″ clearance between seat-backs and walls.

Standards of seats must be set on level surfaces with sufficient room for workmen to use power drills. Coves of risers and bases should be limited to 1½″ approximate maximum radius.

When using pew seating side wall bases should not be coved if pews are built up to walls. Coves at this point would require scribing or shimming end standards.

End standards require 1½″ additional space at each end of a row. In balconies having risers, this allowance is normally increased to 2½ inches.

End seats of rows may be chosen from the smaller sizes, since their location provides elbow-room for occupants without interference on one



Kansas City Auditorium. Left: seats laid out in curved rows provide a maximum of comfort for spectators besides reducing wear on upholstery and strain on seats. Right: use of curved aisles introduces automatic staggering of seats without destroying alignment at aisles. Use of fully upholstered seats reduces acoustic problems

side. The smallest desirable end seat is 19″ wide. Intermediate seats should be at least 20″ wide, preferably 21″ or 22″, to avoid crowding.

ROW LAYOUTS

Rows may be straight or curved in plan. When rows are straight, spectators at sides of auditorium must twist in their seats to view the center of interest. The results are personal discomfort for spectators and undue wear and strain on seat upholstery and frames. An approximation of curved rows may be obtained by laying out side seating rows at an angle to center rows.

Canted side banks. When side banks are laid out at an angle to straight rows in center banks, difficulties caused by the failure of rows to line up across aisles are aggravated in areas with risers. Either steps in aisles must be canted at a still different angle, or central banks of seats must be spaced more widely than side banks.

Curved rows. A practical minimum radius for seating is 20 feet. An absolute minimum of 8 feet is possible with special tapered seating. Compensating hinges with pivoting elements are also necessary to avoid binding. When designing a sloping floor for curved rows of seats, the floor slope should be a compound curve to avoid tilting seats at sides of auditorium.

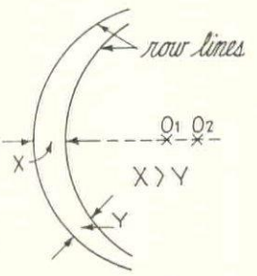
A compromise with the ideal of a fixed center for radii of seating rows is often found. It is argued that by flattening the arc of the first row a few seats are gained. These are poor seats, but because the practice is common, a related problem should be mentioned. Lengthening of the radius of first row of seats often places the center point behind the rear wall of the stage. How can such an arc be laid out on a job in which the rear wall already exists?

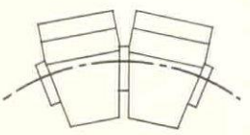
The simple geometrical method shown in the margin solves the problem. The first row radius is set off on the center-line of the house in a reverse direction with center at 0_2, and an arc, AB, drawn. Then CD is drawn, a straight line perpendicular to the center-line and tangent to arc AB. Next, a number of short lines are laid off parallel to the center line, and the distances intercepted by arc and tangent are set off on the stage side of the tangent. These establish points on the desired arc XY.

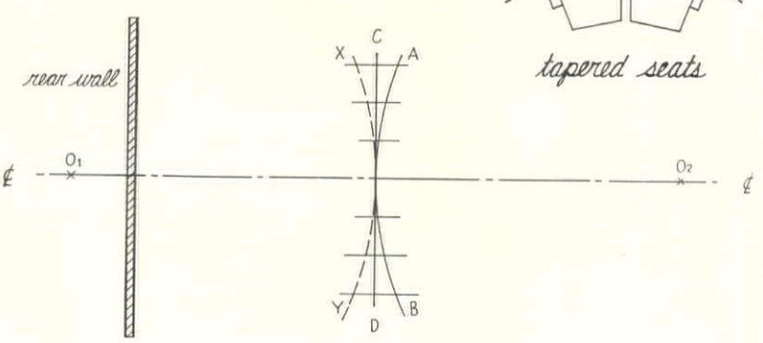
A screed for the concrete slab is set on this curve for the first row. The next screed can be placed by measuring with a rough T-square of fixed length, depending upon the method of curving the floor.

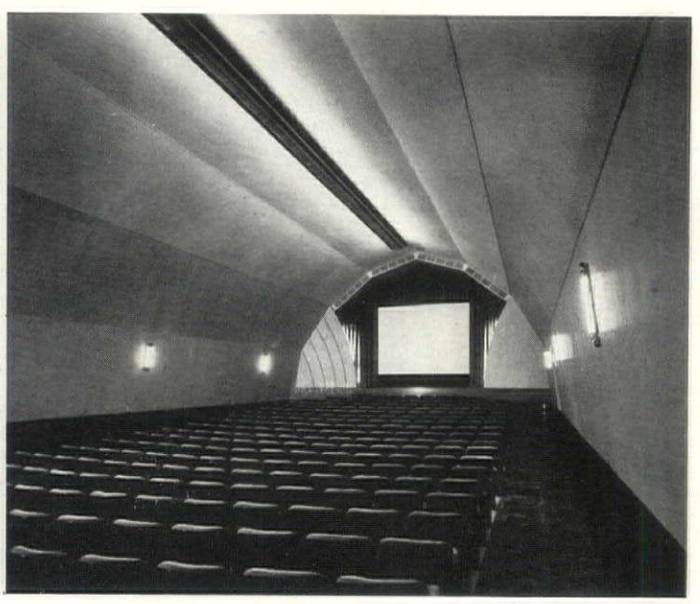
A radius with center points stepped back or forward is sometimes necessary in alteration work to fit such job conditions as established curves of aprons, orchestra pits, standee rails or rear walls. If stepped back, it is necessary to check carefully for legal back-to-back clearances at ends of rows because spacing with this type of radius becomes less at the sides.

Ventilators are of two general types: mushroom, with adjustable hood which may be set at various heights to regulate area of opening; and the type









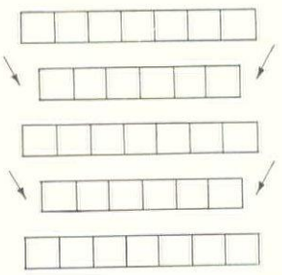
Left, also from Kansas City Auditorium; clearance is required between seat-backs and standee-rail. Note that curved rows continue to rear of auditorium. Right, Pix Theater, Scarsdale, New York; an intimate cinema in which, although no row contains more than 14 seats, the seating layout falls within the definition of "Continental Seating"

AUDITORIUM SEATING . . . .
UNIT PLANNING
NUMBER VII

which is built into middle standards of the seating and is shown on T-S.S. Serial No. 84.

Floor ventilators must be studied in relation to the seating. They must not catch or mar the shoes of persons sitting in the row behind; and they must not be high enough to obstruct seats when tipped up. The latter point must be watched in areas under balconies where exhaust openings must be opened as wide as possible in order to properly condition such a limited space, the foul air strata being low.

AISLES



Seats should be aligned at aisles. Banks of staggered seats such as those often used abroad cause jagged aisles with "pockets" which hamper exit of an audience. An additional problem is introduced when finish aisle flooring differs from general seating area flooring or when the aisle is heavily carpeted.

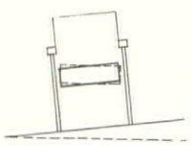
For instance, if aisles are of terrazzo, the rest of the floor of cement, seats will project irregularly into aisles, producing an unsightly jagged line, and terrazzo will be found unsatisfactory to drill for anchors for seat standards.

Balcony aisles. It is important to pour or build-in intermediate steps in balcony aisles after the seating has been laid out on the job, or even after the standards have been placed. In this way dangerous and unsanitary pockets can be avoided, since the steps can be shaped to the radial lines followed by the standards and thus fill these undesirable spaces. Such pockets are particularly bad when the aisle is not radial. Steps placed before the seating is laid out in such plans may have to be cut back on one side to get the last seat in.

Continental or aisle-less seating involves use of an unlimited number of seats in each row, increased back-to-back spacing and side aisles or foyers wider than usual. The building code of the National Board of Fire Underwriters and the new Chicago building code both permit Continental seating under certain restrictions. Not only are comfort and ease of passing through to an interior seat increased, but steel span over the auditorium is also decreased and more seats are placed in the best parts of the house. As will be demonstrated in the second part of this article, the greater back-to-back spacing also improves vision.

Ramped aisles for exits which encroach upon seating areas may also cause seats to be out of plumb. In special cases where such slopes cannot be avoided this condition may be corrected at considerable expense by changing the relative heights of hinges on each seat in order to keep seats level.

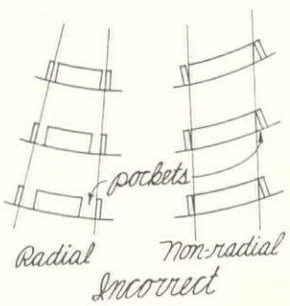
PART II—HORIZONTAL SIGHTLINES



THE STAGE PICTURE

Visual problems in the theater are best studied by comparative analyses of the perspective picture presented by the stage from various locations in the seating area. These correspond to the experiences of spectators, and other theoretical tests are meaningless if the stage picture is unduly distorted or obstructed.

Obviously, any stage composition relies for effect on the spatial, color and textural relations between actors, set and properties, and must be seen from a restricted area to retain any likeness to the scene as designed (see "Distortion" below).



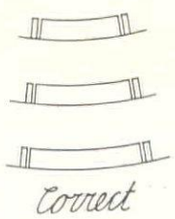
Horizontal and vertical sightline angles form a logical division of theater visual problems. This study will be limited to horizontal angles only. Horizontal sightlines are more closely related to seating layout since both are studied in plan.

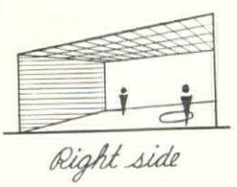
PHYSIOLOGICAL FACTORS IN VISION

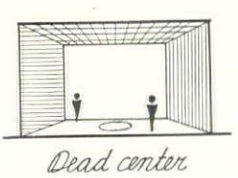
Horizontal visual range and viewing distances. Normal horizontal visual range may be assumed with reasonable accuracy to be 40°. It follows that to obtain a comfortable, full-width view a spectator must be a certain minimum distance from a screen or proscenium opening.

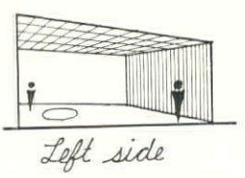
The minimum seating distance (AB in marginal diagram 1) is easily found to be 1.4 times S, which means that, because of the horizontal limits to normal vision, the first row of seats must be located at least 1.4 times the width of the screen from the screen, a theorem partially recognized at present by rules which allow a first row distance of one foot per foot of screen width, or 15 inches per foot of width. The former is based on 53° horizontal visual range, the latter corresponds to 43° 30′ (or 1.25 times screen width).

Diagram 2 shows that if 40° is the actual limit of the horizontal visual range, a location only one screen-width remote will make the outer intercepts (X and Y) difficult and tiring to see. These total over one-quarter (0.28) of the width of the picture in this case.









Provision of some distance between screen and front row of seats also helps to lessen for nearby spectators the jumpy effect of the motion of objects across the screen. The usual legitimate theater, however, has seats jammed right up to the apron, and the "bald-headed" row even carries a premium for one type of performance!

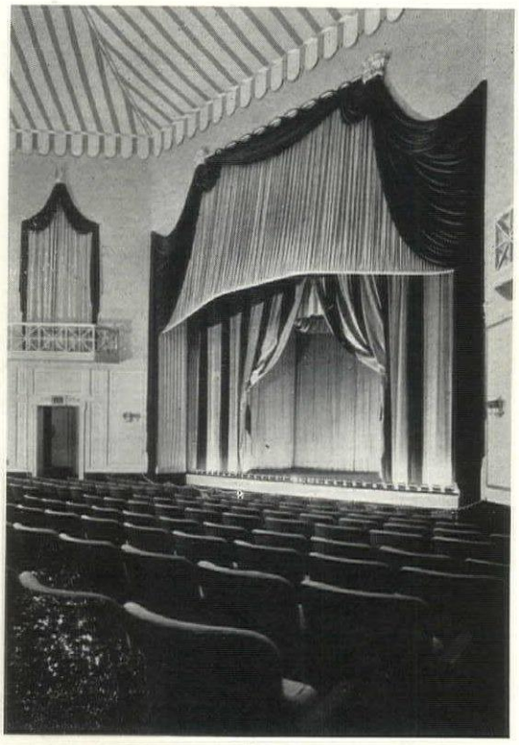
Plays are often restricted in space and utilization of stage possibilities for purposes of composition does not approach that of the motion picture screen; a result due in part to bad theater planning—for there is good scene-design talent. On the other hand there may be for special scenes a distinct psychological value in requiring the spectator's glance to travel from one side of the stage to the other. Such movement would emphasize the length of a procession, for instance, or contribute to the dramatic punch of sudden entrances. Such effects, often unplanned, are also limited to a necessarily small part of the conventional audience.

Ben Schlanger, an architect specializing in motion picture theaters, has studied optical relations between motion picture cameras which photograph the original scene, projectors in the theater showing it, and locations of persons viewing projected scenes. From these relations, the areas corresponding optically to the location of the camera will naturally become the best areas from which to view the projected picture. The fact that such areas must normally be at a limited distance from the screen (because the majority of scenes are taken at close range) results in a tendency toward smaller cinemas for better vision.

Schlanger recommends four times the screen width as the ideal viewing distance. He sets the maximum viewing distance at preferably less than six times screen width.

The maximum distance from the stage for seats is partly an acoustical problem. This is truer in the legitimate theater since the unaided human voice reaches only 75 to 100 feet with any range of dramatic effect. In the cinema, sound must be balanced between the volume tolerable for nearest seats and that necessary for those most remote.

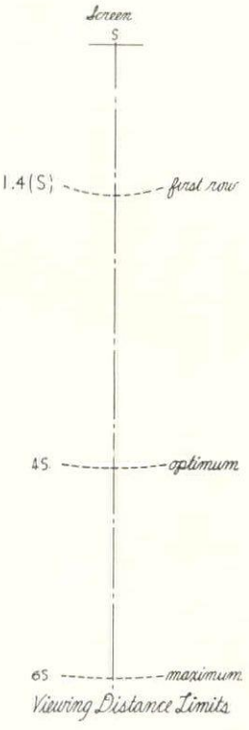
Binocular vision. In addition to the limitation of horizontal visual range and its effect on viewing distances, the phenomenon of binocular vision must be considered in seating design. It is to the fact that we have two eyes that we owe the normal development of perception of static and dynamic spatial relationships so necessary to the appreciation of stage compositions. The camera has one eye. This illustrates the fundamental physical distinctions between vision in the stage theater and in the cinema.

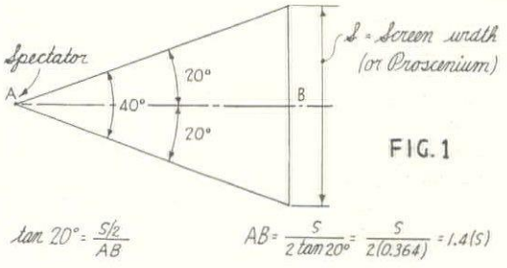


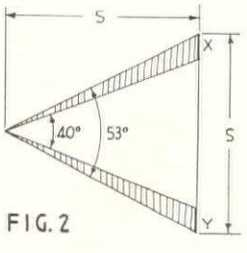
An excellent illustration of the automatic staggering of seats at the front of the theater which is produced by the use of a fan-shaped plan

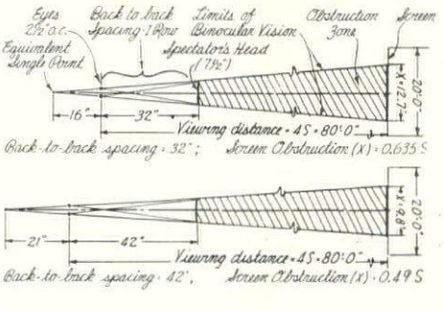
Binocular vision also affects our ability to see around obstructions such as the heads of spectators between us and the stage or screen. The width of obstruction varies directly with the distance from the screen and indirectly with the distance from the eyes to the obstructing object. This latter point can be proved in an elementary fashion by holding out your hand at arm's length, noting the size of the obstruction it causes in whatever scene you see, then noting the increase in this obstruction as your hand is moved nearer your eyes. Note also the difference in the hand's obtruction size and location when viewed with each eye singly and then with both eyes.

Similar obstructions formed by heads of spectators in the next row in front are illustrated in the diagrams for differing back-to-back spacings of seating rows. The two eyes are replaced by an equivalent single point. The relation between the constants selected (pupilary distance 2½ inches, head-width 7½ inches) is such that this equivalent point is always located one-half the back-to-back spacing away.

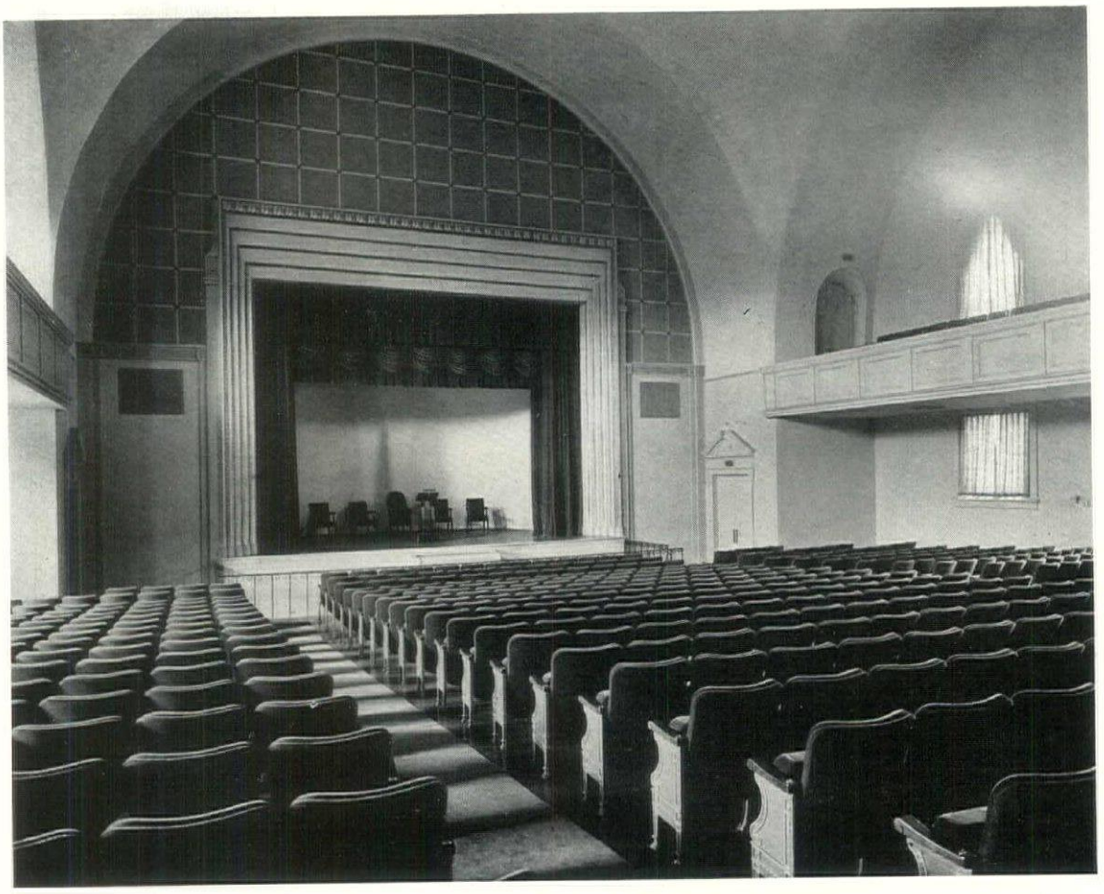




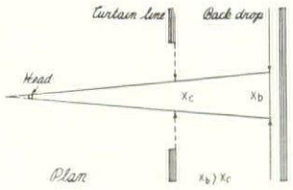


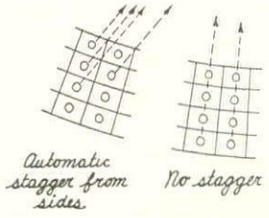


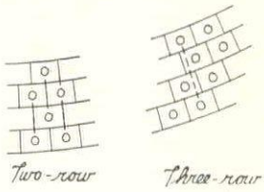
AUDITORIUM SEATING . . . . UNIT PLANNING NUMBER.....VII



Typical three-bank auditorium seating laid out in straight rows. Notice that because aisles are at right angles to seats rows end seats do not project. Seats at fronts of side-banks and balconies will not provide good vision but as this is obviously an auditorium rather than a theater, such a defect may be tolerated







Horizontal obstruction relationships can be expressed in foot units (all factors in feet) as:

$$X' = \frac{0.21\,(2aS + b)}{b}$$

In inches (all factors in inches) as:

$$X'' = \frac{2.5\,(2aS + b)}{b}$$

When X = Obstruction at screen or stage;
S = Screen or proscenium width;
a = A constant for the viewing distance under study (i.e. 3 or 4 times S, etc.) aS = viewing distance;
b = Back-to-back spacing of rows.

The fractional form of this formula clearly shows that obstruction width varies (1) directly with viewing distance; and (2) indirectly with back-to-back spacing.

The latter point should convince anyone skeptical of the value of greater row spacings than usually required by building codes. Increased comfort as an argument is thus reinforced by the increase in the amount of the screen or stage that can be seen. These combine powerfully to improve theater design in a way the public will appreciate and recognize by increased patronage.

In legitimate theaters an additional element, depth of the stage, makes horizontal obstructions also vary from the curtain line to a maximum at the back-drop.

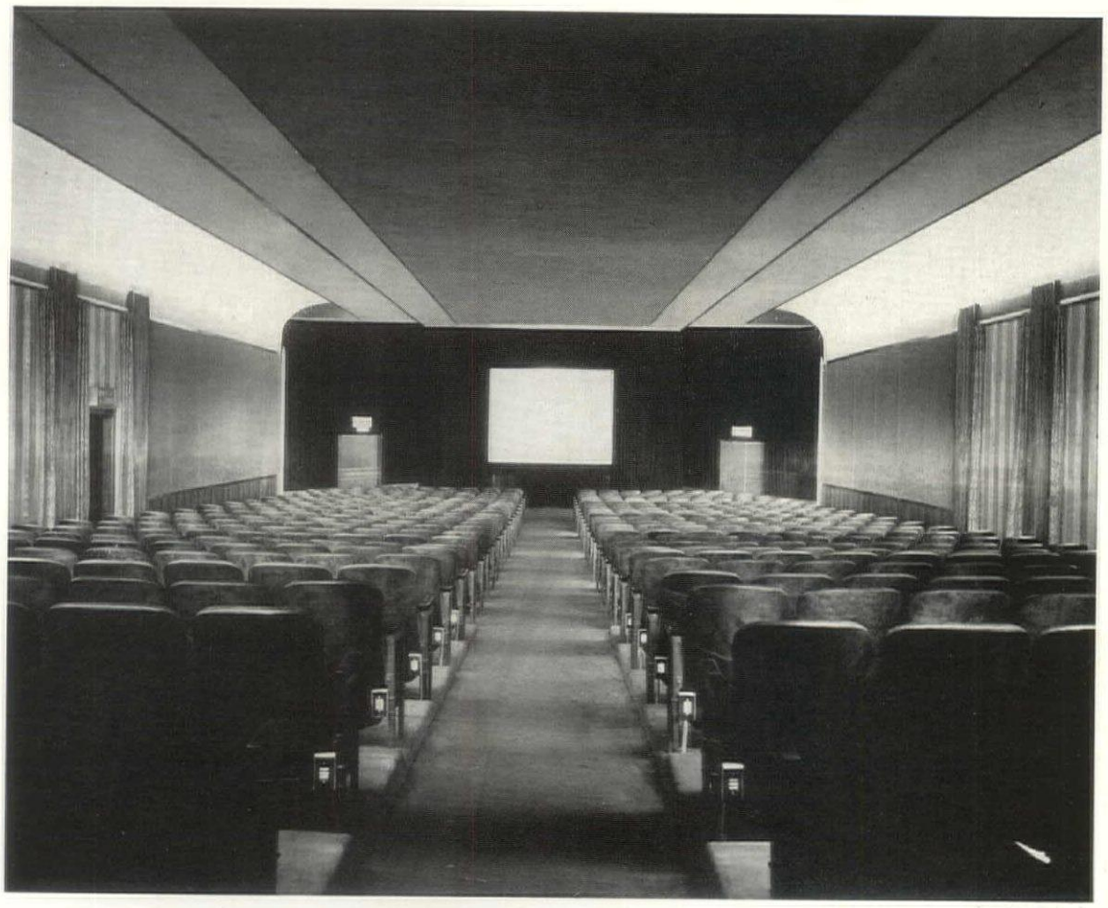
Staggering of seats. To avoid horizontal head obstructions, which are particularly noticeable in flat portions of auditorium floors near the stage or screen, it is customary to stagger the first ten rows of seats (approximately). Curved or compound aisles, or fan-shaped plans, also aid vision, the shortened rows giving an opportunity for staggering without jagged aisles (see "Aisles" T-S.S. Serial No. 84.)

Seats staggered in two-row multiples are the usual practice, the three-row plan becoming too involved for the benefit gained. Seats in side banks should not be staggered since heads of spectators will then be lined up.

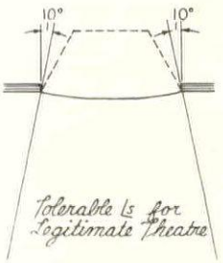
Staggering of seats is related to the subjects just discussed under "Binocular Vision," the result of staggering being an increase in the distance between the spectator's eyes and the obstructing head. This corresponds to doubled or tripled back-to-back spacing.

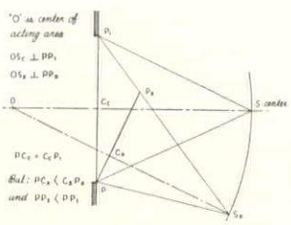
When seat rows are steeply pitched, as in balconies, staggering becomes unnecessary.

AUDITORIUM SEATING . . . . UNIT PLANNING NUMBER VII



The single aisle down the center of this cinema eliminates what would ordinarily be the best seats in the house. Seats are laid out in straight rows from front to back; there is no staggering. To partially overcome difficulties of horizontal sight-lines, pitch of floor has been increased using risers at the rear





DISTORTION

Schlanger has also published material on distortion in motion pictures viewed from extreme side seat locations, a problem with which the legitimate stage is not concerned because actors and properties are always seen in the round. The diagrams illustrating stage picture analyses, however, show that the stage picture is designed primarily for the center of the house and the conventional stage is partly hidden from side seats by the proscenium. Theater designing is now based on tolerances of such defects.

Tolerable angles for the legitimate theater should never be made more than 10° if good vision is a requirement. Even when the side flats of stage sets are splayed (see dotted lines in diagram) there are unsatisfactory seats in most existing theaters.

The effect of sitting to one side of a stage grouping, as already explained, is to change the relative sizes and locations of the figures. The diagram illustrates this distortion by the changes in the width of the picture plane (PP) and in the location of the center-lines of scenes (OS), perpendicular to successive picture planes.

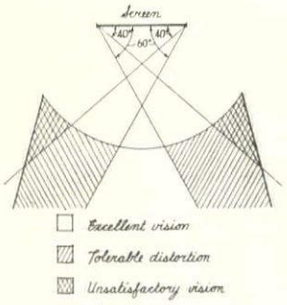
Side-angle tolerances for motion pictures are becoming increasingly strict. The more recent range is from 40° to 60°, measured as shown in the diagram at lower right of page.

TIME-SAVER STANDARDS

The following Time-Saver Standards contain information on seats and seating in concise tabular and diagrammatic form. In Serial No. 84, "Auditorium Seating—I—Basic Design," will be found stock seat sizes, clearances necessary and types of seating layouts. In Serial No. 85, "Auditorium Seating—II—Dimensions," tabulated dimensions of over-all depths at standard row spacings, aisle sizes, combinations of stock seat sizes available for various row lengths, and seating capacities of auditoria laid out in standard length rows are presented. Since these tables are mathematically related, their use is explained by a series of typical problems commonly met in planning seating arrangements to accommodate given numbers of persons and vice-versa.

Information so presented is intended, not to demonstrate ideal layouts, but to provide an accurate, practical means of determining requirements for any layout. Much of the data has not been published before.

The author wishes to acknowledge assistance rendered by the American Seating Company in preparing portions of this article.



AMERICAN ARCHITECT
TIME-SAVER STANDARDS

Serial No. 84

JULY 1937

AUDITORIUM SEATING—I—Basic Data

Seating standards for use in theaters, auditoria and similar buildings are developed on this sheet and T-S.S. Serial No. 85, "Auditorium Seating—II—Dimensions," which gives tabular data and methods for laying out seating plans. Material is the result of research by Frederic Arden Pawley. Sources include architectural offices specializing in theaters, and seating manufacturers.

TYPES OF SEATS

Construction and finish. Upholstery variations include *spring-edge* seats (most luxurious, more expensive); *box-spring* (nearly as comfortable); *spring-back* and *padded-back*. *Veneer-back* seating is suitable only for conditions subject to hard usage, as schools. Acoustical control is more satisfactory with upholstered types.

Sizes. Seats are designated by width, the depth front-to-back varying only slightly. Common sizes and recommended uses are shown below. In pew seating without individual arms, as in churches or arenas, a "sitting" is usually 18" wide.

Pitch of back will vary according to the vertical angle of vision to the center of interest. In general, greater pitches are used for front portions of orchestra floors and more nearly vertical backs for elevated banks such as balconies.

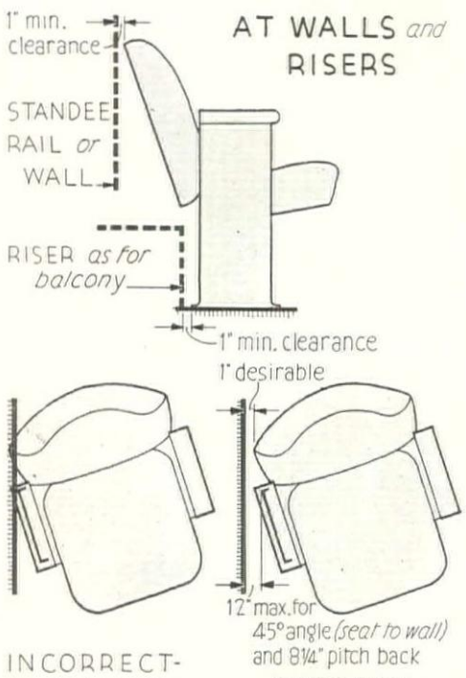
Clearances. In addition to those noted diagrammatically below, the following points should be considered: *Coves* at intersection of floor and walls (or risers) should be kept small (1½" radius) to permit close fitting and leveling of seat standards. *Balcony risers* cause cramped knee-room when 12" high, unless back-to-back seat spacing is increased. End clearances in balconies should be increased to 2½". *Pitch of back* greater than average (see drawing below) also requires increased back-to-back spacing.

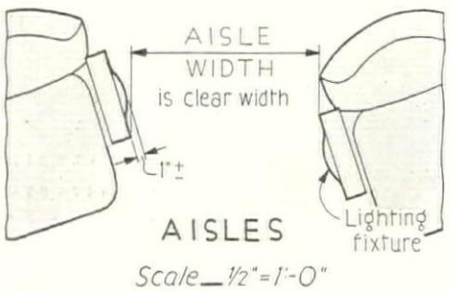
TYPES OF LAYOUTS

Rows may be straight across entire theater, side banks may be canted, or entire rows may be curved. Advantages of each type are shown in the accompanying diagrams. Min. radius for curved rows, due to seat construction, is 20'-0". Center for radii of rows and center of screen or stage need not coincide, although this is the ideal case. When rows are curved, a sloping auditorium floor should be a compound curve or amphitheater type to prevent tilted side seats.

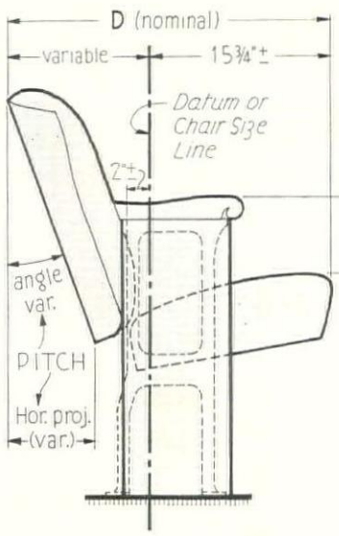
Aisles may be straight or curved, parallel or radial. Aisles should run at right angles to rows to eliminate "pockets."

Combinations of row and aisle types commonly used are shown in the diagrams. For layouts see T-S.S. Serial No. 85.

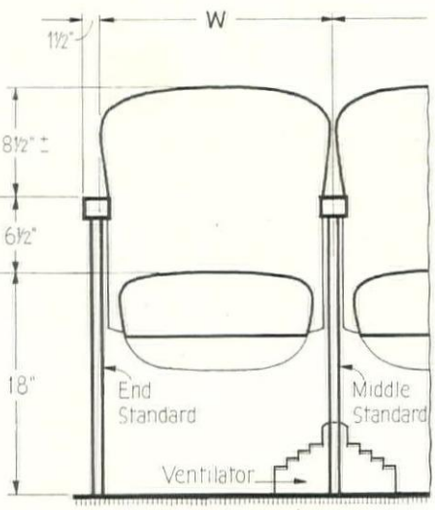




CLEARANCES



SIDE ELEVATION
(End Standard shown Solid; Middle Standard Dotted)



FRONT ELEVATION
Note additional allowance of 1½" for each End Standard

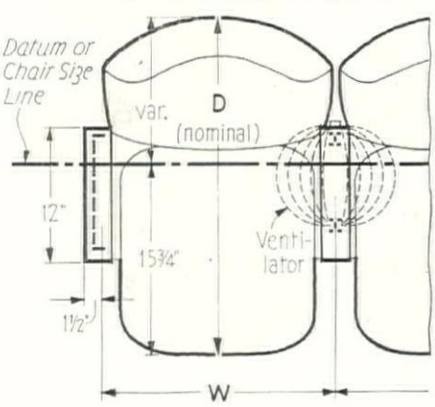
SIZES AVAILABLE

W*	18"	19"	20"	21"	22"	23"	24"
D	26⅞"	27¼"	27⅝"	28"	28⅜"	28¾"	29⅛"

*18" width not recommended; 19" width recommended only for ends of rows; 20" to 22" sizes for all locations

PITCHES: measured either by angle or horiz. projection (see diagram): 8¼" (usual max.); 7½", 6¾", (standard); 5¼" (usual min.) 4", 3" (special)

Scale ---------- ¾"=1'-0"



PLAN - *Several types of Ventilators are available. Preferred kinds are those occupying least space*

TYPICAL SEATS

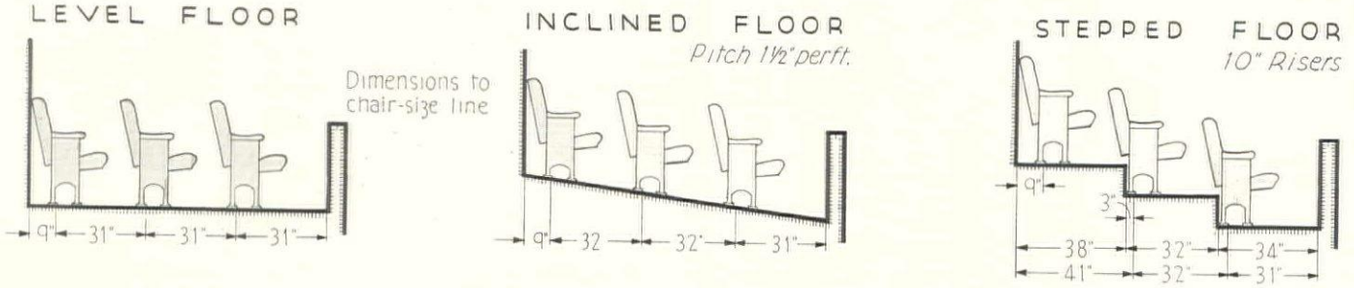
AMERICAN ARCHITECT
TIME-SAVER STANDARDS

AUDITORIUM SEATING—I—Basic Data

Serial No. 84
JULY 1937

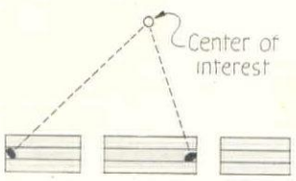
Continental seating, most commonly used abroad, involves use of rows with unlimited number of seats. Local codes in this country often either prohibit its use or impose many restrictions. However, existing examples have proved safe and comfortable due to increased back-to-back seat spacing (up to 42") which is essential to scheme. Larger than usual side aisles or foyers and many side exits are required.

Code requirements govern (1) maximum number of seats in a bank, (2) aisle width, (3) cross-overs (not uniform). Usual requirements are: (1) no seat more than 7 seats from an aisle; (2) min. aisle width of 3'-0", increasing by varying factors in relation to length of aisles. (3) Requirements for cross-overs, not uniformly subject to codes, vary. See examples and tables in T-S.S. Serial No. 85. Consult local authorities.



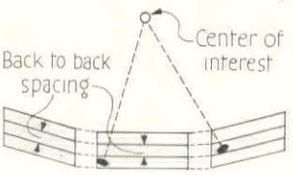
MINIMUM SPACINGS FOR VARYING FLOOR CONDITIONS

Based on stock sizes with 5¼" pitch back



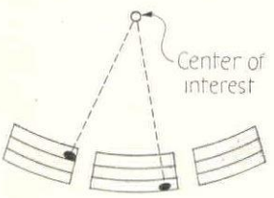
STRAIGHT ROWS

Uncomfortable for spectators at side, unequal stress on seats and backs



STRAIGHT, CANTED SIDE-BANKS

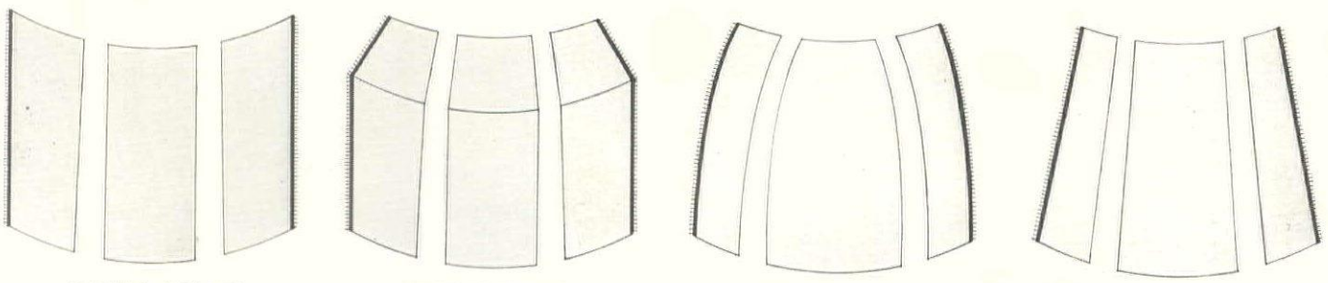
Same defects as straight rows though to less degree. Note that rows do not line up. Steps if required in aisles will be unsafe



CURVED ROWS

Recommended for comfort, ease of vision and safety

TYPES OF ROWS



STRAIGHT *(poorest type)*

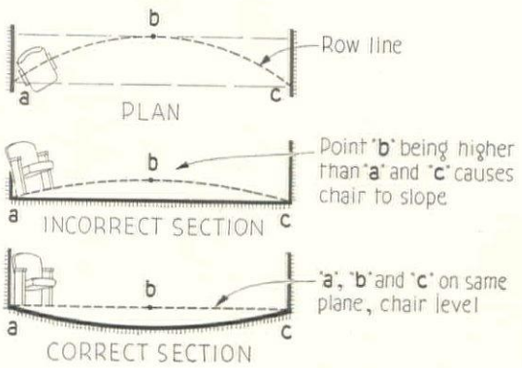
COMPOUND

CURVED

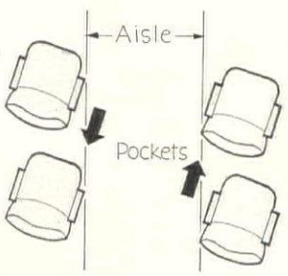
FAN *(ideally best)*

COMMON THREE-BANK LAYOUTS

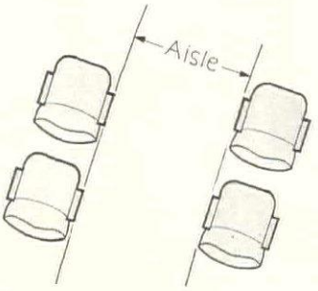
see also "Continental Seating" in text



SIDE RAKE *(Curved Rows)*



Aisles cutting diagonally across rows produce dangerous "pockets" and waste space



Curved or straight radial aisles reduce number and size of "pockets"

DIRECTION OF AISLES

AMERICAN ARCHITECT
TIME-SAVER STANDARDS

Serial No. 85

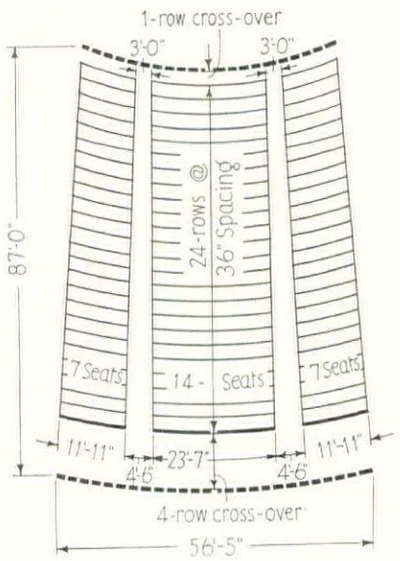
JULY 1937

AUDITORIUM SEATING—II—Dimensions

This sheet contains data, compiled by Frederic Arden Pawley, for determining auditorium dimensions. For data on seats and layouts see T-S.S. Serial No. 84.

Preliminary estimates may be based upon the "Rule of Thumb" which is sufficiently accurate for rough sketches.

Tables. For such purposes as financing, working drawings, etc., follow method outlined in Examples A, B, C and D. Variations between the two methods are to be expected.



EXAMPLE A: Given auditorium area = 87'-0" x 56'-5" or 4900 + sq. ft., how many 20" seats, 36" back-to-back?

1. Rows: In Table I, 36" col., at 87'-0" depth, No. rows = 29
   less cross-overs (1 row at front, 4 at rear) = — 5
   Rows available for seats = 24
2. Aisles: Table II, increase in aisle width per row = 0.75"; 0.75 x 24 =
   Total increase = 1'–6"
   Min. aisle = 3'–0"
   Max. aisle = 4'–6"
3. Seating Scheme: Select tentative scheme; 2 aisles, 2 dead-end seat banks, 1 center bank. From typical code, dead-end rows may be 7 seats long, center rows 14 seats. In Table IV, 4—20" seats = 23'– 7"
   7—20" seats = 11'–11"
   7—20" seats = 11'–11"
   From (2) above, 2 aisles = 9'– 0"
   Total width = 56'– 5"
   Seats per row = 28
4. Total No. of Seats: (Table III) or 28 x 24 = { 672 seats

EXAMPLE B: Given capacity of 672 seats, what are auditorium dimensions?
This problem is the converse of "A".

EXAMPLE C: What is radius of any row?
To radius of back of first-row seats add desired value from Table I.

EXAMPLE D: How many and what sizes of seats can be used in rows shortened by curved or radial aisles? See Table IV.

RULE of THUMB for SEATING AREA:

Allow 7½ sq. ft per Seat, including Aisles and Cross-overs.

This is sufficiently accurate for preliminary planning.

Table I - Depth Dimensions (Ft.-In.) for Various Spacings

No. Rows	Overall Depth for Seat Spacing (Back-to-back) of:										
	32"	33"	34"	35"	36"	37"	38"	39"	40"	41"	42"
1	2-8	2-9	2-10	2-11	3-0	3- 1	3- 2	3-3	3-4	3- 5	3-6
2	5-4	5-6	5- 8	5-10	6-0	6- 2	6- 4	6-6	6-8	6-10	7-0
3	8-0	8-3	8- 6	8- 9	9-0	9- 3	9- 6	9-9	10-0	10- 3	10-6
4	10-8	11-0	11- 4	11- 8	12-0	12- 4	12- 8	13-0	13-4	13- 8	14-0
5	13-4	13-9	14- 2	14- 7	15-0	15- 5	15-10	16-3	16-8	17- 1	17-6
6	16-0	16-6	17- 0	17- 6	18-0	18- 6	19- 0	19-6	20-0	20- 6	21-0
7	18-8	19-3	19-10	20- 5	21-0	21- 7	22- 2	22-9	23-4	23-11	24-6
8	21-4	22-0	22- 8	23- 4	24-0	24- 8	25- 4	26-0	26-8	27- 4	28-0
9	24-0	24-9	25- 6	26- 3	27-0	27- 9	28- 6	29-3	30-0	30- 9	31-6
10	26-8	27-6	28- 4	29- 2	30-0	30-10	31- 8	32-6	33-4	34- 2	35-0
11	29-4	30-3	31- 2	32- 1	33-0	33-11	34-10	35-9	36-8	37- 7	38-6
12	32-0	33-0	34- 0	35- 0	36-0	37- 0	38- 0	39-0	40-0	41- 0	42-0
13	34-8	35-9	36-10	37-11	39-0	40- 1	41- 2	42-3	43-4	44- 5	45-6
14	37-4	38-6	39- 8	40-10	42-0	43- 2	44- 4	45-6	46-8	47-10	49-0
15	40-0	41-3	42- 6	43- 9	45-0	46- 3	47- 6	48-9	50-0	51- 3	52-6
16	42-8	44-0	45- 4	46- 8	48-0	49- 4	50- 8	52-0	53-4	54- 8	56-0
17	45-4	46-9	48- 2	49- 7	51-0	52- 5	53-10	55-3	56-8	58- 1	59-6
18	48-0	49-6	51- 0	52- 6	54-0	55- 6	57- 0	58-6	60-0	61- 6	63-0
19	50-8	52-3	53-10	55- 5	57-0	58- 7	60- 2	61-9	63-4	64-11	66-6
20	53-4	55-0	56- 8	58- 4	60-0	61- 8	63- 4	65-0	66-8	68- 4	70-0
21	56-0	57-9	59- 6	61- 3	63-0	64- 9	66- 6	68-3	70-0	71- 9	73-6
22	58-8	60-6	62- 4	64- 2	66-0	67-10	69- 8	71-6	73-4	75- 2	77-0
23	61-4	63-3	65- 2	67- 1	69-0	70-11	72-10	74-9	76-8	78- 7	80-6
24	64-0	66-0	68- 0	70- 0	72-0	74- 0	76- 0	78-0	80-0	82- 0	84-0
25	66-8	68-9	70-10	72-11	75-0	77- 1	79- 2	81-3	83-4	85- 5	87-6
26	69-4	71-6	73- 8	75-10	78-0	80- 2	82- 4	84-6	86-8	88-10	91-0
27	72-0	74-3	76- 6	78- 9	81-0	83- 3	85- 6	87-9	90-0	92- 3	94-6
28	74-8	77-0	79- 4	81- 8	84-0	86- 4	88- 8	91-0	93-4	95- 8	98-0
29	77-4	79-9	82- 2	84- 7	87-0	89- 5	91-10	94-3	96-8	99- 1	101-6
30	80-0	82-6	85- 0	87- 6	90-0	92- 6	95- 0	97-6	100-0	102- 6	105-0
31	82-8	85-3	87-10	90- 5	93-0	95- 7	98- 2	100-9	103-4	105-11	108-6
32	85-4	88-0	90- 8	93- 4	96-0	98- 8	101- 4	104-0	106-8	109- 4	112-0

Table II - Aisle Width Increase (in inches) Per Row of Length

Seat Spacing Back-to-Back	Fire Underwriters Code: 3'-0" plus ¼" per 1'-0"	N.Y. City Code: 3'-0" plus 1½" per 5'-0"
32"	0.67	0.80
33"	0.69	0.83
34"	0.71	0.86
35"	0.73	0.88
36"	0.75	0.90
37"	0.77	0.93
38"	0.79	0.95
39"	0.81	0.98
40"	0.83	1.00
41"	0.85	1.03
42"	0.88	1.05

Proper factor x no. of rows = total increase in inches, Add to 3'-0" minimum aisle width

Table III - Seating Capacities, 1-32 Rows

No. of Rows	7 Seats	14 Seats	28 Seats	No. of Rows	7 Seats	14 Seats	28 Seats
1	7	14	28	17	119	238	476
2	14	28	56	18	126	252	504
3	21	42	84	19	133	266	532
4	28	56	112	20	140	280	560
5	35	70	140	21	147	294	588
6	42	84	168	22	154	308	616
7	49	98	196	23	161	322	644
8	56	112	224	24	168	336	672
9	63	126	252	25	175	350	700
10	70	140	280	26	182	364	728
11	77	154	308	27	189	378	756
12	84	168	336	28	196	392	784
13	91	182	364	29	203	406	812
14	98	196	392	30	210	420	840
15	105	210	420	31	217	434	868
16	112	224	448	32	224	448	896

AMERICAN ARCHITECT
TIME-SAVER STANDARDS

AUDITORIUM SEATING —II—Dimensions

Serial No. 85
JULY 1937

Table IV - Numbers of Seats (Stock Sizes) for Any Row Length

Row Length Ft.-In.	Row Length In.	19"	20"	21"	22"
5- 0	60	**3**			
5- 1	61	2	1		
5- 2	62	1	2		
5- 3	63		**3**		
5- 4	64		2	1	
5- 5	65		1	2	
5- 6	66			**3**	
5- 7	67			2	1
5- 8	68			1	2
5- 9	69				**3**
6- 7	79	**4**			
6- 8	80	3	1		
6- 9	81	2	2		
6-10	82	1	3		
6-11	83		**4**		
7- 0	84		3	1	
7- 1	85		2	2	
7- 2	86		1	3	
7- 3	87			**4**	
7- 4	88			3	1
7- 5	89			2	2
7- 6	90			1	3
7- 8	91				**4**
8- 2	98	**5**			
8- 3	99	4	1		
8- 4	100	3	2		
8- 5	101	2	3		
8- 6	102	1	4		
8- 7	103		**5**		
8- 8	104		4	1	
8- 9	105		3	2	
8-10	106		2	3	
8-11	107		1	4	
9- 0	108			**5**	
9- 1	109			4	1
9- 2	110			3	2
9- 3	111			2	3
9- 4	112			1	4
9- 5	113				**5**
9- 9	117	**6**			
9-10	118	5	1		
9-11	119	4	2		
10- 0	120	3	3		
10- 1	121	2	4		
10- 2	122	1	5		
10- 3	123		**6**		
10- 4	124		5	1	
10- 5	125		4	2	
10- 6	126		3	3	
10- 7	127		2	4	
10- 8	128		1	5	
10- 9	129			**6**	
10-10	130			5	1
10-11	131			4	2
11- 0	132			3	3
11- 1	133			2	4
11- 2	134			1	5
11- 3	135				**6**
11- 4	136	**7**			
11- 5	137	6	1		
11- 6	138	5	2		
11- 7	139	4	3		
11- 8	140	3	4		
11- 9	141	2	5		
11-10	142	1	6		
11-11	143		**7**		
12- 0	144		6	1	
12- 1	145		5	2	
12- 2	146		4	3	
12- 3	147		3	4	
12- 4	148		2	5	
12- 5	149		1	6	
12- 6	150			**7**	
12- 7	151			6	1
12- 8	152			5	2
12- 9	153			4	3
12-10	154			3	4
12-11	155	**8**		2	5
13- 0	156	7	1	1	6
13- 1	157	6	2		**7**
13- 2	158	5	3		
13- 3	159	4	4		
13- 4	160	3	5		
13- 5	161	2	6		
13- 6	162	1	7		
13- 7	163		**8**		
13- 8	164		7	1	
13- 9	165		6	2	
13-10	166		5	3	
13-11	167		4	4	
14- 0	168		3	5	
14- 1	169		2	6	
14- 2	170		1	7	
14- 3	171			**8**	
14- 4	172			7	1
14- 5	173			6	2
14- 6	174	**9**		5	3
14- 7	175	8	1	4	4
14- 8	176	7	2	3	5
14- 9	177	6	3	2	6
14-10	178	5	4	1	7
14-11	179	4	5		**8**
15- 0	180	3	6		
15- 1	181	2	7		
15- 2	182	1	8		
15- 3	183		**9**		
15- 4	184		8	1	
15- 5	185		7	2	
15- 6	186		6	3	
15- 7	187		5	4	
15- 8	188		4	5	
15- 9	189		3	6	
15-10	190		2	7	
15-11	191		1	8	
16- 0	192			**9**	
16- 1	193	**10**		8	1
16- 2	194	9	1	7	2
16- 3	195	8	2	6	3
16- 4	196	7	3	5	4
16- 5	197	6	4	4	5
16- 6	198	5	5	3	6
16- 7	199	4	6	2	7
16- 8	200	3	7	1	8
16- 9	201	2	8		**9**
16-10	202	1	9		
16-11	203		**10**		
17- 0	204		9	1	
17- 1	205		8	2	
17- 2	206		7	3	
17- 3	207		6	4	
17- 4	208		5	5	
17- 5	209		4	6	
17- 6	210		3	7	
17- 7	211		2	8	
17- 8	212	**11**	1	9	
17- 9	213	10	1	**10**	
17-10	214	9	2	9	1
17-11	215	8	3	8	2
18- 0	216	7	4	7	3
18- 1	217	6	5	6	4
18- 2	218	5	6	5	5
18- 3	219	4	7	4	6
18- 4	220	3	8	3	7
18- 5	221	2	9	2	8
18- 6	222	1	10	1	9
18- 7	223		**11**		**10**
18- 8	224		10	1	
18- 9	225		9	2	
18-10	226		8	3	
18-11	227		7	4	
19- 0	228		6	5	
19- 1	229		5	6	
19- 2	230		4	7	
19- 3	231	**12**	3	8	
19- 4	232	11	1 2	9	
19- 5	233	10	2 1	10	
19- 6	234	9	3	**11**	
19- 7	235	8	4	10	1
19- 8	236	7	5	9	2
19- 9	237	6	6	8	3
19-10	238	5	7	7	4
19-11	239	4	8	6	5
20- 0	240	3	9	5	6
20- 1	241	2	10	4	7
20- 2	242	1	11	3	8
20- 3	243		**12**	2	9
20- 4	244		11	1 1	10
20- 5	245		10	2	**11**
20- 6	246		9	3	
20- 7	247		8	4	
20- 8	248		7	5	
20- 9	249		6	6	
20-10	250	**13**	5	7	
20-11	251	12	1 4	8	
21- 0	252	11	2 3	9	
21- 1	253	10	3 2	10	
21- 2	254	9	4 1	11	
21- 3	255	8	5	**12**	
21- 4	256	7	6	11	1
21- 5	257	6	7	10	2
21- 6	258	5	8	9	3
21- 7	259	4	9	8	4
21- 8	260	3	10	7	5
21- 9	261	2	11	6	6
21-10	262	1	12	5	7
21-11	263		**13**	4	8
22- 0	264		12	1 3	9
22- 1	265		11	2 2	10
22- 2	266		10	3 1	11
22- 3	267		9	4	**12**
22- 4	268		8	5	
22- 5	269	**14**	7	6	
22- 6	270	13	1 6	7	
22- 7	271	12	2 5	8	
22- 8	272	11	3 4	9	
22- 9	273	10	4 3	10	
22-10	274	9	5 2	11	
22-11	275	8	6 1	12	
23- 0	276	7	7	**13**	
23- 1	277	6	8	12	1
23- 2	278	5	9	11	2
23- 3	279	4	10	10	3
23- 4	280	3	11	9	4
23- 5	281	2	12	8	5
23- 6	282	1	13	7	6
23- 7	283		**14**	6	7
23- 8	284		13	1 5	8
23- 9	285		12	2 4	9
23-10	286		11	3 3	10
23-11	287		10	4 2	11
24- 0	288		9	5 1	12
24- 1	289		8	6	**13**
24- 2	290		7	7	
24- 3	291		6	8	
24- 4	292		5	9	
24- 5	293		4	10	
24- 6	294		3	11	
24- 7	295		2	12	
24- 8	296		1	13	
24- 9	297			**14**	
24-10	298			13	1
24-11	299			12	2
25- 0	300			11	3
25- 1	301			10	4
25- 2	302			9	5
25- 3	303			8	6
25- 4	304			7	7
25- 5	305			6	8
25- 6	306			5	9
25- 7	307			4	10
25- 8	308			3	11
25- 9	309			2	12
25-10	310			1	13
25-11	311				**14**

End Allowances: Normal 3" allowance to accommodate 2 end standards per row is included above. For balconies with steps in aisles allow 2" additional.

Seat Sizes: Common sizes shown. Seats are also available 18" , 23" & 24" wide. 18" size not recommended. Limit use of 19" seats to ends of rows for comfort.

Choice of Seats: Note that for longer rows two choices of seat sizes are available. Example: Row length = 14'- 9" ; six 19" seats and three 20" may be used; *or*, two 21" and six 22" . Dotted lines separate choices. Dimensions not fitted by stock sizes are omitted.

BOOKS

THE NAOS PARTHENON. By Ernest Flagg. 143 pages, 9¾ by 12½ inches. Illustrations from drawings. New York: 1928: Charles Scribner's Sons. $10.

There have been indications in the professional journals from time to time that Mr. Flagg has delved deeply into the philosophy, ideology, and practical techniques practiced in Greek architecture. It was surely seventeen years ago that he discovered "what seemed to me conclusive evidence that the Greeks were in the habit of using the simplest practicable proportions." As a typical example, Mr. Flagg has brought together in this book the evidence and arguments concerning a single room in a single temple. This is but a fragment of a larger work on which he has been engaged, covering like evidence in connection with five whole temples. The task of presenting it, however, has proved so staggering that the author has found it best to bring this much of the evidence before the profession and others who are interested, partly in the fear that he will not live to finish his original self-imposed task. It is worth noting, incidentally, that in all of his demonstrations, Mr. Flagg has used measurements made by independent authorities who had no idea of their significance, rather than measurements that might have been even unconsciously affected by his own theories. The text is in both French and English in parallel.

FLATS. Design and Equipment. By H. Ingham Ashworth. Foreword by Arthur Greenwood. 222 pages, 8¾ by 11 inches. Illustrations from plans, diagrams, and photographs. Printed in Great Britain. New York: 1936: Pitman Publishing Corporation. $7.50.

A comprehensive analysis of the flat as designed and built chiefly in England but also in other countries. The author is concerned not only with architectural design, but with the economics, financial set-up, mechanical equipment, and construction. It is likely that the architects of America will find this material of academic, rather than practical interest, since our own problems in this classification of structures vary rather widely from those of our English brethren.

FRENCH ARTS AND LETTERS AND OTHER ESSAYS. By W. Francklyn Paris. Introduction by Frank Monaghan. 182 pages, 6¼ by 9½ inches. Illustrations from photographs and reproductions of other works of art. New York: 1937: G. A. Baker & Company, Inc. $2.50.

The decline of the essay as a form of literary art must be clearly in evidence to those who read current publication lists. All the more precious, therefore, is a volume of these flowers of relaxation brought into being, as they almost invariably are, in the writer's intervals between more serious and more spectacular creations. For one who would enjoy the thoughts, impressions, musings of a distinguished figure in the profession of architectural decoration, here is a delectable morsel.

THE SMALL CHURCH. How To Build and Furnish It, With Some Account of the Improvement of Existing Buildings. By F. R. Webber. 300 pages, 6¾ by 10 inches. Illustrations from photographs, drawings, and plans. Cleveland: 1937: J. H. Jansen. $3.50.

For years F. R. Webber has been editor and chief contributor to a periodical called *Lutheran Church Art*. His knowledge of ecclesiastical work, particularly in connection with the small parish church, has been so clearly in evidence as to have made his modest little paper a guide and stimulant not only to the clergy, but to architects whose interests were more clearly concerned with ecclesiastical work. The present volume should bring a wide audience to this man who, for years, has stood up and preached the gospel of honest construction, avoidance of sham, and the elements of good taste in liturgical art.

URBANISTYKA (Town Planning of Today). Vol. II. By Tadeusz Tolwinski. 436 pages, 7 by 10 inches. Illustrations from photographs and plans. Paper binding. Warsaw, Poland: 1937: Politechniki Warszawskiej. John Walczak, c/o Ervin Acel, 25 Beaver Street, New York, N. Y., American agent. $4.50.

If you are fluent in reading Polish, you may find the results of considerable research and study in this technical volume. Even if your linguistic attainments are not up to this, there is a summary in English at the end of each chapter, and the captions are in both Polish and English. Its records of work done cover most, if not all, of the countries in which broad scale planning is practiced.

DECORATIVE ART. The Studio Year Book, 1937. Edited by C. G. Holme. 178 pages, 8¼ by 11¼ inches. Illustrations from plans and photographs, both in color and half-tone. Printed in Great Britain. New York: 1937: The Studio Publications, Inc. Cloth, $4.50; paper, $3.50.

This is the thirty-third annual issue of this year book, and, as usual, it affords a representative showing of contemporary work not only in furnishing, but in pottery and glass, fabrics, and other accessories. Although the English architects and decorators are among the foremost in their uses of materials and in their handling of color, their rooms frequently startle American architects by reason of their failure to conceal radiators and in other ways to integrate the mechanical services.

MORE HOUSE FOR YOUR MONEY. By Elizabeth Gordon and Dorothy Ducas. 324 pages, 5½ by 8¼ inches. Illustrations from plans and pen drawings. New York: 1937: William Morrow & Company, Inc. $2.50.

Here is a book which demonstrates very clearly the principle that a layman properly informed can tell a fellow layman more about a technical subject than can the highly specialized technician himself. The authors have had unusual experience in studying homes as they are built and used, interpreting these findings for the public. It would be difficult to find any branch of the subject of home building which is not clearly and understandingly discussed in these pages. It is an excellent book for the architect to give the client who wants to know why and how every nail is driven.

INDEX TO A.S.T.M. STANDARDS AND TENTATIVE STANDARDS. As of January 1, 1937. 120 pages, 6 by 9 inches. Paper cover. Issued by the American Society for Testing Materials, 260 South Broad Street, Philadelphia, Pa.

THE AMERICAN SOCIETY OF HEATING AND VENTILATING ENGINEERS GUIDE, 1937. Vol. 15. 808 pages of technical data, 316 pages of catalog data, 6 by 9 inches. Illustrations from charts, diagrams, and tables. Catalog section illustrated. Bulkley Psychrometric Chart 16 by 20 inches in pocket. New York: 1937: American Society of Heating and Ventilating Engineers. $5.

Progress in heating, ventilating and air conditioning is always reflected in the ASHVE Guide. This year architects will find new data on air conditioning, particularly on problems of humidification, dehumidification, water cooling, automatic control, sound control, and air distribution. As usual, some of the data on insulating materials have been brought up to date to reflect new advances and recent tests. This edition completely supersedes prior issues and should take its place as an invaluable handbook in the library of every architectural office.

Project:
WAIKIKI THEATRE
Honolulu

Architect:
C. W. DICKEY

Carpet Counsel:
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TECHNICAL DIGEST

KEY TO PRESENTATION

Typical reference:
15 N'36:14-26 **gptv**

This indicates: Issue of November 15, 1936, pages 14 to 26 inclusive, presented according to the following key:

d—detail drawing **g**—graph **p**—plan
s—section **t**—text **v**—photo view

Accordingly, **gptv** means graph(s), plan(s), text and photographic view(s) in the article.

ACOUSTICS

Acoustics and the requirements of school halls. (H. Bagenal). Journal Royal Institute of British Architects. (London). 10 Ap'37:552-555 **pst**

Deals with the conflicting uses of school auditoriums: must serve as class room, concert hall for voice or instruments, often as a cinema or theatre, and as a chapel. Brief notes on the details of making a workable minimum stage. The great value of adjustable seating capacity is illustrated by plans with supplementary areas which can be cut off with movable partitions.

COLOR

Colour. (Ozenfant). Architectural Review. (London). Ap'37:195-198 col. **dt**

Another in a series of excellent articles on color. This gives a general explanation of the Ostwald color chart and gives typical examples of the rules based upon this systematic color classification. The point is stressed that a method is necessary as a starting point, but that any art-quality is due to individual freedom based on a knowledge of the limitations of method.

COSTS

Cost of reinforced concrete house. (C. P. Ulmer). American Builder. Ap'37:108 & 7½p. **pst**

Description and complete cost breakdowns of the Purdue Housing Research Project House No. 3, finished July, 1936. Six-inch reinforced concrete walls, 2½ and 4-inch floor and roof slabs on 8-inch concrete joists. The labor and material cost breakdowns are given in elaborate detail.

Cost analysis of wood frame and stucco house. (C. P. Ulmer). American Builder. My'37:65-70, 2½p. **pst**

Description, labor and material cost breakdowns of Purdue Housing Research Project House No. 1. Balloon frame with studs spaced 18 inches o.c. Plan developed on 3-foot units. Mineral wool bat type insulation, ¼-inch plywood interior finish. No basement.

CONSTRUCTION

Biotechnics. (K. Honzik & P. M. Shand). Architectural Review. (London). Ja'37:21-22 **tv**

Essay on functional design and the vegetable world, demonstrating by close-up photo views the amazing similarities between reinforced concrete construction and the leaf structure of the *Victoria Regia*, a huge tropical water-lily.

Bent, glued rafters make strong barns. (G. N. Brekke). American Builder. My'37:74-75 **dstv**

Shop-fabricated curved rafters to frame pointed arch barn roofs in the Middle West. Based on Scandinavian practice, these are proof against sagging and strong against wind storms. The rafters are over 30 feet long and span barn widths between 30 and 36 feet. They may also be used for segmental roofs.

Building quake-proof frame walls. (A. L. Brinkman, from Architect & Engineer). American Builder. My'37:84 **dt**

Brief discussion of methods followed in Berkeley, California, since the 1933 quake. Double diagonal braces with vertical cripples notched in, and diagonal sheathing on both sides of wall are among recommended features.

Faults that indicate the Jerry Builder. (Ntl. Builder, South African Builder. (Johannesburg). Mr'37:15, 17 **stv**

Brief article on common building defects, including details of porch and bay window construction; effects and prevention of dry rot; foundation details; damp rising from ground and penetrating walls and roofs; finally, cracked stucco and plaster partitions.

Modern treatment of foundations on difficult sites. (B. Green). The Builder. (London). 2 Ap'37:731-732 **t**

Extracts from Lecture. Points considered include: loads to be carried; disadvantage of deep piers (own weight); heavy raft foundations; excavation adjacent to rafts; uniform settlement; safe pressures; and foundations to resist flotation (hydrostatic pressure).

Methods of damp-proofing. (L. E. Walker). South African Builder. (Johannesburg). Ap'37: 35, 37, 47 **t**

Examples of defects and their correction. Moisture condensed on masonry walls faced with hard plaster was minimized by provision of a thick absorptive plaster on inner side. The poor conduction of this coating presented a warmer surface to the air.

The article also includes notes on damp-proof courses, soluble salts, effect of interior plaster, and dampness on chimney breasts.

ELEVATORS

Research permits greater speed with safety in standard requirements for elevators. (J. A. Dickinson). Industrial Standardization. My'37:125-131 **tv**

National Bureau of Standards tests have shown hoistway interlocks, annual safety tests, and certified buffers to be important safety provisions. Notes on strength determination of worn cables, constant tension devices and cable equalizers, lubricants and other details.

Safe speeds under the Elevator Safety Code have risen from 800 fpm (1921) to 1500 fpm (1931 to date). Reasons to believe that there will be no general increase beyond this speed include:

(1) Change of air pressure disturbing to passengers. Air line pilots have general rule limiting ascent and descent to 1000 fpm.

(2) Increased travel necessary to attain speed and to stop. About 200 feet is required to start, build up to 1600 fpm and to stop. 2000 fpm would take 300 feet of travel.

(3) Prohibitive power requirements. "In some actual installations the power required to accelerate the car, hoisting ropes, counterweight, and rope compensation is several times the power necessary to handle the fully loaded car at contract speed."

HEATING & AIR CONDITIONING

The why of air conditioning. (B. F. Betts). American Building Association News. Ap'37: 204-214 **dtv**

A thorough analysis of the physical effects of temperature, humidity and air movement. Discussion of the comfort zone and the air we breathe. Illustrations of various types of equipment and controls, including a schematic diagram of the functions of winter air conditioning.

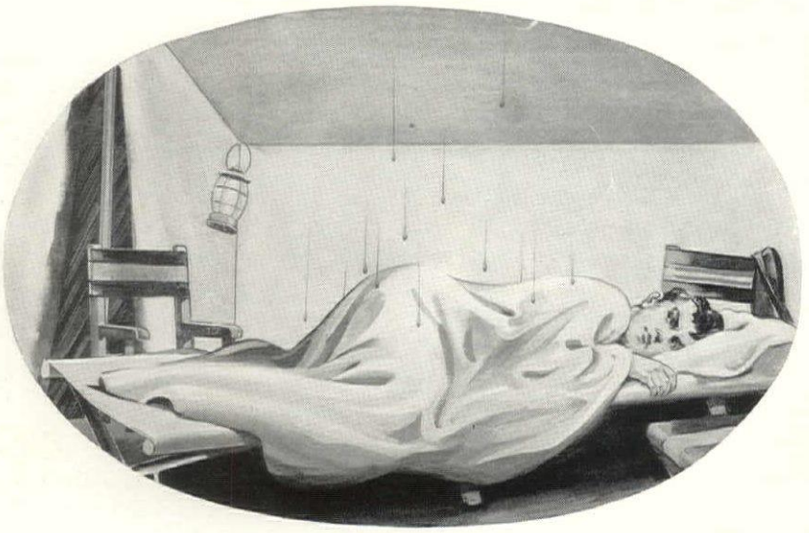
Air duct construction by lathers & plasterers. The Plastering Craft. 15 Ap'37:12-14 **stv**

A series on this new field for the trade has recently started in this magazine. This installment gives data on ducts with smooth cement scratch coats only, and on hanger details.

It is claimed that these ducts, closed with plaster-board soffit panels, can easily be opened at any point, cost no more than sheet metal ducts and do not rattle or make other noises.

More comfortable homes through air conditioning. (B. F. Betts). American Building Association News. My'37:266-281 **dtv**

Description of functions of complete air conditioning and methods of effecting



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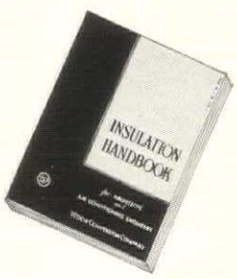

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them: Heating, cooling and partial cooling, humidification and dehumidification, air movement and air cleaning. Units and central systems, split systems. Controls, and the influence of house construction on air conditioning.

Plan for a modern basement. (Oil burners). (D. D. Corrough & L. M. Forbes). American Builder. Ap'37:88-92 **dptv**

Use of burner-heater units is increasing because of the efficiencies of correlated design. Gun, rotary and gravity gassifying types of burners are described and illustrated in two pages of an "Oil burner roundup." There are recommendations for proper wiring and oil tank installation. Controls are discussed.

LIGHTING

Reflected light. (J. Swarbrick). The Builder. (London). 30 Ap'37:940-941 **gst**

A measurement chart showing the amounts of light reflected, into rooms on the dark side of an area, from the bright surface of a building. Tabular values correlate various angles of obstruction and coefficients of reflection to obtain the luminosity of a wall and the illumination in foot-candles when the average sky illumination is 500 foot-candles.

MATERIALS & FINISHES

Timber in architectural design. (R. F. Jordan). Architect & Building News. (London). 30 Ap'37:138-139 **t**

Sources of timber and history of English timber building. Description of details of Swiss Chalet, a remarkably durable type. Structural adaptability of wood.

Statistics of U. S. underwriters are quoted as reporting more fires in brick than in timber houses—the former being characterized by this writer as "huge brick flues full of sticks."

Timber shrinks 75 times as much crossways as it does lengthwise. Therefore, long, small pieces are preferable to short, heavy ones, and American balloon framing is better from shrinkage viewpoint.

Color, costs and roofing are also considered.

Two lectures on timber. (R. A. G. Knight & E. H. Nevard). Architect & Building News. (London). 9 Ap'37:56-57 **t**

Brief report telling of research on the effect of humidity on the size of wooden members. The average conditions of relative humidity in a number of typical environments have been studied and these data make it possible to specify the seasoning process. Thus if wood is to be used for panelling in a location in which the moisture content is known to stay close to 12%, the wood may be seasoned to that degree of moisture content before installation. This will minimize movement.

The effects on timber strength of knots and other defects are considered at length.

Same. The Builder. (London). 2 Ap'37:740 **t**

International Review on Timber Utilization. (Vienna). Ap'37:30 p. **t**

An excellent digest in English of activities connected with timber use in all countries. The general section deals with progress of the Timber Utilization movement. There are also sections on building construction, aeronautical construction, timber preservation, seasoning, wood gas, new uses, counter-propaganda (a Continental publicity brochure on steel), and a classified, annotated bibliography of recent publications on timber.

Sapwood versus heartwood. (H. E. Desch). The Builder. (London). 16 Ap'37:842 **t**

Costs, durability, immunity to attack, shrinkage and strength are discussed at great length.

It is claimed that with proper seasoning (drying to less than 20% water content) and good ventilation in construction there is little risk in using softwood sap wood.

Modern research on brickwork. (L. W. Burridge). The Builder. (London). 30 Ap'37:943-944 **gt**

Bricks in foundations, methods of keeping out ground moisture and dampness coming through walls. Graph illustrating effect on the strength of brickwork of adding lime to mortar.

Continuation. 7 My'37:993-994 **t**

Renderings and stuccoes, entry of moisture by roof, infiltration, thermal properties of brick, reinforced brickwork.

Building sands. (H. G. Lloyd). The Builder. (London). 23 Ap'37:893-894 **dt**

Description of a scientific method of finding the relative value of sands for construction purposes. The calculation of relative areas of surfaces of sands—important in its effect on quantities of cement and water—is simply explained. There is a table of typical gradings for different purposes (British standard sieves). Several practical examples are worked out in the text.

Continuation. 7 My'37:997-8 **t**

Critical correspondence and author's reply.

Color pigments for practical requirements. (M. R. Paul). National Painters Magazine. My'37:18, 48 **t**

Description of the earth pigments: French Ochre, Raw and Burnt Sienna, Raw and Burnt Umber. Also the chemical colors: chrome yellows, basic lead chromate (scarlet), and green pigments.

Sources, manufacture and character of results: color and stability. This article is to be continued in the next issue.

When painting—Follow the sun. (L. R. Bradley). National Painters Magazine. My'37: 22, 47 **dt**

It is held that too few master painters consider the movement of the sun in relation to the surfaces they are about to paint. Painting in direct hot sun causes rapid formation of a surface film with undried paint beneath. The resultant stratification causes unequal contraction or expansion, rupturing the paint and causing "chalking" and similar defects.

It is suggested that painters schedule exterior work according to shade, starting in morning on western sides. Then north, east and south, if one day is sufficient for the job.

TYPES & PLANNING

Aeroplane and seaplane hangars. (A. Mehmel, from paper). Architect & Building News. (London). 7 My'37:168-170 **tv**

Discussion of plans, space efficiency, general design involving area of floor space, arrangement of supports, ratio between length and depth of plan, roof construction. Larger hangers have better space efficiency but greater fire risk. Maximum suitable clear span about 280 feet. Notes on lattice girder construction, rigid frames, evolution of steel plate roofs, stressed-skin roofs, and hangar doors.

Same. The Builder. (London). 14 My'37:1045-1047 **tv**

The modern airport. South African Builder. (Johannesburg). Ap'37:9-11 (-17), 45 **tv**

Brief review of international examples and development as illustrated at the Exhibition of Airports & Airways at the headquarters of the R.I.B.A.

Airport reference issue. Rassegna di Architettura. (Milan). Fe'37:41-84 **dgpstv**

An important reference article, p. 50-84, by R. Campanini, gives classification of fields, data for selection of locations, types of runway layout and materials with photos of fields in several countries including America, signal systems, illumination, planning of buildings, and hydro ports. There is a brief bibliography included.

Shops—Heating & other services. (B. & N. Westwood). Architects' Journal. (London). 1 Ap'37:571-574 **dstv**

Brief notes with diagrams: radiators, unit heaters, ventilation, pneumatic cash systems and central vacuum cleaning installations.

Shops—Protection. 8 Ap'37:615-618 **pstv**

Burglar alarms, window grilles, armor plate glass, bars, locks, fire protection.

Shops—Conclusion. 22 Ap'37:697-700 **v**

This long series on shops is closed with several pages of photo views of shop fronts in England and on the Continent.

THROUGH WINDOWS OF ALUMINUM

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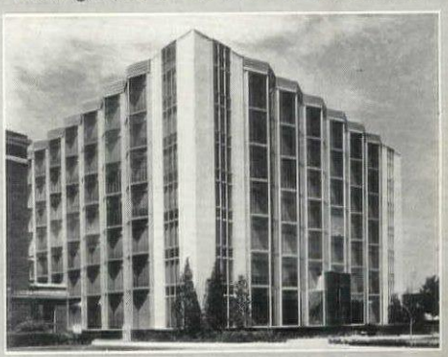
ALCOA ALUMINUM

Residence of Mr. L. P. Plym, Niles, Michigan—William Crane, Architect

U. S. Public Health Service Building, Washington, D. C.—J. H. de Sibour, Architect



A. O. Smith Building, Milwaukee—Holabird and Root, Architects

Pittsburgh Branch, Federal Reserve Bank of Cleveland—Walker and Weeks, Architects

Marshall Field Building, Chicago—Graham, Anderson, White and Probst, Architects

★ Look to economies in construction and maintenance, to greater beauty. No matter what the type — double-hung, casement or industrial — whether frames or sash are large or small, an Aluminum window is available for your use.

Precise dimensions and advanced designs in extruded shapes of Alcoa Aluminum produce windows light in weight, sash easy to operate. No rusting, shrinking, warping or swelling to interfere with their smooth performance. Small, strong sections increase the effective glass area.

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MEET THE NEEDS

CORK TILE

In the hydrotherapy and physiotherapy rooms of Denver Children's Hospital, quiet floors of Armstrong's Cork Tile lessen shock and fatigue. A more even temperature is also provided because cork tile floors are warm and draft-proof. Note the guide lines along which crippled patients are trained to walk. Cork tile is made in light, medium, and dark shades, in 5/16" and 1/2" gauges, beveled or unbeveled. Acoustical ceiling is Armstrong's Corkoustic.

ACCOTILE

Accotile forms an attractive and serviceable floor in the outgoing reception room in Denver Children's Hospital. Colors are regal blue and azure blue. Accotile is an asphaltic tile, the only type of resilient floor suitable for use over concrete in contact with the ground, on or below grade. Armstrong's new method of installation with asphalt sheeting makes Accotile floors warmer, quieter, more comfortable, and more damp-proof. Accotile is available in 34 handsome plain and marble colors. It is low in cost, moisture-resistant, fire-resistant, and odorless.

Tile Floors

OF MANY SPECIAL AREAS in Denver Children's Hospital

HERE are five reasons why it will pay you to standardize on Armstrong's Resilient Tiles for jobs like Denver Children's Hospital, where special areas require floors of widely varied properties:

1. Armstrong manufactures the only complete line of resilient tiles—Rubber Tile, Cork Tile, Accotile (asphaltic), and Linotile. There is a material for every purpose. Simply by turning to the Armstrong Catalog in *Sweet's File* (17/54), you can save hours of "hunting."

2. Having this complete line, our Architectural Service Bureau can offer you unbiased suggestions as to the best type for your problem.

3. By dealing with a single line of products of known dependability, you can be more sure of delivering a satisfactory job to your client.

4. The fact that these tiles are made by the makers of Armstrong's Linoleum will result in ready acceptance by your client and thus simplify your "selling job."

5. Your general contractor will find it easier and more economical to deal with a single flooring contractor who handles a complete line of products. Where a job involves special difficulties, the Armstrong dealer's broader knowledge of resilient flooring can be a real help.

The accompanying pictures show how Architect Burnham Hoyt was able to provide a suitable flooring for all sorts of rooms by choosing the proper type of resilient tile.

For data, see *Sweet's* or write now for file-sized "Tile Portfolio."

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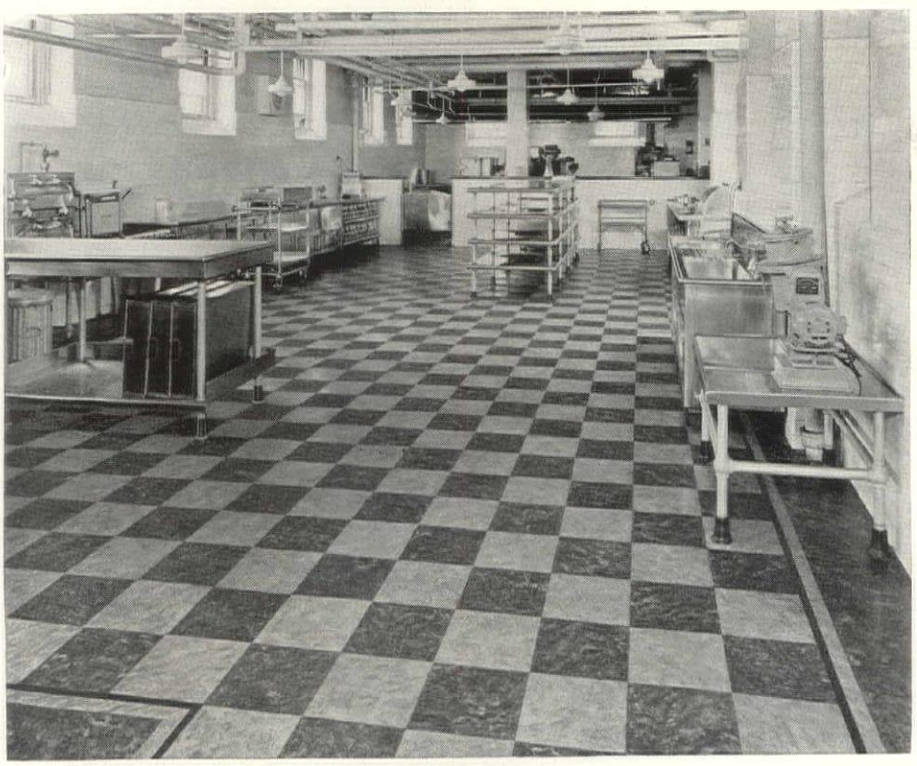

LINOTILE

Constant traffic does not mar the beauty of this Linotile floor in the kitchen of Denver Children's Hospital. Linotile is a linoleum-type composition tile. It is even more resistant to indentation than battleship linoleum. It is available in 30 plain and marble effects. The rich colors cannot be worn off because they run through the full thickness of each tile. Linotile is quiet, comfortable, and sanitary. Spilled liquids and grease wipe up without staining. Daily dusting and occasional washing and waxing keep Linotile floors clean and bright for years. Here, colors are foam green and ocean green set off by a narrow strip of black Linotile.

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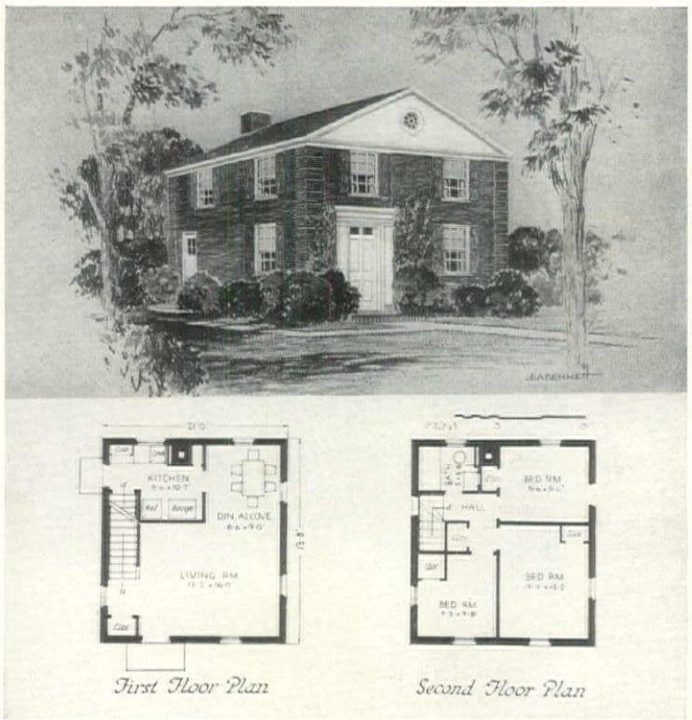
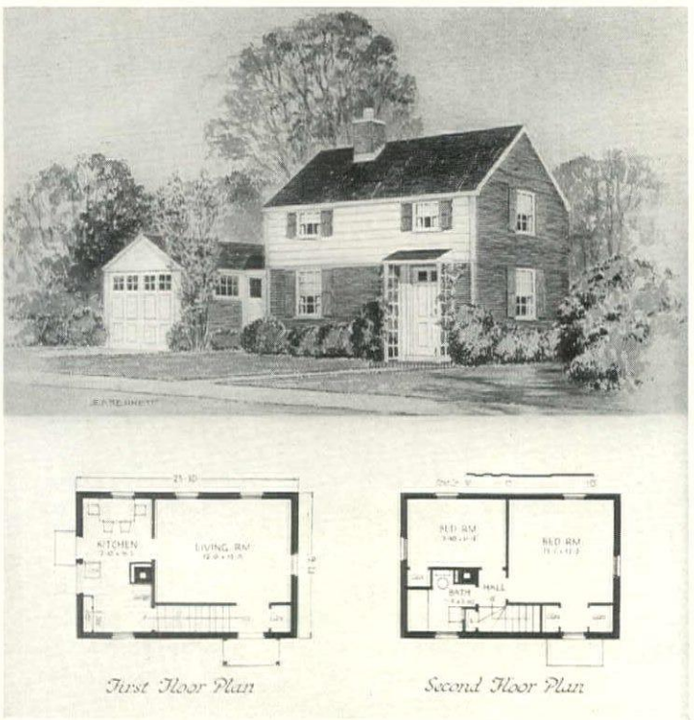


First Floor Plan — Second Floor Plan



First Floor Plan — Second Floor Plan

FHA SMALL HOMES NOW PLANNED IN BRICK

An unusually interesting series of small brick house plans has just been issued by Structural Clay Products Institute on behalf of the burned clay products industry of this country. These small houses, designed to be built at a cost of from $3000 to $4500, have been planned from the principles outlined in the famous Technical Bulletin No. 4 recently published by the Federal Housing Administration. These are the same demonstration houses which are being built throughout the country in frame construction under the auspices of the National Lumber Manufacturers Association. Now the brick and hollow tile industry comes forward with suggestions for the construction of the same houses with burned clay masonry exterior walls.

A study of the accompanying plans will indicate that the Structural Clay Products Institute in redesigning these houses has made practically no changes in the floor plans recommended by the Federal Housing Administration. In planning the exteriors for brick, however, several changes have been made in the arrangement of doors and windows to give a more pleasing architectural effect without in any way adding to the structural cost, except the slight additional cost of masonry work. Several minor architectural changes have been made in gables, eaves and other small details which add to the pleasing appearance of these exteriors. Brick details, such as steps and terraces, have been added and it is also possible to incorporate brick fireplaces in living rooms. Where basements are indicated floors call for the permanent non-wear finish of paving brick laid over the subfloor.

As the planning of these houses has been entirely subject to the principles recommended by the Federal Housing Administration and reviewed by their engineers, it is obvious that their construction can be carried out through FHA Insured Financing anywhere in the country.

In the booklet issued by the Structural Clay Products Institute, three methods of building exterior walls are indicated for these houses. Foundations can be constructed of hollow clay tile or brick. Exterior walls can be built of brick with hollow clay tile backing, or solid brick as selected. Also in many instances it is realized that these houses will be built of brick veneer construction. This booklet which can be obtained by addressing the Structural Clay Products Institute, Inc., 1427 Eye Street, N. W., Washington, D. C., presents illustrations of the houses in color and for each house, the complete floor plans, scale drawings of the four exteriors, and sectional drawings indicating how the walls can be constructed in either of the three ways mentioned. These plans will serve as a guide to indicate types of houses which can be built in the price range from $3000 to $4500.

In addition to the permanence and beauty of brick exteriors there is also to be considered the obvious saving in maintenance cost and often in the cost of fire insurance. It is interesting to note that under FHA Insured Financing the actual additional cost of building these small homes with brick exteriors represents only approximately $2.00 per month added to the total of monthly payments.

This replanning of FHA small homes in burned clay products is one of the early steps in an extensive promotional campaign now being undertaken by the Structural Clay Products Institute on behalf of the burned clay products industry of this country. In March of this year the Institute announced an unusually interesting small house competition calling for drawings or photographs of small houses having exterior walls of masonry construction. Copies of this competition program as well as copies of the booklet on FHA Homes in Brick can be obtained by addressing the Structural Clay Products Institute, Inc., 1427 Eye Street, N. W., Washington, D. C.

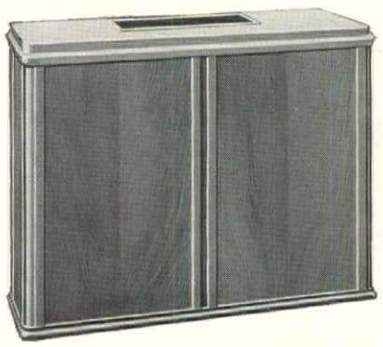
BRIXMENT IS STRONG!

WHEN tested in piers, the strength of Brixment mortar is almost equal to that of straight portland cement—is actually greater than that of the brick it binds! And this great strength is obtained *at no sacrifice of plasticity or workability.* ★ ★ Strong like portland—plastic like slaked lime putty—waterproofed during manufacture—prevents efflorescence and faded mortar colors—economical! These are the characteristics that have made Brixment the leading masons' cement. ★ ★ One part Brixment, 3 parts sand. Five bags will lay approximately 1000 brick.

Louisville Cement Company, *Incorporated,*
Louisville, Kentucky.

AIR CONDITIONING

ROOM COOLER



Two types of room coolers made in ¾ ton capacity are available from Scott-Newcomb, Inc., St. Louis, Missouri. These are air cooled and water cooled. The air cooled unit avoids the use of plumbing and can be plugged into any light socket and is furnished complete with an air duct connection for outside air for the condenser, as well as for ventilation in the room. The refrigerant used is Freon. The water cooled unit requires a water connection and is provided with a duct so that ventilation can be had where desired. The cabinet is approximately 40″ x 3′ x 18″. **813M**

PORTABLE AIR CONDITIONER

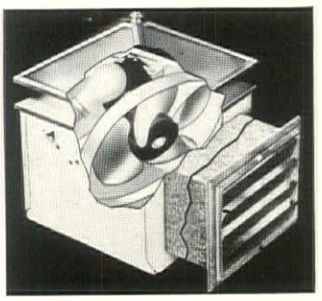
A new portable air conditioner designed to meet the demand for an inexpensive, attractive room air conditioner has been placed on the market by York Ice Machinery Corporation, York, Pa. Aside from cooling, dehumidifying and filtering dust and dirt from the room air, several features are claimed for this new model. The operating mechanism, consisting of the compressor and motor, is cradled so that it floats in the chassis of the unit; consequently its motion is not transmitted to the cabinet. The finish, termed Mexican Cedar, is of special interest. Three coats of lacquer, sprayed in a new way on the steel casing, produce a microscopic crinkled surface having a texture that looks and feels like leather. Capacitor type motors are used. The compressor is of standard York construction, having the same features of balanseal, centriforce oiler and pressure flex valves. **814M**

BLAST HEATER

A new blast heater for heating, ventilating, air conditioning and process application has been announced by Modine Manufacturing Company, Racine, Wisconsin. Elimination of expansion strain is one of the design features of the new unit. The expansion bend allows each tube to expand and contract as its temperature requires, without affecting the tube adjacent to it. Headers and tubes are cylindrical and seamless. These are brazed into a single rugged unit without use of gaskets, bolts or screw joints. All steam carrying passages of the condenser, including headers, tubes, and inlet and outlet bosses are of pure copper or copper alloy from the point where the steam enters to where it leaves in the form of condensate. Fins are metallically bonded to tubes. Greater heat transfer is said to be promoted by scientifically die-forming fins to give effective turbulence to air. Orificing of tubes has been eliminated by use of a special steam distributing plate which rations steam evenly to all tubes the full width of the condenser. The Modine Blast Heater is available in a large variety of sizes and capacities. **815M**

EQUIPMENT

LIGHTING AND VENTILATING UNIT



Just introduced is a new unit called Vent-O-Lite, a combination ceiling lighting fixture and exhaust fan that both illuminates and ventilates the rooms in which it is used. In appearance it looks like a modern lighting fixture. But hidden behind its prismatic glass panels is the patented assembly that functions as an exhaust system to draw off kitchen odors and force them outside the building through ducts buried in the ceiling between the beams. In bungalows and one-story attached dwellings no ducts are required. The Vent-O-Lite exhausting into the attic is said not only to cool the kitchen but also to force out bad attic air. Though primarily recommended for kitchen use, the unit may be used in card rooms, play rooms, finished basements or in any other locations where forced ventilation is desirable to keep the room ventilated and free from smoke. It is a product of the Vent-O-Lite Corporation, Jamaica, N. Y. **816M**

VOLTAGE REGULATORS

Ward Leonard Electric Co., Mount Vernon, N. Y. has developed two automatic electronic alternator voltage regulators. They have no moving parts. Instead of relying upon mechanical means to close contacts or change pressures an inertialess stream of electrons controls the regulating action. These regulators are controlled rectifiers deriving their power from the a.c. generator and delivering the rectified d.c. current to the shunt field of the exciter in an amount which is a function of the a.c. generator potential. The corrective action of Bulletin 5601 Regulators starts within one-half cycle of the slightest change in generator voltage; bulletin 5602 Regulators start within one cycle. The former model is designed so that it can be used with any known method of excitation. The latter model is designed for use with one exciter only. **817M**

LIGHTING BEAM-DIRECTOR ATTACHMENT

A new accessory for lighting fixtures, which makes it possible to convert existing reflectors of the overhead lighting system into supplementary lighting units without appreciably affecting their efficiency as general lighting units, was recently placed on the market. These "Beam-Directors" consist of auxiliary projectors of etched Alzak aluminum which are attached inside skirt of Benjamin RLM Dome reflectors. They are recommended for building up illumination

(*Continued on page* 114)

Permanently Efficient and Economical

USG RED TOP INSULATING WOOL

FIREPROOF...MOISTURE RESISTANT...DOES NOT DECAY

A Proved 4-inch Conductivity Coefficient of .066

A FORM OF RED TOP INSULATING WOOL FOR BOTH NEW AND OLD HOUSES

RED TOP STRIP WOOL—in 3 and 9 ft. lengths to handle large areas quickly and easily.

Showing stud application. Backed with heavy waterproof paper, RED TOP STRIP WOOL is easy to nail.

RED TOP JUNIOR BAT WOOL—in smaller sizes for use in complicated framing plans.

RED TOP NODULATED AND GRANULATED WOOL—in loose form for pouring or "blow-in."

Specify this unique Insulating Wool that never has to be replaced!

■ You can specify Red Top Insulating Wool* with full confidence that it will supply efficient, economical insulation. Made from the same chemically stable mineral base as glass, spun to a fluffy, resilient, long-fibered wool as light in weight as cotton, it has these important characteristics:

FIREPROOF — Red Top Wool will not burn or support combustion. It is approved by Underwriters Laboratories.

MOISTURE RESISTANT— It is inherently moisture resistant, which means that it maintains its insulating efficiency under all atmospheric conditions.

DOES NOT DECAY— Unaffected by air, water, acids or gases, it never crumbles or rots. Will not harbor vermin.

EFFICIENT— Independent laboratory and university tests show that a 4-inch thickness of Red Top Wool has a conductivity coefficient of .066 BTUs per sq. ft., per hour, per degree temperature difference.

ECONOMICAL— Because of its high insulating value, low first cost and long life, we believe you will agree that Red Top Insulating Wool is the most economical insulation your client's dollar can buy.

Send for free "Descriptive and Specification Data" book with sample of Red Top Insulating Wool.

ONLY RED TOP INSULATING WOOL GIVES YOUR CLIENTS SO MANY OUTSTANDING ADVANTAGES: ONLY USG DEALERS AND APPROVED APPLICATORS SUPPLY RED TOP WOOL!

UNITED STATES GYPSUM COMPANY
300 West Adams St., Chicago, Illinois

AAA-7

☐ Please send "Descriptive and Specification Data" book on Red Top Insulating Wool.

Name_____

Address_____

City_____ State_____

*Reg. Trade Mark

UNITED STATES GYPSUM COMPANY

TENTH ANNUAL SMALL HOUSE COMPETITION

Conducted by

HOUSE BEAUTIFUL

$2,300

IN CASH AWARDS

THIS YEAR'S PROGRAM

GENERAL The competition will be divided into three classes. These, with their awards, are as follows:

CLASS I—For houses of 6-9 rooms inclusive, built east of the Mississippi

First Prize..... $500
Second Prize..... $300

CLASS II—For houses of 6-9 rooms inclusive, built west of the Mississippi

First Prize..... $500
Second Prize..... $300

CLASS III—Houses of 5 rooms and under built especially for week-end or summer living

Special Prize..... $300

Honorable Mentions—Not less than eight nor more than twelve in all classes will be awarded at the discretion of the judges in the amount of $50 each.

Houses entered in the competition must have been completed within the past three years within the continental limits of the United States, and shall not have been published in any other national magazine (professional architectural magazines excepted). Breakfast rooms, pantries, baths, dressing rooms, halls, laundries and inclosed porches shall not be counted as rooms.

COMPETITORS Any architect or architectural designer is eligible to compete, and each competitor may submit as many houses as he desires in any or all classes. No house shall be eligible in more than one class.

ENTRY BLANKS A special entry form will be available to prospective competitors immediately upon application to the Competition Editor. This form shall in every case accompany the entry in the manner prescribed.

DATES All entries shall be shipped for normal delivery to the offices of the Competition on or before October 15, 1937. Judgment by the Jury will follow, and announcement of awards will be made to competitors immediately after the judgment. Prize-winners will be announced and prize winning entries will be published beginning with the January, 1938, issue of HOUSE BEAUTIFUL.

JURY The jury will consist of three members of the American Institute of Architects and the Editors of HOUSE BEAUTIFUL.

BASIS OF AWARDS Awards will be made by the jury on the basis of the following principal points:

1. Excellence of design
2. Economy in space and convenience of plan
3. Adaptation to lot and orientation
4. Skill in use of materials

REQUIREMENTS 1. Mounts. All entry mounts shall be a single piece of compo board, of white or light color, or board of comparable weight and stiffness. The size shall be exactly 30″ by 40″. On the lowest part of the mount shall be neatly lettered, in one or two lines, the inscription. "House Beautiful Small House Competition 1937." In the upper right corner of the mount shall be left space for a 3″ by 5″ card which will display the architect's name if the entry is selected for the Traveling Exhibit. A clear margin of at least half an inch shall be left on all edges of the mount.

2. Photographs. On the face of each mount shall be firmly secured at least three matt finish photographs of the house, as follows: A general exterior view, at least 14″ by 18″ in size; an exterior detail at least 8″ by 10″; an interior detail at least 8″ by 10″. Duplication of exterior views is not desirable.

3. Plans. First and second floor plans and a plot plan, either separately or incorporating first floor plan, shall be drawn in ink at any convenient scale and pochéd, with rooms plainly labeled and dimensioned. An arrow indicating points of the compass shall be included.

4. Legend. A legend shall be clearly presented to supply information as indicated by the special entry forms which are available to all competitors and one of which, properly filled out, must accompany each entry. This legend, as specified, shall supply all the factual information required by the jury in determining awards.

5. Anonymity. No contestant's name or address shall appear on the face of the mount but shall be lettered on the back of the mount and covered by a piece of opaque paper pasted around the edges. On the back shall also be attached a sealed envelope containing the required entry form properly filled out and a 3″ by 5″ card clearly lettered with the name and address of the competitor. This card shall be suitable for attachment to the face of the mount for later exhibition purposes.

6. Delivery. All entries should be carefully packed with stiff board for protection and shipped express prepaid and at owner's risk to the Competition Editor, HOUSE BEAUTIFUL, 572 Madison Avenue, New York City. The competition closes on October 15, 1937, and all entries shall be shipped in time to arrive in the offices of HOUSE BEAUTIFUL on or before that date.

7. Publication and Exhibition. All photographs and plans entered in this competition and chosen either for publication or exhibition shall remain in our possession until after such use. We request that houses entered in this competition be not submitted to any other magazine until after they are released by us. All contestants will be notified of the awards soon after they are made, and those whose houses are not selected either for publication or exhibition may withdraw them by sending the necessary notification. Entries will be returned express collect. Contestants whose houses are exhibited will be notified when the exhibitions are over. If they desire, their entries will then be returned upon the payment of transportation charges.

To insure good reproductions, glossy prints of those photographs to be published in HOUSE BEAUTIFUL will be requested from the architects. (Additional photographs in readiness are desirable.) Photographs of houses not awarded prizes but requested for publication will be paid for at $5 for each one used. Good, clear, reproducible photographs are essential.

8. Agreement. It is agreed that submission of entries carries with it acceptance of the above conditions and those contained on the required entry forms.

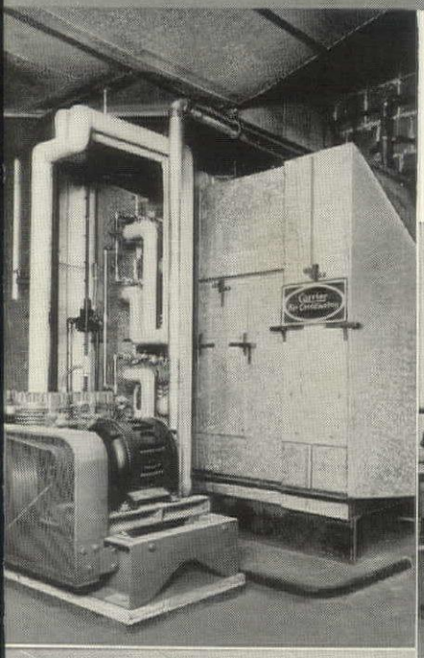
Copies of this program and entry forms to the desired number may be obtained from:

Competition Editor, HOUSE BEAUTIFUL, 572 Madison Ave., New York City

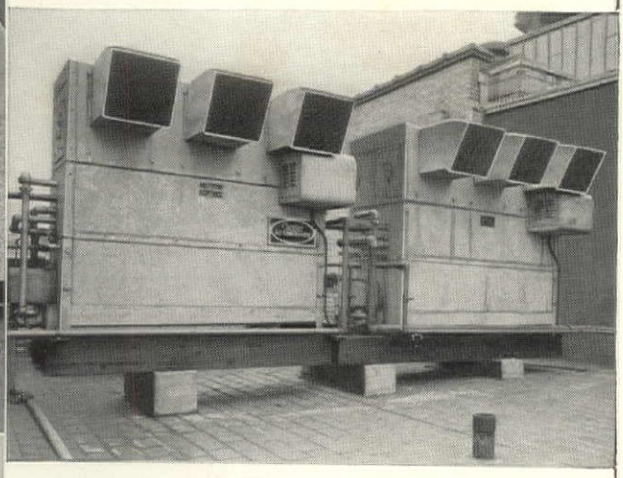
LIMITED WATER SUPPLY NO OBSTACLE

NOTE: Erected in 1913, the Leader Building in Cleveland, Ohio is typical of many office buildings throughout the United States where the water supply is limited because of small mains. How Carrier year around Air Conditioning was provided for the 13th and 14th floors of this building without enlarging existing water mains or extensive remodeling, is of interest to every architect, engineer, building owner or manager.

Carrier
Air Conditioning



ZONED CONTROL for the 13th and 14th floors was made possible by Carrier Dehumidifiers and Refrigeration machines like these, located on the upper floors. But in place of the usual water towers, spray decks or water condensers—any of which would require enlarging of water mains throughout the building . . .



. . . **CARRIER EVAPORATIVE CONDENSERS** were located on the roof. Using less than 5% of the water required by water condensers or other type of water equipment, these efficient condensers solved the Leader Building's problem completely, without enlarging water mains.

CONCEALED DUCTWORK is another unusual feature of the Carrier Air Conditioning installation in this 24 year old building. In this office, for example, ductwork is concealed by a slightly lowered, false ceiling, while a pan type outlet diffuses the conditioned air. This same ductwork leads to an adjoining . . .

. . . **EXECUTIVE OFFICE,** where the Carrier outlet is in the wall, over the door. Compare the two offices—notice that ceiling height has not been sacrificed by this inexpensive and efficient method of remodeling the Leader Building.

What is YOUR Air Conditioning Problem?

MAKING it possible to secure the benefits of year 'round air conditioning where water rates are high or the supply is inadequate, is but one of Carrier's many achievements. For more than 35 years, Carrier has devoted its efforts exclusively to solving such problems, including the invention of true air conditioning and to making economical, dependable air conditioning for every enclosure regardless of size or location.

• To refine the art Carrier developed such features as the By-Pass, Dew Point Control and Zoned Control. And when refrigeration needs outgrew existing equipment, Carrier broke away from traditional design to develop Centrifugal Refrigeration. Carrier installations in 99 countries of the world — ranging in size from one room to such famous structures as the U. S. Capitol, Macy's, Radio City, Palmer House and Los Angeles Times, bear witness to Carrier's air conditioning technique.

• Whether your problem is the air conditioning of a skyscraper, a theatre, a department store or a neighborhood shop — you'll find Carrier and Carrier representatives, well-qualified to solve your problems. Why not get acquainted with the Carrier representative today? He can show you many tested time-and-money savers. And show you how, by acting at once, you can still secure the benefits of Carrier Air Conditioning for this summer's use.

CARRIER CORPORATION, Desk 425
850 Frelinghuysen Avenue, Newark, N. J.

Please send me your latest Catalog in Sweet's — and name of the nearest Carrier Representative.

Name.....

Company.....

Address.....

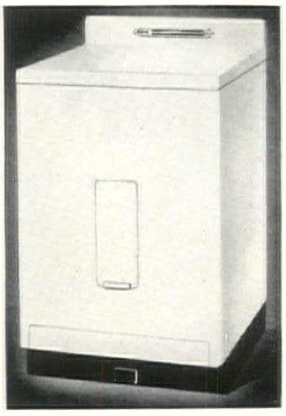
City.....

TECHNIQUES

(*Continued from page* 108)

over areas 30 to 36 inches in diameter on machines or work benches located within 10 or 12 feet of the reflector to which they are attached. Under these conditions, they are said to be capable of adding 10 to 15 footcandles more illumination. These attachments provide a wide range of adjustment making it possible to direct the beam of light nearly straight down from the reflector or into higher angles to reach more distant objects. Available in two sizes, these Beam-directors are manufactured by Benjamin Electric Manufacturing Co., Des Plaines, Illinois. **818M**

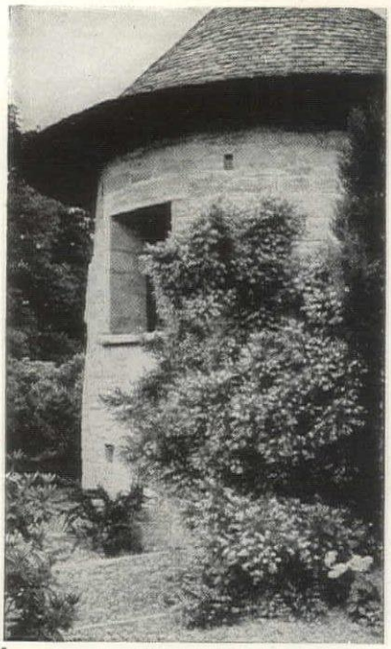
WATER HEATER



Rectangular in shape and styled to harmonize with Hotpoint ranges, dishwasher and other kitchen equipment, the new Hotpoint Vogue Cabinette Water Heater recently introduced by Edison General Electric Appliance Company, Chicago, is of 30 gallons capacity and gives additional work surface in kitchen. Its features include: galvanized tank guaranteed for a 300-lb. test pressure, 150 lb. working pressure; red brass sweat-type hot and cold water fittings and copper tubing—both fittings rigidly fastened to the bottom cover assembly; all welded bottom cover and base construction, seven inch base to conceal electrical and plumbing connections; all wiring enclosed in electrical metallic tubing and fittings. Rock wool in an average thickness of three inches is used as insulation. Work surface is finished in a stainless porcelain enamel. Body of heater is finished in a high gloss durable baking enamel over a primer. **819M**

TWIN AUTOMATIC FURNACE CONTROL

Streamlining of automatic heating and air conditioning equipment has been influential in the development of the new Type M-80 Combination Fan and Temperature Limit Control for warm air furnaces just announced by The Mercoid Corporation, Chicago. This unit has double adjustments provided for both the fan and limit switch settings. These adjustments permit individual setting of both the "high" and "low" operating points. The range can be adjusted over the entire scale and the differential can be set for very close operation or can be widened to meet requirements. A visible dial is provided which is calibrated from 50 to 300 degrees. The new combined control utilizes features of other Mercoid units. It automatically opens the electric circuit and thus acts as a safety limit control to prevent overheating. It prevents blowing of cold air into the room if the furnace is not hot enough to deliver heat. A sealed mercury switch is used as the operating medium. It consists of a glass tube containing sealed contacts of a special material and a



Garden Decoration and Ornament

for Smaller Houses

by G. A. Jellicoe

The author, who is well known as a town-planner and designer of houses and gardens, analyzes in this profusely illustrated volume the structural features and ornaments of gardens for small country houses, suburban and town houses. *The London Times Literary Supplement* praised it for its "beautifully chosen illustrations" and spoke of it as "of a quality rare in modern garden books . . . full of stimulating ideas." *Country Life* says "it should be of great value to home and estate owners and garden lovers all over the world." $6.00

The Supervision of Construction

by W. W. Beach

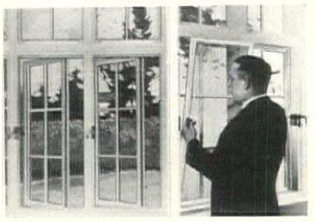
This book is perhaps the first comprehensive treatment of the supervision of construction to be published and is indispensable to architects, engineers, construction superintendents, technical libraries, students and all interested in architecture and engineering. Written by one of the best-known architect-engineers in the Middle West, it is an authentic, up-to-date handbook that fills a long-felt need. Within its 488 pages are included all the details of the superintendent's work; there are appendices, 20 diagrams and illustrations. $6.00

Contents

CHARLES SCRIBNER'S SONS

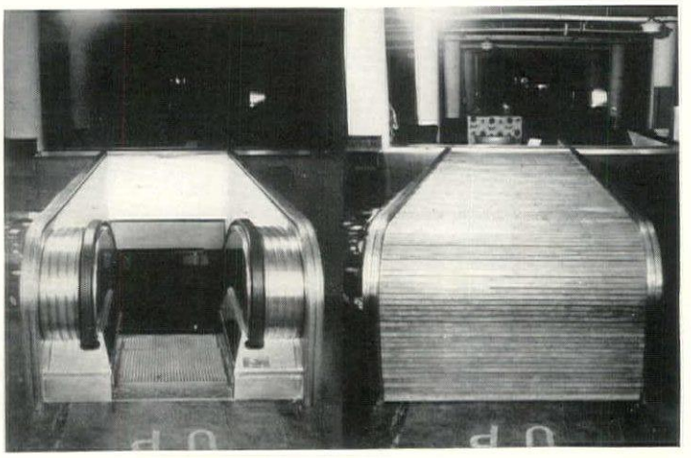
quantity of mercury to make or break the circuit when the tube is tilted. The M-80 Control Dial automatically regulates the tipping of the mercury switches thus turning on or shutting off the fan or blower at the desired temperature. 820M

INSULATED CASEMENT WINDOWS



One of the outstanding features of the new Curtis Silentite Casement is said to be its weather-tightness. The sash is weatherstripped on all four sides with a new type of weatherstripping developed and patented by the manufacturer. The complete unit—pre-fit—includes all operating hardware, screens and insulating glass, and operates from inside only. It is self-locking and has no inside projecting hardware. These sash may be used singly or in multiples of nearly any desired number, with or without transoms. There are four stock sash made—2, 4, 6, and 8-lights—all two lights wide, 8″ x 12″ glass size. The casement is said to be free from tendency to stick, bind or warp and to be proof against swinging, slamming or rattling. This new wood casement is manufactured by Curtis Companies, Inc., Clinton, Iowa. 821M

ESCALATOR COVERS



Fireproof shutter covers for escalators are being manufactured by Cornell Iron Works, Inc., Long Island City, N. Y. The cover illustrated coils on a horizontal shaft in the rear when open. It pulls shut by cables, using a detachable hand crank on a drum also located in the rear. The operation of cranking open or shut is accomplished in from eight to twelve seconds. All mechanisms are concealed. The escalator cover can be made to close automatically in case of fire by means of a fuse link releasing a closing weight. The speed of closure can be controlled by a governor when desired. The cover can also be operated electrically. 822M

METAL ROOF DECK

A new roof deck has been developed for the purpose of making clear spans without beam or center supports, giving a smooth ceiling that can be painted or decorated and easily cleaned. This deck is constructed of 18-gauge steel sheet formed in U shape pans on ten-inch centers, and locked

AZROCK in Techwood

In Techwood, Atlanta, Georgia, the huge government housing project, shown at right, over 277,000 sq. ft. of Azrock Tile was installed.

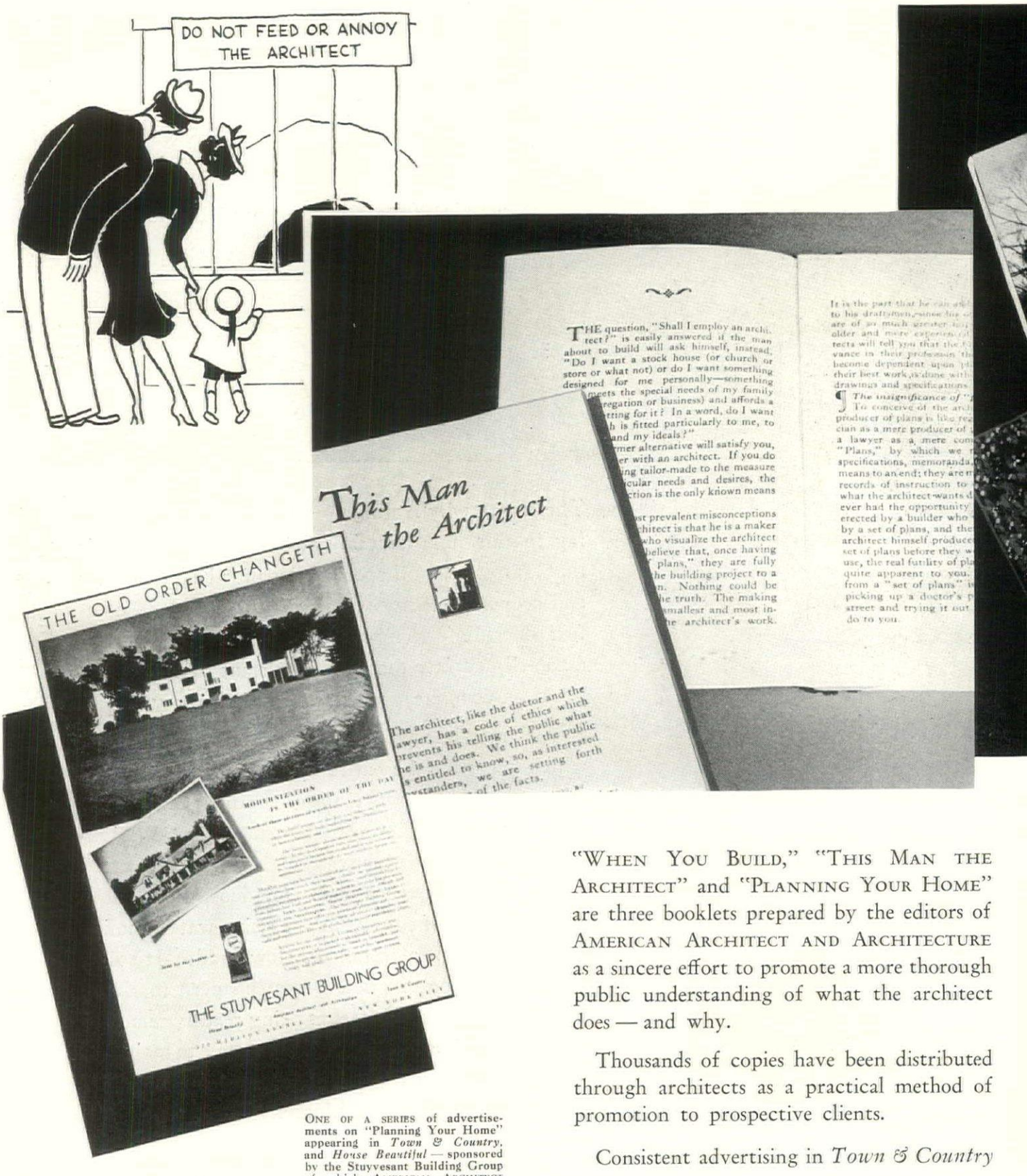
The reason why Azrock was selected as floor covering in this important architectural undertaking is that Azrock met all specifications for beauty, utility and economy. Azrock, resilient for quiet and comfort, durable for long wear under hard usage, forms a non-slip surface that is fire resistant (actually fireproof on concrete), moisture proof, sanitary.

Azrock may be obtained in a wide variety of colors, which penetrate the entire thickness of tile for permanence. The colors, plain or marbleized, and the different sizes of tile available encourage individuality of design, distinctive floor coverings. Azrock can be laid over any smooth sub-floor, old or new, at a minimum of time. No expensive waterproofing is necessary, when installed below grade. It splendidly resists the toughest treatment, even marks of burning cigars and cigarettes being readily removed. It is inexpensive in first cost, inexpensive to maintain. Altogether, Azrock Tile is a floor covering on which this country's most exacting architects can safely rest their good name.

AZROCK
TRADE MARK REG. U.S. PAT. OFF.
CARPET TILE

For name of your nearest Azrock distributor write to Uvalde Rock Asphalt Co., San Antonio, Tex.

THREE BOOKLETS WHICH GAVE THE PUBLI



ONE OF A SERIES of advertisements on "Planning Your Home" appearing in *Town & Country*, and *House Beautiful* — sponsored by the Stuyvesant Building Group of which AMERICAN ARCHITECT AND ARCHITECTURE is a member.

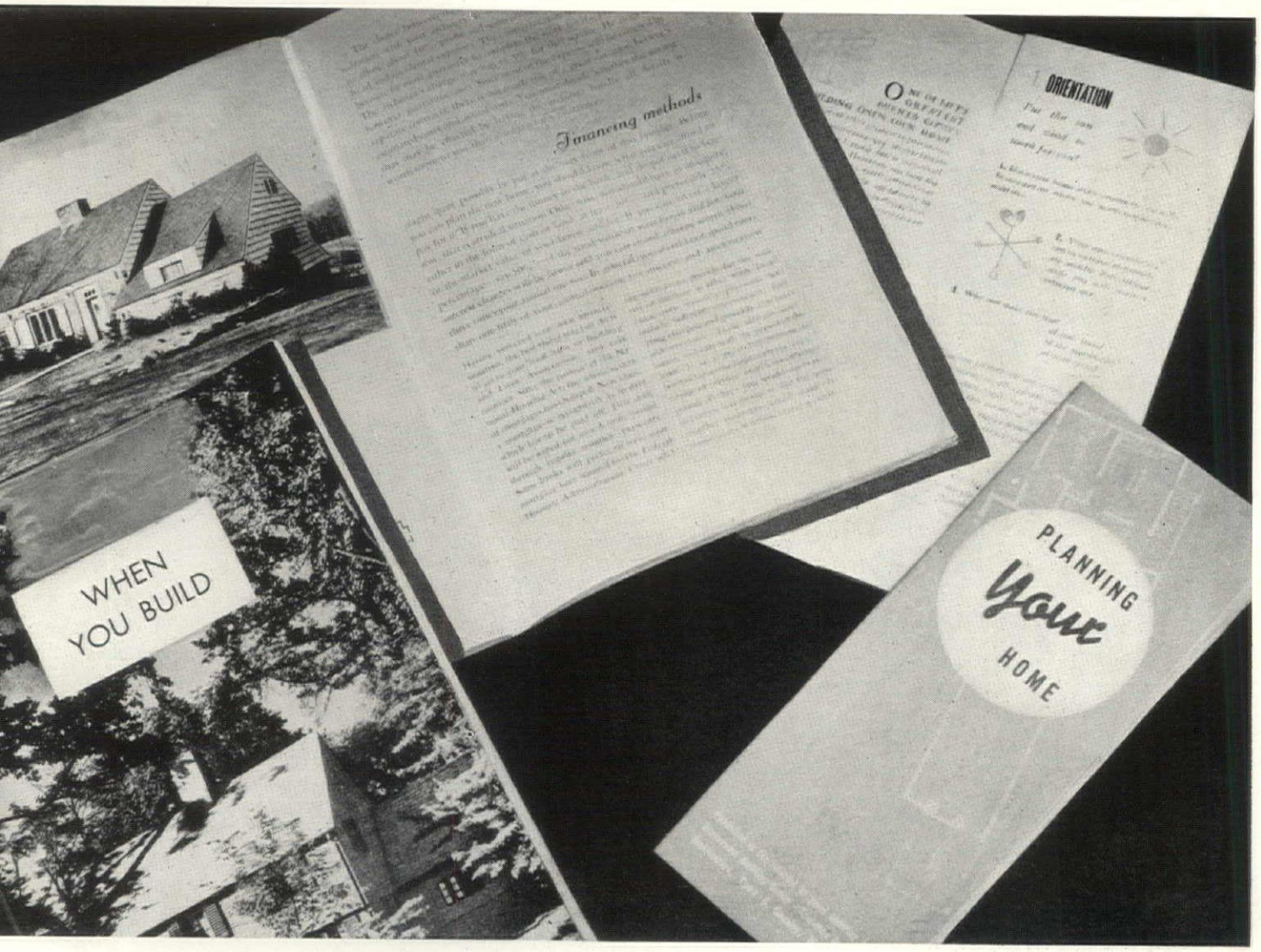
"WHEN YOU BUILD," "THIS MAN THE ARCHITECT" and "PLANNING YOUR HOME" are three booklets prepared by the editors of AMERICAN ARCHITECT AND ARCHITECTURE as a sincere effort to promote a more thorough public understanding of what the architect does — and why.

Thousands of copies have been distributed through architects as a practical method of promotion to prospective clients.

Consistent advertising in *Town & Country*

AMERICAN ARCHITECT AND ARCHITECTUR

A BETTER UNDERSTANDING OF ARCHITECTS



and *House Beautiful* has promoted this program to thousands of other able-to-build prospects.

What this has meant to the profession is indicated by hundreds of comments like these:

"You could not have made a finer contribution to the cause of good architecture, and the welfare of the architect." — New York architect.

"As advertising in behalf of the profession . . . surpasses anything I have seen so far."— Pennsylvania architect.

"I have never seen anything of the kind which approaches it." — Wisconsin architect.

This is one phase of the program continually carried on by AMERICAN ARCHITECT AND ARCHITECTURE on behalf of architects. That this job needs to be done . . . and is succeeding . . . is indicated by letters of appreciation, and requests for thousands of reprints, from architects all over America.

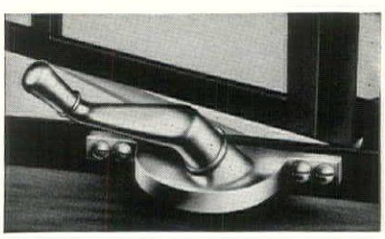
EDITED BY ARCHITECTS FOR ARCHITECTS

together with an H key. Eighteen gauge channel bridging is located every four feet and is secured in place with self-threading screws. To the top side of this deck can be applied one-inch insulation board and to this surface a mopped on roof of any type. This type of long span roof deck can be had in spans from six feet to twenty-four feet with a shop coat of paint. It is known as Edwards Trus-Steel Long Span Metal Roof Deck and is manufactured by The Edwards Manufacturing Co., Cincinnati, Ohio. **823M**

CABINET LAVATORY

A new cabinet lavatory has been introduced by Crane Company, Chicago. This, the Coronet, incorporates the same in-a-door shelves which have previous cabinet-lavatory units and likewise has the piano-hinge doors, but instead of the conventional type of lavatory basin it has a special new vitreous-china top of unique design. Faucet handles are set at an angle on an inclined and beveled-corner "instrument panel." In addition, the new unit has a special raised "dry" shelf back of the faucets for keeping powder, toiletries, etc. dry and out of the way during hurried toilets. The spout is raised well above the rim of the bowl to eliminate danger of cross-connections and back siphonage of waste water into fresh water lines. The large basin, which has a splash lip, is rectangular, as is the general shape of the entire fixture. The front of the cabinet and lavatory are slightly concave to permit closer approach for washing; the sides and back slightly convex. The lavatory size is 24 x 20 and the basin, 17 x 11. Towel bars are optional, but the cabinet is supplied with holes drilled for the bars. The sub-base, in black baked enamel, has setback for toe space. The unit is available in colors as well as white. **824M**

CASEMENT WINDOW OPERATOR



A recent development of H. S. Getty & Co., Inc., Philadelphia, is their Internal Gear Operator for metal and wood casement windows. While the new operator may be used as an adjuster for non-screened windows, it is especially adaptable for screened casements. It eliminates the necessity for using hinged screens and stay-bar adjusters, and leaves a large portion of the sill space free for ornamental decoration or other purposes. The housing of the unit, which is attached to the inside of the sash, contains a worm driven by a crank handle. This worm meshes with a gear, integral with the operating arm that extends through the sash and runs freely in a channel guide attached to the inside of the casement window sash. Both worm and gear are heavily constructed, meshing perfectly. The unit is said to provide a positive lock when the window is closed and to hold the window rigid when open at any angle. It is furnished in various metals and finishes. **825M**

BARBER AND

The Vital Element

The names that mean MOST in Asphalt

Asphalt plays an important part in the architect's specifications today. And of all asphalts yet discovered, either native or manufactured, Trinidad Native Lake Asphalt—The Vital Element—alone possesses inherent qualities that fit so well the requirements of modern construction.

The Barber Company, Inc., "Asphalt Headquarters," is the sole United States distributor of Trinidad. For more than fifty years Barber has been specializing in asphalt . . . research . . . development . . . analyses . . . comparison . . . producing high-grade asphalt products.

Today all the knowledge and experience gained through this endless research are at your disposal. "Asphalt Headquarters" is ready to serve you . . . to acquaint you better with all the possibilities and limitations of asphalt in the buildings you design . . . to solve the problems you encounter in drawing up your specifications. Your inquiries will be welcomed without cost or obligation. The Barber Genasco line of asphalt products includes:

THE VITAL ELEMENT

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GOVERNMENT

SENATOR ROBERT F. WAGNER'S LOW-COST HOUSING BILL appears, temporarily at least, to be sinking into the same morass that side-tracked last year's bill—Administrative opposition. While it is usually left to Presidential critics to voice concern over any question of money, this time the Executive Branch of government has reversed the field. The President is reported as definitely opposing the Wagner Bill in favor of a pay-as-you-go policy. Thus, proponents of the bill which contemplates long-term contractual obligation by the Federal Government, are faced with the prospect of making drastic concessions, or of risking another Administrative check-mate.

Actually the focal point of the present controversy is the Treasury. Senator Wagner's bill calls for annual Federal contributions to specific projects over a fixed period not exceeding sixty years. It would begin with $10,000,000, but the amount might be swelled each year. The Treasury is opposed to obligating the country for a period of sixty years in advance; and the President is backing the Treasury.

Senator Wagner believes that low-cost housing must be a long-term proposition. One of the strongest reasons is his belief that contracts over a period of years will insure that the projects be limited to the use of the very low income classes, that is, families with incomes of $1,000 or less a year. It is also felt that more housing could be accomplished by this method.

In the President's opinion, low-cost housing in Europe, as well as in this country, has shown that it is necessary to make a gift of about 40% of the cost in order to keep rentals low enough. In other words, a return of interest and amortization can be expected on only about 60% of the cost of housing. Since the government cannot, therefore, clear slums and get a 100 per cent return on its investment, a gift of some kind must be made, i.e., government agencies must donate money or labor or tax remissions. Right here is where the President expresses his theory of action. Rather than obligate the government over a long period, a 40% gift would be made, just as it would under the Wagner plan, but private capital would be borrowed for the remaining 60 per cent. The Federal Government would not obligate itself to continuous grants, and, according to the President, it would put the project into the pay-as-you-go class.

Senator Wagner is confident that an agreement can be reached. The Treasury seems to be set against the bill as it stands, however, and with the Presidential bulwark, considerable hacking may be done before everyone is satisfied with the measure.

LEGISLATION

THE LIFE OF THE PUBLIC WORKS ADMINISTRATION was extended for two years by a recent vote of the House of Representatives. The gradual liquidation of the PWA was started by restricting its activities to projects already applied for. The bill, embodying the compromise proposed by President Roosevelt to keep the one and a half billion dollar relief appropriation clear of "earmarking" amendments, was passed under suspended rules.

Everything was far from peaceful, however. Representative Alfred E. Beiter, Democratic of New York, had an amendment to offer but could only warn the House that a fight was due. And warn he did, pointing out that an amendment to give the agency more funds would be offered in the Senate and that the fight might be revived in the House when the relief bill came out of conference. There is a good chance Representative Beiter's clairvoyance will prove accurate, and necessary.

For example, the House Appropriations Committee in drawing up the compromise, stated that the PWA would realize a considerable sum of money from the sale of securities still to be purchased. Sharply challenging this, Representative Beiter said, "everyone knows that the political subdivision bond market is at a very low ebb, and that the PWA will be

unable to sell the securities it now holds, and those it is already obligated to purchase, without sustaining a heavy loss."

Whether this condition changes or not, it is certain that little help can be expected from the Reconstruction Finance Corporation. Under existing law, the RFC cannot purchase securities from the PWA in an amount beyond $250,000,000. It now holds slightly less than $200,000,000.

CONSTRUCTION

THE STEADY RISE IN BUILDING COSTS has excited comments from many sides; few, however, as thorough-going as those of Myron L. Matthews in a recent issue of "The Dow Service." No discussion could fail to mention certain phases familiar to all but Mr. Matthews interprets with a fundamental simplicity that not only speaks well for his knowledge, but that should prove interesting even if you have thought of some of the ideas yourself. We quote from his article:

"Heretofore, when the resistance point to further cost increases had been met, it was simply a question of waiting for supply sources to bring wholesale prices into line with demand. At present, there is not enough inflation or parasitic cost in building to lend hope that a lessening of demand in the more active classifications of construction could, short of a fundamental collapse in the whole market structure, bring about necessary tobogganing of prices to an easier level.

"At the root of it all are the increases granted to labor for its services. The point is not whether this is right or wrong. . . . With labor wages up and still going higher, and with material prices up because of increases to labor, what is there left of the elements of building costs that can be adjusted to create a necessary balance? Direct and indirect material and labor costs make up about 85 per cent of the cost of the average building. The remaining 15 per cent does not offer much hope for modification unless some of the usual and time-proven functions always practiced are either eliminated or reduced. The idea is so loaded with dynamite as to condemn it at the outset; and, even if it were practicable, other functions not as desirable or essential would undoubtedly enter the situation to plague it far worse than now.

"New and more efficient construction methods seem to be the only avenue of approach to stabilize or reduce construction costs. . . . Even now such economies are evident with the direct application on studs of a wall material in standard sections. The application of the material is made in such a way as to eliminate later cracking; it does away with lath and the two or three-coat plaster job; it saves time and therefore reduces labor costs; it takes less material, making a further saving. Another cost reducer which has not yet reached the market, is a new method by which cellar foundation walls will be poured without the usual removable concrete forms.

"These are the kind of things which promise most to offer relief to ever increasing building costs. To additional items of this nature the inventive genius of the nation is being directed. But there must be a certain co-ordination of effort so that hundreds will not be bent on a given problem, while other sister problems are neglected. There is nothing so certain to make this a nation of knock-down standard sectional houses and other small buildings as an unchecked cost trend above its current level. In the principle of factory built homes, may lie the answer to keeping down residential construction costs. Great economies can be effected by the use of standard units, but they must be flexible enough to afford all the variation in architectural design which the market may demand."

HOUSING

HARLEM RIVER HOUSE, the $4,219,000 Public Works Administration project which will house 574 families, was formally turned over to the City of New

York on June 16th. Thus was celebrated the fourth anniversary of the signing of the PWA bill by the President. Some 2,500 residents of that section watched Mayor La Guardia sign a one year lease at a rental of $69,063. It was the first time that a city and the Federal Government have gone into partnership in the operation of an apartment house.

Under the agreement, 45 per cent of the cost of the project is a PWA grant and the remainder will be amortized and repaid to the government within sixty years. After one year's experimentation, during which a change in rents may be effected, a longer term lease will be given to the city.

The rents will average $5.20 weekly for a three room dwelling, and it is significant that there were 14,000 applicants.

After signing the twenty-three page lease, Mayor La Guardia said, "This is the happiest moment I've had since I became Mayor. Here indeed is a dream come true." He agreed that the Harlem River House was inadequate for the city's needs, but added, "it's 574 more sanitary and cheerful houses than the government has built in the last 100 years."

COMPETITIONS

HENRY A. JANDL of Spokane, Washington, won the thirtieth annual Paris prize scholarship in architecture of the Society of Beaux Arts, according to a recent announcement by J. H. Freedlander, chairman of the committee of judges. The award carries with it a $3,600 cash prize for the expense of two and a half years at the Ecole des Beaux Arts, Paris.

Mr. Jandl, who is twenty-six years old, received the degree of Bachelor of Architecture from the Carnegie Institute of Technology in 1933, winning a $1,000 traveling scholarship which took him throughout Europe for a year. He will receive his master's degree from Princeton University this spring.

THE NATIONAL ALLIANCE OF ART AND INDUSTRY announces a Design Competition for a cemetery memorial with a prize of $1,000 offered by the Barre Granite Association of Vermont.

The contest which is open to all designers, architects, artists, draftsmen, and students, closes September 1st, 1937. An interesting feature of the competition is a ruling which permits the collaboration of two or more persons in the submission of a design. Further details may be obtained from the National Alliance of Art and Industry, 119 East 19th Street, New York City.

ANNOUNCEMENTS

FOUR APPOINTMENTS AS RESEARCH ASSOCIATES will be available at Battelle Memorial Institute, Columbus, Ohio, for the year 1937-38. Appointments are for September to August inclusive, and are open to graduates of any accredited university or college.

Application forms and further information may be obtained by writing the Director of the Institute.

OBITUARIES

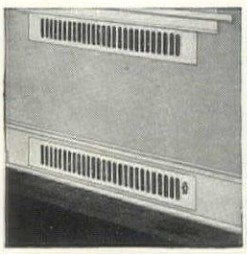
FRANK HOWELL HOLDEN, an architect associated with the firm of Robert D. Kohn, Charles Butler and Associates, died of pneumonia at his home in New York City on May 29, 1937. He was sixty-seven years old.

Born in Chicago, Mr. Holden graduated from the Massachusetts Institute of Technology in 1894. After studying for three years at the Ecole des Beaux Arts, Paris, he began practice in Aurora, Ill. Later he came to New York, and in 1902 with Frank H. Bosworth established the firm of Bosworth and Holden.

Mr. Holden was among the architects who helped construct the store of R. H. Macy & Co. With his associates, Marshall Oliver and J. Scott Dawson, he recently completed the Dennison Store on lower Fifth Avenue, and the store of Doubleday, Doran & Co., at Fifth Avenue and 38th Street.

ARTHUR DILLON, retired architect and former head of the New York firm of Dillon, McClellan & Beadel, died on June 5th, 1937 at his home in South Orange, N. J. Mr. Dillon was sixty-six years old, and had been ill for some time.

Webster Equipment Used in the New York State Teachers Association Office Building



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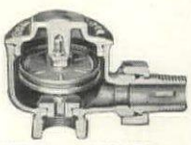
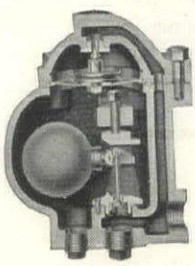
Webster System Radiator

"Three-Point" Valve used on exposed radiators

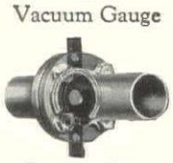


Webster 702 Trap



Series 26
Combination Float and Thermostatic Drip Trap

Vacuum Gauge



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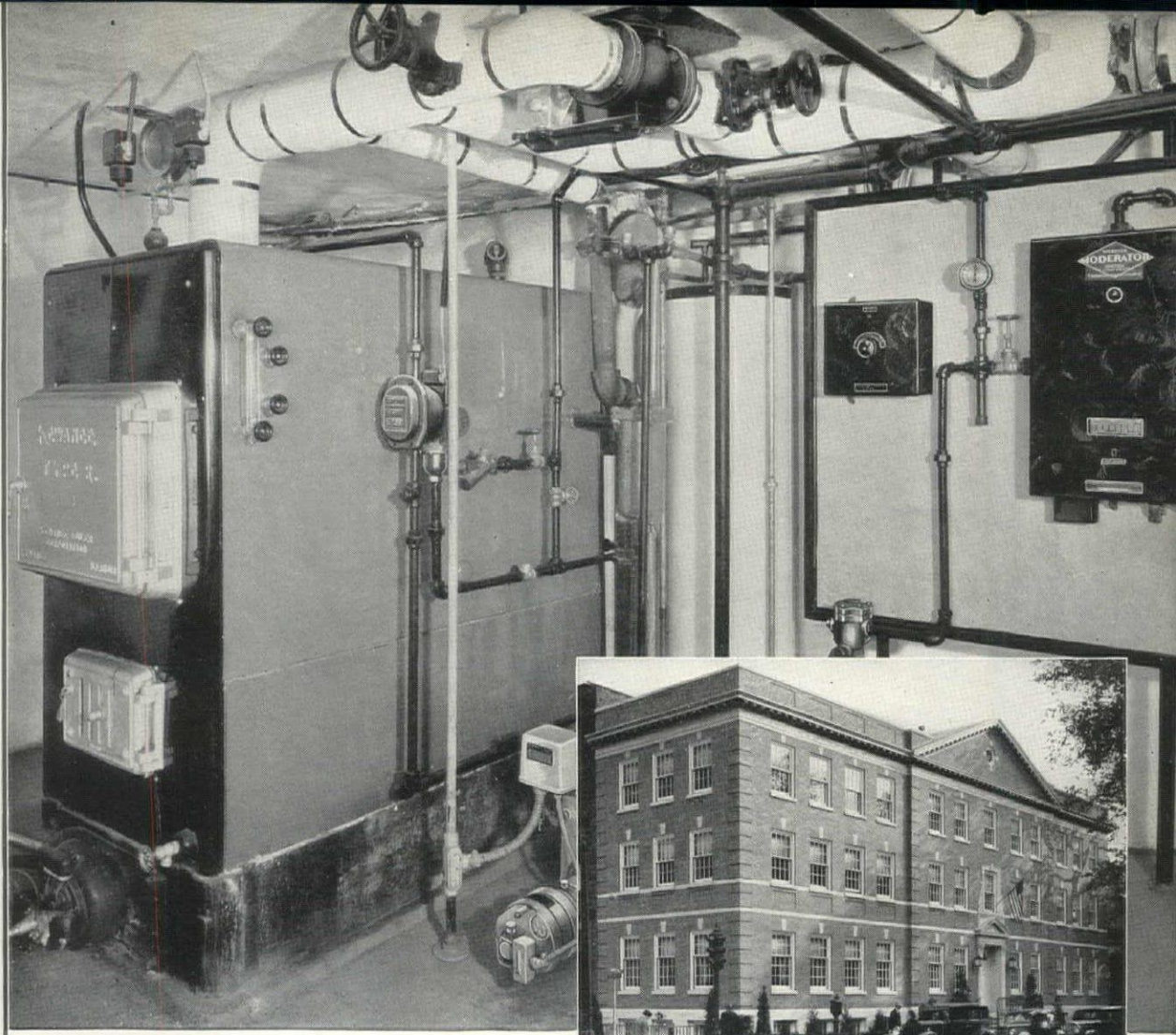

Boiler room of New York State Teachers Assoc., Office Bldg., showing left to right: Boiler with Oil Burner, Webster Boiler Protector, Control Valve, Variator, Webster Moderator Control Cabinet.

Office Building of the New York State Teachers Assoc., Albany, N. Y.

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Fitting the Post Office to the LOCATION

NEXT month AMERICAN ARCHITECT AND ARCHITECTURE will present photographs of Federal buildings recently constructed under the authority of the Procurement Division of the Treasury Department. In many respects the photographs illustrate the decided change that has come into architectural expression generally, in both public and private buildings. They show how the Treasury Department has solved the problem of fitting the post office to the environment of many a different type of community . . . and how the department has endeavored to steer a course between a more liberal approach to traditional forms, and a tolerant if somewhat restrained and cautious attitude toward changing thought. You will find this presentation interesting and useful. Watch for it . . . next month.

ALSO IN THE AUGUST ISSUE, AMERICAN ARCHITECT AND ARCHITECTURE

DETROIT ARCHITECTS EDIT—the second in the series of 16-page sections prepared by various architectural groups throughout the country. The Detroit section, prepared under the direction of Malcolm R. Stirton, A.I.A., assisted by Clair W. Ditchy, N. Chester Sorenson, Richard T. Raseman, Talmadge C. Hughes, Andrew R. Morison and Alvin E. Harley . . . will be of great interest to architects everywhere. Mr. Stirton will present features of interest to draftsmen. Mr. Ditchy will contribute an article on Small House Associates. Mr. Sorenson will represent school architects. And Mr. Raseman will discuss the Cranbrook School.

ARCHITECTURAL OVERTONES—devoted to the recent work of eight important American mural painters.

THE RACQUET CLUB, PALM SPRINGS, CALIFORNIA — a fine example of a private swimming and tennis club designed in the so-called "desert" style. By Spencer and Landon, architects.

ROYAL PALM CLUB, MIAMI, FLORIDA—a new night club designed in a pleasantly restrained type of modernism. By Robert Law Weed, architect.

VETERINARY HOSPITAL, NEW YORK—an unusual handling of an unusual problem. By Block & Hesse, architects.

TIME SAVER STANDARDS—on swimming pools.

FAVORITE FEATURES—on simple mantels.

PORTFOLIO—on vertical sundials.

COLBURN RESIDENCE, HIGHLAND PARK, ILLINOIS — a distinguished and workable house in the middle west. By Gilmer Black, architect.

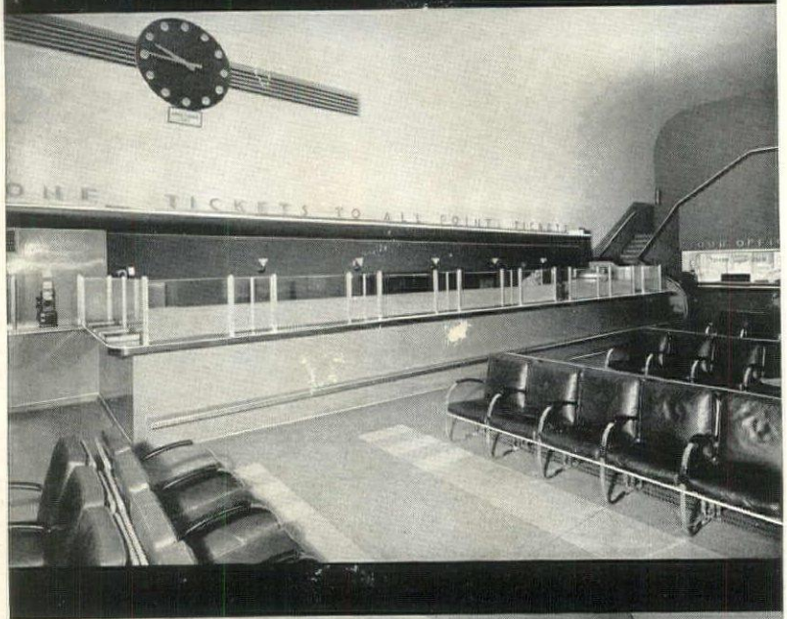
WALKER RESIDENCE, PALM SPRINGS, CALIFORNIA — a typical desert house of today. By Charles O. Matcham, architect.

Watch for the August Issue of

AMERICAN ARCHITECT AND ARCHITECTURE

A handsome Bus Terminal with

FORMICA



THE new bus terminal of the National Trailways System in Chicago is one of the handsomest in the country and a liberal use of Formica for a number of purposes had a great deal to do with making it so. The counters have Formica panels in attractive colors and Formica tops. Formica doors and Formica paneling in some locations were also included in the attractive design of Graham, Anderson, Probst & White.

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