

# THE AMERICAN ARCHITECT

## *The* ARCHITECTURAL REVIEW

VOL. CXXII

WEDNESDAY, JULY 19, 1922

NUMBER 2398

### THE DEVELOPMENT OF WALL-PAPER

**I**F wall-paper as we view it today, ever had an actual beginning, one where its natal day could be fitted into its chronological niche, that exact period is lost to all authoritative chroniclers. Many attempts have been made to fix the time of the advent of this aristocrat of decorative equipment, but no sooner is an early date offered as the certain one than further groping discloses evidence enough to uphold the claim to greater antiquity. Most investigations, however, carry the trail to the Orient, from which land so many art treasures came, and we have good authority for the claim that paper wall decorations were brought to Europe from China by the trading companies, and they certainly strongly influenced, if they did not inspire, the earliest forms of wall-papers.

Undoubtedly the pronounced Chinese feeling in the flower forms of early French and English decorative fabrics tells of the wide influence of Chinese art over the artists of that time. In fact, the impulse was so strong that it lingers to this day and still tinctures the work of the modern designer. In both France and England the plain walls of stout masonry, which gave to each castle or palace the strength of a fortress, became rather trying for an abode of peace, and a

demand naturally arose for their adornment as a relief from a utilitarian austerity. To this end illuminated leathers, embroideries, tapestries and woven fabrics were produced.

Frequently, especially in the time of Elizabeth, these hangings were placed at a considerable distance from the wall,

offering security for eavesdroppers, and since the Arras tapestries were largely used, such circumstances as the one attributed to Philip of Spain gave rise to the expression "from behind the Arras." Such costly adornments as these were within the reach only of royalty or nobles, and it was quite natural that a demand for an equivalent should arise.

It is most illuminating to note from well preserved examples of very early workmanship, the fidelity and cleverness with which these old velvets and woven patterns were simulated in paper hangings. It is easily possible today to secure equally accurate reproductions of

these same seventeenth century velvets and brocades with all their fascinating charm of association. The early craftsman, who applied himself to the decoration on paper, was obliged to employ small squares of the hand-made article, since the continuous band of paper, such as is known today, did not appear till late in the eighteenth century



Stage Coach and Tavern Days. Wall-paper design illustrating traveling in England under the Georges

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when machinery for its production was invented. It was not unusual to fasten these squares together with adhesives, thus producing long strips which were subsequently decorated by hand painting or printing with wooden blocks, quite as it is done today in making one of the many varieties of wall-paper.

Without attempting to trace the development of this most valuable decorative adjunct through all its stages, we know it had a beginning in a distant exigency, and the same need which brought it to life is just as obvious today for the adornment of our modern peaceful homes as it was for the relief of the walls in the homes, half fortresses, in that long ago.

One may well wish that the generic term wall-paper need not be called upon to stand sponsor for the crimes that have been perpetrated in its name. If it were possible to invent a non-technical nomenclature whereby the laity could describe and be informed of many varieties, a most pleasurable revelation would come to them. How helpful it would be to one in search of a choice selection of paper hangings if he were able to name

a producer of high standing and request his work; quite as one might demand a household commodity of a standard make. One is so sure of the unquestionable excellence of a gown by Poiret, or a gem from Tiffany; their value is increased by the guarantee which the producer's name carries.



Showing the possibilities of the introduction as panels on a solid ground of papers with a repetitive pattern. Note the connections of period styles in paper, drapery and furniture



A clever use of wall-paper on a dark stair landing. An otherwise unattractive wall surface has been transformed into a pleasing vista out-of-doors

ries. Even the oil painting of original charm is rendered more valuable in proportion to the recognized standing of the artist whose signature it bears.

There are examples of modern wall-paper more costly than the average householder has any knowledge of, and too unusual to warrant any cautious merchant carrying them in his stock, and yet they are always obtainable on demand, and the demand would be great if it were easily possible for the makers of these artistic productions to set them always before the connoisseur. The proud collector speaks of his masterpieces of the painter's art as "canvases," and yet those of us who have seen the unsuggestive plain woven fabric with its white surface and crude stretching frame before the painter's brush has transformed it, feel no rude shock at its being forever known as a "canvas."

The actual paper in wall-paper is a mere incident, as it becomes merely the canvas to a work of art. The Moor, who taught the Spaniards how to tool and illuminate leather, used the hides of

beasts because there was available no other suitable material. To-day the paper makers have produced a material whose ductility and fine grain are superior to the uncertain leather of the ancients, and the same hand tooling upon this paper is more enduring and quite as beautiful, besides admitting of its being produced at a price which places it within the reach of far greater numbers than could ever have possessed the master works of old Cordova.

As a matter of fact the actual paper in wall-paper, aside from its mechanical properties, which conceal lesser defects of wall surfaces, is so small a factor in the product as to be practically negligible in the completed result. The paper itself is not even made by the wall-paper manufacturers, but is supplied in large reels by the paper makers, quite as the artist's canvas is prepared for his brush. All that concerns the makers of what we



Fragment of a Japanese paper

know as wall-paper is that which is placed upon the surface of this convenient material, and the craftsman's art certainly accomplishes an infinite variety in its enrichment.

Too often, however, the best examples of this fascinating art are relegated to the domain of the unhappy rose, which was born to blush unseen, and all because of certain false traditions.

The consideration of wall-paper from a purely utilitarian point of view leads too often to a quest for a supply where the question of price is the governing factor. The same housewife whose elaborate entertainments and social functions demand and receive abundant floral decorations will hesitate to expend more than a very small sum for paper hangings. The floral decorations, which represent often a very large sum, are discarded on the morrow, whereas the wall decorations may remain unchanged for a number of years, and if



The Chinese influence in wall-paper design

their original cost were to be divided over the term of their usefulness, the trifling appropriation per year or even month would make the apportionment for the evanescent flowers seem a lavish expenditure.

The undue demand for low-priced paper hangings induces, by the simplest law of economics, a proportionate supply of the grades which may be produced at low prices, thus bringing them into such prominence as to implant the conviction that they are fairly representative also of the extent of the art. Surely it is a false economy, this striving to reduce the outlay for so lasting and important



Roman Ruins  
Panel from the wall-paper of a Colonial house

an element of one's every-day environment, when often even a slight advance will insure a degree of actual contentment well worth the investment.

But to return to earlier days. Where hangings of velvet and damask were available for the very wealthy only, the early French and English paper stainers acquired great skill in producing, on paper, decorations which possessed quite all the decorative value of those richer materials and yet never pretended to stand for actual counterfeits. Designs which had been taken from porcelain and embroidery by the weaver of these velvets and damasks were taken again by the paper stainers, as



The meet of the Huntsman. Papers like these, excellently designed and as finely executed, were extensively used in the stately country mansions in this country and England

the early wall-paper makers were called—and as they are still called in England. So, even in the early days of the industry, authoritative designs were produced and appreciated according to their authenticity.

Today, as always, a relation is to be found between the prevailing fashion in dress and the



A design suggesting well known Paris monumental buildings with a landscape motive in foreground. A nineteenth century paper

decoration of the period. One does not have to be an expert in decoration to detect the slightest anachronism in a picture or on the stage where the chronological order between costume and wall has been disturbed. It may not be generally known but the designer of the best grades of wall-paper today is as mindful of hat and gown as he is of historic ornament. In the last analysis his work is to produce the most suitable background for these same modes. He studies to produce the most

flowers and buds of wonderfully selected shades, which is often the keynote of success of the whole costume. The same subtleties are alone possible in carefully worked out wall-paper.

The apathy and monotony of walls with an uncompromising color, whatever the medium, fail to give adequate sympathy as a background. In the seemingly plain effects of artistic wall-paper, a quality of texture is secured and innumerable accidentals cleverly introduced; while the same charm



A conventional landscape with Roman Ruins—A decorative motive much affected during the period of the Adam Bros. in England

suitable environment for women of various tastes and temperaments.

The student of present-day decorative requirements realizes that austere severity is too forbidding and inharmonious to serve as an accompanying foil for the mode, and yet this error in judgment is frequently to be met with. The studiously simple costume will, on close inspection, be found to possess a subtle texture, which is too cunningly devised to be counted a mere accident, and the adoption of black, or any single color for the costume, is accented by a "petit bouquet" of silk

which this "petit bouquet" lends to the costume is introduced by a deft touch of precisely the same soft shades in a tiny band or small recurring spray in the wall-paper. Ungratefully roughened walls serve as a suggestion of Spartan simplicity, but they certainly lack the elegance which is expressive of the habit of life today. Such finishes are often the mute protest of the architect, who associates wall-paper with a series of offenses committed against his best creations. Unfortunately, the means of communication between the makers of

the finest wall-papers and the architect are most indirect and leave much to be desired.

Nor have the relations between architect and decorator been as yet properly established, and until such a desirable connection is made the architect must have his information too indirectly to enable him to acquaint himself with the charming materials at his hand. Until then some architects will probably register their protests against all wall-paper because much that they have seen deserves little consideration.

The immense choice of fractional decoration



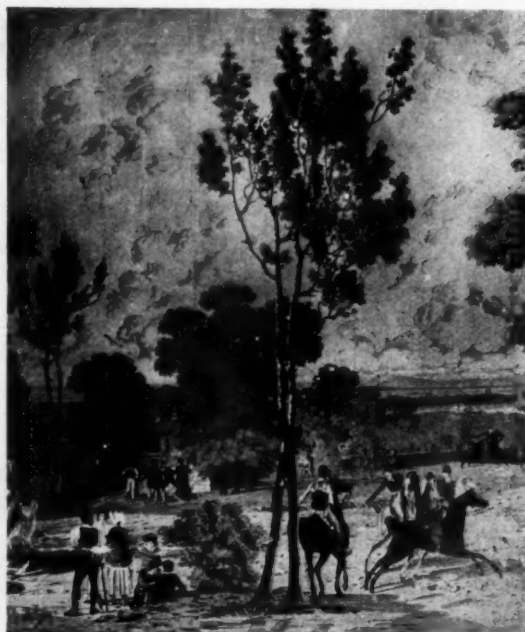
A wall-paper of Panoramic design from a New England house of the early Victorian period

where separate elements of bands, ornaments, corners, etc., have been carefully colored to a perfect harmony with each other, still remains the only logical means of transforming the room, whose ill proportions have forever militated against its successful decorative treatment. With these associated elements a wonderful transformation is readily accomplished. Badly placed doors and windows are balanced by panels of slender bands, and uneven heights of openings made uniform, until an order, impossible by any other means, is happily established. For the formal rooms and halls, where either a decorative period has been adopted or a distinctive style of furnishing obtained, the walls demand their place in the scheme.

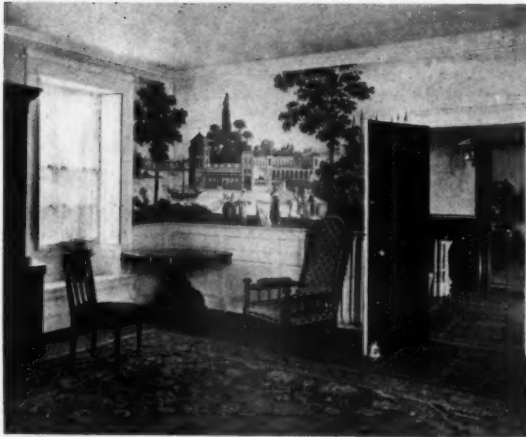
One cannot comfortably picture a handsome dining room with all its appointments in correct taste, furniture and ornaments of a specific style, without adding in his imagination the appropriate enrichment of the walls. For in wall-paper it is

possible to present for every separate problem the decoration exactly suited to the style or period of a room. By no other practical means can the typical work of an artist or guild of a given period be brought directly into a room where it is to be placed in association with chairs and tables designed by contemporaneous masters of their art. The makers of these more scholarly decorations do not offer an arbitrary form of design of an elastic character intended to fill any and all requirements, but produce with great care and under trained skill, reproductions of correct examples from museums at home and abroad until the most authentic pieces of furniture or rare art objects are given their correct and harmonious setting. Nor are their avenues of research limited to even the richest treasures of ancient documents, for well authenticated examples of wall coverings are constantly brought to light from the actual walls of old mansions and baronial halls, and even old world palaces—all perpetuated in reproductions made with infinite pains, preserving even the charm which kindly time bestowed upon them in mellowness, and in some cases the actual tatters to which the inevitable disintegration of the ages has reduced them.

Such an effect of intrinsic charm and sentimental association lends an indescribable atmosphere which is obtainable through no other medium than well selected paper hangings. From time to time the restless demand for more novelty and change has induced many an invader to enter established fields where he finally creates little else



Another example for a motive of wall-paper popular in England in the nineteenth century



Corner of a living room in a Colonial house. The Architectural motive of the wall-paper gives scale and dignity to the room

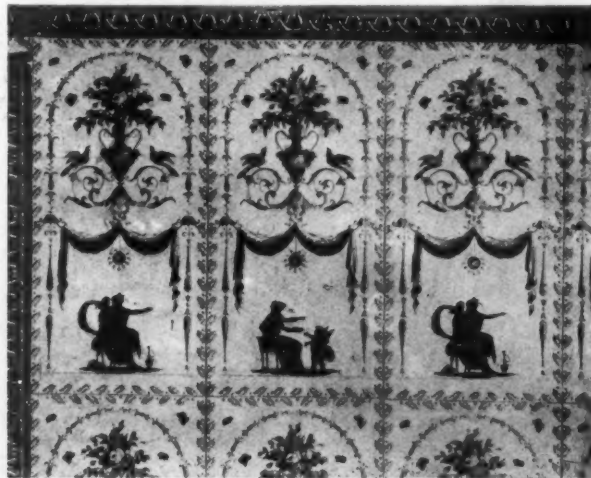
than disorder. The masterly workers in architectural and decorative designs of the Georgian period were almost lost to sight in the Victorian period, when all that was beautiful in decoration and furniture was buried beneath the aggressively ugly appointments of the iconoclastic invader. Charles Eastlake and Clarence Cook, and a few others, tried almost in vain to stem this tide of bad taste and were abused for their pains. In their analysis of the situation the substitution of bad taste for good was really due to purely commercial enterprise, where the practices of trade alone were exercised,

and not a thought of the artistic character of the commodity was entertained.

The degree of enlightenment to which we have attained today precludes the possibility of any extensive reversion but there is always need of vigilance since competition of one kind or another will still send the invader into already well cultivated fields.

A warning has already gone abroad that invaders are about to scale the walls which for ages have been the logical domain of wall-papers. The psychological potency of some forms of advertising is so powerful that almost any claim may apparently be satisfactorily demonstrated. The doctrines of economy, practicability and sanitation are always appealing, and strong personal restraint must be practiced lest one be convinced by well veiled sophistry, and even in the face of personal experience. A set of artist's tube colors in the hand of a novice offers unquestionable opportunity for distressing results, while the colors on the palette of the artist may become a lasting joy.

In wall-paper the colors have been toned and blended by the artist and the finished decoration may be put in place upon the walls by even a careful amateur without the loss of its most dainty shadings. The science of color making has reached such a degree of perfection that one may treat the standing construction of an interior in finishes of great beauty. Colors, stains and soft dull varnishes for woodwork of a wonderful range are available on every hand, making possible the perfect accompaniment for the simplest or most elaborate mural scheme.



A design in wall-paper much in vogue—1800 to 1850

## STAINED GLASS—III. DECORATIVE POSSIBILITIES

BY JOSEPH G. REYNOLDS, JR., Craftsman

### MODERN STAINED GLASS

AT the beginning of the nineteenth century the art of glass painting was at a very low ebb. By the middle of the century, as a result of the revival that was taking place in church architecture, especially in England, the demand for painted windows had greatly increased. To Mr. Winston, a talented connoisseur of glass, and to the architect Pugin (because of his work in church decoration) great credit must be given for the efficient aid they lent in helping to arouse an intelligent interest in the craft.

But most of the work produced during the last century was superficially archæological, entirely lacking the charm and the absolute sincerity of mediæval glass. And worst of all, with the widespread demand for church windows there grew up during the latter part of the last century and the first part of this, a host of commercial glass firms in England and Germany and America. These firms, organized and run on a factory basis, flooded the world, and especially the United States, with some of the most unfortunate creations that have ever masqueraded under the name of art. These wares were sold as "Art" Glass—a title that classed them obviously enough with their companions in misfortune, "Art" Wall-Paper, "Art" Squares, and "Art" Linoleum. And the last word in the commercialization of a noble craft was said when some one conceived the villainous idea of making imitation stained glass by printing designs in colors on translucent paper and pasting them on the inside of the clear glass window which it was desired to decorate.

In the latter part of the nineteenth century an interesting development took place in the craft in this country. Mr. John La Farge, an eminent artist, undertook a series of experiments through which he produced a type of glass since known as "opalescent," to distinguish it from the mediæval type of painted glass.

In opalescent windows the only parts that are painted and fired are the flesh, that is, the hands, faces, etc., of the figures. All the other glass, known as variegated or drapery glass is selected from sheets so made that they contain special markings, surfaces, and textures, more or less adapted for imitation of natural forms. This method of working lends itself most readily to securing pictorial effects of light and shade. Its greatest fault is that in order to get the depth of tone necessary to pictorial effect, several pieces of glass are often "plated," one over the other, with

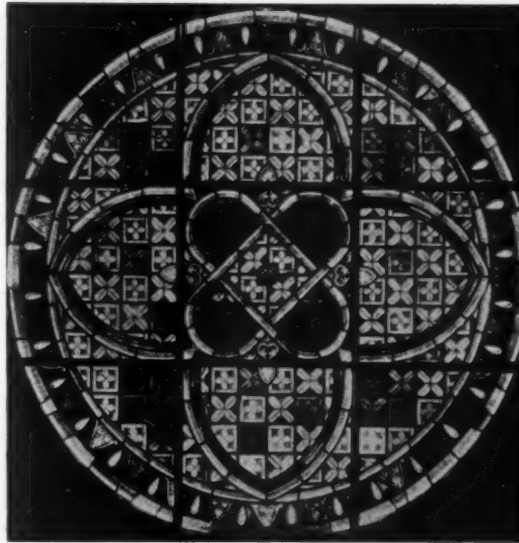
the result that such an amount of light is excluded that the window ceases to be a window, and becomes merely an illuminated picture. The murky gloom thus created has nothing of the



Thayer Memorial Window  
Church of St. John the Evangelist, Hingham, Mass.  
Coolidge & Shattuck, Architects

This window combines the joyous color of the early mediæval French glass with the charm of carefully drawn detail of the later English Gothic work. The main theme of the design, Charity, is exemplified by the figures of good St. Nicholas and gentle St. Dorothea and by a symbolical representation of Charity. The monk with the book is a symbol of the studious, the intellectual life.

spiritual beauty and charm of the mysterious twilight produced by the deep-toned, jewel-like windows of Chartres. Another serious fault in opalescent windows is that the flesh tones, painted in soft enamel pigments of many hues, to harmonize with the variegated colors used in the other parts of the design, sooner or later perish, exposing the thin white glass underneath. Examples of the unfortunate effect produced by this decay may be seen in Memorial Hall, at Harvard University, where there is hardly a single piece of flesh in the opalescent windows that does not



Circular Window  
Helen Hughes Memorial Chapel at Silver Bay, on Lake George, N. Y.  
Allen & Collins, Architects

This window, a combination of geometric and ornamental forms, was designed to give a deep-toned and rich mass of color to be seen at a distance. The opening is seven and one-half feet in diameter and seventeen feet from floor to center

life of him decipher the subject. When the symbolism has been explained he immediately evinces a new interest in the work. And then he will admit that such a window may be all right for those who understand it, but all the same he feels bound to say that in the church which he attends is one of the most beautiful windows he has ever seen. Then he proceeds to describe a typical landscape window—sunset, trees, hills, river, and all the rest of the “pretty sentimentalities.”

It is only too true that the popular idea today is a “picture” in glass. To many peo-



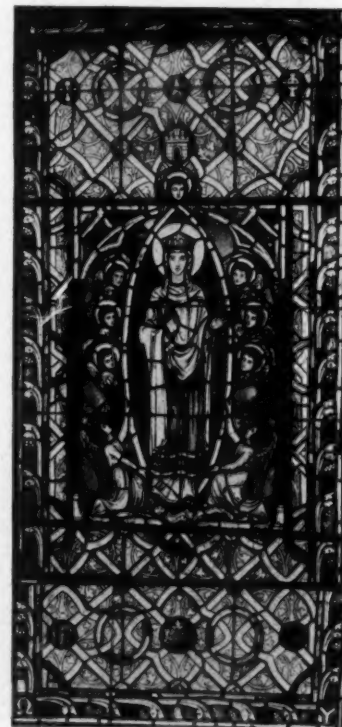
The Annunciation

show obvious signs of deterioration and in some instances, complete disappearance of pigment.

Though it must be admitted that Mr. La Farge himself produced some wonderful color effects, beautiful color cannot in itself make a satisfactory window. Broadly speaking, the limitations of opalescent glass render it a questionable medium for the production of monumental or decorative art.

#### DEMAND FOR PICTORIAL GLASS TO BE DEPLORED

It is interesting and instructive to note the attitude of mind of the average “man in the street” when he is brought face to face with a reproduction of an ancient window designed from the standpoint of pure decoration, and with no regard for pictorial effect. He will probably gaze at the window in respectful silence for a time; when pressed for an opinion he may say that the color is beautiful but that he can’t for the



The Assumption

Windows in Private Chapel  
Residence of Rt. Rev. Thomas M. O’Leary (R. C.), Bishop of the Diocese of Springfield, Mass.  
Jno. Wm. Donohue, Architect

These windows, the Annunciation and the Assumption of the Blessed Virgin Mary, designed in the spirit of thirteenth century Gothic glass, consist of medallions in full color on a grisaille ground, each light surrounded by a richly colored border

ple, an ideal church window would be the deep mysterious forest and rounded distant hills silhouetted against the glowing sunset sky. This picture the average person could understand at a glance. No interpreter would be needed to explain the symbolism. But however beautiful such a picture might be on canvas it could never be successfully rendered in stained glass, as may be proved by observing the many attempts to achieve this result in opalescent glass in church after church throughout the nation.

If the great mass of stained glass produced today is ugly when compared with the masterpieces of the middle ages, what is the remedy? The remedy lies in the education of the general

public, a possibility already shown to be feasible in other fields of art. For if all clients demanded flat, decorative windows instead of those of a pictorial type, the latter would cease to be made.

#### HOPEFUL SIGNS IN THE CRAFT

In the making of a stained glass window that is to be a work of art, an intimate and intelligent co-operation between the designer, the glass painter, and the glazier, is necessary. This end is most easily accomplished by the craftsmen working in small groups. Preference for small studios where individuality has a chance to assert itself, as opposed to large shops where commercialism inevitably enters into the work, has always held true.



Helen Hughes Memorial Window  
Helen Hughes Memorial Chapel at Silver Bay, on Lake George, N. Y.  
Allen & Collins, Architects

The design of this window, both in detail and in color, is Romanesque in character, in harmony with the architectural style of the chapel. The theme is steadfast Faith, eternal Hope, and unselfish, self-sacrificing Love. These Christian virtues are symbolized by St. Elizabeth of Hungary in the center panel, and angelic figures holding attribution of faith and hope, in the two side panels.

For, as Henry Adams points out in speaking of the glass of Chartres as compared with that of the Sainte Chapelle, "There are some two dozen of these windows in the choir alone, each of which may well have represented a year's work in the slow processes of that day, and we can hardly suppose that the workshops of 1200 were on a scale such as to allow of more than two to have been in hand at once. Thirty or forty years later, when the Sainte Chapelle was built, the workshops must have been vastly enlarged, but with the enlargement, the glass deteriorated."

Therefore, one of the hopeful signs in the craft today is the fact that an increasing number of young men, some of them fresh from art schools, others already well trained in the craft, are making pilgrimages to Europe's cathedrals for intensive study of the ancient glass. Upon their return these earnest students enter into their work with renewed enthusiasm, many of them opening studios of their own in order better to express their individual ideals. In England this practice of craftsmen working in small groups has for many years been spreading, and the best English work of today is produced by ateliers of that type. These studios, both in England and America, are encouraged by the increasing patronage of an intelligent clientèle.

Another hopeful sign of the times is the widespread and ever growing revival of interest in mediæval Gothic stained glass. The necessary education of the general public is already under way. Art museums throughout the East and the Middle West are making collections of mediæval works. With these examples of really beautiful design and color at hand people are beginning to

understand that a stained glass window should be as much a work of art as an easel picture or a mural decoration, and furthermore they also are beginning to perceive that the window is neither a picture nor a mural decoration, but a separate and individual mode of expressing ideas in translucent color.

When a museum is reported to have paid one hundred thousand dollars for about fifteen square feet of thirteenth century glass, and when at a public auction a single panel of ancient glass sells for seventy thousand dollars, then the great mass of people who tend to measure a work by its market price sit up and take notice. They must needs go and see that panel, for if it is worth so much money, it must be beautiful.

But the most auspicious sign to the lover of glass is that the best examples of his craft are really being sought after. Not so many years ago some of the ecclesiastical authorities connected with the old world cathedrals often destroyed priceless mediæval glass in order to admit more light into the interiors. This happened at Rheims Cathedral, at Bourges, at Chartres, and in many other notable instances. But today it could not happen.

The cause for this revival of interest in mediæval glass is not hard to find. Ecclesiastical architecture is rapidly developing in this country. Great building programs are being undertaken by all religious denominations. The cathedral idea is spreading. The architectural style inspiring practically all these structures is Gothic. And stained glass, from the earliest times inevitably developed along with, and as a part of, Gothic architecture.

*(To be concluded)*



HOUSE OF W. D. PACKARD, ESQ., CHAUTAUQUA, N. Y.

WARREN & WETMORE, ARCHITECTS

# EDITORIAL COMMENT.

**A**MONG THE NOTABLE EXAMPLES of our early American architecture, none is more venerated for its good architectural expression and the historic traditions which surround it than Christ Church, perhaps the oldest and largest of the Colonial churches now standing in Philadelphia. Further, few cities, if any, excel Philadelphia in safeguarding its historic structures.

It is now learned that some liberal but poorly counseled person has set about certain so-called "restorations" of Christ Church in Philadelphia. Restorations that restore, that preserve as near as possible the original form and material of the structure are to be commended. They preserve to future generations buildings that would otherwise crumble and decay. They promulgate civic pride and they teach the most valuable lessons of good architecture and, therefore, of good art. The Philadelphia Chapter of the Institute has set an example to all the country in the restoration of the Independence Hall group. They brought to the work the most skillful and the finest trained groups of men. What they did has rightfully earned for them not only the gratitude of the people of Philadelphia, but that of the nation as well. For while these historic buildings are of Philadelphia, they are really part of the heritage of all the people.

When the proposed restoration of Christ Church first came to our attention, it was inferred that the safety of so old, so fine and so historic a structure would be confided to the architects of Philadelphia. Such an assurance would have brought with it a sense of complete safety. But, it is surprising to learn that the work on this church is to be carried forward by certain members of the congregation who while undoubtedly devout, liberal and energetic, are apparently not equipped

either by knowledge or experience to undertake so important a work.

After careful inquiry as to just what it was proposed to do to this church, we are more than ever of the opinion that there should be outspoken protest against the plan that appears to have been adopted.

One of the striking and characteristic details of Christ Church is the balustrade, built of wood, which has stood the exposure of more than a

century. The proposition to replace this well proportioned detail with a balustrade of copper is preposterous. No architect, no artist could contemplate a thing which to him borders on sacrilege. There is competent authority for the assertion that this balustrade, after proper repairs, would serve for another hundred years, and that its replacement is absolutely unnecessary. If such ill-advised alterations are permitted, this sacred structure at once ceases to claim the respect of those who know good architecture, as it will have been robbed of the distinction that has earned its fame.

Fortunately there is precedent that should restrain the vandal hand of these would-be "restorers." Early in the nineteenth century the Signers' Room in Independence Hall, suffered sadly from the ignorant efforts of those who undertook the work of repair.

The wainscoting in the historic room was removed. Fortunately it was not destroyed, and when later a restoration was undertaken that would restore the room to its original condition not only of aspect but of material, this wainscoting was found in the basement and replaced in the room where it now exists. No modern substitute could equal the dignity and appropriateness of this old material.

As was said at the outset, these fine old struc-



Christ Church, Philadelphia  
(From the original sketch by Otto R. Eggers)

tures are the heritage of all of the people and not solely of the city of their location. It is, therefore, consistent and proper that a protest should arise anywhere in the United States against the unnecessary and possibly sacrilegious mutilation of a building that for centuries has proclaimed the dignity of good architecture and the artistic refinement of the period that created it.

In landmarks that have important historic associations as well as architectural interest, the replacement and alteration of original details weaken those associations. It is unfortunate when the spirit of renovation, even with the intention to preserve the structure, goes to the extreme that seems to be contemplated in Christ Church.

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**I**N THE JUNE ISSUE of the *Journal of the A. I. A.*, an article signed "C. H. W." takes *THE AMERICAN ARCHITECT* to task for rudely calling on the *Journal* officially to resent certain aspersions on the profession. "C. H. W.," whoever he may be, and we suspect it is the same identity that not so long ago insisted that architects should take dancing lessons, states that *THE AMERICAN ARCHITECT*'s demand for some action on the part of the *Journal*, has not yet "started a bead of perspiration on his (C. H. W.'s) dull pate." But it might rouse to a proper appreciation of professional pride a mind that was able to sense the importance of the matter. We have from C. H. W. in reply a homily on Honor, a reference to Don Quixote, a quotation from Galsworthy, and a lot of choice expressions that have a certain rotundity but do not mean much.

Ordinarily this outburst would be ignored, but C. H. W., in trying to set forth his idea as to just what honor is, rakes up from his files,—and, we suspect, more often from his imagination,—a number of what he considers dishonorable practices on the part of architects. Of one of these derelictions he "thinks he has an exact photographic copy of the wording."

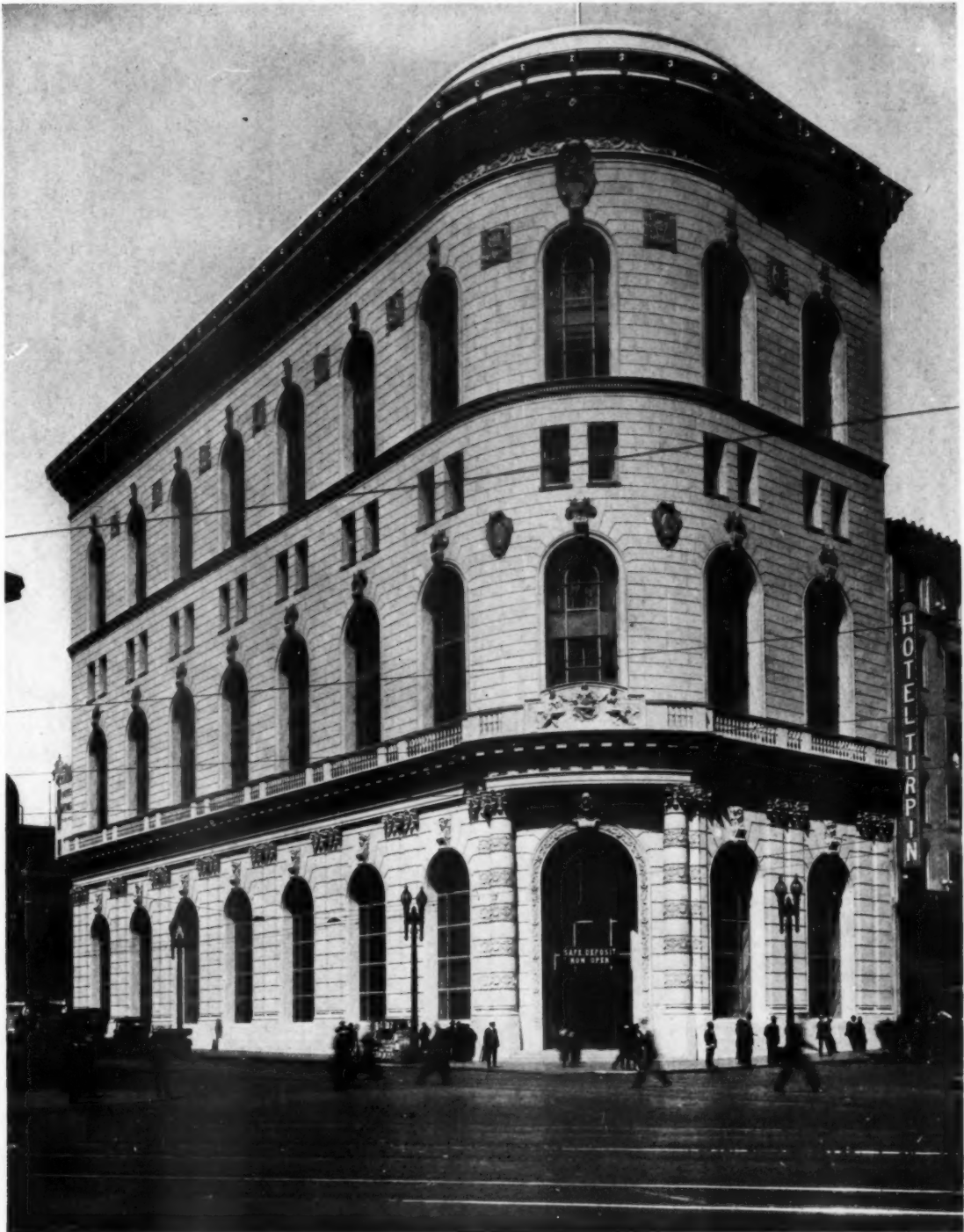
It seems unfortunate that a journal, published as the official organ of the highest body of organized architecture in this country should print such an article.

C. H. W. closes his recital of transgressions with the statement that "these are merely some things that we happen to recall, but presently we shall have a look at our files." Which may, or may not, be a covert threat that if he is further disturbed by proddings towards what might reasonably be considered a proper editorial attitude, he will "show up" so many cases of dishonest practices by members of the profession as to make any interference with his duty, as he sees it, a hazardous undertaking.

"It's a sad bird that fouls its own nest."

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**T**HAT THE FEARS OF BANKERS of a depreciation in the security of loans on building were not well founded is being proved by the march of prices today. Last year *THE AMERICAN ARCHITECT* editorially stated that when the construction of houses was well under way, the first result would be a stiffening of prices caused by demand. This, added to the fact that it would require several years to supply the deficiency in buildings, would prevent any marked falling off in values before loans would mature. All reports indicate that prices of construction materials are advancing. Some part of this is due to demand and it is suspected, as always, that some part is due to combination, which is merely another way of stating that demand gives every opportunity for charging all the traffic will bear. The material men claim there is a shortage of labor and those closely in touch with labor conditions report that small contractors and small manufacturers are paying large wages and are bidding for labor. Solely the larger corporations are refusing to increase pay for fear of the widespread effect. How long some of them can hold out in the face of increasing orders is problematical. The public may as well understand that the cost of building has touched bottom and no material reductions will be observed for several years. The tendency will be upward for at least two years, the cost curve turning downward when the presidential campaign will be in full swing. Present costs may not be duplicated within five years, so that now is the time to build.



BANK OF ITALY, SAN FRANCISCO, CAL.  
BLISS & FAVILLE, ARCHITECTS





BANK OF ITALY, SAN FRANCISCO, CAL.

BLISS & FAVILLE, ARCHITECTS





BANK OF ITALY, SAN FRANCISCO, CAL.  
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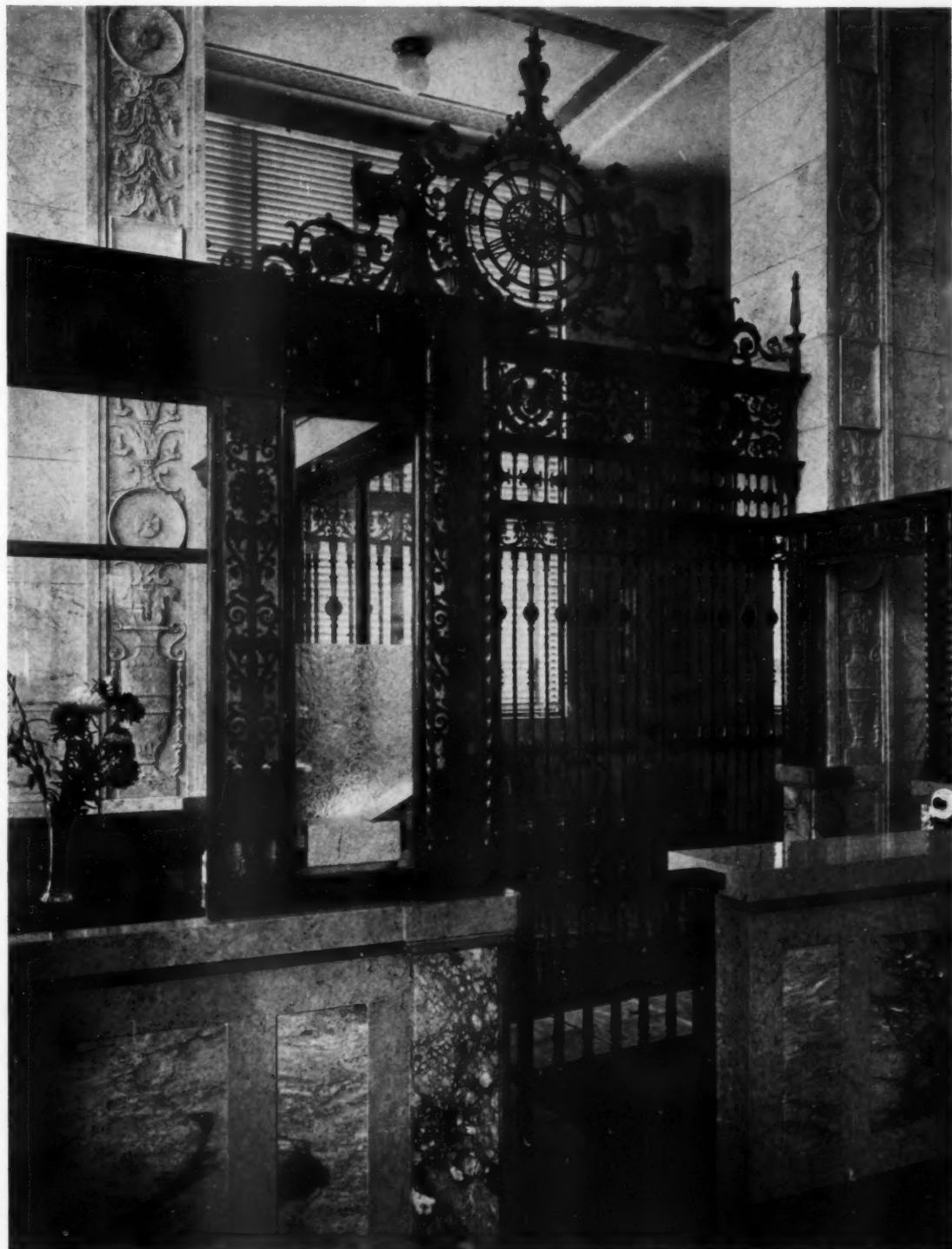
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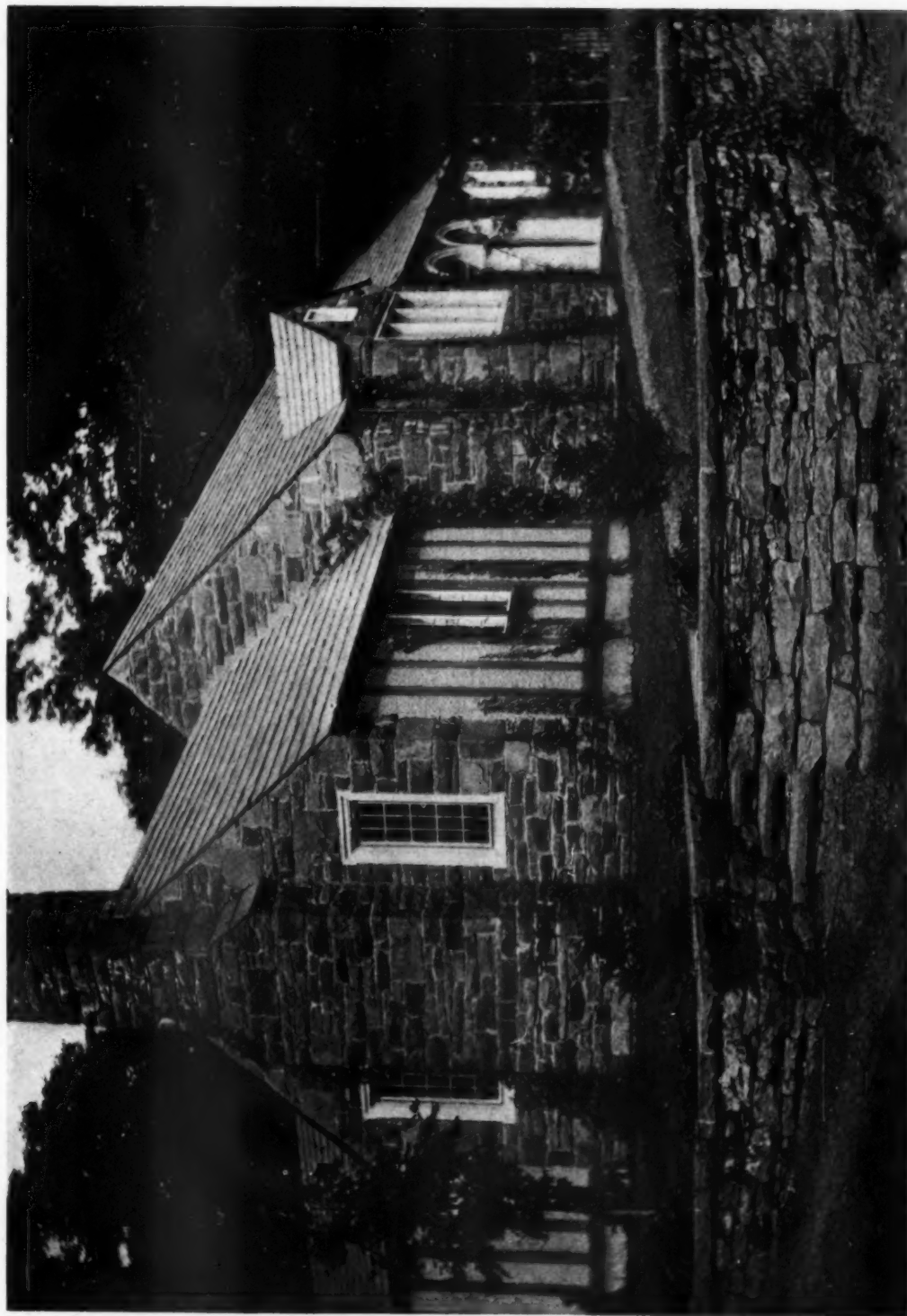
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GATE LODGE ON ESTATE OF W. T. HYDE, ESQ., COOPERSTOWN, N. Y.

ALFRED HOPKINS, ARCHITECT





HOUSE OF DAVID S. BALL, ESQ., RIVERDALE, N. Y.  
JULIUS GREGORY, ARCHITECT





HOUSE OF DAVID S. BALL, ESQ., RIVERDALE, N. Y.

JULIUS GREGORY, ARCHITECT





HOUSE OF DAVID S. BALL, ESQ., RIVERDALE, N. Y.

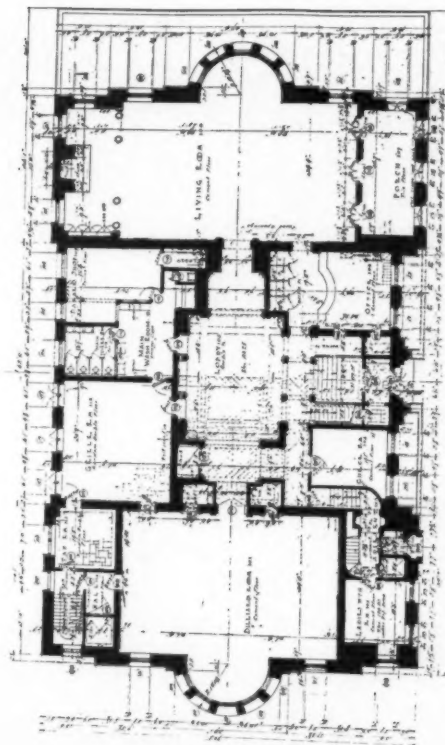
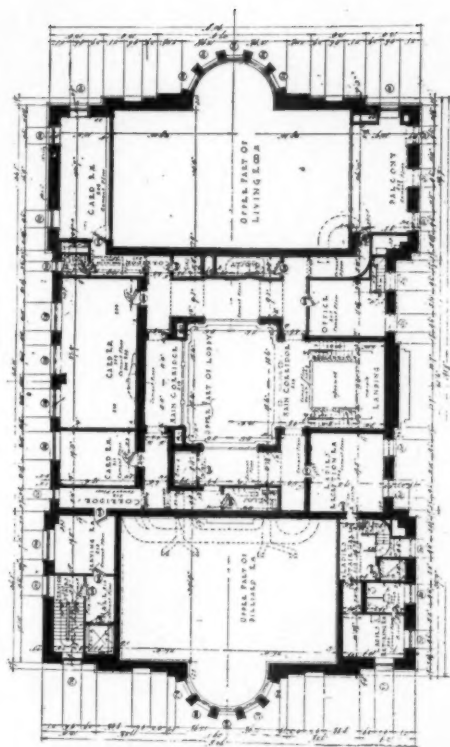
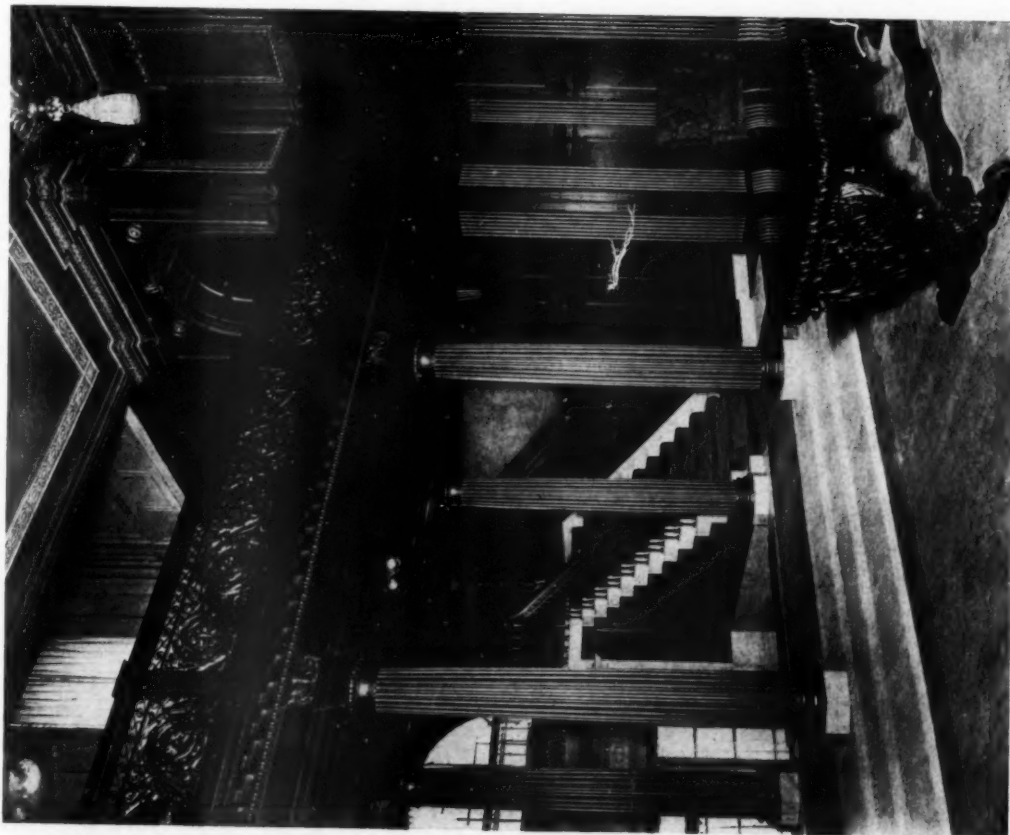
JULIUS GREGORY, ARCHITECT





TOLEDO CLUB, TOLEDO, OHIO  
MILLS, RHINES, BELLMAN & NORDHOFF, ARCHITECTS





TOLEDO CLUB, TOLEDO, OHIO  
MILLS, RHINES, BELLMAN & NORDHOFF, ARCHITECTS





PRESIDENT'S HOUSE, MASSACHUSETTS INSTITUTE OF TECHNOLOGY  
WELLES BOSWORTH, ARCHITECT



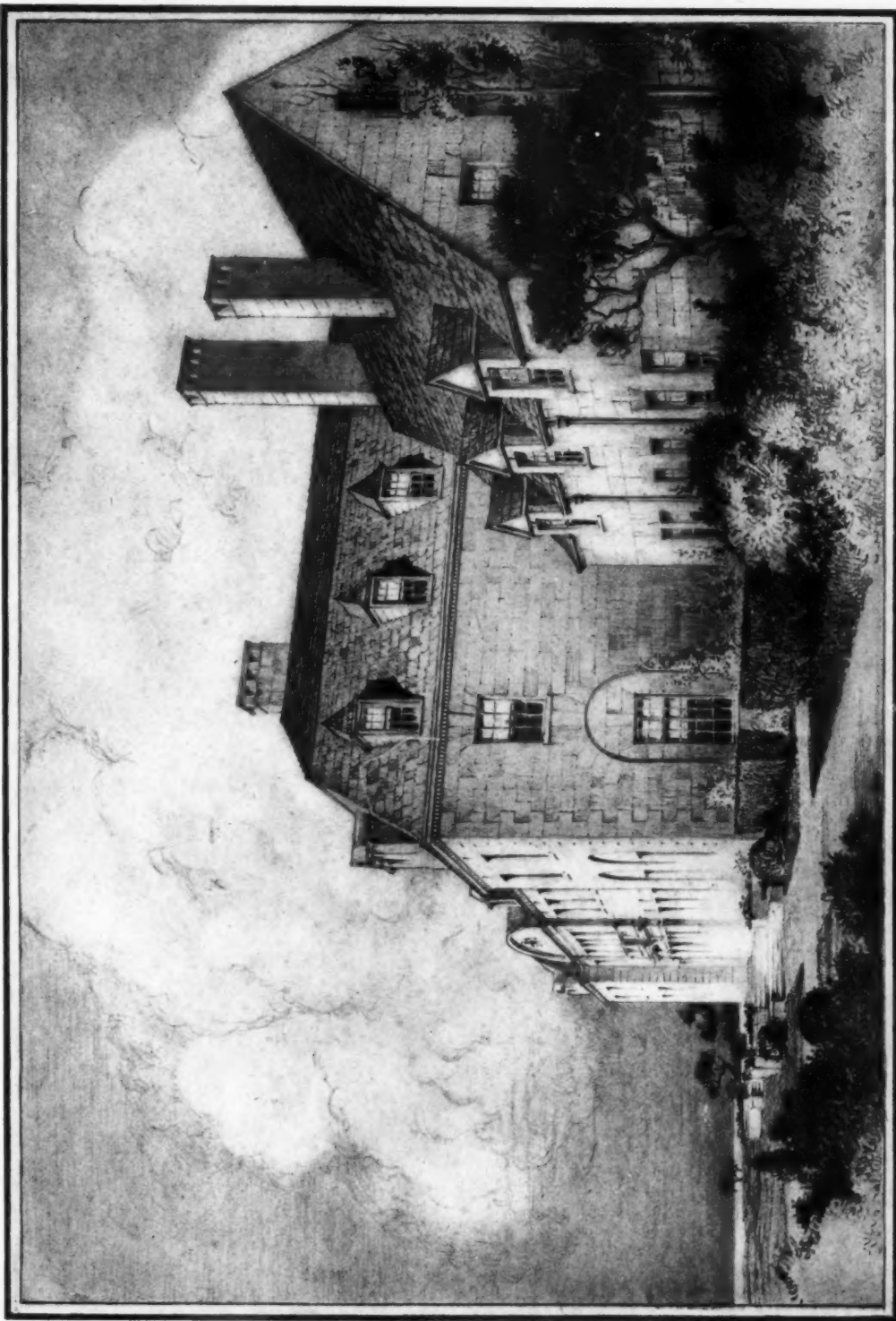


DETAIL OF PRINCIPAL ENTRANCE

PRESIDENT'S HOUSE, MASSACHUSETTS INSTITUTE OF TECHNOLOGY

WELLES BOSWORTH, ARCHITECT





HOUSE OF COLONEL E. H. R. GREEN, SOUTH DARTMOUTH, MASS.

ALFRED C. BOSSOM, ARCHITECT

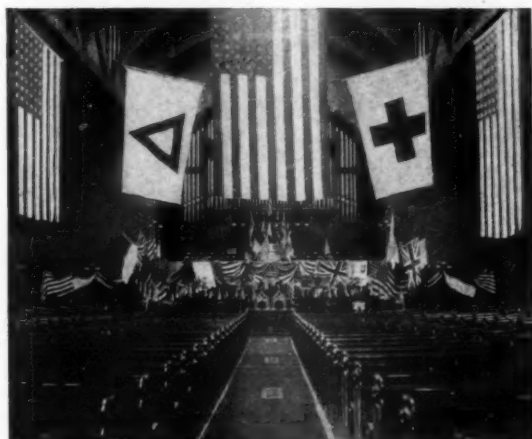
*(From the original pencil sketch by L. J. Keimig)*



# WHY CHURCH FIRES MAY BE BENEFICIAL

BY CHARLES COLLENS, ARCHITECT

IN a recent number of *The Literary Digest* appeared an article dealing with the great annual loss of Church property by fire, and recommending methods for avoiding this misfortune. If one really stops to consider he cannot but see that misfortune lies not in the destruction, but in any attempt to avoid that destruction. From the architectural, as well as the religious standpoint, communities can only benefit by the loss of a very considerable number of the Churches built in this country during the Nineteenth Century. Not only are many of them without any of the architectural quality which induces religious inspiration, but in a material way they fail to provide the necessary services to meet the requirements of the Churches as a social and educational center.



Second Congregational Church, Holyoke, Mass.  
(Before the fire)

When we go to England, France, Italy, Egypt, or almost any other country than our own, our interest, architecturally speaking, largely centers in the ecclesiastical monuments. The older civilizations of the world point with pride to the impressive temples, wonderful Cathedrals and even the lesser country Churches which have been built through the ages to the glory of their deities. All the arts,—architecture, stained glass, painting, sculpture, carving, mosaic work, embroidery,—have all combined to create these beautiful shrines, and the nations are proud of their handiwork.

What a different story it has been with us. There was a time at the beginning of things when our ancestors built artistic little Colonial meeting houses, whose exteriors have great charm, are most appropriate to their surroundings, and whose

spires and porticoes are subjects for the delicate handling of detail. But within they are "painted sepulchers" barren and uninviting. Art was anathema. Then came those dark periods in our Church architecture, when pretentious pseudo-Gothic, Romanesque and "early pullman" Churches sprang up like mushrooms everywhere designed with all the lack of artistic quality that marked the black walnut and hair cloth period in this country.



Second Congregational Church, Holyoke, Mass.  
Allen & Collens, Architects  
(After the fire;—built on the old foundation)

Following these "forms without souls" came the "practical" Church devised by a "practical" architect, working with a "practical" Committee, amphi-theatres with curved seats, walls made of sliding doors and choirs banked up in front of the congregation. The setting for the Communion Service, which should be the most dignified of all Services was usually relegated to the Church floor, under the Pulpit and every other means devised for excluding beauty and liturgy from the Church Service.

The fault cannot all be laid to architecture. What could be more awful than some of the stained glass windows that have been perpetrated during these dark ages? We see huge picture windows made of opalescent glass, which if they had been painted in oils instead of glass would never have left the studios.

In adjacent windows in the same Church may be found great sheets of unpainted glass of the most atrocious hues or horrible attempts to copy the beautiful grisaille or medallion windows of the best periods of the art. Almost everywhere until recently is a lack of drawing, a lack of color harmony and a woeful lack of the inherent spirit of stained glass which is to create not a picture, but a field of beautiful colored light. And what has been said of the architecture applies as well to the inartistic decorations, the pulpits or platforms worthy only of a lecture hall, and the great brass chandeliers with their mirrored reflectors hanging over the congregations like the sword of Damocles. And so through a nightmare of ignorance and hostility to the use of Art in Religion we come down to the year 1900, and the great awakening.

Architects are beginning to learn what ecclesiastical architecture really means. Ministers are sent away from the Theological Seminaries with a knowledge of what a tremendous force beauty and even ritual can be in shaping religion, and the laity by reason of much travel and education is most receptive to guidance in the ways of art. Many new Churches are rising throughout the country, buildings that communities will be proud of for many generations, and whose artistic and

religious qualities are doing their share in the work of uplift. For a beautiful Church whether costly or of the simplest character, if it breathes religion is a silent inspiration. The true test of any Church is its ability to draw us within at any time by the force of its architectural appeal to a moment of quiet Communion. No Church that lacks this power is worthy of the name.

On the religious side it is self-evident that many of our Churches are losing their influence in the community life. This condition may be caused by a poor working plant, for a Church today must be planned as carefully as a hospital or school for greatest efficiency of operation as well as beauty. If the plant is at fault, as it is in nine cases out of ten, what better good fortune could come than a good healthy fire? With the fresh start, interest is awakened, the Church takes new life and hope, and the hard work which a community puts into the planning of its new Church building, and the raising of the necessary funds is like a new lease of life.

Do not let us deprecate these Church fires. Let the Insurance Companies alone do that. It is seldom, if ever, that a Church of real value is lost.

The beauty of our cities, the inspiration that comes from a truly ecclesiastical building, the reawakening of religious interest are all benefited when one of these uninspired Churches passes away. It may have been reared with all the love and enthusiasm that goes in the building of its successor, but today there is added to that love and enthusiasm the knowledge of how to use art in all its forms in building to the true Glory of God.

## A FIFTH AVENUE PIPE AND TOBACCO SHOP

EUGENE SCHOEN, ARCHITECT

IN the shop of Alfred Dunhill Company on Fifth Avenue and 43rd Street, some very special problems were encountered.

The shop is only 20 ft. wide, about 100 ft. deep and 13 ft. high—not an ideal size for æsthetic treatment. In this store merchandise has to be displayed to meet the needs of many purchasers, but it has to be done without bewildering the customer. On the other hand, a large amount of storage space has to be available in the shop for replenishing merchandise. There is no other room for this reserve stock. If the room had been treated in a series of open cases as the usual tobacco shop is, its 100 ft. of wall on either side would have looked distressing and ordinary. For an English

shop, the style employed was quite naturally the English Renaissance. The floors are of travertine, the wall cases of American walnut for the stiles and rails and crotched burled walnut for the panels.

It is interesting to note that all the panels in this store, to the number of nearly 2000, have been all made from one flitch and have been so arranged that the conformation of the tree trunk from which these panels were made can be traced continuously around the entire room.

The windows toward the North and East sides have been decorated in leaded glass, with characteristic smokers' effigies, racially and historically depicted.



A Fifth Avenue, New York, Pipe and Tobacco Shop  
EUGENE SCHOEN, Architect

Due to the introduction of concealed cases behind walnut panels, the confusion from exposed stock that would otherwise be encountered is overcome. While it cannot be said that the shop looks like anything but a store, yet it is treated with dignity and repose, quite as a library or office of a cultured gentleman might be treated. A characteristic of the shop is the soft glow of the ceiling lights and the equally soft but emphasized lighting of the display cases in which the merchandise is shown. All the cases which contain glass are lighted by reflectors. An attempt was made to

overcome the monotony of the average store exhibiting but one type of merchandise by treating the various portions as independent units. On the one side are a series of bays or alcoves; at the rear, a large glass plate cigar store within the store; at the other side, comfortable leather settees, a tobacco blending and sales counter, the cashier's office and the wrapping department, cane racks, with here and there a niche for special display. All the various features are tied together by a harmonious treatment of wood in which strong horizontal lines are maintained.

## NEW HOTEL STATLER, BUFFALO, N. Y.

GEORGE B. POST & SONS, ARCHITECTS

OUT on the prairies of Southwestern Minnesota, in the early eighties, was a small town, the center of a flourishing farming community, and eighteen miles from the nearest village. It differed in no essential thing, but one, from its neighboring towns, but that one thing was the means of building up a successful bustling place. It had the best managed hotel in the Northwest. Hotel keepers, like poets, are born, not made. The proprietor of that small Western hostelry was a "blessed man," for "he had found his work." Come Saturdays or holidays, the commercial travelers who roamed that territory, left their trunks in the towns wherever they might be, and flocked to that hotel for over Sunday. The town, finding itself famous by reason of its hotel, determined to become equally famous for its city government. So, it elected the hotel proprietor its Mayor. It thrived, became the county seat and its merchants prospered.

The hotel not only became in a sense the Town Hall, but it was also the social center around which all the town's activities moved. What happened in that town has before and since happened in others. And more often, and in a much larger scale, is it happening all over the United States. For, with changing habits of daily life, our modern hotels are not just stopping places for transients, but they contribute to the domestic and social elements of their cities.

Like Emerson's man who made mousetraps, if a good hotel is located even in an inaccessible place,

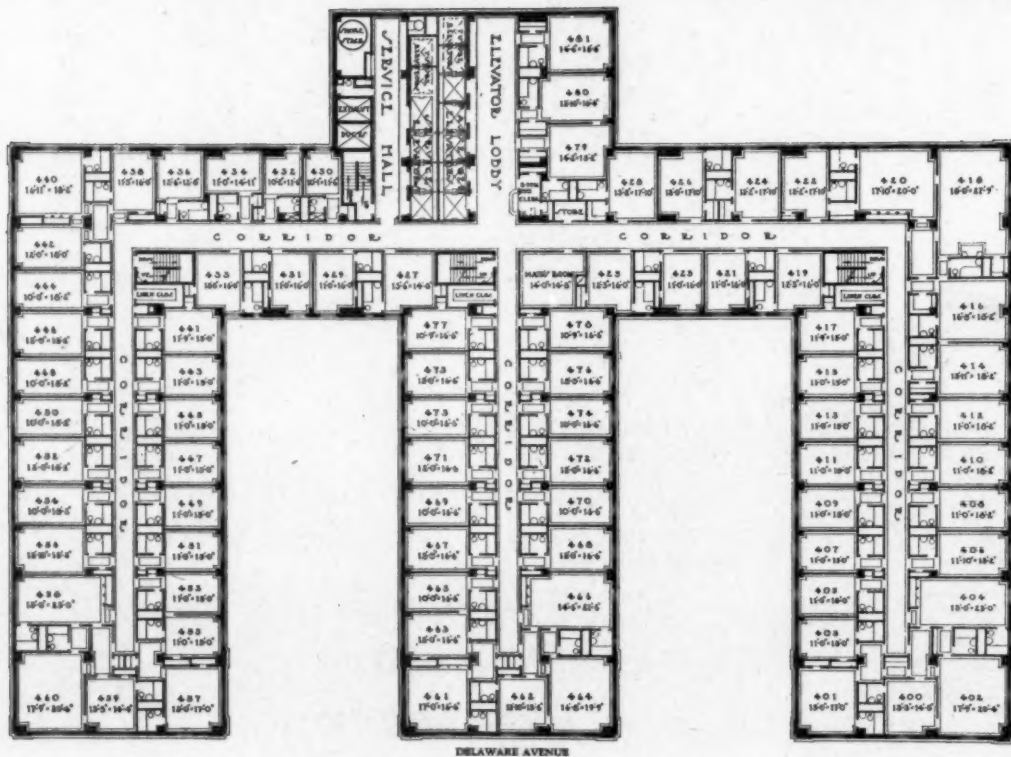
or what the city regards as inaccessible, the traveling world will "make a path to its door." Something about like that is now taking place in Buffalo. The new Hotel Statler is located a considerable distance from the one that has for so many years been a feature of Buffalo. In fact, it was the first of many Hotel Statlers now located in different cities. Its new location is one that creates a civic center and while, as the illustrations show, it is not yet ready for occupancy, its presence in the neighborhood has caused a building activity that will result in the creation of an architectural center in which the people of Buffalo may take a very proper pride.

In its architectural style and general arrangement of plan, the new Hotel Statler is quite similar to those which have preceded it in other cities. The airplane picture indicates its location, and the very pronounced amount of building that the placing of this hotel has stimulated.

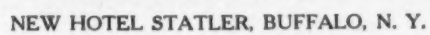
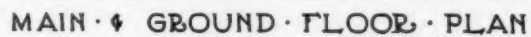
Those who fail to keep up with the tendencies of the age, decry the readiness with which many people have accepted the apartment house, the apartment house hotel and the larger hotels as places to live in. They see in them a loss of domestic atmosphere and the virtues they insist surround the home. Perhaps they are right. But if we are to be dwellers in hotels, if we are to seek our recreations in hotels, we may find refinement and seclusion, comfort and even economy in the well conducted houses that are features of most of our large cities.



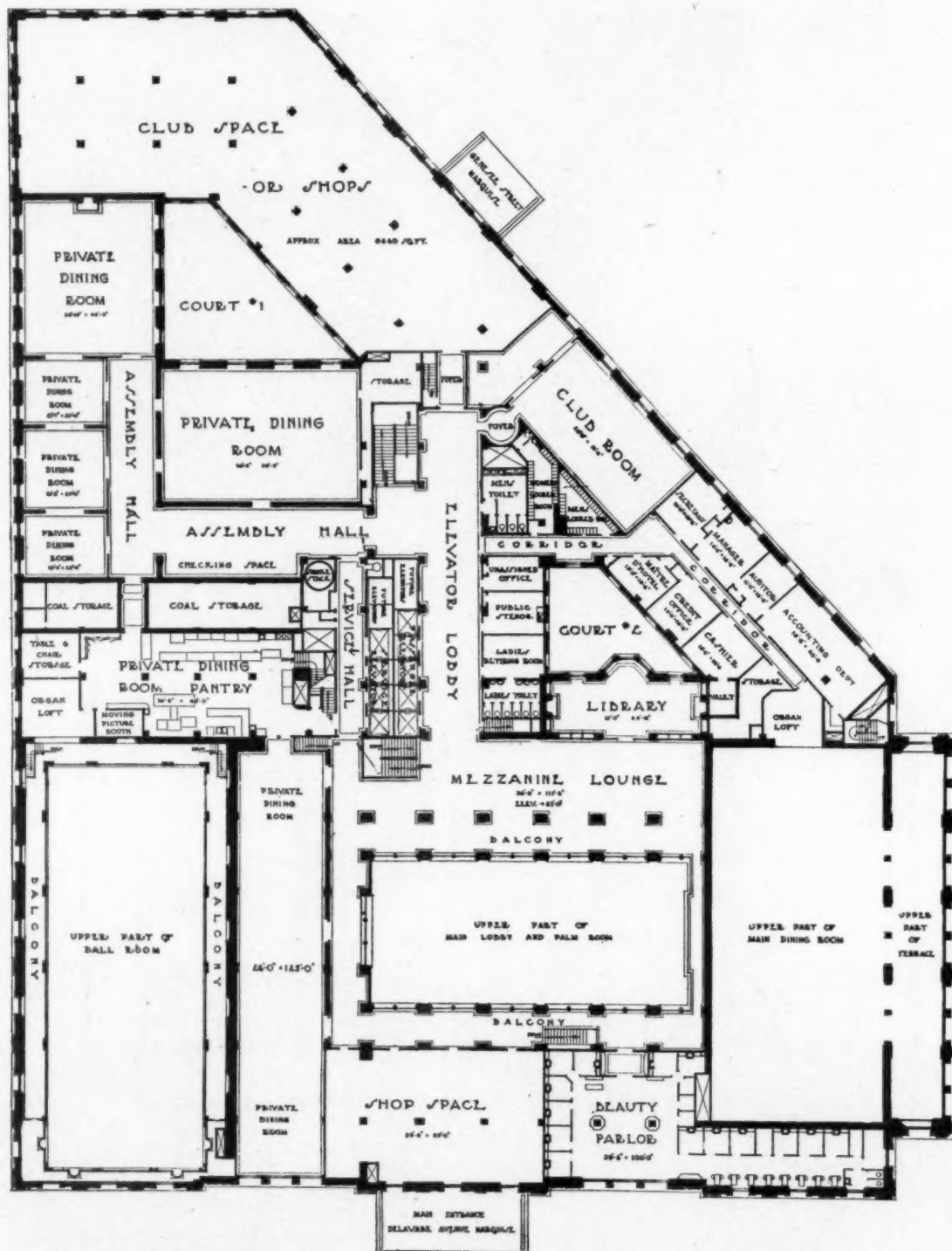
GENERAL VIEW, TAKEN DURING CONSTRUCTION  
NEW HOTEL STATLER, BUFFALO, N. Y.  
GEORGE B. POST & SONS, ARCHITECTS



AIRPLANE VIEW AND TYPICAL GUEST ROOM FLOOR PLAN  
 NEW HOTEL STATLER, BUFFALO, N. Y.  
 GEORGE B. POST & SONS, ARCHITECTS



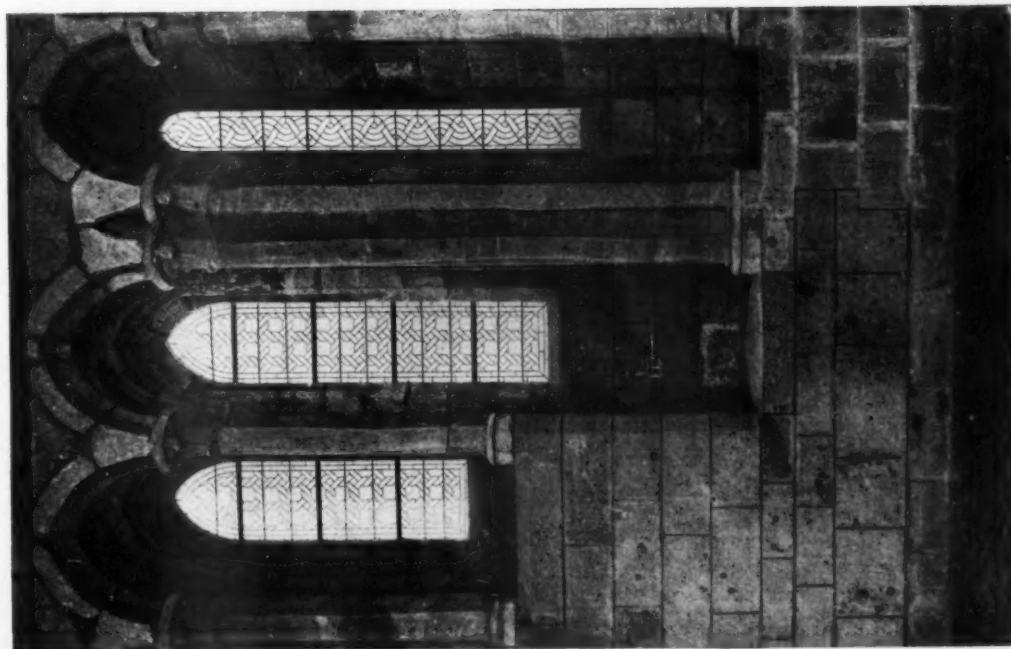
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• MILZZANINI FLOOR • PLAN •

NEW HOTEL STATLER, BUFFALO, N. Y.

GEORGE B. POST & SONS, ARCHITECTS



THE REFECTOIRE, MONT ST. MICHEL

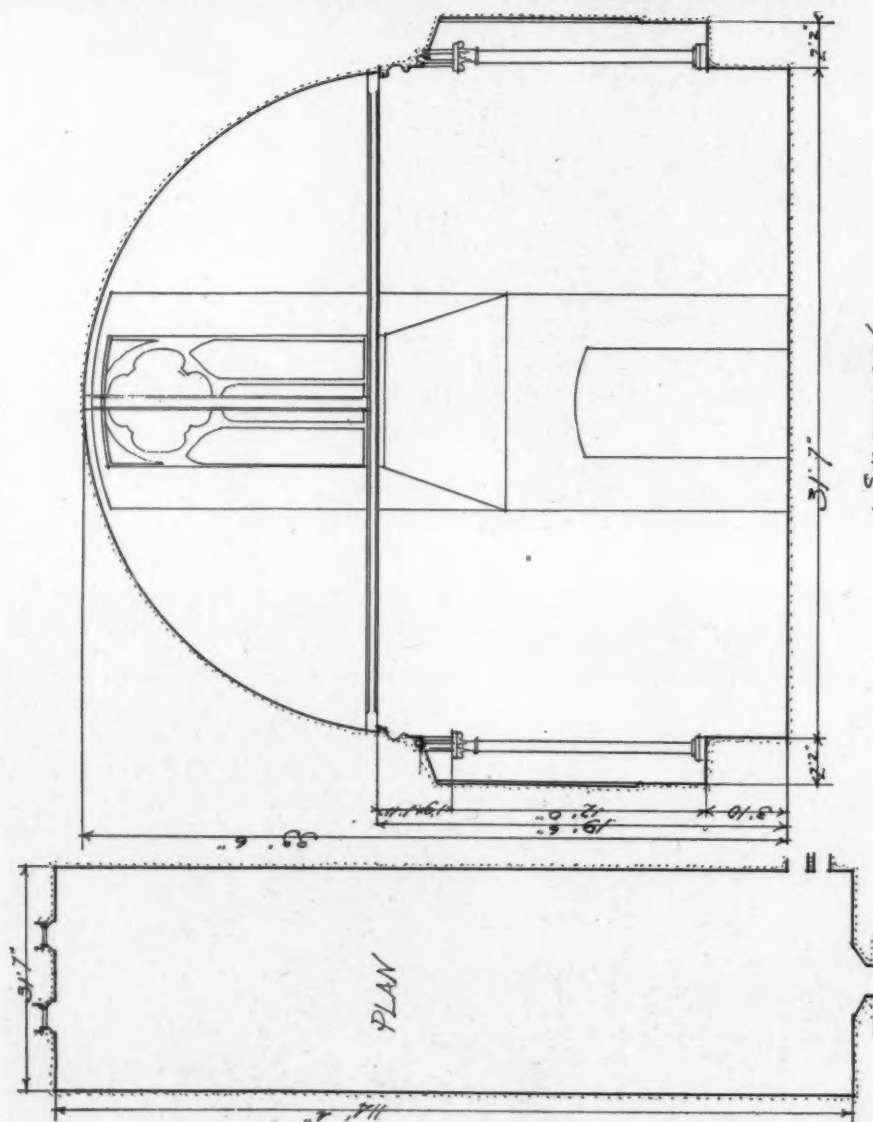
THE Refectory of the Monks or, as it is sometimes called, the Library or the Dormitory, is one of the rooms of the Mer-veille situated beside the Abbey Church of Mont St. Michel. This room together with the Salle des Chevaliers, and the Salle des Moines, are almost the only monuments of what must be called secular architecture of the early and perfect period of Gothic Art 1200-1210." Unlike the other two rooms, the Refectory has no columns, being an open room with a circular wooden ceiling and it is a surprise to the visitor on his entrance to find the room well lighted, yet with a light so soft and diffused. This is due to the arcade of windows running the entire length of both sides, a detail of which has been drawn. By placing the windows back from the main face of the wall and by making the windows small, the direct light is softened, as the photograph shows. It is a beautiful conception and gives a good result. The photograph of the rostrum shows a very pleasing treatment in the long arcade.

MEASURED AND DRAWN BY R. M. BLACKALL, 35TH HOLDER, ROTCH TRAVELLING SCHOLARSHIP

THE AMERICAN ARCHITECT, SERIES II.  
FRENCH AND ITALIAN DETAILS



REFECTOIRE.  
MONT ST. MICHEL.

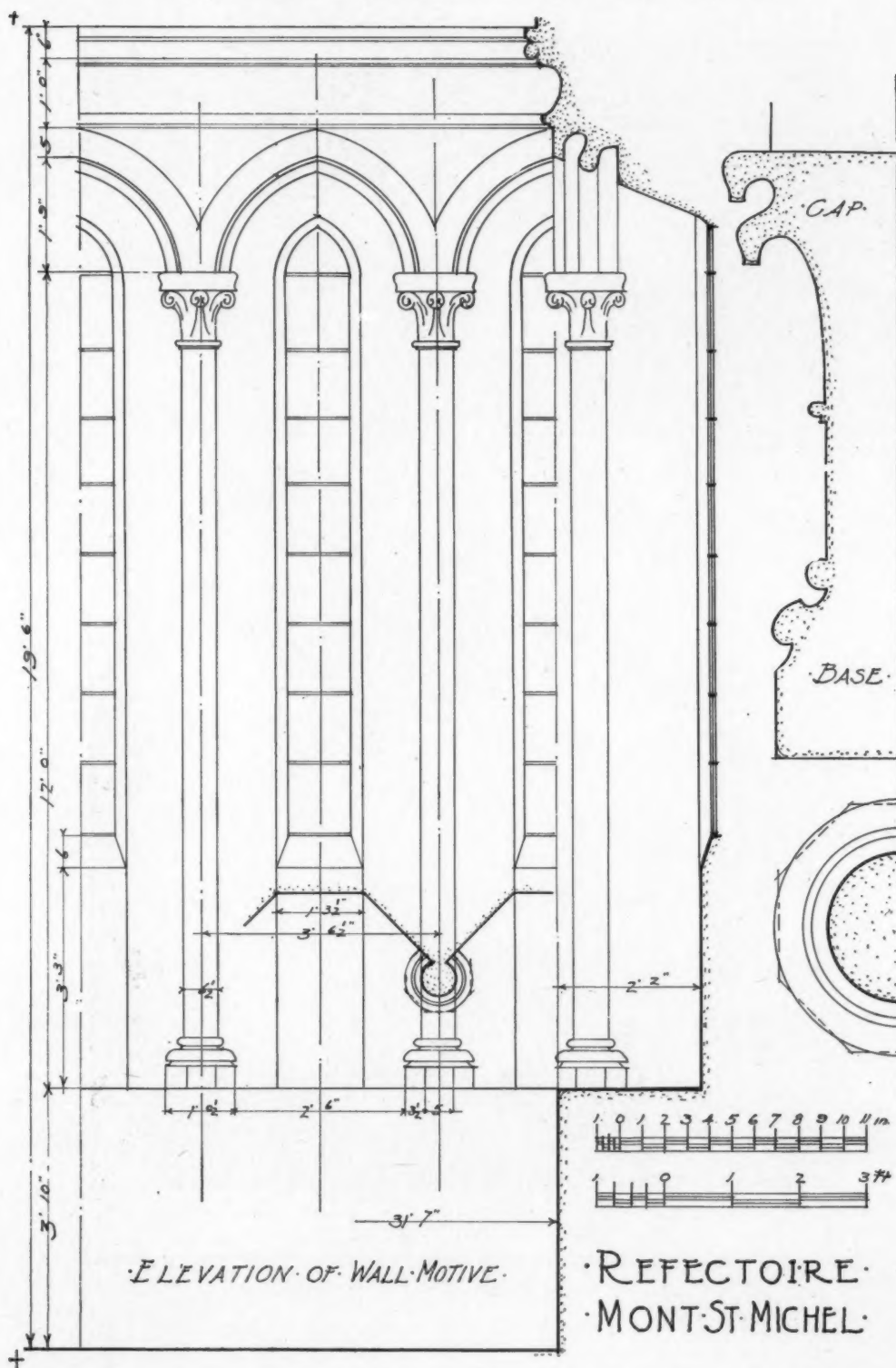


SECTION.  
012345678910

TRAVELLING SCHOLARSHIP

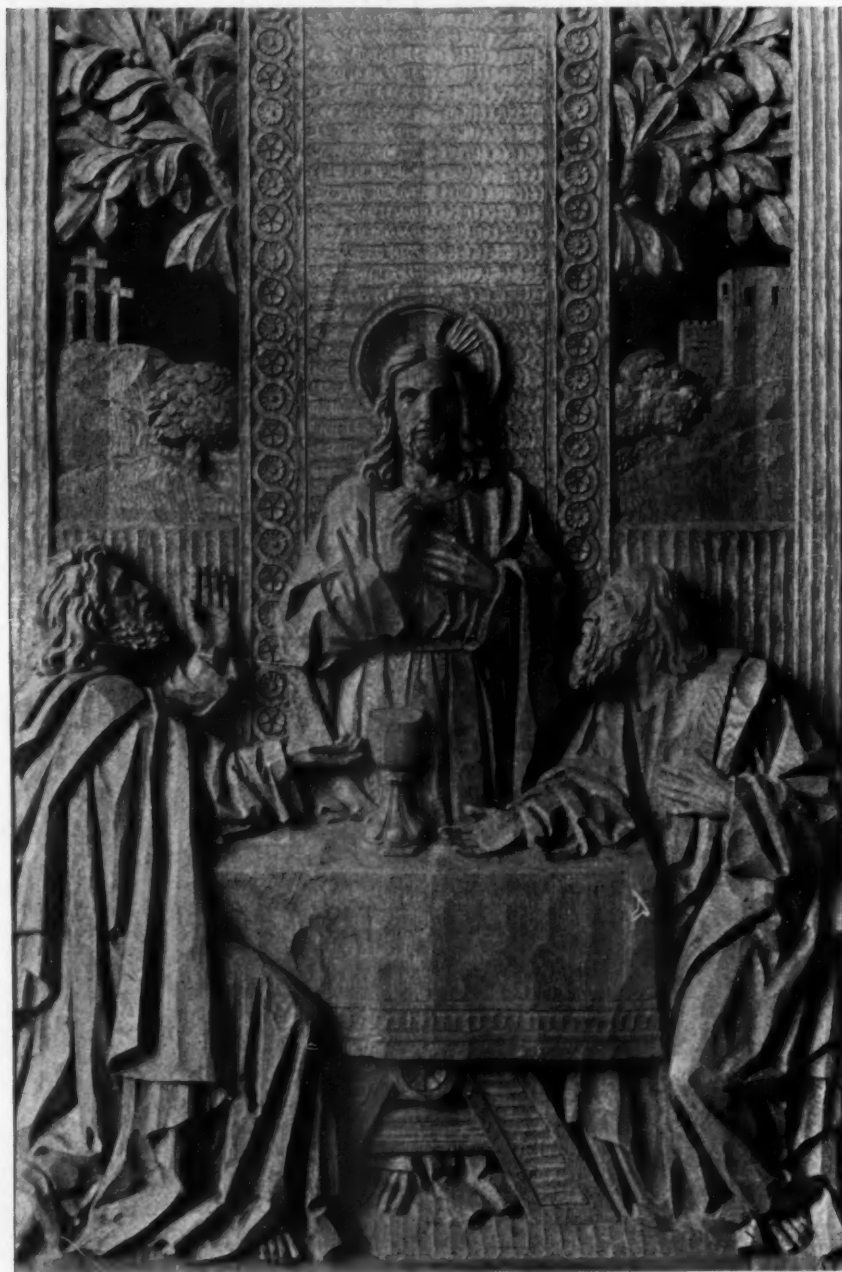
MEASURED AND DRAWN BY R. M. BLACKALL, 35TH HOLDER, ROTCH

THE AMERICAN ARCHITECT, SERIES II.  
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THE AMERICAN ARCHITECT, SERIES II.  
FRENCH AND ITALIAN DETAILS



THE SUPPER AT EMMAUS  
DETAIL OF REREDOS, ST. PAUL'S EPISCOPAL CHURCH, SPRINGFIELD, ILLINOIS  
DESIGNED AND CARVED IN WOOD BY ALOIS LANG

*(From the Chicago Architectural Exhibition)*

# DEPARTMENT OF ARCHITECTURAL ENGINEERING

## SIMPLIFIED DESIGNING METHODS

### Description of an accurate mechanical solution of statically indeterminate structures by use of paper models and special gages

THE final development in the mechanical method was the design and application of the deformer gage shown in Fig. 12. The function of this gage is to introduce at any section of the model, either at the support or at any other section of the structure, a unit deformation. This may be a pure thrust, shear or moment deformation.

Suppose, for example, that it is desired to obtain the thrust at the fixed end of some member  $M$  of any indeterminate structure due to a load  $P$  applied at some point  $A$  of the same structure and acting in the direction  $CA$ . These latter points appear in the field of the micrometer microscope set up over some load point  $A$  of the model structure. The cross lines of the microscope field are oriented in the direction  $CA$  of the applied load  $P$ , which direction is pencilled on the model for convenience in orienting the microscope.

At the fixed support the paper model  $M$  is clamped to the gage by means of the plate  $d$ . The model floats freely on small ball bearings. The bar  $a$  of the gage is fastened to the drawing board by means of the phonograph needles  $n$ , a thin piece of paper  $f$  being used between  $a$  and the drawing board so that the bar  $b$  may have clearance and free motion. For hinged supports the plate  $d$  is omitted, and the pin  $h$  in bar  $d$  acts as the hinge pin.

If the thrust at the fixed support due to a load  $P$  acting in direction  $CA$  at  $A$  is desired, remove the two round normal plugs in the deformer gage with two small wooden wedges  $w$ . Place in the gage the larger pair of thrust plugs shown.

Read in the microscope the position of the load point  $A$  of the model. Next place the pair of smaller thrust plugs in the gage. The load point  $A$  is seen in the microscope to move along a straight line to a point  $B$ . Take reading of the position  $B$ , and by difference obtain the deflection  $AC = d_2$ . If the total thrust deformation introduced by the standard deformer gage be  $d_1$ , the value of the thrust at the support in question equals  $(d_2/d_1) P$ , and is a compression, for the upward deflection at the support has caused the load point  $A$  to deflect in a direction opposite to

the direction  $CA$  of the applied load. The mechanical method therefore gives both the sign and value of the desired component of the reaction.

To obtain the moment and shear at the same section, the moment and shear plugs are used in the gage in a similar manner and values of moment and shear are calculated from the two corresponding deflection measurements made with the microscope.

If the moment, shear and thrust at some interior section of an internally indeterminate structure must be found, the gage is clamped at such section by means of two bars  $d$ , one as shown in Fig. 12, and another bar  $d$  by screws in holes  $g$ . The gage in this case floats on three ball bearings which move freely between two thin glass plates. The model is cut at this section. The three sets of plugs for moment, shear and thrust are then introduced in succession, the corresponding deflections of the load points of the model are read through the microscope, and the corresponding moment, thrust, and shear at the

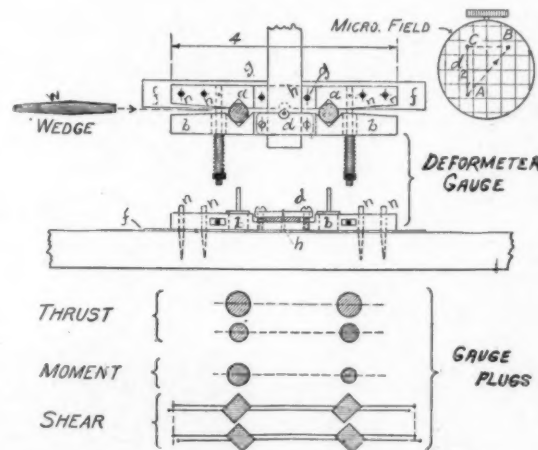


Fig. 12. The deformer gage devised by Professor Beggs to introduce unit deformations in models of structures

section evaluated as before.

The values shown in the following four illustrations were obtained by the use of paper models made to a scale of 1 in. = 1 ft. The deflections

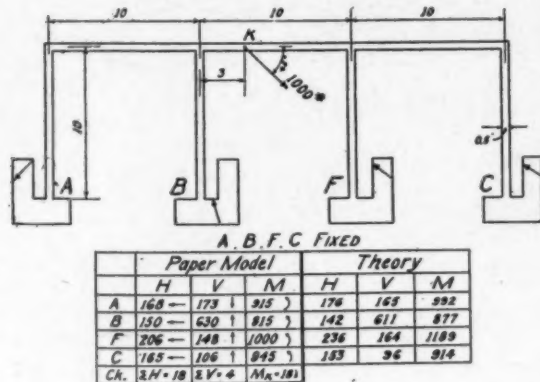


Fig. 13. Model of four post portal with reaction lines marked on extended foundations indicating points of zero rotation

were introduced by the standard deformer gages and the deflection of the load points read through the microscope.

The components of the reactions of the four post portal in Fig. 13 were determined both by model and by slope deflections. The reactions calculated by the model deflections again satisfy very well the three laws of equilibrium, and agree reasonably well with the values obtained by theory. There is no reason to believe that the theory values are more accurate than those obtained by the model. From the components of these four

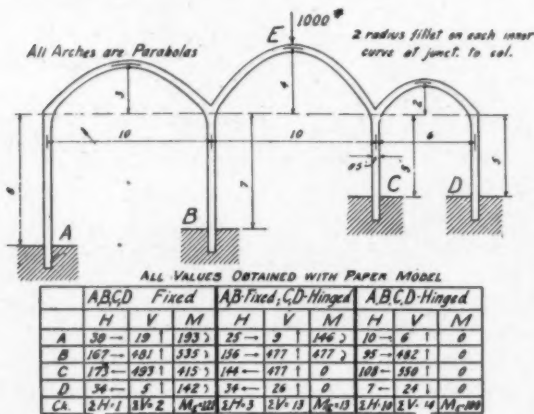


Fig. 14. Results obtained with model of an economic form of internally statically indeterminate structure

reactions, their magnitudes, directions, and positions were calculated.

A celluloid model of the structure was then made to a scale of 1 in. = 1 ft. The lines of the

reactions as determined from the deflections of the paper model were scribed on the extended foundations of this celluloid model as shown in Fig. 13. Holes were drilled along these lines and a single hinge pin put in each foundation anywhere along the line of its reaction. A varying force was then applied at the point K in the direction shown, causing the structure to deflect throughout. None of the four foundations rotated appreciably on their single hinge pins. This is a practical proof of the correctness of position and direction of the

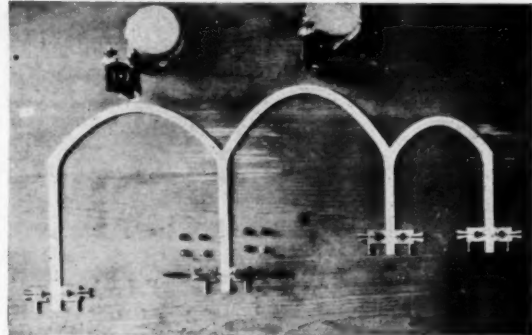


Fig. 15. View of structure shown in Fig. 14 with deformer gages and micrometer microscopes in position for applying and reading deformations

reactions obtained by the deflections of the paper model.

The structure in Fig. 14 presents no more difficulty than the preceding one when solved mechanically. This problem was completely solved by reading the twelve deflections at point E corresponding to the H, V, and M displacements introduced successively by the four gages at fixed supports A, B, C, D. The effect of changing the supports from fixed to hinged was easily investi-

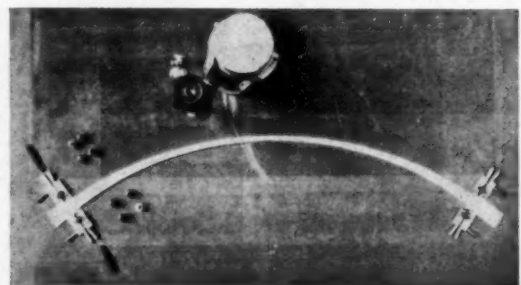
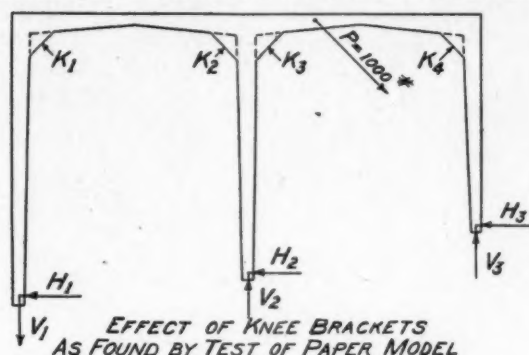


Fig. 16. View of model of arch under test. The deformer gage applies a unit deformation for thrust, shear and moment

gated after removing clamping bar from the gage, Fig. 12, and allowing the paper to turn freely on the hinge pin. The values of reactions obtained by deflections are seen to satisfy the three laws of equilibrium very closely.

The structure shown in Fig. 17 was tested by deflections to determine the effect of knee braces



| BRACKET OUT                                                       | H   | H <sub>2</sub> | H <sub>3</sub> | H <sub>1</sub> +H <sub>2</sub> +H <sub>3</sub> |
|-------------------------------------------------------------------|-----|----------------|----------------|------------------------------------------------|
| NONE                                                              | 137 | 222            | 337            | 696                                            |
| K <sub>1</sub> , K <sub>2</sub>                                   | 116 | 213            | 370            | 699                                            |
| K <sub>1</sub> , K <sub>2</sub> , K <sub>3</sub>                  | 107 | 220            | 366            | 693                                            |
| K <sub>1</sub> , K <sub>2</sub> , K <sub>3</sub> , K <sub>4</sub> | 140 | 221            | 330            | 691                                            |

Fig. 17. A model made to test the effect of knee braces

on the reactions. Note the great change in  $H_1$  and  $H_3$  as the four brackets are removed in succession. Any theory that omits the effect of knee brackets evidently may lead to large errors.

In order to show the generality of the model method, the reactions and internal stresses in the

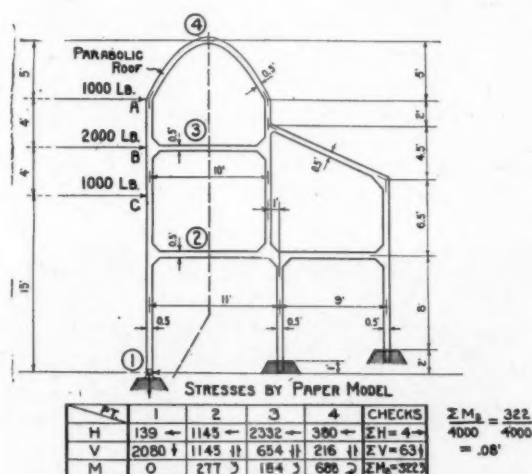


Fig. 18. Results of tests on a complex elastic structure

complex elastic structure in Fig. 18 were determined by model deflections and the results checked by the three laws of equilibrium applied to the portion of the structure to the left of the dotted section. Considering the magnitude of the applied loads, 4000 lb. total, the check by statics is very satisfactory.

In Fig. 21 are illustrated two designs of similar

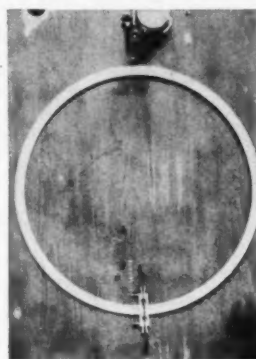


Fig. 19. Arrangement of gages to test a ring

underground structures of concrete, one made in America and the other made in Leipzig. The arrangement of the reinforcement in the American design at *a* shows that an assumption was made of partial continuity. The arrangement of the reinforcement in the European design at *b* shows that an assumption was there

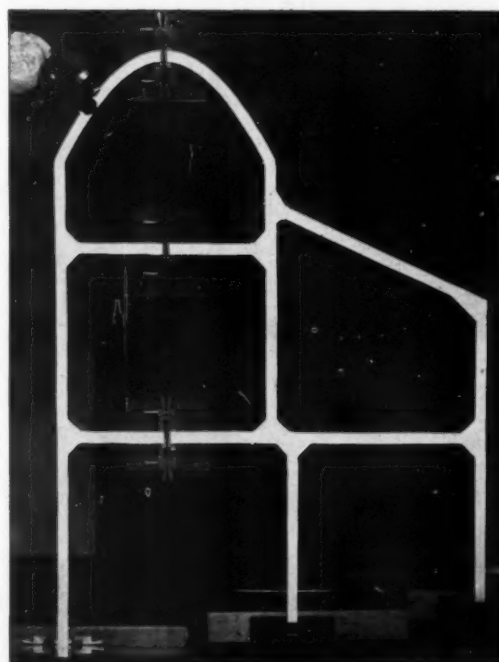


Fig. 20. Arrangement of gages for testing model shown in Fig. 18

made of complete continuity.

In the American design the top and bottom beams are assumed as continuous and the three columns are figured as hinged. This cuts the structure into five distinct structural elements. In the European design the complete continuity assumed naturally leads to a stiffer structure. At *c* and *d* is indicated the manner in which the two structures deflect under load. Evidently the American design is either structurally weak or structurally uneconomical as compared with the European design. Consider the bending of the side walls *g* and *h* in the figure at *e* and *f*. In *e* the side wall has an effective span 1—2, whereas in *f* the effective span is the distance 3—4 between

the points of contraflexure. When it is remembered that the bending moment due to distributed load varies as the square of the effective span length, it is apparent that there is much greater

assured of the strength and uniformity of the concrete, the hope may be expressed that in the near future the designer will be more ready to mold the most adaptable of materials, concrete, into a

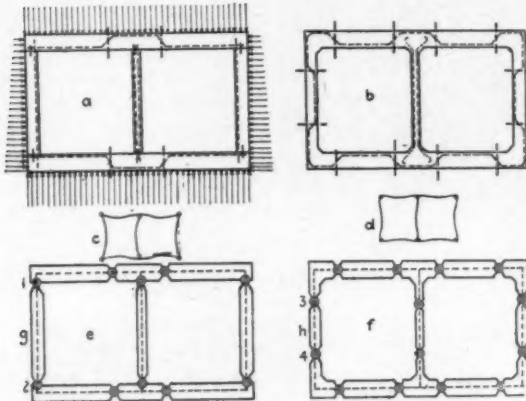


Fig. 21. Comparison of American and European underground structures of reinforced concrete

strength and economy in the structure designed and built as a fully continuous structure.

Structures internally indeterminate may be constructed in any material. In steel it is often the case that the saving in material is more than counterbalanced by the increased cost for labor in fabrication. Reinforced concrete however by its nature is fabricated so that continuity is unavoidable.

As was stated in an opening paragraph one reason why American engineers have not recognized or planned for greater continuity in their



Fig. 22. Interior of warehouse for steel rods in Europe. The arch is a logical form for a roof of concrete

designing is because of the laborious mathematical work involved. If, however, the analysis by elastic models is demonstrated to be a practical method of solving the more difficult problems in concrete structures, and further if the designer may be

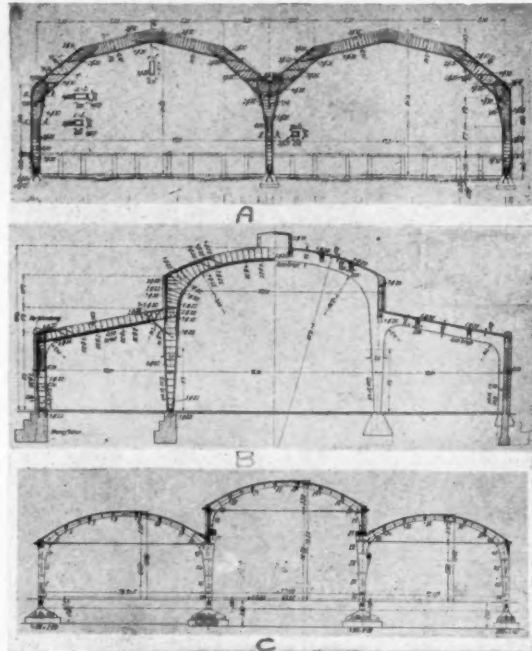


Fig. 23. Arrangement of reinforcing steel in typical elastic structures. (A) Trainsheds of Hamburg Elevated Roads. (B) A building in Osnabruck. (C) State machine shops, Sofia.

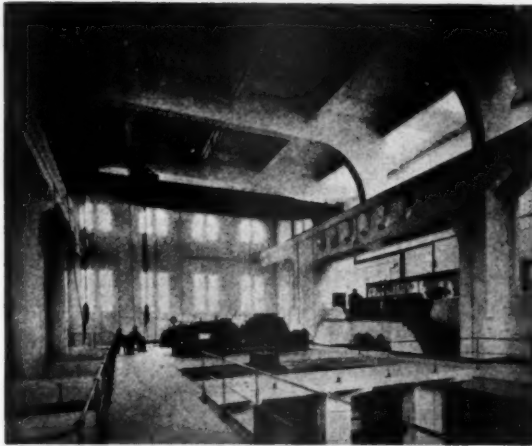
greater variety of stiff, strong, and economical structural forms than have yet been conceived or attempted.

Professor Beggs makes the following statement:



Fig. 24. State Machine Shops, Sofia

"Three-eighths of a concrete beam is in compression. Compressive strength is the structural property of concrete that determines its value as a structural material. Therefore, it is economical to use



View in Turbine Room, showing Turbine Foundations, for the Overland Central, Belgard, A. G.



Market Hall, Breslau. A notable example of the adaptability of reinforced concrete as a construction material



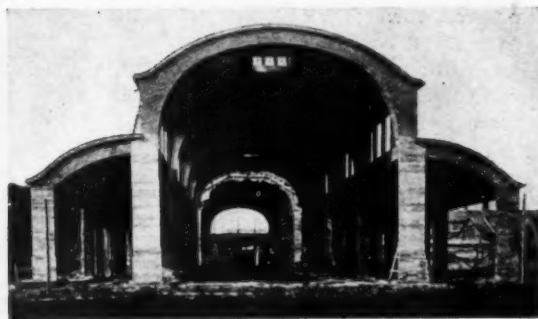
Seventy-foot concrete arch span in foundry of the Garfield Smelting Co., Garfield, Utah



View of well lighted central assembling and distributing hall in a German abattoir



Sixty-five-foot concrete arch span on top floor of Sharman Garage, Salt Lake City, Utah. Miller, Woolley & Evans, Architects



Cattle market, Osnabruck, before the curtain walls were built. Cross section of an interior frame is shown in Fig. 23

SOME EXAMPLES OF ELASTIC STRUCTURES IN REINFORCED CONCRETE

the principle of the arch more extensively in roof constructions and so bring 100% of the concrete into compression."

In Fig. 23 the structure at (A) is an arrangement of two semi-rigid continuous arch frames with hinged column bases. The tension steel is shown in heavy lines and crosses the frame in regions of high diagonal tension (shear, so-called). The lighter lines represent spiral hooping in regions of heaviest compression and shear reinforcement elsewhere. At (B) the central bay is a continuous arch frame fixed at five points. The two side bays consist of outside columns carrying roof beams restrained at the ends. The heavy stresses, as indicated by the arrangement of the reinforcing, are in the vicinity of the points of connection. At (C) the arch in each bay is wholly in compression and but lightly reinforced, tension rods tying the ends of the arches as is shown more clearly in Fig. 24.

*Note—This is the second, and final, installment of this article. The first installment appeared in the issue of July 5.*

#### Sound Proof Partitions

**F**ROM the Engineering Experiment Station, University of Illinois, Urbana, Ill., comes Bulletin No. 127, dealing with sound proof partitions. Among the examples of sound proof rooms in which experiments were made were some for acoustic experiments, constant temperature, psychology tests, machine gun tests, a room to contain a noisy machine and a noiseless room.

The tests on various types of partitions and various materials are described in detail and a useful bibliography is appended. The report fills 72 pages and there are 31 figures in the text. The summary of conclusions and recommendations is as follows:

Sound may be transmitted from one side of a partition to the other in three ways; it may progress through continuous air passages, it may pass as an elastic wave through the solid structure of the partition, or, by setting the partition in vibration, it may originate sound waves on the further side.

These actions are quite readily understood by remembering that sound consists of a series of compressions and rarefactions that progress rapidly through a medium without interruption unless they meet a new medium with a different elasticity or density. For instance, sound waves in air proceed without hindrance through air passages, such as ventilation openings in a partition. If, however, the passages are small in cross-section, as in the case of a porous material, the progress is hindered and a certain amount of absorption of the energy takes place, due to the friction set up between the vibrating air column and the sides of the pores.

In case the partition is impervious to air, the direct progress of the waves is interrupted. A thin partition is set in vibration and thus originates new waves on the side opposite the incident sound. For a thicker, more rigid partition, the vibrations are smaller and a very considerable part of the energy is reflected. The transmission in this case takes place by compressional waves communicated to the solid material of the partition. The amount of energy thus transmitted is usually quite small.

In view of these considerations a sound proof partition should be as rigid and free from air passages as possible. For effective sound proofing of a group of rooms, the partitions, floors, and ceilings between adjacent rooms should be made continuous and rigid. Any necessary openings for pipes, ventilators, doors, and windows should be placed in outside or corridor walls where a leakage of sound will be less objectionable.

In case the sound is generated in the building structure, as the vibrations set up by a motor fastened to the floor, the compressional waves proceed through the continuity of solid materials. In order to stop them, it is necessary to make a break in the structure so as to interpose a new medium differing in elasticity and density. For instance, the vibrations of a motor may be minimized by placing a layer of hairfelt, or similar air-filled material, between the supporting base and the floor. Where the machine is quite heavy, footings may be made of alternate layers of asbestos, lead, and leather. Bolting through this material will reduce the insulation, because the vibrations in this case will pass easily through the bolts to the floor. The insulation should thus be left without any bridging over of the discontinuities. Air gaps in masonry will be effective if the air space is not bridged over at any point. A floor floated on sand, sawdust, or hairfelt would approximate this condition. The edges of the floor should be insulated from the walls by felt or similar material.

Especial attention should be paid to the ventilation system. All effective sound proof constructions either omit entirely a ventilation system or else construct it in some special manner to avoid transmission of sound. In some buildings air is supplied and withdrawn from rooms by individual pipes that are small in diameter and extend without break from the air supply chamber to the rooms. This results in considerable friction between the walls of the pipes and the air, with a resultant weakening of the sound waves. Without some efficient control of the transference of sound through the ventilation system it is a waste of effort to construct sound proof walls, double doors, and other contrivances for insulation.

When sound proofing a building all details should be considered with respect to the likelihood of

transmission of sound. Each room, as far as possible, should be made an insulated unit by means of air spaces or air-filled materials that separate it from surrounding walls. Pipes and ventilators should be so installed as to minimize the chance of transfer of sound. Patent doors are now available that will close the door space at top, sides, and bottom. In case a troublesome sound is generated in the room, it may be minimized by installing absorbing material on the walls.

The absorption of sound is an essential feature for sound proofing. Reflecting sound and scattering it still leaves it with energy. It must be absorbed; that is, converted into heat energy by friction, before it is eliminated as sound. This means that carpets, furniture, draperies, etc. should be present, or if greater absorption is desired, hairfelt or similar materials must be installed.

The insulation of sound is a complex problem and a successful solution is obtained only when all the possibilities of transfer of sound are anticipated and guarded against. While many things may be learned from further experience and much may be gained from additional theory, enough has been revealed to give encouragement to the belief that sound proofing may be prescribed in the future with some of the certainty that now attends the acoustic design of auditoriums.

#### Copper Salts Improve Casein Glue

IT has been found that copper salts added to casein glues greatly increase their resistance to moisture and also make them more durable when exposed to the action of molds and fungi. Casein glues containing copper are nearly as moisture resistant as blood albumin glues.

In the preparation of copper-casein glue at the Forest Products Laboratory, 2 to 3 parts by weight of copper chloride or copper sulphate are dissolved in about 30 parts of water and are added to every 500 parts of the ordinary casein, lime, and water glass glue. The copper solution is poured into the glue in a thin stream. The violet-colored lumps formed at first by the coagulation of the glue by the copper solution are reduced by stirring vigorously for about 15 minutes, and a smooth violet-colored glue results. It is necessary to add the copper salts after the other ingredients are thoroughly mixed, in order to obtain beneficial results. Copper added to the casein before the lime and water glass is ineffective.

Glues containing little lime are especially improved by the addition of copper. A low-lime glue with copper may be as resistant to moisture as a glue with more lime in it, and copper does not shorten the "life" or period of workability of the glue so much as more lime would.—*Technical Notes.*

#### San Francisco's School For Plumbers

By WARREN H. MCBRYDE\*

THE Industrial Association of San Francisco, in co-operation with the Master Plumbers' Association, opened in San Francisco on Thursday, May 18, a school for the training of plumbers.

Each applicant for admission to the school has been rated according to his standing in an intelligence test, and placed in one of three groups. Instruction and training of the first group, under the direction of a skilled master plumber, has already begun. At the end of two weeks, members of this group will go out on jobs or into the shops of the master plumbers for four weeks; and group two will enter the school. At the end of the second two weeks, members of group three will enter the school. At the end of the third two weeks, members of group three will go out on jobs or into the shops, and group one will return to the school for another two weeks of intensive instruction and training.

This method of two weeks in the school and four weeks on the job or in the shops of master plumbers, will be followed until each group has had a minimum of eight weeks of intensive training in the school. While attending the school (which is in session eight hours a day, five and one-half days a week) students will receive no pay. But while on the job or in the shops of master plumbers they will be paid the regular apprentice wage of \$2.50 per day. Through exercising care in the selection of the students and applying the intensive method of training described, it is believed possible to turn out competent journeyman plumbers in from a year to a year and a half—a saving of virtually three years over the old method.

#### Engineering Bulletins

THE following bulletins have been received from Purdue Engineering Experiment Station, Lafayette, Ind.

Bulletin No. 1. Flow of water through one and one-half inch pipe and valves. By Frederick W. Greve, Jr., Assistant Professor of Hydraulics. 21 pp. Ill. 6 x 9 in.

Bulletin No. 4. Electric Driven Water Works in Indiana. By D. D. Ewing, Professor of Electrical Railway Engineering and G. C. Blalock, Instructor in Electrical Engineering. 100 pp. Ill. 6 x 9 in.

Bulletin No. 7. Tests of Road Materials of Indiana. By the Laboratory Staff. 55 pp. 6 x 9 in.

Bulletin No. 8. Flow of Water Through Spiral Riveted Steel Pipe. By F. W. Greve, Associate Professor of Hydraulic Engineering and R. R. Martin, Research Assistant in Hydraulics. 32 pp. Ill. 6 x 9 in.

\* President, Industrial Association of San Francisco.

### Water Heating in the Home

UNDER the above title the Engineering Experiment Station of the Kansas State Agricultural College, Manhattan, Kansas, has issued an interesting and valuable bulletin. The bulletin is written by R. G. Kloeffer, Associate Professor of Electrical Engineering and is the report of an investigation to determine the following factors in the use of coal, kerosene, gasoline, gas and electric water heaters:

1. The cost of operation, both for supplying hot water continuously and for furnishing hot water for a single definite purpose.
2. The care necessary to operate the heater.
3. The quantity of water which will be given a definite rise in temperature per hour.
4. The practical efficiency of the combined heater and its attached tank.

The following is a summary of results obtained:

The average daily consumption of hot water per individual in the home is ten gallons at 120°F.

All hot water storage tanks should be carefully insulated with some form of hairfelt covering, unless they are used for room heating. It would cost from \$27 to \$70 to supply the annual radiation losses from an uncovered 30-gallon tank kept at 130°F., the amount depending on the kind of fuel used.

It costs from 40 cents to \$1.50 a month per individual to furnish hot water (24-hour service) in the home. The amount will vary with the kind of fuel used, the local fuel rate, and the habits of the individuals.

In the *cost of operation*, the coal heater is cheapest; the kerosene, second; gas (artificial), third; gasoline, fourth; and the electric water heater cost is the highest.

For *speed in heating water*, the coal heater comes first; gas second; kerosene and gasoline, third; and the electric heater is the slowest.

In order of *convenience*, the electric water heater is first; gas, second; kerosene and gasoline, third; and coal the least convenient.

In *efficiency*, the electric water heater comes first; the gas, second; the kerosene, third; the gasoline, fourth; and the coal heater last.

The bulletin contains complete descriptions of all the experiments, illustrated with sixteen figures. About one-half the book consists of tables of data obtained in the tests.

### Home Made Radio Outfits

THE apparatus used for the reception of radio messages may be a homemade affair, very simple and inexpensive, or may be elaborate and expensive. All that is necessary for receiving radio messages is a device for collecting power from the incoming radio waves, a suitable circuit adjusted or "tuned" electrically to the frequency of the incoming waves, and apparatus for changing the received power into audible sounds.

The device for collecting power from the incoming waves is the "antenna." The adjustment of the receiving circuit to the frequency of the incoming waves may be made by a variable inductor or by a variable condenser. In a very simple set it is conveniently made by a variable inductor. The apparatus for changing the received power into audible sounds may consist simply of a crystal detector, and a telephone receiver specially wound with a large number of turns.

Circular No. 120 of the Bureau of Standards may be obtained from the Superintendent of Documents, Washington, D. C., for five cents. This circular describes the method of constructing in the home a very simple and inexpensive receiving outfit from materials which can be easily secured. The cost of the materials need not exceed \$10. Satisfactory results have been obtained from sets constructed according to these instructions by persons having no previous experience with radio.

### Small Sewage Installations

THE architect to whom is presented the problem of designing a system of sewage disposal for an institution which cannot be connected to public sewers can obtain all the data he needs from the publications here mentioned:

Sewage Disposal for the Isolated Dwelling and Small Institution. By R. B. Wiley, Professor of Sanitary Engineering, Purdue University, Lafayette, Ind. It is Bulletin No. 6 of Purdue Engineering Experiment Station. Bulletin No. 3 of the same institution is an illustrated description of tests made to determine co-efficients of discharge of sewage sprinkler nozzles.

Public Health Bulletin No. 101, is issued by the United States Public Health Service, Washington, D. C., and contains two monographs; 1. Studies of Methods for the Treatment and Disposal of Sewage, made under the supervision of Earle B. Phelps, Professor of Chemistry, U. S. Public Health Service. 2. The Treatment of Sewage from Single Houses and Small Communities, by Leslie C. Frank and C. P. Rhynus Assistant Sanitary Engineers, U. S. Public Health Service.

### New Paint Primer for Wood

FROM German sources, says *The Industrial Digest*, comes the report that a solution of casein in sal ammoniac will give a primer that can be used to good advantage in painting all sorts of wooden surfaces, even the most porous. The primer will fill up the pores of the wood completely in one coat and the paint can be applied right over it after it has dried, to give a smooth, even film. The ease of preparation and the cheapness of the primer recommend it for wide application.

# REVIEW OF RECENT ARCHITECTURAL MAGAZINES

BY EGERTON SWARTWOUT, F.A.I.A.

THE June number of *Architecture* has a rather ecclesiastical flavor. In it are all sorts and conditions of churches; Baptist, Episcopal, Roman Catholic and a Synagogue, which are of interest chiefly as showing the modern conception of a church as it exists in the minds of those responsible for its erection. Apparently the project is approached with a cold, business-like demand for efficiency and economy, which would be praiseworthy in commercial work, but which is absolutely out of place in the House of God. A flagrant example is the Baptist Church which is very fully illustrated and described in the present number; it is particularly flagrant because the church is a very rich church, perhaps the richest of its denomination in the country, and because a great deal of time and study has been given to the project, and the principle of it, therefore, is not based on a snap judgment but is the result of careful decision. The chief objection here is the size of the plot; land in New York is expensive to be sure, and a suitable site is hard to find, but the projectors of hotels and apartment houses and the like seem to be able to find the site

and to pay for a large parcel. But nowadays there seems to be an idea that a church must not be a church but a conglomeration of everything that contributes to the activities of the church, Sunday School rooms, Class rooms, Auditoriums, Kitchens, Rest rooms and occasionally Bowling Alleys and Gymnasiums, and all jumbled together in the closest proximity, under one roof; and sometimes indeed the church is an integral part of an office building. It is a modern conception, they say, and in keeping with the spirit of the times. It is the same old

excuse—"We do it because the public wants it." And instead of trying to educate the public, the building committee adopts the excuse and cheerfully throws the burden of accomplishment upon the architect and in nine cases out of ten he accepts the situation and does his best. How much better if the Committee in Charge of the Baptist Church in question had secured more land and built a simpler church, complete in itself, and the dependencies complete in themselves, and had not com-

pelled the architect to design an ecclesiastical sandwich.

The little church in Virginia which Waddy Wood has designed is in direct contrast to this. It is of the simplest character and of inexpensive materials, but the principle of it is right, and the result is highly successful. It has a dignity and charm of its own that is quite worthy of Virginia and is a credit to Mr. Wood and to the Building Committee.

Professor Boring writes of the Use of Models in the Study of Architecture and reproduces some photographs of the cardboard models made by members of the Architectural School at Columbia, and also of the students making them. The somewhat bizarre costume worn is, we

are assured, not obligatory, and has little or no effect on the success of the models. In the recent development of the Columbia School Professor Boring and his assistants have much to be proud of. Those who have been fortunate enough to follow the work closely for a number of years can testify to the really remarkable results obtained. The staff of instructors are, to a great extent, practicing architects of high repute and wide experience, who have given unselfishly of their time in the furtherance of architectural education. New

From "The Architectural Review," London



Notgrove Manor, Gloucestershire  
Drawing Room Wing

methods of instruction have been developed of which the model making described is one; another is the rapid advancement of first year men. Instead of confining the first year work merely to preparation and to a study of the orders, the men are given simple problems to work out, in sketch form, then at a small scale rendered, and then at a larger scale rendered. The results this Spring were remarkable. It was almost inconceivable to think that the finished work shown was done by men, most of whom had never handled a pencil or brush until the Fall previous.

In *The Architectural Record* for June, Mr. Solon concludes his series of articles on Greek Polychromy. The illustrations as usual are very copious and well reproduced, and present some rather unusual indications of color work in the drapery of statuary. The compilation of material for these articles represents a great amount of work, and the whole series is a valuable contribution to architectural literature. Mr. Andrew J. Thomas shows that the use of the button control elevator has created "an intermediate class of apartments between the low walk-up apartment and the tall elevator apartment" and illustrates it by his buildings at Jackson Heights, which have been before commented on in these pages. Mr. Thomas' work is simple and excellent and he has contributed much to the apartment house problem. Lawrence Koehler writes interestingly of the Early Architecture of Pennsylvania and Mildred Stapley shows some photographs of the curious granite

From "The Architectural Record"



Very Ancient Spanish corncrib, now abandoned;  
Granite root slabs are nine feet long

granaries of Northern Spain, which are quite monumental if a little mortuary in feeling.

In *The Architects' Journal*, London, May 31, there is an editorial entitled "Shall Rights of Light be Abolished?" referring to a bill which it is understood is shortly to be brought before Parliament. Apparently in England there has been much litigation on this subject and the editorial says "... and on the whole the law as to ancient lights has acted steadily in restraint of trade,

many an owner deciding not to build new and higher buildings, or not to increase the height of existing buildings, as the case may be, because of the uncertainty as to whether his enterprise would involve him in litigation that might result in the addition of an inconveniently large sum to that which he was prepared to spend on the actual building; or in litigation that might, if protracted, degenerate into a cruel game of beggar-my-neighbor. It cannot be denied that the law as to ancient lights has been always a terrible bugbear to the architect. To have to advise one's client that to enlarge his premises is to run the risk of an action for damages and injunction is not a powerful incentive to building, and many commissions have been lost in the sequel. But, as already urged, there are strong reasons why a building owner or occupier should not be left defenseless against the wrong it is possible to inflict upon him by depriving him of the degree of light, to which he is morally entitled, and on which the prosperity of his business may depend. The substitution of

From "Architecture"



Emanuel Episcopal Church, Greenwood, Va.  
Waddy B. Wood, Architect

From "The Architectural Review," London



House at Prestbury, Cheshire  
Percy S. Worthington, Architect

artificial light will not always serve. It is at best a costly, and may be in other respects, an unsatisfactory substitute for the daylight that does not falsify color values nor injure eyesight. Since, then, the rights of light are indeed natural rights, they should be inalienable. To abolish them would open the door to much injustice—to the over-riding and bullying of the tall building, for instance, with which it is sought to Americanize London streets."

This legislation of course, is one of the sequelae to the attempt to extend the height of buildings in London, and it is interesting to note that the English have not yet reached that pinnacle of selfish-

example may prove salutary.

From the same Journal under date of June 14, we reproduce a design which Mr. Gordon H. G. Holt, commenting on the International Theatre Exhibit, calls "a large and beautiful sanguine drawing of much refinement and power" but acknowledges that "the shape of its doorway alone, handsome and symbolical as it is, nevertheless leaves one with a feeling of uneasiness." As we say here colloquially, "uneasiness is right." It appears from the title that this structure is not, as may be supposed, a design for a mammoth reptile house but is a scheme for a large National Theatre in Amsterdam, another proof that we did well to avoid the Hague Conference.

In the *Journal of the American Institute of Architects*, June, there is published the first chapter of the Autobiography of An Idea, by Louis H. Sullivan, extremely interesting and well written. *The Architectural Forum* for June has some good photographs of garden developments, and *The Architectural Review*, London, for June, is a very large and imposing publication devoted entirely to the domestic work done in the last few years. The quantity of work shown is great and the photographs are good, but from a point of view of design it is disappointing. There is a bare, uninviting look about the modern work generally that is quite at variance with our preconceived ideas of what an English country house really is, although, to be sure, this bareness is accentuated by the general lack of planting. Compare, for instance, Prestbury with the glimpse of Notgrove Manor, the latter being an alteration.

From *The Architect*, London, of June 16, we reproduce a recipe of Louis Francois Rubiliac, a "statuary" many of whose works are in Westminster Abbey, the recipe being for "mending broken ancient marbles." "He mixed," says one J. T. Smith, "grated Gloucester cheese with his plaster, adding the grounds of porter and the yolk of an egg, which mixture, when dry, forms a very hard cement." A very tidy way of disposing of the remains of a workman's lunch, but a method which may account for the prevalence of mice in the Abbey.

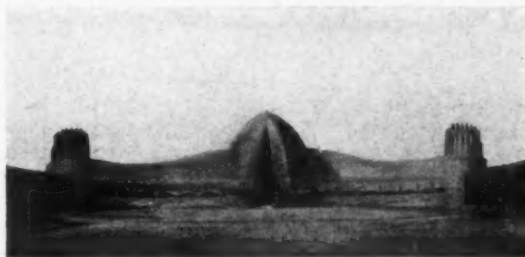
From "Architecture"



An illustration from use of Models in Architecture by Professor William Alciphron Boring

ness where we New Yorkers have been roosting for a long time; that supreme disregard of a neighbor's rights which impels us to ruin utterly his property by erecting skyscrapers on each side of him. Very recently we have opened our eyes a little and established zoning laws and setbacks and various other devices, locking the stable door after the horse has been stolen; but the damage has been done and it is a very serious damage indeed. Let us hope our

From "The Architects' Journal," London



A large National Theatre, Amsterdam  
Th. H. Wijdeveldt, Architect

## TWENTY-FIFTH ANNIVERSARY OF ILLINOIS SOCIETY OF ARCHITECTS HELD AT CHICAGO BEACH HOTEL, JUNE 27

**T**HE very voluminous minutes of the annual meeting of the Illinois Society of Architects, just received, are as interesting and comprehensive as those of an Institute convention.

While the happenings at a meeting of a State Society are those that deal more largely with local or state matters, the meeting of the Illinois Society, recently held at the Chicago Beach Hotel, has a very wide interest. Their perusal indicates the broad field of work there is for similar societies in every state. In no way do the activities of the Illinois Society interfere with those of the Chapter, or through the Chapter, the Institute. A great amount of constructive work has been accomplished by the Illinois Society. Judging from the enthusiasm displayed at this meeting, and the wholehearted co-operation by representative men in the profession the Illinois Society may be depended on to continue its wise activities and its constructive efforts.

The reports of the many committees, presented at the annual meeting of the Illinois Society, are splendid documents and indicate the unselfishness of men who willingly contribute their time to such good ends. And, many of these men also serve on Institute Committees and many of them have served the Institute as officers or on its board of directors. All of which goes to prove that the State Societies and the State Chapters may live amicably and work without friction towards the uplift of the profession of architecture. As that is so clearly shown, why not more State Societies?

In addition to the regular committees, we note a Committee on Public Action, which is in a sense a Police Committee as it keeps an eye on violators of the Architects' License Act. Then it has a finely organized Committee on Education whose reports compete with those of the Institute in constructive suggestions. Then there is the Committee on Jurisdictional Disputes. Will any one claim this is not a hard working group of men? This committee proposes its own abolishment and suggests there should be formed in its place a committee for the organization and conducting of classes among the building trades to teach plan reading and trade improvement. Philadelphia and Detroit have tried out similar classes and have found them good.

There are a Valuation Committee and a Zoning Committee, the latter placing its services at the disposal of the City Commission, a Committee on State Building Codes, one that looks after transportation, another on co-operation with allied societies such as architectural clubs, engineering and art societies. All these committees are, judg-

ing from their various reports, very active and hard working. And all of them are part of a State Society of Architects.

At this annual meeting, past president A. I. A., Irving K. Pond, was the toastmaster. It is declared by those present that much of the success of the dinner following the meeting was due to Mr. Pond's finely directed efforts.

President (past and elect) F. E. Davidson, during the course of his address, stated:

"As I review the accomplishments of our Society during the past year, I am convinced that no greater or more lasting results of the work of the Society can be recorded than the active participation by your officers and committees in the field of industrial relations; particularly as affecting trade agreements between the contractors' organizations in Chicago and the members of the Chicago Building Trades Council. The Citizens' Committee to Enforce the Landis Award could never have functioned without the active aid and co-operation of the Architectural Profession.

"More recent activities along similar lines by the profession in other large centers, notably Cincinnati, Boston and New York City, lead me to predict that the time has arrived when the architectural profession as such will in the future be consulted wherever collective bargaining contracts are prepared and enforced. This is as it should be.

"Prior to the Landis Arbitration and his notable decision, the third party at interest, the public, were not consulted. Contracts were entered into between contractors and organized labor, which were usually the result of a compromise and without considering the rights of the party most at interest—the building public. It might be well to note that two weeks ago in this building at the 55th annual convention of the American Institute of Architects, our national architectural organization unanimously voted to become a member of the American Construction Council."

An address delivered by Dr. David Kinley, president of the University of Illinois, was received by the 250 members and guests with warm approval.

Officers elected were as follows:

F. E. DAVIDSON, *President*

CHAS. E. FOX, *First Vice-President*

HERBERT E. HEWITT, *Second Vice-President*

RALPH C. HARRIS, *Secretary*

ROBERT C. OSTERGREN, *Treasurer*

H. L. PALMER, *Financial Secretary*

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The purpose, simply stated, is to afford an organization which, it is believed, will become a most important element in architectural practice and building operations, a medium through which it may, without expense to itself, reach a class of readers that are most intimately identified with the field of the activities of The American Specification Institute.

Publishers, THE AMERICAN ARCHITECT AND  
THE ARCHITECTURAL REVIEW.

## BULLETIN No. 11

### MATTERS PRELIMINARY TO CONTRACT SURVEY QUESTIONNAIRE

#### I—LEGAL

- A—Deed or lease
- B—Description of property, copied from deed
- C—Restrictions
- D—Party wall agreements
  - a—Laws relating to party walls

#### II—SURVEY PLAT OF PROPERTY

- A—On cloth
  - a—Dimensions in feet and inches but scale may be metric
- B—North at top of sheet
- C—Points of compass indicated
- D—Locate lot lines and reference same to permanent monuments
- E—Dimensions and measurements
  - a—Exact
  - b—All angles
  - c—Encroachments on this or adjoining property
  - d—Widths of
    - 1—Sidewalks
    - 2—Streets
    - 3—Alleys
    - 4—Roads through property
- F—Elevations
  - a—All elevations to be based on a specific datum level

- b—Establish a bench mark on a permanent monument
- c—Existing curbs and walks at property lines and at lot corners
- d—Alley
- e—If walks, streets, alleys or roads are not level show elevations at each change
- f—Official elevations and grades for new work if city requires change

#### G—Profiles and contours

- H—Exact locations of
  - a—Catch basins
  - b—Manhole covers
  - c—Signal boxes
    - 1—Police
    - 2—Fire
    - 3—Watchman service
  - d—Mail boxes
  - e—Poles
    - 1—Trolley
    - 2—Wire Line
  - f—Fire hydrants
  - g—Subway or similar openings
  - h—Car tracks
  - i—Other existing obstructions, etc.

#### I—Existing excavations

- a—Cellars
- b—Areaways
- c—Cisterns

- d—Wells
- e—Water courses
- f—Tunnels or other subterranean passages
- g—Transformer or similar vaults

#### J—Water Conditions

- a—Mean high water
- b—Ground water
- c—Flood water stage

#### K—Bridges, docks, wharfs

#### L—Adjoining property

- a—Profile drawing, with sections, showing walls of adjoining buildings and notes as to condition of walls; showing thicknesses, heights, depths, projections of footings or foundation walls or other surfaces
- b—The relation of center line of party wall to property line
- c—Uniform and concentrated loads from adjoining building bearing on party wall
- d—Openings in party wall and in adjoining walls not party walls

- e—Laws, ordinances or regulations of any sort governing underpinning of adjoining walls
- f—If party or abutting walls project beyond street or alley property line, show amount of such encroachment
- g—Depths of basement or other excavated parts of adjoining property adjacent to property lines

Note: The following information should not be placed on Survey Plat

### III—WALKS, STREET AND ALLEY PAVING

- A—Materials and condition of
  - a—Walks
  - b—Street paving
  - c—Alley paving
- B—Established rate of slope for walks at right angles to curbs

### IV—SUB-SOIL

- A—Test borings
  - a—Wash
  - b—Drill
  - c—Excavated pit
  - d—Samples
    - 1—In sealed mason jars
- B—Character
  - a—Sand
  - b—Gravel
  - c—Clay
  - d—Loam
  - e—Shale
  - f—Rock
  - g—Rubbish fill
  - h—Composition of two or more of the above
- C—Assumed loads for buildings in vicinity
- D—Probable bearing value

### V—PERMISSIBLE PROJECTIONS ON STREETS OR ALLEYS

- A—Below official grade
  - a—Foundations
  - b—Basements
- B—Above official grade
  - a—Base
  - b—Cornice
  - c—Wheel guards
  - d—Fire escapes
  - e—Other allowances by law

### VI—AVAILABLE LOCAL BUILDING MATERIAL

- A—Concrete Materials
  - a—Sand
  - b—Crushed stone
  - c—Gravel
  - d—Slag
  - e—Other aggregate

- f—Cement
- g—Reinforcing
- h—
- i—
- B—Masonry material
  - a—Stone
  - b—Brick
  - c—Sand
  - d—Lime
  - e—
  - f—
  - g—
  - h—

C—(For expansion as the user desires)

### VII—LAWS AND ORDINANCES

- A—Building
- B—Sanitary
- C—Fire Prevention
- D—Electric
- E—Boilers
- F—Insurance
  - a—Public Liability
  - b—Workmen's Compensation

### VIII—PUBLIC UTILITY SERVICES

- A—Sewers
  - a—Size of mains and branches
  - b—Direction of flow
  - c—Elevation of invert
- B—Use
  - a—Storm
  - b—Sanitary
  - c—If no storm sewer how is storm water disposed of
    - 1—Through sanitary sewer
    - 2—In gutters in walk to street gutter

C—Probability of sewers backing up

- D—Water supply
  - a—Size of main or mains
  - b—Pressure
    - 1—Maximum
    - 2—Minimum
    - 3—Average

- C—Gas
  - a—Natural or artificial
  - b—Size of main
  - c—Pressure
    - 1—Maximum
    - 2—Minimum
    - 3—Average

- D—Electric current
  - a—Direct
    - 1—Voltage
  - b—Alternating
    - 1—Characteristics
  - c—Minimum motor H.P. for which separate power service is supplied

- E—Telephone
  - a—Bell or local

### CONTRACT DOCUMENTS

#### IX—A. I. A. STANDARD DOCUMENTS

- a—Form of agreement and general conditions of contract
- b—Bond of suretyship
- c—Standard form of agreement between contractor and sub-contractor
- d—Letter of acceptance of sub-contractor's proposal

- B—Drawings
- C—Specifications

Note: Additional General Conditions as mentioned in "Notes" accompanying the A. I. A. General Conditions

- a—Charges for extra copies of drawings
- b—Contractor to keep the work in repair
- c—Contractor to work overtime if required
- d—Fences
- e—Insurance against lightning, wind storms, hail and earthquake
- f—Ladders
- g—Lanterns
- h—Offices and movable furniture
- i—Permission to use articles or methods other than those specified
- j—Special cleaning other than "broom clean"
- k—Telephone
- l—Watchmen
- m—Water supply

Note: Other items appearing in the "Notes" will be listed in outline for sub-divisions in which they properly belong

#### WORK PRELIMINARY TO CONSTRUCTION

#### X—CONSTRUCTION PLANT

#### XI—WRECKING AND CLEARING SITE

- A—Work included
- B—Work not included
- C—Special insurance
- D—Bonds
  - a—Cash
  - b—Surety
- E—Protection of walks, trees, etc.
- F—Protective barricades, etc.
- G—Work of demolition
- H—Rubbish chutes
- I—Prevention of dust
- J—Final clearing of site



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**Thomas Hastings, F. A. I. A., Receives Royal Gold Medal of R. I. B. A.**

ON the evening of June 26, Thomas Hastings, F. A. I. A., received at the hands of President Waterhouse of the Royal Institute of British Architects, the Royal Gold Medal of the Institute.

The occasion was one of great significance and has been referred to by the English architectural press with many cordial expressions of good will toward the profession in this country.

President Waterhouse's remarks on the presentation of the medal and those of Mr. Hastings of acceptance, will appear in *THE AMERICAN ARCHITECT*, issue of August 2.

**Jumbled Cities**

**A**VOIDANCE and correction of the present topsy-turvy arrangement of so many American cities, the cause of millions of dollars' loss, are the objects of "A Zoning Primer" issued by the Division of Building and Housing of the Department of Commerce, according to a recent official announcement.

The enormous waste in American cities from scrapping good buildings on account of the blighting of districts has long been apparent, and for years has levied its tax on the American people.

Random crowding of stores among private dwellings, the elbowing of factories and noisy smelly garages into the rightful domains of neat retail stores or well kept apartment houses, and the construction of tall, bulky office buildings so closely crowded that the lower floors are too dark for human use and consequently seldom occupied, are a part of the present stupid, wasteful jumble which proper zoning will prevent and gradually correct, in the opinion of the Advisory Committee on Zoning of the Department of Commerce.

The pamphlet describes the object of zoning, the need, the health and property protection afforded, and its effect on the cost of living. Legal problems, with an outline of what some cities have accomplished, and a zoning program are also included among other subjects. Copies are sold by the Superintendent of Documents, Government Printing Office, Washington, D. C., at five cents each.

**An Early Gothic Stained Glass Window**

**T**HE collection of stained glass in the Metropolitan Museum of Art, New York, has gained much distinction through the acquisition of the famous window representing the Tree of Jesse. The glass is composed of six large medallions with pairs of smaller medallions between. This panel probably formed one light of a double or triple lancet-window. The glass has very little restora-

tion and is in unusually good condition for work of such an early period. It was the rarest item in the Costessey Collection, formerly at Costessey Hall at Norfolk, England, a collection made in the late eighteenth or early nineteenth century. The provenance of the Costessey glass is unknown, but the Jesse window may be ascribed with certainty to the early Gothic period of the Lower Rhenish school (about 1300).

**Peru Has Washington Statue**

**T**HE Peruvian Government unveiled a bronze statue of Washington as a tribute to the American people in the new Washington Park in Lima on the Fourth of July. The statue was purchased in the United States.

**Famous Temples Offered to America**

**G**EORGE GREY BARNARD, the sculptor, made efforts to preserve for the public the Bedford property at 190th Street and Riverside Drive, New York, but failed, and the property was sold by auction for development purposes. The reason for Mr. Barnard's activity was a wish to secure a site for temples which, he says, have been promised, formally or informally, to this city by Egypt, Persia, France, Italy, China and Japan.

The Temple of Philae is one of the wonders of Egypt, but it has been partially ruined by the inundation caused by the Assuan Dam, and is threatened with disintegration, so that it must be removed from its present site if it is to survive. Mr. Barnard learned that the Egyptian Government was eager to make a splendid gift from the Island of Philae to this country.

The Temple of Philae could not be moved intact, any more than could the Pennsylvania Terminal, but a choice section of it might be taken apart, the stones moved separately and re-erected here. All of the temples, if they come to New York, will come by this process. The Chinese and Japanese Temples have been formally offered by those governments.

"The other one was in the western hills back of the green jade fountain, a porcelain temple connected with the porcelain pagoda. Perhaps the temple or pagoda, or both, might have been secured."

The temple suggested unofficially by the Persian Government as a gift to this country is a thirteenth century mosque. France has intimated willingness, the sculptor said, that this country should have a beautiful thirteenth century chapel in stone. A proposed gift from Italy is at present under discussion.—*Stone*.

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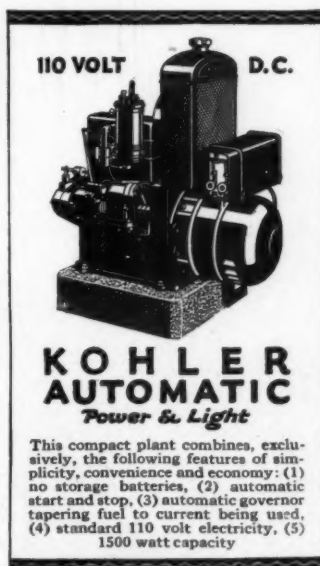
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## BOOK NOTES

### Low Cost Houses\*

**B**UILDING *Age and the Builder's Journal* has issued a book of designs, plans and special articles, designed to be of use to the prospective home builder, and to aid him in reaching certain definite aims before he places the matter in the hands of an architect.

The work is one, at this time when so many are seriously considering the resumption of house building abandoned at the outbreak of the war, of reliable assistance.

The designs have been carefully selected to meet the purse of the average man, the plans are practical and the various articles contributed by good authorities should be helpful and lead to good economics.

\* *Beautiful Homes of Moderate Cost. Paper Cover; 100 pages; size 9x12. Price \$1.00. New York, Building Age and the Builder's Journal.*

### A House Owner's Book\*

**T**HE present and the prospective house owner finds no lack of advice and instruction in any of the various things that will engage his attention in any of the phases of building and ownership.

Many books have been published; many more undoubtedly will be. The book by Messrs. Churchill and Wickenden, is perhaps among the better class of these so-called "guides." While the architect will probably be unable to learn from it anything with which he is not already conversant, he may not ignore the value of a work of this sort. It sets the prospective house owner straight on many points, gives him a correct point of view and, therefore, saves the architect the many time-consuming interviews with an uninformed client.

\* *The House Owner's Book, by Allen L. Churchill and Leonard Wickenden. Full Cloth; 380 pages; size 5x7½. Price \$2.00 net. New York, Funk & Wagnalls.*

### Historic Houses of South Africa\*

**I**N the foreward to this interesting work on old South African domestic architecture, General Smuts writes: "The old Dutch homesteads of South Africa deserve to be better known than they are. In a country where Nature is everything and Art literally nowhere, our old Dutch houses form a notable exception to the rule." The authoress, in her text and in the selection of the illustrations which accompany it, has so empha-

\* *Historic Houses of South Africa, by Dorothea Fairbridge, with a preface by Gen. J. C. Smuts. Full purple cloth, gilt title; 180 pages; size 9x11. Price \$21.00. London, Oxford University Press.*

sized this fact as to trace the origin and growth of these distinctive styles.

While naturally the styles developed are those that would best serve to adapt them to the South African climate, these styles, as do our own Colonial in America, suggest the origin of their creators.

The text of this book is written with profound knowledge of the subject, and the book has an historical value equally as great as its architectural presentation. There is much of good suggestion both in text and illustration.

Architects who are searching for motives other than the trite, often-used styles now so common and, therefore, monotonous, will find this book of special interest.

### Materials of Construction\*

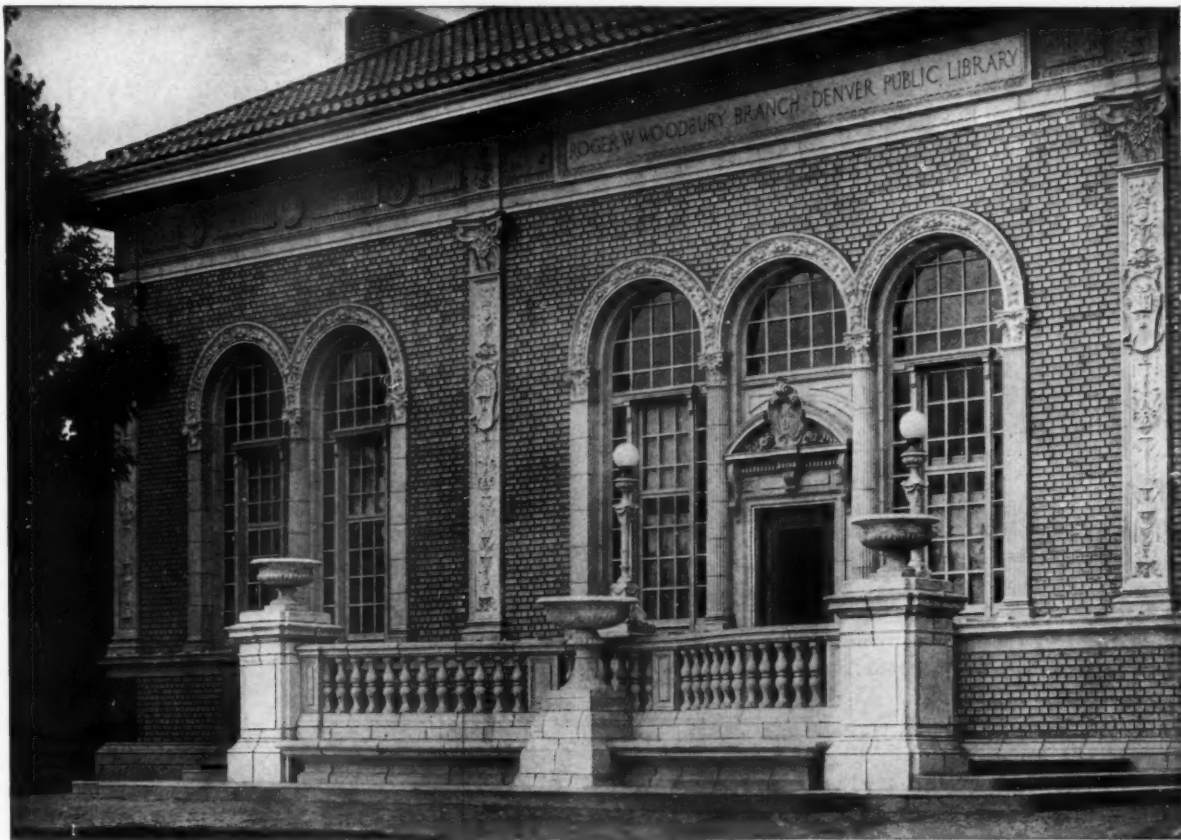
**T**HE late Professor Mills' admirable book on the materials of construction has been revised under the editorship of Professor Hayward and the second edition is practically a new book. Much new material has been added, several chapters have been condensed and parts of others have been rewritten. The book has also been divided into sections and here the average reader is going to encounter difficulties until the system of indexing is understood. Each section is paged independently of other sections and the section number in black face type precedes every page number. There may be some advantage in this to the publishers but it gives an untidy look to the pages and confuses those who only occasionally refer to the book.

The following members of the faculty of the Massachusetts Institute of Technology aided Professor Hayward in preparing this second edition; Professor Henry Fay reviewed the chapter on Steel; Professor R. S. Williams reviewed the chapter on Non-Ferrous Metals and Alloys; Professor I. H. Cowdrey reviewed the chapters on Stone and Timber; Professor G. B. Haven prepared the new chapter on Mechanical Fabrics; Mr. Dean Peabody, Jr., rewrote the chapter on Concrete.

The sections in order deal with Plaster, Lime, Natural Cement; Portland Cement and Concrete; Stone; Bricks and other Clay Products; Ferrous Metals; Non-Ferrous Metals and Alloys; Timber; Rope; Mechanical Fabrics.

The book should be in the library of every architect, every student of architecture and every specification writer.

\* *Materials of Construction. By Adelbert P. Mills. Second edition, edited by H. W. Hayward. 476 pp. 192 figs. 6x9 in. Cloth. New York, John Wiley & Sons. \$4.00.*



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## PERSONALS

Bernhardt E. Muller, architect, has moved his office from 477 Fifth Avenue to 527 Fifth Avenue, New York City.

McCarthy & Kelly, architects, have moved their offices from 16 Court Street to 159 Remsen Street, Brooklyn, N. Y.

W. J. van der Meer, architect, has moved his office from 614 Mulberry Street to 214-215 Mead Building, Rockford, Ill.

E. W. Peterson, architect, has opened an office for the practice of his profession in the Cory Building, Fresno, Cal.

W. F. Staunton, Jr., has opened an office for the practice of architecture at 200 Consolidated Realty Building, Los Angeles, Cal.

T. C. Hughes, architect, announces the removal of his offices from 1800 Seward Avenue to 1966 Seward Avenue, Detroit, Mich.

S. T. Hetherington & Son, architects, have moved their office from 38 S. Dearborn Street, to 105 N. Clark Street, Chicago, Ill.

Paul Boucherle, architect, formerly located at 610 Stambaugh Building, has opened offices at 407 Terminal Building, Youngstown, Ohio.

Arthur D. Dean, architect, recently moved his office from 17 Temple Bar Building to 303 Commercial Tribune Building, Cincinnati, Ohio.

A. R. Van Dyck, architect, Minneapolis, Minn., announces the removal of his office from 403 First Natl-Soo Line Building to 831 that building.

W. S. Bessel announces the opening of offices at 58 West Forty-ninth Street, New York City, where he will continue to practice his profession of architecture.

Wm. Huenerberg, architect, is now located at 30 East Forty-second Street, New York City. Mr. Huenerberg was formerly at 52 Vanderbilt Avenue.

Walter J. Bickel, architect, formerly located in the May Building, Pittsburgh, Pa., announces that his new address now is Box 197, Route 3, Phoenix, Ariz.

Gordon Lumm, architect, formerly located at 716 University Avenue, S. E., Minneapolis, Minn., has moved his office to 1103 Fourth Street, S. E., that city.

W. P. Ridenour announces the opening of an office for the practice of the profession of architecture in Room 711, First National Bank Building, Portsmouth, Ohio.

A partnership for the practice of architecture has recently been formed by John H. Powers and John H. Ahnden, with offices at 460 Montgomery Street, San Francisco, Cal.

Kiehnel & Elliott, architects, of Pittsburgh, Pa., and Miami, Fla., announce that they have moved their Miami branch office to Suite 224 Central Arcade Building.

Cleon H. Wills, architect, has moved his office to 1289 Matthews Avenue, Lakewood, Ohio. Mr. Wills' former address was 1892 East Seventy-third Street, Cleveland, Ohio.

Harry L. Meacham, architect, announces the opening of permanent offices at 571 Main Street, Worcester, Mass. Mr. Meacham was formerly located at 507 Main Street, that city.

Announcement is made that Holabird & Roche, architects, 1400 Monroe Building, Chicago, Ill., have purchased group insurance in the Equitable Life Insurance Company for their employees.

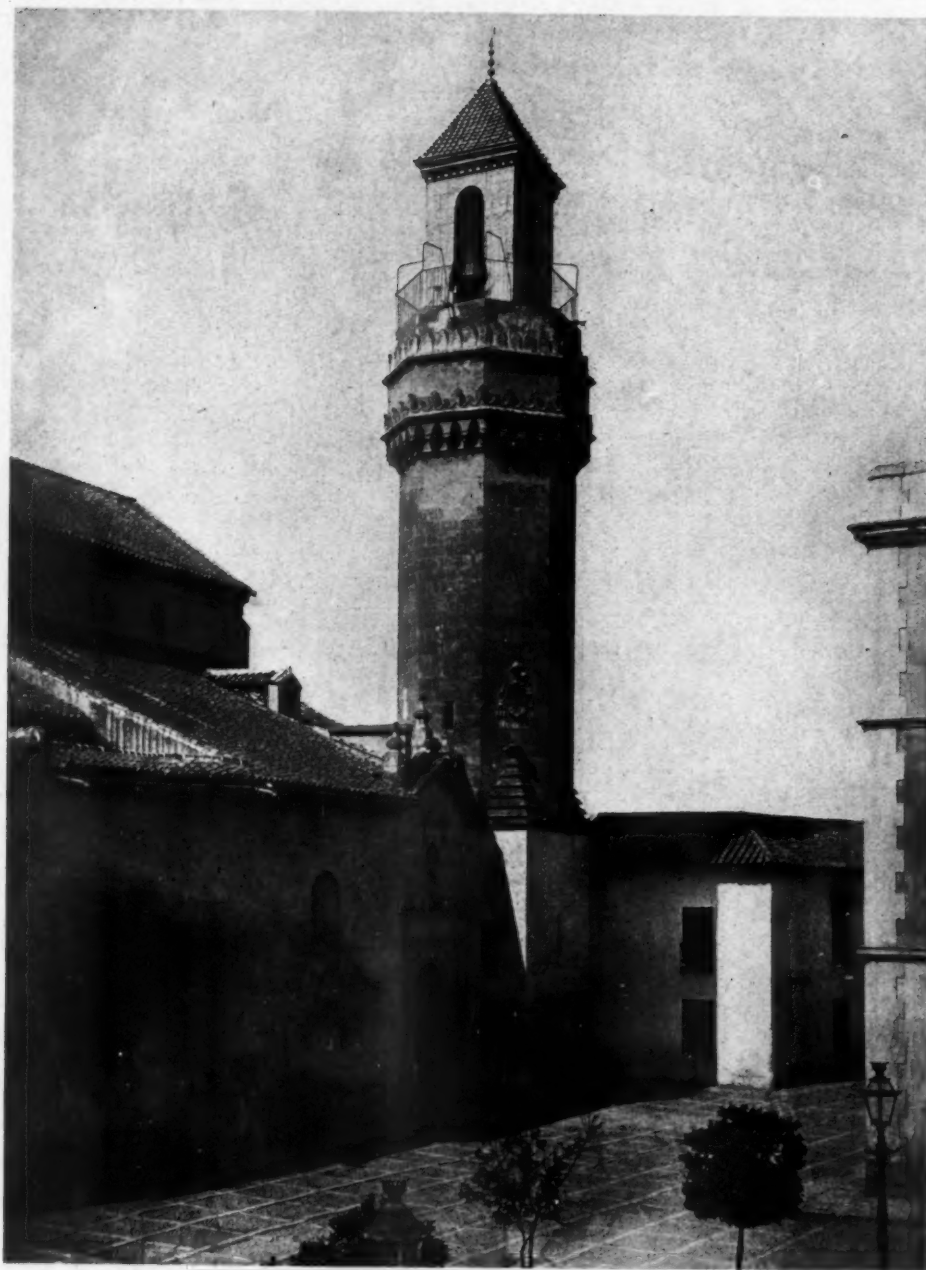
Jacob Weinstein, architect, has moved his offices to Suite 507-507A-507B, Metropolitan Building, State and Chapel Streets, New Haven, Conn. Mr. Weinstein was formerly located at 6 Church Street, that city.

It is announced that Brentwood S. Tolan, architect, formerly of Fort Wayne, Ind., is now associated with DeCurtins & Rawson, architects, under the firm name of DeCurtins, Rawson & Tolan, with offices at 503 Opera House Block, Lima, Ohio.

Myron J. King, Manager, Architectural Department, of the recently organized Security Housing Corporation, 728 Pacific Mutual Building, Los Angeles, Cal., is desirous of receiving manufacturers' catalogs and samples. This corporation was formed to design, supervise and finance home building.

The Mills and Millspaugh Company announces a change in its corporate name, honoring its vice-president and secretary, Daniel A. Carmichael, by the addition of his name, the firm name now being known as The Mills, Millspaugh and Carmichael Company, architects and engineers, Columbus, Ohio.





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