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MODERN ARCHITECTURAL SCULPTURE

Edited by W. Aumonier

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All styles are included, ranging from the purely orthodox to the latest ultra-modern, and illustrate representative work of the United States, Great Britain, Canada, Norway, Sweden, Denmark, Holland, France, Germany, Austria, Czechoslovakia, Jugoslavia, Spain, and Italy. A large number of the works to be reproduced in the book have, so far as can be traced, not hitherto been published.

A very large page (14 inches by 11 inches) makes adequate reproduction possible of the many interesting examples of architectural carving and modern sculpture.

Containing about 160 pages of illustrations in addition to a foreword by M. Aumonier

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ARCHITECTURAL LEAGUE ACTIVITIES FOR OCTOBER

October 8.—Paris Night; Murchison, Tony Sarg, Harry Burr, and others will bring, through tableaux, motion pictures, and marionettes, a boiled-down résumé of the Voyagers' trip last spring. Opening night of the season—a stag affair.

Oct. 15.—Under the Sidewalks of New York. Lawrence Herzog promises a revelation, largely geological, but not going into the technical foundations.

Oct. 22.—Chester Price is in charge of an exhibition and talk on the subject of Peasant Art.

Oct. 29.—“An Evening at the Colonial Exposition, Paris, under the direction of Henri Courtis. This is ladies' night, and those who prefer will come as Sudanese, gendarmes, or mere tourists.

All of these affairs are preceded by a dinner for those who want to start the evening early.

JUNIOR LEAGUE OF THE N. Y. SOCIETY OF ARCHITECTS

The talks given before the Junior League of the New York Society of Architects during the last season have been well attended. Some of the speakers were: Theodore I. Coe, Arthur Holden, Ralph Walker, Louis E. Jallade, and Vernon Jarboe. The lectures are free and they are not limited to members of the Junior League. Any one interested in the practice of architecture is welcome. The talks are given at 6 p.m. twice a month at the Murray Hill Hotel. A postcard addressed to Louis E. Jallade, 15 East 47th Street, New York, N. Y., will bring the dates and programme for the fall.

PRIZES FOR BEAUTIFUL BRIDGES

The Delton Bridge, Sauk County, Wis., constructed by the Lakeside Bridge and Steel Company, from plans by the Wisconsin State Highway Commission, has been decorated by the American Institute of Steel Construction with bronze plaques as the most beautiful small steel bridge erected during the past year. Of the larger and more expensive spans erected during the past year, the bascule bridge carrying Wabash Avenue in Chicago was judged the most beautiful.

The jury making these awards, on behalf of the A. I. S. C., consisted of Francis Lee Stuart, President of the American Society of Civil Engineers; Robert D. Kohn, President of the American Institute of Architects; Frederick L. Ackerman, architect; Dr. William H. Burr, consulting engineer; and B. F. Betts, Editor of The American Architect.

ST. THOMAS'S NEW GLASS

August 19, 1931.

To the Editor of ARCHITECTURE

Dear Sir: The architecture of the City of New York contains certain priceless examples of dignity and beauty. St. Thomas's Church is one of these. It has taken its place with the City Hall, Trinity Church, the Morgan Library, and a few other buildings as something of vital consequence in the city's life—something not to be destroyed or marred without regret or even resentment on the part of all of us. In every part of its fabric this great house of worship is orderly in design. The touches of warm human interest are in no wise trivial or careless but are carefully studied to produce the utmost of utility and beauty. The crowning glory of the interior is Goodhue's reredos.

In this great altar screen beauty was the sole objective. The wealth of minute detail is secondary in importance to the orderly arrangement of masses and the studious massing of even the historic and sentimental episodes. Each bright light and each sharp shadow has its echo. Viewed from the entrance, the patio, the church is beautiful. The drawing and subject become absorbingly interesting before the middle of the church has been reached. From there to the chancel rail each step reveals more beauty as the designer and sculptor labored to accomplish a gradual revelation of the detail.

Above and behind this screen there has recently been installed a mass of Antwerp blue glass with round red spots of assorted sizes spattered indiscriminately over its surface, entirely unrelieved by yellow, white, or the obvious green.

To one who enters the church, particularly when the sun is past the zenith, all the subtle tonal values of the interior are lost in an explosion of garish color from this west window. Design cannot be mentioned in connection with such an effect. It represents the negation of all the qualities most noticeable in Goodhue's design. He never needed to do haphazard things because he had knowledge and energy enough to order his detail into a pattern and wield it as an instrument to form a mass or to decorate a space or structural unit. Industry was a carefully nurtured gift which made it a pleasure for him to work endlessly until he had achieved the best of which he was capable. Knowledge told him when he had achieved his best.

This window was produced in England and in its lack of order it represents a tendency noticeable in several recent examples of English glass, a tendency which the best of our own men seem to have avoided. It is hard to imagine how any one who has studied this interior and observed the restraint exercised in the color scheme of the great rose window in the east wall could ever have brought his mind to such a blatant splash of crude color as is formed by this window. Having got what we could of inspiration from the Goths are we now turning to the Vandals?

Very truly yours,

J. MONROE HEWLETT

PHILADELPHIA WATER-COLOR EXHIBITION

The Pennsylvania Academy of the Fine Arts and the Philadelphia Water-Color Club announce that, under their joint management, an exhibition of original work by living artists in water-color, black-and-white, pastel, or drawing with pencil, crayon, or pen, or illustrations in whatever medium, and not before publicly shown in Philadelphia, will be held at the academy beginning Sunday, November 1, 1931, and ending Sunday, December 6, 1931, both inclusive.

COOPER UNION

RETIREMENT of Frederick Dielman as art director of Cooper Union is announced by R. Fulton Cutting, president of the Union's board of trustees. Mr. Dielman, now eighty-four years old, and a former president of the National Academy of Design, becomes director emeritus.

Mr. Dielman is succeeded as art director by Austin Purves, Jr. Mr. Purves was born in Chestnut Hill, Philadelphia, December 31, 1900. He studied at the Pennsylvania Academy of the Fine Arts, particularly with Daniel Garber, and at the Académie Julian in Paris. He studied fresco painting at Fontainebleau.

Mr. Purves was an instructor in painting at the Yale School of Fine Arts, and his work has been shown at the National Academy of Design, the Pennsylvania Academy of the Fine Arts, and the Salmagundi Club.
First Bath in 23 Years

Alwyn Court Building again looks like new.

The entire exterior of this building at 58th St. and 7th Ave., New York, completed 23 years ago from the plans of Harde & Short, Architects, was recently washed with soap and water and has resumed the fresh appearance of its earliest days. As the building surface was of Atlantic Terra Cotta, it was not necessary to resort to sand blasting. None of the intricate detail shows any sign of wear after all these years.

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THE BULLETIN-BOARD Continued

Arts, and in mural decoration at the Grand Central Art School in 1922-28. From 1928 to 1930 he was director of the Studio of Design at R. H. Macy & Company. For the last two years he has been instructor in composition and lecturer on the history of ornament at the National Academy of Design. He was a member of this year’s Prix de Rome jury. Mr. Purves is treasurer of the Mural Painters Society, vice-president of the Fontainebleau Association, and a member of the executive committee of the Architectural League of New York. He is now completing some work in the Folger Shakespeare Library, Washington, D. C., in collaboration with Paul P. Cret, architect.

Three other appointments to the faculty of the Woman’s Art School at Cooper Union are also announced: Dunbar D. Beck, of the Yale School of Fine Arts and Fellow of the American Academy in Rome, will teach still life and head painting. Algot G. Stenberg, of the Arts Students League, will be an instructor in the life class; and Margaret Cowan, a Cooper Union graduate, will have charge of the antique class.

THE NEW SCHOOL FOR SOCIAL RESEARCH

The new School for Social Research, 66 West 12th Street, New York City, announces an architectural programme for the year 1931-32. The architectural workshop will study the problem of reconstruction on the lower East Side in the light of city-planning principles, e. g., desirable size of block and height of buildings, open spaces, transit, number and types of schools, types of apartment-houses, costs, rentals in relation to income classes.

Fifteen to eighteen applicants will be selected to work in groups of three under these members of the committee: Ely Jacques Kahn, Raymond Hood, Wallace K. Harrison, Joseph Urban, Albert Mayer, and Ralph Walker.

In the course on present-day problems of architecture and construction, the various problems arising from changes in materials, in engineering technics, in legal requirements, will be discussed in a series of informal talks by men practically engaged in their solution. The procedure will vary according to the subject, but the professional and layman alike will be interested in the problem of the skyscraper, for example, as treated through the specific instance of the Empire State Building, William F. Lamb representing the architects, A. J. Eken, the builders, and R. C. Brown, the owners.

TEXAS GOES TO A FIVE-YEAR COURSE

BEGINNING this fall, the course in Architectural Design given by the Agricultural and Mechanical College of Texas is extended to five years. This is in line with the action of most of the larger schools of architecture throughout the country. The Texas course in Architectural Engineering will remain at four years for the present, although this may shortly be extended.

TWO CORRECTIONS

We are convicted of an error in tidying Mr. Leo Friedlander’s sculpture in the September issue. The pediment and model on page 165 are for the Museum of the City of New York, of which J. H. Freedlander is the architect. It is the sculptured groups on the following two pages—166, 167—which are to embellish Holabird & Root’s Jefferson County Court House at Birmingham, Ala.

In Mr. Clute’s article, “Modern Decorative Light Sources,” in the August issue, the first illustration on page 74 shows a lighting source in the Holland showroom which was wrongly credited to Maurice Heaton. Mr. Heaton designed and executed many of the fixtures in the Holland Building, but this particular one was designed by Jack Peters and Miss E. Lockwood, and the craftsmanship is by Cox, Noonstrad & Gunisson, Inc.

THE BUILDING INDICATOR

There was an increase of 5.9 per cent in the estimated cost of buildings for which permits were issued during the month of July, 1931, as compared with the month of June, 1931, according to reports received by the Bureau of Labor Statistics of the United States Department of Labor from 338 identical cities having a population of 25,000 or over. The usual trend between June and July is downward. There was a decrease of 17.4 per cent in the estimated cost of new residential buildings, but an increase of 28.8 per cent in the estimated cost of new non-residential buildings, comparing permits issued during these two months.

Comparing permits issued in 289 identical cities during July, 1931, and July, 1930, there was a decrease of 34.1 per cent in total construction; a decrease of 38.3 per cent in the estimated cost of new residential buildings; a decrease of 33.1 per cent in new non-residential buildings.

PHILIP ALLAIN CUSACHS, 1889-1931

Philip Allain Cusachs, an architect who was known throughout the country for his work with the Beaux-Arts Institute of Design, died unexpectedly of heart disease at his home in East Islip, Long Island, on August 31. He was forty-two years old.

During the World War Mr. Cusachs served as a lieutenant in the aviation division of the navy. He was born in New Orleans, the son of Pierre Leon Cusachs and Louise Allain Cusachs. Following his graduation with an engineering degree from Tulane University in 1906, Mr. Cusachs came to New York and began work in an architect’s office.

In 1911 he went to Paris, where he studied architecture for three years. He became associated professionally with Raymond Almira, his brother-in-law, on his return from Paris. When he was discharged from the navy in 1919, he became a partner in Mr. Almira’s firm. In 1929 Mr. Cusachs founded a firm of his own, with offices at 17 East 49th Street, New York. He specialized in designing country residences.

PERSONAL

Miss Margaret V. Van Pelt, an architect registered in New York and New Jersey, has joined the firm of her father, John V. Van Pelt, New York City. Miss Van Pelt is a graduate of Vassar, holds a B.A. from Columbia, an M.A. from Massachusetts Tech., and has just returned from a year’s travel in Europe.

C. C. & S. K. Weber, architects, announce the removal of their offices to the Chamber of Commerce Building, Fourth and Race Streets, Cincinnati, Ohio.

The firm of Glass & Ramsey, architects, 186 East Broad Street, Columbus, Ohio, has been dissolved. F. E. Glass will continue in the same offices and F. A. Ramsey has opened new offices at the same street address.
A PROGRESSIVE STEP IN MODERN HOUSE CONSTRUCTION

In the planning of every house the comfort and economy to be gained by adequate insulation deserve primary consideration.

Johns-Manville has perfected an economical way of completely filling the side walls and attic floors with J-M Rock Wool, a fireproof insulation made from molten rock. This insulation is literally blown into the walls of the house under pneumatic pressure and provides an insulation so efficient that it quickly pays for itself in fuel savings and additional comfort.

For full details, the monograph pictured above is available to you on request. Address—Architectural Service Department, Johns-Manville, 292 Madison Ave., New York City.
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The Arch of Titus, Rome

From the lithograph by A. W. K. Billings, Jr.
The Rodin Museum, Philadelphia
PAUL CRET AND JACQUES GREBER, ARCHITECTS

By John Junius

Un art qui à la vie ne restaure pas les œuvres du passé: ils les continue.—AUGUSTE RODIN, ON A MURAL DECORATION IN MUSÉE RODIN, PARIS.

RODIN has been singularly happy in the sites chosen for collections of his work. In Paris the Hôtel Biron, a charming example of the work of Jacques Gabriel, built in 1728 for a self-made child of fortune, Peyrenc de Moras, later the home of Marshal Biron, hero of Fontenoy, then a convent of the Dames du Sacré Cœur de Jésus, was in 1904 sold to real-estate promoters and its grounds about to be divided into building lots when Aristide Briand obtained an option on it for the French government and installed there various artists, among others Rodin, whose studios on the ground floor overlooked the terraces of the charming formal garden, which, though only a shell of what it once was, is still a delightful place.

In the exquisite rooms of this relic of the past are now housed the collection of his works left by Rodin to the French people, with some paintings by his friends Renoir and Carrière. Here are most of his works.

Others are at Meudon, at the Villa des Brillants, where he lived and worked, where he re-erected architectural fragments that appealed to him, and set up in garden settings the antique sculptures he had collected—and where he lies buried. It was Rodin who, when reminded that
The main or garden façade of the Rodin Museum, a plan of which appears on page 193
The main gallery. In addition, as the plan shows, there are three smaller exhibition rooms, a library, and administration offices.
Another view of the main gallery. The smaller sculptures are on marble shelves, about waist-high.

by custom one places statues in a garden to embellish it, replied that it is rather to embellish the statues.

And now at Philadelphia, in the middle of the length of the Parkway, the wide avenue that each year with the growth of the trees takes on more of the aspects of the boulevards of Paris, there has been erected, through the generosity of Jules Mastbaum, in a garden setting worthy of Le Nôtre, a museum consecrated solely to the works of the impressionist sculptor who has done so much to mould the modern school.

And at each of these places is le Penseur, that "giant of bronze with bowed back and eyes staring into the infinite which he seems to scrutinize as a bottomless abyss"—that Penseur, like a sphinx, that so typifies Rodin; le Penseur that perches in the tympanum of the Porte de l'Enfer, the tragic work of a lifetime; le Penseur that in 1904, offered by public subscription, was erected in front of the Pantheon in Paris, but since removed.

This "faithful bronze guardian" is in the forecourt of the Hôtel Biron; the original has been erected over the tomb of Auguste Rodin and Rose Rodin at Meudon—forever awake above them..."but it is no longer the bodies lost from the Porte de l'Enfer that he watches, but two old and very simple people who rest forever in the calm of an abandoned garden."

And in Philadelphia, on a pedestal of French stone, and before a reproduction of the fragment of the old Château

* René Chéruy, L'Illustration, 26 October, 1929.
Detail of niche on the main façade. The exterior is built of limestone.
d'Issy that Rodin rescued from the inexorable march of so-called progress and re-erected near his studio at Meudon, is again le Penseur, watching over the entrance to the new Rodin Museum of the Mastbaum Foundation.

Within the gateway reproduced from the Château d'Issy is the garden—enclosed by trimmed hedges, a magnolia tree of exquisite shape on either side, in the centre a reflecting pool with basins at its head, and at the far side the Rodin Museum, on a terrace, with the Porte de l'Enfer (first cast in bronze for this museum) visible at the back of a loggia, which forms the entrance to the gallery. Within the garden are several of the larger works—the Burghers of Calais, Adam, Eve, Shadow, and the Age of Bronze.

Ultimately the forecourt garden of the Rodin Museum will form an accent halfway between the public library and the museum on one side of the gardens that are to line Philadelphia's Parkway.

As setting for his work, Rodin had always a weakness for the classic architecture of the Louis XIV or Louis XVI periods.* A living art continues the works of the past, he said.† The architecture of this museum is a fresh interpretation of the classic, with the careful attention to detail, and trained sense of proportion that distinguish the work of its designers.

A visit to the Rodin Museum in Philadelphia, after seeing that in Paris, leads to but one suggestion for its improvement—that a painting by Renoir or by some other artist contemporary in spirit with Rodin be hung either side of le Baiser, for the paintings set off the sculpture and are, in turn, improved by it.

Had Jules Mastbaum lived to see the fulfill-

* Paul Gsell, "L'Art . . . Rodin."
† René Chéruy, L'Illustration, 26 October, 1929.

Photographs by Wm. de Retiase

Jules E. Mastbaum memorial panel and bust. The background marble is of an ivory tint, the dado of Tavernelle marble, walls of plaster, floor of two-color terrazzo

One of the octagonal exhibition rooms. Here the wall tone is a Pompeian red trimmed in gray—a successful background for the bronzes and small framed drawings
Detail of main gallery, with entrance to one of the octagonal corner rooms

The Musée Rodin in Paris—the Hôtel Biron, built by Jacques Gabriel in 1728

The library. Here the standing woodwork is of walnut, the floor of oak

In the tympanum at either end are murals by Franklin Watkins—Piranesian fragments in color
Craftsmanship in Carved Wood

By Eugene Clute

Wood properly carved has a vibrancy and liveliness, peculiar to itself, that cannot be approached in any other material. This is due to the facets left by the cuts of the sharp tools and to the fibrous nature of the material. These facets and the wood fibres catch the light and reflect it at various angles, while the pores hold minute shadows that give depth of texture. Close-grained woods, such as limewood, have an almost translucent surface quality by reason of their structure, and each of the more open-grained woods has a beauty of its own.

The facets are the test of the craftsman's skill; if his hand is sure and sensitive, they are clean and crisp, whether they be so small that they are hardly visible and are gently merged one into another, as in carved limewood; or are relatively large and quite clearly defined, as in carved oak and in many other woods.

It requires a special sense, acquired through long practice of the art, to model wood in this way, often cutting across the grain to expose the fibres and to bring out to the full degree the plasticity of the medium. The carver must have a delicacy of touch akin to that of the skilled surgeon, and a love for his material that enables him to sense the variations of grain and density and to use the right tool cuts everywhere. Upon this skill in cutting is dependent much of the character of carved wood.

It is very much like looking through a microscope into a previously unknown world when one first examines fine wood carvings with an understanding of the technique and of the material. Something of this can be realized by examining the photographs shown here, which represent carvings by Adam Dabrowski, some of them as seen at close range.

Here one sees the widely different kinds of handling suited to many varieties of wood. In the carved oak moulding are seen particularly well the strong texture of this wood and the vigor of the chisel cuts that best bring out its character. The low-relief carving of Saint Catherine emphasizes the ivory-like delicacy of which limewood is capable, while the ornament in the manner of Grinling Gibbons shows the depth of under-cutting and the refinement of modelling to which this wood lends itself. One of the most...
An elaborately carved oak door, designed by James Van Alst, architect, and executed by Adam Dabrowski; it is hung in the latter's studio as the door to his library.

A close-up of the oak door at left; the carving is in very low relief and with a sturdiness well suited to the wood.

beautiful effects is seen in the close-up photograph of a portion of a figure of the Madonna, in American walnut, in which the satin-like sheen of the wood, the silky fibres and the combined delicacy and crispness of the cutting are shown very clearly. Pine can be modelled with almost the facility of clay by the skilful carver, and there is the added advantage that the results have a greater degree of character than modelling in the more yielding material. This is seen in the Gothic capital intended to be finished in polychrome and gold, as part of the adornment of a chapel. There is a very wide range of grain and texture and of color in the woods ordinarily available for carving, all with distinct characteristics which render them suitable for works of different types. There are rare woods, too, often difficult to carve, but of marvellous quality; for example, the very hard
Brazilian wood of deep blood-red color, from which the figure of the Christ is cut. Its density is indicated by the character of the carving and the mirror-like smoothness of the facets.

The craftsman in this medium needs a keen and true sense of modelling, the ability to see accurately in three dimensions, and to comprehend fully the characteristics of the objects and materials he represents. How important this is may be understood by studying the sweep of lines and the hang of the materials in the draperies shown in these photographs, particularly in the robes of the Madonna, carved in American walnut. Note the freedom with which the sleeves hang from the arms and the understanding with which the fine linen of the robe is

Close-up of the limewood carving shown on page 197, showing the surface quality which this fine-grained wood dictates. Note that while some surfaces are very smooth the facets are still present.

Here is a carving in process—the design blocked out and the top part is finished, ready for the final tooling. Here again, an evidence of skilled woodcarving is the smooth surface which disdains sandpaper.
differentiated from the heavier material of the outer garment, also how the delicately wrought fleur-de-lys pattern is made to assist in expressing the weight and contour of the folds.

Portait sculpture in wood is rarely seen, perhaps because it is so difficult, but its possibilities are evident in the bust of Bunkio Matsuki, the Japanese authority on Far Eastern arts, which is carved in limewood with great sensitiveness and very lifelike effect. It should be noted that the face is carved in boldly handled planes which can be seen in the photograph, if it is inspected closely. It is this that gives to the flesh tones their remarkable depth. This portrait reveals one of the main reasons for Adam Dabrowski’s unusual degree of skill in modelling the more usual subjects in wood, such as the ornamental details of interiors, for he is a sculptor and was thoroughly trained at the Art Institute in Warsaw. Sometimes he models the subjects of his wood carvings in clay, just as any sculptor models his works for execution in bronze or marble. Sometimes he develops his designs in charcoal sketches at full size. Often, however, he works directly in the wood, visualizing his completed carving in the block and chipping away the material to reveal it. One of his carvings photographed in process is shown here; the plant and flower forms are blocked out with definiteness and clear characterization, ready for the more delicate tooling needed to give them perfection. As this is to be an applied carving the background will be cut away.

The carved mantel and over-mantel in the board room of the Real Estate Land Title & Trust Company Building in Philadelphia affords an interesting example of the proper use of an historic source of inspiration. The document, in this instance, was a chimney piece with applied carvings from Clifford’s Inn, now in the Victoria and Albert Museum. A photographic enlargement about eighteen by twenty-four inches in size was used, which was large enough to show the detail of the carving clearly. The reproduction of this photograph shown here, though quite small, owing to the limited
A capital to be decorated in polychrome and gold, carved in pine. All of these carvings are by Adam Dabrowski.

A molding carved in oak, with typical low relief and vigorous detail.

A bracket of oak carved with the grotesque head of a pirate.

A figure of Christ carved in a very hard and dense Brazilian wood of deep blood-red color.

Close-up detail of a Madonna. Carved in American walnut.
Horace Trumbauer, architect, is the "document" from which it was adapted, a chimney piece from Clifford's Inn, London, now in the Victoria and Albert Museum. It requires craftsmanship of a high type to execute something more than a copy in cases of this kind.

space, shows the characteristics of the design sufficiently well to permit of comparison with the photograph of the new work. It will be noted that while the new carvings owe much to the old ones, a great degree of freedom has been exercised wisely in adapting these motives to their new place. The rather monumental treatment required by this large board room called for the greater richness in detail and for the closer massing together of the elements of the ornament seen in the photograph of the new chimney piece, and the result shows a consistency of character with the other features of the room, also an individuality and charm which could never have been achieved by a more literal interpretation, delightful though this old chimney breast is and however well it may have been suited to its place in the old building.

The chimney piece presents an example of carving in a large and richly decorated room; the small door shown in another photograph suggests the possibilities that lie in this manner of enrichment for smaller, more intimate interiors. This is one of the doors to Adam Dabrowski's library in his studio. It was designed by James Van Alst, architect, and is of American oak carved in low relief. The background being recessed and the carving quite flat, this door has a modern air, though the ornament is of traditional type. The technique of the carving is shown by a close-up photograph.

Craftsmanship is a prominent feature of the modern movement in all European countries, particularly in Sweden, the country whose work in architecture and the allied arts has, during the last few years, aroused more interest, probably, among our architects than the work of any other country. Undoubtedly craftsmanship will assume a similar degree of importance in our own modern architecture, for we have the craftsmen and our art industries are well developed, with men able and eager to produce materials and workmanship of the highest artistic merit under the leadership of the architects.
Alabaster has been treasured for its aesthetic possibilities from very early times. In Byzantine architecture the material was used in windows for its translucent beauty in the carved slab. Here is illustrated a recent example of alabaster’s use in this way, designed by Paul A. Goettelmann under the supervision of Murphy & Olmsted, and executed in Volterra, Italy, by Conrad Schmitt Studios. The slabs are about five-eighths of an inch thick, carved to about three-eighths in the background of the design.

Alabaster Window, Sacred Heart Chapel, Brentwood, L. I., Murphy & Olmsted, Architects
San Diego Exposition, Fifteen Years After

The Panama-California International Exposition was held in San Diego in 1915. It was unique in the fact that one architect was in charge of the general scheme—Bertram G. Goodhue—who found time also to design several of the more important buildings.

The problem, "What shall be done with our old expositions?" has been solved by San Diego. The grounds have been maintained as a park; many of the buildings have been retained and put to use as art museums, concert-halls, etc.

The gardens, beautiful in 1915, have been developed to a luxuriant maturity.

Below, the main entrance at the end of the bridge shown above.

The Horticultural Building still serves its original purpose.

The rear of the former California State Building.

The main avenue with Goodhue's lovely tower of the California State Building, now an art museum.
New building for the United States Department of Agriculture's Forest Products Laboratory, Madison, Wis. Holabird & Root, architects; drawing by Gilbert Hall

York & Sawyer's perspective drawing of the new gymnasium for Rutgers University, New Brunswick, N. J. The building is nearing completion

The nave of the Cathedral of St. John the Divine, New York City, is finished, as designed by Cram & Ferguson. The choir, at right, shows the earlier work in choir and apse under Heins & La Farge
The city department-stores are branching out in the suburbs—Altman's in East Orange, N. J. Frederick G. Frost, architect

The Bronx County Building, New York, work upon which is beginning. Max Hausle and J. H. Freedlander, associate architects

Preliminary perspective of the proposed memorial to Knute Rockne of Notre Dame. Maurice Carroll, Chester E. Dean, architects

New York City's new home for the Curb Exchange. Starrett & Van Vleck, architects

Obverse and reverse of the commemorative medal to be used in connection with the George Washington bicentennial. Laura Gardin Fraser, sculptor

A model for the University of Montreal, construction upon which buildings is now well under way. Ernest Cormier, architect and engineer

Mr. Wright steps outside of his usual rôle with a preliminary apology: "I suppose I am to suffer disadvantage, being accustomed to saying things with a hod of mortar and some bricks ... rather than by speaking or writing"—an apology that is entirely unnecessary, since Mr. Wright puts his thoughts into words with as much emphasis, if not as much beauty, as he puts his thoughts into design. There is crowded into these six lectures a great deal of the author's philosophy, some of his contempt, and many of his ideals: 1. Machine, Materials and Men; 2. Style in Industry; 3. The Passing of the Cornice; 4. The Cardboard House; 5. The Tyranny of the Skyscraper; 6. The City.


A handbook on the lumber industry which has made a place for itself since 1914 among manufacturers, students, and others concerned with the industry. New material in this edition is that relating to American Lumber Standards, also the recommended grading provisions for red cedar shingles.


Mr. McGrew is a recent holder of the Francis J. Plym Fellowship in Architecture, and he has employed his time to excellent advantage. The book has the great merit of showing, where measured drawings have been made, the photographic illustrations directly facing these measured drawings to permit of ready comparisons.

PRACTICAL WATER-COLOR SKETCHING.


Mr. Lutz has established for himself the reputation of being able to teach art. His books on composition, anatomy, lettering, practical drawing, figure work, comprise an invaluable library on art instruction. Mr. Lutz is eminently practical, both in the matter of technic and in the theory of water-color representation.


Concise information from the National Bureau of Standards addressed to the handyman.

ARCHITECTURAL SHADES AND SHADOWS.

By EDGAR GREER SHELTON. 159 pages, 8 by 10½ inches. Illustrations from diagrams, wash drawings, and photographs. New York: 1931: D. Van Nostrand Co., Inc. $3.50.

A book for the student, assuming knowledge of orthographic projection and an elementary knowledge of descriptive geometry. The author makes clear, by description and by problems, the three accepted methods of casting shadows: oblique projection; auxiliary or tangent cones; auxiliary or slicing planes. The author is Associate Professor of Architecture in Texas Technological College.

LABORATORY TESTS OF REINFORCED CONCRETE ARCHES WITH DECKS. By WILBUR M. WILSON. 100 pages, 6 by 9 inches. Illustrations from diagrams and photographs of tests. Pamphlet binding. Urbana, Ill.: 1931: The University of Illinois. 50 cents.


It has long been an open question as to just how much of an architect Thomas Jefferson really was. Mr. Frary, who is a lecturer and teacher at the Cleveland Museum of Art, goes much farther into this matter than many previous students of early American architecture. Jefferson's relations with Latrobe and Thornton are made more clear, as well as the fact that Jefferson was possibly rather more of an inventor than a designer, his efforts at design leaning heavily upon Palladio and other classical precedent which, with mathematical precision, he adapted to his needs. Unquestionably, his mind was one that conceived the grand plan; his ability was not one that easily worked out details of design, though structural and mechanical processes were among the many things that he mastered with unusual thoroughness.
Here is an unusual example of architectural collaboration: a county court house and a city hall combined in a building of marked architectural unity, yet each portion was designed and its erection supervised by a separate architect. The court house is the work of Edward F. Neild; the city hall, the work of Lescher & Mahoney.

MARICOPA COUNTY COURT HOUSE AND PHOENIX CITY HALL, PHOENIX, ARIZ.
The east or entrance front. Walls are of stucco on frame, the lower portion being copper sheathed.

House of Mr. and Mrs. Cedric Gibbons, Santa Monica Canyon, Calif.
Cedric Gibbons, architect; Douglas Honnold, associate

Photographs by Clarence Spencer Bull
The garden front, where large windows furnish more than the usual amount of light and air. Those in the near corner open into a sleeping compartment.

The pavilion that overlooks the tennis court, as seen from the rear.

Practically the whole of one side of the main staircase is of glass.
Looking across the swimming pool toward the garage, with the dressing-rooms building at the right and the dining-room window in the distance.

Looking down the stairs from the living-room into the entrance-room below. Stairs are of light tan terrazzo; rail of chromium-plated steel.

The living-room is lighted from one side and a corner.
The living-room. Walls and ceiling are warm gray; bookcases and case work, terra-cotta color; floor, black linoleum; window coverings, natural duck.

The living-room from the opposite direction, looking toward the head of the stairway.
In the living-room. Fireplace face and hearth are of black terrazzo, shelf of nickel-silver, couch covering of honey-colored velvet.

A view from the stair landing into the fire corner of the entrance-room.
Dressing-room of Mrs. Gibbons, who in the world of the cinema is Dolores Del Rio. Wall and ceiling are pale green; cases covered with silver-leaf.

The little building of dressing-rooms at the end of the swimming-pool terrace. Behind it is the tennis court.
NUMBER XVII
IN A SERIES
OF
WORKING DRAWINGS
By Jack G. Stewart

This series, in which one drawing will appear each month, is designed to cover the smaller practical problems that confront the architect in his day's work. The subjects chosen are those which, while not uncommon, call for some experience and knowledge of approved solutions. Next month the subject is a Detail of Revolving Doors.

PREVIOUS SUBJECTS IN THIS SERIES

I. FLAGPOLE HOLDER ON AN EXTERIOR WALL
II. RADIATOR ENCLOSURES
III. CIGAR SALE COUNTER
IV. WOODWORK IN A LIBRARY
V. BUILT- IN KITCHEN CUPBOARD
VI. VARIOUS TRIMS AND MOULDINGS
VII. TELEPHONE BOOTH
VIII. MEN'S TOILET
IX. WINDOW SPANDRELS
X. CIRCULAR STAIR FOR A RESIDENCE
XI. DETAIL OF METAL STAIR CONSTRUCTION
XII. DETAIL OF ELEVATOR CONSTRUCTION
XIII. DETAIL OF FOLDING PARTITION
XIV. DETAIL OF COUNTER-WEIGHT SLIDE DOOR FOR DUMB-WAITER
XV. SCALE DETAIL OF MANTEL
XVI. DETAIL OF BANK SCREEN AND COUNTER
DETAIL OF METAL LOUVRE

SCALE: 1" = 1'-0"

PLATE NO. 17
Some Pitfalls in Supervision

By W. F. Bartels

XV. HOLLOW TILE, GYPSUM BLOCK, GLAZED TILE, CINDER BLOCK
AND STRUCTURAL GLASS

In laying up hollow tile, the blocks should be well bedded and the joints properly filled and pointed up. Particularly is the latter necessary when smooth-faced tile are to be left exposed. They should be especially well bedded when used for floor supports and other purposes, besides affording a plastering surface. The bed lines or horizontal joints should be level. This is difficult to execute if the tile are not true. If good tile are furnished the responsibility can be put squarely up to the mechanic, as nothing but a wall with plumb and level joints should be passed by the superintendent. Where smooth-face tile is used, the material should not be blistered. If a tile wall is to be prominently exposed and a uniform shade is desired, it is well to pick the blocks from the kiln if possible.

There is a wide variety in the shape of tiles and advantage should be taken of this when possible to make a better job. For example, in backing up brick with tile, it is the practice of many bricklayers to use a twelve-inch block between headers and a bat or brick in back of the brick header. A much neater and more desirable method is to use a header or shoe tile instead of brick, thus giving the interior wall a surface entirely of tile. Half tile should be used instead of shattering a large tile and putting in the pieces, or else using brick to fill a space too narrow for a full-sized block.

Tiles should not be “chased” for pipes or conduits. Seldom is such chasing done without ruining the block. Moreover, it invites possible future damage to the wall or partition.

GYPSUM BLOCK

Gypsum blocks are well suited to interior partition work and are used extensively for this purpose. Where any wood grounds are to be applied, the blocks offer a good nailing base. They are light, easy to handle and lay, and are readily cut to fit irregular spaces. They should be well bedded and fitted into place. They must be well blocked up under any concrete arch or beam with which they may come in contact. Their disadvantage, however, is that, due to their comparative smoothness, mortars do not adhere to them as well as to tile blocks. The superintendent must see that the blocks are well laid, wedged in where possible, and not carried too far horizontally or too high without additional support.

GLAZED TILE

By far the greatest amount of wall tile is used for bathroom and kitchen walls. It may be white or colored, but in all probability it will be of standard size.

The walls when prepared for tile should be plumb, square, and fairly even. Failure in this regard will cause the cap either to fail to meet the plaster or to be almost buried in it. The former may be remedied to a degree by bringing the plaster out, when patching, to meet the nosing, but at best this is a poor makeshift. On a first-class job it should be insisted that the rough walls be plumb. Moreover, to even out the finish tile on an untrue wall will force the tilesetter to use much mortar on some tiles and but little on others, thus paving the way for loose tilework.

In non-fire-proof dwellings where tile is set against wire lath, the latter should receive a scratch coat of portland cement mortar. The lath should be well fastened so as to give an adequate backing for the tile.

The horizontal joint lines of the tile work should be kept level and the vertical joints true—which of course they will be if properly started at the corners. No split tile should be allowed over the bath tub, and this will not be necessary if the courses are properly laid out beforehand. If any adjustment is needed it is far
better to take care of it in the base course. Tiles should be so fitted around pipes, outlet boxes, etc., that the escutcheons or plates will fully cover the ragged edges and no holes will be left showing. If possible to inspect the work before it is grouted or the joints filled in, defects will be revealed which will subsequently be more difficult to detect. Where wall fixtures are built in, the joint around them should be uniform in width. Sometimes if a fixture is slightly smaller in size than the space left for it, the tile-setter will merely set it in, thus leaving a large joint on the top and probably on one side. This can easily be avoided if the setter will take the time to wedge the fixture in with small wedges, or toothpicks, which will keep an even joint until the mortar has set, when of course the toothpicks will be taken out.

The grade of tile called for in the specification must be demanded on the job. There are three grades of tile: Selected, Standard, and Commercial. In addition there are, of course, "culls," which are the scraps and leftovers. It will be found that the label for the Selected grade will be pink; that of the Standard, blue; the Commercial, yellow. Each grade is allowed a tolerance of 5 per cent of the grade lower. The minimum grade requirements for tile of each class for such things as wedging, pulls, welts, etc., may be obtained from Bulletin 61, Department of Commerce. Culls will generally come with no markings except for the word stamped on the barrels. In some cases culls may be acceptable. For example, a large tile may be defective on one end. By cutting off the defective end of all such tile and filing the cut end a product may be obtained approaching or even surpassing the requirements for commercial grades. However, it is best to be more than cautious with defective material of this nature and not even permit it on the job unless allowable under the specifications.

Cinder Block

If, after investigation, an architect decides to use cinder block, the superintendent should make certain that the blocks used are the same as the ones upon which the owner or architect based his decision. Due to local conditions, the block may be good or bad, depending upon the manufacturer. The blocks should be well bedded, with vertical joints slushed up. As with hollow tile blocks, proper sized blocks should be obtained rather than splitting a block to fit.

Structural Glass

Recently structural glass has come more and more into use. Its substitution for marble and tile in toilet rooms is already fairly general. Black and colored glass has been widely used for store fronts. Here, however, it faces a difficult test. It must withstand the weather, Hallowe’en extravagances, and sidewalk accidents. When glass is used beneath show windows, the problem of a good installation is doubly difficult. With this in mind it is the superintendent’s duty to see that it is set in place in as substantial a manner as possible. The glass should be fastened to a suitable backing with a special plastic cement. The edges should be cushioned with felt or elastic cement. Of course no load should be allowed to come on it. Where it would meet the sidewalk, as in show-window bulkheads, an adequate expansion joint must be left.

When glass is used instead of tile or marble for toilet-room partitions, it must be checked as to being plumb, level, and set in the proper location. Fittings should hold it snugly. One dividing partition now used is made of two separate sheets which are fastened together by plastic cement. Through these two sheets run the two anchors, which should be securely fastened to the wall. This type has the advantage of eliminating the fastenings generally used on the front, but of course the top surface cannot be as neat as the one-piece job. A one-piece front sets solidly in the floor and to this the dividing partition is attached, thus making a substantial job.

In Mr. Bartels’s next installment, to appear in the December issue, his subject will be Plumbing Fixtures.
Eliot House, Harvard University. Coolidge, Shepley, Bulfinch & Abbott, Architects

ARCHITECTURE

From the pencil drawing by Constantin A. Pertzoff

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LEVERETT HOUSE, HARVARD UNIVERSITY. COOLIDGE, SHEPLEY, BULFINCH & ABBOTT, ARCHITECTS

ARCHITECTURE

From the pencil drawing by Constantin A. Pertzoff
Lowell House, Harvard University.

Coolidge, Shepley, Bulfinch & Abbott, Architects

From the pencil drawing by Constantin A. Pertzoff
Dunster House and the Stillman Memorial Gates, Harvard University
Coolidge, Shepley, Bulfinch & Abbott, Architects
From the pencil drawing by Constantin A. Pertzoff
Library, University of Minnesota, Minneapolis, Minn.
Clarence H. Johnston, Architect
Thursday, July 16.—The news that John Russell Pope is to design Sir Joseph Duveen's new wing for the Tate Gallery in London is apparently not entirely palatable to our English brother architects. As the Editor of The Architect's Journal, says, "Why an American architect for this our very national institution? On the other hand, why not? Most of the money comes from America. But paid-for works produced in the past, in Europe. Stalemate!" I wonder, if Sir Edwin Lutyens had been invited to put a new wing on the Metropolitan, whether we should be so gently moved to question it.

Friday, July 17.—Lunched with Egerton Swartwout, and back to his office to see an interesting bit of evidence as to what mural painting and sculpture will do for a building. Eugene Savage's murals are now finished and in place on the walls of the Elks' National Headquarters in Chicago. Adolph Weinman has completed the sculptural band around the outside of the circular building beneath the base of the order. Photographs taken before and after these additions form an unusually pertinent preliminary report has been prepared, that would carry to the whole profession, irrespective of membership in the A. I. A., current news of significance in the present respect to the building industry. Some such scheme is, at any rate, worthy of study.

Friday, July 24.—Robert D. Kohn believes that American architecture knows where it wants to go, and is on its way, both in the field of design and in that of materials and construction methods. The more I see of it, the less certain I am that it or the architects themselves know where they are going. One very uncertain factor is our restricted knowledge of architectural appreciation. We spend a lot of time and energy on the supposition that a building should express its function, yet the whole history of civilization seems to show that the architecture that really impresses the man in the street does so from an emotional rather than an intellectual attack.

Monday, July 27.—There is an earnest and carefully studied attempt being made to coordinate, in some broad way, the American Institute of Architects and the various state societies of architects, draftsmen's organizations, and student groups, under the joint chairmanship of Edwin Bergstrom, acting for the A. I. A., and Robert H. Orr, of California, for the state societies. A preliminary report has been prepared, and is being submitted to all those concerned. It would be a tremendous step forward if, in some broad manner, all the architects of the United States could be welded together into one group, thereby gaining weight for concerted action and increasing the power of the citizen architects to their representation. This unification of various organizations will perhaps not be achieved in a moment, but the need for it is so obvious that there should be no obstacles permitted to stand in the way.

Thursday, July 30.—Lunching with Eugene Savage and Egerton Swartwout, the conversation turned to equestrian statues. Savage spoke of the excellent of J. Q. A. Ward's George Washington, which is being more or less buffeted around Union Square, in the various fills and excavations taking place in that neighborhood. There is also in Newark a facsimile of the Colossi, given to the city through the munificence of a brewing company, and it should serve as a perpetual reminder to the eastern part of the United States of what an equestrian statue can be. Daniel Chester French's Sherman, preceded by an angel afoot leading the way through the Plaza at 59th Street, Fifth Avenue and Central Park, seems to have been an attempt at a fundamentally impossible problem—the combination of realism and imagery in hard bronze. Four new equestrian statues are to be placed, I believe, at the approach to the new Arlington Memorial bridge in Washington, one group of two by Leo Friedlander, and the other group by James Earl Frazer. Then, for Pope's alterations to the old Grant Tomb, Paul Manship is doing the equestrian figure to stand before it.

Saturday, August 1.—American stained glass is apparently coming into its own. Ralph Adams Cram, writing in Stained Glass, says that in the last twenty years the whole current of the art has changed. His feeling is that the art of stained glass actually died about the year 1600. Now it has been reborn almost miraculously. The recovery began in England under the Pugins, leaped forward under William Morris and Burne-Jones, and, by the end of the nineteenth century, a dozen firms were making the first really good glass made in three hundred years. Now the art has been wholly restored in England. Ireland is showing promise; Bavaria is coming out from under a cloud. In France little promise exists. Here with us, to quote Dr. Cram, "It can now be truly said that there are light or ten firms or individuals that are creating stained glass that is at least on as high a level as the best in England, while some of it is better and not unworthy to be compared with the great French glass of the thirteenth and fourteenth centuries." Leon Dabo, painter, also adds his words of appreciation in The Little Flower Monastery Messenger: "America to-day is producing stained glass rivaling the best work in glass made anywhere."

Monday, August 3.—I see that our fellow voyageur to Paris, George Wharton Edwards, A. N. A., has been honored in the acquisition of his painting, "The Castle of Turregano, Spain," by the French Ministry of Beaux-Arts for the State Collection.

Wednesday, August 5.—The Philadelphia electric cell, or electric eye, is finding new uses almost every day. It is being used
now to count automobiles passing over the bridge between Detroit and Windsor. The cell is imbedded in each of the ten incoming traffic lanes at the point where the cars stop to pay toll. Each car in stopping interrupts a beam of light. The cars are counted, and signals indicating the density of traffic are flashed to the offices of the bridge.

Friday, August 7.—Raymond Hood, at The League to-day, waxed eloquent on the extent to which symmetry in planning has handicapped architects since the days of the Renaissance. Up to that time symmetry was no such rigid fetter upon the way people built. Egypt and Greece designed individual units symmetrically, but did not carry the fetish, if such it is, into group planning. Karnak and the Acropolis are markedly free from it; Gothic architecture never was enslaved by it. Moreover, with a growing sophistication of peoples, symmetry becomes a bit too obvious as an expression of rhythm. And as to its warfare with the rational and economic expression of efficiency there can be little doubt. Hood ridicules our constant inclination to put a fireplace on axis at the end of a room, flanking it with windows or doors that are squeezed down to an uncomfortable width, whereas if we put the fireplace frankly off to one side we should have room at the other side for one really adequate source of light or communication. Saarinen is one of our contemporaries who has refused to be bound by the rules of symmetrical design, which is perhaps one large factor in the charm and aesthetic appeal of his work at Cranbrook.

Saturday, August 8.—Canada's unemployment problem in the architectural profession seems as distressing as some of our own. There are 410 architectural firms, members of the component societies of the Royal Architectural Institute of Canada. In June, 1929, these 410 firms employed 1,180 assistants and draftsmen. A year later, in June, 1930, the number had decreased to 1,040, and in June, 1931, the number had fallen to 710, indicating that 470 architectural assistants and draftsmen are either unemployed or employed outside their vocation. Incidentally, the average monthly salary paid these assistants is about $110.

Monday, August 10.—With Leonard Schulze, of Schulze & Weaver, to see the new Waldorf-Astoria over on Park Avenue at Fiftieth Street. Starting at the top, we worked down, spending what was to me a most instructive afternoon. The hotel is scheduled to open on the top floor. We crawled into a low hole which meanders among cigar-stand stalls and a bank of elevators. Very few of these office buildings impress one with the dignity and logical development of a plan. Incidentally, one looks down at which many criticisms have been hurled, the New York Central Building, has unmistakably the sense of adequate and ample space; when one enters it—a broad, straight, generous corridor running through the middle from one end to the other, with elevator banks leading off it at both sides.

Thursday, August 20.—Lunched with Alfred Hopkins in the new home of the Union League Club which Benjamin Morris recently designed. Hopkins has been devoting much study to the interesting possibilities of the concrete block. A number of farm groups and the Berks County Jail at Reading, Pa., are notable examples of how he has used the concrete block in connection with cast stone. One of the vital principles, of course, is to vary the width of courses, using these four and six inches in height as well as eight inches, frequently also in an ashlar pattern. Hopkins gets hold of a block maker near the site and has his blocks made under the direction of his tricks is to play a little spray from a hose upon the blocks as they come out of the forms while still soft. This results in an eroded surface having somewhat uncertain texture of very old stone. One difficulty, of course, is color. Light colors, preferably yellow, in the aggregates, with yellow sand, are much to be preferred to the gray or darker ones.

Friday, August 21.—James Monroe Hewlett is all stirred up about some new glass in St. Thomas's. His letter appears in the Bulletin Board pages. I went in to see this new glass, which is over Goodhue's superb reredoses, but the church was entirely dark and it was difficult to tell just what the effect of the new glass might be. Telephoning to Hardie Phillip, asking him what they were trying to do, brought the information that thus far every comment that has come to him has been in the affirmative. He and I are going up to see it one of these days, lighting the church so that its effect can be properly appraised.

Monday, August 25.—Raymond Hood is out in the Sunday Times with a new story about Metropolitan Square, or, as it is becoming to be more popularly called, Radio City. Hood makes out a very good case for the final scheme as it is now to be built. Since we no longer see our city buildings from a distance, the façade has a lessening significance. What we do see now is the view from the windows of our towers—the tops of other towers and the tar-and-gravel roofs of all that is below us. The architects of Mr. Rockefeller's great architectural effort, Reinsch & Hamblin; Corbett, Harrison & MacMurray; and Hood & Fouilhoux, have revised their scheme as originally published chiefly in the landscaping of all top surfaces that one looks down at which are the tops of the windows of the housing gardens of Babylon.
In almost every piece of work that an architect designs there is, when it is finished, something that he would prefer to have otherwise. Once in a long while, however, he rings the bell so truly that even his sophisticated eye finds it good. The architect tells himself that it worked out as he had hoped, and he would not change it if that were possible. Here is another of these "favorite features"—the architect's own choice from among many achievements.
Entrance Motive, Country House for A. G. B. Steel, Chestnut Hill, P.A.

(See photograph overleaf)

Robert R. McCooe, architect
THE evolution of the building process from the early days when every man was his own builder to the elaborate organization of today has occurred as a consequence of basic and fundamental alterations in our mode of living.

Two factors have, in the main, been responsible for this change. The first—an ever-higher standard of living—has imposed upon the builder a greatly diversified selection of building media and attendant technique. The second—the necessity of early income upon investment—has made speed the essence of practically every building contract.

The degree of technic attained in the various crafts precludes the centralization of execution possible under less exacting circumstances. The mason knows little of metalurgy. The pipe trades have no interest in the problems of the mill and quarry, and so on throughout the entire roster of the building crafts. Yet harmony and cooperation must prevail throughout their participation in the building venture.

These governing conditions have forced the enlistment of groups of specialists under the guidance of the general contractor for the execution of the contract. The master builder becomes the master mind charged with the responsibility of manufacture, delivery, and assembly.

The construction effort may be conveniently visualized as an inverted pyramid, the apex representing the general contractors. Successive horizontal planes may be regarded as sub-contractors, jobbing establishments, warehouses, manufacturing plants and mines, quarries, fields and forests in turn. Political boundaries do not exist in such a structure. Modern transportation and credit arrangements have established a new community of interest among the workers of the world.

The need of an adequate co-ordinating agency under such conditions is only too apparent. Under the contract the architect looks only to the builder. The sub-contractors—as independent entities—are ignored. The builder thus becomes the clear-
The architect checks only for design and general arrangement. Coordination, dimensions, and quantity are left to the contractors. To make certain that work will fit in place when delivered, a general interchange of shop drawings is effected among all sub-contractors interested in any one phase of the contract.

In almost any area containing the work of a number of trades, that of some one craft will be of such a nature as to serve as a basis for the other trades. For example, toilet rooms and corridors are usually built from the approved marble shop drawings. The architect's drawings have served their purpose in showing in a general way the work to be undertaken. In this way it becomes unnecessary for the marble contractor to await completion of tile walls before sending his layouts to the shop. Much valuable time is saved thereby.

These shop drawings serve a dual purpose: (1) To acquaint the contractor with the sub-contractor's interpretation of the contract drawings, and (2) as instructions to the shop for fabrication purposes.

Architectural approval thus is a necessary prerequisite before these drawings may be issued to the shop. In an undertaking of any magnitude it becomes necessary for the contractor to undertake the transmission of hundreds of shop drawings of varying degrees of complexity and dimension.

The architect, upon receipt of these drawings, either approves them or returns them for correction. Those approved are immediately released to the shop. Those returned for correction must be resubmitted for approval.

The filing and recording of these drawings is a matter of vital interest. Letter files have been found most convenient for this purpose. These files are subdivided into three sections. The first, entitled "Drawings Submitted for Approval," contains copies of those drawings in the architect's hands for checking. The second, "Drawings Returned for Correction," is intended for those layouts that must be resubmitted for approval. And the third, "Drawings Approved," constitutes the final resting place of prints as they are released to the shop.

Drawings filed in the approved section remain with the white side out until final distribution has been effected, when they are refolded with the blue side out. Weekly shop schedules enumerating those drawings filed in the first section are prepared and forwarded to the architect as a reminder. The order in which these drawings should be released should be noted thereon.

Similar lists covering drawings returned for correction are distributed among the various sub-contractors listed in the second section of the files, so that there may be no excuse for delay in obtaining final release.

The bookkeeping incident to the handling of these drawings must be made as simple as possible.

A daily log is kept, recording the receipt and dispersal of all drawings of whatever nature. Additional records are kept either on individual cards or specially devised forms covering the seemingly endless preliminaries between preliminary submission and final distribution.

Once approved and co-ordinated by whatever other trades may be concerned, the scene of activity changes from the drafting-room to the shop.

There can be no standardization of manufacturing process. The field is so broad as to preclude more than a general knowledge on the part of the contractors. All that the contractor can hope to do at this stage is to keep in general touch with progress in the shop.

To a manufacturer an order is an order, one of a number of such. To the contractor that particular order becomes the only point of contact with that shop. The competition among a number of contractors for the service of a shop sometimes becomes acute. There is an old saying, "The wheel that squeaks the loudest is the wheel that gets the grease!" This applies to the construction industry as well as to the days of horse and buggy.

However, judgment and discretion must be used in bringing pressure to bear upon the manufacturers. Most shop schedules are set up months in advance. Various orders are allocated in proper sequence, and derangement, owing to stop-order or lack of information, may set an order back to the utter disruption of the building schedule.

It is the responsibility of the contractor to place full and complete information in the hands of the shop. Otherwise his frantic and sometimes belated demands for immediate delivery lose much of their appeal.

Specific knowledge of contract requirements is essential in all dealings with a manufacturer. It is only through an intimate knowledge of job requirements that the work of these widely scattered plants may be possible, occasional visits should be made.

Troubles should be anticipated and dealt with promptly and intelligently. It avails little to close the barn door after the horse has been abducted. Delay and misunderstanding are the outworns of profits.

Once manufacture is complete it remains but to transport the finished item from the shop to the job site. This is the responsibility of the carrier.

Should storage facilities at the site prove inadequate, materials may be received as rapidly as the shop is able to produce. Otherwise dates and sequence become matters of utmost importance.

Where items are urgently required, promised shipping dates should be confirmed by whatever other trades may be concerned, the scene of activity changes from the drafting-room to the shop.

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ARCHITECTURE'S PORTFOLIO OF

WINDOW GRILLES

THE SIXTIETH IN A SERIES OF COLLECTIONS OF PHOTOGRAPHS ILLUSTRATING VARIOUS MINOR ARCHITECTURAL DETAILS

Forthcoming Portfolios will be devoted to the following subjects: China Cupboards (November), Parapets (December), Concealed Radiators (January), Interior Clocks (February), Outside Stairways (March), and Leaded Glass Medallions (April). Photographs showing interesting examples under any of these headings will be welcomed by the Editor, though it should be noted that these respective issues are made up a month in advance of publication dates.

Subjects of Previous Portfolios

1926-27
DORMER WINDOWS
SHUTTERS AND BLINDS
ENGLISH PANNELLING
GEORGIAN STAIRWAYS
STONE MAONRY TEXTURES
ENGLISH CHIMNEYS
FANLIGHTS AND OVERDOORS
TEXTURES OF BRICKWORK
IRON RAILINGS
DOOR HARDWARE
PALLADIAN MOTIVES
GABLE ENDS
COLONIAL TOP-RAILINGS
CIRCULAR AND OVAL WINDOWS

1928
BUILT-IN BOOKCASES
CHIMNEY TOPS
DOOR HOODS
BAT WINDOWS
CUPOLAS
GARDEN GATES
STAIR ENDS
BALCONIES
GARDEN WALLS
ARCADIES
PLASTER CEILINGS
CORNICES OF WOOD

1929
DOORWAY LIGHTING
ENGLISH FIREPLACES
GATE-POST TOPS
GARDEN STEPS
RAIN LEADER HEADS
GARDEN POOLS
QUOINS
INTERIOR PAVING
BELT COURES
KEYSTONES
AIDS TO FENESTRATION
BALUSTRADES

1930
SPANDRELS
CHANCEL FURNITURE
BUSINESS BUILDING ENTRANCES
GARDEN SHELTERS
ELEVATOR DOORS
ENTRANCE PORCHES
PATIOS
TREILLAGE
FLAGPOLE HOLDERS
CASEMENT WINDOWS
FENCES OF WOOD
GOTHIC DOORWAYS

1931
BANKING-ROOM CHECK DESKS
SECOND-STORY PORCHES
TOWER CLOCKS
ALTARS
GARAGE DOORS
MAIL-CHUTE BOXES
WEATHER-VANES
BANK ENTRANCES
URNs
In Ronda, Spain

Roland E. Coate
Morgan, Walls & Clements

Kiehnel & Elliott

Edgar V. Ullrich

Jonathan Ring

Cass Gilbert
Cass Gilbert

Château of Courance, France

A New York City apartment-house

White & Weber
Charles A. Platt

Greville Rickard

Robert S. de Golyer & Co.

Bowdoin & Russell
Murphy & Olmsted

Sloan & Robertson

John and Donald Parkinson

Lawrence H. Fowler

McKim, Mead & White
A house in Santa Monica, Calif.
October, 1931

ARCHITECTURE

Rosario Candela

York & Sawyer

Carl Jules Weyle

In St. Francis Wood, San Francisco
Robert D. Kohn, Charles Butler, Clarence S. Stein, associated; Mayers, Murray & Phillip, consulting.

Douglass Orr

Raymond Hood, Kenneth M. Murchison

McKim, Mead & White
Made for the...

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-yet not too costly for any good building

Truscon Double-Hung Steel Windows are of the finest quality in construction, workmanship, finish, and hardware.

All parts of the window are electro-galvanized, in addition to shop coat of paint, to give double protection. The frames are a solid unit, electrically welded at joints. Spring bronze weatherstrips insure easy operation and weather-tightness.

Truscon Double-Hung Steel Windows are available in galvanized steel, bronze, and aluminum, and with heating recess if desired. The various standard types and sizes meet all practical requirements at moderate cost. Complete data and catalog on request.

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TRUSCON STEEL WINDOWS: Monumental Projected, Double-Hung, Donovan Type, Detention and Casement Steel Windows.
A Georgia Marble building as it appears to-day . . . and as it appeared 36 years ago . . .

State Mutual Building, Worcester, Mass., erected about 1895, Peabody & Stearns of Boston, Architects.

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New York . . . 1528 Broadway
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Chicago . . . 648 Builders' Bldg.
Cleveland . . . 1203 Keith Bldg.
Dallas . . . 622 Construction Industries Bldg.

Georgia Marble, obtainable in a variety of colors is adaptable to any design be it pure Greek classic or prismatic. The New York Trust Building, 5th Avenue at 57th Street, New York and the Livingstone Memorial Light House near Detroit are excellent examples of modern design executed in Georgia Marble.

While many large modern commercial structures may be plain higher up, they seem to cry out for the dignified enrichment at the street level and around the entrances that only Georgia Marble can give. In this connection, our engineers can help you to effect economies in detailing your "stone work".

The spirit of the gay nineties is evident in one of these pictures . . . vehicles at the curb facing both directions . . . and a tiny steam horseless-carriage, one of the first to venture upon the streets of Worcester.

The surroundings have changed in the picture of to-day . . . parking on this principal street is prohibited and passenger platforms for the street railways are provided . . . but there is no change in the Georgia Marble.

The beauty and durability of Georgia Marble are known quantities. This is why many of the nation's fine buildings are built of Georgia Marble.
QUIET... QUIET... QUIET...

Floor sounds fade away when cork tile floors are underfoot

For restful silence and underfoot comfort, no other floor quite matches Armstrong's Cork Tile. And this library floor at Scripps College for Women, Claremont, Calif., shows that cork tile fulfills decorative requirements just as thoroughly.

QUIET! A vital floor specification for libraries... and for many other interiors, too. Make a mental check some day. See how many disturbing sounds arise from a noisy floor. Scrapping chairs. Careless heels. And things accidentally dropped.

Armstrong's Cork Tile Floors end these disturbances permanently. The natural resilience of pure cork makes these floors quiet and comfortable underfoot. Foot steps are cushioned—silenced. Other floor noises are smothered before they get started. The modern method of installing cork tile provides a floor that will wear for years without refinishing. Should an unusual accident damage a few tiles, they can easily be replaced.

Beauty and freedom of design, too. The three shades of rich, warm brown blend with any color scheme—make a pleasing setting for any type of furniture. A variety of sizes and shapes removes design limitations.

There's more to this story of modern custom tailored floors. You'll find all the facts you want in our book "Custom Built Floors of Cork." Describes Armstrong's Cork Tile fully and Linotile, also, another of Armstrong’s custom floors. Free. Just address Armstrong Cork Co., Floor Sales Division, Lancaster, Penna.
"UP AND COMIN":"

Such are the companies here represented. Most of those who are making no new developments or constructive offers to our building problems or who are refraining from selling themselves, are sitting on the fence wondering when times will better. They’ll be the last to see it. Meantime the companies represented here and others are alive to the times and are providing data and constructive suggestions for study and increasing use as business accelerates.

ADEQUATE WIRING FOR INDUSTRIAL STRUCTURES

The National Electric Light Association, of 420 Lexington Avenue, has issued a companion specification to that for commercial structures. The new one is entitled "Minimum Specification for Adequate Wiring of Lighting Circuits in Industrial Structures." Both are available on request by architects and engineers. In view of the quite general impression that compliance with the local electrical code or ordinance insures adequacy of service as well as safety of installation, whereas it is frequently a non-insurance of lighting adequacy, has led to the publication of these two minimum specifications. They are a guide to wiring capacity—based upon modern lighting practice. The National Electric Light Association invites inquiries and constructive comment concerning these specifications.

PLASTIC PRODUCTS

In recognition of the increased use of products based on synthetic resins and other binders of various types, the Plastic Department of the General Electric Company was recently formed. This department is responsible for all research, development, engineering, manufacturing, and sales pertaining to such products. Its functions also include any chemical problems in molding compounds of all types and particularly with reference to electric or heat insulation. Their recently issued literature on insulation is entitled "Problems of Fractional Insulation." Both are available on request by architects and engineers.

BATHE IN STEEL

Not gold or champagne this time. Be up to date and specify the steel bathtub. The Mueller Co., of Decatur, Ill., announces what it terms a revolutionary change in an essential plumbing fixture. After extensive and intensive research—to find a way to make steel tubs in economically marketable quantities—the Mueller Co. claims the solution. They claim for the Mueller steel bathtub 60 per cent less weight than a cast-iron tub of the same size and an exact maintenance of measurement so that inlet and outlet remain constant. A high leak-proof upturned flange is provided to prevent capillary creepage of water into the enclosing walls. It is claimed that the porcelain-enamel finish on these steel tubs is highly resistant to wear and corrosion and will not discolor. What say we try a steel bath?

OIL-BURNING WATER HEATER

The Silent Automatic Corporation, of Detroit, has placed upon the market a new oil-burning water heater with a capacity from seventy-five to one hundred gallons of hot water per hour. It is announced as adaptable for use in home, club, hospitals, and schools. Details will gladly be sent on request.

JOHNS-MANVILLE

Have issued a booklet on the Decorative Possibilities in Acoustical Treatment. It depicts pre-decorated Sanacoustic Tile, a fire-proof acoustic material consisting of tile-form units containing a sound-absorbing element. While the company is aware that the designs shown will not lend themselves to every decorating scheme, they are given as a matter of suggestion and with the thought that they will fill the need for inexpensive color design treatment in the most commonly used styles of interior decoration. A short form specification and technical detail are included.

AUTOMATIC TIME SWITCH

A general-purpose Automatic Time Switch is announced in a new leaflet from the General Electric Company. This new type, T-13, has a Telechron motor and a mercury switch, the "Kon-necto," combining the reliable timing element and positive switch. It is designed to perform any practical number of operations per day, and skip a day or more if desired—both indoor and outdoor service. It is available in various forms, such as single pole-single throw, double pole-single throw, etc. It is particularly adaptable for floodlighting and show-window purposes and traffic controls.

MERCOID CONTROLS

The Mercoid Corporation, of Chicago, Ill., has issued a new catalogue, No. H-1, on its various automatic controls for heating equipment and industrial applications. It is a very complete catalogue with data charts, dimensional drawings, and illustrations. The company will pardon us, if for the benefit of other manufacturers who read these columns, we mention this catalogue as an example of how not to print architectural literature insofar as its physical size is concerned. A rule is not at hand, but it measures approximately 3 inches by 6 inches. It is not meant for pocket usage and is not suitable for architects’ files which are equipped to the standard A. I. A. file measurements of eight and one-half inches by eleven inches. It pays to follow this standard in printing reference literature.

OUTDOOR LIGHTING FIXTURES

The Beardslee Chandelier Mfg. Co. has issued a new catalogue on its standards, lanterns, and brackets for outdoor lighting. Illustrations from actual photographs and essential dimensions are given. Fixtures are obtainable as illustrated or varied in design or dimension to suit the particular project.

(Continued on page 25)
The judgment of School Specialists favors COMPLETE NATURAL VENTILATION, the latest development for modern schools... The fresh air enters through the AUSTRAL Window and is diffused through the classroom, passing under the Wardrobe doors and is vented out through an aperture in the top of the Wardrobe... Simplified... Economical... Efficient.
WHEN the architect designs a beautiful structure, he desires that all appointments be in harmony. Now even the fire alarm stations can be made to conform to the architecture of the building.

The Empire State Building, for instance, is completely protected by A. D. T. Central Station Service. By means of a Permanent Wire Connection to its central office A. D. T. watches the watchmen, provides positive and individual fire alarm service, and insures constant operative ability of every detail of the Sprinkler System. A local A. D. T. Fire Line Signal and Telephone System gives comprehensive fire pump signals and telephone communication in case of need.

The fronts of the fire alarm stations in the Empire State Building were designed by the architect. Cast in aluminum and beautifully finished, these stations give maximum protection without destroying the beauty of this world famous building.

Controlled Companies of

American District Telegraph Company

155 Sixth Avenue, New York, N. Y.
OCTOBER, 1931

The picture at the top shows the "A" Building of the Ypsilanti State Hospital at Urania, Mich. The second picture shows a corner of the reception room. AR-KE-TEX Cream Buff Stippled Tile with black cove base, was used here.

The lower illustration shows AR-KE-TEX Tile in a corridor off the main dining room.

AR-KE-TEX Tile was selected for this great institution by George R. Thompson, Director of Budget for the State of Michigan, and Albert Kahn, Inc., Architects. General Contractors were the Otto Misch Co. The tile was laid by The Bowen Fireproofing Co.

THE AR-KE-TEX CORPORATION

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THE STANDARD OF TEXTURED TILE
The Solace of Proved Quality

For 38 years leading Architects have specified Sedgwick Dumb Waiters and Elevators. The name "Sedgwick" has always been an assurance of highest quality and absolutely satisfactory performance. Sedgwick equipment has never been designed to meet the lowest price. It is obvious that cheap equipment must involve cheap construction. Lowest price and highest quality constitute a twain that can never meet.

Therefore, when an Architect specifies a Sedgwick Dumb Waiter or Elevator he is relieved of all doubt, for he is assured of that freedom from complaint that identifies high-class equipment. Yet, Sedgwick prices are by no means extravagant. Except for highly speculative projects where price is the only objective, the cost of Sedgwick equipment is quite in line with substantial construction, and is surprisingly reasonable when the long years of trouble-free service are considered.

Complete Catalog
Contains much helpful data.
Copy gladly sent on request.

SEDGWICK MACHINE WORKS
151 WEST 15TH STREET - NEW YORK, N. Y.
PENN STATE’s NEW GROUP

Many alumni who see this will recall affectionately dear “Old Main” at Pennsylvania State College, one of many buildings completely rebuilt, which with the new ones in this fine group, are equipped with Halsey Taylor Drinking Fountains. Not only in public and parochial schools, colleges and normal schools, but in modern office buildings, hospitals and churches, these health-safe fountains are “the specification for sanitation” by leading architects from coast to coast. Patented features give them added advantages, such as automatic stream control (water at uniform height regardless of pressure variation) and two-stream projector (practical and sanitary drinking convenience).

HALSEY TAYLOR
Drinking Fountains

Regardless of appearance, cost or construction, the stream-producing device of a drinking fountain must be sanitary or the fixture is worthless. Today, as always, Halsey Taylor fountains represent the acme of value and economy.

The Halsey W. Taylor Co., Warren, O.
GOOD VENTILATION
Keeps 'Em Vigorous!!

All the doodads, rounded corners, and spick and span fronts in the world won't establish you as a good industrial architect if poor production results can be traced to stale air.

Men like to work in a good-looking factory, but they work best in a well-ventilated, fresh, invigorating atmosphere. Swartwout Rotary Ball Bearing Ventilators do much to insure this condition. They assure trouble free operation and exact control of ventilation. They Keep 'Em Vigorous.

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BY GERALD K. GEERLINGS

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About 300 illustrations from photographs and drawings
202 pages. 9 x 12 inches. $7.50

CHARLES SCRIBNER'S SONS
597 Fifth Ave., New York
Architecture and Architectural Books
NEW — DIFFERENT — BETTER
So says Exide of its newly developed Emergency Lighting Battery Systems. The Electric Storage Battery Co., of Philadelphia, in offering literature on its emergency equipment points out the economic losses produced by lighting failure. The new Exide system furnishes emergency power instantaneously and automatically in the event of a power failure. It likewise automatically recharges the battery and keeps it in full charged condition. Public and semi-public buildings where large audiences gather should be particularly guarded against light failure.

ORNAMENTAL IRON
"Good Practice in Ornamental Iron Work" is the title of a new portfolio of detail issued by the J. G. Braun Co. It is a loose-leaf folder readily usable for future supplements. This is announced as the first of a continuous series of measured details in a serious effort to foster co-operation between architects and ornamental iron craftsmen. This first group includes details of stoop railings, marquise, and enclosure grilles. These details will be accompanied as far as possible by specification aids and general information on finishes and textures, matters of controversy (in the past) between architect and artisan.

A NEW AUTOSAN MODEL
Perhaps one of the most useful pages in the recently published Colt-Autosan catalogue on its new Model "R-1" Dishwashing Machine is that showing typical layouts. Kitchen efficiency to-day demands not only ease and economy of operation but also attractive appearance of the equipment and its general fitness to the whole layout of the kitchen. Another interesting page is that covering specification and engineering data. A good job has been done in making this literature useful. The new model "R-1" machine is designed for kitchens equipped to serve from one hundred to five hundred persons per meal. It is rugged, simple of design and operation, and available in either galvanized iron, copper, or monel metal.

RED TOP METAL ARCHES
From the United States Gypsum Company comes a newly published folder prepared specifically for architects. Don't let that deter you from sending for it. It gives the six standard designs, profiles, and dimensions of the Ready-Formed Plastering Arches. While designed primarily for new construction, Red Top Arches are having an increasing market in remodelling and modernizing projects. Erection data is given, simplifying the architect's task to that of indicating stud placement and style required.

WOOD AND ITS SPECIFIC USES
In preparing three books on Larch, Idaho White Pine, and Pandoza Pine, the Western Pine Manufacturers Association has borne in mind the principle of actual utility for a specific use. The historical and manufacturing facts concerning these woods have been gathered from reliable sources and are interestingly presented. Federal and state agencies and the association's own research laboratory have supplied usable data which should be helpful in the selection of wood for certain purposes and in presenting information as to how the wood selected can best be used to produce desired results.

(Continued on page 27)
"STANDARD" ELECTRIC PRODUCTS

The choice of discriminating engineers and architects everywhere.

Electric Clock Systems
Fire Alarm and Telephone Equipment
Laboratory Voltage Distribution Panels

Standardized through the experience of nearly half a century.
Specifications, engineering data or estimates gladly furnished.

THE STANDARD ELECTRIC TIME CO.
Springfield, Mass.

Branches in Principal Cities of the United States and Canada

"Standard makes every minute count"

THE great changes made in recent furniture design have stimulated a large and rapidly increasing popular interest in modern developments.

This volume will prove an invaluable aid to those wishing to learn of the resources of modern designers; it will assist architects, decorators, students, and amateurs in their search for sane furniture designed to meet the needs of to-day; and it will constitute a permanent and authoritative record of contemporary achievement.

Price, $8.50

Modern English Furniture
BY JOHN C. ROGERS, A.R.I.B.A.

CHARLES SCRIBNER'S SONS, PUBLISHERS, NEW YORK
COPPER AND BRASS

The bulletin of the Copper and Brass Research Association always contains articles of interest. It is worth while being on their mailing list. This month's issue deals with the use of copper in railroad engineering. The association has also put in the mails a well-done leaflet showing the effective use of copper on the vertical surfaces of the Bulloch's-Wilshire building in Los Angeles. The metal was used in plastic form for ornamental portions and in combination with masonry for the tower. The architects, J. & D. Parkinson, said they did this to accent the vertical lines to avoid monotony. They said: "On account of the beautiful color, the natural variation in tone, together with its permanence and workability, we adopted copper without hesitation."

ALUMINUM PAINT

A booklet from the Aluminum Co. of America tells all about aluminum paint. It doesn't say that Mr. Mellon uses it when he does odd jobs about the place, but it tells you why and how it differs from other paints, about its 'Hiding Power,' its durability, moisture-proofing, and reflectivity. Its industrial uses and possibilities are covered at length with interesting examples and illustrations. The "before" and "after" examples tell their own story of the maintenance value of this paint and the tremendous aid to illumination in large industrial plants, thus improving the working conditions and so naturally the production results.

SEAMLESS STEEL PIPE FITTINGS

With the demand for permanently tight piping installations has come the increased use of welding. Welding has progressed to an exact science. Standards and tests are controlling technic and the variable elements are being eliminated. Bulletin 31-1 of the Taylor Forge and Pipe Works, of Chicago, P. O. Box 485, shows how Taylor Forge Fittings have been developed to meet present requirements. The bulletin contains useful data charts and specification instructions.

McKINNEY DOOR

A descriptive folder of the McKinney Door—overhead garage door—gives its five distinctive features and includes standard specification data. Such features as slight headroom requirement, practically silent operation, weather-tight fit, automatic locking, and perfected counter balancing evidences the perfection of engineering on their door, as always has been accorded to all McKinney products for three quarters of a century. The folder was received from Harry R. Wilkinson, distributor for the McKinney Door, Chrysler Building, New York.

SOLVING THE PARKING PROBLEM

The Turner Elevator Co., of Kansas City, has a new solution for this problem which is becoming more complex with the production of each new car. It has obtained a patent on its newly developed circular elevator garage. Equipment includes a rotatable platform with loading, locking, and unloading devices mounted thereon. These devices are electrically driven and controlled by push buttons. Around the elevator hatchway on each floor is space for ten cars with direct right of way to the elevator. The company claims minimum ground space and maximum storage capacity, perfect accessibility, and prompt delivery for its new garage.
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