Newsletter items for January 1950 included general prediction that the year ahead will see new construction volume reaching 1949's record-breaking figure of over $19 billion; that construction costs will remain about the same through the year; that large amounts of mortgage money will be available; that residential construction may nearly equal 1949's near-million units; that private non-residential building will decrease, except in case of commercial buildings; that industrial construction will drop about 25%, institutional and religious building somewhat less; that public structures will increase in activity.

For architects and engineers this should mean a good year ahead. Most of the commissions will continue to be in shops and stores, new and altered (with emphasis on the shopping center), in the school and hospital fields, in large and small housing projects and the individual house. As ever, some good firms find themselves from time to time unexplainably shaky, but for the group as a whole things look not bad.

From P/A's observations and surveys, it appears that the "specialist" is disappearing. More firms find that identification with one building type hurts them, and are consciously seeking different work.

Carl Feiss, P/A columnist, is leaving his post as Director of School of Architecture at U. of Denver to become Chief of the Community Planning and Redevelopment Branch of the agency created under the Housing Act of 1949, a post which should be important and influential in development of new housing and redevelopment program.

Alexander (Sandy) Knowlton, New York architect, has been named architectural editor of magazine "Living."

Estimates on materials and equipment output during past year (final figures are not in yet) compared with preceding year, made by "Engineering News-Record," show 14% decline in lumber, almost 11% increases in structural clay tile, big drop in plumbing fixtures.

Ten new companies have joined Producers' Council, including American Radiator and Standard Sanitary, Kewanee Boiler, Minneapolis-Honeywell.
Building Research Advisory Board will hold a conference in Washington, D.C., on Jan. 11 and 12, on climatological studies now available. Those interested in attending should contact William Scheick, director of the Board.


New regional architectural magazine, a quarterly, is Design Plus, to be issued from Miami, Fla., with an editorial staff including Henry Wright, Lee Childress, Ezra Stoller. Advisory board is made up of eleven outstanding Florida architects.

974 projects have been at least tentatively approved under the National Hospital Program of Public Law 725. Total estimated cost of these jobs is $630 million. 616 projects have final approval. Boost to this program was given at end of last Congress session, when amendments doubled Federal aid for four years.

U.S. State Dept. has put together a splendid study collection on housing, planning, and construction for use in U.S. libraries and in information centers abroad. Prepared under the direction of Harold Sandbank, the collection contains over 1200 photos, 100 books, 500 special reports. Sets are now circulating abroad.

Homer Hoyt has prepared a market analysis of urban shopping centers for Urban Land Institute. He concludes that this is a "tremendous and almost untapped field" since the "whole movement is in its infancy." The report warns, however, that small neighborhood centers "do not have the pulling power of a regional center."

A competition for the design of prestressed reinforced road bridges is being conducted by Cement & Concrete Ass'n, 52 Grosvenor Gardens, London S.W. 1, England, from whom applications can be had for 1 sh. Designs are due May 31, 1950; first prize is £500.

Institute of Design in Chicago, under Serge Chermayeff, will become a part of Illinois Institute of Technology, where Mies van der Rohe is director of the dept. of architecture.

Thomas Hall Locraft replaces his partner in practice, Frederick V. Murphy, as head of Department of Architecture at Catholic University of America, Washington, D.C.

Sir Patrick Abercrombie, British architect and town planner, will be awarded A.I.A.'s Gold Medal at 1950 Washington convention. He will be sixth foreign architect to receive the award.

It is reported that 1953 A.I.A. convention will be held in Seattle, Wash. Other dates are: Chicago, 1951; New York and possibly Bermuda, 1952.
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In the construction of the new power house, illustrated below, for Northern States Power Company, Minot, N. D., Mahon "Field Constructed" Insulated Steel Walls were employed for all exterior surfaces. All exterior wall plates and all flashing are 20-gauge Stainless Steel. Interior wall plates are 18-gauge Galvanized Steel. Pilasters, coping, and other architectural effects are produced by simply reversing the standard Stainless Steel Wall plates and the effective use of Stainless Steel flashing. This is a typical application of Mahon Insulated Steel Walls in modern construction. Mahon Insulated Steel Walls in combination with a Mahon Insulated Steel Deck Roof cost less, provide a firesafe, permanent building which can be quickly and economically erected. Standard wall plates can be rolled in any length up to 55 ft., providing high expanses of unbroken wall surface without horizontal joints. See Sweet's File for complete information and construction details, or write for Catalogs No. B-49-A and B.

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Manufacturers of Insulated Steel Walls; Steel Deck for Roofs, Ceilings, Floors, and Partitions; Rolling Steel Doors, Grilles, and Underwriters' Labeled Rolling Steel Doors and Fire Shutters.
Winter, 1877. Dr. Phillips Brooks, eminent rector of Boston's new Trinity Church, was displeased. Said he to the contractor's foreman, "You must stop that storm door from banging!"

Angry that his efforts to fix the door by padding were not appreciated, the young foreman, L. C. Norton (original "LCN"), took off his overalls, threw them in a closet and slammed the door. That is, he tried to slam it, but the cushion of confined air prevented the slam!

Here was an idea. A man of action, "LCN" bought a small hand pump, made a hinged cap for the lower end, attached this to the door, secured the piston rod to a vertical post on the jamb, and thus created the first door check.

"LCN" devoted the rest of his long life to scientific door control. His first commercial checks of 1880 were successful, as were the highly ornate models of the '80s and '90s which had springs to close the door. In 1906 the hydraulic checking principle was adopted. In 1926 the double-acting overhead concealed closer for interior doors, and in 1940 another, employing the lever principle, for exterior doors, while LCN exposed type door closer was put in production, followed shortly by three types concealed in the floor. In 1928 LCN introduced the closer concealed in the head frame. In 1932 the closer concealed-in-door was brought out, providing hidden control for the lighter doors. In 1936 came a double-acting overhead concealed closer for interior doors, and in 1948 brought a concealed-in-door closer for metal interior doors. Thus has LCN kept pace with advancing Architecture.
Today the Most Suitable Door Control Adds to Efficiency, Saves the Design

In 1950 LCN’s full range of overhead, floor and in-the-door concealed closers, plus all the necessary exposed types, offer the architect and builders’ hardware consultant exactly the right control for every (swing) door in each building. The time to study and specify is in the planning stage, so the designer’s work will not be needlessly defaced and the door control will be right throughout. LCN’s 1950 products and personnel are at your service.

Below: Baldwin Theatre, Los Angeles; LCN Door Closers concealed in head frame; Lewis Eugene Wilson, Architect

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VETERAN HOSPITAL BUILDING

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As a building method, concrete joist construction leads the field in the Veteran Hospital Building program. Here, as in other buildings, strength and durability are of prime importance. Concrete joist construction meets the need in supplying rigid, strong floor constructions which are fire resistive and sound proof. Construction costs are low since steelform jobs require less concrete, less lumber, less labor. Steelforms are used over and over again at a nominal rental charge.

As the originator of the removable steelform method of concrete joist construction, Ceco is first in the field. So, for concrete joist construction, call on Ceco, the leader over all.
Believed to be the largest producer of library equipment in the world today, Virginia Metal Products can look back proudly over its outstanding record of accomplishments. From their erection of bookstacks for the New York Public Library in the 1900 era... to their magnificent completion of shelving for the Library of Congress in the 1925 era... to their modern shelving arrangement for the University of Alabama, VMP has upheld international recognition for excellence in design and workmanship.

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LIBRARY EQUIPMENT • MOBILWALLS • MOBILRAILS • ALL METAL BI-PASSING DOORS • ALL METAL SWING DOORS
COLUMBIA DEAN RECALLS THIS CENTURY BROUGHT "BEAUX ARTS" SCHOOLS TO UNITED STATES

Dear Editor:

In August you sent me Carl Feiss' opening contribution to a column he will conduct for PROGRESSIVE ARCHITECTURE (see page 116) and you asked me for comments. Feiss' statements and questions are provocative and thereby fulfill their intention.

My own reaction is excited by the following sentences: "Schooling is a very small part of education; also schooling becomes obsolete overnight as world conditions change . . . There is almost nothing in the tattered remnants of our Beaux Arts atelier system in formal architectural education which relates the drafting table to the modern world."

That schooling is but a small part of education, most of us will agree, as education is a lifelong process, while schooling is limited to a certain number of years. But that "schooling becomes obsolete overnight" is debatable.

Schooling that is worthy of being considered a factor of education cannot change in its essence any faster than man changes in essence. And for better or worse, man does not change overnight, hence fast the facts that he learns and the methods by which he learns them change. "Schooling which is educational," in any field whatsoever, must train the essential man—must train him how to think (not what to think, I hasten to add).

I am reminded of Oscar Wilde's sagacious comment, that "it is dangerous to be too modern; one runs the risk of becoming old-fashioned so suddenly."

If a school limits itself to teaching facts only, both Feiss and Wilde are correct. It is sad to admit that in many of our schools, and in many of our schools of architecture in particular, "facts" are not only stressed, but constitute an abnormally large part of teaching. In design, which is not made up of facts as such, a set of formulae is frequently offered by instructors who lack true "education," or training in reasoning.

If a school really "teaches" (and many of the better schools in this country do teach, and teach very well indeed) the student is taught primarily to analyze and to think. The architectural forms and the structural methods he uses are very contemporary, but he is warned that they are subject to change.

And if a student has both creative imagination and good training, he may himself become an innovator; but the new forms that he may create do not imply obsolescence of the older processes by which he created them.

My second reaction comes in response to the pejorative reference to the Beaux Arts system. Feiss shares an opinion which is very generally held, and which is due to a considerable misunderstanding of what this system, or method, really is. Without stating conclusively whether it is good or bad, I wish to explain a bit what this system really is, what it stands for, and, if possible, how and why it has been misunderstood and consequently misrepresented.

As the name implies, it is the method of teaching used in the National School of Fine Arts of France, of which the school of architecture is a part. It is perhaps interesting to note that the fundamental tenants for the training of architects in the French School are essentially the same as those in any other good school: to teach the student to analyze and to think. The system, or method, it deteriorated into a superficial "for the artistic ability to formulate these requirements into a workable and esthetically pleasing plan, and a correspondingly pleasing elevation. "Making it work" functionally is essential but not in itself sufficient. Furthermore, he must be capable of erecting his design in a structurally sound and economically acceptable manner. The School has always insisted that the student carry courses in science and structure with his design courses.

It should also be noted that the French School, like other schools, is a living thing and is far from static. In its 300 years of activity it has had its ups and downs. At the moment it is having troubles—the troubles of the times, aggravated no doubt by special conditions in France. Such a "system" is "modern." It should be quite evident that what we need and should have is a system of our own, meeting the requirements and ideals of these United States. Such a system would differ in many respects from the Beaux Arts system in France, but it would be based upon the same essentials—training and guidance in the process of reasoning and analysis.

It is an interesting commentary that William R. Ware, before founding the School of Architecture at M.I.T. in 1864, made an extensive trip to Europe. Upon his return he evaluated the various European methods then used in training architects, and he pointed out what to him were the better and less good features of each method. He then established a curriculum of his own for the new School of Architecture, the first to be established in the U.S.A. His report is fascinating reading. As Ware explained it, this country, with its own distinct requirements, could accept no one European method— but needed its own method.

In conclusion, the Beaux Arts system in architecture is but a specialized expression of France's ancient tradition in education; tradition which is based on the assumption that education is concerned primarily with the human being and the social requirements of his time and environment. Finally, let us recall that the Beaux Arts was at a high peak of activity and influence, especially in the United States, at the beginning of our century; and if the fashion of that period is at present out of favor, that fashion should not be identified with the system itself.

The three questions which Carl Feiss proposes to raise in future columns are certainly worthy of discussion—and I hope that he will enlarge on them himself and incite others to join with him.

LEOPOLD ARNAUD, Dean
School of Architecture
Columbia University
New York, N.Y.
Another Masterpiece
in individual room
temperature control systems
by Johnson

The world will see engineering at its best in the Secretariat Building at the United Nations permanent headquarters. Because of the variety of areas in which comfortable temperatures must be maintained, the temperature control system will be vitally important to the thousands, from all the climates of the world, who come to this “workshop for world unity.”

Modern air conditioning systems of every type depend upon Johnson Automatic Temperature Control for successful performance. The modern “Carrier” air conditioning units, located in the rooms on the periphery of the Secretariat, are controlled by a Johnson “Heating-Cooling” thermostat located in each unit. The temperature bulb, connected to each thermostat by a capillary tube, is mounted close behind the recirculating air grille, where it quickly responds to the average temperature in the room. Thus, every room will enjoy its own individual temperature control, for a Johnson valve, on the hot and cold water supply to the coil in each unit, is operated by the thermostat and determines the amount of heating or cooling effect to be applied to the recirculated air.

The areas in the center of the building will be served by central air conditioning systems, and, there too, room thermostats will control the temperatures.

In addition to the room temperature control, Johnson Master Control of temperatures and humidities serves the systems which supply primary air to the units and also those which operate as independent central air conditioning systems. These master control instruments “telegraph” changes in outdoor conditions to the systems inside the building, which then anticipate the changed requirements and automatically compensate for them.

Yes, here is one of the world’s largest temperature control problems, involving over 2500 air conditioning units. But, large or small, ask a nearby Johnson engineer for recommendations on any control problem in both new and existing buildings. There is no obligation. JOHNSON SERVICE COMPANY, Milwaukee 2, Wisconsin. Direct Branch Offices in Principal Cities.

JOHNSON Automatic Temperature and Air Conditioning CONTROL

DESIGN • MANUFACTURE • INSTALLATION • SINCE 1885
Architecture In Print
By EUGENE RASKIN

Open this magazine practically anywhere and you will find distinguished and scholarly comment on architecture in America as viewed from this mid-point of the century. As intellectual fare, you will find the menu rich, varied, and meaty, dished up as it is by those skilled journalistic chefs, the editors of PROGRESSIVE ARCHITECTURE, without whom (and their colleagues of the other architectural journals) we of the profession would have gone hungry these past decades. Hungry, that is, for the stimulation, nourishment, and occasional indigestion they have so faithfully brought us. It is only fair and fitting, therefore, that this issue should contain at least a brief appraisal of the architectural press at this important birthday.

The architectural press inevitably shares some of the unfortunate characteristics of the American press as a whole, but happily differs from it in others. Like most of the American press, for instance, the architectural press exists to earn money for its publishers and is a principal source of income advertising. But as the implications of this fact are explored, the resemblance becomes less marked. In most sectors of the press the editorial department's function is to provide attractive bait to the reading public so that as many eyes as possible will be exposed to the advertising. Advertising rates are based on circulation, so it is the editor's job to get circulation. It is also his job to help make the advertising effective by creating a mood, tone, or atmosphere throughout his journal that will be favorable to the advertiser's message. An example (perhaps extreme) of such assistance is the running by some magazines of "tests" of advertisers' products; then the granting of seals of merit, or badges of approval.

(Continued on page 12)

The Ladies' Home Journal for January 1906

A Gambrel-Roof House for $4000

By B. F. W. Russell, James E. Webster and Henry H. Saylor

This $4000 gambrel-roof house is a practical dwelling for a family of five members. The $4000 is spent for goods and labor and the home is built in a storm-proof, fire-proof, earthquake-proof, dust-proof, and very cheap manner. The structure is built on three stories without an attic and with a basement for storage and service. The basement is completely finished and is equipped with a china closet, laundry, and a large walk-in pantry. The first floor is occupied by the living room, dining room, kitchen, and a hall for service. The second floor contains four bedrooms, a bathroom, and a dressing room. The house is well designed and will be found very practical for a family of five members.

The architecture of this house is excellent, and the cost is extremely low. The materials used are all good and well chosen, and the workmanship is excellent. The plan is simple and practical, and the house is well adapted to the needs of a family of five members. The cost of materials and labor is estimated at $4000, and the house is completed in six months. The house is well insulated and ventilated, and the space is used to the utmost advantage. The architecture of this house is excellent, and the cost is extremely low. The materials used are all good and well chosen, and the workmanship is excellent. The plan is simple and practical, and the house is well adapted to the needs of a family of five members. The cost of materials and labor is estimated at $4000, and the house is completed in six months. The house is well insulated and ventilated, and the space is used to the utmost advantage. The architecture of this house is excellent, and the cost is extremely low. The materials used are all good and well chosen, and the workmanship is excellent. The plan is simple and practical, and the house is well adapted to the needs of a family of five members. The cost of materials and labor is estimated at $4000, and the house is completed in six months. The house is well insulated and ventilated, and the space is used to the utmost advantage.
In the architectural press such direct and obvious domination of the editorial department by the advertising department has never been accomplished. Perhaps it is because the readers of architectural journals demand real substance and would never accept bait, but I prefer to think that there is an additional reason—the editors are architects as well as editors. The contrast, in layout alone, to the bulk of American journals is marked. In the more commercially minded magazines, the editorial matter is so shunted about, so pushed and battered by the advertising that it is often a chore just to find—let alone read—a story or article.

The press as a whole tends to pander to existing public taste, doing nothing to elevate or guide it, except when an industry (women's dresses, say) wishes to stimulate a change in style. Again the contrast is sharp. A study of the architectural press over the past decades shows that the editors, by their choice and treatment of material, have been consistently well ahead of public and even professional taste. In fact, it is largely by their editorial efforts, their constant stress on the new and the better, that architectural thinking in this country has made such large and rapid strides. It has been unavoidable, I suppose, that some editors have occasionally surrendered to hero worship, attaching disproportionate importance to the work of a few outstanding men. work that has sometimes been notable more for its sensational and photogenic qualities than for real merit. But editors are merely human, nor would we have them otherwise.

To the individual practitioner, working away quietly in his own community, the architectural press has meant the difference between creative contact and smug stagnation. He sees his own work and that of his local colleagues daily, and the easy tendency is for his scale of standards to assume the level of accomplishment around him. But every month when the architectural journals arrive, he sees the best work of the most gifted men in the land. He looks at his own work with a more critical eye, and strives inevitably to design against a higher scale of standards. The barriers and limitations of regionalism are also diminished by this monthly survey, so that our national architecture is taking unmistakable shape.

It is perhaps unfortunate that our journals show the best work of the country (within the limits of the editors' judgment) and never the worst. Back around the turn of the century Architectural Record once in a while printed pictures of some unnamed atrocity of the month. The horrors of the design were candidly analyzed and exposed in the accompanying text. It was a salutary and enlightening experience for many an architect, who was perhaps himself guilty of similar sins. The rareness of negative criticism in today's architectural press is, I think, to be regretted.

An important aspect of the architectural press, not to be overlooked, is
Elliptical shape is highly efficient structurally, as well as unusual and effective architecturally.

Gothic Frame
Simple "UNIT" arch clear of wall structure, leaving space for aisles.

Straight top lines of this variation permit greatest economy in roof construction by providing direct seat for purlins.

Scissors truss effect of Type G arch completely fabricated in factory is far more stable than bolted truss.

Various decorative effects may be achieved by gluing functional section during fabrication.

Type G with spring line up near eaves level provides maximum clearance.

Type G, may have the spring line at the heel and is the simplest form. Tie rod at heel is usual practice. Buttress may be used instead.

The pioneering background and the design and production "know how" of Unit's technical staff has resulted in the use of "Unit" arches by leading architects all over the nation.

The laminating process (U. S. Patents No. 2177395 and No. 2172093) used in the construction of "Unit" all glued laminated arches permits shaping to any desired form resulting in greater stability than the use of natural sawn timbers ... a structure that will not shrink, check or warp ... a structure which offers unlimited decorative treatments and maximum fire resistance.

For complete details check Sweet's File, Architectural for our descriptive Catalog or write to Unit Structures, Inc., Peshtigo, Wisconsin. The technical staff of Unit Structures, Inc., is prepared to furnish advice and assistance to architects in the selection and application of "UNIT" glued laminated arches and beams and prepare preliminary and final design data for special units for individual application.

FOR GREATER ECONOMY ... FOR ERECTION SIMPLICITY ... FOR A NEW STANDARD OF MODERN DESIGN AND EFFICIENCY. SPECIFY "UNIT" ARChES, BEAMS OR RAFTERS FOR YOUR NEXT PROJECT.
the wealth of technical information, news of new materials and improved processes that it brings. Our ever-increasing technological advances in structure and equipment make this service to the profession not only desirable, but indispensable. Which brings us to the chief difference between the press as a whole and the architectural press. With the exception of straight news, we could get along without most of the American press, which is why the editors have to woo us so desperately and degradingly. But the services of the architectural press to the building world are so vital, so real, that we have no choice. We must have them. Which, in turn, is why our architectural editors can stand up proudly and give us journalism that bows to nothing but its own standards of excellence and self-respect.

In this past half-century the profession has become heavily indebted to the architectural press; for which that press wants no repayment, I am sure, except a continued opportunity to serve the cause of architecture. For the next 50 years, I know that my fellow architected will join me in wishing our press not ill-won prosperity—but continued vigor, intelligence, and devotion.

NOTICES

IT WAS FREDERICK G. FROST
We have repeatedly scolded editors who fail to credit architects when publishing examples of their work. An inexcusable instance is our own failure to credit THE FIRM OF FREDERICK G. FROST, ARCHITECTS for Brownsville housing project, which was illustrated in our PROGRESS REPORT, page 14, October 1949 P/A, as a fine example of New York City Housing Authority design advance. We apologize to the architect and thank Donald Dodge of that firm for calling the omission to our attention.

DIFFERENT FIRM
We wish to call attention of our readers to the full name of the firm advertising on page 106 of November 1949 P/A. It is the AEROVENT ALUMINUM WINDOW CORP., 270 Park Avenue, New York 17, N.Y. This notice is prompted by the fact that a number of inquiries resulting from the November advertisement have been misdirected to a competitive firm with a similar name—Aluminum Window Corp., 101 Park Ave., New York 17, N.Y., a division of General Bronze Corp. of Garden City, Long Island, N.Y., and no connection of the advertiser referred to above.

APPOINTMENTS
The University of Texas School of Architecture has announced the following appointments: J. ROBERT BUFFLER, chairman, Department of Architecture and Planning; WERNER W. DORNBERGER, chairman of architecture engineering; NOLAN E. BARRICK, CAL BRIGGS, H. CONRAD KROLL, CLINTON MOCHON, and HAROLD W. UNDERHILL, JR., have joined the faculty of the Department of Architecture and Planning.
The Delany Flush Valve has only 6 moving parts, the simplest assembly of any flush valve and the quickest and easiest to repair.

Its simplicity is your assurance of efficiency

It is a recognized fact that DELANY FLUSH VALVES require less service over long periods—but do you know why? There is only one component part subject to maximum wear and tear—the Leather Diaphragm illustrated to the right. All other functional parts are free fitting and hence free from friction and wear.

Using only top grain, chrome tanned leather, with our special process and formed to our rigid requirements, provides this long lasting peak performance.

Its replacement is accomplished very quickly at little cost and regains instantly the initial efficiency of the DELANY FLUSH VALVES.

The Delany Leather Diaphragm illustrated above has been in continuous use for over 6 years and is in perfect operating condition.

DELANY FLUSH VALVES

IN CANADA: THE JAMES ROBERTSON COMPANY, LIMITED • MONTREAL • TORONTO • ST. JOHN, N. B.
HERE'S HEATING COMFORT . . . AND WORKING COMFORT, TOO.
The trim gas-fired Mohawk Winter Air Conditioner with its Forge Red jacket, actually complements the furnishings of this basement workroom. Engineered to give long, trouble-free service, the Mohawk operates quietly, efficiently, as smooth as clockwork. And that's true of all American-Standard Heating Equipment. The complete line covers every type of fuel—and includes boilers, radiators, convectors and baseboard radiant panels, plus warm air furnaces and winter air conditioners.

THE MOST RIGID HOSPITAL REQUIREMENTS ARE MET by American-Standard Plumbing Fixtures. They are built for greatest convenience in use, durability and easy cleaning. And they are designed to fit the specialized hospital needs for treatment rooms, operating rooms and laboratories as well as patients' rooms and all general purposes. The genuine vitreous china Scrub-up Sinks, illustrated, are in the Sid Peterson Memorial Hospital, Kerrville, Texas. Architect: Addis E. Noonan, San Antonio, Texas.
for every kind of job

- Look over the new construction jobs that are going up today and you'll find more and more of them with heating equipment and plumbing fixtures by American-Standard. This isn't surprising when you remember that the American-Standard line is the most complete in the industry, and includes products for even the most specialized needs.

This variety of products offers the widest flexibility in designing and styling for structures of almost every size and type... whether for houses, hotels, schools, hospitals, or large industrial buildings.

In design and performance, you can rely on American-Standard Heating Equipment and Plumbing Fixtures to do the job right. Your Heating and Plumbing Contractor will be glad to give you up-to-date information on the complete line. American Radiator & Standard Sanitary Corporation, P. O. Box 1226, Pittsburgh 30, Pa.

DISTINCTIVE BATHROOMS FOR A DISTINCTIVE HOTEL! The bathrooms of the ultra-modern Beverly-Carlton Hotel in Beverly Hills, California, are equipped with American-Standard Plumbing Fixtures. These quality fixtures, which add so much to the convenience and comfort of hotel guests, fit right in with any type of construction... they'll add much to the appearance of any building you design. Architect: Sam Reisbord, Los Angeles, California.

THE RUGGED SERVICE CONDITIONS encountered in schools provide a real test for plumbing fixtures. American-Standard products are popular with school authorities because they will take a lot of rough treatment... they're hard to mar, easy to keep clean. These Chinal Urinals and Lucerne Lavatories are located in the St. Athanasius School, Evanston, Illinois. Architects: Meyer & Cook, Chicago, Illinois.

SPACE SAVING IS AN IMPORTANT CONSIDERATION in tourist courts. And this Arco Multituf Convector, installed in the Bucking Horse Tourist Court in Rawlins, Wyoming, not only saves space but, with the American Enclosure, makes an attractive installation. It provides efficient heating throughout the room. Architects: Kellogg and Kellogg, Cheyenne, Wyoming.

AMERICAN-Standard
First in heating... first in plumbing

Serving home and industry

AMERICAN-STANDARD • AMERICAN BLOWER • CHURCH SEATS • DETROIT LUBRICATOR • KEWANEE BOILERS • ROSS HEATER • TONAWANDA IRON
For complaint-free low velocity air distribution

The Carrier Corporation
Offices, New York City. Multi-Vent panels, barely discernible in beautiful, plaque-type coffered ceiling. Remarkably fine temperature regulation achieved by varying air volume in each zone with thermostat controlled modulating dampers.

Though the cost of supply and return air outlets is a very small percentage of the overall cost of a good air conditioning system, economizing in the selection of air distribution media is often the cause of complaints from clients on drafts, uneven temperatures, insufficient air, noise and dirty ceilings.

Multi-Vent is better able than any other diffuser to provide widespread uniform air distribution, without these common objectionable conditions because the basic draft, noise and dirt hazards, inherent in all other diffusers, are non-existent in the unique Multi-Vent principle of distributing air entirely by displacement rather than by high velocity injection.

In distribution by displacement there are no strong air streams to aim and no change in air flow pattern when air supply is varied. Regardless of room size, ceiling heights and relative positions of partitions, beams, etc., all problems of outlet location and air direction adjustments for throw and drop to avoid drafts are eliminated.

Multi-Vent, moreover, can handle greater amounts of air in proportion to room size than any other diffuser and still maintain a rate of air motion low enough to meet not only the most exacting comfort zone requirements but also to solve the high load and high ventilating problems in critical laboratory and industrial processing areas.

Multi-Vent has many other advantages such as savings in basic heating, cooling and air handling equipment in addition to the important installation, maintenance and decorating economies.

Write for detailed literature and the name of our sales engineer in your vicinity.

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Your entire air conditioning system will be judged by the performance of the outlets.
YOUR copy of Hauserman Catalog 50 is now ready. It's a fully illustrated, 60 page catalog that thoroughly describes all the proved advantages of Hauserman Movable Steel Interiors. It also contains all the latest technical developments and specifications.

You'll find that this new catalog is a handy, easy-to-use reference. It shows and explains all the Hauserman types for commercial, industrial and institutional buildings.

Hauserman Catalog 50 and the services of trained Hauserman engineers are yours for the asking. Just call the Hauserman office or representative nearby, or contact The E. F. Hauserman Company, 6794 Grant Ave., Cleveland 5, Ohio.
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IN order to bring to readers again this year a full range of ideas for furnishing and decorating various types of home interiors, the Chicago Tribune is conducting its Fourth Annual Better Rooms Competition, offering $25,000.00 in 145 cash awards for the best ideas submitted.

Just as the Chicago Tribune's competitions in 1947, 1948 and 1949 brought out a wealth of fresh and interesting ideas in this field of high popular interest, so the 1950 competition has been designed to set new standards in home interior fashions.

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After the prize winners have been chosen, the Tribune, just as it has in previous years, intends to reproduce the winning ideas, or adaptations of them, in full color in the Chicago Sunday Tribune.

Everyone is eligible to compete, except employees of the Chicago Tribune and subsidiaries, members of their families, and of the Jury of Awards, which, as in the past, will be composed of recognized authorities of high standing in the field of home furnishing and interior decoration.

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1900-1950
1900–1950

the GRAND detour

The first half of this century is gone. At its beginning, the world in general and the self-confident United States in particular, seemed on the verge of an era of culmination and satisfaction. Nineteenth-century political philosophy had suggested means of producing lasting peace and prosperity. Scientific studies and technological abilities gave promise of usable, practical results for man’s greater comfort and surer growth. Yet the year 1950, at the century’s mid-point, marks the end of a period which has not been what was expected or hoped for. Rather has it been a time of building in lavish volume with unsure purpose; of alternate booms and depressions, recurrent wars and uneasy peace times; of the spread of contentious political theories; of technical knowledge so advanced that it can produce (as we will) good places to live or shattering bombs to destroy.

We have traveled a circuitous route in these 50 years. As in world affairs, a grand detour in architecture has taken us through periods of imitation, of experiment, of speculation. A layman, looking at the then-and-now illustrations on this page might ask the practicing architect, “What took you so long?” Work done before the start of the 20th century
showed sharp advance in planning, in new techniques, in an integrated and pleasing expression of the over-all design. And yet it has taken half another century to reach the stage of development that we approach today. Why did it take so long?

Perhaps the answer lies in the pages that follow. Technology was not ready at first for rapid growth. Scientists and technicians knew before 1901 the principles of central heating, of electric lighting, of mechanical ventilation, and of sanitary plumbing. But remember that most of the culminating inventions and the actual production of sources, distribution, and outlets came after the turn of the century in all those fields. Structural steel framing was a novel method of construction at the beginning of the century; reinforced concrete was then a distrusted material.

Social development itself—the program that the architect works to, in the larger sense—has not been conducive to rapid advance in design. When the architect was called on to produce extravagant mansions and ostentatious clubs, it was not reasonable to expect him to search out simplicity in expression. When others employed him and held as principal criterion the rapid turnover of investment, it was not to be expected that monumentality would survive. When every possible square foot of dwelling space was squeezed out to lower costs, humanism could not result. In addition, consider that many of today's most common building types—the airport, the gasoline-and-service station, the monstrous factory of mass production, the suburban department store, to name just a few—were unknown at the beginning of the century. Each has presented new problems for the architect to solve. Moreover, the growth of scientific and social understanding in disciplines which affect architecture—education, psychology, medicine and related emotional and physiological fields, sociology, esthetics and the study of visual and tactical perception—also have been tentative, radically altered in some cases, more securely established on earlier premises in others. The architect, the buildings, and the cities he has produced have moved slowly because he and his client were both feeling their way.

Where will we go in the next 50 years? Will it be out on another detour, perhaps as costly and self-destructive? Or can there be a more direct advance from the best of the recent work than there was 50 years ago from the work of the great designers of the late 19th century? It is in the belief that this question can be answered more clearly if we study carefully what did happen in the first half of our century, that P/A presents this issue.
Splendor and meagerness both typified the era. 
(New York club banquet for a Prussian Prince; a middle-class kitchen.)

1900-1916

Dreams of Empire . . . Roosevelt the Trust Buster . . . the Billion-dollar Corporation . . . the Company Town . . . the City Beautiful . . . Henry Ford and the Wright Brothers . . . the Panama Canal . . . Tenements and Zoning Ordinances . . . World War I.

A new world, full as much of hazard as of promise, was coming into being. When the century was young, the United States went through an unprecedented period of technical development and industrial expansion.

The following inventions were recorded early: the internal combustion motor, the high-speed elevator, the radio telephone, the airplane, the depth bomb, the tungsten lamp—and aspirin. Niagara Falls, awesome wonder to earlier generations, was harnessed as a source of hydro-electric power, and other plants followed. Manufactured gas, an industrially useful steam engine, interconnected electric power units, were all developed at about this time as prime sources of power. Along with scientific development came industrial expansion and eager commercial application. Trusts were outlawed and great corporations were founded—American Radiator in 1899, U.S. Steel (first billion-dollar corporation) in 1901, Bethlehem Steel in 1905.

Great personal fortunes amassed in the 19th century had given rise to an aristocracy of wealth, with dreams of imperial dimensions. By the time a trumpeting Theodore Roosevelt became president in 1901, on the assassination of McKinley, we had already moved, sparked by the Spanish American war, on to a program of expansion. True, there was a panic in 1907, a sharp

**important events**


1902: First movie house opened. N.Y, erects tenement laws.

1903: Panama Republic recognized by U.S. Iriquois Theater fire, Chicago. First successful flight at Kitty Hawk.

1904: Roosevelt re-elected. U.S. occupies Panama Canal Zone. N.Y. subway opened. First ice cream cones, at St. Louis Fair.

1905: Einstein discovers that energy equals mass times the square of the speed of light. 1,000,000 immigrants.


1911: First transcontinental airplane flight. U.S. Supreme Court orders Standard Oil combine dissolved.


1915: Lusitania sunk.

The period was heavily influenced by recollections of the Chicago World's Fair. Depression, and signs of declining prosperity were again visible when World War I came; but generally speaking the country was riding high for 15 years.

A strong leitmotif in this American "Emperor Concerto" was the fact that an impressive share of accumulated dynastic wealth was poured into specialized fact-finding agencies, into building funds of select colleges, into the establishment of memorial foundations. There were also vigorous political drives against the piling up of private fortunes: in 1913 the income-tax Amendment was added to the Constitution, for social as well as federal revenue purposes. It is similarly significant that this period saw the first zoning law; the first City Planning Commission; and more laws against firetraps; and the first state tenement house law.

This was the slightly shifting scene in which architects worked through the first years of the century. Some of the pages that follow will show the results. It appears to be the vision of glory and wealth that provided the strongest impetus, rather than the undercurrent of social growth or the unregarded technical advances. The imperial dream had been expressed for all to admire at the Columbian Exposition in Chicago—and the earlier work of the Chicago School was all but forgotten. It was in keeping with sentiment of the time that the monument proudly erected in New York to herald the return of Admiral Dewey from Manila Bay was a Roman triumphal arch—made of plaster, burlap, and hay.

Mediocre town and city streets were lifted out of the ordinary by monuments of marble—or plaster. (Right, Dewey Arch.)

technical developments

1900: High speed tool steel developed. First electric lamp introduced to United States. First automatic bilge pump installed. Factory-made kitchen cabinets and cupboards manufactured.


1903: First under feed automatic stoker manufactured. First mechanical dishwasher. Concrete slab and buttress dam built at Theresa, N.Y. First successful air conditioning system installed in lithographing plant.

1904: Mile-long East Boston subway tunnel opened; ventilation ducts drew out air. Harlem River tunnel in New York built by sinking sections within coffer dam. Willis H. Carrier invented apparatus to humidify and dehumidify air.


1907: Radio suction tube invented by Lee De Forest. First tungsten filament lamp produced in United States.

1908: Banker secured first patents on synthetic resins. Interlocking steel sheet pile invented by A. A. Raymond. First vacuum cleaner introduced. Nickel steel for high strength members of Manhattan suspension bridge. First electric iron marketed.

1913: First under feed automatic stoker manufactured. First mechanical dishwasher. Concrete slab and buttress dam built at Theresa, N.Y. First successful air conditioning system installed in lithographing plant. Willis H. Carrier invented apparatus to humidify and dehumidify air.

1914: Insulation board first produced commercially in Minnesota.

1915: Slope-deformation method for rigid frame analysis proposed by Money.

Although structural design was daring, it was generally disguised by veneers. (Waiting room, far left, and Grand Concourse, above, Pennsylvania Station, New York, by McKim, Mead & White.)

Steel skeleton problems were solved; skyscrapers went higher and higher. (Cass Gilbert clothed Woolworth Building with terra cotta; Daniel H. Burnham covered the Flatiron Building with granite.)

1900-1916

The design of the Manhattan Bridge (by Hornbostel and Lindenthal) was first in United States to include theory that dead weight reduces live load distortions.

construction methods

When the 26-story Park Row Building was built in New York City in 1898, it was considered doubtful that other buildings as high would be either desirable or profitable. But in 1913 the Woolworth Building went to 58-stories—with reduced floor heights, it is true. The tall building was here to stay, primarily by virtue of the steel skeleton frame, the curtain wall, and the construction methods they produced. Reinforced concrete also began to play an active part; and in wood construction the balloon frame became almost universal.

With the failure of cast-iron columns of an apartment house in 1904, that material passed out of favor for major structural members. Early structural steel columns were assemblies of channels, angles, and plates, although steel I-beams and girders had been rolled since 1885. Wide-flange
sections appeared in 1906. During this first period of structural steel design in the United States the architects and the engineers solved most of the problems of the statically determinate steel structure.

In the field of reinforced concrete there was great activity; both the Portland Cement Association and the American Concrete Institute were founded. By 1914, 925 patents had been granted for various methods of concrete construction and much of the original technical work in Europe had been absorbed here. In 1903, the Ingalls Building in Cincinnati flaunted a concrete frame 16-stories high; by 1908 complete houses and school buildings had been poured. At first the concrete frame imitated steel beam and girder design; but by the end of the period round and octagonal columns, bell caps, drop slabs, and four-way, two-way, and circumferentially reinforced floor slabs were common. Many varieties of deformed bars were designed to assist in bond; extensive water-cement ratio studies were made.

Steel construction forced attention to the practice of fireproofing. The common floor system in the early years was the flat terra cotta arch springing from the bottom flanges of steel I-beams; soon there were also concrete arches with suspended plaster ceilings, expanded metal floors, and Columbian floors with flat plate construction combined with rolled steel bars and concrete. During this era, pyramidal masonry foundations were abandoned for cantilevered concrete designs; grillage was less frequently used; and pneumatic caisson construction gained in use.

Although many buildings were so disguised by veneers and architectural symbols that they looked almost like masonry structures, there were a few daring designers who frankly revealed structure and filled the openings with glass areas; indeed, at this time began a general acceptance of larger wall openings. It was a time of bold experiment in basic structure—though the 20th century concept of the indeterminate type was yet to come.

By the end of the period, designers made appropriate use of concrete. (Below: skeleton frame building by Charles Fall; flat slab construction by Lockwood, Greene & Co.; and precast floor and wall slabs at Forest Hills, Long Island, by Grosvenor Atterbury.)
Plumbing and heating fixtures were more commonly used, but coordinated design was yet to come.

As buildings grew larger, new equipment offered solutions for vertical transportation. (Above, moving stairway installed in Pittsburgh department store.)

1900-1916 materials and equipment

It was possible, as late as 1900, for an architect to design and engineer his structures, specify the lighting, heating, and plumbing without assistance, and be thoroughly familiar with all the building products. With the arrival of countless new materials, methods of construction, and items of equipment, the task became more complex. Among new materials, steel quickly met all the major structural requirements for stabilizing skeleton structures, also restrained all of the tensile forces acting in reinforced concrete structures. Cast iron, along with wrought iron and bronze, was now employed for elaborate ornamental work for marquees, elevator enclosures, stair panels, grillwork, and doors. Metal panels also were pressed to resemble pilasters, pediments, and quoins for the fronts of buildings, as well as unmistakably false coffered ceilings.

Exterior stone masonry was used for the double purpose of protecting and hiding the frame. Craftsmanship in brick construction achieved one of its highest standards in history. Terra cotta was a popular and dominant material, because of its lightness, ease of manufacture, wide range of color and style imitations, and its adaptability to skeleton construction methods. Partly because of the high cost of wood, one of the new structural materials

New electric lighting fixtures were adaptations of gas units, or combinations of both.
Early electric range (above); a first motor-driven washing machine and wringer (below).

Efficiency of boilers and radiators was not reduced by their ornate "architecture."

Manufacturers soon produced workable equipment such as air diffusers, sprinklers, valves, and other control items.

to be introduced was the cement block. In its younger days the block was cast to imitate picked stone masonry, but was not very popular.

Roofs were frequently covered with tin, corrugated iron, copper, or nickel-copper sheathing; although wood, clay, and slate shingles remained in use. Asbestos and multi-ply roofing methods were being established (Barrett began giving a 20-year surety-bond guarantee in 1916). Glass became a more important material, as efficient factory methods for continuous production were developed. Increasing cost of wood in the East caused a westward migration of the lumber industry and a standardization of building woodwork. As early as 1905 "veneered wood" produced in large sheets by the rotary cutter was used primarily for door panels and drawer
Architectural cast aluminum was introduced at this time, while pressed metal ceilings continued to be used.

Architectural cast aluminum was introduced at this time, while pressed metal ceilings continued to be used.

1900-1916 materials and equipment

bottoms. Kiln drying of lumber was introduced in 1910. Hardwood flooring became popular. Protection methods moved toward stabilization at the end of the period, when prepared paints began to replace the painters' own mixes. Most builders' hardware exhibited the typical décor of the period; but one contribution to advance came when the panic bolt was invented, as a result of disastrous fires.

Early in the century, incandescent lighting challenged and defeated the gaslight as the means of artificial illumination. Along with auxiliary heating units, one and two pipe steam and hot water systems were installed; pipes were relatively large and temperatures relatively low, despite the generous size of the first florid, cast-iron radiators. Gravity hot-air systems gained the advantage of thermostatic control; the automatic stoker made its appearance; gas- and oil-fired boilers were in use by 1916. The first steps in the conditioning of air were made in industrial plants; further experiments occurred in office buildings during the period.

The science of sanitary plumbing progressed rapidly. Bathtubs emerged from their Victorian disguises, and overhead water chambers were lowered to toilet-fixture level. As the provision of hot and cold running water became more general, water closets, once the privilege of the few, found their way even into rural middle-class homes. The Imhoff tank and the activated sludge methods were developed for the treatment of sewage.

The architects and engineers of the period could not complain about the tools with which they might design and build. Technology and industrial production produced for them the greatest array of new materials and products that had ever been offered a group of designers.
1900-1916 architectural practice

Provided with new construction methods and materials that made higher and wider structures possible, patronized by princes of wealth or ambitious heads of business ventures expanding to a size heretofore unknown, and challenged by strange design problems in the creation of building types that were as new as the century, the architects soon brought to the American scene an imposing series of the biggest buildings yet.

It was in this period that the first of the great railroad stations were completed—Pennsylvania and Grand Central terminals in New York, the Union Station in Washington, Northwestern Station in Chicago. There was in the design of these buildings a really adventurous sort of engineering, successfully hidden in most instances. There was also, in planning, a careful study of functional needs and social preferences of the time. Although schools and hospitals that were done later in the period were not buildings that would satisfy today's experts, they had advanced far from the bleak concepts of institutions that obtained at the beginning of the century. For instance, remember that little was known in 1901 of nursing care to avoid infection, yet some surprisingly well-planned hospitals had emerged by 1916. A.D.F. Hamlin also had justification for writing the year before that "a new architecture of school buildings has been developed, based on scientific principles and the logical use of plan and structure." In building types as new as the great metropolitan department store, the elevator-served steel-framed skyscraper, and the large commercial hotel, the architect faced new design challenges—faced them bravely, in structure and plan.

The Russell Sage Foundation sponsored the Long Island community of Forest Hills, a project for working people, and Grosvenor Atterbury,
Luxury apartment houses and huge commercial hotels were new building types. (Left, 998 Fifth Ave., New York, by McKim, Mead & White; left, below, Biltmore Hotel, New York, by John McEntee Bowman.)

Residential commissions ranged from suburban cottages to stately mansions. (Right, Ladies' Home Journal prize-winning $3000 house by William G. Rantoul; below, Clarence Mackay mansion, Roslyn, Long Island, by McKim, Mead & White.)

the architect, merits double credit for development of his schemes in pleasant relationship to the landscape and also for introduction of a practical system of precast floor and wall slabs. Then, too, such moves toward the "city beautiful" as the Civic Center in Springfield, Massachusetts, gave hints of better things to come and indicated a desire to control in some design discipline the haphazard city and suburban growth. There were a few "garden cities" but none cared to look at the drab company towns that began to appear in most of the mushrooming industrial centers or at the awkward suburban houses that the architects seldom touched. Trolleys, subways, elevated railways, automobiles, and ever-faster trains fed city

Some distinguished architects were busy with church design. (All Saints', Peterborough, N.H., by Cram & Ferguson.)
Commissions for grandioses mansions overshadowed the problem of housing the average citizen. (Above, left, George Gould mansion, Lakewood, N.J.; Clark mansion, New York, by Lord, Hewlett & Hall; right, farmhouse, Grand Traverse County, Mich., anon.)

**1900-1916 architectural practice**

Congestion of the most uncontrolled sort; the symbol was the skyscraper, while the escape was the prideful garden suburb.

Thus during this first period the practice of architecture—as distinguished from the design results, which will be considered on the following two pages—moved forward rather rapidly. New building types and whole new fields of practice emerged and the profession began to grapple with them. If the results were spotty and confused, it was doubtless because the times were confused. Basic dichotomy of the rapid technological advance and the sweeping eagerness for facades of success hardly could have produced much beyond the *melange* that resulted.
Most architects were content with traditional styles and even stretched them to cover new structural forms. (San Francisco City Hall by Bakewell and Brown; Singer Building, New York, by Ernest Flagg; St. Vincent Ferrer Church, New York, by Goodhue and Chisling.)

Best firms were capable of tasteful, accurate eclecticism. (Left, Lincoln Memorial, Washington, by Henry Bacon; right, University Club, New York, by McKim, Mead & White.)

At the turn of the Century, the vigorous Chicago work of Holabird & Roche (three buildings below) and Sullivan (facade of building at right) was continuing. By the end of this period, it was all but forgotten.

Meantime, in California, work by Greene & Greene (above), Maybeck, and others reflected original design thinking.
Pausing on the eve of World War I to review the first design period of the century, A.D.F. Hamlin wrote in retrospect: “During the last 15 years there has been witnessed the growth of a very interesting phase of eclecticism in style, by which certain classes of buildings are habitually treated in various phases of neo-Classic design, others in free versions of the Gothic. Even the Greek Doric appears . . . Underneath the Gothic, Greek and Renaissance details and through them all, one may discern the real American architecture.” Whereas the Classic Orders certainly denoted the most popular of the imported styles, there was indeed a parallel devotion to every other namable tradition, as well as the Beaux Arts variations. A rash of scholarly Gothic churches appeared.

On the Woolworth Building, Gothic detail molded in terra cotta was used, in the active search for an appropriate enclosure for the new steel-framed skyscraper. On other skyscrapers the effort was not so laudable or so successful. One observant historian has pointed out that the tower built for the Boston Custom House boasts among its storied architectural fragments not only a base, a shaft, and a number of architraves; but also a Greek Temple, a tall office building, a model for a national bank, a large parlor-mantel clock, a summer palace for a middle-eastern monarch, and an elongated Egyptian pyramid. Perhaps the outstanding fault with the design of the time, as we look back on it, was the lack of integration between purpose and plan of the buildings, and their final expression. Well-conceived garden communities were made to resemble romantic English favorites. The move toward orderly city centers fell into groupings of French Renaissance versions of Roman temples.

Yet through the period ran a footnote of experiment and accomplishment. Not only were some designers making an effort to find an appropriate style by adaptation and conversion; others were searching for beauty through the imaginative expression of plan, structure, and materials. As one surveys the whole product of the times, it seems as though the work of the earlier native innovators had been completely obliterated. And yet, as Sullivan’s Transportation Building struck a minor note in the Columbian Exposition, noticed and admired principally by visitors from abroad; so the work of Wright, Greene & Greene, Maybeck (Sullivan, too, for a while), and some others, persisted, along with the more triumphant eclecticism.

Wright was first to cast a concrete building complete, ornament and all (Unity Temple, Oak Park, Ill.); the famous Robie house (Chicago) demonstrated his “organic” concept for living.
Veterans of World War I left their tents to face a housing shortage which stimulated haphazard, speculative developments, as in Los Angeles (above).

1917-1930 the scene


The "war to end war" marked a turning point. To finance the cost, income taxes went up to 65% for the highest bracket and excess profits taxes were levied. Government-financed war housing for shipyard workers was quickly sold to private interests. Bankers channeled billions of American dollars into rebuilding Germany, as the eastern bulwark against the new-risen Soviets. Wilson's social concepts were brushed aside. The United States hastily abandoned Europe and the infant League of Nations. Everyone soon forgot that World War I had intervened to save a deteriorating economic situation; and the postwar boom which held off the reckoning for another 10 years was a grand inflationary splurge.

Diverse ingredients made up the beginning of the boom period. Borah and Lodge effectively fought the ideal of international cooperation; and Harding and Coolidge won the country's top offices, against Cox and Franklin D. Roosevelt. Prohibition added bootleg zest to the economic mulligan-awney. "Normalcy" produced higher tariffs.

Coolidge "prosperity" won in 1924. Al Smith, who favored repeal of prohibition, lost in 1928 to Hoover, rugged individualist, who pronounced it a "noble experiment." There were 10 million radios in U.S. homes; 50

Competitive enterprise pushed skyscrapers ever higher in already congested cities. (Left, McGraw-Hill Building, New York, by Hood & Fouilhoux; right, Chrysler Building, New York, by William Van Alen.)
Mass auto production caused increasing traffic congestion. Chicago (Michigan Boulevard, above), like other cities, sought new solutions. Some fled to suburban comfort (above); some few war workers lived in well-planned communities (right, above); but the average man put up with dull builders' subdivisions (right).

Million Americans went to the movies every week; installment buying became a habit. National income was $65 billion in 1922, $76 billion in 1923, $86 billion in 1925, and $89 billion in 1929. The stock market rocketed. Those who thought they could afford it moved from crowded cities to make first payments in restricted suburbs.

In industrial economics, large corporations formed in prewar years passed in many instances to the control of promoters and bankers. Then, just as smaller corporations had merged into larger ones in the first part of the century, the banks began to merge. Culmination was the largest merger of all, in 1931, when Chase National became the nation's greatest money power, with resources of $2 1/2 billions. During this same period the Reconstruction Finance Corporation was set up; the government sponsored a housing survey; and all of the social reforms introduced since 1900 were continued and in some cases accelerated; though both Coolidge and Hoover vetoed Congressional bills sponsoring government ownership of the Muscle Shoals (later TVA) development.

During the race for wealth and escape from realities, it was overlooked that we had two million unemployed through most of the '20s; much of Europe was in the financial dumps; our farming was not prosperous; technological unemployment was worrying both labor and industry. In the fall of 1929 the stock market collapsed. Around the corner where prosperity was said to be lurking—were 12,000,000 unemployed.

**technical developments**

- **1917**: First electric refrigerators introduced. Continuous method of drawing sheet glass developed. First bridge to employ silicon steel at Metropolis, Illinois.
- **1918**: First unit heater marketed. Self-regulating electric time system introduced.
- **1919**: Casein plastics.
- **1920**: Centrifugally-cast iron pipe and cement-lined pipe on the market.
- **1921**: Air filters developed and marketed in conjunction with air conditioning. American Institute of Steel Construction founded.
- **1922**: Rigid frame concrete spans used for Westchester County, New York, bridges. Invention of small hermetically sealed absorption refrigeration unit making household gas refrigeration commercially possible.
- **1923**: First electric tube neon advertising sign.
- **1925**: First inside-frosted lamp. Standardization of lamps facilitating mass production. First large zeolite water-softening plant in operation at Pittsburgh. Development of orifice control of steam supply to radiators. Dry ice used commercially for the refrigeration of ice cream.
- **1927**: Safety glass brought to general market. Holland Tunnel, New York, completed, ventilated by mechanical means.
- **1928**: Emulsified asphalt stabilization used for first time on California road.
- **1929**: Successive approximations for design of indeterminant structures introduced by Hardy Cross.
Among the first large all-welded steel buildings was a Westinghouse factory at Sharon, Pa.

1917-1930 construction methods

After World War I there was more evident exploitation of the vast amount of technical knowledge developed during the preceding 20 years. When the Empire State Building was carried to a height of 1248 feet, the principal construction methods employed to accomplish the feat were not new. Again it was crowed that a top height had been reached; although technical knowledge of the time was competent to erect structures twice as high. Only business frenzy and land-abuse spawned similar buildings elsewhere.

Having solved more than enough structural problems of static height, the designers turned to the questions of large span and continuity of stress. In the first years of the century, structures were spanned by various forms of truss construction; by steel arches springing like groin vaults from composite steel columns, by masonry and concrete domes, and (in a few cases) by high concrete arches. These were primarily developments of bridge engineering. In the continuing search for lighter building materials, reduced construction costs, and a more efficient use of space and volume, more daring methods and uses of materials were briskly explored. Great advances were now made in the solution of the indeterminate structure: in advanced studies of the rigid frame and of continuity.

Assembly-line production methods in the output of building products, as in other fields of mass manufacture, spurred design advances. Many of
the first applications of new principles were made in minor structures; and the growing interest in spectator sports, requiring buildings with great clear spans, brought about many of the first studies. For instance, a relatively small enclosed tennis court provided an early example, in this period, of riveted rigid steel bents; while later in the same decade appeared a large university field house with a welded and riveted rigid frame construction spanning 155 feet.

Materials and techniques, as well as basic design knowledge, showed advance during the '20s. Steel frames became lighter; complete facility in curtain wall construction was developed. Open-web joists and lightweight pressed-steel beams were widely used. Great strides were made in the structural design of industrial buildings: monitors became much lighter; window openings were converted into virtually continuous strips; the distances between column centers in factory bays spread considerably wider. Lozenge-patterned lamella arch construction, a development of wood design originating in Europe during the early '20s, was used frequently by the end of the period, to cover such structures as garages, recreational buildings, and hangars.

At that time, welding bid for a major role in construction. The earlier technological difficulties with the weld metal, which had held up the process
Unique possibilities of concrete were seldom exploited. Advanced concrete frames were generally covered by curtain walls. (Far left, Atlanta Biltmore Hotel by Schultze & Weaver.) Concrete was also employed to imitate load-bearing masonry. (Left, First Baptist Church, Los Angeles, by Allison & Allison.)

1917-1930 construction methods

for 20 years, were solved. But the next step was to overcome the lag among designers, who for some time evaluated welds as replacements for rivets and failed to take advantage of the continuity that welding can give to a structure. The acceptance of welding under existing building codes also was slow, but it gradually became a recognized method. By 1927, structures commercially welded in all their parts had been erected.

Concrete designers, as they made refinements in the use of that material, also extended their thinking to the greater possibilities of continuous framing. Although the appearance of haunched sections introduced a more truthful expression of the forces taking place within concrete girders and although the concrete skeleton became far more slender and graceful; frames were still usually covered with veneers which reflected an esthetic preference and also an incomplete confidence in the technical knowledge for obtaining durable surfaces. This despite the fact that in some parts of the country—notably the West—cast-in-place concrete detail, in imitation of elements as remote as Gothic masonry, was extremely popular.
To utilize natural lighting, glass appeared in larger areas (left, Oak Lane School by Howe & Lescaze) and in block form (above, house by Edward D. Stone).

1917-1930 materials and equipment

The great wealth of technical knowledge shared by the inventor and the manufacturer, the development of distribution and sales systems, and the increased interest in modern technology among architects and engineers, all were clearly reflected in the availability and use of new materials and equipment items during this period. It is important to realize that the evolution was not merely one of taste; almost uniformly the new products contributed to man’s leisure and decreased his labor. This was the time of the introduction of the electric refrigerator, the automatic clothes dryer, remote-control door operators, intercommunication systems, elevator signal controls, etc.

As in the previous period, not all new materials were at once accepted. Stainless steel was introduced, primarily as a non-structural material (and its producers were required to furnish 20-year guarantees). Cast aluminum, used earlier in interiors, at this time became popular as a spandrel covering.

Lighting moved toward closer integration with function and with other design elements. (Below, prismatic lenses in operating room; right, coffers combining light and air control in hotel dining room.)
Heating and air conditioning were increased in scale and precision. (Above, bank of boilers; right, air-conditioning ducts in first windowless factory.)

More precise regulators and new unit heaters assisted environmental control.

1917-1930

There was activity in the development of wood products and by-products: such materials as wood-fiber insulation, hardboard, extremely thin veneers, and block flooring appeared on the market. Plywood, strongly established as an important building material by its service in World War I, enjoyed a steady increase in acceptance. Better adhesives (protein glue was used by 1927) and better protectors and repellents were welcome aids.

The use of insulation, particularly in residences, spread rapidly during this period as studies of its advantages were published. Vermiculite, the result of expansion of "fool's gold", was marketed as an insulating material as well as a lightweight aggregate. Perlite, too, was discovered about this time, although it was not developed commercially until later. Blast-furnace slag was found to make a superior rock wool. At the same time, several large manufacturers pioneered in acoustical insulation materials, as more scientific attention was directed to this problem.

Asphalt tile and rubber tile were manufactured commercially in 1922, but architects were at first reluctant to adopt the new resilient flooring products. In 1920, broadloom carpet had been introduced and many of the boom-time hotels used unbroken expanses of carpet as flooring material. Two important steps were taken in the design of builders' hardware: the key-in-knob lock and the hold-open type of door closer.

Household tasks were simplified by prefabricated kitchen cabinets, electric refrigerators, and better electric washing machines.

Early intercommunication systems assisted administrative efficiency.
Movable metal partitions found various uses. Prefabricated shower stall and built-in tub were new bathroom features.

**materials and equipment**

With the increasing demand for larger window areas, designers began to exploit more of the possibilities of natural lighting. The quality of sheet and plate glass improved and, toward the end of the period, glass blocks were introduced. In artificial lighting, there was study of concealed lighting of various sorts; some fixtures were manufactured which advanced toward diffusion principles. The first neon lights and the first frosted incandescent lamps were produced in the '20s.

Advances were similarly made in the clearer analysis of heating problems and the development of equipment to solve them. Forced hot-water circulation was developed around the middle '20s; and as the water later was circulated more rapidly and at higher temperatures, pipes became smaller. The first unit heater was invented in 1918 and its popularity rose as gas rates began to fall shortly after. The ceiling-suspended discharge unit was invented in 1928.

Materials with which to build and finish structures, equipment with which to control the environment, thus were becoming available in ever-increasing quantity. If their use was often hesitant and sometimes downright reluctant, it is understandable when one remembers that few of the new products had then been tested. In fact, since that time, many of them have been radically altered and improved.
Lush was the word for it! The tallest and biggest buildings the world had ever seen were crowded onto lots subdivided years before for city houses. The skyscraper concept rose to become a national fetish. Clients demanded towers on every sort of building, whether the site was limited or vast; values high or low. City halls, department stores, hotels, office buildings, universities, and state capitols soared upward to tickle the sky, amaze the populace, and keep the architects and engineers busier than they'd ever been before.

Not only was there an immense amount of building, but also it was done with record-breaking speed. Of the building types that had flourished in the earlier period of the century, the post-war boom activity produced ever bigger—and in many cases better—versions. In a few instances, series of buildings were designed to harmonize in scale and color, as on Park Avenue above Grand Central Station. In addition, a whole new series of building types appeared, offspring of social demand and profitable enterprise. The movies prospered mightily and learned to talk. Designers were called on to provide marble “palaces” everywhere for the throngs of devotees. Concentration of population and increasing tax funds made possible
Commissions ranged from the infrequent formal "plum" (Henry E. Huntington Library, San Marino, Calif., by Myron Hunt) to the ubiquitous public institution (Adams Primary School, Phoenix, Ariz., by Fitzhugh & Byron).

Concentrated needs and available funds posed vast, complex design problems. (Above, Columbia-Presbyterian Medical Center, New York, begun in 1928 by James Gamble Rogers.)

huge new medical centers and metropolitan and county hospitals. The automobile required more and more gas stations and garages. Sports events won the adulation of millions, so arenas were constructed of a size not seen since Rome baited Early Christians. In the year 1924 alone, new stadiums provided seats for 366,000 fans; in the year 1926 they accommodated 512,000 more. Baseball became big business; football financed many a college. Airplanes became more common, the hangar and the airport began to require architectural services. The new radio broadcasting brought other specialized design problems.

Residential work of all sorts was a rewarding field for the architect's services. For socialites and their imitators, the Mizners and others embellished the Florida East Coast with mansions worthy of the movies, so mixed in result that the architects themselves designated them vaguely as Modified Mediterranean. For the well-to-do such classic developments as the Country Club District, Kansas City; Westchester County, New York; and Grosse Point, Detroit, mark the period.

Thoughtful men in the design profession also began seriously to turn to the problems of housing the less wealthy and the very poor; of planning...
Design of movie "palaces" required endless rolls of dazzling full-size details. (Above, Theater, Los Angeles, by William Lee Woollett; right, Theater, Chicago, by Rapp & Rapp.)

From exclusive suburbs came commissions for vast and expensive country clubs. (Winged Foot, Mamaroneck, N.Y., by C. C. Wendehack.)

1917-1930 architectural practice

new subdivisions with more attention to pleasant and convenient living. The Rosenwalds subsidized a housing project for Negroes in Chicago; the Amalgamated Clothing Workers built an apartment project in New York. Planners developed bold new patterns for white-collar living, in such communities as "Sunnyside" in New York and "Radburn" in New Jersey.

The profession of architecture was at a busy crossroads. The American Institute of Architects had grown from a small club that included about 500 members at the beginning of the century to a more representative and inclusive—if still conservative—professional society. The work of individual practitioners ranged from far-sighted social studies in planning and housing needs, by such leaders as Henry Wright, Sr., Clarence Stein, Robert D. Kohn, and Frederick Ackerman, to the shoddy production of thoughtless house plans for a few dollars, by some of those who were doing speculative work. In between lay a large field of professional activity, in which it was hard to draw the line between ethical practice and a loss of professional independence. Hotels were designed by the best firms for a

The hotel boom and its subsequent collapse summed up the period's speculative aspects. (Pennsylvania Hotel, New York, by McKim, Mead & White.)

Decorators as well as architects found it profitable to serve the demand for luxury. (Right, bedroom of New Jersey home; beyond, country house by John Russell Pope; Eggars & Higgins.)

The hotel boom and its subsequent collapse summed up the period's speculative aspects. (Pennsylvania Hotel, New York, by McKim, Mead & White.)

Decorators as well as architects found it profitable to serve the demand for luxury. (Right, bedroom of New Jersey home; beyond, country house by John Russell Pope; Eggars & Higgins.)
Centers of learning found it good business to build sports arenas; cities began to develop public areas for recreational escape. (Above, Ohio State Stadium, by Howard Dwight Smith; right, Jones Beach State Park, New York, by Architectural Staff, Long Island State Park Commission.)

block of stock as fee—a practice many of them regretted when booms collapsed and the Crash came. Apartment houses and office buildings were ground out by "specialists," in a series of stock solutions for fees so low that they prohibited any study or research. Drafting rooms were full, salaries were fairly high, and charrettes were continuous. In chain hotel design, in the planning of office buildings for flexible use, in the scheming of expensive apartment house plans, in hospital planning and to a lesser extent in school planning, in the layout of amusement and recreational spaces, real advance was made by more thoughtful architects. Even in the field of residential design, such experiments as Ernest Flagg's houses, Fuller's Dymaxion, the American Houses' prefabs, and some others, challenged professional and consumer alike to reconsider conventions.

In a sense, it was a period when the architect could call the turns. Where the profession failed, none could say it didn't have the opportunity to do better. That here and there it succeeded brilliantly was a harbinger of things to come.

All manner of residential work crowded the drafting rooms as well as the suburbs. (Left, New Jersey house by Randolph Evans; below, San Diego bungalow.)
The boom in construction and all the new building types of the period put a poser up to the designers. No longer could one rely in every case on time-honored styles for the ready-made answer. When the planning problem was one peculiar to our own times and when construction methods and available materials were equally new; one had to contribute originality and creative enterprise, or turn to other than classic sources. In many instances the architect solved his problem well in plan but remained satisfied, as he had been earlier, to apply a veneer of familiar fragments. For instance, the best of the housing projects for shipyard workers—as at Bridgeport and Yorkshire Village—set new standards for over-all planning and achieved principles of livability that are still valid, however superficial was the stylist of the individual buildings.

One of the foremost experimenters of the period was Raymond Hood. In the Daily News Building he treated the skyscraper as a pier, with all the vertical elements emphasized; the next year, in the McGraw-Hill Building, he emphasized the floor levels in a composition of bold horizontal layers. Almost nobody, though, seemed to remember how directly Sullivan had expressed a convincing grillage in the Schlesinger-Mayer (now Carson-Pirie-Scott) Building, way back in 1900.

With its lavish moderne creations, the Paris Fair of 1925 was at least an effort to find new solutions to old problems—and it had its effect on
Fresh stimulation came from knowledge of the advanced work being done overseas. (Left to right: Plan for Paris by Le Corbusier & Jeanneret; living quarters. The Bauhaus, by Walter Gropius; Tuberculosis Sanitarium, Finland, by Alvar & Aino Aalto.)

architecture and decoration in the United States. Translated, it led a busy, if rather futile, existence by loading over-door treatments, remnants of string-courses, and places where cornices and capitals used to be with an obscure haze of low-relief ornamentation. Other influences from overseas had more lasting value. The work of Gropius at the Bauhaus and the published works and lectures of Le Corbusier became known to American professionals, and to some laymen here. Architectural visitors from abroad came to us in increasing numbers and some of the best of them stayed, foreshadowing the larger groups who were to come a decade later. Neutra, Schindler, and Lescaze, for instance, soon established themselves on these shores and began to do important work. Eliel Saarinen, already noted for his non-premiated design in the Chicago Tribune tower competition, began his extensive work at Cranbrook. All of these factors influenced native architects in the United States, among whom a number of highly personal design talents were exercised. Meanwhile, the work of Cret, for instance, and of Goodhue, proved that new approaches were possible within the discipline of the traditional. And Wright kept adding invigorating new pieces to the concept of organic design he had long been supporting. Along with more serious interest in planning and a great interest in the use of technical advances started in the earlier period, there was evident promise of more forthright design.
Reminder of the late boom was the huge planned commercial community, Rockefeller Center, New York, which was opened in the depression years.

New Deal called attention to city slum conditions; the government launched a dual program of slum clearance and low-cost housing.

1931-1941

important events

1931: Failures and gloom. By end of year, 12,000,000 unemployed.
1932: Franklin D. Roosevelt elected President.
1938: Chamberlain visits Munich. German troops march into Austria and Czechoslovakia.
1941: London air raids. Lend-Lease for defense. Pearl Harbor. Germany and Italy declare war against U.S.


Architects without clients made measured drawings for the Historic American Buildings Survey, stock brokers jumped out of windows, and the great town houses and country estates cut down to fewer servants. Society's needs, which had been calling for attention as an increasingly insistent simmering even through the period of great prosperity, reached a near-explosive boil as this period opened. The garment workers' show Pins and Needles featured the tune, "Sing Me a Song of Social Significance," but the Hoovervilles weren't funny. We had been deluded by the dreams of empire; we had invited excessive immigration to hold labor costs down; we had pushed westward again to open new industrial areas; we had hidden social ills from ourselves with an inflationary blanket. Now unemployment soared and the banks took a holiday. Franklin D. Roosevelt unmasked the enormity of the crisis; he pointed out that one third of our wealthy nation's people were ill-fed, ill-clothed, ill-housed.

Launching his first administration with the confident words, "The only thing we have to fear is fear itself," Roosevelt and Congress and the New Dealers gathered in Washington boldly applied both specific expedients and full-scale surgery to the national economy. There were federal efforts, such as direct relief, CCC, and WPA, including the gleefully criticized leaf-raking; there were partially successful attempts at regulation, such as the NRA; there were other Acts which have carried over and become a recog-
Blatant commercialism and traffic congestion, ills of the motor age, were partly relieved by controlled traffic ways.

Thousands of sightseers saw progressive architecture for the first time in World’s Fairs held (below, left to right) in Chicago, New York, and San Francisco.

organized part of our present scheme of things—systematized rights of collective bargaining, bolstering of the RFC method of loans to private enterprise, federal and state housing programs. Banks reopened, standard of wages and hours were set, Roosevelt was re-elected, and in time building as well as other business activity seemed to be steadying to a somewhat sobered, somewhat more realistic level of activity. The economy had been saved: opinions differed as to the cost and permanence of the recovery.

Meantime, as the domestic troubles seethed, Europe was setting the stage for a paranoiac repeat performance of *Gotterdamung*. The U.S.-S.R. since 1917 had been an unlimited dictatorship. Now Germany and other sick countries fell under the spell of demagogues who amplified the old tunes of chosen races, imperialist dreams (theirs), and goosestep conformity. Germany and Italy began to implement their warlike boasts; Europe burst into flame and the U.S. aided, within the concept of “steps short of war,” the cause of the attacked. As assembly lines pushed out munitions and materiel, the arms embargo was repealed, lend-lease was instituted, and Roosevelt and Churchill drafted an Atlantic Charter. Ambassadors Kurusu and Nomura arrived in Washington from Japan to discuss the deteriorating Far Eastern situation. December 7, 1941, the talking stopped and the bombs dropped on Pearl Harbor.

It was in this turbulent scene that architects found themselves. Necessity, rather than grandeur, became a prime goal of building—whether for the social concept of public housing; as “pump-priming” in public works; or toward the end of the period in the hard, functional problem of providing an optimum environment for speedily making implements of war.

**technical developments**


1932: George Washington Bridge completed at New York, prestressed suspenders used. Photoflood lamp for interior photography. Copper tubing used in place of iron pipe in heating systems.


1934: First streamlined train, Diesel driven; automobiles streamlined immediately following.

1935: Internal vibrators for concrete construction patented. First major installation of glued laminated arches at Forest Products Laboratory.

1936: Construction of Inter-American Highway begun. Open caissons 80’ x 195’ carried to record depth of 242’ for Bay Bridge, San Francisco. Bonneville Dam constructed using puzzolanic admixtures with cement.

1937: Golden Gate Bridge, San Francisco, designed with rigid frame towers. Patent applied for sealed beam auto headlight lamps. First all-glass doors manufactured.

1938: Polystrene plastics appear for first time.

1939: World’s largest activated-sludge installation begun at Chicago.


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1931-1941 construction methods

During the depression years, as there was relatively little construction, there were but few advances in construction methods. Yet there was continued study—particularly in the development of the statically indeterminate structure—and when building again started in the United States, there was a good deal of native experiment and also adaptation of systems developed in Europe. By the time World War II came, all of the new technological knowledge that had been accumulating for 60 years was ready for use in the defense construction program.

A number of important bridges were built during this decade. At Tacoma in 1940 what had been termed "an agreeable undulation" caused a dramatic failure. This was found to be the result of incorrect wind-weight analysis, and no reflection on the engineering knowledge of the time.

In concrete design, European designers and engineers were still influential. A most significant construction method brought from abroad was the Zeiss-Dywidag system. Especially suitable for large areas and wide spans, this system of analysis and reinforcement, used in thin shell domes and...
barrel vaults, was capable of mass production and resulted in high erection speed. As were other technical developments of the time, this method was first demonstrated here at Chicago's Century of Progress Exposition, in 1934. In concrete as in steel and wood construction, the further development of the rigid frame resulted in an obviously closer relationship between column and lintel; hollow rigid frames were tried successfully. At this time there was also pioneering in circumferential prestressing.

Although laminated wood arches and beams were used—mainly in the midwest—during that decade it was in steel arch construction that the big advances came. Two-hinged steel arches, tried in the previous period, became common. Arches of great span were fabricated of structural steel beam segments, cut at appropriate angles to form flat parabolic shapes.

How quickly this accumulated knowledge and skill might have been brought to fruition in peacetime is debatable; certainly the rapid application of technical skills and priorities granted for speeded construction, presaged a sharp advance in construction methods.

Three-hinged arch construction housed larger aircraft.
Further integration of light and air control resulted in one fixture.

Inherent qualities of new materials were sometimes overlooked in an attempt to simulate familiar ones. (Above, electric candelabra, 1/50" veneer panelling, and resilient tile flooring.)

Porcelain-enamel surfacing appeared on many a Main Street building.

1931-1941

materials and equipment

Because of the smaller volume of building, the development of materials and equipment progressed rather slowly during the first part of this period. After the impact of the several important expositions, however, it became clear that a good deal of research and development work had been going on unnoticed.

Glass products moved forward in importance as new uses of glass were suggested. Glass blocks had a period of great popularity and sometimes effective use. The all-glass door appeared and was soon widely favored. Windows made of twin glass sheets separated by an air space were produced to reduce heat loss through the popular large window areas. Structural glass competed with other materials for store front use; glass fibers were widely used for insulation by the end of the '30s.

Early in the period, wood began to meet the competition of metal substitutes for millwork by the application of protectives against warping, swelling, and decay. Pentachlorphenol preservatives came on the market. Through the development of phenolic resins, plywood was made waterproof.
Among other uses, it was found suitable for concrete forms. Flush wood doors gained popularity. Knotty pine, a depression-born product, continued to be widely used through the decade. In structural work, wood regained importance with the invention of the split-ring connector.

Porcelain enamel became an accepted surfacing material for small office buildings, bus stations, store fronts, and the like. There was a tremendous use of plastics for minor architectural purposes—table tops, counter tops, stair enclosures, etc. Significant developments in acoustical correction resulted in many varieties of sound-absorbent tiles and the increased production of acoustical plaster. The color range of asphalt tile was widened and a method devised for marbleization; rubber tile was made harder and denser and given a higher modulus of elasticity.

There was a growing use of double-hung aluminum windows, and while corrugated aluminum was used principally for roofs, extruded shapes found minor structural uses. Stainless steel and the "white" metals gained in popularity. Concrete, as a material, found wide usage through the development of precast concrete beams, girders, and columns.

Some new and improved items of equipment appeared. The deep freeze unit was developed for home use about 1935, although it did not receive wide acceptance until later. Kitchen planning studies instituted at this time, plus the appearance of new pieces of equipment, such as the garbage disposer, directed closer attention to that part of the house. In the control of environment, lighting made perhaps the greatest advance. It was the time of the "better sight through better light" movement; visibility meters were devised and a new method for rating task efficiency conceived. The first commercial fluorescent lamp was marketed in 1938. There was a tendency toward closer integration of lighting units with other environmental and protective factors: air diffusers, sprinklers, acoustical panels, etc.

As the decade ended, most of these products were fully developed and were used with surprising efficiency and skill in the great war program.
1931-1941 architectural practice

The decade opened as a time of pavement-pounding for hopeful draftsmen, with architects closing the doors of more than a few established offices. A few “plums” were available, but offices from Seattle to Savannah generally found themselves entering competitions (or politicking) to obtain commissions for federal-financed buildings. Architects hastily “boned up” on FHA regulations and on acceptable public-housing standards.

Naturally, the politicians awarded fat commissions to those professionals who had been politically faithful. But it should not be overlooked that a number of public jobs were quietly given out to selected firms and some design competitions were conducted for government works. Furthermore, the discipline of working on the design of, say, a public-housing project, acted as a vigorous eye-opener for many. Public funds were not unlimited; thus the problem of turning out a suitable number of dwelling units, community centers, nurseries, etc., with little or no budget for “prettifying,” meant working down to fundamentals. Because of the scale of the projects, many professionals for the first time had the challenge of planning a large area as an integrated design and had to consider some of the problems of optimum land use. In some cases, such as the Greenbelt towns and the notable migratory camps done for FSA, entire communities were planned from scratch. Surely the most vast and socially significant instance was the giant reclamation of an entire valley in Tennessee, with healthy land replacing erosion, floods controlled, electric power developed,
Federal commissions included numerous post offices and a few planned communities. (Left, Post Office, Gary, Ind., by Howard L. Cheney; right, plot plan, Greenhills, Ohio), by Wank, Cordner, Hortzog, and Strong.

There were also private buildings of almost every category, though in smaller quantities than in earlier years. Technology had again advanced to pose brand-new design problems. Many of the larger radio buildings—RCA in New York, WGN in Chicago, CBS and NBC in Los Angeles—were built at this time. With the repeal of prohibition, the “handling” of the reopened saloon (with women patrons, now) became as much a problem for the design professional as for the proprietor. Commercial work was usually on a smaller scale. The two-story taxpayer appeared even on expensive downtown property in major cities. As aviation expanded, some of the country’s most important air terminals—La Guardia in New York, Washington National, etc.—went ahead near the end of this period.

In the residential field, the extremes of the time were as pronounced as in other building types. Much of the most distinguished work in California was done in these years. In other parts of the country, as well, houses of all sizes—even including great country retreats—again were built toward waterways provided, and public buildings of a high order built.
Residential designers found more work in the speculative field (left, model house for Wood Conversion Co., St. Paul, Minn.) than for private clients. (Above, Marin County house by Gardner A. Dailey.)

1931-1941 architectural practice

the end of the period. Many worried speculative builders also were at work but, with small profits in sight, some of the most hideous little mockeries of home the world has ever seen were halfway nailed together in a cheerless, emasculated stylistism.

In the planning of schools, houses, and other building types, the restrictions of the times prompted experimentation in making space more useful. Increasingly, floor and ceiling finishes were made continuous between supporting walls, and intermediate partitioning became independent. This produced the possibility of “open planning”; it also brought to other building types the factor of flexibility, to anticipate future shifts in use, that had been important in the design of commercial rental structures ever since the introduction of standard, movable partitions. A companion trend was increased use of window walls that made small areas appear larger.

All in all, it was a period of professional shake-up. More designers learned that survival might lie in designing efficient, simple architecture and that the profession had social responsibilities.

The booming aviation industry required vast metropolitan terminals—since outgrown. (La Guardia Field, New York, Administration Building, by Delano & Aldrich.)

Industrial commissions included research laboratories as well as factories. (Above, Forest Products Laboratory, Madison, Wis., by Holabird & Root; left, Chrysler-Dodge Plant, Detroit, by Albert Kahn.)
The cessation of building in the first years of the depression gave everyone a chance to think about many things. When construction started again, a fresh design approach was more evident than it had been at any time since the beginning of the century. For every eclectic solution, there was a comparable attempt at a contemporary one.

No longer did experiment and originality run as footnotes to the main story. The issue was drawn—the contrasting pictures on this page bring this into sharp focus: two museums, two public buildings (and over page there are other pairs), built in the decade that we are studying.

The work which began to be labeled modern, or contemporary or modernistic (quite correctly in many cases), was not all of a type. The progressive examples on this page aptly represent divergent points of view in the search for contemporary expression as well as honest architectural forms. The museum is, again, fairly reverent toward an overseas importation; while in the city hall one has the sense that an original, possibly regional, form is in the making.

There were twin impulses, both strong. The exciting contemporary work being done in Europe by such leaders as Gropius, Breuer, Le Corbusier, Mendelsohn, Mies van der Rohe, Aalto, the Tecton group, and others, was influential and gained power as many of the greatest came to the United States, found work, and stayed. There was, at the same time, the native, sometimes consciously regional searching in this country, for forms and expressions consistent both with modern technology and social betterment.

None of these periods can be passed over without a bow to the Master.
of Taliesin, who decade after decade, kept right on being Wright; swayed little, if any, by what others had to say but not unwilling to recognize certain parental obligations wherever good things appeared.

It was truly a kaleidoscopic moment. Here a Southern mansion would turn up looking, when the planting was developed, as if it had been built in the 1800’s. There for another man of wealth would appear a home that was nothing short of experimental. Comfortable convention was at last having a good run for its money. It also must be pointed out that not all design was of the two extremes described; much of the cynically commissioned public work was frankly dull and without conviction of any sort. The cleaned-up Classic design which Cret had translated into a beautifully personal expression, in other hands degenerated rapidly into an anonymous public-works standard perpetrated in sufficient quantity to fill a large official book (architects unnamed).

Architects had a choice—clearly marked. It all depended on how one stood in respect to two points of view—technical and social. Crystal chande-
liers wired for electricity were hardly consonant with the new knowledge of lighting and were counter to the new possibilities of integration of lighting, structure, and finish. Monumental stairways as a prelude to the public schools, hospitals, or town halls seemed to deny their usefulness for those who were paying the bills. Even the most preoccupied professional now could recognize that architecture was at a crossroads. If one clung to Roman forms—or Egyptian, for that matter—it was at least clear that he chose to do so. Some contemporary alternatives had been well stated.

It is only fair to remember that the choice was not always the architect’s alone. General public understanding of new forms, new structural possibilities, and new esthetic concepts was not quickly developed. The architects themselves were probably to blame for this. News of the profession was mostly about inner conflict. Too often the impression got around that the freedom which was opening up had been captured as the esoteric property of an exclusive few. It would take some time to break down all this promoted misunderstanding, at the professional as well as the lay levels.
World War II ... Priorities ... Black Market ... the Atom Bomb ... Dream of One World ... United Nations ... Television ... the Fair Deal ... Cold War ... Marshall Plan.

Though the U.S. did not officially go to war until the attack on Pearl Harbor, the "steps short of war" that had preceded had turned most minds and talents—including those of architects—to achieving victory. Selective Service had been in operation since 1940; army camps and naval training stations were in full swing; bigger and bigger war plants were forging the tools of war; shipyards were ablaze throughout the night; and the first years of this final period saw all of this activity grimly accelerated.

Dewey argued that "now is the time for a change," but in 1944 the American voters thought otherwise and sent Franklin Roosevelt back to the White House for a fourth term. Priorities were clamped on almost everything; rationing and ration-evasion were the order of the day; and the greatest supply lines in history fed, clothed, amused, and armed the allied armed forces. The services proceeded with daring and boldness—Mediterranean-hopping in the European Theater, island-hopping in the Far East. Just as victory was within grasp, Roosevelt died and Truman became the nation's top executive. Eastern and western allies met in Germany; our atom bomb was dropped on Hiroshima; and occupation forces moved in. In the hour of victory, the dream of One World was given its lease on
life at the U.N. charter meeting in San Francisco.

Politically, the U.S. government continued sponsorship of the over-all social planning that had been typical of New Deal days. Unemployment figures were not alarming as the country neared the mid-century point. Truman won re-election despite the press and party machines. His proposal of a broad democratic program suggested the likelihood of continuing social amelioration. The National Housing Act was passed in 1949.

The international political situation as 1950 approached was a potentially dangerous one. The U.S.S.R. had assumed a periphery of "new democracies." In America, more and louder voices rose to damn communism. Nations of Europe sought, each in her way, to stave off economic collapse with U.S. help. Asia seethed with change and potential communism. Gandhi and Nehru engendered the isolated spiritual force of the new India.

The most heartening element in the postwar reaction was the continued existence of—and, toward the end, the building of a permanent home for—the United Nations.

Atomic energy seemed to typify the determinant force of the time. Potentially capable of enormous good, it was more widely known for its tremendous destructive power. The peoples of the world marked time, while their governments debated its use.

**technical developments**

1942: 10,000-ton cargo ships completed from keel-laying to launching in 43 days; launching to delivery in 8 days. Work on Alcan Highway begun. Cellular-glass insulation available. Polyester plastics and synthetic cellulose produced commercially. Pulled-up sand, called silica aerogel, introduced as insulation material. V-mail introduced. Synthetic wax, improved, underfed stoker utilizes heaviest burning bituminous coal in household furnaces.

1943: Scientific application of color to machine parts. Although developed earlier, secrecy removed and radar announced. Tubeless tires. Silica aerogel, introduced as insulation material. V-mail introduced. Synthetic wax, improved, underfed stoker utilizes heaviest burning bituminous coal in household furnaces.


1945: First circular-tube fluorescent lamp introduced. Artificial paint brushes made from casein. New type motion picture theater with screen on ceiling and reclining couch seats designed. Synthetic-organic cements developed. First atomic bomb.


1948: Federal stream pollution control law enacted. First completely synthetic varnish prepared from propylene gas. 98' structural aluminum railroad girders erected at Massena, N.Y. Plastic protection for all types of building materials developed.


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War stimulated development of wood arch and dome systems. (Above, left to right: glued laminated wood arches; lamella arch dome; and built-up timber arches.

Few prefabrication systems for houses gave promise of wide success. Among most likely to succeed were General Panel's wood house (above), and Lustron's porcelain-steel house (below).

1942-1950

construction methods

All of the technical knowledge developed during the preceding half century was utilized in the vast construction program of World War II. To accommodate gigantic, long-range bombers under one roof, extremely wide structures without interior supports were required. These widths were spanned by steel, concrete, and wood structural methods whose origins have already been noted. To reduce waste cubage, the flat parabolic forms were admirably suitable. Reinforced concrete ribs and thin shells made possible fireproof, rapidly erected, efficient structures of great width and length. Steel rigid frames developed depths remarkably shallow, considering the magnitude of the spans achieved. Two- and three-hinged steel-arch structures were frequently employed.

Glued laminated-wood trusses, beams, and arches were fabricated for hangars, drill halls, and recreation buildings. In wood-arch construction, the spans obtained were largely possible through the development of special connectors. For structures requiring smaller spans (chapels, service clubs, and theaters) boomerang-type laminated-wood arches lent grace as well as stability. Lamella arches were employed with greater facility and developed remarkable strength for barrel vaults, domes, and semi-dome structures. In the defense plants, countless miles of steel trusses, spanning bays as large as 40' x 60' were erected. Here again the steel rigid frame was most suitable to house the assembly line production of airplanes, tanks, trucks, jeeps, etc. Perhaps the most dramatic concrete industrial structures were those which used the Z-D system to roof warehouses and industrial buildings. In all of these instances, expense was secondary to speed of erection.

During the postwar reconversion and adjustment, building costs were vastly inflated; and in order to build, all conceivable methods and devices were utilized to reduce costs. Some of these efforts led to new and prophetic
variations in construction methods. Sandwich walls, consisting of two panels separated by a core material, were studied for durability and permanence. By installing large wall panels, the number of "passes" required by workmen to complete a given wall area was greatly reduced. Wood, steel, aluminum, concrete, and plastic industries all sought to apply their products to this type of wall construction. The insulation industry applied its materials as the separating agent.

Some of the most significant construction methods developed in the postwar period were in the use of concrete. Insulated precast slabs for walls and floors were employed on dormitories and factories; the principle of densification was recommended to overcome cracking caused by shrinkage. Road building methods were applied to low cost housing construction, and roof slabs poured over floor slabs at ground level were hoisted up columns and anchored at the desired level. The latter method was planned to be employed on a multi-story structure for a university. Circumferential prestressing, long employed for industrial storage tanks, was schemed for a dome covering the merchandising area in a community department store to be finished 1950. For the first time in the United States, in 1949, a linear prestressed concrete girder was stressed, poured, and tested for a bridge construction requiring a 160' span. During these postwar years, great use was made of expanded vermiculite and perlite as lightweight aggregates and insulation materials. Controlled concrete was more often specified for economic, durable, and weatherproof concrete. Air entrainment received much attention to kill porosity and to increase durability. Light-gage cold-rolled steel sections, introduced to the architect in 1910, enjoyed renewed popularity in this search for lighter building materials. Light-gage steel corrugated panel floors and roofs also contributed to lighter and more rapid construction.

Among new concrete systems were tilt-up wall panels (University of Connecticut dormitory, top picture) and lift-up floor slabs (experiment at Southwest Research Institute, San Antonio, Tex., lower picture).

First linear prestressed concrete girder in United States (Walnut Lane Bridge, Philadelphia, Pa.).

Other important concrete developments included: (counter-clockwise) modified flat-slab floor construction; flat parabolic arch ribs; hollow rigid frame; and thin-shell barrel vaults repeated to cover wider areas.
In industrial buildings, the amount of required steel was successfully reduced with the use of the umbrella truss: a system employing a supported Warren truss from which light, downward-sloping trusses, connected at the panel points, join their counterparts extending from an adjacent Warren. Mobilar structures, combining tubing and special pin connections, suggested a possibility for the future. Welded structures were erected with specially designed connections and columns to take maximum advantage of continuity in steel skeletons. There were structural uses of aluminum accomplished, but it was predicted that this material would find its best use when no longer designed by steel theories, but with the inherent properties of the material itself employed to best advantage. Aluminum used as a skin material, as in airplane construction, indicated a possibility for architectural construction.

Cavity walls, long known abroad and laid up 60 years ago in the mid-west, were again frequently erected to reduce heat loss and vapor transmission. Modular co-ordination, which anticipated a tremendous future in the immediate postwar years, had still to find general acceptance by either architect or manufacturer. More skillful methods for the production of the prefabricated house had been developed, although many producers had to depend on federal assistance for continued operation.
1942-1950 materials and equipment

Countless new products developed during the war and postwar emergencies afforded the architect an exciting assortment of new materials and equipment in the last period. Stainless steel was structurally used for framing, column facing, window mullions, etc. Its use for insect screens also grew. Carbon steels were still very widely used, and attention was again directed to the use of lightweight and junior structural steel sections. Aluminum was manufactured in many extruded shapes, corrugated sheets, tubing, and as sheeting for ducts, shingles, clapboards, and foil for reflective insulation. Prefabricated panel construction for walls, floors and roofs, commonly employed all three metals.

Synthetic lumber, made from wood waste and phenolic resins, was employed as building board and for doors, sash, and cabinet work. Plastic-surfaced plywood, another product developed during the war, was widely marketed and found excellent for concrete forming. Varied structural slabs were made from excelsior and wood fibers, bonded together with portland cement.
Metal wall panels surfaced with aluminum, stainless steel, or carbon steel alloys were available in several forms—sometimes as insulated units, sometimes as surfacings for other materials.

Factory-made wall and roof panels of chemically mineralized wood shavings and portland cement, and factory-made large sheets of wood-fiber wall boards signalized trend to larger units of construction and finish materials (above). "Thin-setting" method simplified installation of tile (below).

1942-1950 materials and equipment

There was a freer use of plastics of all types. Plastic screening, a wartime choice for replacement of metal screening in the tropics, was used on many homes. Heat-absorbing glass was found in many structures; a plate glass was available to screen the fading and damaging ultra-violet light; directional glass blocks were popular for day-lighting classrooms. Glass fibers and cellular glass formations had been marketed for insulating uses.

Although known and even employed before 1900, cold cathode lighting was rediscovered and used in many installations. Manufacturers of fluorescent tubes added additional color to their lighting spectrums, and produced luminaires to provide a more complimentary light for the human skin. Louverall lighting became popular for lighting schoolrooms, drafting rooms, clothing stores, book stores, etc. A thin glass with sealed-in louvers was manufactured to direct and diffuse light from either incandescent or fluorescent sources. Modular principles were applied to luminaires, so that practically any commercial lighting requirement could be met. A general interest was stimulated in natural lighting, again, and many studies were made to gain maximum advantages of its effects, as well as to eliminate undesirable features.

The major development in heating during the period was with the radiant heating principle. Although a few pioneer installations were designed as early as 30 years ago, the emphasis on this method did not come until the end of the war. Radiant heating coils carrying hot water were most frequently installed in floors and ceilings. Prefabricated heating coils were introduced to help reduce the cost of installation. Warm-air developments in moving stairway design included automatic fire protection roll-curtain.
Classroom seats were an example of modification of equipment to satisfy new-found functional and physiological requirements.

Furnaces and boilers (left), automatic controls (above), and air-conditioning units (bottom of page) were styled to meet requirements of clean simplicity.

Kitchen equipment improved integration and correlation of units.

Radiant systems generally employed an overhead plenum; a variation carried warm air through structural clay tiles embedded in the floor to registers near window areas. Electric radiant heating was accomplished by special cables placed in walls, floors, and ceilings; by conductive rubber panels; and by radiant heating glass panels. Radiant baseboard heating was developed during this period, and baseboard radiation using convectors became popular. New heating devices included the anthratube and the heat pump. There were tentative panel cooling installations. Solar heating and electronic heating, although quite workable, were still experimental.

Community sanitary facilities provided for military dormitory groups and for defense plants during the war, had an influence on the standard of similar equipment for temporary housing or barracks, for motels, and trailer camps.

Almost totally automatic control of high-speed elevators arrived; moving stairways were fireproofed.

Thus as 1950 arrived, the products which had been new at the beginning of the century were still being improved. In the meantime a host of additional products had been introduced, ready for the designer of the next half century to use if he found them good.
Multiple-housing problems occupied architects during the war, and remained an important field of activity. (Left to right: Aluminum City Terrace, near Pittsburgh, Pa., war housing by Gropius & Breuer, 1942; Baldwin Hills Village, Los Angeles, war project which remains outstanding, by Johnson, Wilson, Merrill, Alexander, and Stein, 1942; James Weldon Johnson Houses, New York, public housing project with landscaped and sculptured open areas, by Whittlesey, Prince, and Reiley, 1948.)

1942-1950 architectural practice

Like other citizens, the architects went to war in one way or another. Many were in the armed services; others were in auxiliary branches, helping with needed building; and yet others helped build the housing and the factories—or the planes, tanks, guns, or ships—that were needed for victory. In any case, during the war years, the professional choice was not great, since only essential building was possible. Materials were restricted by law, and even in the postwar period, with its reconversion difficulties, the profession continued to operate with limited supplies. Just as things relaxed a bit, construction costs zoomed, and this brought further aggravations and delays.

The period of working on short rations had done much to school the architect in resourceful planning and economical use of materials—essential elements in serious architecture of any time. Though he could not build as much as he would have liked, he did have time to reconsider his approach to design. And while this necessary stock-taking was going on, a great deal of new and specific data was being tabulated by research, and became available for his use when work started. To mention only a few: problems of classroom design, especially from the point of view of lighting, were being resolved by Darrell Boyd Harmon and others; research groups such as the Pierce Foundation produced exhaustive studies on “family behavior, attitudes and possessions” in an effort to find out how people prefer to live; the Committee on the Hygiene of Housing of the American Public Health Association produced a series of studies basic to the standards of housing, in relation to mental and physical health; and the United States Public Health Service added to its desirable standards for health-care facilities.

In fields not so directly related to architecture itself, much research had
been conducted which began to be reported. Psychologists as well as lighting engineers had been making studies of desirable and practical light standards. While philosophers and critics had been studying the problem of esthetics, psychologists and physiologists had been digging more deeply into the question of visual perception and its influence on human action. At the same time, a number of particularly research-minded architects had studied in detail and with great care the functional requirements of specialized building types—libraries in relation to their most effective use; schools in relation to community needs and modern educational methods; hospitals in relation to current therapies; housing in relation to living and community planning, etc.

All these moves, in combination with the numerous refinements in materials and methods—some of them by-products of war needs; others, like the moves to standardization and modular design, the culmination of earlier efforts—had amassed a significant and rich new reference library for the designer's use.

In addition to the need for absorbing an increasing amount of technical knowledge and investigating disciplines impinging on his own, the architect was face-to-face with a widened social responsibility and a field of activity at least potentially greater than heretofore. The concept of the architect-planner was an appealing one, especially as the design profession saw the new field of community and regional planning slip into the hands of a new professional group, largely untrained in co-ordinated design. Housing on a large scale was a concept that was here to stay and it required a planner's point of view. At the other end of the scale, one found many architects taking part in the design of products for industry. In the furni-
Study of new power-age building types and improvement in solution of ages-old problems progressed together. (Left, Rural Cooperative Diesel Plant, Cambridge, Minn., by Long & Thorshov, Inc.; right, Community Hospital in Luverne, Ala., by Sherlock, Smith & Adams, Inc.)

Building for public recreation constituted a hopeful, though not frequent, field of practice. (Below, Community Center, Hickory, N.C., by A. Raymond and L. L. Rado.)

Remodeling of theaters furnished an increasing amount of work. (Below, Victoria Theater, New York, by Edward D. Stone.)

1942-1950 architectural practice

ture field alone, consider the contributions of George Nelson, Charles Eames, Alvar Aalto, and Eero Saarinen. Thus the architect's sense of responsibility, in some cases his actual participation, expanded in two directions—both toward the larger environment, beyond the walls of the building, and toward the individual objects which furnish the immediate environment.

There are various estimates of the way the architect faced up to this more difficult and more responsible job that he had partly chosen and had partly thrust upon him, but there is little question that the architect in 1949 showed a greater interest than he did earlier in the century in his widening responsibilities. Meetings of the A.I.A., a much-broadened organization, were likely to highlight seminars on technical or functional planning matters. There were architect-planners, and architect-industrial-designers, even though some others of the profession refused to admit that theirs were architectural roles. There was closer integration of architecture and engineering; closer contact between the specifiers of products and the users of products.

Schools were built which were better places for learning than any we had previously; there were hospitals built which in themselves assisted the curative process. There was need for much more housing and many of the projects built were undeniably grim. But architects were concerned about housing. Land over crowding in the cities continued and land-use in the open areas still was haphazard; but architects were concerned about urban redevelopment and community and regional planning. The fields of practice were wide and in many cases new; the data were available for an invasion of all of them; participation had been started by some leaders. Others hung back, undecided, reluctant, or belligerent. How fully the architect could win for himself an important place in our mid-20th century society remained to be seen.

College building became active, with study and advance slow but very obvious. (Below, Miami University Recreation Building, Coral Gables, Fla., by Robert Law Weed and Associates.)
Supermarkets and many types of stores and shops were near the top in activity. Open fronts, well-designed equipment, and studied lighting were sharp trends. (Left to right: Supermarket, Oklahoma City, by Joseph N. Boaz; Specialty Shop, Sacramento, Calif., by Gruen & Krummeck; Shoe Store, New York, by Ketchum, Gina & Sharp.)

Automobiles and airplanes required ever more specialized service structures. (Right, auto service station, Los Angeles, by William F. Hempel; for right, Air Terminal, Merced, Calif., by Ernest J. Kump Co.)

Huge urban redevelopment programs in many cities attacked the ills inherited from earlier uncontrolled growth. (Right, Pittsburgh, Pa., replanning study by Mitchell & Ritchey, with Pittsburgh Regional Planning Association.)

Television called for another new building type. (Below, TV Station, Columbus, Ohio, by The Austin Co.)

Large, small, and medium-size office buildings again began to rise. (Far left, 100 Park Avenue, New York, by Kahn & Jacobs; left, American Stove Co. Building, St. Louis, by Harris Armstrong.)
While a conclusion that all was well with the architectural world at the half-century point could hardly be supported—eyesores that arise everywhere defeat more than the hope of it—there are, within today's concept of design approach, solid new bases on which to build.

Rather than attempt to illustrate on the final pages of this review an array of fine buildings which one critic might consider the best of today's work, another violently dislike, the editors have selected buildings which seem to typify present trends.

One fact seems established beyond dispute. Today's architecture—as of January, 1950—is based on a simple, direct expression of both the program and structure. That is the starting point. This survey surely reveals that it is very different, conservative and ages-old as it is, from the premises which obtained 50 years ago and through much of the first half-century. Not always is it as simply stated as in the Red Rocks Amphitheater of Burnham Hoyt, where the architect took what God gave him and, with a minimum of devices, developed an impressive monument. More typical, perhaps, is the directness of the other jobs illustrated at the top of the page: a hospital complex that is in itself an analysis of the program, at the same time that it is a solution; a factory that quite simply clothes industrial activity with one of the newly available materials; a naval
Restless critics of today’s work—some who are impatient to find monumentality, symbolism, a new fixed style—remind us that function, technology, good materials and economical structure are not enough to make an architecture. For their satisfaction and for the speculation of all, there are illustrated, at the right above, three recognizable trends in conscious design expression. Mies van der Rohe’s scheme for the Illinois Institute of Technology is among the most convincing of recent designs created within the discipline of the purists: a highly rationalized and ultra-refined direct statement of technic and purpose. Frank Lloyd Wright’s recent V. C. Morris shop in San Francisco surely represents the opposite end of the scale: a highly personal romantic approach to organic architecture. And the skillfully designed house near San Francisco, by Henry Hill, represents a happy fusing of design approaches. It makes conscious and sympathetic allowance for the psychological need for texture, for color, and essentially livable qualities. These three tendencies are so marked in today’s work that the critics have already given them style labels. In addition other designers over the country are creating a multitude of buildings that do not fit easily into any one of these categories; but seem to indicate an infinite variety of possibilities within the extremes of the work already accomplished.

For the record, the footnote pictures indicate, briefly, that all sorts of other things are still going on. Where do we go from here?
According to recent building reports, the "Gold Coast" in Chicago has been chosen for the location of several very fine, new apartment buildings. Among them is 1350 Astor Street.

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**Manufacturers' Literature**

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**Editor's Note:** Items starred are particularly noteworthy, due to immediate and widespread interest in their contents, to the conciseness and clarity with which information is presented, to announcement of a new, important product, or to some other factor which makes them especially valuable.

**AIR AND TEMPERATURE CONTROL**

1-330. Type HU Anemostat Air Diffusers (Bul. 28), 4-p. illus. bulletin on diffusers for projection unit heaters. Types and combinations, typical installations, photos, accessories. Data available for duct applications with central systems. Anemostat Corp. of America.


Two 4-p. booklets, one on coils for radiant panel heating, the other on "fin pipe" coils for industrial and institutional heating. Descriptions, ratings, installation photos. Kritzer Radiant Coils, Inc.

1-332. Kritzer "Fin-Tube" Radiant Coils, AIA 30-C-44 (596)

1-333. Kritzer Commercial "Fin-Pipe" Coils for Heating, AIA 30-C-4 (591)

1-334. The "Midget" Louver, folder describing small aluminum louvers with weatherproof screening; tension slots and sweeney fasteners to assure tight, permanent anchorage, for installation in gable ends, eaves, etc. Advantages, typical installations, photos. Midget Louver Co.


1-336. All-Year Air Conditioner (OAC-7902), 8-p. illus. booklet on gas-operated units providing all functions of all-year air conditioning. Description, dimensions, operating and installation data. Also evaporative water coolers for use with conditioners. Application data. Servel, Inc., Air Conditioning Div.

1-337. Thrush Flow Control System (CC-549), 8-p. illus. catalog describing forced circulating hot water heating system and components, including circulators, valves, pressure tanks, etc. Capacities, dimensions, conversion table. H. A. Thrush & Co.

1-338. Trane Unit Ventilators (Bul. S-340), 12-p. illus. catalog on cabinet-enclosed units providing filtered, fresh, heated air. Advantages of use in classrooms, method of operation, construction features, 4-color plates, other photos. Trane Co.


1-340. Convector-Radiators, AIA 30-C-4 (Cat. 4049), 16-p. illus. catalog on free-standing, wall-hung, partially- and fully-recessed units for use with steam or hot water systems. Types, dimensions, capacity tables, typical piping connections. Young Radiator Co.

**CONSTRUCTION**


Booklet and folder giving general information, properties, and uses of Georgia marble. Photos. Georgia Marble Co.

3-124. The Story of Georgia Marble (RB6-965-D)

3-125. Georgia Marble Quaries and Mills, AIA 8-B-1 (A5-73% DP)

3-126. The Keystone System, AIA 21, 44-p. illus. manual demonstrating procedure for application of steel reinforced stucco and plaster wherever open mesh steel reinforcing is required. Detailed drawings, good building design and construction, ingredients, mixing, application, curing, and testing of stucco, photos, diagrams, table of contents. Keystone Steel & Wire Co. ($1.00 per copy; make check or money order payable to Keystone Steel & Wire Co.)

Two 4-p. folders, one on six types of steel framing units for practical spanning of unobstructed areas, the other, describing lightweight roof trusses, jig-welded wall panels, load-bearing partitions, and bar steel floor joists. Drawings, loading table, photos. Macomer, Inc.

3-127. Macomer Longspans, AIA 13-G-4

3-128. Macomer Steel Framing


**DOORS AND WINDOWS**


Three booklets describing wood awning windows. Advantages, construction, sizes, typical details, specifications. Gate City Sash & Door Co.

4-242. Awning Windows in Wood (85)

4-243. Awning Windows in Wood, AIA 19-E-1 (82)

4-244. Awning Windows by Gate City

4-245. Kawneer Entrances (48022), 16-p. illus. booklet illustrating variety of Alumilite stock entrances. Types, sizes, descriptions. Kawneer Co.


4-247. Dor-O-Matic, AIA 27-B, 4-p. illus. folder on concealed door control which eliminates extra accessories required on comparable door controls. Logan Engineering Co., Dor-O-Matic Div.

Three booklets on sliding doors with accommodation design and action, functioning as movable partition or space saving closure. Advantages, method of operation, uses, typical installation photos, technical data on details, elevations, stack dimensions. Modernfold Door Co., Inc.

4-248. Modernfold Doors, AIA 16-M (148-A)

4-249 Modernfold Doors (148S)

4-250. Modernfold Doors, AIA 16-M (146-I)

4-251. Kaiser Aluminum Shade Screening, AIA 35-P-1 (SS103), 16-p. illus. booklet demonstrating lightweight aluminum screening, consisting of small horizontal louvers tilted at downward angle and its effectiveness against solar radiation under maximum conditions. General and technical data, charts, advantages. Permanente Products Co.

ELECTRICAL EQUIPMENT, LIGHTING


SANITATION. WATER SUPPLY. DRAINAGE


SPECIALIZED EQUIPMENT

19-199. Art in Iron, 40-p. illus. catalog describing various forms of wrought iron work, including railings, grilles, balconies, steel stairs, fire escapes, etc. Brief descriptions, drawings, photos. Artcrft Ornamental Iron Co.


19-503. Viking Sprinkler Equipment, portfolio of bulletins and other literature describing sprinkler systems and equipment for commercial and industrial installations. Types, dimensions, diagrams, sections, operation, fitting lists, installation data, drawings. Viking Corp.

SURFACING MATERIALS

19-504. Outstanding Wall Coverings, AIA 28-C, 4-p. illus. booklet describing four decorative surface coverings: pliable wood veneer (Flexwood); transparent plastic sheeting with suede-like backing (Kalisotron); one-inch squares of plywood bonded to flexible backing (Checkwood); and specially treated genuine leather tile (Leatherfloor). Uses, advantages, photos. U.S. Plywood Corp.

FINISHERS AND PROTECTORS


6-183. Rust-Oleum (249), 16-p. catalog illustrating rust-preventive coatings and finishes made from blend of pigments and fish oil. Directions for use, applications, resistant qualities, drying time, thinners, color samples, index. Rust-Oleum Corp.

Two brochures, one on color harmony and color combination suggestions for industrial buildings, the other on air-entrained waterproofing paste, color aggregate, and masonry coatings. Descriptions, properties, photos, drawings. Truscon Laboratories:

6-184. Color Harmony, AIA 25-B-2, 25-B-5 (746) 6-185. Data from Truscon Laboratories (749)

INSULATION (THERMAL, ACOUSTIC)


9-145. Foamglas, AIA 37-B (G91051), 24-p. illus. booklet on rigid cellular glass insulating material for industrial and commercial applications. Advantages, installation methods, sizes and thicknesses, typical application data and photos, available shapes, accessory materials, details. Pittsburgh Corning Corp.

9-146. Sono-Therm, 8-p. booklet on structural insulating board, composed of wood fibers chemically treated with fire-resistive cement, molded into slabs, and cut to various thicknesses. Properties, uses, typical construction details. Sono-Therm Co., Inc.

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The World Almanac and Book of Facts (several issues).
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Architecture-Planning-Criticism
Bauhaus, edited by Herbert Bayer; Walter Gropius; Iso Gropius. The Museum of Modern Art.
Kindergarten Chats and Other Writings, Louis H. Sullivan. Wittenborn, Schultz, Inc.
Made In America, John A. Kouwenhoven. Doubleday & Co., Inc.
Men and Machines, Stuart Chase. Macmillan.
Modern Architecture, Henry-Russell Hitchcock, Jr. Payson & Clarke, Ltd.
The Seven Lively Arts, Gilbert Seldes. Harper & Brothers.
Skyscrapers, Col. W. A. Starrett. Charles Scribner's Sons.
Sticks and Stones, Lewis Mumford. Norton.
The Tribune Competition. The Tribune Co.

magazines

technical
Discoveries and Inventions of the Twentieth Century, Edward Cressy. Dutton.
The Ferro-Concrete Style, Francis S. Onderdonk, Jr. Architectural Book Publishing Co., Inc.

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November 1950

42

114 Progressive Architecture
Now even the air has changed...

In 1902, when the Fuller Building was built (better known in New York as the "Flatiron Building" left), it was rightly considered an architectural masterpiece...although not air conditioned. Today...towering structures such as the RCA Building (right), one of the group in New York's famous Rockefeller Center, are air conditioned with equipment utilizing "Freon" refrigerants.

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W. H. AUDEN

All I know about the history of architectural education in the United States is the buildings which have resulted from it.

Let us look at the record as it is written down the street—a typical street in any city in the U. S. Sherman Street in Denver, between 16th and 18th, will do. The state capitol closing the south axis has a golden dome on an elongated Italian Renaissance gadget of horrid proportion; then in rapid succession, as we move north, come a Colonial house, an Art-Nouveau apartment house, an insurance office building in white glazed terra cotta using dynamic symmetry, a Richardsonian Methodist Church of red sandstone with a rather good Norman tower, and across the street a sumptuous men's club in yellow brick *alla Italia*. Then a large apartment house, German 1927, with flat roof and horizontal fenestration, across the street from which, another, even larger with polychrome Egyptian ornament (*King Tut* 1922). A few feet on, the Masonic Temple of Moorish style, with horseshoe-arch doors and windows, and topped with bulbous domes. Across the street a gasoline station with red-painted imitation tile Chinese roof. The whole street is a splendid history of architecture in real life, better than the University Prints every time. What an archeo!

There is actually a very short history to the formal teaching of architecture in this country. Even though Thomas Jefferson gave the first lectures on architecture in the country, at the University of Virginia about 1820, no formal schooling began until the opening of the Department of Architecture at the Massachusetts Institute of Technology in the fall of 1865, a mere 84 years ago. The French had a head start of more than 200 years in opening their first Academy of Architecture in 1671, inaugurating a system of training at that time which we have had trouble shaking off ever since we took it on. During these 81 years some 60 architectural schools have been created in this country, and any number of academies, ateliers, and specialized architectural training centers. Actually, a lot has been accomplished in this short time through diligence and serious intent. That 40 or more years, or half the time, was wasted in a sorry effort to transpose an alien system to our shores can only be chalked up to experience and viewed with tolerant regret.

Not many of you will have read the exhaustive treatise, "The History of Collegiate Education in the United States," by Arthur Clason Weatherhead, a Ph.D. thesis for Columbia written in 1941. The facts, herein rearranged, are from this book; the opinions are my own, although I find myself in full agreement with Weatherhead on his analysis of eclecticism in our training.

No story of the history of our architectural education can avoid the Beaux (Continued on page 118)
Do you hesitate to specify all-copper sanitary plumbing systems for homes because of cost? Here's the case of an owner* who installed copper for less than a conventional cast iron and steel sanitary system would have cost.

The original bid on a cast iron and steel system was $961.04. The plumber refigured the job in ANACONDA Type M Copper Tube and came up with a bid of $948.64—or $12.40 less. The installation involved 105 feet of tube from 1\(\frac{1}{4}\)" to 4" nominal diameters.

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*An actual case. Owner's name on request.

For better plumbing...use ANACONDA COPPER TUBES
Arts. I shan't whip the dead horse. It ran a very full race at one time. It is strange to think that there are many students in many schools today who know next to nothing about a system of architectural education as widespread, as curiously illogical, and yet emotion ally compelling as this one was. Those of us who came in on the very tail end of the period of greatest extent of the system can look back on it now with a fair degree of impersonality. Words are still in common usage in the language of the schools which still echo the period of the Francophile. Charrette, esquisse, atelier, analytique, projet, hors concours. They will probably remain in the mouths of babies as long as the project method of training remains the chief element in the architectural curriculum. No nostalgia for those lovely dream days in a floating architectural world can ever quite explain away the hypnotic influence of the Beaux Arts system on our hard-headed American businessman architect.

The major difference in the French Beaux Arts system and the American derivative was the fact that in France l'Ecole des Beaux Arts was the one and only place where an architect could be trained in his entire country, while here no centralized system could be achieved and only a compromise with the French system was possible. When William Robert Ware, the very first director of the first architectural school in the United States, brought Eugène Letang to M.I.T. in 1872, a movement was begun that resulted in a curious credo. By 1912 no architectural school in the country was considered of top quality unless it had on its staff a Frenchman or at least one graduate of l'Ecole in Paris. These urbane and charming gentlemen—in particular the Frenchmen—cultured and brilliant—formed a coterie around which revolved a formal dream world of architecture, classical in derivation and as imaginative as a Veronese or Poussin. Any reader who received a "crit" from Jacques Carlu, or Gabriel Ferrand, or Paul Cret knew genuine genius. For those of you who missed the experience of a café fine at the Deux Magots with old "Gummy" Gumaer, who always spent his summers at a particular iron-topped table facing the mellow tower of St. Germain des Prés, for those of you who missed this, I am sorry to say, life will never be a totally full experience. It was not architecture—the Grand Plan with its poché and mosaic, its mellow gourmets and sweet souls—it was a way of life.

Richard Morris Hunt began his career as the first American student at l'Ecole in 1845. Richardson and McKim were second and third respectively. By 1905, so many architects and teachers had been to l'Ecole that a very strong movement developed in which they tried to establish in New York a central school of architecture, patterned after l'Ecole, which would supervise all existing schools in the country. The Society of Beaux Arts Architects had been founded in 1893 with the express purpose of “preserving among ourselves the principles of taste required at l'Ecole des Beaux Arts; by endeavoring to propagate these principles among the rising generation of architects and the public in general; . . . and by working together for ultimate formation of an American School of Architecture modeled after l'Ecole des Beaux Arts.” (Excerpt from report of the Committee on Permanent Organization, 1893.) One looks with fascinated terror at the proximity to success in these objectives, which the Society reached at its zenith, at about 1920, although the central school idea had long before been abandoned, the system was at its peak. Our own students at l'Ecole in Paris were so thoroughly in the swim that they were winning many of the grands prix and traveling scholarships. The strength of the program was augmented by the highly tantalizing prizes offered to brilliant students of the formule. The Paris Prize, set up in 1904, a liberal award, provided funds for study at l'Ecole.
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car-switch elevators with 8 OTIS AUTOTRONIC ELEVATORS

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out of school
(Continued from page 118)

Even more rewarding was the Rome Prize. The Neo-Classic movement in the United States under the leadership of Charles F. McKim pointed to study in Rome as the fountainhead of inspiration. L'Ecole also recognized this fact, but the American School of Architecture in Rome, organized in 1894 and incorporated in 1897 as the American Academy in Rome, by-passed Paris on a straight road to Rome. The American Academy in Rome became the goal of all eclecticism in architectural training;

and life in the Villa Aurelia on the Janiculum Hill must have been—must still be—most pleasant. Did you know that the Academy was endowed in 1905 to the tune of a million dollars, with contributions of $100,000 each from Yale, Chicago, Columbia, the University of California, W. K. Vanderbilt, James Stillman, H. C. Frick, and others? Times have certainly changed, not necessarily for the better, but you couldn't do it now.

The Beaux-Arts Institute of Design, organized in 1916, had the purpose of carrying the educational privileges of the charter of the American Society of Beaux Arts Architects to all the schools in this country. For a period of about 10 or 12 years it succeeded and the zenith of the period of free eclecticism in design training was achieved. Design in the schools was to a maximum extent a separate program from the construction, history, and other courses. It had to be, because the problems and program were all directed from a point outside of the school. This established an internal schizophrenia which is still the bane of the curriculum of most of the architectural schools in the country. This, along with the restrictions of the classic formulae, were among worst features of the system. (I will not beat the dead horse.)

For those of you unfamiliar with the methodology of the B.A.I.D. as it was practiced, a brief statement is necessary. Design problems for each grade were mailed from New York to each school and distributed to the students at specified intervals. Great secrecy as to the content of the problems was maintained at all times, and neither faculty nor students had prevision of subject matter, although from time to time a faculty member might be asked to write a problem. The program was highly ritualistic in nature. The analytique or detail of classic order problems required of first-year students were sometimes written in the individual schools but they all followed a set pattern, even in method of presentation. The student was trained to grind by hand in a special slate mortar a stick of Chinese ink, which was then filtered into bottles. Only small quantities could be made up at a time as the ink spoiled quickly. Much time was consumed in this and other curious tasks such as the making of "stretches." Prepared illustration board was taboo or unknown.

Formalism increased as the problem grade advanced. The premiated problems of the B.A.I.D. judgments had to be well drawn and attractively presented, to show up well in the hundreds of problems being studied by a harassed juries sometimes mellow jury in New York. Therefore rendering skills were highly developed and certain pat methods of indication were adopted and in almost universal use. On plans all wall thicknesses were "pocked," or filled in with black and then picked out with a "nap line" to separate the wall from "mosaic," which was used to give pattern and scale to a plan. The design of the poche as a pattern too often became more important than the function of the plan. The formal type of program issued lent itself to symmetrical solutions into which both plan and elevation could be pictorially matched. Occasionally a more romantic asymmetrical note crept in with problems for summer palaces for exiled monarchs in the Pyrenees, monasteries in the Alps, or Archeology projects such as processions of conquering Roman generals on the Appian Way. They were lots of fun. I used to get well paid by the trip-grade man for my ability to do

(Continued on page 122)
Of 10,400 School Superintendents
78.4% Would Specify Individual
Room Temperature Control!

"THE Ideal School — How Would You Build It?" That's the question School Management Magazine asked more than 10,000 school superintendents across the nation. And more than three of every four responses specified individual room temperature control. When asked which features would be eliminated for reasons of economy, individual room temperature control was the last to be mentioned!

Yet these facts are not surprising, for educators have long recognized their responsibility in molding the health habits of our country. And here is evidence that school authorities are fully aware of the need for controlled atmosphere — healthful temperatures, correct humidity and adequate ventilation. When you specify individual room temperature control for schools, educators will be quick to recognize the benefits.

If you would like to see the complete School Management survey, Minneapolis-Honeywell, 60-year leader in automatic control, will arrange for the publisher to send you a copy. Minneapolis-Honeywell, Minneapolis 8, Minnesota. In Canada: Leaside, Toronto 17, Ontario.

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"Guarding America's Health with Controlled Atmosphere"
One of the most curious of all the B.A.I.D. rituals was the Esquisse or sketch required at the beginning of every problem. A specific time was allotted, beginning at the moment of issuing the problem, and the student was required to make a sketch plan, elevation, and section; to which he was then required to adhere, come hell or high water, for the duration of the problem. This was done "en lope" (or in privacy) and no criticism or references could be used. To those of us today who consider careful research and analysis of the purpose of a building essential before plans, design, and construction can be begun, this weird requirement appears as a complete negation of all sound educational principles. The explanation, to those of us curious enough to ask, was that it was a good discipline and made students think. We'll let that pass. The esquisse accompanied the final drawings to New York. If the student deviated too far from it, the problem was placed hors de concours and not judged. The top problems were published in the B.A.I.D. Journal with some commentary. Those who did not do so well had to guess why.

The instructors at the résumé, held on the return of drawings from New York, usually had difficulty making guesses themselves.

I have spent this much time on the methods because they set the pattern for much that was unreal in American architectural education for many, many years. For instance, no one ever heard of an architect forcing himself to adhere to an esquisse in his office over a client's objections. I want to be fair, though: scholastic architectural design in this period was as stately as a 16th century pavanne, while student life in the atelier was gay and friendly. A charrette was something to look forward to—a Walpurgis Nacht every month or six weeks. The realities of practice and architectural movements outside of the ritual were not discussed. The architectural periodicals, in the same tradition, assisted in continuing the pattern. Architectural education itself was unloge.

A curious result of the system was the fact that great teachers of specialized subjects grew up side by side, though usually not integrated with the design critics. A.D.F. Hamlin, the historian at Columbia, and Thomas Nolan (of Kidder-Nolan), professor of construction at the University of Pennsylvania, are good examples of splendid teachers and competent technicians, who added scholarship and practical training to a program in which esoteric design played too prominent a part.

While Sherman Street in Denver is a typical result of the eclectic period of training we are discussing, and as such is a museum of little banalities, we look far and wide for the actual buildings or building groups which might be said to derive directly from the Beaux Arts Period of training. There is actually very little on any scale comparable to the dreams on the "double-elephant stretches" of my youth. The San Francisco Civic Center, the Roman Forum in Denver, the Cleveland Mall (an early example), and a few college campuses like Carnegie Tech and the University of California at Berkeley are about all we have to show for the Grand Plans which filled the ateliers. It was futile fun on the whole. (Don't kick the dead horse, Feiss.)

The breakdown of the Beaux Arts came suddenly and the dissolution was speedy. Even during the early days of the neo-romantic Collegiate Gothic of the campuses, the schools were not affected. Sullivan and Wright and the indigenous architects did not exist. A.D.F. Hamlin gave them early credit in his History of Ornament in 1923; but Banister Fletcher, whose History of Architecture on the Comparative...

(Continued on page 124)
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out of school

(Continued from page 122)

Method has been consistently the most widely used text in the schools, never mentioned them.

The break came from the outside. Goodhue and Saarinen both came as a surprise and swept their way into the vernacular of the Beaux Arts projects overnight. Then a few copies of Dutch and German publications on Wright and a few of the early European "moderns" hit the schools. The Exposition des Arts Decoratifs of 1925 in Paris, published in full in a series of attractive bro-

chures, knocked the established ornament for a cocked rinceau, and poof—out the window went a system.

It was books, not teachers, that turned the tide of architectural education from 1925 to 1930—Yerbury, Tallmadge, Hitechock, Edgell, plus Le Corbusier and Taut in translation. Primarily, it was pictures and more pictures in the foreign magazines. Bau und Wohnung for 1927 on the Stuttgart Exposition of Modern Housing made an indelible im-

pression on me in my third year of Beaux Arts training at Pennsylvania. Some of us became quite a nuisance to our professors about that time. We knew nothing of the Bauhaus type of training but we were seeing pictures of things which were more exciting than the Bulletin of the Beaux Arts Institute of Design, which was the standard source for cribbing ideas. No school boy could afford to be without a subscription. (Don't skin the dead horse, Feiss.)

I'm just guessing now, but I'd like to lay a wager that it was the depression of 1929 through 1935 that knocked some real sense into the schools. Quietly, behind the design front, construction training and technical know-how had advanced. Much sound and practical work was being carried on in research on materials and methods of building. The direct approach to construction, as exemplified by Gropius and Van der Rohe, reversed the emphasis in favor of the practical fields. The cult of the Northern European replaced that of the Frenchman and continued our tradition of importing experts. These men, unfamiliar with the Beaux Arts system, found no sympathy with it and changed directions to the so-called "organic ar-

chitectural education" of the present day.

The depression of the 30's brought social and economic needs to the fore in this country. Some of the schools slowly took on city planning and housing as part of their training. Many are still lagging in this broad architectural field, although European precedent, usually followed so avidly, antedates our own interest by 20 years or more. The socionomic approach to architecture is still weaker than the techno-design, but the melding of the two is obviously approaching.

A word has to be said here about the star system—or vaudeville system, if you prefer, in American architectural training. I am neither condemning nor praising—just pointing at. From the coming of Desire Despradelle to M.I.T. in 1892, the schools have encouraged the star system, and under the inspiration of great prima donnas have gained students and reputation. The cycle of success and failure has too often been caused by the current fashion in names. Even the greatest of teachers and architects are mortal and the dependency of institutions on "king pins" and "name bands" has been and still is a weakness in the sound structure of education, which of course should be the program and curriculum. It is human nature for a young man to worship a leader rather than an idea. We have all had our crushes. The proper balance between popular name and sound curriculum is still to be found.

Architectural education, with all the vicissitudes of its history in this country, is still unfilled. No great building tradition has yet appeared from it.

This subject to be continued in the February issue. At this time we will discuss the development of contempo-

rary architectural education.

C. F.
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By BERNARD TOMSON

This month we don our bowler hat, stroke our chin whiskers, and discuss a leading case in the law of architecture decided in Louisiana at the turn of the century. A review of the judge's decision indicates that although time moves on and façades change, architects' relations with clients remain basically the same. The facts presented to the Louisiana court were as follows:

It was the intention of a theater owner to demolish his building and to erect a larger and finer one. He therefore employed the services of a company which was in the general architectural and building business. This company was a limited corporation. (It is of interest to note at the outset that today, in most states, corporations may not practice architecture.) The company made preliminary studies and prepared plans and specifications. Based upon these plans, bids were received indicating that the cost of the building would be approximately $100,000. However, the theater owner had a change of heart and decided to abandon the new construction.

There had been (alas) no specific agreement as to the architect's compensation and the architectural company billed the client $3,500 based upon a fee of three and one-half percent for a $100,000 structure. The client refused to pay this bill and the company instituted legal action. The trial court awarded the architect a judgment in the magnificent sum of $700. And feeling aggrieved thereby the plaintiff appealed.

In justification of its bill, the architect contended on appeal that the American Institute of Architects had promulgated a schedule of compensation for architectural work and that such schedule provided for a fee of three and one-half percent for preliminary studies, general drawings, details, and specifications. (Historically interesting is the full text* of this schedule which was as follows:

"For full professional services (including supervision), five percent upon the whole cost of the work.
For preliminary studies, one percent.
For preliminary studies, general drawings and specifications, two and one-half percent.
For preliminary studies, general drawings, details and specifications, three and one-half percent.
For warehouses and factories, three and one-half percent, upon the cost, divided in the above ratio.
For works that cost less than $10,000, or for monumental and decorative work, and designs for furniture, a special rate in excess of the above.
For alterations and additions, an additional charge to be made for surveys and measurements.
An additional charge to be made for alterations or additions in contracts or plans, which will be valued in proportion to the additional time and services employed.
Necessary travelling expenses to be paid by the client.
Write for Sample Chart No. 6

*Taken from Lloyd, "Law of Building and Buildings" (1888).

(Continued on page 128)
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in the accompanying travel, whether by day or night, will be charged for, whether or not any commission, for office work or supervising work, is given.

The architect's payments are successively due as his work is completed, in the order of the above classification. Until an actual estimate is received, the charges are based upon the actual cost.

The architect bases his professional charge upon the entire cost to the owner of the building when completed, including all the fixtures necessary to render it fit for occupation, and is entitled to a fair additional compensation for furniture or other articles designed or purchased by the architect.

If any material or work used in the construction of the building be already upon the ground, or come into possession of the owner without expense to him, the value of said material or work is to be added to the sum actually expended upon the building before the architect's commission is computed. Drawings, as instruments of service, are the property of the architect."

The Louisiana Appellate Court refused to be bound by the A.I.A. schedule. The court stated:

"The evidence shows that the custom obtaining among architects generally is to regulate their charges according to a rule of percentages. Thus for preliminary studies, general drawings, specifications and details, and supervision, where the building is erected five percent appears to be the usual charge; and a less percentage, according to the work done and skill and time employed, where the building is not constructed, or the architect's employment does not include supervision. But courts will adopt with caution a rule which binds an employer to pay a percentage on a building such as the architect sees fit to figure out, and at a price which he, or the bidders to whom he sends the plans (as in this instance), put upon its probable cost. There is in such a rule too much 'inducement to architects to make the plan expensive for it to be readily accepted by those called upon to sit in judgment in matters of controversy between owners and architects.' (Have we come a long way since?)

In considering what was a reasonable fee the Appellate Court first considered the estimated cost of the structure which was $87,500. Although the evidence established such cost at $100,000 the court arbitrarily accepted a figure of $87,500.

The court then went on to determine that a fee of two and one-half percent for the plans and specifications prepared by the plaintiff was "not unreasonable."

Applying this figure, which was one percent less than the schedule figure of the A.I.A., to the estimated cost of $87,500, the court came up with the figure of $2187.50. However it was still reluctant to grant this sum to the plaintiff and awarded it, as its full compensation for services rendered, $1750, apparently feeling that an architect is not entitled to what he has earned.

Of course, since the determination of this case, the architects' situation vis-a-vis the law has improved considerably. A fairly comprehensive review of the
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SMOOTHLITE Interior Board

ACOUSTILITE 3/4" and FIBERLITE 1/2"

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licensing statutes indicates that in 1900 there were no legal impediments, in any of the states, to anyone calling himself an architect or practicing architecture, whether or not he was qualified. The New York statute, which is certainly one of the oldest, was enacted in its first form in 1910. Since 1900, the American Institute of Architects has helped advance the architects' position considerably. For many years it has made available its guides to ethical principles, its forms of agreements and "general conditions," and other aids which have been of substantial benefit to the profession generally and to the individual architect.

If a proper public relations program is initiated and conducted throughout the country, if the organizations representing architects keep pace with the times, if the individual architect also does, the next 50 years will find the architect assuming his proper place and his proper share of responsibility in the development of our country. Only then will the architectural profession be properly rewarded for its labor and credited with its contribution to our civilization.

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U. S. ARCHITECTURE
1900-1950

the illustrations

The list below supplies more complete identification of the pictures in this issue. The name of the architect or designer appears in italics; photographer and source of each picture follows in parentheses.

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Original Wright Brothers plane, 1903 (Harris & Ewing);
United Air Lines Mainliner 300, ca. 1948 (Courtesy of United Air Lines);
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Telephone, by Henry Dreyfuss for Bell Telephone Laboratories, Inc., 1949 (Courtesy of Henry Dreyfuss);
Gary Nineteen Baby Carriage, by Heywood Wakefield (Courtesy of Museum of Modern Art);
Cary-Cart Baby Stroller, by Robert Heideman for American Products Co., 1946 (Courtesy of Museum of Modern Art);
Original Ford automobile, 1896 (Courtesy of Ford News Bureau);
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Television set, by Marcel Breuer for "House in the Museum Garden," Museum of Modern Art, 1949 (Ezra Stoller: Pictor);
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Wire flower-pot stand, ca. 1915 (Courtesy of F. P. Smith Wire and Iron Works);
Street scene, Reynoldsville, Pa., 1909 (Library of Congress Coll.);

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Five SOUND Reasons Why Simpson Acoustical Tile Is Being Given Preference by Value-wise Buyers

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Skyscraper clothed with terra cotta, Woolworth
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Steel skeleton building under construction, Flatiron
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Terra cotta factory, ca. 1910 (Courtesy of Federal
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Carnegie Library, Montgomery, Ala., ca. 1906
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Now Theater (Century Theater), New York, by
Carrere & Hastings, 1909 (Museum of the City of
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Carson Pirie Scott store, Chicago, Ill., by Louis H. Sullivan, 1904 (Chicago Architectural Photographing Co.—P/A file)

Municipal Group, Springfield, Mass., by Polf & Corbett, 1913 (Courtesy of Convention and Visitors Bureau, Springfield Chamber of Commerce)

Chicago National Bank Bldg., Chicago, Ill., by Jenney & Mundie, 1900 (Chicago Architectural Photographing Co.)

McKinley High School, St. Louis, Mo., by William B. Ittner, 1902 (Courtesy of St. Louis Board of Education)

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Biltmore Hotel, New York, by John McEntee Bowman, 1913 (Courtesy of Biltmore Hotel)

"The $3000 House that Won the $1000 Prize," by William G. Ranell, 1905 (Courtesy of The Ladies' Home Journal)

Clarence Mackay mansion, Roslyn, N.Y., by Stanford White at McKim, Mead & White, 1902 (Museum of the City of New York Coll.)

All Saints' Church, Peterborough, N.H., by Cram & Ferguson, 1925 (Paul J. Weber from Russell B. Harding)

Ford Motor Co. plant, Highland Park, Mich., by Albert Kahn Associated Architects and Engineers, Inc., 1910-17 (Courtesy of Albert Kahn, Inc.)

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Hall of "Georgian Court," George J. Gould mansion, Lakewood, N.J. (Culver Service)

Senator William A. Clark mansion, New York, by Lord, Hewlett & Hall, 1903 (Philip G. Bartlett—Museum of the City of New York Coll.)

Farm house, Grand Traverse County, Mich. (Culver Service)

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City Hall, San Francisco, Calif., by John Bakewell, Jr., and Arthur Brown, Jr., 1915 (From San Francisco Bay Cities by Josef Muench, Hastings House, Publishers)

Singer Bldg., New York, by Ernest Flagg, 1900 (Museum of the City of New York Coll.)

St. Vincent Ferrer Church, New York, exterior by Bertram G. Goodhue, interior by Elliott L. Chilling (Courtesy of Elliot L. Chilling)

Lincoln Memorial, Washington, D.C., by Henry Bacon, construction began 1915 (Horace D. Crouch)

University Club, New York, by Charles F. McKim and McKim, Mead & White, 1900 (Museum of the City of New York Coll.)

General Post Office, New York, by W. M. Kendall of McKim, Mead & White, 1913 (Leonard Hassan Bogart Coll.—Museum of the City of New York Coll.)

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Robie house, Chicago, Ill., by Frank Lloyd Wright, 1909 (Courtesy of Museum of Modern Art)

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"World War I camp scene (Harris & Ewing)

"Life Among the Cliff Dwellers," Los Angeles, Calif., 1920's (Underwood & Underwood)

Scene in a speakeasy (Culver Service)


Chrysler Bldg., under construction, New York, by William Van Alen, 1930 (Courtesy of Hill & Knowton, Inc.)

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the illustrations

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First controlled-conditions building, Simonds Saw and Steel Co., Fitchburg, Mass., by The Austin Co. Engineers and Builders, designed in 1930 (Courtesy of Hill & Knowlton of Cleveland)

Clock thermostat, 1921 (Courtesy of Minneapolis-Honeywell Regulator Co.)

Wall-hung gas radiator, 1930 (Courtesy of Young Radiator Co.)

Kitchen cabinet, 1925 (Courtesy of American Kitchen Information Service)

Refrigerator, 1924 (Courtesy of General Electric Co.)

Electric washer, 1930 (Courtesy of General Electric Co.)

Voice paging system for hotel and industrial use, 1930 (Courtesy of Stromberg-Carlson Co.)

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Bathroom, ca. 1920 (Rembrandt Studios—courtesy of Plumbing and Heating Industries Bureau)

Flexwood walls and columns, E. Lawitz & Co., Chicago, Ill., by Samuel A. Mars, 1929 (Hedrich-Blessing Studio—courtesy of U.S. Plywood Corp.)

Aluminum handrail and marble facing in stairway, Chrysler Bldg., New York, by William Van Alen, 1930 (Sigurd Ficher)

Stainless-steel application on tower, Chrysler Bldg., New York, by William Van Alen, 1930 (Peyser & Patzig; Inc.—courtesy of Hill & Knowlton, Inc.)

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City Hall, Los Angeles, Calif., by John C. Austin, John Parkinson, and Albert C. Martin, 1928 (Courtesy of Los Angeles Chamber of Commerce)

State Capitol, Lincoln, Neb., by Bertram G. Goodhue, competition ca. 1916, completed ca. 1926 (Courtesy of Nebraska State Capitol)

Bullock's Wilshire Department Store, Los Angeles, Calif., by John & Donald B. Parkinson, 1929 (Merge Studios)

Cathedral of Learning, University of Pittsburgh, Pittsburgh, Pa., by Charles Z. Klauder, began 1926 (Newman-Schmidt Studios—courtesy of University News Service Office)

Opera Bldg., Chicago, III., by Graham, Anderson, Probst & White, 1930 (Chicago Architectural photographing Co.—courtesy of The Wacker Corp.)

Waldorf Astoria Hotel, New York, by Schultz & Weaver, 1929-31 (Courtesy of Waldorf Astoria)

Empire State Bldg., New York, by Shreve, Lamb & Harmon, 1930-1931 (Courtesy of Empire State Bldg.)

Hangar No. 1, Oakland Municipal Airport, Oakland, Calif., designed and built by Port of Oakland, 1927 (Estey Photo Service—courtesy of American Institute of Steel Construction)

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Columbia-Presbyterian Medical Center, New York, by James Gamble Rogers, 1928; continued by Voorhees, Walker, Foley & Smith (Courtesy of Columbia-Presbyterian Medical Center)

Henry E. Huntington Library, San Marino, Calif., by Myron Hunt, 1920 (Frederick W. Martin—P/A file)

Adams Primary School, Phoenix, Ariz., by Fitzugh & Byron, 1919-26 (Calver Service)

Bower Savings Bank, New York, by York & Sawyer, 1923 (Courtesy of York & Sawyer)

City Hall, Schenectady, N.Y., by James K. Smith of McKim, Mead & White, 1931 (Courtesy of McKim, Mead & White)

Motor Mart Garage, Boston, Mass., by Ralph H. Doane, 1926 (P/A file)

Simonds Saw and Steel Co. factory, Fitchburg, Mass., by The Austin Co., Engineers and Builders, 1930-31 (Courtesy of The Austin Co.)

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Paramount Theater (now Grauman's Egyptian), Los Angeles, Calif., by William Lee Woollett, 1926; continued by Port of Oakland, 1927 (Albert J. Kapc;—courtesy of William Lee Woollett)

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Tivoli Theater, Chicago, Ill., by Rapp & Rapp, 1921 (P/A file)

Winged Foot Golf Club, Mamaroneck, N.Y., by C. C. Woolnough, ca. 1924 (Kenneth Clark—courtesy of Hope's Windows, Inc.)

Pennsylvania Hotel (now Statler), New York, by W. S. Richardson of McKim, Mead & White, 1921 (Courtesy of McKim, Mead & White)

Bedroom, New Jersey house (Culver Service)

"Skylands," house in Sterlington, N.Y., by John Russell Pope, architect; Eggers & Higgins, associates, 1928 (Courtesy of Eggers & Higgins)

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Stadium, Ohio State University, Columbus, Ohio, by Howard Dwight Smith, 1922 (Department of Photography, O.S.U.)

Jones Beach State Park, L.I., N.Y., by Architectural Staff, Long Island State Park Commission, 1929-31 (Fairchild Aerial Surveys, Inc.—courtesy of L.I. State Park Commission)

House, Chatham, N.J., by Randolph Evans (P/A file)

Bungalow, San Diego, Calif. (FAA—Library of Congress Coll.)

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Folger Shakespeare Library, Washington, D.C., by Paul P. Cret, 1930 (William M. Rittase—P/A file)

Lorillard mansion, Tuxedo Park, N.Y., by Lawrence White at McKim, Mead & White, 1932 (Gottschalk-Schlichter—courtesy of McKim, Mead & White)

Lobby, Barclay-Vesey Bldg., New York, by McKenzie, Voorhees & GMelvin, 1926 (Amemya—P/A file)

Chicago Tribune Bldg., Chicago, Ill., by John M. Howells and Raymond M. Hood, 1922-24 (Courtesy of Museum of Modern Art)


Christ Church Cranbrook, Bloomfield Hills, Mich., by Eliel Saarinen, 1928 (Harvey Croze)

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Model of Voisin plan for rebuilding Paris, France, by Le Corbusier & Jeanneret, 1925 (Courtesy of Museum of Modern Art)

Living quarters, The Bauhaus, Dessau, Germany, by Walter Gropius, 1927 (Seidman—courtesy of Museum of Modern Art)

Tuberculosis Sanitarium, Paimio, Finland, by Alvar & Aino Alto, 1929 (G. E. Kidder Smith—courtesy of Museum of Modern Art)

Engineering Laboratory, Ford Motor Co., Dearborn, Mich., by Albert Kahn Associates Architects and Engineers, Inc., 1925 (Courtesy of Albert Kahn, Inc.)

Lovett Health House, Los Angeles, Calif., by Richard J. Neutra, 1929 (Courtesy of Museum of Modern Art)

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Rockefeller Center, New York, by Reinhard & Hofmeister, Corbett, Harrison & McMurray, Hood & Fouilhoux, begun 1932 (Edward Ratcliffe—courtesy of Rockefeller Center, Inc.)

NRA parade, New York, led by Gen. Hugh Johnson, 1931 (Wide World)

Slums, Pittsburgh, Pa., 1938 (Arthur Rothstein for FAA—Library of Congress Coll.)

Street scene, Hightstown, N.J., 1935 (Carl Mydans for FAA—Library of Congress Coll.)

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Wading pool, Jane Addams Houses, Chicago, Ill., PWA housing project, John A. Halabird, chief architect, 1938 (USHA—Culver Service)

Roadside signs, Crystal City, Tex., 1939 (Lee for FAA—Library of Congress Coll.)

Arteries to Triborough Bridge, by Triborough Bridge and Tunnel Authority, 1936 (Rodney McCoy Morgan—P/A file)

Administration Bldg., Century of Progress Exposition, Chicago, Ill., by World's Fair Architectural Commission (Edward H. Bennett, Hubert Burnham, John A. Halabird, and others), 1933 (Courtesy of Museum of Modern Art)

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Norris Dam, Tennessee, by Bureau of Reclamation and Tennessee Valley Authority, Roland A. Wank, head architect, 1936 (Courtesy of TVA)

Interior view, drill hall showing two-hinged rigid frame concrete bents, Illinois National Guard Armory, Dixon, Ill., by Illinois Armory Board, 1937 (Courtesy of Portland Cement Assn.)

Bronx-Whitestone Bridge, New York, by O. H. Ammann, chief engineer, Triborough Bridge Authority, 1939 (Rodney McCay Morgan—P/A file)

Field House, Swarthmore College, Swarthmore, Pa., by Korchmar & Smith; Robert E. Lamb, designer; Arch Roof Construction Co., Inc., consulting engineers, 1936 (Courtesy of Arch Roof Construction Co., Inc.)

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Naval experimental model basin, Cardcrock, Md., by Rear Admiral Ben Moreel, designer, 1939 (Official USN photo—courtesy of U.S. Navy Bureau of Yards and Docks)

Ardmore Skating Rink, Ardmore, Pa., by E. Nelson Edwards, architect; Roberts & Schaefer Co., engineers, 1938 (Courtesy of Roberts & Schaefer Co.)

Interior, Administration Bldg., S. C. Johnson & Son, Inc., Racine, Wis., by Frank Lloyd Wright, 1938 (Courtesy of Johnson's Wax)

Prefabricated house, White Plains, N.Y., by Holden & McLaughlin for American Houses, Inc., 1935 (Gottschal-Schleiner)

School Hangar No. 1, Chanute Field, Rantoul, Ill., by Construction Quartermaster, U.S. Army, 1939 (Courtesy of American Institute of Steel Construction)

Fabricating columns for first Austin rigid frame sawtooth building, by The Austin Co., Engineers and Builders, ca. 1935 (Parade Studios, Inc.—courtesy of Hill & Knowlton of Cleveland)

Truck plant, Dodge Div., Chrysler Corp., Detroit, Mich., by Albert Kahn Associated Architects and Engineers, Inc., 1938 (Hodrich-Blexin Studio—courtesy of American Institute of Steel Construction)

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Porcelain-enamel surfacing on old building, Canard White Star Line office, Boston, Mass., by Kilham, Hopkins & Greoley, 1936 (Courtesy of Seaport Metals, Inc.)

Flexwood mahogany panels, stiles, and rails, Board of Directors Room, Worcester Cooperative Bank, Worcester, Mass., by Adolph Johnson, 1931 (Courtesy of U.S. Plywood Corp.)

Early combined light and air diffusers, 1931 (Courtesy of Barber-Colman Co.)

Flush door (Blakeslee-Lane, Inc.—courtesy of Roddis Plywood Corp.)

Herculee doors, Bank of Manhattan, New York, 1938 (Courtesy of Pittsburgh Plate Glass Co.)


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Bathroom, World's Fair, New York, 1939 (Courtesy of Plumbing & Heating Industries Bureau)

Group wash fountains in locker room, Chevrolet Div., General Motors Corp., Tonawanda, N.Y., by Albert Kahn Associated Architects and Engineers, Inc., 1937 (Robert M. Darman—courtesy of Albert Kahn, Inc.)

"All-year" air conditioner, 1940 (Courtesy of Servel, Inc.)

Dishwasher, 1932 (Courtesy of General Electric Co.)

A first automatic clothes dryer, made by hand by inventor, J. R. Moore, 1933 (Courtesy of Hamilton Co.) 

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Dormitory for disciples of Sri Aurobindo Asram, Pondicherry, India, by Antonin Raymond, 1938 (Photo Services, Sri Aurobindo Asram—P/A file)

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"Clay Hall," house in Yemassee, S.C., by Scroggs & Ewing, 1940 (Robert W. Tebbs—P/A file)

A. Conger Goodyear house, Old Westbury, L.I., N.Y., by Edward D. Stone, 1939 (Exro Stoller—P/A file)

S. Gordon Saunders house, Bloomfield Hills, Mich., by Alden B. Dow, 1937 (Emier L. Asteford)

Longellow Bldg., Washington, D.C., by William Lescaze, 1941 (Courtesy of William Lescaze)

"Falling Water," Edgar Kaufmann house, Bear Run, Pa., by Frank Lloyd Wright, 1936 (Courtesy of Museum of Modern Art)

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Consolidated Vultee plant, Fort Worth, Tex., by The Austin Co., Engineers and Builders, 1942 (Courtesy of Hill & Knowlton of Cleveland)

Bomb plant operated by Ford Motor Co., Willow Run, Mich., by Albert Kahn Associated Architects and Engineers, Inc., 1942 (Hodrich-Blessing Studio—courtesy at Albert Kahn, Inc.)

Controlled-access freeway, Dallas, Tex., 1949 (Texas State Highway Department—courtesy of Engineering News-Record)

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Boeing Airplane Co. plant, Wichita, Kans., by The Austin Co., Engineers and Builders, 1944 (Boeing-Wichita—courtesy of Hill & Knowlton of Cleveland)

Pentagon Bldg., Washington, D.C., by G. E. Bergstrom and David J. Whitener, 1943 (Horydczak)

Houses, southwest Los Angeles, Calif., 1947 (Good-year Airship-Kopco)

Midtown Manhattan skyline, United Nations Secretariat under construction in foreground, 1949 (Fairchild Aerial Surveys, Inc.)

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Glued laminated wood arches, Drill Hall, Shoemaker, Calif., by U.S. Navy Bureau of Yards and Docks, ca. 1942 (Courtesy of Bureau of Yards and Docks)

Wood lamella dome construction, Westwood Motors, Inc., W. Los Angeles, Calif., by Holmes & Narver, engineers ("Dick" Whitington—courtesy of Lamella Roof Associates)

World's largest clear-span (237') timber structure, blimp dock, Naval Air Station, Moffett Field, Calif., by U.S. Navy Bureau of Yards and Docks, 1943 (Courtesy of Bureau of Yards and Docks)

Wood prefabricated house, by General Panel Corp., 1947 ("Dick" Whitington—courtesy of General Panel Corp.)

Porcelain-steel prefabricated house, by Lustron Corp., 1949 (Courtesy of Lustron Corp.)

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Setting up concrete slab on dormitory building, University of Connecticut, Storrs, Conn., by James K. Smith of McKim, Mead & White, 1948 (Courtesy of McKim, Mead & White)

Pull-up concrete root slab, San Antonio, Tex., by Yortz-Slick, 1948 (Courtesy of Southwest Research Institute)

Modified-type concrete flat-slab floor, 50x51½' bays, Fisher Bomber plant, Cleveland, Ohio, by Albert Kahn Associated Architects and Engineers, Inc., 1942 (Courtesy of Portland Cement Assn.)

First prestressed concrete girder in U.S., 160 ft. long, Walnut Lane Bridge, Philadelphia, Pa., by Preload Enterprises, Inc.; Gustave Magne, consulting engineer, 1949 (Courtesy of Preload Corp.)

Flat parabolic concrete arches, bomber hangar, Limestone, Mo., by Corps of Engineers, U.S. Army, 1949 (Courtesy of Portland Cement Assn.)

Reinforced concrete hangar, hollow rigid frame, 151 ft. span, National Guard Hangar, Des Moines, Iowa, by William H. Nielson, architect and engineer; Les Forsyth, structural designer, 1941 (Courtesy of Bureau of Public Relations, War Department)

Thin-shell concrete barrel roof, Engineering Shops Bldg., Wright Field, Dayton, Ohio, by Corps of Engineers, U.S. Army, Wright Field District, 1941 (Courtesy of Portland Cement Assn.)

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Steel rigid-frame building, span 200 ft., transit shed, Long Beach, Calif., structural design directed by R. D. Sandham, 1949 (Courtesy of American Institute of Steel Construction).

Steel decking welded to junior beam purline, 1949 (Bennett—courtesy of Jones-McLaughlin). Full continuity through weld connection, extension of Bell Telephone Bldg., Los Angeles, Calif., by Maurice Sasso, engineer, 1949 (Courtesy of Lincoln Electric Co.).

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Insulated acoustical board (Fiberglas) laid between light troffers, 1948 (Courtesy of Owens-Illinois Glass Co.).

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Modern-type central station for warehouse intercommunication, 1949 (Courtesy of Stromberg-Carlson Co.).

Roof planks, 1949 (Calhoun—courtesy of Durisol, Inc.).

Wood-fiber wall panels being put into place and anchored to studs, 1949 (Courtesy of Upson Co.).

Ceramic tile adhesive application, 1949 (Courtesy of Minnesota Mining & Mfg. Co.).

Fire-protection curtain for moving stairway, Kreges’ Department Store, Newark, N.J., ca. 1948 (Courtesy of Otis Elevator Co.).

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Boiler, 1949 (Courtesy of American Radiator & Standard Sanitary Corp.).

Clock thermostat, 1949 (Courtesy of Minneapolis-Honeywell Regulator Co.).

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Baldwin Hills Village, Los Angeles, Calif., by Reginald D. Johnson and Wilson, Merrill & Alexander, associated architect; Clarence S. Stein, consulting architect, 1942 (Margaret Lowe—P/A file).

James Weldon Johnson Houses, New York, by Whitley, Prince, and Rey of New York City Housing Authority, 1948 (Courtesy of New York City Housing Authority).

Recreation Bldg., Great Lakes Naval Training Center, Ill., by Skidmore, Owings & Merrill, 1948 (P/A file).

Chirst Lutheran Church, Austin, Tex., by Fehr & Granger, 1948 (Photo Associates by Ulric Meisel—P/A file).

Des Moines Art Center, Des Moines, Iowa, by Saarninen, Swanson, Brocks, and Borg, 1948 (Hedrich-Blessing Studio).

St. Theresa of the Little Flower Parochial School, Houston, Tex., by Coleman & Rofe, 1947 (Dorsey & Peters—P/A file).

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Providence Forest Housing Project, McLean, Va., by Harry E. Ormston, 1948 (Richard Garrison).

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Victoria Theater, New York, by Edward D. Stone, 1949 (Pictorial Services, Inc.).


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Florsheim Shoe Shop, New York, by Ketcham, Gima & Sherp, 1946 (Gottschal-Schleisner—P/A file).

Service Station for Craig Oil Co., Los Angeles, Calif., by William F. Hempel, 1946 (Julius Shulman—P/A file).


Pittsburgh Center for Pittsburgh Regional Planning Assn., by Mitchell & Ritchey (Newman-Schmidt Studios).

100 Park Avenue, New York, by Kahn & Jacobs, architects; George A. Fuller Co., builders, 1949 (J. Alex Langley—courtesy of George A. Fuller Co.).


Television station, Columbus, Ohio, by The Austin Co., Engineers and Builders, 1949 (Courtesy of The Austin Co.).

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Red Rocks Amphitheater, Denver, Colo., by Burnham Hoyt, 1944 (Hedrich-Blessing Studio).

New York University-Bellevue Medical Center, New York, by Skidmore, Owings & Merrill, model by Theodore Conrad (Era Stoller: Pictorial Services—P/A file).


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Library and Administration Bldg., Illinois Institute of Technology, Chicago, Ill., by Alex van der Rohe, rendering by Kehka (Courtes of P.I. Institute of Technology).


V. C. Morris Shop, San Francisco, Calif., by Frank Lloyd Wright, 1949 (P/A file).

Sherman Hotel, Houston, Tex., by Wyatt C. Hedrick, 1945 (Bob Bailey—courtesy of Sherman Hotel).

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<th>Noise Reduction Coeff.</th>
<th>Thickness</th>
<th>Sizes</th>
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<tr>
<td>ACOUSTIMETAL</td>
<td>.85</td>
<td>1 1/4&quot;</td>
<td>12&quot; x 24&quot;</td>
<td>Alkyd resin enamel finish, electrostatically applied for uniform density and coverage. Baked on by infra-red light. Bonderizing of metal assures greater adhesion of paint.</td>
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<td>3/4&quot;</td>
<td>12&quot; x 24&quot;</td>
<td>Factory-applied shell-white finish results in high light-reflection.</td>
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<tr>
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<td>.60</td>
<td>3/4&quot;</td>
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<td>As desired</td>
<td>Monolithic</td>
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\[ \frac{1}{2} \text{ inch ADDS feet TO A ROOM} \]

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The new square Anemostats are available in two basic models. Type E fits without modification into the framework that holds standard size acoustical and egg crate ceilings. Type E-1 is flanged to cover the opening in a regular ceiling.

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This unretouched smoke test photograph shows how the new square Anemostat diffuses air completely over a 360° area.

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Due to its special design, the Anemostat distributes air of any duct velocity in a multiplicity of planes traveling in all directions. Simultaneously, the unit creates a series of countercurrents traveling toward the device which siphon into the device room air up to 35% of the supply air depending on the type and size of the unit. This room air is mixed with the supply air within the Anemostat before the air mixture is discharged into the enclosure.
Promontory Apartments, Chicago, Ill., nearing completion. Duraplastic used throughout in concrete columns 12 feet deep with network of steel bars and beams. No sign of bleeding or segregation. Contractors report a smooth surface free of blemishes or air-bubbles. Architect: Pace Associates; Structural Engineer: Frank J. Kornacker; Contractor: Peter Hamlin Construction Company—all of Chicago.

In August, 1939, this concrete test paving was laid in Second Avenue North, Minneapolis. The badly scaled section of roadway in the background was made with regular portland cement. The foreground section, laid at the same time, was made with Atlas Duraplastic—the first commercial use of the air-entraining portland cement originated and developed by Universal Atlas.

Both sections, subjected to the severity of ten Minneapolis winters and to heavy applications of de-icing salts, are shown just as they appeared in July, 1949—convincing proof of the characteristic durability of Duraplastic concrete, of its high resistance to freezing-thawing weather and the scaling action of de-icing salts. Longitudinal structural crack shows some ravelling. Note perfect transverse joint.

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From initial paving installations... to the first structural job... to beautiful, modern structural achievements like the one shown here, architects, engineers and contractors have come to rely more and more on the extra durability and improved appearance of concrete made with Atlas Duraplastic air-entraining portland cement.

In Duraplastic's rapid ten-year growth, its advantages have been applied to all types of mass and structural concrete—for foundations, walls, columns, and floors. It's ideal for slip-form, gunite, stucco and similar uses.

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*"Duraplastic" is the registered trade mark of the air-entraining portland cement manufactured by Universal Atlas Cement Company.
SELECTED PRODUCERS' BULLETINS

- Westinghouse elevators for the new Jordan Marsh department store in Boston will be equipped with cockpits for the operators. The operator stands in a private compartment which extends from the right-hand wall of the car. As the floor of the compartment is one foot above the regular passenger level, the operator is provided with an unobstructed view of the elevator entrance; therefore, he can provide the customers with safer and more efficient service. Also, as the space behind the operator is closed off, passengers are permitted to move directly forward when getting off instead of working their way from behind the operator. Each elevator (there are four) has a seven-foot-wide opening—two feet more than standard department-store cabs.

- General Electric's Air-Wall heating plant for small homes is considered mechanically acceptable by the FHA for properties eligible to mortgage insurance under the Minimum Property Requirements and Risk Rating Procedure of the Administration. The unit, delivered as a complete "package" to the home site, includes a G-E oil- or gas-fired warm-air furnace, small-diameter ducts and elbows, plenum chamber, and registers. The Air-Wall system offers substantial savings in installation costs through the use of prefabricated round ducts and elbows. The ducts are quickly assembled and installed, leave plenty of head room in the basement, and permit easy conversion to living or play quarters.

- Protective aluminum foil has been added to medium-thick rock wool batt insulation manufactured by the Sealite Insulation Mfg. Corp., and brought out under the name of Seal-Foil. The new insulation product combines the efficiency of mineral wool with the advantages of foil backing, which stops 95 percent of heat transmission by means of radiation and serves as a vapor barrier as well. In laboratory tests it was found that the reflective surface is not seriously affected by dust, and will not tarnish. The firm plans to sell the material at a price in line with the present cost of ordinary full-thick batts.

- A new washable paint finish will be applied to Cushiontene, perforated fiber acoustical tile manufactured by Armstrong Cork Co. The finish consists of two coats of resin oil emulsion paint. No change in the white shade of the acoustical material will be made, according to the manufacturer.
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AS I WRITE THIS, WE ARE PUTTING THE MAIN PART OF THE JANUARY ISSUE TO BED. And most of the P/A staff is ready to go to bed also. It has been one of the toughest charrettes I've ever engaged in. Like most architectural problems, it began long ago with preliminary discussions and preliminary planning, and as the due-date appeared, the work has been almost constant and consuming of every minute of time. During the last few weeks the editors have locked themselves up to go over the final text and to correlate all of the valuable suggestions and criticisms made by our staff of consultants (who at two previous stages had spent days in the office working with us). To the people who have tried to get in touch with us during this time we apologize—we have been consistently "out." To the wives and families of those of us who have worked countless evenings and weekends we express regret and sympathy. The hell of it is, in this business, that the next issue is pressing us—the monthly deadline. We, the editors, and our assistants, have lived with this material so long that we may have lost our perspective about its value. To us it seems a most worthwhile thing to do, to look back over the past 50 years and attempt to learn from the work that has been done. It seemed to us when we started it, and it still does, to be a reasonable professional magazine enterprise to turn our sights above day-to-day design occasionally, to skip a month of current work, and to look at what has been done in a more objective historical manner. We sincerely hope that you find the issue interesting and useful.

TURNING TO MORE RECENT EVENTS, I'VE NEGLECTED TO REPORT ON SEVERAL interesting ones. First of all, the White Sulphur Springs Conference arranged by the West Virginia architects was a great success. The Greenbrier, despite its Dorothy Draper decor, is a pleasant place to stay for a few days. Cy Silling and his helpers ran the affair with great aplomb. The "program"—divided among pleasant talks by Belluschi and Cherry Mayeff, a look at the Tremaine's Miller Collection of contemporary paintings related to architecture, singing led by R. A. Schmertz with his original hill-billy compositions—was lively, good fun, and informative. Some of us were sorry that Ralph Walker had prepared a talk for the final night which seemed to poke fun at much that had been said and done during the two days preceding—but that's his business, I guess.

RECENTLY I TOOK A DAY OFF in the middle of the rush and went up to Yale to help in the judgment of a hospital planning problem that had been conducted for the preceding 10 weeks by Al Aydelott, and which a special gift from Charles Neergaard made possible. It's always a privilege to work with Ed Stone and Lou Kahn, who were the other jurors, and it was good to see Harris Armstrong, in New Haven as critic of another problem. But even more exciting was the opportunity to hear articulate and thoughtful students explain and defend their solutions of a highly technical problem, and to see both the excellent general level of design and the occasional instances of original research and outstanding talent that we found among the 25 submissions.

AFTER THE JUDGMENT, ALONG ABOUT MIDNIGHT (before Stone drove me back to New York and we ran out of gas on the Merritt Parkway) some of us discussed for a brief few minutes, over a cup of coffee, the need for teaching drafting and representational techniques in the schools. No one (let's say almost no one) wants to go back to the emphasis on presentation that Carl Feiss speaks of in his column this month, when the rendering was likely to be more important than the thought it expressed. And yet in too many schools it is obvious that the elementary tool of the designer—the ability to express his thought clearly and compellingly in graphic form—has not been well taught. It is annoying to see an excellent solution to a tough problem so weakly drawn that it is almost impossible to "read" the structure or the plan arrangement. Conversely it is most refreshing to come across a readable and explanatory presentation which makes a good design so much the more convincing. Perhaps the de-emphasis of drafting as a tool (undoubtedly because it had become an end in itself) is a bad thing that has happened in the last 50 years, both in the schools and in the profession itself. P/A plans to pay some attention to the problems of drafting in the modern office during this coming year.