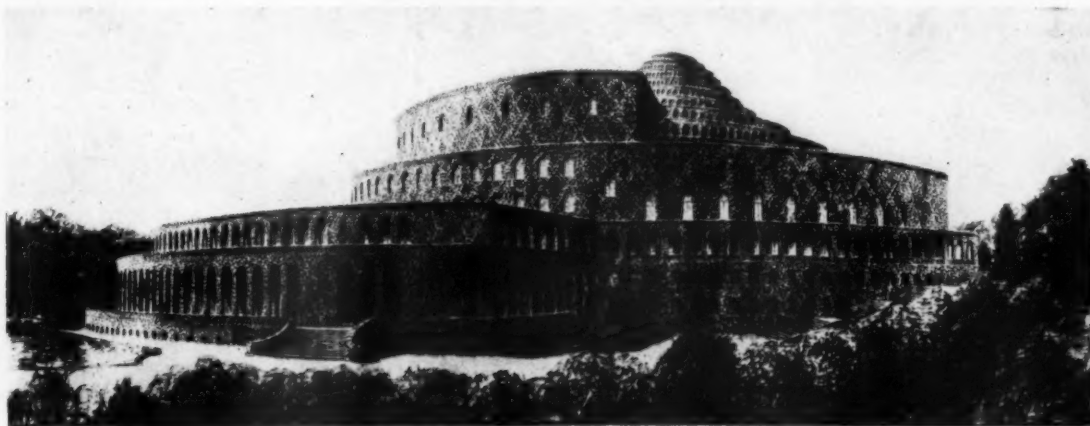


THE AMERICAN ARCHITECT

VOL. CXXVIII

WEDNESDAY, SEPTEMBER 23, 1925

NUMBER 2481



VIEW FROM THE NORTH, THEATRE "FESTSPIELHAUS," SALZBURG

On HANS POELZIG *by* HANS POELZIG

A Contribution to Modern Architecture

A STYLE is not created, a style originates. Artists are the bearers of what is in the making, the mouthpieces of a development or the refined measuring instruments registering at great distances of time that which is coming.

But today it is especially difficult to be an artist and a prophet, because the ideals of a new era have barely begun to take shape, and of the old ones some roots remain with vital force in them. It is astonishing how difficult man finds it to come to a clear understanding of himself. How many people live today and fail to see that, politically, humanly, religiously, in fact, in every respect, we are in a period of transition—a transition occasionally interrupted and accelerated by economic and political upheavals. Far away in the distance only glimmers the light of a new human and religious view. Meanwhile, we shall probably have to wait for the real new "style" and cannot do more than preparatory work.

Comparison with late Rome urges itself upon me, incomplete as it is: In everything that is material, technical, we dominate the earth as we have never done before—far more so, in fact, than the Romans did. The Imperium Romanum swallowed up the then known whole world around the Mediterranean Sea; today technical art, through rapid communication, has welded the whole world together. We have now come to be familiar with nearly everything that was formerly

unknown to us. We know such a variety of things, yet nothing seems completely to engross our public life. Not one of the different views on form is able to force the others under its sway unless it be transiently as a fashion.

Americans, for the most part, still cling to the antique style and French traditions and thus avoid a decision which we in Germany are already endeavoring to force. Undoubtedly we are a step ahead in the development, but not nearer perfection on that account. Americans still have a system to which they are adjusting, or trying to adjust, the musicality of their buildings; we no longer have an old system as a whole, and the new one has not yet been codified. In the struggle for the new form—probably in other fields as well, certainly in that of architecture—we are the advance-guard. Was it not so once before, at the time of the Reformation, one of the most critical stages in the development of European humanity? It is dangerous to be on outpost duty.

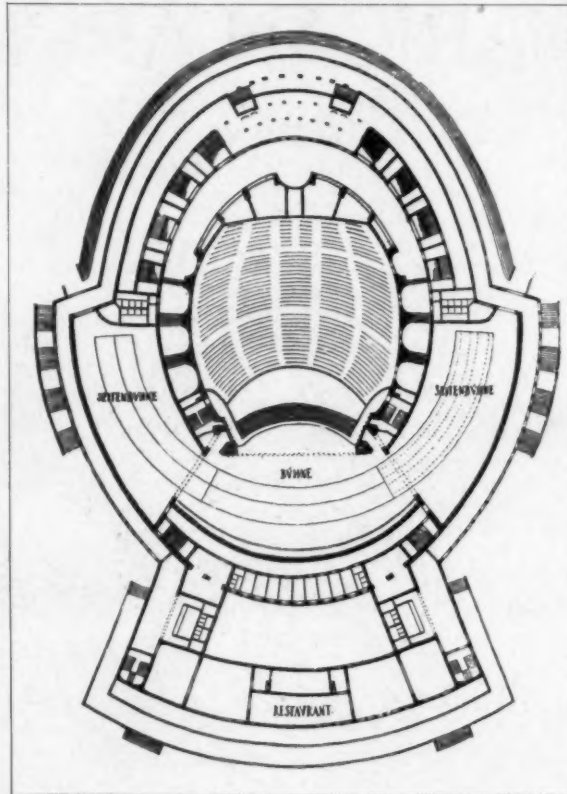
We often read, both in European and American periodicals, that modern technical development has been and must be the basis and the cause of a new building style. Stated so generally, this is a great error. No doubt the possibilities of the new methods of construction should be fully utilized and applied artistically as well; only, it may be questioned if this can properly be done *everywhere*. Certainly it is least justified where—as in

(Copyright, 1925, The Architectural & Building Press, Inc.)

THE AMERICAN ARCHITECT

the case of small or medium-sized dwellings—the old constructions are essentially adequate and the form cannot be materially determined by the new possibilities of construction unless they are artificially and tortuously applied. Let us beware of any effort to emphasize iron and concrete constructions unless the dimensions of the building actually compel their use in determining the form.

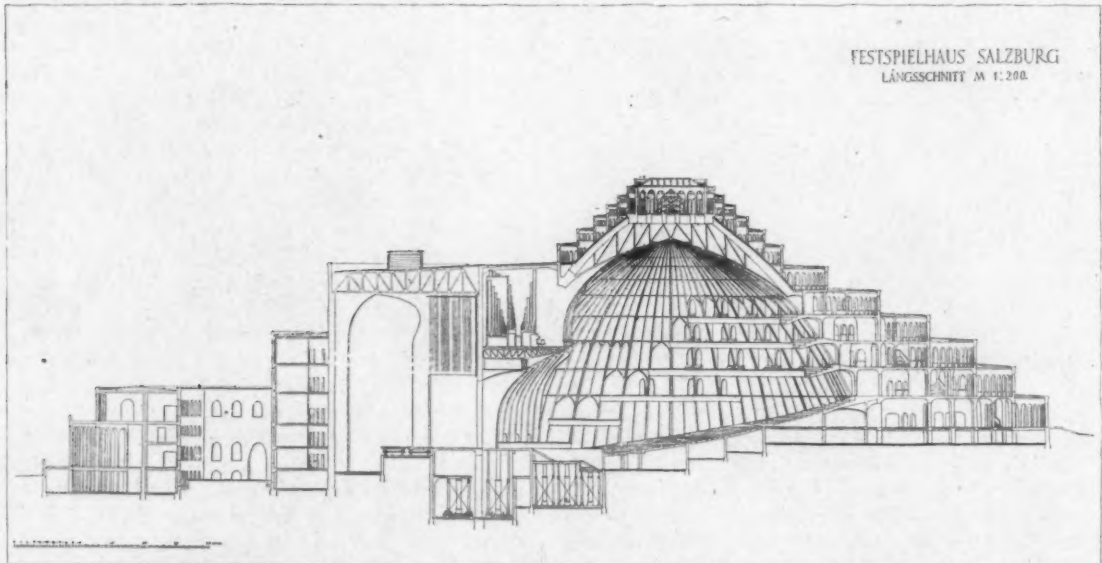
Accordingly, natural developments are primarily met with in the extreme cases. Where pure engineering constructions are involved, such as railway buildings, large bridges, technical manufacturing plants, the engineering form forces itself upon the architect for pure expression, and on the other hand, in small



ORCHESTRA FLOOR PLAN
THEATRE "FESTSPIELHAUS," SALZBURG

cottages—for instance, in cottagers' settlements—a pleasing expression of the natural and appropriate form is likewise attained in many cases.

In between, the battle rages. Among us as well, some still cling to a system (mostly one leaning upon the Renaissance) and deny the possibility of expression that can be born out of the application of new constructions; others frequently outdo the engineer himself, demand that iron and concrete be emphasized at any price, make the structural skeleton protrude through the flesh and skin of the building, and develop into—not constructors but "constructivists," as they proudly style themselves. This obsession to subject every form of expression to the paramount influ-



LONGITUDINAL SECTION, THEATRE "FESTSPIELHAUS," SALZBURG
HANS POELZIG, ARCHITECT

THE AMERICAN ARCHITECT

ence of purely technical and mechanical forms of construction, extends even into the plastic arts and painting. Perhaps it is in reality nothing more than an anaemic fad, which is greatly at fault in strengthening the very forces of reaction. Perhaps it is due to an unconscious realization of the fact that technical progress, in the last analysis, leads not to "art" but to natural forms, and people are under the illusionary impression that these new natural forms can be grafted on the artistic form in the same manner as former styles adopted, or seemed to adopt, natural forms for their own amplifications.

Here, however, wrong logic and lack of knowledge come in. Neither the antique forms nor those of Gothic architecture, for instance, have anything to do with natural forms—it is merely the like cosmic-musical sense, the like magic that created both the natural and the artistic forms.

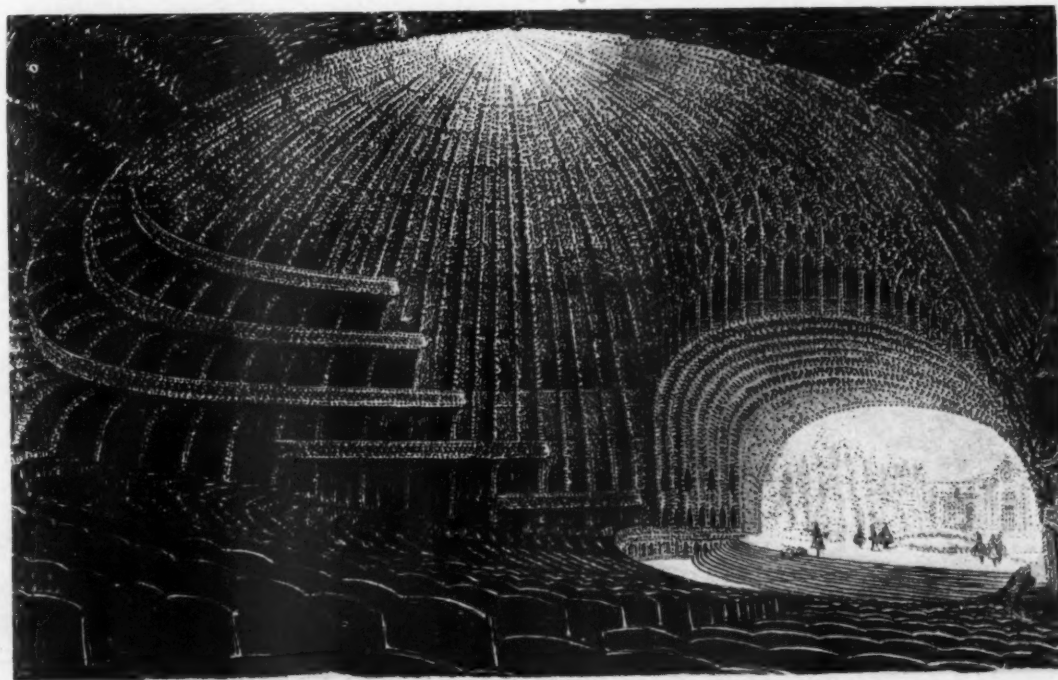
This topic—that genuine new art, as stated above, is not deliberately created but is the expression of the unconscious yet existing rhythmic sense of a certain period—is one that lends itself to practically unlimited discussion. More important, however, than all philosophical knowledge is actual achievement.

It is one of the most grievous sequels of the war that we people in Germany have suddenly and most extensively been deprived of the opportunity of "achievement." For the past ten years we have been prevented from building; we lack not only adequate facilities for dwelling but also

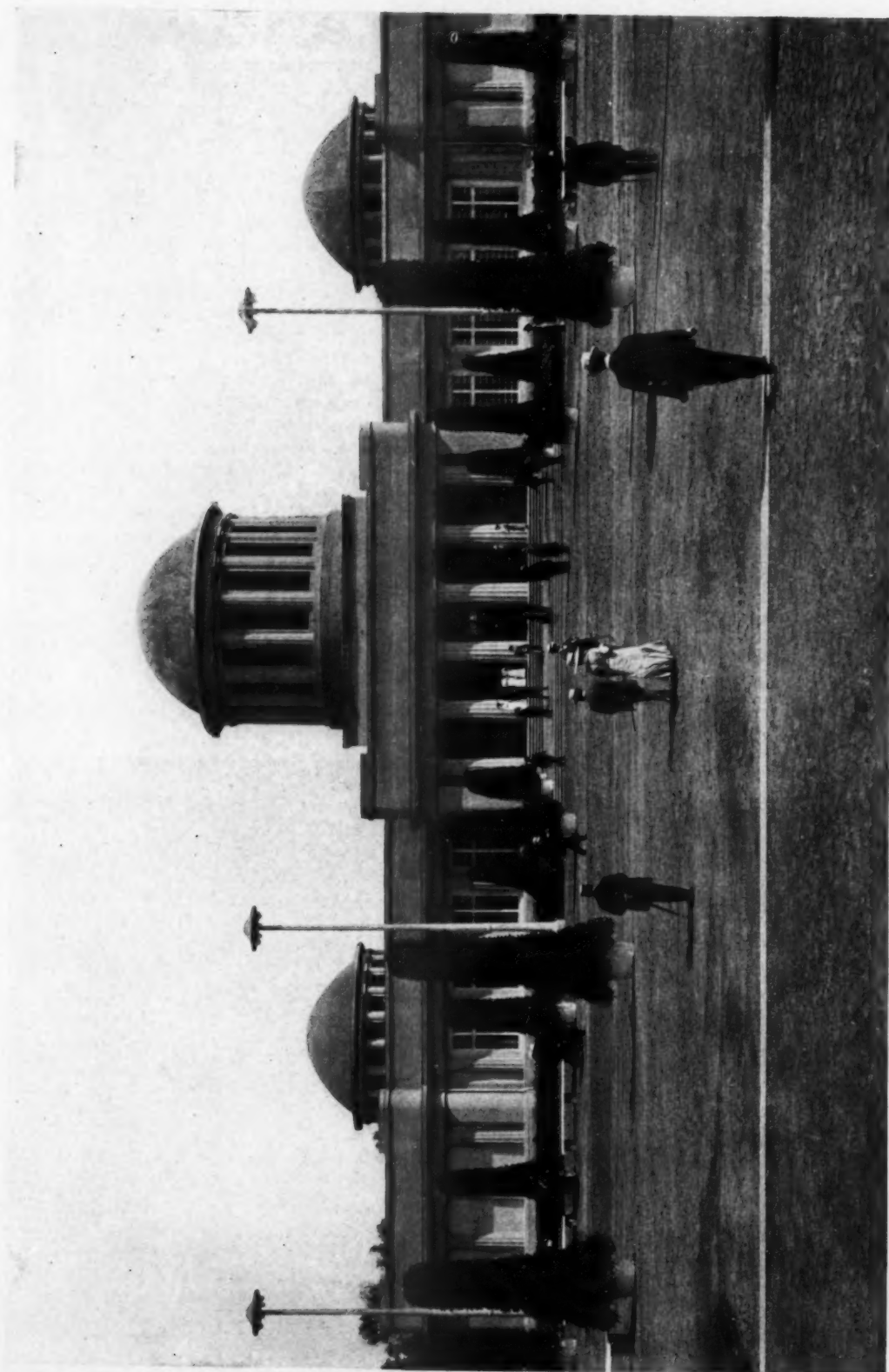
the possibility to give material forms to what we are trying to attain. Of my own plans a great many have never materialized in stone. In describing myself, I am compelled to refer also to works unexecuted—works which remained sketches.

I have the reputation of being an innovator; yet I am quite sure that I have never sought what is new for the mere purpose of finding something new. I am endeavoring, on the basis of present day building methods, to arrive at rhythmically musical expression and form, without eagerly seeking to produce new effects somehow, nor yet studiously avoiding anything that looks like a reminiscence of a so-called tradition. On the contrary, in *one* case, the Exposition at Breslau, I have tried, to a certain degree, to come to an understanding with one tradition, the Antique. The reason for this is because the building at the "Exposition 1813" served the memory of our War of Independence. Accordingly it assumed a good deal of Schinkel's antique style; in this case our greatest master of that time exerted a legitimate influence. However, inasmuch as the columns and pillars of the building were to be of concrete, I endeavored to adapt the forms to this method of construction.

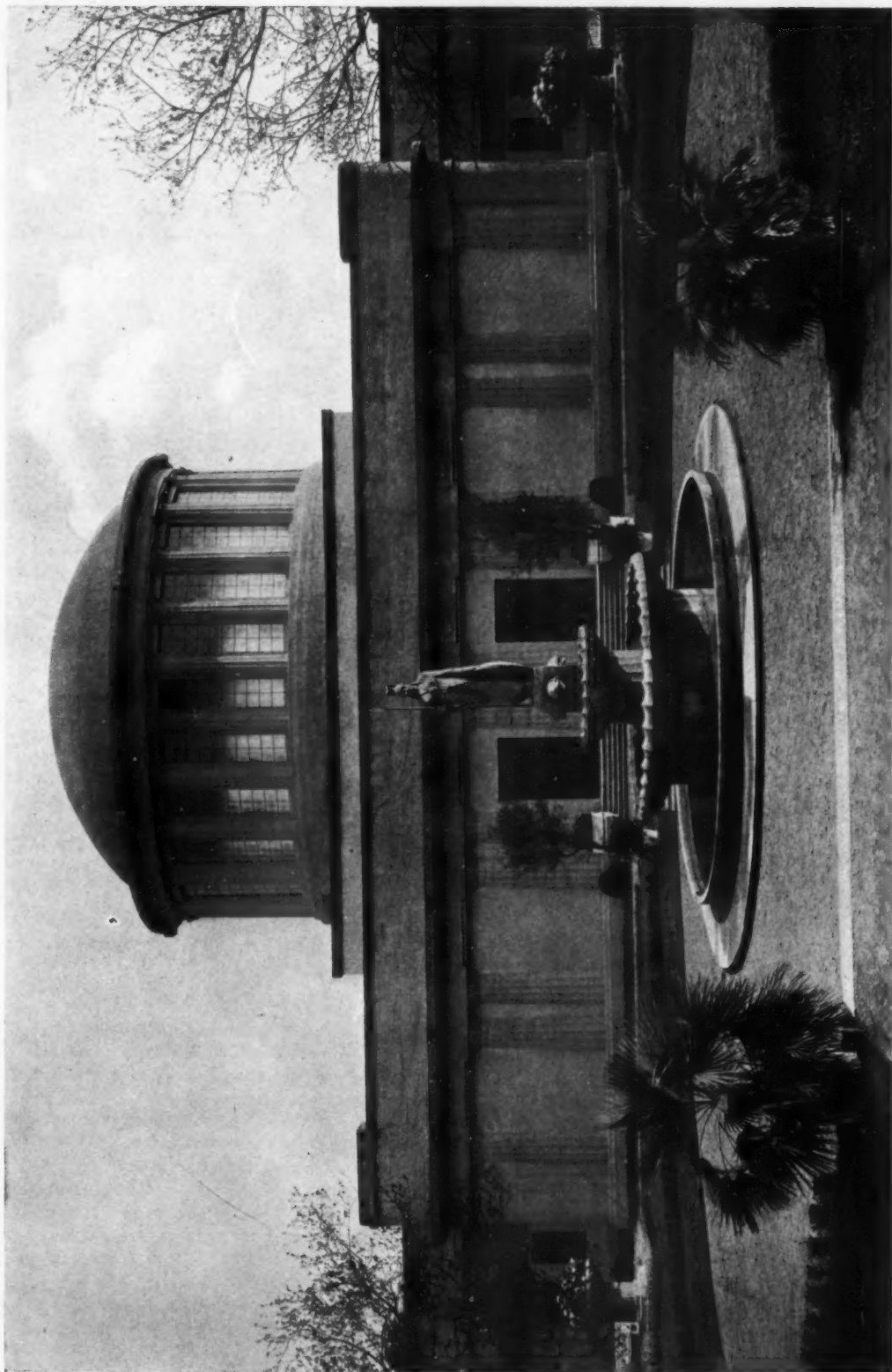
Nor did I recoil from "tradition" any more timorously in the second design for the Salzburg playhouse. The form in its totality clearly resulted from the ground plan, and as the face with the arcades was to be erected in coarse shell lime-



SKETCH OF INTERIOR, THEATRE "FESTSPIELHAUS," SALZBURG



VIEW FROM NORTH, EXHIBITION BUILDING, BRESLAU
HANS POELZIG, ARCHITECT



VIEW FROM COURT, SHOWING FOUNTAIN AND CUPOLA OVER EXHIBITION ROOM OF THE CITY OF BRESLAU

EXHIBITION BUILDING, BRESLAU

HANS POELZIG, ARCHITECT

THE AMERICAN ARCHITECT

stone, which is hard to mould, the logical constructions and forms for it are those adapted to stone buildings. On the other hand, the inside room was planned by me with a pierced arch vaulting (for acoustic reasons) of iron and stucco, which—for acoustic and aesthetic reasons—had to be individually treated in great detail. It seems that this building will be sacrificed to the hard times. Concerts, opera, mysteries, and grand drama were to be produced in the building, which, it had been planned, should be erected amidst one of the most wonderfully beautiful landscapes of Southern Germany. It would be wrong, however, to assume that I do not like to create anything but buildings of state and luxurious houses. Costliness is not everything to me. I have been just as pleased to take up designs for factories, administration buildings and other utility buildings, and with them—as, for instance, with the chemical factory or the gas works at Luban—I have won recognition in Germany. Among my more recent designs of this kind are a factory building at Chemnitz and the design I entered for the competition for a skyscraper at Berlin, near the "Bahnhof Friedrichstrasse" (Railway Station Friedrich Street). It was to be erected on a triangularly arranged foundation (to make the most of actual conditions of light), the structural frame to be of iron with brick facing; but up to date it has not been executed.

In every one of my designs I have tried to follow the natural way and, first of all, to develop a characteristic and expressive total form over a clear and concise structural organism. And it is a self-evident proposition that in the Germany of today the details of the building cannot be otherwise than plain both in materials and form.

Certainly the development to greater amplification cannot consist in the adoption of any rich ornamental accessories which are directly taken from some historical period style. Here is where, in my opinion, Americans make a mistake, which however is not greater than that of the proposition

made by a coterie of modern extremists who want big buildings constructed exclusively of iron and glass, which, from the viewpoint of heating alone, is nonsense. On the other hand, the big buildings of modern construction, closely following the lines of the Gothic and the Antique styles, force upon the building a musicality which is in direct contradiction to its organic structure.

It is quite clear, after all, that big buildings must essentially be constructed of iron or reinforced concrete, but that for reasons of fireproofing and heating arrangements, they must also receive outside and inside coverings of some material which is both fireproof and a poor heat conductor, and the weight of which should not be too great. There is no doubt that hollow terra cotta of small or large sizes represents by far the best solution of this problem, and from a stylistic viewpoint as well. The demand for color effect, too, is satisfied by this material in a most genuine and permanent manner. And thus it would be possible to give even a modern skyscraper, in the facings of its pillars and window ledges, a robe as rich and varied in its color scheme as



SKETCH FOR A SKYSCRAPER AT BERLIN

is found—to use a comparison with the proverbial grain of salt—on the gables of the brick buildings in Northern Germany.

Here is where, to my mind, lies the future chance for a present day architecture. Iron and concrete, left in their natural states, are materials of which the former is not fireproof, while the latter is not truly weatherproof in its upper layers. The iron and concrete structures are the skeletons, and *nothing but* the skeletons, of the buildings, the warmth of the flesh and the outer and inner skins must be furnished by some other material, and the stylistic foundations of the latter—next to the rhythm of the skeleton—of course determine the character of the exterior architecture. There are no limits to the richness of the ornamental details except such as result from the smaller surface spaces available in a modern office building as compared with an antique building, for instance.

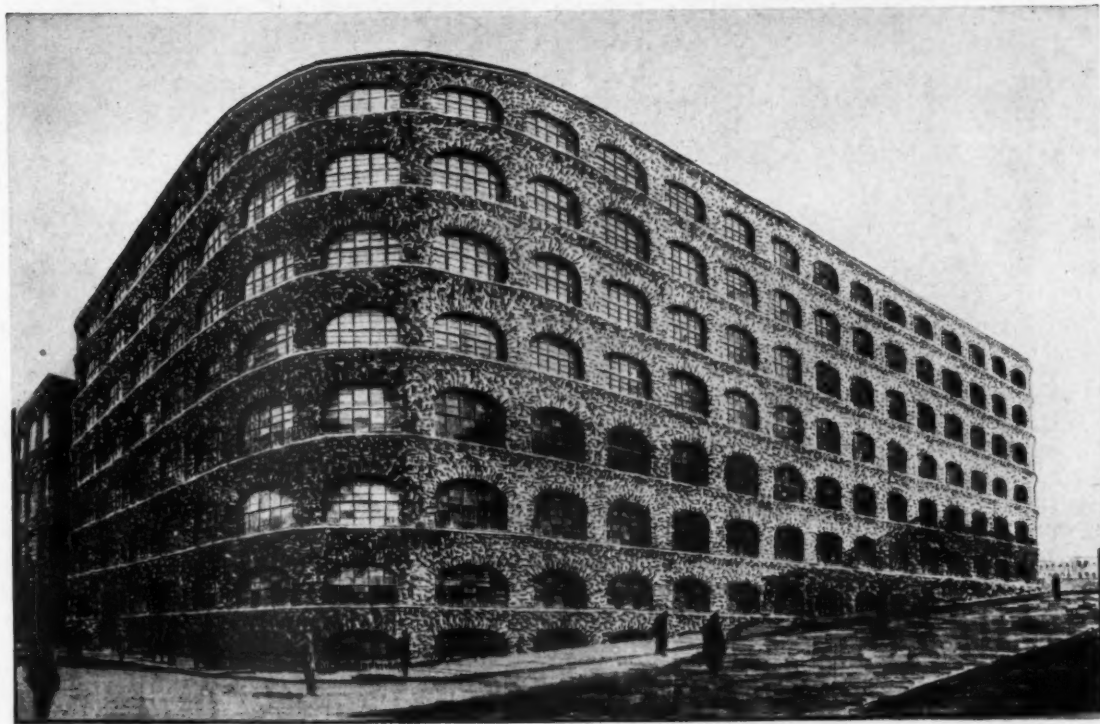


VIEW FROM NORTHEAST, SHOWING THE HISTORICAL GARDEN
EXHIBITION BUILDING, BRESLAU
HANS POELZIG, ARCHITECT



VIEW OF PERGOLA AND POOL
EXHIBITION BUILDING, BRESLAU
HANS POELZIG, ARCHITECT

THE AMERICAN ARCHITECT



SKETCH FOR A FACTORY AT CHEMNITZ

Therefore, the attempt to force upon such a building forms which merely imitate the outward lines of antique art, including those of the Renaissance and Baroque, is an utterly wrong scheme for the very reason that these forms require larger surfaces. As to forms following the Gothic style, they demand a system of massive columns supporting the stress of the vaulting, and such an arrangement, if forced upon one of our large modern buildings, cannot but look entirely out of place.

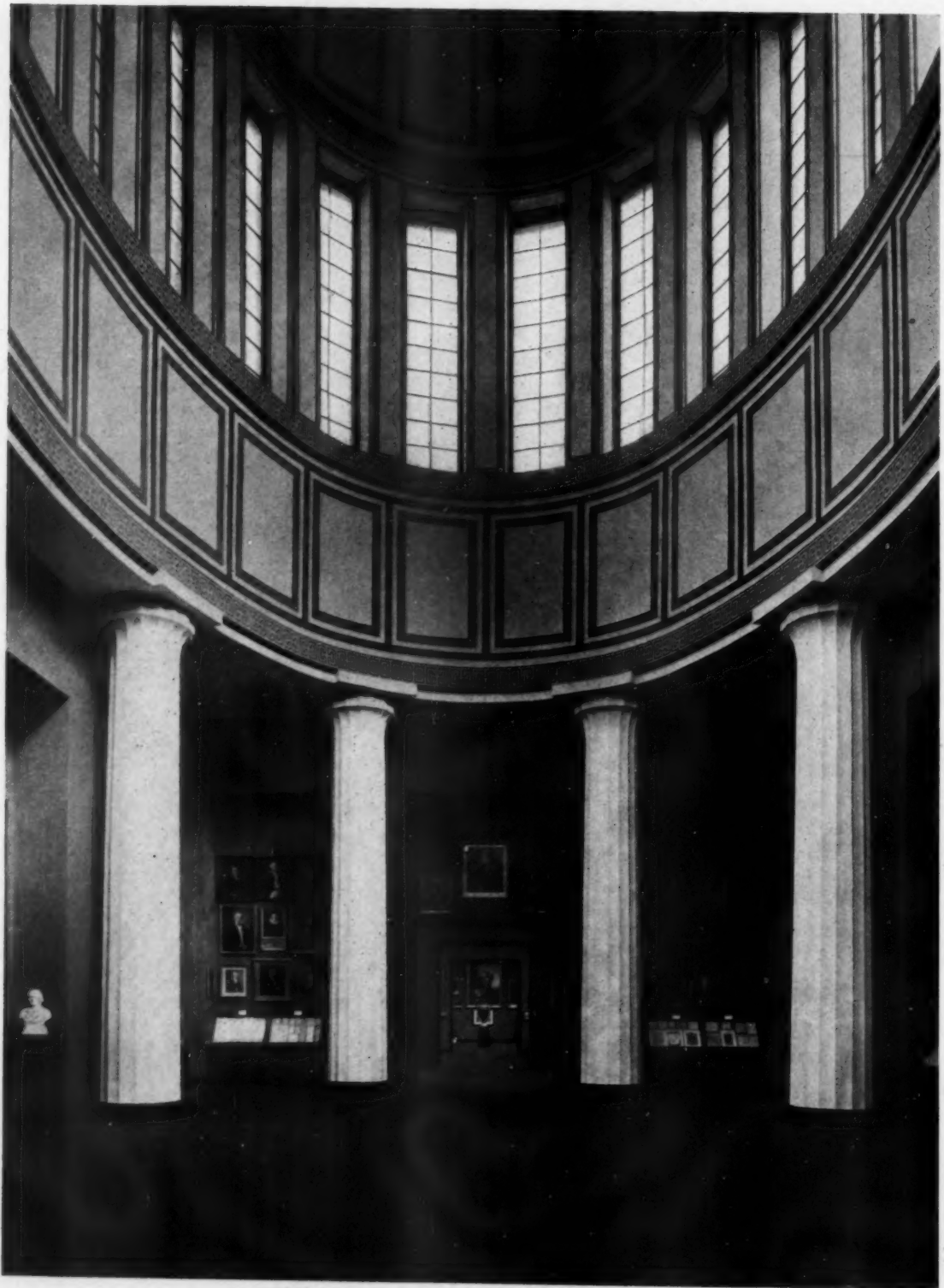
This does not mean, of course, that the usefulness of tradition is at an end. Musically, it will always continue to be our teacher, and artistic Bolshevism is bound to lead to outright negation of form itself. And the demand for ornamental details, which is greater with Americans in accordance with the younger age of their country, can be satisfied to the fullest extent and, in fact,

may lead to enlivening the surface spaces between the windows like filigree work. I am convinced that, for instance, Oriental, and especially Persian art could serve as a teacher in this respect, no matter how much the fundamental type of Persian buildings differs from that of our present day buildings. The Oriental, and more particularly the Persian art, however, is the most abstract, being exclusively based upon the musicality of geometric forms and at once a *covering architecture* such as we must strive for in our present day building, though with an entirely different rhythm. I am quite sure, however, I do not want to induce anybody to imitate anything. Nothing is repeated, no matter how much it may seem so. And what I should like is not to preach either old or new doctrines with mere words, but to take an active part in the development of the future style.

EBERT STREET FOR BERLIN

BERLIN now has Friedrich Ebert Strasse, named in honor of the republic's first President. The famous streets of Budapest and Sommer, which form the eastern boundary of the Tiergarten on the western border of old Berlin, were recently changed to Friedrich Ebert Strasse on the vote of the Greater Berlin Council.

The street starts at the Reichstag building, passes the Brandenburg Gate at the foot of the Unter den Linden, the gardens of the Chancellor and the President and many official buildings. Back of the high wall bordering the old Budapeststrasse the Kaiser once walked with Bismarck, planning his world conquest, and princes entertained visiting royalty in the royal gardens.

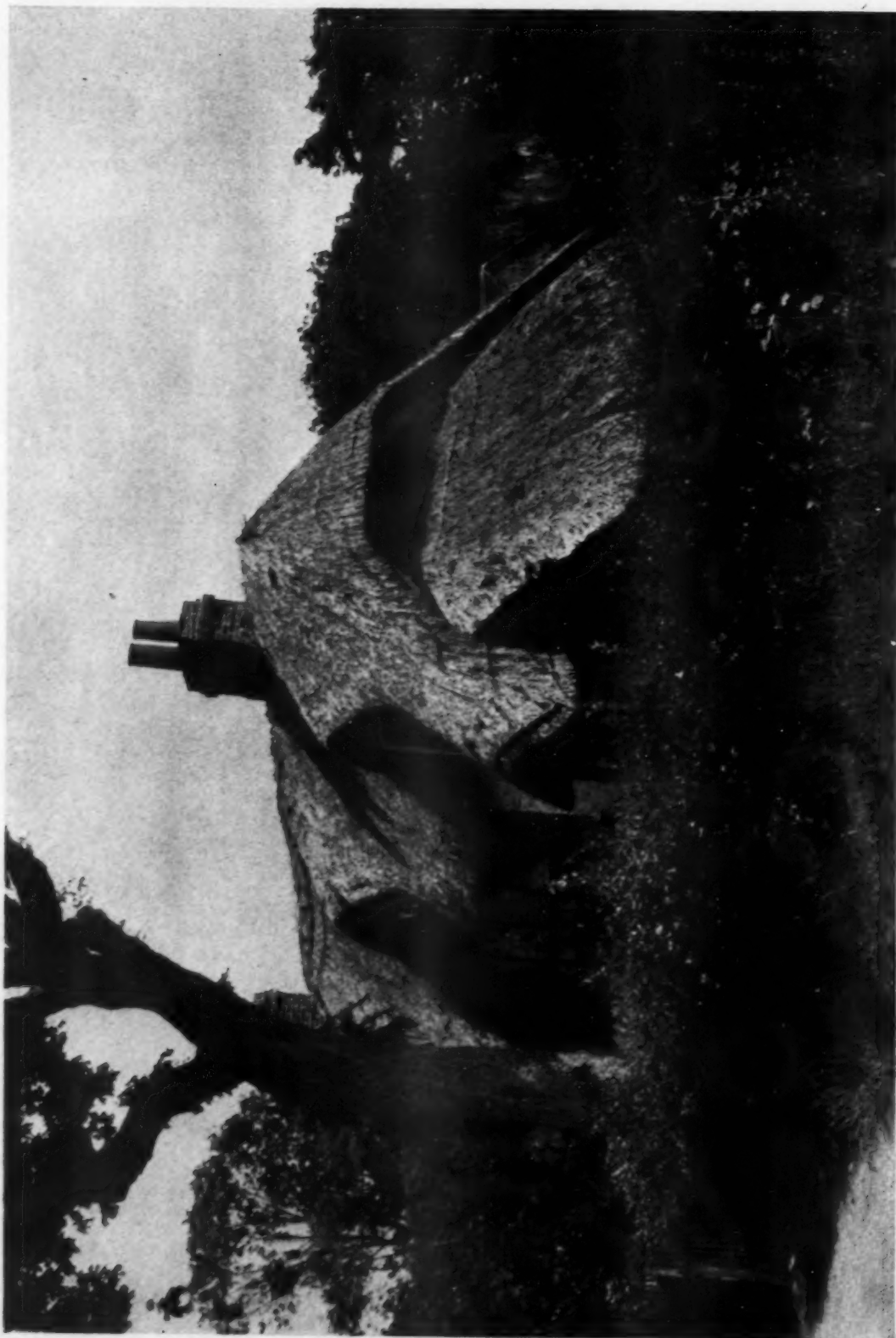


INTERIOR OF EXHIBITION BUILDING, Breslau
HANS POELZIG, ARCHITECT



INTERIOR OF MEMORIAL ROOM, EXHIBITION BUILDING, BRESLAU

HANS POELZIG, ARCHITECT



"WORKING PHOTOGRAPHS"

ONE OF A SERIES MADE IN ENGLAND BY JOHN RUSSELL POPE, F. A. I. A.

EDITORIAL COMMENT

WHILE WE ARE NOT discussing Col. Mitchell, who is now very much on the front pages of the daily papers, we feel constrained to refer to his insistence that our air service to be administered properly, should be taken from the War and Navy Departments and made a distinct arm of the service under the control of a Secretary of the Air. As a practical flyer and one who has largely contributed to the advance of aeronautics in this country, the views of Col. Mitchell have the weight of authority. What he claims is necessary for the best interests of the air service, could with equally good logic be claimed for architecture. We have now among the various branches of our government administration as many departments of architecture, each functioning independently of the other, and each mainly administered by engineers. We are not criticising the work of the engineers, but we are the unwisdom of scattering through perhaps a dozen different departments, the designing, planning and erecting of every type of building from the simplest and most utilitarian to the most monumental and complex.

It is logical to contend that all these matters could be carried forward to a more successful conclusion under a single administrative head. If we are not to have the re-enactment of the Tarsney Act, or one similar, and if the government determines to continue the policy of acting as its own architect,—with perhaps the same result as the often referred to man who is his own lawyer,—then it seems consistent to urge that a series of operations that involve the expenditure of hundreds of millions of dollars, should be under the control of an administrative head and a corps of men who have been specially educated for the work.

The accomplishment of something of that nature is greatly to be wished for, and it would seem that no more laudable effort could be made by architects than persistently to urge such action on Congress until the desired end is obtained.

* * *

THE PASSING of architectural landmarks, often viewed with deep regret and varying emotion, is an apt subject for investigation and research as a practical means of indicating the strength or weakness, and vulnerable points of building construction. It is likely that necessary precautions are frequently taken to safeguard against what may happen, while actual factors of danger are almost, if not entirely, disregarded. Building construction is yet young and there remains much to be learned. A careful study and analysis of buildings at the time of demolition will enlarge our knowledge and result in economies

through a better balance of essential practice. A little knowledge is a dangerous thing. A limited knowledge of the stresses developed in structural members would be dangerous as a matter of structural design. Lack of knowledge of the effect of time and the protection or lack of protection of material used in construction work may be equally dangerous. We may be over-protecting certain features at the expense of others. Research of this nature will be fruitful of results. It is not too early for The American Institute of Architects to give due consideration to this important matter and at least bring it up for attention and discussion at its next convention. The Institute is the logical body to carry on investigations of this nature through committees in different sections of the country. Such a policy would tend to secure a fund of reliable data relative to common and standard practice and local custom which at the present time is not available.

* * *

NOTHING MORE CLEARLY typifies our slovenly use of words in this country than the careless attribution in the several professions and crafts. If we say artist-architect, artist-sculptor, artist-painter and artist-craftsman, we are using a leisurely and correct expression. But, here in these United States we are nothing if not hurried, and we hurry in our speech and in our writing, cutting every corner in an effort for terseness at a loss of accuracy. The sign "tonsorial artist" no longer excites a smile, and the careless use of the word artist is now so common as to dull the sense of fine appreciation of what art really is. The editor of *The Decorative Furnisher*, in a series of articles entitled "This Thing Called Interior Decoration," states that "an interior decorator, as I mean the term and as I will herein consider to use it, is any one who arranges, lays out, executes, or suggests a scheme in all its parts, completely, for the furnishing of a room." He goes on to say that even the furniture salesman, in his specialized work, is an interior decorator if he suggests, "not alone the kind of furniture a client shall use in her house, but as well designates the type of floor coverings, the color of the walls, the woodwork, and the ceiling, the style of draperies and the arrangement the furnishings shall take in the room." A furniture salesman, we think, seldom, if ever, has such an opportunity, for if he did, he would not long remain a furniture salesman. We have devised our own definition of what interior decoration is. Interior decoration, and that is not what we mean when we say Interior Architecture, is, to our way of thinking, the application of certain elements to the architectural

THE AMERICAN ARCHITECT

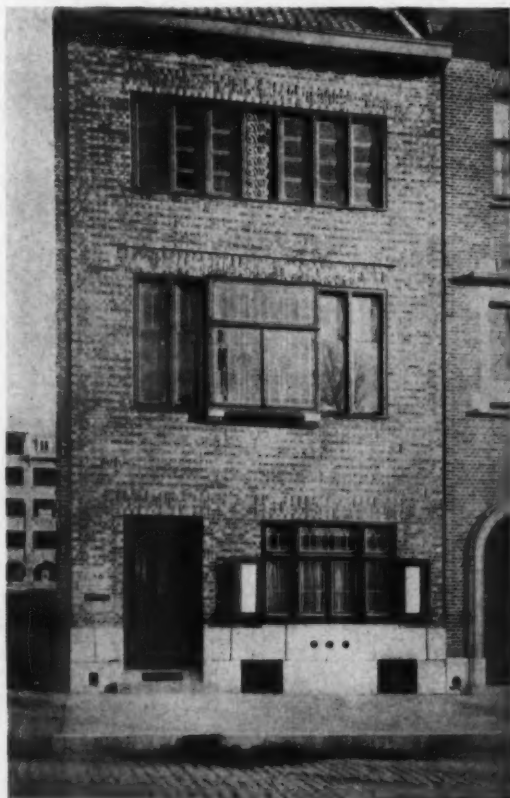
treatment of a room by which that room is made to embody livable or working qualities characteristic of the one who is to live therein or of the purpose to which the room is to be put. The architectural treatment is not only the basis or foundation of the interior decorations, but many of the elements which enter into it are actually considered later as a part of the decorative scheme. Interior Architecture, as we use it to head a department in this journal, goes a little further back than interior decoration, and stops a little sooner. It is actually the tying up of the architecture and the decorations.

* * *

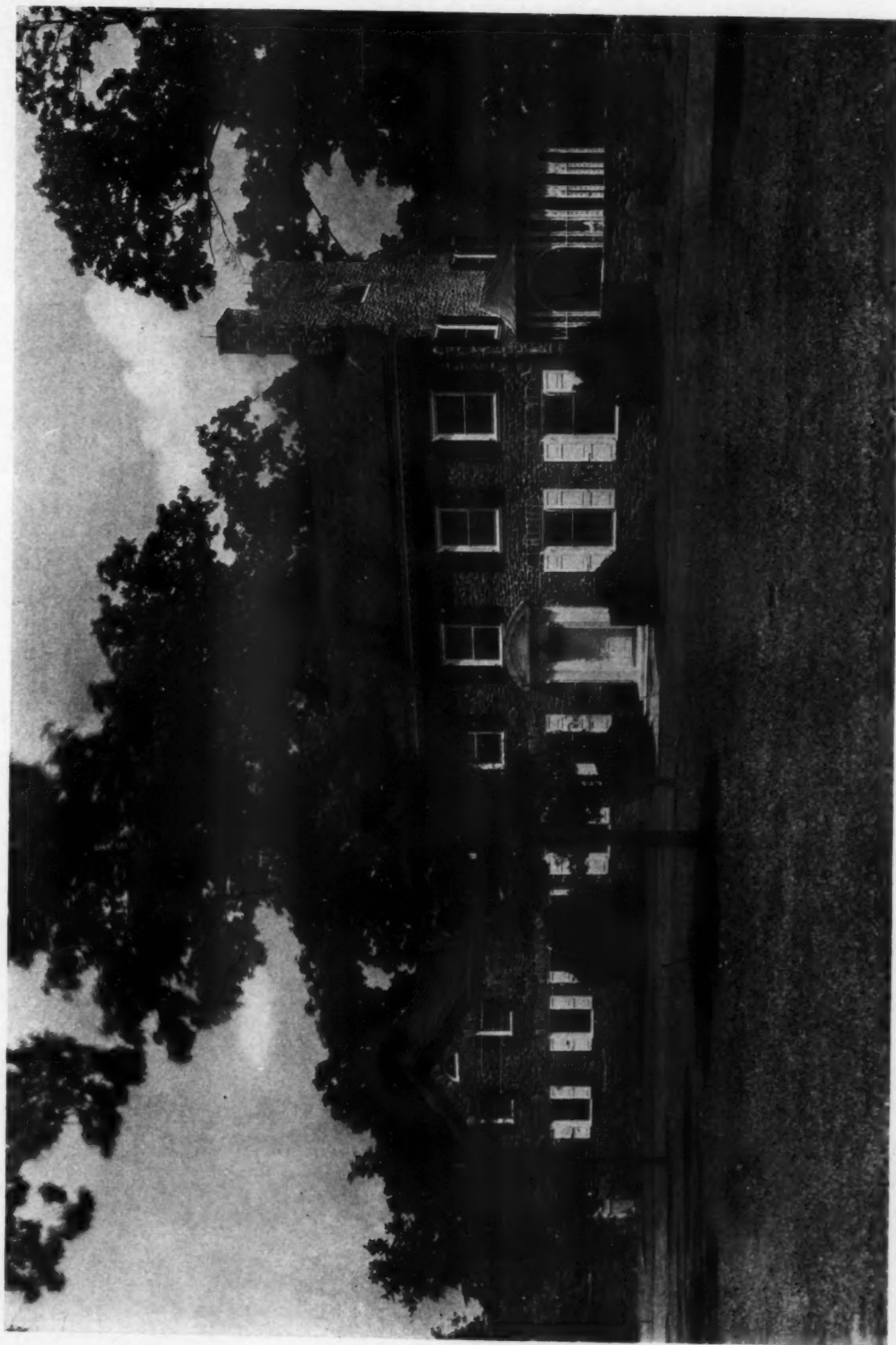
MUCH HAS BEEN SAID and written on the subject of the tendency toward lack of pride in their work among our workmen. Various agencies have been responsible for this condition and the necessity for some counter action to preserve the standards of workmanship in this country, has been recognized. Building congresses in several cities have taken definite action toward

reviving pride in craftsmanship during the past few years through the issuing of certificates to the men of various trades whose work is meritorious. The high regard with which these certificates are held and the interest they stimulate in craftsmanship are of more than passing interest and attest the good judgment and care exerted by the members of the committees appointed to make the awards. This subject should be of intimate concern to the architectural profession and it is fitting that architects, as master craftsmen, should assume leading roles in emphasizing the value and essential importance of a proper pride by workmen in the crafts in which they are engaged.

The present construction of our labor unions in this country is but a poor substitute for the guilds as they existed in Europe for so many years, in promoting pride of craftsmanship. Undoubtedly the lack of interest that the average workingman shows in his work is because of a lack of *esprit de corps*, largely the result of a policy that only regards the maintaining of a high wage scale and the strict line as marked in relation to other crafts, as the big essential to be cared for.



TWO BRUSSELS HOUSE FRONTS
(FROM L'EMULATION)

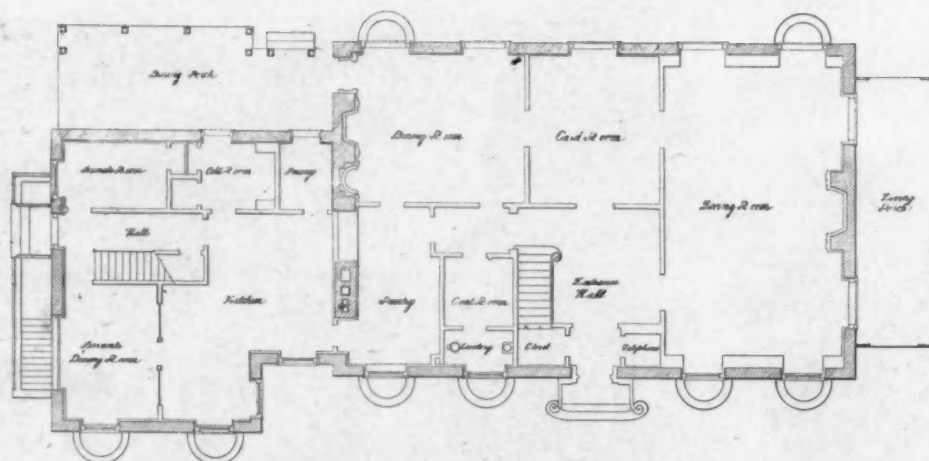
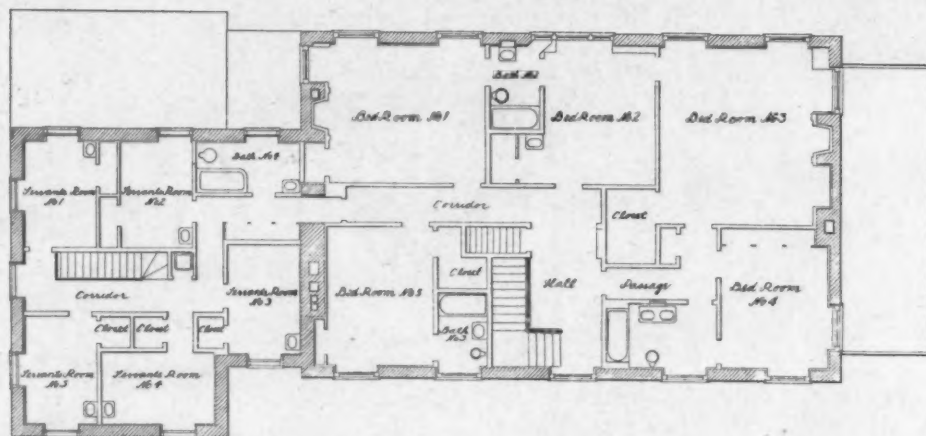


HOUSE OF JOHN F. WILKINS, ROCKVILLE, MD.

JOHN RUSSELL POPE, ARCHITECT

(See plans on back)

THE AMERICAN ARCHITECT
September 23, 1925. Plate 248



HOUSE OF JOHN F. WILKINS, ROCKVILLE, MD.

JOHN RUSSELL POPE, ARCHITECT



HOUSE OF JOHN F. WILKINS, ROCKVILLE, MD.

JOHN RUSSELL POPE, ARCHITECT

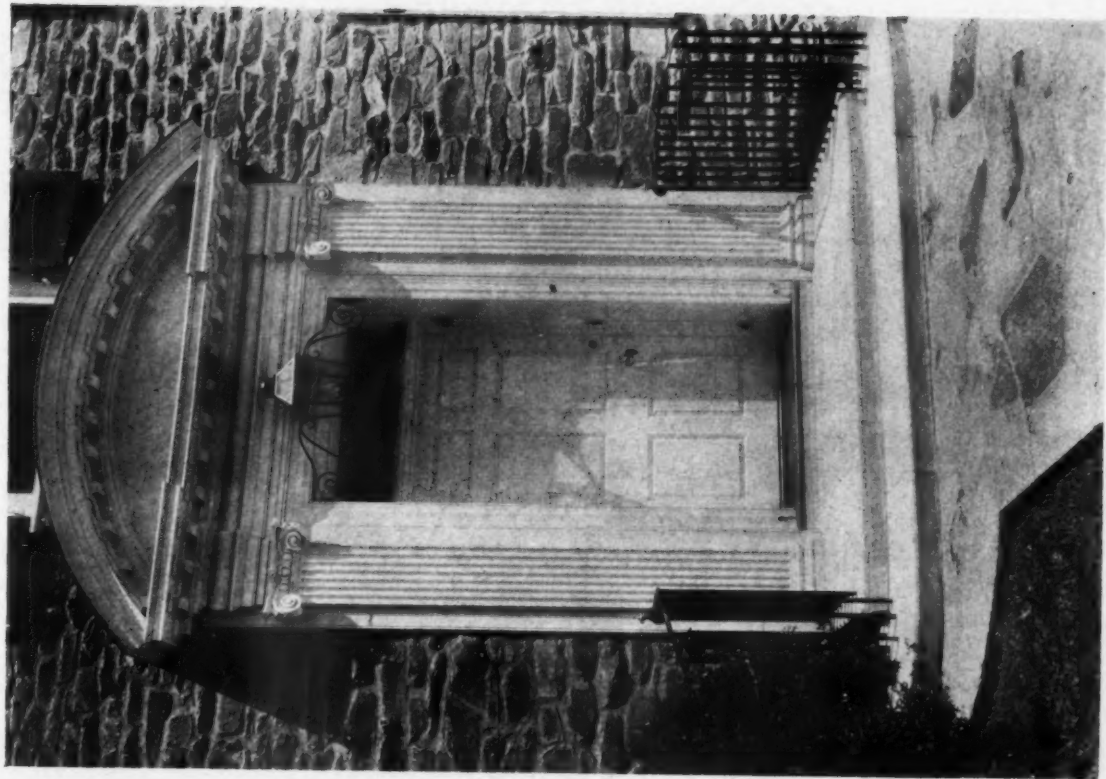
THE AMERICAN ARCHITECT
September 23, 1925. Plate 249



HOUSE OF JOHN F. WILKINS, ROCKVILLE, MD.

JOHN RUSSELL POPE, ARCHITECT

THE AMERICAN ARCHITECT
September 23, 1925. Plate 250

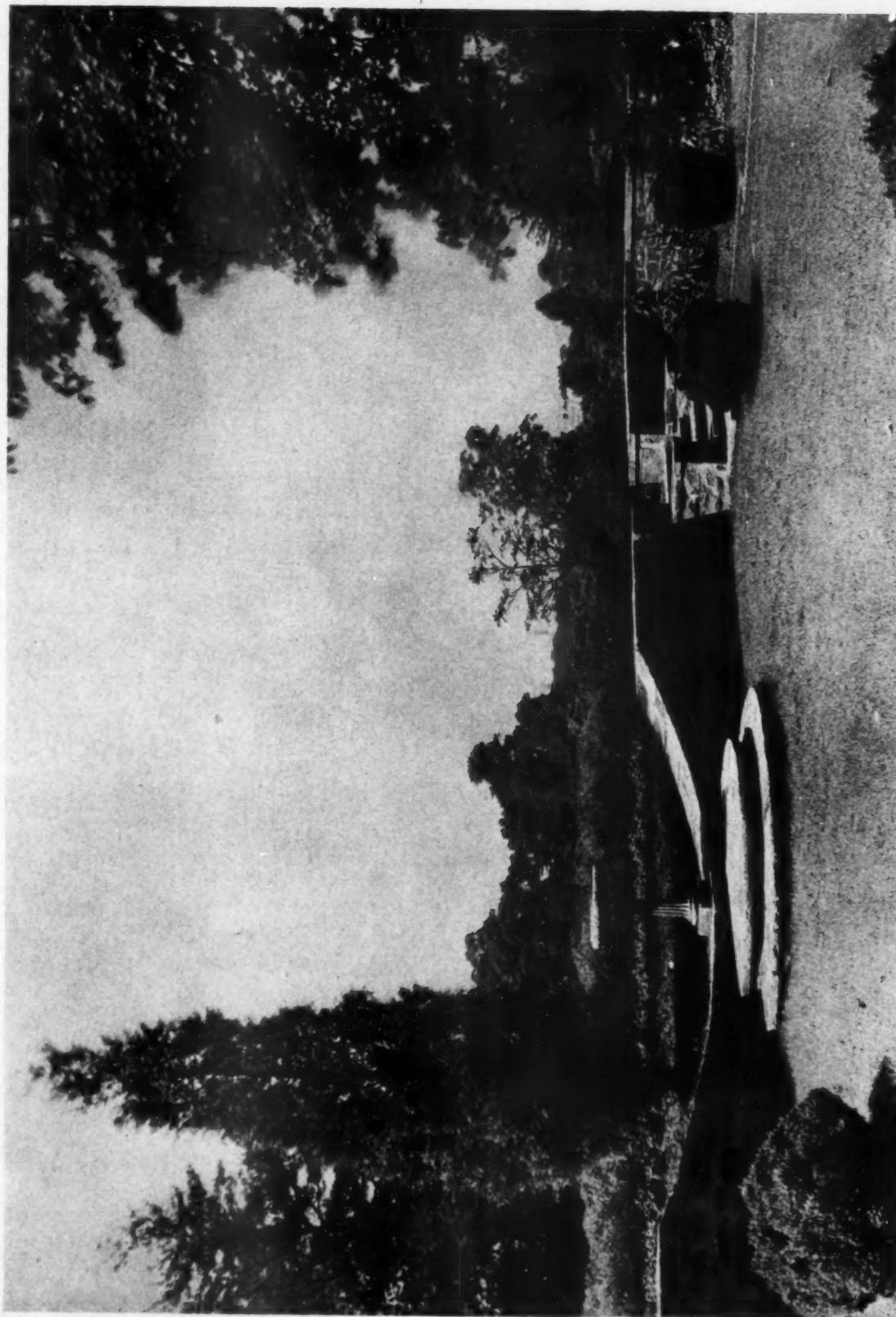


HOUSE OF JOHN F. WILKINS, ROCKVILLE, MD.

JOHN RUSSELL POPE, ARCHITECT



THE AMERICAN ARCHITECT
September 23, 1925, Plate 251



HOUSE OF JOHN F. WILKINS, ROCKVILLE, MD.
JOHN RUSSELL POPE, ARCHITECT

THE AMERICAN ARCHITECT
September 23, 1925. Plate 259



HOUSE OF JOHN F. WILKINS, ROCKVILLE, MD.

JOHN RUSSELL POPE, ARCHITECT

THE AMERICAN ARCHITECT
September 23, 1928. Plate 253



HOUSE OF JOHN F. WILKINS, ROCKVILLE, MD.

JOHN RUSSELL POPE, ARCHITECT

THE AMERICAN ARCHITECT
September 23, 1925. Plate 254



HOUSE OF JOHN F. WILKINS, ROCKVILLE, MD.

JOHN RUSSELL POPE, ARCHITECT

THE AMERICAN ARCHITECT
September 23, 1925. Plate 255



HOUSE OF JOHN F. WILKINS, ROCKVILLE, MD.

JOHN RUSSELL POPE, ARCHITECT

THE AMERICAN ARCHITECT
September 23, 1925. Plate 256



NORTH END OF TERRACE FRONT, OVERLOOKING LONG ISLAND SOUND
HOUSE AT PORT WASHINGTON, LONG ISLAND, N. Y.

DELANO & ALDRICH, ARCHITECTS

(Floor plans and interior views not available)

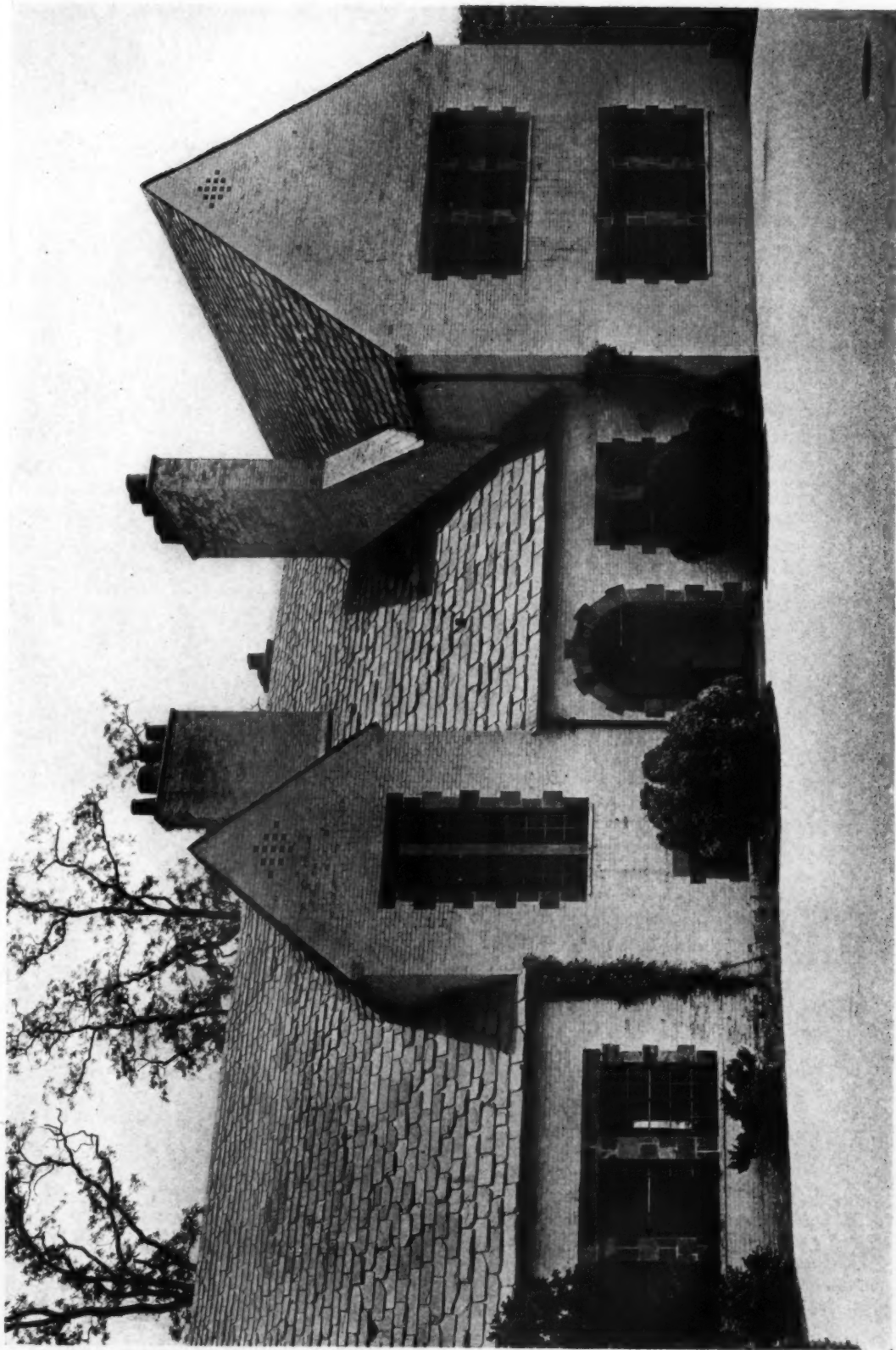
THE AMERICAN ARCHITECT
September 23, 1925. Plate 257



SOUTH END OF TERRACE FRONT, OVERLOOKING LONG ISLAND SOUND
HOUSE AT PORT WASHINGTON, LONG ISLAND, N. Y.

DELANO & ALDRICH, ARCHITECTS

THE AMERICAN ARCHITECT
September 23, 1925. Plate 258



FRONT ON FORECOURT

HOUSE AT PORT WASHINGTON, LONG ISLAND, N. Y.

DELANO & ALDRICH, ARCHITECTS

THE AMERICAN ARCHITECT
September 23, 1905. Plate 299

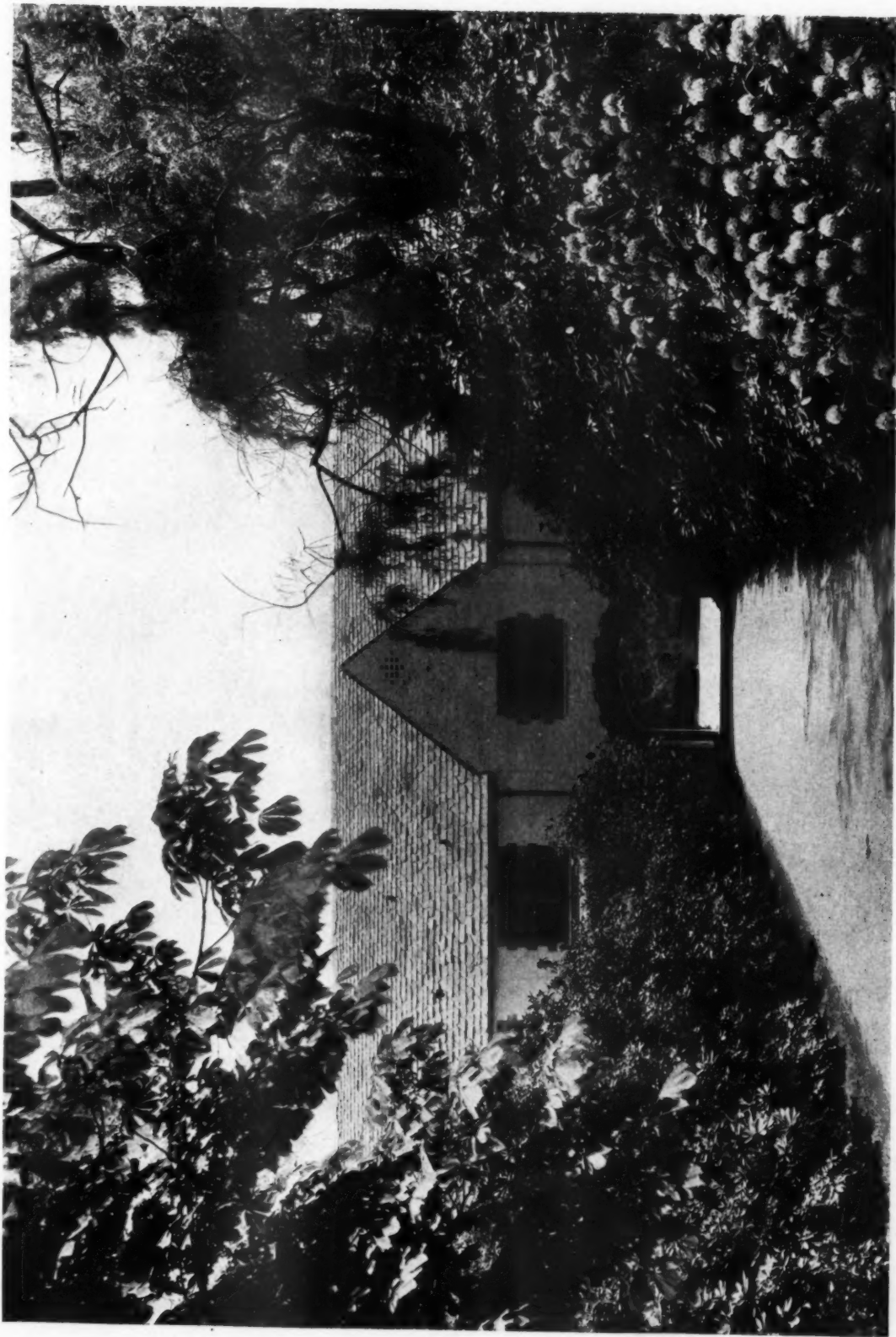


ENTRANCE TO FORECOURT

HOUSE AT PORT WASHINGTON, LONG ISLAND, N. Y.

DELANO & ALDRICH, ARCHITECTS

THE AMERICAN ARCHITECT
September 23, 1925. Plate 260



ENTRANCE THROUGH SERVICE WING

HOUSE AT PORT WASHINGTON, LONG ISLAND, N. Y.

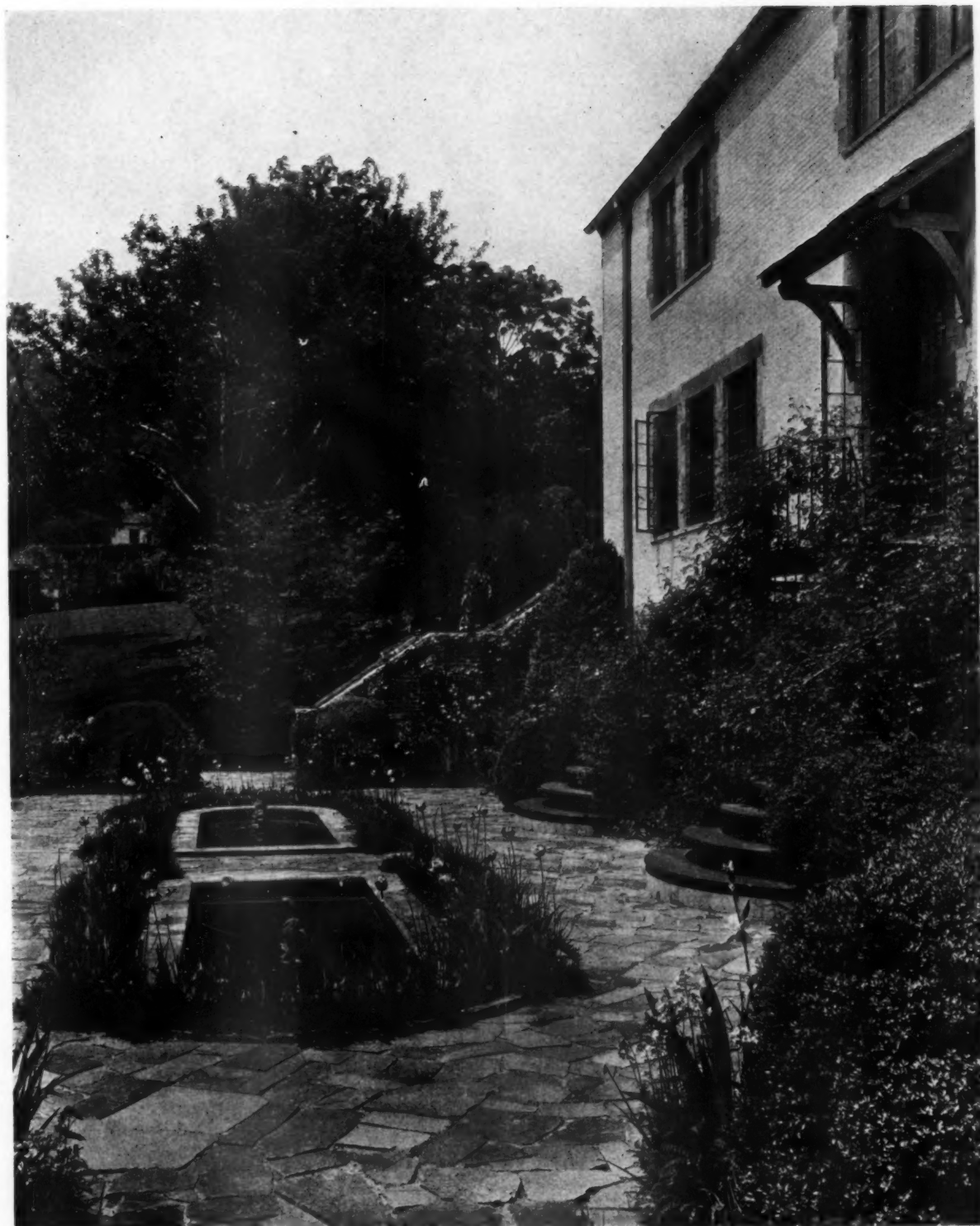
DELANO & ALDRICH, ARCHITECTS

THE AMERICAN ARCHITECT
September 23, 1925, Plate 201



ENTRANCE ON GARDEN FRONT
HOUSE AT PORT WASHINGTON, LONG ISLAND, N. Y.
DELANO & ALDRICH, ARCHITECTS

THE AMERICAN ARCHITECT
September 23, 1925. Plate 262



GARDEN FRONT

HOUSE AT PORT WASHINGTON, LONG ISLAND, N. Y.

DELANO & ALDRICH, ARCHITECTS

THE AMERICAN ARCHITECT
September 23, 1925. Plate 263

ARCHITECTURE as a SOCIAL COMPLEX

Sincerity, Propriety, Style and Scale

BY WM. ROGER GREELEY, A. I. A.

ARCHITECTURE is the most complex of the Fine Arts. Its essence is not easily defined, and the principles governing its expression are so interwoven with human life that they find closer analogies in personal traits of character than in impersonal formulae. Yet, under careful scrutiny, they reveal certain logical habits that appear to be governing principles.

The essence of any art is its peculiar way of bodying forth beauty as an expression of human emotion. In architecture this essence is the composition of masses, surfaces, lines, textures and colors, in such a way as to result in a building that will give delight. Architectural composition is the immediate embodiment of these physical elements, and as such is subject to physical laws. Yet these laws are not absolute, as are purely physical laws, for they in their turn are subject to the racial, national, local, and always changing human reactions with respect to the elements above named. So, while composition is the fundamental logical requisite in architecture, it must nevertheless always be qualified to meet the varying points of view that dictate in each particular age and clime the principles that shall govern architectural expression.

These human principles or qualities are the handmaidens of the art or composition itself, and although their presence is felt in every architectural achievement, their names are seldom set down together, and their relationship to each other is too little studied. In analyzing a building descriptive terms are loosely used; its "proportions" are called in question, the coarseness or fineness of its detail criticized, or its character spoken of as "commonplace."

With the purpose of giving a certain amount of order to such loose conceptions, four external principles governing architectural composition or design are here considered, namely,—sincerity, propriety, style and scale.

(1) SINCERITY

*The Hand that rounded Peter's dome
And groined the aisles of Christian Rome
Wrought in a sad sincerity:
Himself from God he could not free.
He builded wiser than he knew.
The conscious stone to beauty grew.*

Of the great governing principles of architectural design, sincerity is the best understood. The difference between straightforward design and makebelieve is simple. Sincerity as applied to

the structure itself means directness and truthfulness. It is easily contrasted with its common betrayers, sophistry and subterfuge. Sincerity expressed in a building, does not require that every piece of ornament shall voice a structural fact. Most ornament does, but has no need of such an excuse, as ornament may justify itself. "Beauty is its own excuse for being." The idea of sincerity should not be confused with that of severity. The unadorned American mill of the middle 19th Century, is of course sincere. The most ornate Gothic cathedral is equally sincere. Sincerity speaks in every line of the pinched, meagre, clap-boarded house of the early Colonial days. Sincerity is no less a characteristic of the lavish splendor of Versailles. Sincerity and insincerity are not the same as simplicity and complexity. The two ideas are unrelated. The Washington Monument is simplicity itself. The Eiffel Tower is most complex. Both are wholly sincere. Our land is spotted with domes that are simple. The Duomo of Florence is complex; but the latter is sincere, the former too often are sophistries. All types of buildings do not call for the same concept of sincerity. A church, or a playhouse, is interpreted in the light of the purpose served by each. Just as the very essence of a play is makebelieve, so the house in which it is to be found may, by its own flippancy of design, most truly portray and advertise the purpose for which it is built. A "showy" design may well express a "Show." Such a conception of architecture would, however, be offensively inappropriate for a church building. Sincerity cannot be measured by an inflexible rule, but depends upon the frank and reasonable acceptance of the conditions of each particular problem.

Looked at subjectively, sincerity in the architect is characterized by a high regard for his profession, a strong devotion to work, and a deep enthusiasm with regard to each problem of design that he undertakes to solve. Although a creative worker, he will have more of the point of view of a discoverer than a maker of beauty. His regard for his profession strengthens him to resist the temptation to secure through tricks and *tours-de-force* a temporary personal advantage. His strong devotion to his work frees his mind from the desire for short-cuts and plausible effects. His enthusiasm carries him through each problem to sound conclusions and a true solution.

Such attributes in the architect give to his work the quality that we call "sincerity."

(2) PROPRIETY

*"How many things by season seasoned are
To their right praise and true perfection."*

Although overlapping the concept of sincerity, propriety still occupies a large exclusive field in any consideration of good architecture. It was not insincerity but impropriety that characterized the proposal of a certain architect to use the design of the dainty pavilion of music at Versailles for a public convenience station in his city. It is impropriety that mars the use of a tall, top-heavy tower, borrowed from a sumptuous palace of the Italian Renaissance, to commemorate the landing of the English Pilgrims upon the bleak, low lying sands of Provincetown. Such a use of such a monument is the very quintessence of impropriety. It is improper from every point of view. To take a tower that originally was flanked and supported by a large and substantial building, and balance it, unbraced, upon the top of a shifting mound of sand is bad enough. To attempt to express the intense sobriety and rugged faith of a consecrated band of Pilgrims by the use of a machicolated turret representing a period of Italian prodigality is an unspeakable architectural crime. The monument is foreign not only in spirit but in form, as it reflects no tradition even remotely associated with the Pilgrims, whether in their English homes or their temporary environment in Holland. Neither does it represent the taste of those who erected it, the present inhabitants of the cape being of English or Portuguese descent. It offends not because of insincerity, but because of its glaring impropriety.

Through use, or evolution, certain architectural forms or types have become associated with certain kinds of buildings. A house, especially in colder climates, signifies shelter, and this idea of shelter has come to be expressed by a sloping roof. If we construct a cottage with a flat roof, we offend this principle of propriety. This is true even if a flat roof happens to be a more sincere form to use. In this case the consideration of propriety is stronger than that of sincerity. We are so accustomed to associate the pitched roof with the idea of proper shelter for a house that we demand such a roof, regardless of its extravagance and inutility. (Cf. Ruskin.)

We insist that a bank shall look as inviolate as a tomb, although the resulting design may incommode the clerks working in darkened areas within, and may not affect the safety of our monies in the least. Here there is a nice balance to be struck between propriety and sincerity.

As a further illustration, the many forms of the cupola and the spire are interesting. A spire on a schoolhouse is unknown. A clock tower on a private house is a breach of propriety, although

a sundial is deemed peculiarly fitting. A town hall with a tiny cupola is an object of derision. A barn with a glazed turret could not pass muster even among abandoned farmers, and who would apostrophize an eyebrow in a church roof?

Propriety limits the use of the spire to religious buildings. It is a feature that would be just as beautiful on a school, but for the impropriety. The spire is associated with aspiration, and things of the spirit. It points to Heaven. In its finer forms it points penetratingly and utterly to Heaven.

The obelisk too is vertical, and it tapers; but it does not point. It sticks up proudly, emblem of generation, from generation to generation. In our own capitol it commemorates with singular propriety the Father of his Country.

The tall chimney stack is vertical. It tapers. It does not point, however. It does not rise proudly or calmly. It vomits fitfully. It belches smoke and stands for the passing of hot air and sulphurous fumes. It may be in certain cases picturesque, but hardly a proper motif to dominate any but a purely industrial building. This, in spite of the fact that the domestic chimney is indispensable to the well designed house.

Propriety is not a fixed or absolute quality. In architecture as in other arts it changes with the point of view. Perhaps in time it will be considered perfectly proper to design a bank with abundant light and air, rather than like a vault; but in the interim propriety demands that a bank express security at the expense of utility. Window blinds and lace curtains are proper elements in house design and so are generally used, although the blinds may be a useless expense as far as practical needs go, and the curtains an agent for collecting dust. In an office building, however, propriety does not require these two elements of design, and in a garage or armory, however ornate, prohibits them. It is all in the point of view.

There is a propriety akin to consistency. A marble building with wooden trimmings may fulfill all the other requirements of the art, but not propriety.

There is even a propriety of respect. If the marble walls of a building admit dampness, and must somehow be made tight they will not be painted, as a wood wall is, or as sometimes a brick wall may be. If waterproofing of any kind must be applied, it will be a waterproofing that is invisible, out of respect to the marble.

Ironwork is usually painted black. Pink or yellow is not respectful. Good ornamental ironwork is wrought, out of respect to the metal, which is tough and signifies strength. If cast, iron is little better than cement, or plaster, or brass. It is brittle and coarse and corrodes. Bronze is more properly cast, because it is fine and takes the mold perfectly, and yet is tough and enduring. So

THE AMERICAN ARCHITECT

although iron is cheaper than bronze, what is a respectful use of bronze is not as worthy of iron.

There is a propriety of location. The surroundings qualify a building. Local materials, styles, methods of construction, and traditions should all be considered. The same banking accommodation in London, Paris, New York and Tokio would require varying architectural expression in the varying localities. In a town where granite is quarried, a school building of this material would pass as proper, while it might seem ostentatious in a community located far from a granite country, in a brick territory.

This propriety of location involves the consideration of the size of the building as well as its style, color, and material. In a small city where there are no buildings of more than six stories in height, and where the civic center is marked by rising ground upon which is located a city hall or state capitol of moderate proportions, a wealthy corporation builds a thirty story office building. It may be admitted that this building is faulty in scale in a certain way, although the scale of its openings, etc., may be identical with that of neighboring buildings. This fault is a minor one. The chief error is one of propriety. Such a building stands as an affront to the whole city. It is deliberately conspicuous at the cost of all other property. It is an architectural bull in the china shop, smashing all values to show its own brutal exuberance of power. Once built it remains, a cruel insult to the city's taste, — bully among buildings. Its proud preponderance is like that of a cabbage or a cornstalk in a pansy bed, but it is justified in an age that regards size as a virtue, and effrontery as one of the cardinal principles of advertising.

Good architecture will take heed of the general wellbeing and beauty of the neighborhood, seeking to enhance rather than thwart it. We can call this element "civic" propriety.

(3) STYLE

*"In words as fashions the same rule will hold
Alike fantastic if too new or old;
Be not the first by whom the new are tried
Nor yet the last to lay the old aside."*

If the building has not style it is poor indeed. It may be sincere; it may be proper; but without that thorough observance of traditional purity or unity of form that is called style, it is a mongrel. What a thoroughbred is in the world of animal fanciers, a building with style is to the architectural eye. There is such a thing as "style" in general, and there are the historical styles. There is the Greek and the Neo-Grec, its derivative. There is the Roman and its Renaissance Italian daughter, and of this latter family, the cousins in France and England—the French Renaissance

—The English Georgian — and, of course, the anaemic overseas niece, the American "Colonial." There are the Norman, the Romanesque, and the many Gothics. Spain has its classic-gothic tradition and its Moorish. There is the quaint fashion of the Tyrol, and the picturesque Swiss. There is the Eastern tradition of Byzantium and Russia, and there are the older Ptolemaic forms. No two peoples have ever developed the same style. The myths of the East and the West and the North and the South embody the same phrases; but a glance suffices to distinguish the architecture of Greece from that of Rome, although the latter was copied from the former. In its turn the Renaissance building, produced by devoted students of the Roman art, is as distinct from the Roman in style as Dante is distinct from Virgil, or as Lorenzo is distinct from Caesar. Into this same Roman, the Frenchman, the Spaniard, the Englishman, the Dutchman and the Colonist of North America each worked his character so that no two resulting styles are alike.

Each national style is itself subdivisible into purely local types, recognizable by well pronounced accents or earmarks. In a book published in 1922 Russell F. Whitehead enumerates and describes no less than twenty-three distinct styles in modern American wood-built houses! Some of these were co-existent and some followed after others in the same locality; for styles vary with time as well as with place.

The genius of the locality is manifest in its style. This quality of "style" is the unconscious characteristic of the architecture, and may be called its "personality."

There are good styles and bad styles. There are buildings that fairly reek with style, such, for instance, as those of the mid-Victorian period. Lack of style, however, like lack of personality, is always a fault or a liability. Style is as hard to analyze as personality. There are prominent elements in each historical style by which a building can be classified. But there are subtle qualities, too, defying analysis.

A building in the "Roman style," historically, may, of course, be lacking in "style" artistically. Just as a man dressed in the latest "style" may lack "style" if he wears his clothes in a slovenly way, so a building dressed in Roman motives, may bear those motives in a clumsy and slovenly manner.

Style differs from sincerity in its subjective aspect. Sincerity is a much more individual quality than style. Sincerity is a direct and complete product of the master. A style must develop step by step. There is no formula for style. To be a master of any style, an architect must understand it sympathetically and intimately. Even then he will interpret the historical style, as Bru-

THE AMERICAN ARCHITECT

nelleschi did, through his own personality, and the result will be a new cast to the old style. To be a master of "style" as such is a greater talent. It means the power to embody personality in the structure. This power is one of the rarest gifts of genius. He who can impart to the building he designs the elusive but enchanting quality called style, is a great artist, whose art defies a cold and calculated analysis.

(4) SCALE

"No, 'tis not so deep as a well, nor so wide as a church door: but 'tis enough, 'twill serve."

Scale is not a simple quality. There is absolute scale, and there are relative scales. There is human scale, which is absolute. A flight of steps must be in scale for a man if it is to be used by men, or for a pigeon if it is to be used by pigeons. A balustrade is similarly conditioned with regard to size. If it is twenty feet high, it is "out of scale" as a balustrade. The height of a room, the size of a door, the length of an auditorium are all limited by human scale.

Great size is often impressive. There may be, in a given case, no insincerity in it. It may be proper, it may be "in style" and yet not "in scale" with the human element.

The library in the Harvard Yard is a case in point. It is large: it needed to be. It is large because of a sincere and proper regard for the requirements of the problem. The style is accommodated to the size. Nevertheless it is wrong in scale. It is like a grand piano in a two-room flat. The fault isn't with the piano or the flat, but with the "scale." The Harvard Yard has been established for centuries. Its choicest buildings are all small in scale,—almost domestic. Its area is limited. The sudden intrusion of the great new library building is the same kind of violation of scale as the introduction of a trombone into a mandolin club. The fact that it is a perfectly good trombone doesn't help matters much, nor does the fact that it is well played. Involved in this violation of "scale" is a violation of propriety, also.

Scale, even human scale, varies with different styles. A French house and an English house differ in scale, although a Frenchman and an Englishman do not. The Romans were small but their architecture was large in scale. The New Englanders were large and big-boned, but their architecture is small and delicate in scale. Into the narrow New England village street lined with its dainty architecture a bank building in the Roman manner is introduced. Our sense of scale is outraged.

When a building "lacks scale" it means that the

size of the building is not expressed in the architecture. The moon lacks scale and looks different in size to different people. The pyramids lack scale. The largest and the smallest are identical in design, except for the stereotomy. The Educational Building at Albany lacks scale. Its main facade is a strip or movie film of a plate from Vignola. It might be of any size. The scale of a building can be a confused scale. The "popular" American bungalow type is an example. The building itself is small, but the detail is large enough for an office building.

The human trait that corresponds most nearly to the architectural quality "scale" is common sense, or a sense of proportion. Mathematical proportion itself is apparently not a fixed governing principle of architecture. It is itself governed by style, scale, and sincerity, if not by propriety. The proportions of the Doric order vary from the temple of Ephesus, with its massive stone shafts, to the Colonial porch with its attenuated colonettes. The mass proportions of a house can be reduced to no formula. In our own Colonial style we have the stately three story mansion, a compact cube, and the long rambling farmhouse. We have flat roofs on tall houses, pitched roofs on houses so low as to be all roof, and everything between. A twenty story office building would once have been monstrous in proportions, where now it may be deemed elegant. Steel as a framing material is working a revolution in the proportions of openings. The proportions of cornices, story heights, windows, doors, and rooms are at present being regulated by law. This affects the problem of design, but rather as a special set of conditions to be met than as a governing principle. It is impossible to define or recognize any law of proportion that is not subject to scale, style, propriety and sincerity.

When we speak of a "sense of proportion" as applying to scale we do not mean perception of proportion in its mere physical properties, but in its more complex relationship to style, propriety, material, environment, and use. Scale recognizes all these influences, in addition to the interrelation among the component parts of a building themselves.

Given sincerity, propriety, style and scale, in any architectural creation, there remains nothing vital to be added to the original composition. These four qualities give to it all the grace and perfection needed to make it a masterpiece. They define its purpose, justify its character, cause it to be vibrant with personality and make it the natural flowering of its environment.



INTERIOR ARCHITECTURE

A Revival of Craftsmanship

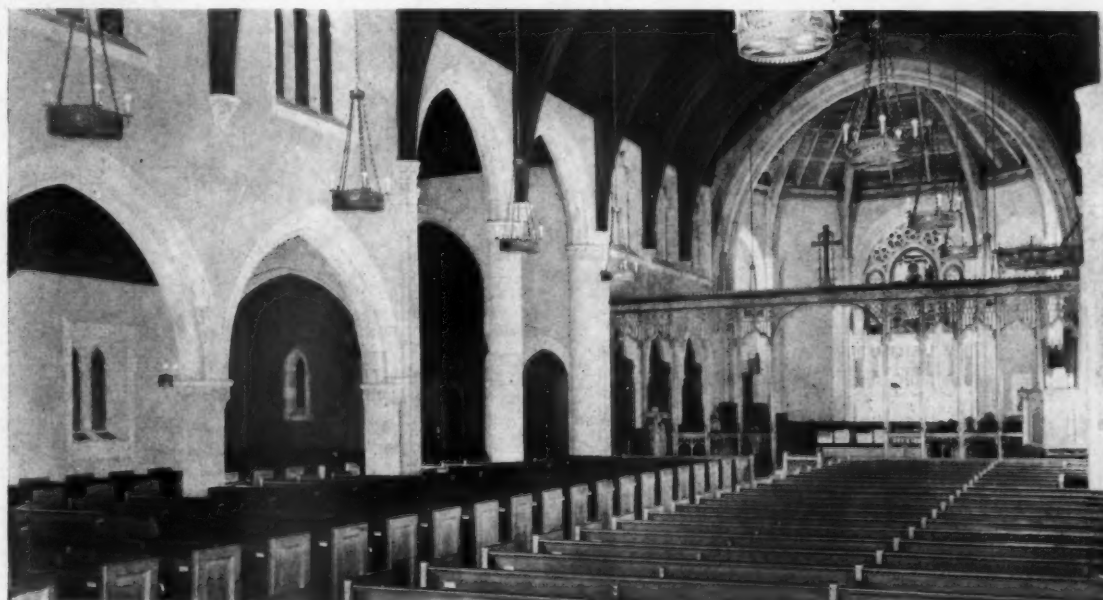
IN the designs of no other period or style of architecture and decoration is ornament based so firmly and so sincerely on structural lines as in the Gothic of the thirteenth and fourteenth centuries. Its ornament, by being a part of the architectural design, and not simply applied to it, serves to accentuate the structural lines of the architecture, as all ornament should, and its existence is therefore wholly accounted for. There is a reason for such ornamentation which needs no explanation. Just as the pointed arch and the tracery patterns are so peculiarly characteristic of the structural features of the Gothic, so do the

tracery patterns and the pointed arch afford the principal means of introducing ornament as decoration of the architectural design. Gothic ornament is characterized by a peculiarly light scale

which is even emphasized by the stupendous dimensions of the religious edifices in which the Gothic most frequently found expression. The Gothic has, since the time of its inauguration, been considered the ecclesiastical style of architectural design. In its details, however, there is evident a certain crudeness or lack of smoothness which gives it an individuality that adds greatly to its interest. In other words, the ornamentation, for example, retains



TOOLMARKS AND FIGURE AND GRAIN OF THE WOOD ARE MUCH IN EVIDENCE IN THIS PANEL, WHILE THE TECHNIQUE OF THE PARTICULAR CRAFTSMAN GIVES IT INDIVIDUALITY



THE NAVE, ALL SAINTS EPISCOPAL CHURCH, PASADENA, CALIF.

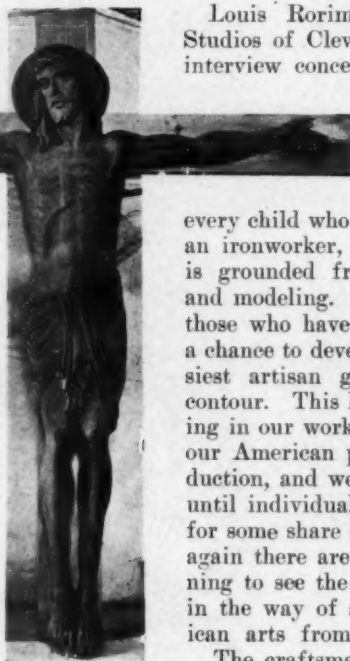
JOHNSON, KAUFMANN & COATE, ARCHITECTS

THE AMERICAN ARCHITECT

certain toolmarks of the woodcarver, which, added to the figure and grain of the wood, give it a most interesting texture. Thus does the woodcarver become a craftsman, for it is his individuality, as represented by those toolmarks, which give it the character by which it is recognized and made interesting.

Even in the later days of the periods, under the leadership of Grinling Gibbons, the designer himself frequently executed his designs in the wood. He knew, as few designers know today, construction, and the relationship of his design to its structure was back of its sincerity and honesty. An architect or a decorator may be a wonderful designer, even, perhaps, with little knowledge of construction, but in its execution, the craftsman, understanding its structure, adds the constructive note here and leaves out the false note there, seeking none of the glory and desiring no share of the praise.

In the development of a better craftsmanship, our designs will take on added interest and vigor, for the understanding of ornament and structure, and their relationship one to another, is prerequisite to sincerity and honesty in design.



CHRIST ON THE CROSS
IN CARVED WOOD

Louis Rorimer of Rorimer - Brooks Studios of Cleveland, Ohio, in a recent interview concerning the Paris Exposition, stated that "our greatest problem is the lack of draftsmanship among our artisans. In Europe

every child who is to become a carpenter, an ironworker, or a maker of furniture is grounded from infancy in drawing and modeling. The consequence is that those who have exceptional ability have a chance to develop it and even the clumsiest artisan gets some conception of contour. This lack of imaginative training in our workmen is, of course, due to our American passion for quantity production, and we shall never get very far until individual craftsmanship comes in for some share of appreciation. But here again there are signs that we are beginning to see the light. I hope for much in the way of stimulation to the American arts from the Paris Exposition."

The craftsman woodcarver plays very much the same role as that of a pianist, for example. His interpretation of the designer's full size drawing, like the pianist's rendering of the composer's score, is not by any means a mechanical process. With the



LOOKING TOWARD THE CHANCEL, ALL SAINTS EPISCOPAL CHURCH, PASADENA, CALIF.

JOHNSON, KAUFMANN & COATE, ARCHITECTS

THE AMERICAN ARCHITECT

various tools at his disposal he expresses it in his own individual manner, and a goodly share of the interest in the finished product should rightfully be bestowed on him, as it is on the pianist for his rendition of the musical composition. The Gothic period developed craftsmen who have left their impress on the world for all time, and Gothic designs and examples of their craftsmanship have been the inspiration for much modern work, both in this country and in Europe. In the design of the carved woodwork in All Saints Episcopal Church at Pasadena, California, herewith illustrated, and in its interpretation, whether the credit belongs more to the architects, the designers, or to the craftsmen who executed the work, the character of the old Gothic has been adeptly expressed. The designs follow closely the tracery pat-



CAST IN A FIREPROOF COMPOSITION MATERIAL FROM A CARVED WOOD MODEL. THE REPRODUCTION RETAINS MUCH OF THE TEXTURE WHICH GIVES CHARACTER TO THE ORIGINAL

terns so characteristic of the style, the scale is light, and the decorative enrichments are well based on structural lines. Its execution is beyond criticism and the touch of the skilled craftsman is everywhere apparent.

We, in our modern methods, have changed the old order of things whereby the designer carved his own design out of the wood. Our designers know little or nothing of the manner in which their designs are to be executed. Working out his design on paper, as he does, the designer often fails to realize that the finished work is to be executed in three dimensions. He fails to "feel," as the real artist would say, the finished work. Yet this same drawing must serve as the only inspiration to the woodcarver and his rendering of it must be beyond criticism. Thus does the woodcarver become the craftsman. As



IN CARVING FIGURES IN WOOD, THE CRAFTSMAN TAKES ADVANTAGE OF THE NATURAL FIGURE AND GRAIN OF THE WOOD IN AFFECTING TEXTURE FOR THE FLESH AND DRAPERIES

THE AMERICAN ARCHITECT

Mr. Rorimer says, he must know drawing and modeling. Further, his own interpretation of the composition is often what merits applause.

Notice in the reproduction of a photograph of Christ on the Cross, illustrated on another page, and in the group of figures on the third page of this article, how cleverly the figure and grain of the wood have been employed to give the desired texture to the flesh and to the draperies. And also with what marked success the toolmarks of the craftsman carver have been allowed to remain to give character and individuality to the finished

into the shapes of men, rather than, as is more commonplace and bad sculpture, at men carved in stone." Under the title of "The Complete Dictionary of Modern Art Terms," published serially in the International Studio, reproduction is defined as "the imitation of a work of art in a material or by a process foreign to the thought of its maker," which definition, it adds, explains why an exact plaster cast of the Venus de Medici falls short of the original. That seems very well put, and its application here is that the toolmarks of the woodcarver immediately stamp the process employed by the maker of the original. The concealing of those toolmarks tends to disguise the material as well as the process and its individuality is thereby lost. Visible toolmarks give a new interpretation to even an old composition. They introduce personality into the finished work, and the expression of personality is vital in creative design.

Acknowledgment is made to the following firms for their courtesy in supplying illustrative material: American Seating Company and Thomas & Company, Inc.

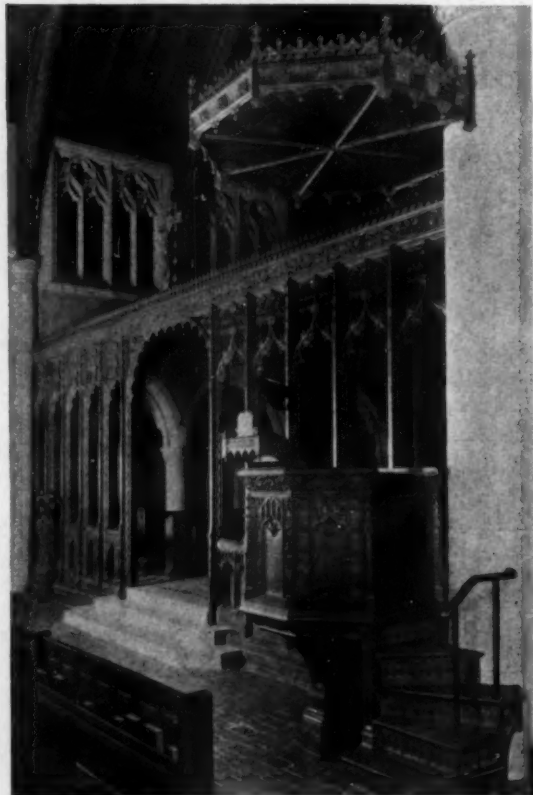


SEDLIA AND SECTION OF COMMUNION RAIL, ALL SAINTS EPISCOPAL CHURCH, PASADENA, CALIF.

THE CARVING IS EVERYWHERE THE WORK OF A CRAFTSMAN

JOHNSON, KAUFMANN & COATE, ARCHITECTS

work. Yet little, no doubt, did the designer consider these things when he drew his full size detail, but, understanding how much depended on his rendering of the composition, and making use of his knowledge of construction, the master craftsmen realized their possibilities and made the most of them. The quality of the material, wood in this case, and its method of construction should never be challenged. This idea was well stated by S. D. Adshear, writing of the sculpture at the Paris Exposition in *The Architects' Journal*, London. He said: "In many of the bas-reliefs that decorate big stones, we are looking at stones cut



HIGH PULPIT AND CANOPY, ALL SAINTS EPISCOPAL CHURCH, PASADENA, CALIF.

THE SPIRIT OF THE GOTHIC PREVAILS THROUGHOUT
JOHNSON, KAUFMANN & COATE, ARCHITECTS

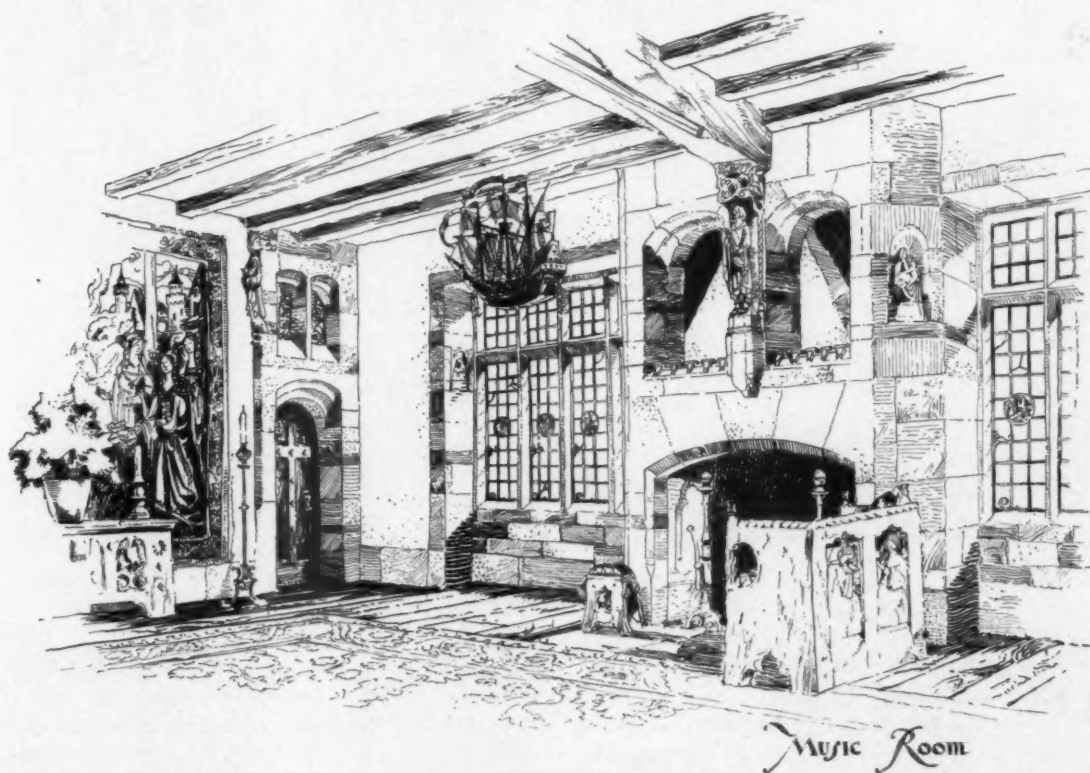
The RENDERING of PERSPECTIVES of INTERIORS

IT is generally conceded that the average client finds it difficult to visualize a finished room from the architectural elevations of its four walls, and, as a consequence, architects and decorators have become accustomed to submit perspective sketches of this phase of the work. These sketches are intended to give the client an idea—not too accurate in detail—of how the room will look when completed, and they often play a most important part in closing the contract. Perspective sketches are often made in pencil or pen and ink, for actual samples of the various materials may be submitted with the sketch to give the client definite information regarding the color scheme, thereby making colored drawings unnecessary. The most successful sketches tend more toward effect rather than detail. Pencil and pen and ink are both mediums which give the renderer opportunity to slur certain details which the average client neither understands nor is interested in, for such details frequently make the sketch complicated and detract from the more important features of the architectural and decorative schemes which give to the room its individuality.

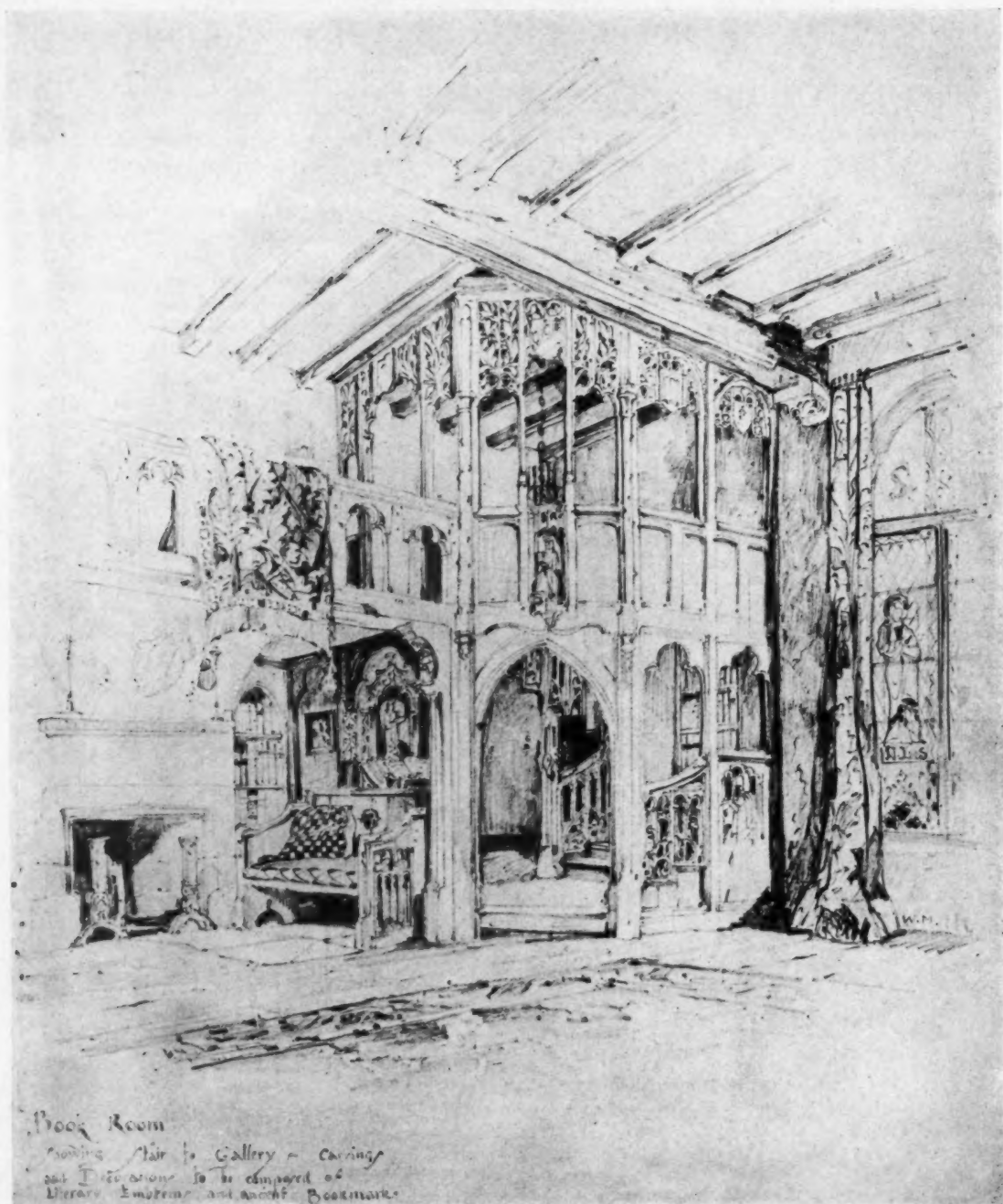
In line with our modern tendencies to specialize, just as the woodcarver is another than the de-

signer, so do we have the renderer who specializes in rendering as perspectives architectural and decorative designs made by others. But it cannot be denied that in such cases the emphasis is frequently put on the wrong place and a lack of knowledge of construction is often accountable for blunders which give an entirely false impression. The renderings reproduced herewith show at once that the artist understands both design and construction. These sketches were rendered by the designer, in fact, they were made actually in the course of studying the design. One in pencil and one in pen and ink, they show well the difference in handling these two mediums, both striving more for effect than for detail, yet extremely suggestive and full of atmosphere. Their freehand quality, too, is appealing, for the use of the T-square and triangle is never desirable, or noticeably so, in effective perspective sketches.

From time to time, renderings of sketches, perspective and otherwise, of interiors will be shown in this department, those of Carlhian of Paris, reproduced in the issue of August 26, 1925, inaugurating the series. Those shown in this issue are by William Miller of P. W. French & Company, decorators.



RENDERING OF AN INTERIOR IN PEN AND INK. FROM THE ORIGINAL DRAWING BY WILLIAM MILLER OF P. W. FRENCH & COMPANY, DECORATORS



RENDERING OF AN INTERIOR IN PENCIL. FROM THE ORIGINAL DRAWING BY WILLIAM MILLER OF P. W. FRENCH & COMPANY, DECORATORS

A COMPETITION FOR WALLPAPER DESIGN

ON another page is made known a competition, conducted by the Art-in-Trades Club of New York, for an original design for a wallpaper, "expressive of the needs of modern civilization." This announcement follows that of

a competition on a larger scale for the design of a complete scheme for an apartment, in which any design that suggests "period" influence in any detail will be immediately barred from consideration. This movement is away from the dead hand of "period art."

REVIEW of RECENT ARCHITECTURAL MAGAZINES

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

WHEN we wrote our last review, or at least when we started to write it, we were, as we frankly confessed, in a state of extreme mental and physical dejection, a condition which we attributed with some justice to climatic conditions, to the dog days in a word. This time we have no such excuse; we are really quite cheerful and lively; the day is cool, and, it being a holiday, we are alone in our office and not subject to annoying telephonic or other interruptions; we have just returned from a trip of inspection of one of our buildings—we have one other, so that the plural is justifiable—and when we saw it we really felt this building was coming on well; to our somewhat prejudiced eye, it looked very well indeed; and then too, we haven't lost a competition in at least five weeks. We haven't won any, it's true, but we haven't lost any lately, that is, not yet; after October first we may feel differently. And, still, in spite of these favorable conditions, and in spite of the zest and eagerness with which we have approached the task of looking over the month's accumulation of magazines, in spite of our—we won't say pep because we despise the word—our, well, in spite of everything, we can't find much in the cursed papers because, really, it isn't there. This condition is unusual; there is generally something; and we can only attribute it to the fact that these papers we've been looking at were gotten out about the time we wrote our last article, in the dog days, so that naturally they are not up to the mark. The one German paper we see is not even funny; the French papers have some queer looking things from the Exhibition in Paris, and a monument, only proposed we hope, in commemoration of something or other about the Suez Canal, which seems to be an attempt to show in elevation the plan of a canal in Mars, and a good deal of space is given to a small church, the design of which was palpably inspired by the

block building of a feeble-minded child. The English papers show the Ironmongers Hall and a War Memorial at Malvern College by Sir Aston Webb and Son, a building with a large hall on the second floor, which will probably be interesting when the newness and hardness have worn off; also a new nave to Downside Abbey by Sir Giles Gilbert Scott which undoubtedly looks well in execution, and the Menin Gate at Ypres, a Memorial by Sir Reginald

Blomfield, which is interesting but seems to lack monumental quality. It may be that when built it will be very fine, but in the line drawing it does not look as big as it really is, the attic or parapet seems a bit low, particularly as there is a heavily projecting Doric cornice immediately below it, and the square head openings on either side of the central arch seem a little crude.

There is in *The Architectural Review*, London, for August an article on Iron Firebacks which is well illustrated and good reading, showing examples from the early fifteenth century when the design was made by pressing pieces of rope or fragments of wood carving into the sand mould, to the later ones of the seventeenth and

eighteenth centuries which were completely designed and specially modeled. These firebacks have interested us extremely, not because of the quaint designs, which are often excellent, but because of the treatment of the material, or rather of the design to fit the material. They are all palpably cast iron; by no stretch of the imagination could they be anything else. The pattern is slightly raised from one plane, and so modeled that the mould could be drawn easily; there is no chasing or undercutting. They are quite similar in character to the cast iron work done in this country in the eighteenth and early nineteenth centuries, particularly the cast iron doors and panels frequently found in the older monumental buildings. All these were made practically on one plane, with flat orna-

From "La Construction Moderne"



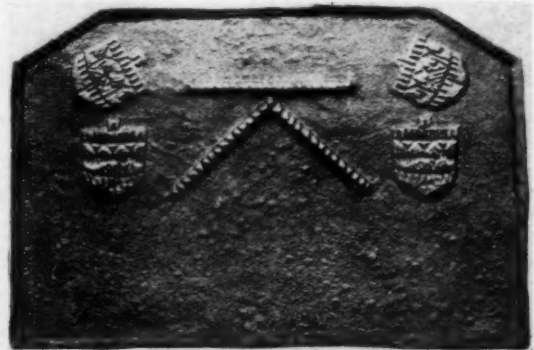
EGLISE DE LA MALMAISON
M. P. MAROZEAU, ARCHITECT

THE AMERICAN ARCHITECT

mented mouldings and rosettes; the design was good and they made no pretense of being anything but cast iron. They were probably designed by the iron founder or at any rate, by someone who knew how to design and model cast iron. Nowadays, it is quite different. A window is shown with metal frame and an ornamented panel below it. The draftsman hopes it will be bronze and so details it, but the hard boiled person who writes the specifications calls for alternates in cast iron and in stamped and drawn copper. The contract is sublet half a dozen times, and the window is finally made in cast iron in some obscure factory hundreds of miles away. The shop drawings when received show radical changes in profile, and the photographs of the models are atrocious, but it is made, and sent all fabricated to the job. It rarely fits and it looks like, well, not like first quality stove casting as was specified. The swags stick out in great bunches, and what were supposed to

a great extent, it is his fault, but much of the blame lies on the system, the modern quantity production, the time-saving method, in a word, modern construction. In the case of the window, the blame lies on the architect either because he conducts his profession as a business and not as a profession, and his organization, God save the mark, is not dissimilar in viewpoint from that of the contractor; his use of materials depends, not on the design, but on the cost, and the economical handling of the job in his large office will not permit the revision of the design to suit the cost;

From "The Architectural Review," London



FIREBACKS, THE FIRST TYPE
LATE FIFTEENTH CENTURY EXAMPLE



FIREBACKS
A SIXTEENTH CENTURY EXAMPLE, FROM THE WAYTE COLLECTION

be garlands of fruit look like little bags of stones, and all projecting leaves and rosettes are cast separate and stuck on; and it is usually painted with a heavy, sticky coat of red paint of a particularly loathsome color, and the markings showing the number and location are painted in large figures in the face so that the few additional coats of paint called for by the specifications will never cover the marks. It's a travesty, the whole thing is wrong, and the architect gets the blame. And to

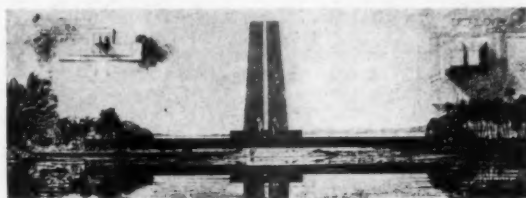
or, on the other hand, because with a smaller office and the best intentions he is ignorant of the proper use of materials.

As we see it, the greatest obstacles to modern architecture are those very things that are considered the greatest advances in modern construction, machine production, multiplicity of material, and steel and reinforced concrete construction. Building is made too easy. Anything can be built, in any way, and in any material. The design is not dependent on material but absolutely independent of it. This does not make the road of the designer easy, it makes it hard. In the old days when architecture was developing, its development into a style was governed by the materials available and by the construction that was suitable to these materials. The Assyrians developed a brick and tile architecture because they had no stone; the Egyptians had stone and unlimited slave labor and their style is the natural concomitant of that and climatic conditions; the Greeks preferred marble; they were artists, not engineers; so they troubled little about construction; they built as they did, not because it was honest and logical, but because they knew no other way to do it; the Romans were engineers and developed their construction to the extreme limits of masonry vaulting, and their architects, for they had architects and good

THE AMERICAN ARCHITECT

ones, too, were put in somewhat the same position as the modern architect; they were embarrassed by construction. Their walls had to be excessively thick to hold the vaults, and to their practical minds it would have been the height of folly to have built these walls solid of the material proposed for the exterior; the natural thing was to face them with stone or marble where they could; this is not a debasement of architecture as many nonprofessional writers contend; it was, on the contrary, good architectural practice. And they also had to clothe these walls and vaults in some pleasing and monumental way, and they very naturally developed the peripteral order of the Greeks into a wall treatment. Now there has been a great deal of criticism of Roman architecture and of their debasement of the orders, criticism that is

From "La Construction Moderne"



MONUMENT À LA DÉFENSE DU CANAL DE SUEZ

M. M. ROUZ-SPITZ, ARCHITECT

unjust and unintelligent and often nonsensical, and there has been an overflow of it lately, the criticism being applied not so much to the Romans as to modern architecture. And to us it seems that the trouble with these criticisms is that the authors, being in general nonprofessional men, and certainly not designers, have no real understanding of classic architecture and no appreciation of what an order really is. Now there is nothing mysterious or sacrosanct about an order; it was a gradual development of a practical form into a thing of beauty, an architectural form. It had its origin in the practical post or pier, but with that practical side went always the artistic side. From earliest days an upright stone, or pier, or column, was regarded as an appropriate and symbolic method of decoration. The Egyptians, the Assyrians, the Persians, the Greeks, did not use the column merely to support a roof; they used it as the ultimate decorative form that they knew. A plain rectangular building would have been quite sufficient for a Grecian temple, as was apparently the case in very early times, but the Greeks were not satisfied with mere utility, they demanded beauty, and they surrounded their cella with rows of columns merely as a decoration, and in fact they developed their orders into purely decorative forms. If, then, an order is only a beautiful decorative form, why not use it as deco-

ration. The Greeks used it as an engaged order in wall decorations and the pilaster treatment of the Romans is merely a development of that and of the Greek anta. Nor is there, as Mr. Charles H. Moore says in the September number of *The Architectural Record*, anything banal in placing a statue over an engaged order as a further means of decoration, nor of putting the order on a pedestal if you want to. Why not? It's a curious thing, this architecture, and the criticism of it. In the same article you will find a pessimistic outlook on all modern work and a demand for absolute freedom in design, and on the next page a dogmatic statement that Roman architecture was utterly debased because they did not use the order as the Greeks did.

And then there are many who take the determined point of view that the order is out of place entirely in modern work, or, that if you must use it, it should not be a servile copy of classic forms, but something new, something appropriate to the times. Now the first statement seems to us utterly absurd. In all architecture from the earliest times until now the order, that is to say the column and what is above it, was used as a decorative form; often it actually supported something, often it did not; but in all good architecture it was decorative; whether structural or not, it was decorative. Why then in these days, when God knows we need something decorative, should its use be suddenly and dogmatically forbidden? There have been, and there are, architects, and good ones, who dislike the column and refuse to use it in their work. That is their privilege, no one can quarrel with that. But it is not their privilege to advance the proposition that because they don't like columns, all columns are bad. Nor can we see the point often made that columns were all right in classic days and all wrong now. It would be interesting to know just where the line is to be drawn. It reminds us of the action of a convention of some religious sect or other on the subject of infant damnation. As we remember it, they decided that, after all, babies would not be utterly damned if they were not baptized, and very generously agreed that in future they should not be, so that as a result all babies born after the passage of the resolution were immune, but apparently all unfortunates born before 12:15 p.m. June 22, were hopelessly damned.

Now as to copying of Classic orders: this, according to some critics, is absolutely banal, and shows an entire lack of originality and is utterly stupid. Here again the trouble is that the critics don't know much about orders and have never tried to design one. We would recommend to these worthy gentlemen to try it and find out. An order is a very simple thing, an upright and a beam over it, and there are not many changes that can be rung in that simple element, and we

THE AMERICAN ARCHITECT

firmly believe they've all been tried. Able designers have been at it for several thousand years but we can't see any great improvement in the last two thousand. The cry is made that all classic work is standardized. That is nonsense. There are no two orders that are the same, but there are certain principles that must be recognized, principles that are the result of experience and not the result of arithmetical formulæ. They can be expressed for the guidance of others in terms of numerical proportions, as could a perfect statue of a man, but they were not designed by formulæ.

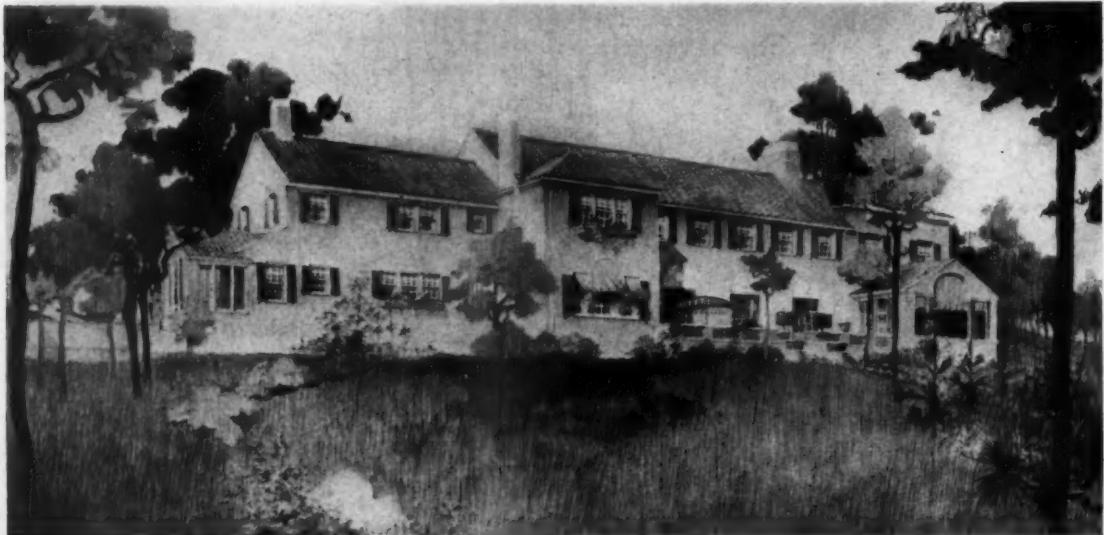
Now reverting to modern architecture, we can see no reason why classic motives should not be used as well as any other. It all comes down to a question of individual preference, because on account of the damnable facility of modern construction, architecture is independent of it. We speak, of course, of large commercial work built over a steel frame. There is work to be done, thank God, that can be treated in monumental manner, in which the architecture expresses the construction. There is not as much of it, naturally, as there is of the commercial, but it is being done by a number of men and well done. We won't say it is better than the old work, but it is more varied, and it will live, and we are prejudiced enough to believe it is better done in America than anywhere else. Now we are not so hidebound on this subject as many imagine. We don't at all pretend to lay down any rules or to make any dogmatic statements. We would be very glad indeed to see even monumental work done in a modern, or an ultra modern way, if the result were good. It's not a question of style, it's a question of beauty. The

trouble is, as we see it, that the modern work is not beautiful. It is novel and fantastic, but it is not beautiful. It is possible it may be made so, and if it is, we would be the first to commend it.

And on the subject of modern architecture, we have little patience with the gentlemen who, possibly for the purpose of attracting attention, damn all work that is now being done and talk glibly, but vaguely, of the time when some marvelous new style will be born of steel and reinforced concrete. We have received from *The American Mercury* what we suppose are advance sheets with a little blue paster which says that we are at liberty to quote (with credit) up to one-half the text. The article is by Lewis Mumford and is called the Poison of Good Taste, from which we will quote, but following the instructions of the sticker, you, gentle reader, won't know the half of it:

A little while ago an architect defended the Roman Catholic churches in America by saying that until the Catholics began to imitate the Episcopalians their buildings had never been handicapped by good taste . . . There was, perhaps, more promise for American architecture in the uncertain turmoil of the late 'eighties than there is at the present moment. . . . So the fear of being ridiculous, fostered no doubt by such gentlemanly fellows as Messrs. Hunt and McKim and White, took hold of the American business man some time in the 'nineties . . . The result is that no cultivated person cares to waste two winks of an eye upon our "fine buildings;" the only places where something positive and interesting is in sight are a few small office buildings, an occasional public school or an apartment house.

So Hunt and McKim are gentlemanly fellows, poisoned by good taste! Oh, well, it must be comforting for Mr. Mumford to realize he is in no immediate danger of being poisoned.



A HOUSE AT WOOD'S HOLE, MASS.

OFFICE SKETCH BY O. R. FREEMAN OF THE OFFICE OF
KILHAM, HOPKINS & GREELEY, ARCHITECTS

ENGINEERING and CONSTRUCTION

PRACTICAL DAYLIGHT CALCULATIONS for VERTICAL WINDOWS*

BY WENDELL S. BROWN**

SYNOPSIS:—The essential purpose of this paper is to facilitate the reasonably rapid and accurate determination of daylight illumination in a room lighted by vertical windows. The primary aspects of the problem are emphasized; diagrams are given for the express purpose of showing separately the individual relative importance of such primary factors in any design; and a typical lighting problem is worked out and discussed at some length.

ONE of the old and familiar methods of computing comparative daylight illumination values was a rule-of-thumb process involving merely a ratio of glass area to floor area, such as 10 per cent or 20 per cent or 30 per cent, as might be deemed necessary for the particular occupancy in question. And with this method, it was necessary to use considerable judgment—increasing the figured glass area for such effects as obstruction from adjacent buildings, etc., but often, however, taking no account of other factors which had a very great influence indeed.

The same causes which have stimulated progress in other lines of endeavor have naturally operated to demand a clearer visualization of and greater accuracy in computing the various factors entering into daylight determinations. Consequently, it is becoming increasingly important to make allowances for many conditions which the old rules did not take into consideration. Some of these are *height at which glass area is placed, relative thickness of wall piers, and exterior surroundings*. For example, *doubling the breadth of a given window (height remaining the same) may triple the actual quantity of entering daylight under certain conditions*. And *doubling the window height (width remaining the same) not only doubles the total entering daylight but may, on account of increased uniformity (depending on the given design) improve the illumination so that the minimum or governing intensity upon a horizontal plane in the darkest work space is actually quadrupled*. Consequently, in a case like the above, doubling both dimensions, which is equivalent to multiplying the original window area by *four*, may cause the effective illumination in the darkest part of the room to mount to over *twelve times* its original value.

Some working knowledge of the general principles disclosing measurable facts such as the above is needful in determining the most desirable window arrangement or fenestration. If a compromise seems necessary between architectural considerations and daylight requirements, relative values must be properly sensed and appraised in order that the designer may give them their due weight in the ensemble. The various advantages of brevity combined with a reasonable degree of accuracy, for the every day use of the architect and engineer, need no elaboration; and it is the purpose of this paper to suggest a method which is, or which with further refinement, if necessary, can be made sufficiently accurate for the usual run of work. The diagrams submitted are intended to meet these two requirements and are prepared with the express purpose of showing *separately* the individual relative importance of the several primary factors entering into the problem.

Starting with a given or "standard" outdoor daylight intensity, Fig. 1 shows the comparative illumination at the level of the window sill for various distances back from a continuous unglazed opening. Next there is a correction factor for glazing (see Fig. 2); then a correction due to light obstructed by pier thickness (see Fig. 3); then a further possible reduction due to vertical exposure as affected by landscape or interference from adjacent buildings (see Fig. 4); and, finally, a correction factor due to horizontal exposure as affected by cross walls (see Fig. 5). Each of these factors is expressed separately in a diagram of its own, so that its individual relative importance in any design under consideration may be easily determined.

It is sometimes useful for clearer visualization of a given lighting problem to express the results directly in foot-candles illumination rather than as abstract percentages. Fig. 1 has been worked up both ways. In the case of the foot-candle method, the start is made with an *interior* illumination corresponding to a certain *standard outdoor* intensity, the latter being based upon the minimum intensity ordinarily available during two-thirds of the daylight hours of a cloudy day at lat. 40° to 45° north. This value of interior

*A paper presented before the Annual Convention of the Illuminating Engineering Society, Detroit, Mich., September 15-18, 1925.

**Engineer, F. P. Sheldon & Son, Engineers and Architects, Providence, R. I.

illumination has been conservatively taken as an intensity at point *P*, Fig. 1, of 100 foot-candles on a horizontal plane. The corresponding value of "standard outdoor illumination" produced simultaneously upon an outdoor horizontal plane exposed to the whole sky from horizon to horizon is about 700 foot-candles. Obviously, such com-

thirds of the daylight hours during the year.¹

DISTANCE-IN FACTOR

The lower portion of Fig. 1 shows a room of infinite length lighted by a vertical opening also of infinite length, but of height *H*, above the working plane, the window sill being taken at the same elevation as the working plane. This room is assumed to have black non-reflecting surfaces. Let *P*, be a point located on the working plane at distance $D = H$ back from vertical plane through outside edge of over-shadowing lintel. Now point *P*, under the premises of this paper, is said to have 100 per cent illumination upon it, when the sky is of uniform brightness throughout, corresponding to "Standard Outdoor Illumination," and when this brightness is such as to produce an illumination at *P*, upon a horizontal plane through *P* of 100 foot-candles. Simultaneously the relative illumination at *P*, on a plane through *P*, and inclined so as to "face" the opening, that is, be perpendicular to the average direction of the light rays, equals 260 foot-candles, or 260 per cent.

The curves of Fig. 1 have been prepared to show relative daylight intensities at any points, either on horizontal or perpendicular planes, at the elevation of the working plane, and at various distances from the vertical opening or lighting area;—said distances be-

ing expressed as ratio $\frac{D}{H}$. The

upper curve strictly, is applicable only to values of maximum intensity, that is, for planes perpendicular to average direction of light rays. However, for all practical purposes these perpendicular planes may be taken as vertical planes parallel to lighting area, any error involved being usually negligible, especially for values of $\frac{D}{H}$ greater than 2.

¹In this paper no attempt has been made to prove the derivation of the various curves but reference as to general methods, etc., is made to Brown, Wendell S., "The Light of Day in Roof Fenestration;" TRANS. I. E. S., March, 1924, p. 260.
Brown, Wendell S., "Bringing Daylight through the Walls;" The American Architect, October 8, 1924, p. 345.

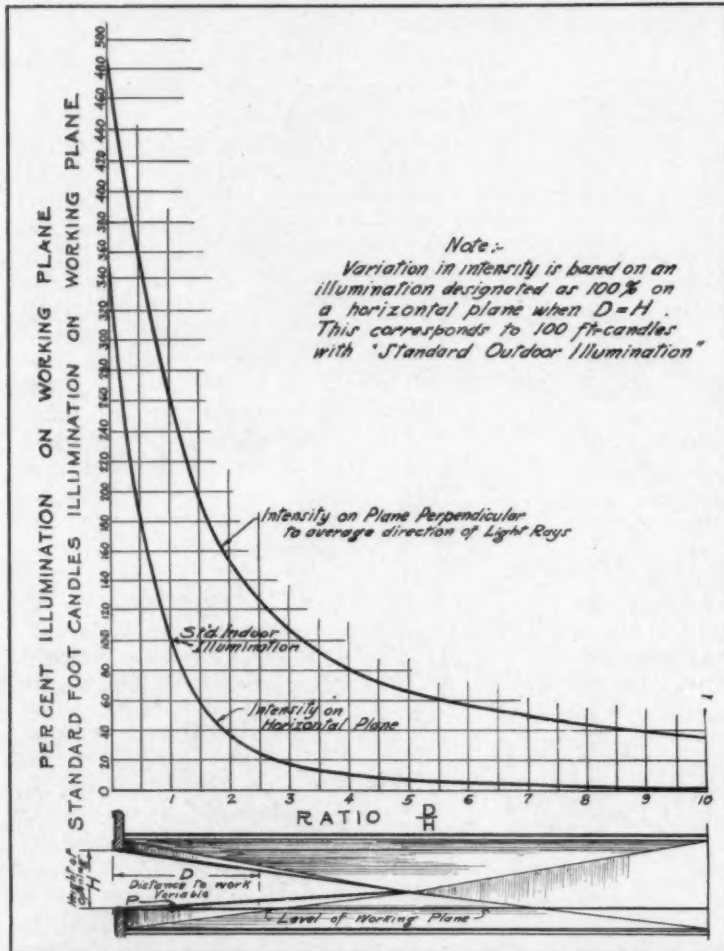


FIG. 1. DIAGRAM FOR DERIVING DISTANCE-IN FACTOR, SHOWING VARIATION IN DIRECT SKY ILLUMINATION OPPOSITE A CONTINUOUS OPENING

putations will be comparative and not absolute on account of the continual variation in sunlight and atmospheric conditions, including the effect of clouds and smoke, and also because no allowance is made for orientation. The point is that a standard can be set up and used as a measure for definitely determining comparative daylight intensities. Furthermore, figures based on such a standard give us an approximate idea regarding minimum intensities of daylight illumination which ordinarily may be counted upon for two-

Fig. 1 exemplifies the first computation, the result being expressed in percentage as "Distance-In Factor." The result is also numerically equal to foot-candles illumination if based on "Standard Outdoor Illumination" as explained previously. The diagram shows the variation in direct sky illumination opposite to and at different distances from a continuous opening. It demonstrates the effect of window-height, and the relationship of window-height to width of building. It shows for every foot which is added to window-height, how much the intensity and uniformity of illumination within the building is increased. The lower curve illustrates how the illumination on a horizontal plane is not only considerably less, but

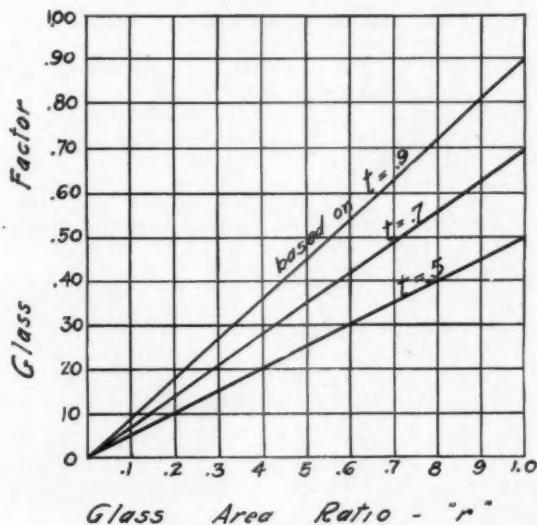


FIG. 2. DIAGRAM FOR DERIVING GLASS FACTOR

also is subject to much wider variation than the illumination on perpendicular planes, or on vertical planes. Clearly, this is due to the fact that, in the case of direct light, as the interior of the room is approached, only the increasingly horizontal rays penetrate.

Where there are windows on both sides of a room, and illumination values on a horizontal plane are required, it is a simple matter to make the proper addition from the curve, for light from the opposite side. Reflection from longitudinal walls have a similar effect.

GLASS FACTOR

The next factor to be applied is based upon the obstruction to daylight from the windows themselves. This will be called the "Glass Factor." It is made up of two sub-factors: first, the transmission efficiency of the glass itself, including

the effect of dirt and "glint,"² and second, the "lighting area ratio" as reduced by "outages" due to obstruction from sash bars, casings, wall piers, etc. In the derivation of this factor, piers, etc., are assumed opaque, but of negligible thickness, a further correction for pier thickness being included under a subsequent heading.

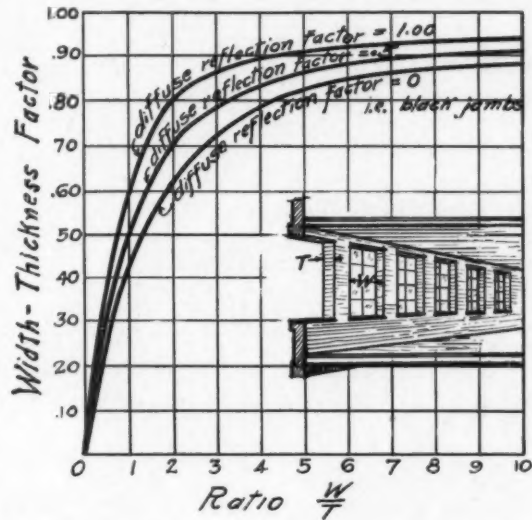


FIG. 3. DIAGRAM FOR DERIVING WIDTH-THICKNESS FACTOR

Let the transmission efficiency including dirt and "glint" of plain glass, = t , and let the ratio of actual glass area in the window, to the maximum possible area of the opening itself between the limits of lintel and sill = r . Then "Glass Factor," $G = tr$.

Fig. 2 is a straight line diagram based on the above equation and shows the "Glass Factor" for different assumed values of t , and ratios of r from 0 to 1. This diagram is, of course, predicated on the use of plain polished glass, as ribbed or prism glass may change the light distribution to a considerable, although controllable extent.

WIDTH-THICKNESS FACTOR

Fig. 3 has been prepared to show the effect of wall pier thickness in obstructing daylight. Note the added conditions in the perspective embodied in this diagram. Obviously, in the case of black or non-reflecting jambs, all light incident thereon is lost. With white jambs a considerable amount of incident light is also reflected wastefully out of the window. Fig. 3 shows results for either black jambs, perfectly diffusing white jambs, or for jambs having a diffuse reflection factor (Lambert's cosine law) equal to 50 per cent. Inter-

²For values of these coefficients see Luckiesh, M., "Light and Work," p. 68. D. Van Nostrand Co., 1924.

THE AMERICAN ARCHITECT

polation may be resorted to for intermediate values. This factor is called the "Width-Thickness Factor" and may be read directly from the

diagram for any ratio $\frac{W}{T}$ between 0 and 10. At $\frac{W}{T} = \infty$, "Width-Thickness Factor" = 1.00 for any reflection factor.

This diagram shows the effect of window grouping and should be carefully noted. For instance, the amount of light admitted to a room by five grouped windows (that is, separated only by mul-

mullion, from the inside face of the wall, the variation is not noticeable. In case piers are beveled exteriorly or interiorly, allowance may be

made accordingly when deriving $\frac{W}{T}$, —the gain due to such construction becoming immediately apparent, especially for low values of $\frac{W}{T}$.

It is also possible from Fig. 3 to obtain a good idea as to the effect of deep vertical sash bars or muntin bars in restricting the quantity of light admitted. In this case the width of glass or win-

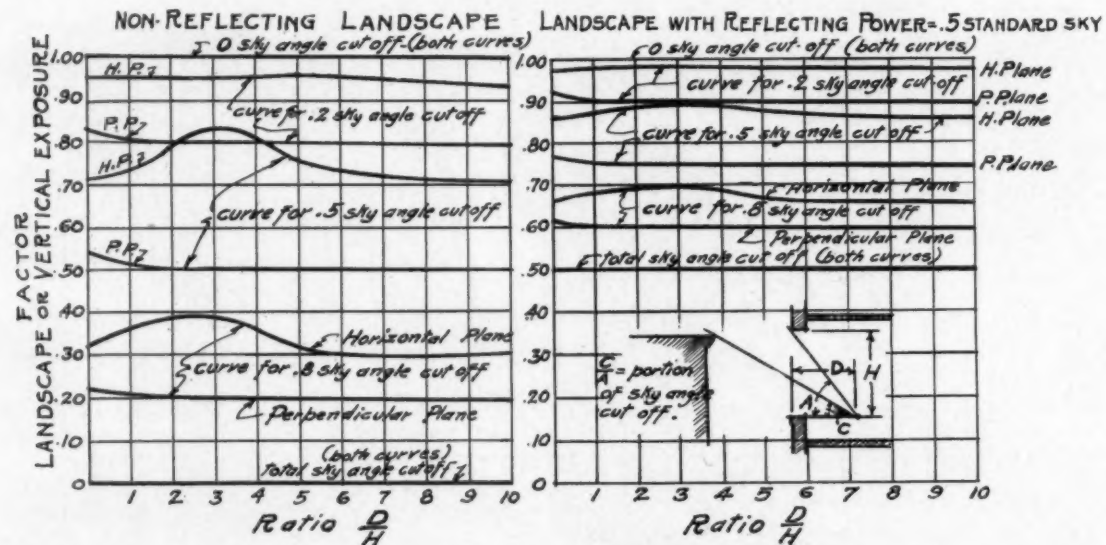


FIG. 4. DIAGRAM FOR DERIVING LANDSCAPE OR VERTICAL EXPOSURE FACTOR

lions) with a ratio $\frac{W}{T} = 6$, but of the same total area as five other windows individually spaced, with a pier between each one, of dimensions so that $\frac{W}{T} = 1.25$, is in the proportion of 88 to 56 (see Fig. 3) this using the same thickness of wall, same wall area, and incidentally, therefore, not affecting the heating system or the building cost appreciably.

Fig. 3 is expressive of the quantity of light flux admitted rather than its intensity. For example, it does not take into account the shading effect of a mullion or pier. However, there will ordinarily be little difficulty in this respect, and it has been shown³ that at a distance equal to half the sum of the width, plus the thickness of a wall pier, or

³Brown, Wendell S., "Bringing Daylight through the Walls," *The American Architect*, p. 351, Oct. 8, 1924.

down pane may be taken as W , and the depth of muntin bars as T . For example, comparing two cases, each with glass 17" wide, the first having sash bars $2\frac{3}{4}$ " deep, (that is $\frac{W}{T} = \frac{17}{2\frac{3}{4}} = 6.2$); and the second case having sash bars $1\frac{3}{4}$ " deep, (that is $\frac{W}{T} = \frac{17}{1\frac{3}{4}} = 9.7$).

Referring to the middle curve of Fig. 3, the width-thickness factors are found to be .88 and .91 respectively, showing a difference of .03, that is, 3%.

As a matter of fact, this difference would be somewhat less than the above where disproportionately deep piers cut off an appreciable amount of side light from the sash bars themselves.

LANDSCAPE OR VERTICAL EXPOSURE FACTOR

The next factor demonstrates the effect of exterior obstructions such as nearby hills and build-

ings which partially obscure the natural horizon. It is called the "Landscape or Vertical Exposure Factor" and may be read directly from Fig. 4, for various angles of cut-off starting with the horizon as 0°. This diagram has been prepared to show correction factors for either a non-reflecting landscape or for surroundings having a brightness equal to 50 per cent of "standard" sky brightness.

Obviously, the diagram may also be used for determining the effect of window sills higher than the working plane.

in question below the lintel,) the right hand curve under Fig. 4 for ".2 sky angle cut-off" on a perpendicular plane would be used, but its effect reversed. That is, instead of using a value of 90%, corresponding to a loss of 10%, there would actually be a gain of 10% making the correct factor 1.10. Interpolation for other conditions may be made as needed. Ordinarily if it is desired to obtain values of illumination upon points above the window sill, it will be reasonably accurate and safe to assume the window sill at the height of the point in question.

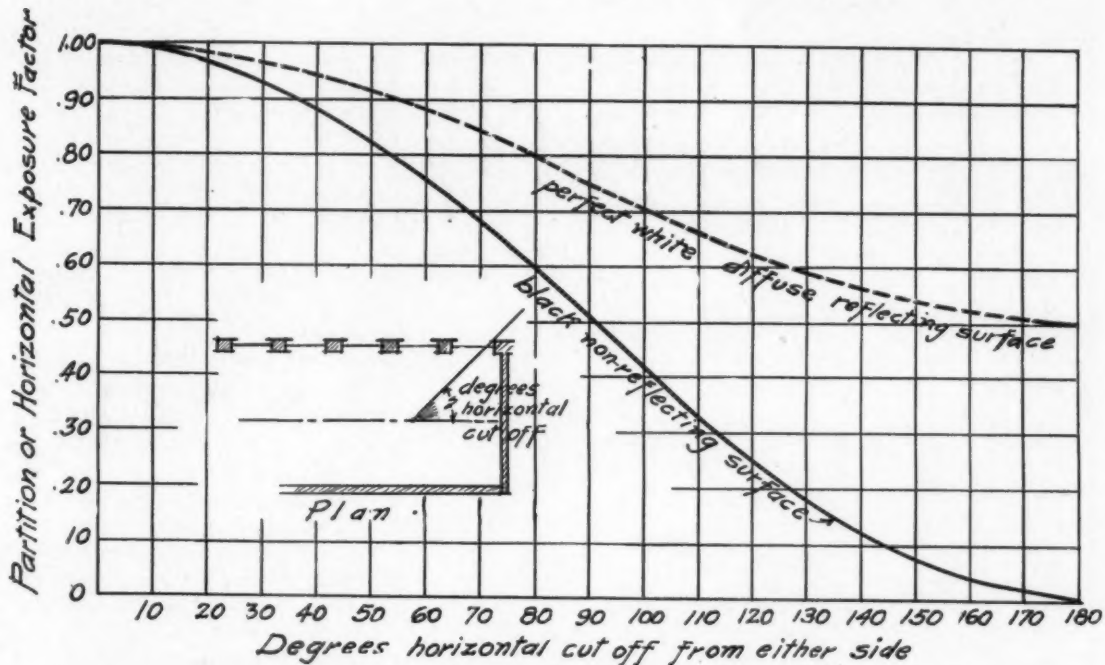


FIG. 5. DIAGRAM FOR DERIVING PARTITION OR HORIZONTAL EXPOSURE FACTOR

If the window sills are lower than the working plane, that portion of the lighting area below the level of working plane can be neglected as far as direct illumination upon a horizontal plane is concerned. If, also, the selected point is above the level of the window sill and the illumination value is desired on a vertical plane, there is a greater factor to take into account. This may be provided for by an adaptation of Fig. 4.

For instance, assume that conditions are such, that that part of the illumination entering from portions of the window below the selected point are reflected from a landscape having a reflecting power equal to .5 "standard sky." For a point

D

located—say at $\frac{D}{H} = 2$, and of such a height

H

above the window sill that 20% sky angle under the horizontal is added, (in this case H being taken as the perpendicular distance of the point

Note that the obstruction of lower portion of sky exposure has less effect on horizontal planes than on perpendicular planes.

PARTITION OR HORIZONTAL EXPOSURE FACTOR

The last factor shows the effect of blank end walls in decreasing daylight in the adjacent portions of a room, the added conditions being shown in the plan embodied in Fig. 5. Plainly, such walls may intercept a certain amount of horizontal sky exposure depending upon the location of the point in question. However, if the surface of such wall or partition is a reflecting one, this loss may be partially compensated for by reflection from the opposite quadrant. Fig. 5 has been prepared to show the effect of non-reflecting walls. The dotted curve also indicates roughly the effect of partitions having a diffuse reflection factor equal to 100 per cent, but this is approximate

only, as other factors than angle, enter into this particular case.

This factor is called the "Partition or Horizontal Exposure Factor" and may be read directly from the diagram for any angle of cut-off from 0° to 180°. If there is an obstructing wall on

1. Refer to Fig. 1.—"Distance-In Factor:"

$$\frac{D}{H} = \frac{14 \text{ ft. } 0 \text{ in.}}{6 \text{ ft. } 10 \text{ in.}} = 2.05$$

Therefore, entering the diagram, we find: "Distance-In Factor" or Daylight Intensity for

horizontal plane equals, respectively, 36 per cent or 36 foot-candles; and "Distance-In Factor" or Daylight Intensity for perpendicular plane equals, respectively, 151 per cent or 151 foot-candles.

2. Refer to Fig. 2.—"Glass Factor:" Actual area of glass itself is taken as 26 sq. ft. Then

$$r = \frac{26}{68.33' (4.75' + 3.25')} = .48$$

For clean clear glass, t may be taken as .7. Therefore, entering the diagram, we find:

$$\text{Glass Factor} = .34$$

3. Refer to Fig. 3.—"Width-Thickness Factor:"

$$\frac{T}{W} = \frac{4.75 \text{ ft.}}{2.833 \text{ ft.}} = 1.67$$

Therefore, entering the diagram, curve for diffuse reflection factor = .5, we find:

$$\text{"Width-Thickness Factor"} = .66$$

4. Refer to Fig. 4.—"Landscape or Vertical Exposure Factor:" Assume light intercepted as indicated in Fig. 6 by a row of trees and buildings having a reflection factor equal to .5 "standard" sky, and at such elevation that sky angle is reduced by 9° out of 27°, or 33 per cent. Now

$$\frac{D}{H} = 2.05 \text{ as before. Therefore, entering the right hand diagram for 33 per cent cut-off, which necessitates interpolating between values of "sky angle cut-off" = .2 and .5 respectively, we find: "Landscape Factor" for horizontal plane = .94 "Landscape Factor" for perpendicular plane = .83}$$

5. Refer to Fig. 5.—"Partition or Horizontal Exposure Factor:" The apparent horizontal cut-off due to partition "m" is 70° and due to partition "q" 32°. However, in this particular case it should be remembered that Fig. 3 ("Width-Thickness Factor") has already taken care of certain losses due to pier thickness, and it is obvious from plan, Fig. 6, that the amount of direct illumination on P_1 is not restricted by partition

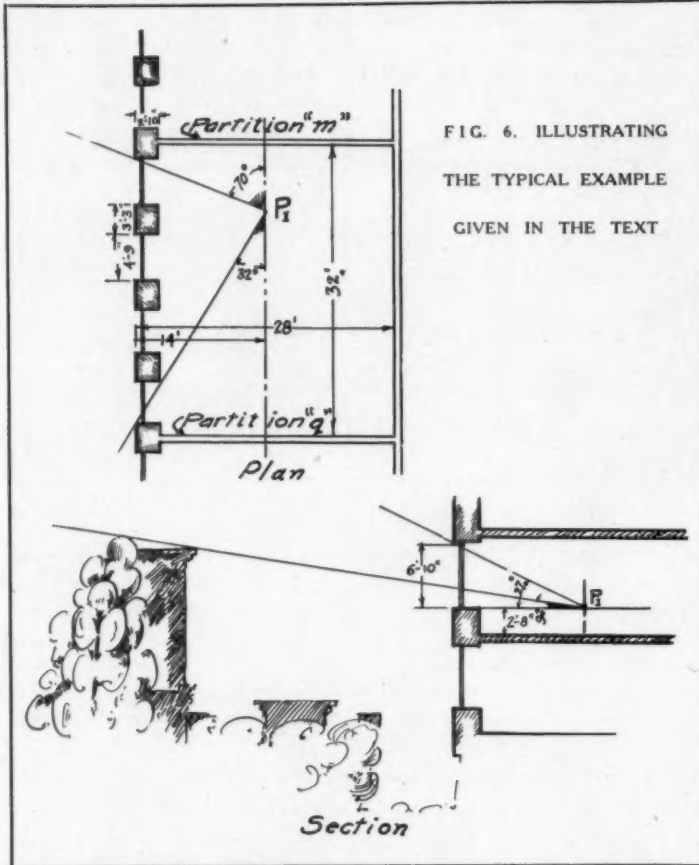


FIG. 6. ILLUSTRATING THE TYPICAL EXAMPLE GIVEN IN THE TEXT

each side of the given point, allowance should be made accordingly. Occasionally, examples will arise which necessitate the use of this diagram in obtaining correction factor for outside walls also.

Exactly opposite in the effect of a blank cross wall, is an end wall with windows in it. Obviously, for horizontal planes this latter case may be treated separately by the use of Fig. 1, making proper addition for light coming from the other direction.

The following example of a typical office building is worked out:

Given conditions as shown in plan and section Fig. 6. To find the comparative illumination at point P_1 , taken first on a horizontal plane through P_1 and second on a perpendicular plane through P_1 inclined to "face" the windows.

"q." That is, if partition "q" was removed, the windows beyond "q" would not come into play upon P_1 because the pier thickness would prevent. In fact, this partition, if light colored, would help illuminate P_1 by reflection from the opposite quadrant. In the same way part of the apparent loss due to partition "m" is already taken care of under Fig. 3, that is, up to 32° as just explained.

Summarizing, there is actually no loss upon P_1 due to wall "q," furthermore, the actual loss upon P_1 on account of wall "m" equals the apparent loss as read from Fig. 5 minus the amount previously accounted for under Fig. 3, that is, minus the apparent loss due to a cut-off angle, 32° , Fig. 5.

Therefore, entering Fig. 5, we find:

For cut-off 70°

Horizontal exposure factor, black surface = .67

Horizontal exposure factor, white surface = .84

For this particular partition use .75

For cut-off 32°

Horizontal exposure factor, black surface = .93

Horizontal exposure factor, white surface = .96

For this particular partition use .94

Now using .94 as the factor for 32° angle, the loss is evidently $1.00 - .94 = .06$; and using .75 as a factor for 70° angle, the loss is evidently $1.00 - .75 = .25$. Therefore, actual loss due to 70° angle = $.25 - .06 = .19$, and Final Horizontal Exposure Factor = $1.00 - .19 = .81$. In cases of loss from two partitions it should be noted in working this diagram, that the total factor is made up from the sum of the respective losses, rather than the product of the two "Horizontal Exposure Factors."

The final value for Daylight Intensity at P_1 on a horizontal plane is then the product of the above respective factors, that is: $36 \times .34 \times .66$

$\times .94 \times .81 = 6.1$ foot-candles, or 6.1 per cent of the Standard Illumination on point P , Fig. 1, and the final value for Daylight Intensity at P_1 on a perpendicular plane is then: $151 \times .34 \times .66 \times .83 \times .81 = 22.8$ foot-candles, or 22.8 per cent of the Standard Illumination on Point P , Fig. 1.

From the wide variety of curves shown in the diagrams, including straight line, convex, concave and compound types, it is evident with what extreme care experimental data has to be gathered and used if serviceable generalizations are to be deduced. That is, one condition may be masked by the effect of other factors, unless all variables are known and accounted for.

As stated previously, this method of computing daylight is offered as suggestive and illustrative of broad principles rather than as a complete or final solution, embracing all possible contingencies and variations in design. In fact, further refinements might be developed to show the influence of floors, ceilings, or furnishings as diffusing media. The effect of such factors is usually additive—they tend to produce a more uniform illumination than that computed, and their omission, therefore, results in a certain margin of safety. Also, the effect of direct sunlight and its reflection from adjacent structures has not been considered. The former is usually too intense to be wanted; and the latter, while under certain conditions is desirable and results in higher intensities even than would be obtained from direct sky exposure, is subject to much more extreme variation than light from the sky only. Similar curves can, no doubt, be worked out to facilitate roof fenestration including saw-tooth, monitor and flat or hipped-skylight types of construction.

NEW METHOD FOR MEASURING STRAINS IN CONCRETE STRUCTURES

SOME time ago the Bureau of Standards, Department of Commerce, brought out what is known as an "electric telemeter" for measuring changes in the length of structural members produced by variations in the load upon the structure. The operation of the telemeter depends upon the variations in resistance to the passage of an electric current of a stack of carbon disks. This is the same principle as that employed in the microphone in the transmitter (the part we talk into) of the telephone. There is, therefore, nothing new in the principle employed, but the Bureau was the first to apply this principle to a precision measuring instrument.

Recently a new use has been found for this device in the measurement of the strains in mass concrete. For this purpose a special cartridge has been designed which houses the stack of carbon disks, and which is embedded in the concrete at the point where the measurement is to be made. Wire leads extend to the surface and are carried to some convenient point where the indicating instruments are placed. These instruments are calibrated to show any deformation in the concrete due to loading.

The instrument will shortly be used in an investigation which is to be carried out by a special committee sponsored by the Engineering Foundation on a dam to be erected at Fresno, California.

THE SAND-CARRYING CAPACITY OF QUICKLIME

THE Bureau of Standards has recently completed an investigation of the sand-carrying capacity of quicklimes, together with a study of the relationship of the putty yields of quicklime to their sand-carrying capacities.

The investigation covered a representative group of 14 quicklimes, and consisted of determinations of putty yield, together with tests for tensile and compressive strength, plasticity, and shrinkage of mortars prepared from these limes. In the preparation of the mortars a weighed amount of quicklime was carefully hydrated (slaked), allowed to soak for from 16 to 24 hours, a weighed amount of sand then added, and the test specimens prepared. The mortars were proportioned by weight, and varied in composition from 50 per cent lime and 50 per cent sand to 10 per cent lime and 90 per cent sand, at 5 per cent increments. The physical tests were made on mixes from each increment.

A study of the results indicate that there is little relationship between the putty yields of the quicklimes and their sand-carrying capacities. The sand-carrying capacity of high calcium limes, however, does appear to be, to a slight extent, proportional to the amount of putty yielded per unit weight. When the comparison is confined to those mortars richer in quicklime than 20 per cent by weight of the dry mix, magnesian quicklimes, although they give small putty yields, produced mortars stronger than those made from high calcium quicklimes. When a comparison is made of the mortars of the leaner mixes, 20 to 15 per cent quicklime, it is found that the high calcium quicklime mortars equal and often exceed the strength of those prepared from magnesian quicklimes. If we disregard the calcium quicklimes, giving exceptionally low putty yields, it is believed that the sand-carrying capacity of a quicklime is independent of its putty yield.

A further study of the results indicates that a mortar should be neither richer in quicklime than 20 per cent nor leaner than 10 per cent by weight of the dry mix, with the best results to be obtained from a mortar of the composition approximating 15 per cent quicklime and 85 per cent sand. Converting from a weight to a volume basis we have for the 20, 15, and 10 per cent mixes a 1:1, a 1:1½, and a 1:3 mix, respectively. This calculation is based on the assumption that it takes 27 pounds of quicklime to make a cubic foot of putty, and that the weight of dry Potomac River sand is 100 lbs./ft.³. When the bulking of moist sand is considered, and the weight of Potomac River field

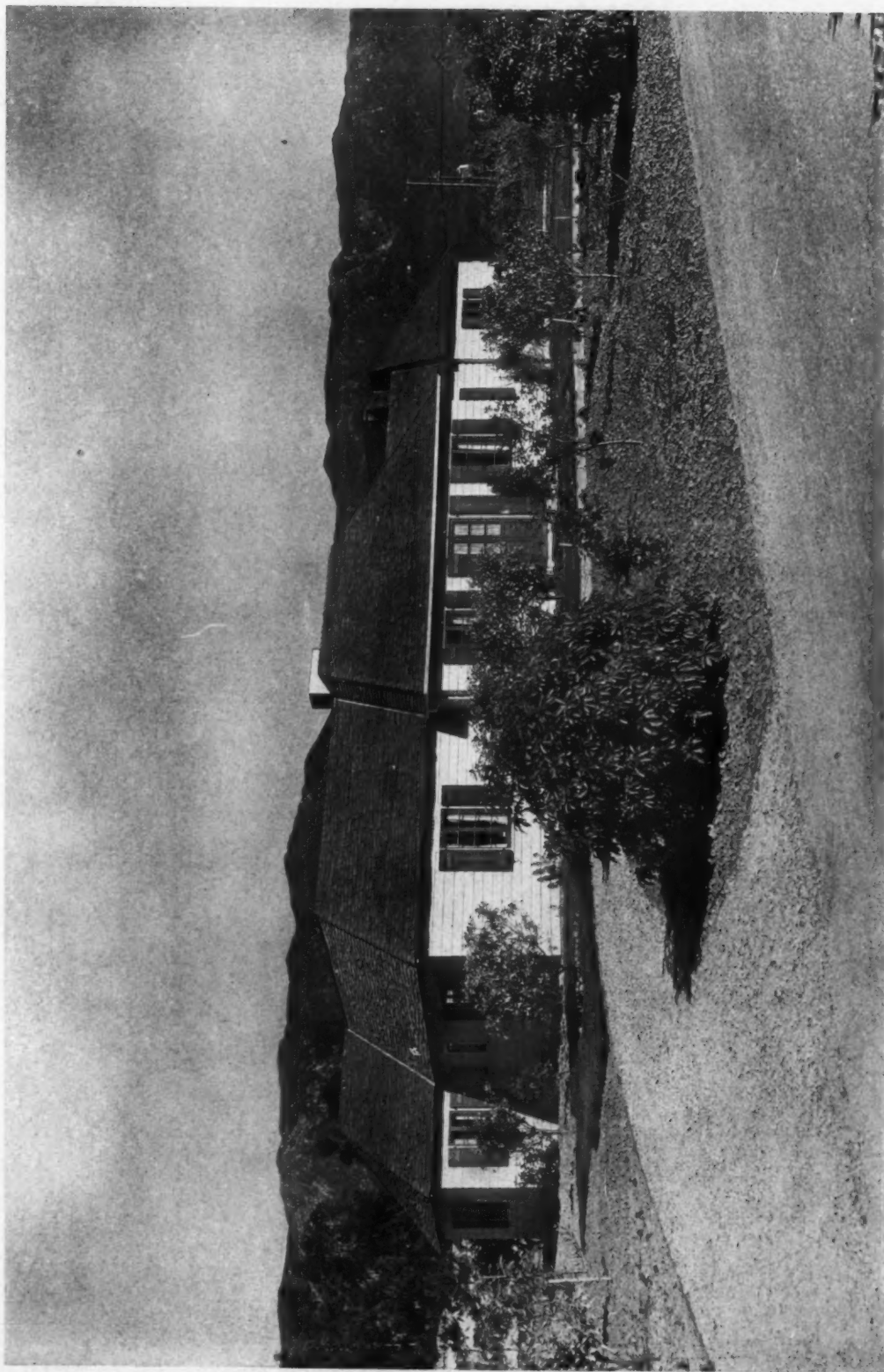
sand taken as 78 lbs./ft.³ we have for the above 20, 15, and 10 per cent mixes a 1:2, a 1:3, and a 1:4 mix, respectively. The results also indicate that to be satisfactory, the volume shrinkage of a mortar should be less than 15 per cent at an age of 30 days, and that a mortar can be considered as oversanded when it fails to give a value of 1.0 for ten times the sine of the angle of the bob on the Emley plasticimeter, and a tensile strength of 10 lbs./in.² at an age of seven days' storage in air.

BONDING STRENGTH OF FIRE CLAYS

RECENT laboratory work, undertaken by the Bureau of Standards in co-operation with the Federal Specifications Board in preparing the proposed specification for fire clay, included the determination of those properties of a fire clay which might indicate its bonding power in refractory clay walls.

Sixteen fire clays, representing the different types and grades now used commercially, were submitted for test in connection with this investigation. These fire clays were subjected to a bond test, the following method being used: Three bricks were cemented together by first dipping them into the fire clay to be tested, which had been mixed with water to a creamy consistency. An additional layer of the fire clay, wetted to a troweling consistency, was then spread over the faces to be cemented together, and good "rubbed joints" were finally made. These piers were then burned to 1,350° C., held for one and one-half hours at this temperature, and allowed to cool with the kiln to room temperature. Each pier was removed from the kiln by gripping only the top brick. If the pier remained intact, the clay was considered to have successfully passed the test. All but one of the 16 fire clays submitted passed the test.

In addition to this examination, each pier was loaded transversely, and the breaking strength determined. These values were found to vary from 3,580 pounds to 80 pounds (direct load over 7-inch span). Careful examination of each pier after breaking showed that in the case of those breaking at low values large cracks were present in the fire clay, while those that withstood a greater force were dense, homogeneous bonds, and broke with a sharp fracture from the face of the brick. In one pier the clay bond was even stronger than the brick used, and this pier broke through the center of the middle brick. Since these data cover clays from all the important districts they have proved of great assistance in preparing specifications for fire clay.



HOUSE OF W. S. WITMER, MONTECITO, CALIF.
WITMER & WATSON, ARCHITECTS

HOUSE OF W. S. WITMER, MONTECITO, CALIF.

WITMER & WATSON, ARCHITECTS

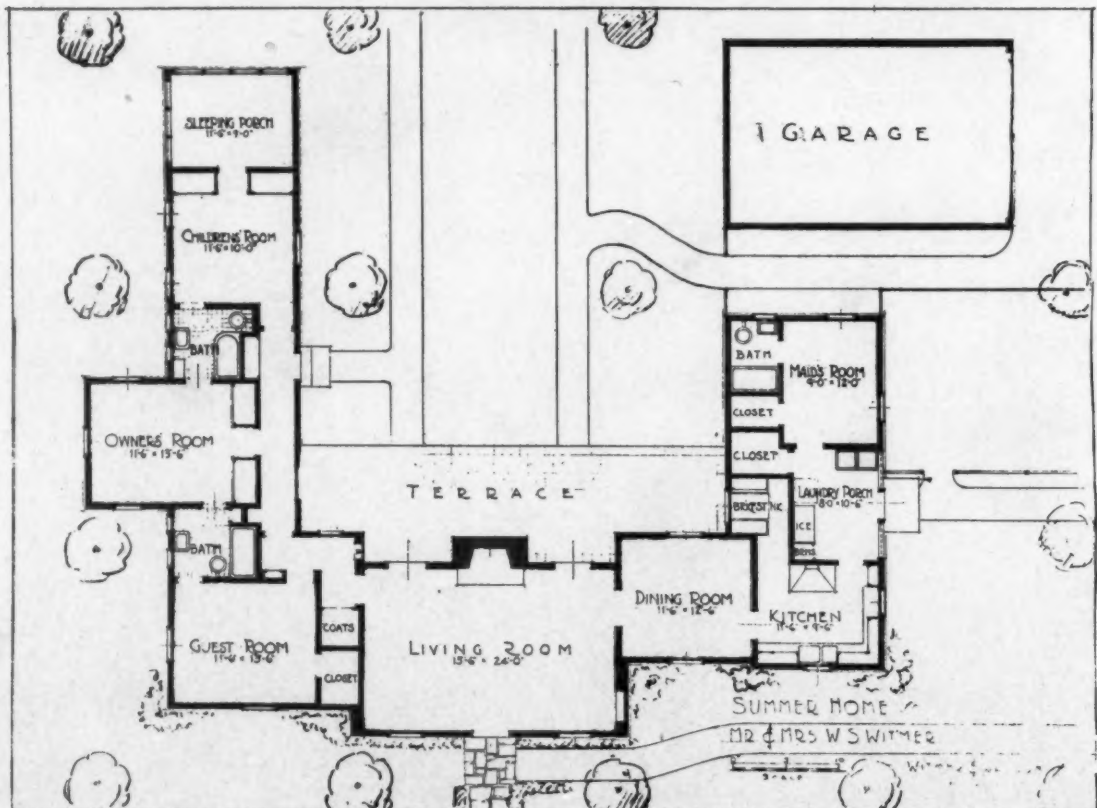
AN architect's house, built for his own use. It is typical of the Pacific Coast and presents some interesting features in its planning. The large living room in center, flanked on either side by the service portion and sleeping rooms, gives a sense of privacy that can only be secured by a plan of this kind.

This house was built in 1924 at a cost of 49¢ per cubic foot. The exterior walls are of California redwood siding, and the roof of cedar shingles dipped in stain. Partitions are wood stud and plaster. Floors are of oak and the trim of Oregon pine. Unit gas furnace is used for heating. House lighted by electricity. Plumbing is of usual standard type.

Many a good, painted landscape is marred because the artist

painter failed to introduce his buildings properly. Poor scale, poor types ruin the effect of color and of "quality." Corot perhaps knew better than any other landscape painter how to introduce figures that gave a fine enhancement to the effect. The architect, as a rule, finds his landscape provided. The contour of the land, the silhouette of the surrounding hills or mountains should determine for him the main lines of the house. It is interesting

to notice how well this house sits upon its site, and how quietly and adequately it supplements its surroundings. Architects on the Pacific Coast have many problems of this sort, and it is interesting to note how very well they solve them. This and similarly well designed houses on the Coast demonstrate the possibility of the creation of a regional type.





WHILE this attractive building is located in a large city, it is a type of professional building peculiarly adapted to the small community, particularly when physicians confine their work to office practice. The plan has been well developed to serve the intended purpose. The building is daylighted on all four sides. The second story provides ample accommodations for two bedrooms, bath and kitchen. In design this building well carries out the general tendency on the Coast, and is peculiarly suited to the climatic conditions.

Wood frame construction with solid sheathing. The exterior walls are cement stucco over metal lath and the roofs of colored Granada tile and composition. Partitions are wood stud and plaster. Trim is Oregon pine and floors are oak, asbestone

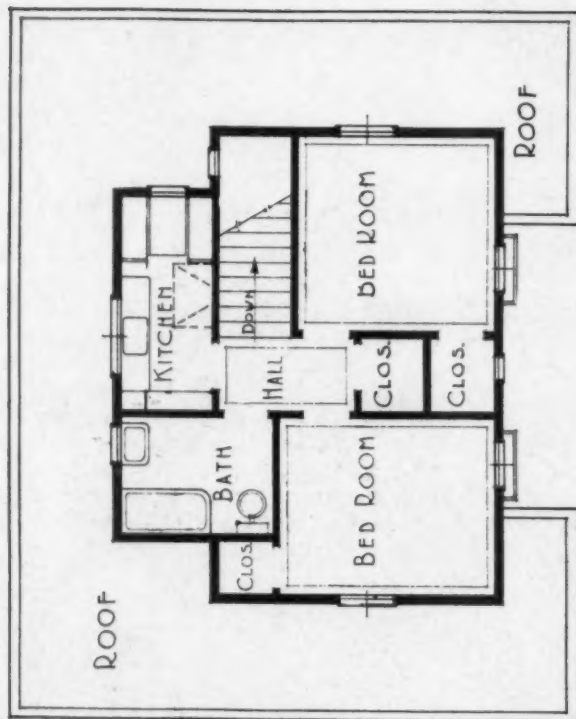
and rubber composition. Building is heated by gas furnaces. Standard and special equipments of plumbing. Built in 1920 at a cost of 49¢ per cubic foot.

It is a "far cry" from that day when the country doctor, with his trusty steed and saddle bags, braved all sorts of weather to reach his widely scattered patients, to the present time when men who practice, even in the smaller towns, the various branches of medicine and surgery, require that patients able to make the journey shall come to them. Of the many new types that have originated in the past half century, the professional building, as it is called, requires particular study in its planning. It is not only in the larger cities that these buildings are being erected, but also in what are comparatively small communities.

SMALL OFFICE BUILDING FOR A GROUP OF DOCTORS, LOS ANGELES, CALIF.

WITMER & WATSON, ARCHITECTS

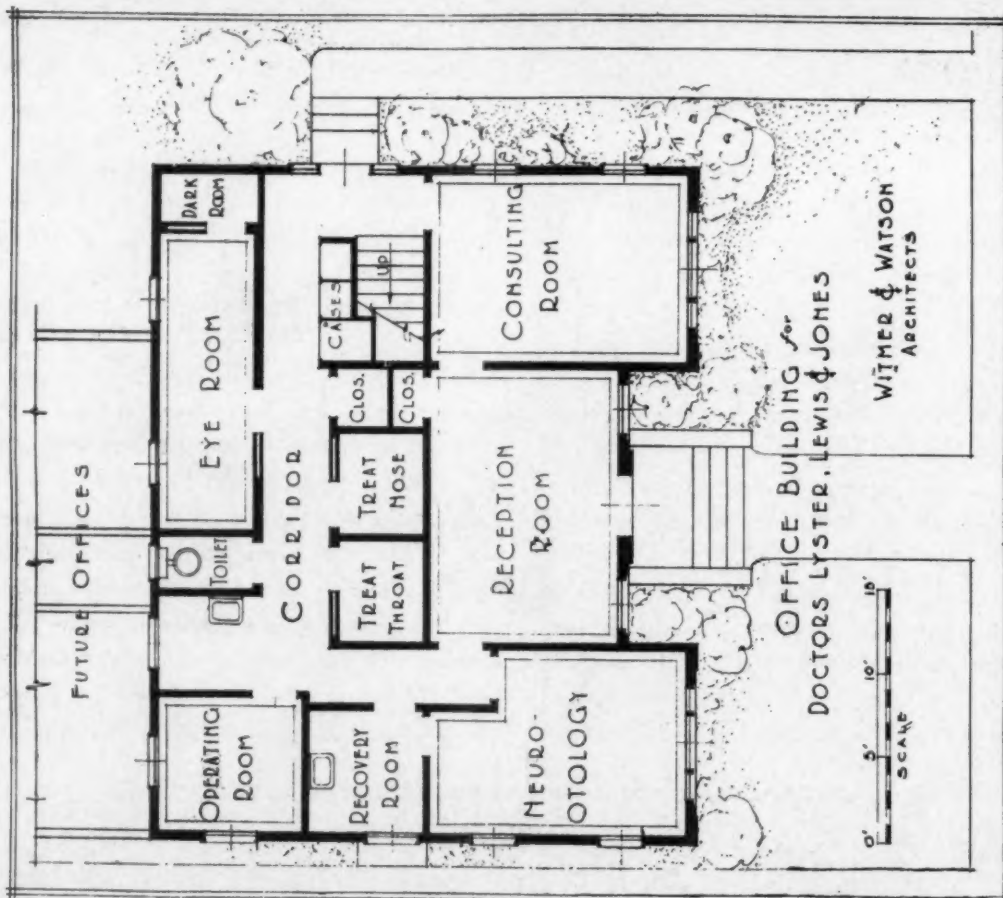
THE AMERICAN ARCHITECT

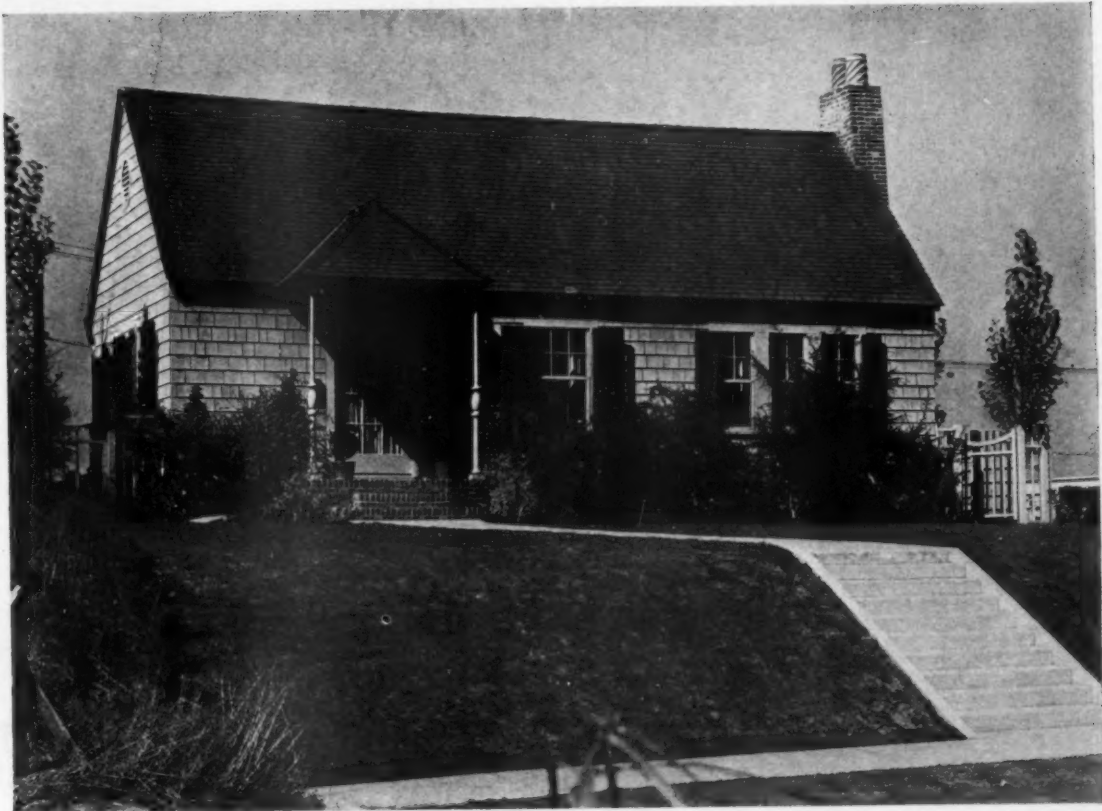


SECOND FLOOR PLAN

SMALL OFFICE BUILDING FOR A GROUP OF DOCTORS,
LOS ANGELES, CALIF.

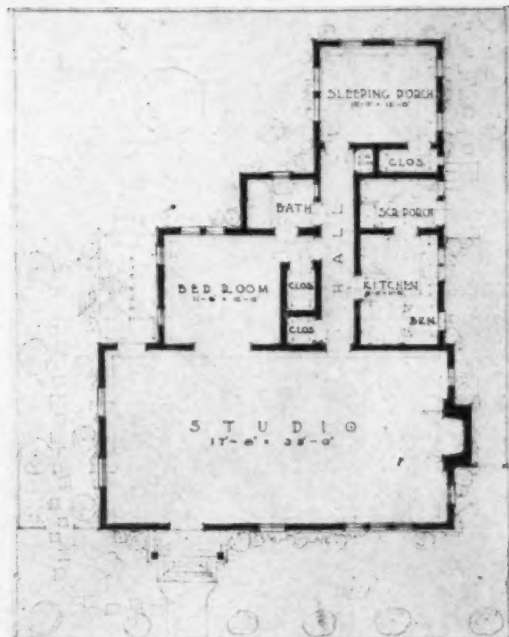
WITMER & WATSON, ARCHITECTS





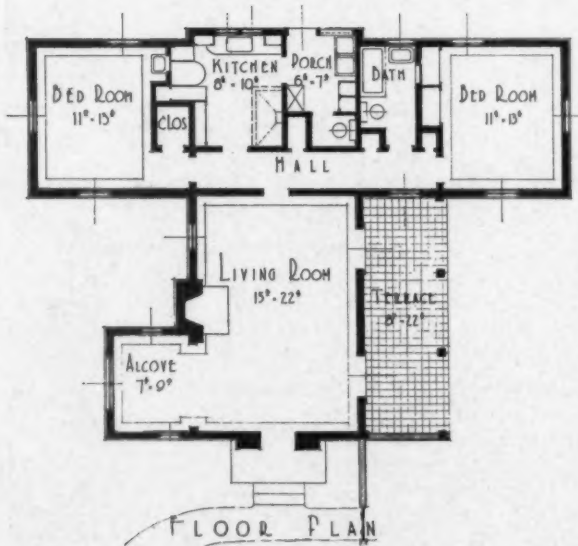
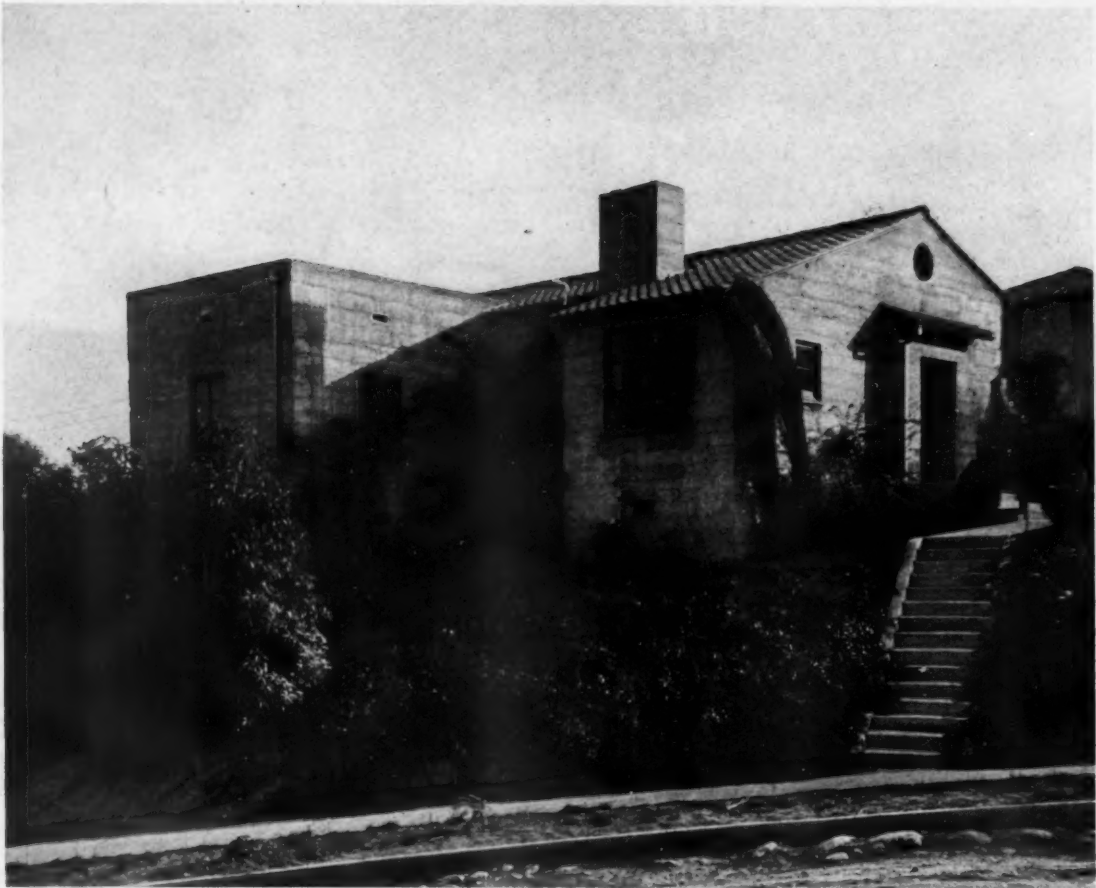
THE studio, which also serves as living and dining room, occupies the entire front of this house. This type of small house and general arrangement of plan will appeal to many clients. It was built in 1921 at a cost of 35¢ per cubic foot. The exterior walls are covered by cedar shingles as is also the roof. Partitions are wood stud and plaster. Floors are of oak. Trim is Oregon pine. Heating is by gas radiators. Lighting is by electricity. Plumbing is usual standard type.

Now that the motor car has become practically universal and communication over what at one time we considered as long distance, swift and easy, there is a tendency toward this type of house, especially in the East, for summer residence. The general character of the design of this house is not purely local to the Coast. It easily suggests many similar houses to be found all over our suburban districts, with the exception that in the present instance the scale is more correctly expressed as good architecture.



A LIVING STUDIO AT LOS ANGELES, CALIF.

WITMER & WATSON, ARCHITECTS



AN unusual and interesting house both as to design and plan. The sloping character of the site afforded the architects an opportunity to accomplish the picturesque and at the same time impart a fine effect of domesticity, and a dignified retirement. The planting has been well done and adds to the generally good artistic effect. The exterior walls are of reinforced concrete, and are hollow. The roof is of small Mission tile and composition. Floors are of oak and the trim of Oregon pine. Partitions are wood stud and plaster. House is heated by a gas furnace and lighted by electricity. The plumbing and lighting are of standard equipment. House was built in 1922 at a cost of 42¢ per cubic foot. The unusually large living room with alcove is lighted on three sides, and the general arrangement of the sleeping rooms and kitchen is somewhat unusual.

HOUSE OF MRS. M. O. WILLIAMS, LOS ANGELES, CALIF.

WITMER & WATSON, ARCHITECTS

An Anaconda Installation



The new Johns-Manville Building, Madison Avenue and 41st Street, New York. Ludlow and Peabody, the Architects, specified and used Anaconda Brass Pipe.

When Anaconda Brass Pipe is specified, the Architect is assured of the highest quality Brass Pipe obtainable and the security of dealing with the world's foremost Manufacturers of Copper, Brass and Bronze.

THE AMERICAN BRASS COMPANY

GENERAL OFFICES: WATERBURY, CONNECTICUT

Canadian Mill: ANAconda AMERICAN BRASS LIMITED
New Toronto, Ont.

Offices and Agencies: New York, Chicago, Boston, Philadelphia, Providence, Pittsburgh, Cleveland, Detroit, Cincinnati, St. Louis, New Orleans, San Francisco

Mills and Factories: Ansonia, Conn., Torrington, Conn., Waterbury, Conn., Buffalo, N.Y., Hastings-on-Hudson, N.Y., Kenosha, Wis.

ANACONDA BRASS PIPE

Installed by leading Plumbing Contractors

Specifications of most products advertised in THE AMERICAN ARCHITECT appear in the Specification Manual

THE PARIS EXPOSITION

A Thoughtful Reader Presents His Opinion

To the Editor,

THE AMERICAN ARCHITECT:

SINCE you invite discussion of Mr. Bossom's interesting article, "The Rebirth of Architecture in Europe," appearing in the August 26 issue of THE AMERICAN ARCHITECT, I accept your invitation and give you herewith my impressions of the new architecture displayed in the "Exposition des Arts Decoratifs" in Paris.

I have but recently returned from a ten months' stay in France and Italy, five months of which were devoted to study in Paris, which included working at one of the architectural ateliers of the Ecole des Beaux-Arts, so I had ample opportunity not only to study this new phase of architecture but also to discuss it with those who are creating it, and my feelings in regard to it are quite the reverse of those expressed by Mr. Bossom. Of course, one cannot be neutral on this subject,—one either admires it greatly or detests it. I happen to be affected by the latter feeling. To me it seems just as hard, just as cruel, just as coarse an outburst in architecture as the Russian Revolution is in our political and social life. It is Marksism in architecture. It is the phase of architecture that the now famous "Nude Descending the Staircase" was in art. It glorifies hardness of line, it spurns anything of grace or delicacy, just as the sculptors of the same school take a heavy, stupid peasant woman for an ideal instead of the woman of refined beauty, and the interior decorators use wild colors in violent contrast and weird design instead of the restful beauty of harmonious tones. To me it is all one, this ultra modern tendency.

I agree with Mr. Bossom that this revolt is not brand new,—it has been stewing in the Eastern end of Europe for some time, and I also agree that there is some reason for dissatisfaction with the slavish reproduction of the past. New methods of building, new materials, call for a new expression but does it mean that we must discard all the beauty of the past and start fresh? Can we not evolve new forms from those handed down to us by centuries of true artists, and accomplish by such evolution a more desirable result than by revolution as exemplified by this Exposition now going on in Paris? To my mind we are now accomplishing in America just such an evolution in our latest skyscrapers. Surely here are the forms of beauty taken from the past and adapted with consummate art to our new methods of building and our new needs. All art is gradual in growth. The Gothic which is as far removed from Classic as styles could be, was not accomplished in a day, nor a year, nor a century. It grew by gradual stages, it was evolved slowly from

the Classic and the steps of its growths can be traced from the temples of Greece. In its final stages the mother would not recognize her child, but the kinship is there just the same. It was largely necessity that developed the various steps, the inability to accomplish the desired results with past methods that forced a change; for example, the desire for greater light produced the clerestory and buttresses and the necessity of the use of buttresses brought about their beautification so that they ceased to be structural members only and became a part of the decorative design as well, and the same is true of our American architecture,—necessity is making us adapt old styles to new uses. We have ceased to try to disguise the height of our tall buildings as was done at first and now we emphasize it and make it a virtue. I venture to predict that one or two centuries hence we will have an American architecture as distinct from the past as the Gothic is from the Classic, and yet it will not be accomplished overnight, nor by one generation, and its steps will be as clearly marked as the transition already mentioned.

My objection to the present revolution is that it is unformed; it has no head and no tail; it is groping in the dark, seeking, seeking, but going all about the place in an irregular course with no idea where it is going. It is searching for something and it does not know what it is searching for. It thinks it is planes, but it is not sure, so when in doubt it turns curves, not the kind of curves that have been studied and adapted in the past as perfect, but new curves, blindly. An example of the desire to express everything in planes: I was doing some modeling at one of the ateliers and the subject was the head of a negro. To my eye the head was curves, not a flat surface anywhere, and yet on the day of criticism, the patron, one of the leading sculptors of France, was not pleased, he harped on the phrase "cherchez les planes." To him the whole head was planes, even the hair, and he would have the interpretation of the head in that manner. He was so possessed by his one idea of planes, he could see nothing else. Now planes are all right in their place, but what could be more expressive of curves than the features of a negro? That is the trouble, like all revolutionists they have gone to the extreme and their desire to wipe out the past has blinded them to all of its beauties. For example, for many purposes nothing is so beautiful as a Classic column, but when one of the "moderne" school must use a column he makes it square or round without entasis or he puts up a group of reeds like a bunch of asparagus and he either leaves off the base and capital altogether or reduces them to insignificance. Centuries of study

The Importance of Good Materials

SHODDY materials, no matter how excellent the architectural design or how skillful the workman, can never make a good building. Straus Standard Specifications require good materials, which is one reason why a Straus-financed building invariably is soundly and economically constructed. Naturally enough, such buildings indicate highly successful undertakings.

We are always interested in loans of \$250,000 upward, either on completed buildings or structures to be built. Write today for our booklet—*The Straus Plan of Finance*—and address our

LOAN DEPARTMENT

S.W. STRAUS & CO.

ESTABLISHED 1882

INVESTMENT BONDS

INCORPORATED

STRAUS BUILDING
565 Fifth Ave., at 46th St.
NEW YORK

STRAUS BUILDING
79 Post Street
SAN FRANCISCO

STRAUS BUILDING
Michigan Ave. at Jackson Blvd.
CHICAGO

43 YEARS WITHOUT LOSS TO ANY INVESTOR

© 1925—S. W. S. & Co., Inc.

Specifications of most products advertised in THE AMERICAN ARCHITECT appear in the Specification Manual

THE AMERICAN ARCHITECT

and experiment were necessary to work out to mathematical exactness the beauty of a Classic column and the proportion of its members, so why discard it until something better is found to take its place? In the Ecole des Beaux-Arts if a student designs a project in the Classic he stands little chance of even a pass.

Sculpture and color play a large part in this new architecture. The decoration is mostly bas-reliefs in the most modern fashion, or exotic colors, or both. The whole thing is restless like a tormented soul. The revolution has hit the Ecole and it is a question in my mind if Americans do

well to go there until their ideas have been more or less moulded on this side of the water.

In summary I feel that the evolution of our American architecture (and I feel we have a right to the term), is on the right road and the European revolution is false and will be discarded just as the aforementioned "Nude." Let us not clutter up our landscape with any of these "moderne" buildings, let us keep our eyes on our own work and our own problems and thank the Old World for the loveliness of her Past and leave her Present to her.

Newark, N. J.

BROWN ROLSTON.

A CORRECTION

IN the advertisement of the EverHot Heater Co., appearing in our issue of September 9, an error was made in stating that the average temperature of all water drawn from the Interior Flue Heater was 190.3°. It should have read 120.3°.

ART-IN-TRADES CLUB ANNOUNCES IMPORTANT COMPETITION

THE Art-in-Trades Club of New York has announced a competition open to all architects, artists, decorators, designers and students resident in the United States, for the design for a wallpaper to be used in the living room of a moderate sized, detached, suburban dwelling with a medium natural light exposure. A competitor may not submit more than two designs. Designs are to be rendered in water color or in oil, preferably the former. Designs entered in this competition should be delivered at the Art-in-Trades Club, 34 East 38th Street, New York City, between February 15 and 20, 1926. A jury of five members appointed by the Art-in-Trades Club, will award the prizes on March 1. The prizes to be awarded are as follows:

First Prize	\$1,000.
First Honorable Mention	200.
Second Honorable Mention	100.

For further details of this important competition, address George E. Clark, Secretary of the Exhibition Committee, Art-in-Trades Club, 34 East 38th Street, New York City.

WASHINGTON IRVING HOUSE IN SPAIN

THE memory of Washington Irving, American author-diplomatist, will be perpetuated in a house to be officially opened in Seville, Spain, and known as the Washington Irving House.

King Alfonso has made a personal and detailed inspection of the house, which will also be used as a club for Americans who reside in Seville. A library, containing works on the history and traditions of Andalusia particularly and Spain generally, has been installed.

RESTORING COLORED WINDOWS OF CATHEDRAL OF REIMS

WE learn from the *Review* of the American Chamber of Commerce in France, that The Société des Amis de la Cathédrale de Reims is collecting funds for effecting the restoration of the beautiful colored windows of the Cathedral of Reims, particularly of the big rose window known as the Grande Rose and of the Galerie des Rois. The expense for this part of the general restoration will amount to about 160,000 francs, and the Society has collected thus far 70,000 francs.

The reconstruction of the Cathedral is progressing with great care, and sooner or later the famous edifice will present almost its original aspect. In the latter part of 1918 the restoration appeared to be almost impossible, in spite of the measures which were taken nearly every day by the architect, M. Sainsaulieu, in the midst of the bombardments practiced by the Huns. Fortunately, it was decided later that the work should be done. The operations are being directed in masterly and delicate manner by M. Henri Deneux, chief architect of the Monuments Historiques. The panels of the last four windows of the upper range, the ancient glass of which was saved from destruction, have been reconstructed and placed in position by M. Jacques Simon, descendant of the artisans who since the 17th Century have strived to preserve the richly colored glass.

In the nave of the building, thanks to the generosity of Mr. John D. Rockefeller, Jr., the classic woodwork of the 15th Century, destroyed by the fire of September, 1914, will be replaced soon by new structure in reinforced concrete.

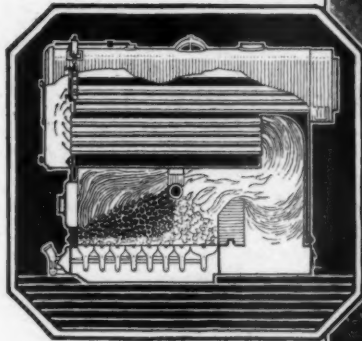
KEATS' COTTAGE TO BE DEMOLISHED

KEATS' cottage in Church Street, Edmonton, England, where the poet worked as an apprentice to a chemist, is to be demolished in connection with a road widening scheme, it is reported. It was proposed that the cottage should be re-erected elsewhere and preserved as a museum, but the local Council found that the material would not withstand pulling down and re-erecting.

HEGGIE-SIMPLEX

[FORMERLY SIMPLEX]

ELECTRIC-WELDED STEEL BOILERS



Made of Firebox Low Carbon Steel— the Quality Standard among Boiler Materials

The Heggie-Simplex boiler combines in one portable, electric-welded steel unit all the recognized advantages of both firebox and return tubular, double pass boilers. It has four distinctive features of fundamental importance:

1. Extra large firebox and direct heating surface.
2. Secondary combustion chamber to provide ample room for complete combustion before entering flues.
3. "Rear-front-rear" passage for the gases.
4. A single, unimpeded, freely circulating body of water.

Made in a complete range of sizes for bungalows, residences and all larger installations.

WHEN you see a steel plate going into the presses at the big Heggie plant, you know that it is genuine firebox steel of low carbon content—guaranteed to work up without brittle spots into a tenacious and practically unbreakable unit.

You also know that it is as heavy a plate as any ever used in boilers of similar size — and heavier than most.

This same care of quality follows through every detail of material and manufacture. From the first day when this unique, portable steel boiler is carried in and connected, this policy assures you of uninterrupted satisfaction.

Upon request—a simple, accurate chart and description showing how the Heggie-Simplex saves 25% to 45% of the fuel, burns any fuel smokelessly, reduces firings by 50%, saves 33% the floor space, flues clean from the front—and how much more simple and less expensive to install.

HEGGIE-SIMPLEX BOILER COMPANY, Joliet, Illinois

Representatives in

Akron	Casper	Dayton
Albuquerque	Charlotte	Denver
Amarillo	Chattanooga	Detroit
Atlanta	Chicago	Duluth
Baltimore	Cincinnati	Elmira
Birmingham	Cleveland	El Paso
Buffalo	Columbus	Harrisburg
	Dallas	



Representatives in

Houston	Nashville	Rochester
Joliet	New Orleans	San Antonio
Kan. City, Mo.	New York	Schenectady
Little Rock	Okla. City	Shreveport
Lubbock	Omaha	Spartanburg
Memphis	Philadelphia	St. Louis
Minneapolis	Pittsburgh	Tampa; Toledo
	Raleigh	

Just look up "Heggie-Simplex Boiler Co." in the phone book in any of the above cities for representative's number and address

Specifications of most products advertised in THE AMERICAN ARCHITECT appear in the Specification Manual

THE AMERICAN ARCHITECT

A DISCOVERY OF 14TH CENTURY FRESCOS

DURING work on the foundations of a small church in the heart of Naples, commonly called Santa Maria Succurre Miseris, it is reported that the walls of an older church beneath the crypt have been brought to light. These have now been found to be covered with well preserved and well executed frescoes, judged to be fourteenth-century work. As well preserved frescoes of this period are not numerous, great care is being taken by the Superintendent of Monuments to safeguard them against damage while further excavations are made.

CARNEGIE INSTITUTE OF TECHNOLOGY

HARVEY A. SCHWAB, for ten years a practicing architect in Pittsburgh, has been engaged as assistant professor of architectural design for next year at Carnegie Institute of Technology, according to an announcement from that institution.

Mr. Schwab, who was instructor in architecture at Carnegie Tech from 1910 to 1915, is a native of New Philadelphia, Ohio, and a graduate of the University of Pennsylvania. After studying at Atelier Duquesne in Paris he returned to the University of Pennsylvania in 1909 as instructor in architecture. The next year, he left to accept an appointment in the Department of Architecture at Carnegie, leaving the Pittsburgh institution five years later to practice his profession.

BOOK NOTES

BERTRAM GROSVENOR GOODHUE — ARCHITECT AND MASTER OF MANY ARTS

WHY argue about the possibility of a distinctive American architecture? That it is a reality now is indisputably shown by a study of the works of Bertram Grosvenor Goodhue, so completely illustrated in this book. One scarcely realizes the upbuilding of an American architecture until its development is traced in the work of a master architect. Goodhue's earliest work consisted mainly of ecclesiastical buildings. Such buildings can be designed in the Gothic or Renaissance manner according to the selected precedent. In a fine collaboration with Ralph Adams Cram and Charles Francis Wentworth he laid the foundation for a splendid achievement in which he preferred the Gothic manner because it offered the widest freedom of expression, not being limited as is the Classical style by its fixed dimensions and proportions. With all of his successes he dreamed of a church "very much bigger and finer and more modern and more suited to our present-day civilization than any Gothic church could ever be."

What was his dream? From him we will never know, but surely his work will inspire some architectural genius sufficiently to fulfill his

prophecy. Perhaps an indication of it can be found in that remarkable spectacle of his concurrent work—the Nebraska State House, the National Academy of Sciences at Washington and the Public Library at Los Angeles. Who other than a master could produce at the same time these fine buildings, so different, forceful and individual?

The State House, the antithesis of the "ready-made" state houses that distinguish our country, a structure that must be an inspiration for the better in that great empire, the central states. A study of the first, second and final schemes for the Library shows the process of developing a building from one reminiscent to one that challenges our best powers of analysis. The close proximity of the Academy to the Lincoln Memorial caused him at first to refuse the commission. He could not bring himself to design the usual Washingtonian parallelopiped entirely surrounded by columns. He was offered architectural freedom and did the fine thing that so satisfies every demand for architectural beauty and dignity. From its simple, well proportioned exterior to its warm, splendid interior, there is nothing but Goodhue in his best manner.

The two hundred and seventy-three plates impress one with the versatility and energy of this master. The brilliant draftsmanship that he employed is a fine example for students. The plates, chronologically arranged, illustrate the growth of an architect and of architecture. They cannot be scanned hurriedly because intense interest is aroused immediately and they challenge our best abilities to discover the thing that arrests our attention and that is the basis of their superiority. For that reason one returns to the book again and again, dreams some perhaps, and thinks more.

The text, written by Hartley Burr Alexander, Ralph Adams Cram, George Ellery Hale, Lee Lawrie, C. Howard Walker and Charles Harris Whitaker, is but slightly biographical in the usual manner of dates and facts—it is readable and worth while, and from it one receives a clear conception of the architect and architecture, American.

Bertram Grosvenor Goodhue—Architect and Master of Many Arts. Edited by Charles Harris Whitaker, text by Hartley Burr Alexander, Ralph Adams Cram, George Ellery Hale, Lee Lawrie, C. Howard Walker, 50 pp. text, 11 x 14, 273 plates of sketches, original drawings and illustrations of executed work.

Published by the Press of The American Institute of Architects, 250 West 57th Street, New York City. Price in buckram, \$30.00, in Morocco, \$50.00.

THE ORGAN OF ST. PAUL'S

THE great organ of St. Paul's, London, which has had to be taken down from its position within the choir to make room for the work of strengthening the fabric of the Cathedral, is about to be rebuilt on the north side of the nave, where, since the closing of the choir, the services are being held.



*High Pulpit and Canopy, All Saints Episcopal Church, Pasadena, California
Johnson, Kaufmann & Coate, Architects*

THE character and scope of our Wood Carving Studios and Church Seating Department are exemplified by this installation, which includes: ~

Pulpit, Staircase and Canopy
Ambulatory Screens ~ Communion Rail ~ Rood Screen
Choir Stalls ~ Litany Desk ~ Bishop's Throne
Sedilia ~ Bishop's Prayer Desk
Pews ~ Lectern

American Seating Company

General Offices
NEW YORK 686—119 W. 40th St.
1089 Lytton Building
CHICAGO
BOSTON 67 Canal Street

Designers and Builders of Seating and Furniture for Churches, Lodges, Schools and Theatres

Specifications of most products advertised in THE AMERICAN ARCHITECT appear in the Specification Manual

THE AMERICAN ARCHITECT

FOREST FIRE LOSS

CALLING attention to the enormous loss caused by forest fires in the United States in 1924, the State College of Agriculture estimates the number of such fires caused by maliciousness and carelessness was 86,480, and the money loss \$35,000,000.

A NEW GARDEN VILLAGE NEAR PARIS

IT is reported, states *Housing Betterment*, that the Department of the Seine in its provision of housing accommodations for the people of Paris will soon develop a new Garden Suburb at Rosny-Sous-Bois, near Avron. This district is to the northeast of the city and the scheme contemplates the development on this site of homes for 70,000 people. A competition for plans for this area is now under way. The Department is also negotiating for the purchase of the condemned forts or bastions of the second line of defense.

PROPERTY TAXES INCREASE 160 PER CENT IN TEN YEARS

GENERAL property taxes over the United States have increased 160 per cent in a ten year period, according to the Census Bureau of the National Association of Real Estate Boards.

The movement to put assessments on a 100 per cent basis of property values accounts in part for the large increase in property valuation shown, the Bureau states.

For every man, woman and child in the United States in 1922 there was an average tax paid on "general property" amounting to \$32.22. This includes taxes levied for State governments, counties, cities, towns, villages, school districts, drainage districts, and all other civil divisions having the power to levy taxes. These taxes, 60 to 80 per cent of which are borne in each community by real estate, reached a total for the nation of \$3,502,941,000. In 1912 the average of the general tax levy per capita was \$13.91 and the total for the United States was \$1,349,841,000.

The average rate per \$100 of assessed valuation for all civil divisions from the States down has gone up from \$1.94 in 1912 to \$2.81 in 1922.

LARGEST LIBRARIES

OF the sixteen libraries in the world containing more than 1,000,000 volumes, six are to be found in the United States, and of the fifty-three libraries containing over 500,000 volumes, sixteen are in this country. The largest of all libraries is the Bibliotheque Nationale, in Paris, which contains 3,500,000 volumes. Ranking second in size is the Library of Congress, with 2,918,256 volumes. The New York Public Library ranks third with 2,637,505, the library of the British Museum fourth with 2,500,000. Harvard's library is fifth, with more than 2,000,000 volumes.

PERSONALS

Frank Dunham announces the opening of his offices for the practice of architecture at 1010-11 Tribune Building, Tampa, Fla.

Adams & Adams, architects, have moved their offices from 517 Gibbs Building to 701-2-3 Builders Exchange Building, San Antonio, Tex.

Elizabeth Greenleaf Pattee and Constance E. Peters, architects and landscape architects, have moved their office to 9 Park Street, Boston, Mass.

Tilden & Register, architects, 1520 Locust Street, Philadelphia, Pa., announce that George Wharton Pepper, Jr., has become associated with them in the general practice of architecture.

Harry Lucht, architect, H. G. Anderson, associate, have moved from 242 Fulton Terrace into their new building at 432 Palisade Avenue, Cliffside Park, N. J.

Harry G. Bach, architect, has opened offices at 63 Schureman Street, New Brunswick, N. J. for the general practice of architecture. Manufacturers' catalogs and samples are requested.

Benno Janssen announces the expansion of his architectural offices and the changing of the firm name to Janssen & Cocken, architects, Century Building, Pittsburgh, Pa.

Welby N. Pugin, architect, and Harold C. Wallace, civil engineer, have opened an office for the practice of architecture and civil engineering under the firm name of Pugin & Wallace, 149 Sixth Avenue North, Nashville, Tenn.

Walter Frieling has opened an office for the general practice of architecture in Miami, Fla. Manufacturers are requested to send catalogs and samples to Mr. Frieling whose mailing address is P. O. Box 8065, Miami, Fla.

Charles J. Calrow, R. Maury Browne and T. David Fitz-Gibbon announce the formation of a partnership for the practice of architecture under the firm name of Calrow, Browne & Fitz-Gibbon, with offices in the New Monroe Building, Norfolk, Va.

Wellington J. H. Wallace, for the past three years architect for the Architectural Department of the Baptist Sunday School Board at Nashville, has opened an office of his own at 167 Eighth Avenue North, Nashville, Tenn., for the practice of architecture, specializing in churches. Manufacturers' catalogs and samples relating to churches are requested.

The PUBLISHERS' PAGE

BEGINNING with the present issue, THE AMERICAN ARCHITECT will be published on the 5th and 20th of each month, instead of every other Wednesday as heretofore. With this change and certain conveniences in printing schedules which are made possible, it is believed the paper can be placed in the offices of readers with greater promptness.

* * *

The series of articles that have already come to hand that will be part of our Golden Anniversary Issue, undoubtedly constitutes the most important contribution to the literature of architecture that has ever been attempted. Among these is an historical sketch of The American Institute of Architects, written by Glenn Brown. Beginning with the formation of the Institute in 1857, Mr. Brown traces the progress of the organization and recites its great accomplishments. As Mr. Brown was for fifteen years the Secretary of the organization and as he had the respect and confidence of every officer through many administrations, his knowledge of the matters about which he writes is intimate and accurate.

The older generations are apt to be forgetful and the younger unmindful of the work that has been or is being accomplished. Mr. Brown's historical sketch, dealing with men and the things they did, will serve to show how valuable has been the work of the Institute in promoting the interest of architecture and in upholding the dignities of the profession. The article is replete with reminiscences and gives the inside history of many events the full importance of which has never before been widely known.

It is with a sense of satisfaction that we find in this article allusion to the fact that at different times this journal has been useful in co-operating to produce the best results in matters of importance. THE AMERICAN ARCHITECT was forty years and more ago the official publication of The American Institute of Architects and in every big and constructive effort it was in close co-operation with organized architecture. Nor has the passing of time dulled that activity and while no longer officially representing the Institute, it has at no time in its history failed to follow the policy so wisely begun.

There are other outstanding articles in this anniversary issue that will be of large importance and in fact, the entire number from cover to cover will so thoroughly represent the field of architecture and building construction as to be encyclopaedic in character.

* * *

Among some interesting future features of the Department of Interior Architecture is an article

dealing with the modern aspects of fresco painting, a decorative method now revived in a most dignified way.

Billiard rooms in the modern house and club up to recent times have been places utilized for billiard tables and but little, if any, attempt was made to design and plan them with reference to their use. There will be an article in an early issue, illustrating and describing some recent examples of specially designed and planned billiard rooms that will have a very large suggestive value.

Ornamental metal, wrought iron, copper and cast brass were at one time highly developed. There have been periods of ascendancy and decadence in the use of metal decoratively. Just at this time the craftsmen in metal have effected a decided renaissance in those materials. The effect of this revival will be explained and illustrated in a future issue.

* * *

Professor Cram's series on Catalunan architecture is now in hand and the introductory article will appear October 20. Mr. Cram will need no introduction to our readers, and his series based on actual contact with the buildings he describes will present the deductions of a highly trained observer to which is added the beauty of a fine literary style. There are four of these articles, one to appear in the second issue, or 20th of each month.

* * *

An interesting feature in the October 20 issue will be a fully illustrated article by Edward T. Hartman, Massachusetts State Consultant on Housing and Planning, on Zoning and Architecture. The importance of zoning and the fact that it is now being seriously considered by all the various financial elements connected with the development of towns and cities, give this article a large measure of timeliness.

* * *

The issue of October 20 will very fully illustrate two recent additions to the Henry Ford Hospital at Detroit, Mich., designed by Albert Kahn, architect. These buildings will house the Clara Ford Nurses' Home and the Henry Ford Hospital School of Nursing and Hygiene. The latter building, as its name implies, is something more than a nurses' training school. The usual specialized curriculum will in this school be supplemented with liberal physical and mental culture. It will be interesting to note the skillful manner in which the architect has planned the building to meet the requirements of these complex problems. The nurses' home provides accommodation for 325 women.

PUBLIC LIBRARY
DETROIT MICH.



"THE TRIBUNE" BUILDING, CHICAGO, ILL.

JOHN MEAD HOWELLS AND RAYMOND M. HOOD, ASSOCIATED ARCHITECTS

THE AMERICAN ARCHITECT