

# THE AMERICAN ARCHITECT

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MAROUF

ACT I—SCENE I

By ERNEST GROS

## Scenery and Stage Decorations

By J. MONROE HEWLETT

### Color—Light—"The New Art"

THE relation between color, light and texture in a scenic setting is so intimate that these matters should be treated and studied as a single subject. This is, I believe, the first step toward real progress in scenic art. The old notion that scene painting is an appropriate refuge for a painter of pictures who cannot paint well enough to put his pictures into frames and sell them is based upon a complete misapprehension of the requirements and methods of stage decoration. It is a fact, however, that the older scene painters have concerned themselves too exclusively with the painting and have given but little thought to the lighting and texture of their settings, and this has been one of the causes of the dissatisfaction which has led to recent novel experiments.

These experiments have for the most part been the work of aspiring novices with half-formed theories, but without any foundation of knowledge of painting, decoration, or stage traditions, or indeed of any kind of craftsmanship.

There is in America to-day one scenic designer and painter of prominence who is definitely associated with the practice of the new and more or less "revolutionary" theories in scenic art and is at the same time an artist of experience, ability and imagination, a thorough craftsman in his chosen field of work. This is Joseph Urban, whose work and methods are therefore particularly worthy of careful study. His position in scenic design is similar to that of Louis Sullivan in architecture twenty-five years ago. Both of these artists represent a spirit

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of impatience at the continued application of the arrangements, motifs and technique of the traditional schools, and, aided by great natural originality and vigorous personality, they have injected into their decorative enrichments a personal note based in both instances upon oriental inspiration, but strongly modified by their individual manner and point of view. In addition to this Urban has rendered a great service by his intelligent application to scenic work of the characteristic methods of Claude Monet and the other leaders of the French "Impressionist" school; for if, as a matter of convenience and economy, it is essential that scenery should be painted upon a surface devoid of actual texture, the effect of texture and luminous quality imparted to canvas surfaces by broken vibrating color is the most valuable contribution that modern scene painting has yet received.

In thorough understanding of the lighting effects to which his painting is to be subjected, and in making his broken tones responsive to the color of the light, Urban's skill is pre-eminent. It is, therefore, the more to be regretted that with all the amusing quality and decorative interest of his settings, his more serious efforts seem to miss the sentiment of the great dramatic or operatic works. The most notable illustration of this was his "Caliban" set.

Here was a theme that offered a wonderful opportunity for imaginative symbolism, but the impression produced was neither majestic, mysterious nor imaginative; it was merely crude and grotesque, because symbolic forms cannot be invented for a special occasion and injected into decorative art with any success.

Conventionalization and symbolism are gradual growths. Their roots are inextricably woven into



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the traditions of the past, and a form in order to be truly symbolic must be a natural, logical growth from these roots. Urban's influence should, it seems to me, prove a valuable influence in stage craft in this country, but it cannot be so unless his admirers study his craftsmanship rather than imitate his eccentricities.

If the scenic designer aims, as he should, to eliminate non-essentials and at the same time to avoid barrenness, he must find some means of filling his otherwise empty spaces with something more interesting and significant than flat surfaces of obvious paint. Urban's work is full of suggestion in this regard, and there is furthermore a field, but little developed at present, for the introduction of real texture instead of the simulated texture of a painted surface.

Illustrations are shown herewith of Urban's preliminary studies for new productions of "Faust" and "Le Prophète," and of the three "Marouf" sets by Ernest Gros, all for the Metropolitan Opera. Urban's studies, together with the sets that have been painted from them, represent a far closer adherence to the familiar traditions of the Opera House than his most ardent admirers would have expected or, in fact, desired; and on the other hand this work of Gros', particularly the first act, shows a largeness of feeling and a simplicity of composition that could hardly have been expected of this able painter "of the old school," had he not during the past few years been awake to the newer movements of his art.

One of the most encouraging signs of the times in scenic design is the opportunity now being furnished by the management of the Metropolitan Opera Company for conservatism and modernism to act and re-



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act upon one another in such a way as to rub off their anachronisms and excrescences.

Some years ago I happened to be at Niagara Falls during a convention of one of the great electrical engineering societies. A much advertised part of the program was the illumination of the falls, which I watched from the Canadian side with the full sweep of the "Horseshoe" in the foreground. I have never ceased to wonder at the completeness with which this illumination destroyed all the qualities that make Niagara one of the most stupendous and awe-inspiring sights that I have looked upon. And yet this was an occasion which called forth the efforts of distinguished engineers thoroughly familiar with the recent progress of electrical science and anxious to impress the public with the marvelous possibilities of that progress; but they approached this problem from the wrong point of view. They tried to play clever tricks with Niagara, and the only result was to make their cleverness, and incidentally Niagara, look silly and puny.

Theatrical illumination furnishes numberless examples, on a smaller scale, of this same sort of misdirected energy. The lighting of a stage picture requires quite as fine a sense of values as the painting of it; but, as a class, the men who are technically

proficient in matters of electrical illumination are totally lacking in any real appreciation of the artistic requirements of their work. Every one when looking at a painted picture realizes that the shades and shadows are quite as important in the color scheme as the lights, and much of the beauty of modern landscape painting consists in the truthful rendering of the relative values of each color in light and shade, but in stage work, when the scene painting is done and turned over to the management, in nine cases out of ten the effort seems to be to eliminate all shadow, thus losing brilliancy by lack of contrast. As a natural result of this mistaken theory of lighting, the quantity of light is thereupon increased in the vain effort to attain brilliancy by this means and to-day the average stage is lighted to a degree that dazzles the eye and makes ineffective any painting except that rendered in such vivid, crude color as to kill any subtlety of relation between the costumes and the scenery.

The stage director has at hand to-day more clever mechanisms for the production, reflection and diffusion of light than he has ever had before, but in the equipment of most theaters no consideration has been given to one of the fundamentals of stage lighting, which is that the lighting of the actors and the



MAROUF

ACT 2

By ERNEST GROS

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stage itself is an entirely distinct matter from the lighting of the scenery, and that the color, intensity and diffusion must be kept entirely independent the one from the other in order to make possible a proper accenting of the salient points and a massing of light and shade in such a way as to give contrast, tone and mystery to the composition. If the conductor of an orchestra had no better control over the units with which he produces his effects than the man at the switchboard of the average theater, the audience would leave in disgust, and yet stage lighting in itself is not a complicated problem, but is made so simply by over-elaboration of paraphernalia and lack of the imagination by which it could be simplified. The newest methods of lighting can be credited with some extraordinary effects, but they, like the more extreme examples of modernist painting, are effects of gorgeous color, crude splendor, suitable only for productions of a spectacular character.

We are living in wondrous times. One by one the principles and traditions that have governed and inspired the entire development of the fine arts through thousands of years have been light-heartedly consigned to the scrap heap by the prophets of a new dispensation. At last the amateur has come into his own. At last a generation has arisen capa-

ble of appraising the hampering effect of knowledge upon genius. At last we see the cart complacently drawing the horse and the tail triumphantly wagging the dog. Since this phenomenon is observable in all the arts, it is but natural that the theater, which includes most of them, should develop these symptoms in an intensified form. In this connection I quote a few brief passages from a paper by the retiring president of the Drama League of America, recently published in the *Journal of the American Institute of Architects*: "The modern mind has been sharpened to the keenest scrutiny, even to a settled suspicion of everything that is old and established." . . . "Surely, in the creation of a new modernized theater responding in all ways to the spirit of the new drama and the new art generally, is a stimulating challenge for the architect." . . . "Soon surely there must be an outward visible sign of this dramatic renaissance in a new type of theater—a new body that shall be worthy of the new soul which is being born amidst all the throes of these tragic times—a new birth of art which is to signalize the larger gestation of a more humane civilization."

There is a splendid field of useful service open to such an organization as the Drama League of America, but the worthy desire to be modern, progressive and independent requires for its steadying

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a greater measure of conservatism, a little more humility of spirit in the contemplation of the great things of the past, a little less assurance in ringing up the curtain upon "a new birth of art."



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As we look back over recent history we recall many "movements" that have risen and receded and left behind them something of permanent value in the practice of some branch of art; but we also recall, with a smile, that every one of these has been heralded and exploited not as a contribution to, but as a substitute for, the art that has gone before; and when the shouting has died away and an inventory is made of the gains, how pitifully small they seem. All the enduring art that has ever been produced in the world has been combined with good craftsman-



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ship. No individual or collection of individuals has ever invented a new language and then proceeded to produce literary masterpieces in that language, and the fundamentals of good craftsmanship do not change from generation to generation.

For the past twenty-five years the type of "modern mind" that has been sharpened "to a set-



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tled suspicion of everything that is old and established" has been so busy in the effort to invent new languages, new forms of expression, that it has had no time or inclination to perfect itself in those forms in such a way as to make possible a finished production of any kind. The *new* art that is held up to us as a shining source of inspiration and a stimulating challenge is so new, most of it, that no vocabulary has yet been developed properly descriptive of its



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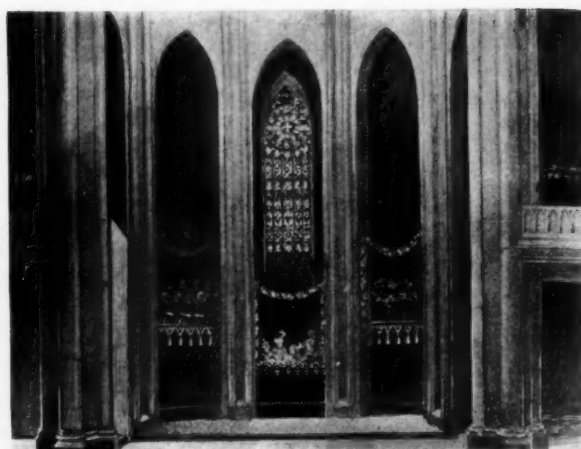
characteristics, that its ardent advocates are driven to define painting in terms of music, music in terms of sculpture, each art in any terms except those having a definitely understood relation to its technique;

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an art based upon a self-conscious effort to be different, an art that would rather fail to be art than fail to be new.

If "a new soul" "is being born amidst all the throes of these tragic times," I hope and believe that it will be a soul of sufficient honesty to wish to see straight through the fogs and vaporings of contemporary criticism that now obscure its vision, a soul of sufficient independence and self-confidence to use its own faculties and form its own judgments, a soul of sufficient humility and modesty to study its own outgivings in comparison with those of its predecessors.

In discussing the confusion in regard to the meaning of terms describing art activity, John Galsworthy has said: "The only essential thing is that vision, fancy, feeling, should be given the concrete clothing that shall best make them perceptible by the hearts of others; the simpler, the more direct and clear and elemental the form, the better; and that is all you can say about it. To seek remote, intricate and 'precious' clothings for the imagination is but to handicap vision, and imperil communication and appeal; the artists who seek them are not usually of much account. The greatness of Blake is the greatness of his simpler work. And in this connection it is as much affectation to pretend that men are more childish than they are, as to pretend that they all have the subtlety of a Robert Browning. If



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the range of an artist's vision, and the heat of his feeling be great, then the simpler, not the more mathematical; the more accessible, not the more childish, the form he takes, the wider will be his reach, the deeper the emotion he stirs, the greater the value of his art." This statement seems to embody the fundamental tests by which the value of artistic innovations should be appraised, and the point of view that may well lead us in the theatre, as elsewhere, toward real "Renaissance."



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## The Wooden Shingle and Its Relation to the Fire Hazard\*

During the past year an increasing volume of criticism has been directed against the wooden shingle. City councils and code revision commissions in a large number of cities all over the United States have been discussing the advisability of eliminating the wooden shingle from cities on account of the fire hazard. A number of conflagrations, the largest one occurring at Atlanta, Ga., gave increased impetus to this discussion. The insurance companies have indicated that they are much alarmed at the loss suffered because of these conflagrations, and inspection reports issued by the National Board of Fire Underwriters indicate their belief that many of the losses are due to the burning shingles which fly from one point to another, thereby rapidly spreading the fire. A number of meetings were held to determine whether it would be practicable for the manufacturers of wooden shingles to meet this increased criticism in some way, and if possible make the wooden shingle available for the use of the general public by removing the only stigma which attaches to it.

It is universally recognized by all that the qualities of the wooden shingle make it an ideal roof covering. This is admitted in a recent criticism by the Government in which, after calling attention to the fire risk, it is stated that, "On account of the durability, light weight and low cost, shingles will continue to be used indefinitely for roofs in farm buildings."

It is interesting to note that the chief criticisms heretofore have been directed against the wooden shingle for use in cities, but the report just quoted urges the desirability of eliminating wooden shingles on all farm buildings. The discussions which the writer has had with the insurance authorities indicate very plainly that the objections of the insurance companies as well as fire protection associations, who are most active in their fight for the elimination of the wooden shingle, lie wholly in their thorough belief that the wooden shingle is a conflagration breeder.

The chief criticisms made are that shingles are made too flimsy, too light, they are not properly nailed, they cup and curl after a brief service on the roof, and owing to the fuzzy nature of the surface and spaces between the shingles they readily ignite from even the smallest sparks, and when once ignited, particularly if the wind velocity is at all high, they are torn loose from their fastenings and act as flying brands.

A further criticism has been made that the manu-

facturers of wooden shingles in no way assist the public in determining the proper way for laying shingles, the kind of nails to be used, nor do they assist by pointing out that the manufacture and use of poor shingles should be discouraged and done away with.

The Southern Pine Association last year adopted a set of grading rules which are in many respects admirable. They require a thick shingle, likewise a shingle which is sold on the basis of the number of lineal inches, which marks a distinct forward step. The Southern Pine Association and the Southern Cypress Manufacturers' Association are the only ones to date that have taken such action.

The next step which should by all means be taken is to label each bundle of shingles with a clearly branded label, indicating the number of inches of shingles contained in any bundle, the covering capacity of the shingles in any bundle, figured on the basis of 4 in., 4½ in. and 5 in. to the weather, and some trademark or label indicating the manufacturer or association, so as to assure the customer of the integrity of the grade. It will also be desirable to add some information urging the use of a definite kind of shingle nail. This should be followed by encouraging the retail distributor of shingles to sell the proper type of shingle nail, preferably a hot galvanized cut iron nail, every time that he sells a bundle of shingles; in other words, sell the two together, as is done so frequently by the manufacturers of competitive roofing.

The second criticism, the protection against the fire hazard, is a problem which we have been investigating for several years. The first thing that had to be done was to develop a scheme for testing the degrees of fire resistance. A detailed description of the method finally adopted will shortly be published.

Without going into detail, it has been found that in order to make an efficient fire-resistive shingle, it will be necessary to treat the shingles in some way so that the materials used for fire protection will remain on the wood for a reasonable number of years, and so that it will not contaminate the water supply.

Furthermore, it must be a material easily applied, readily obtainable in constant form, and of comparatively low cost. A large number of substances advocated for the fire resistance of shingles were tested, most of which had to be discarded because they would not fulfill all of the conditions above enumerated. With the active co-operation of the technical officials of the Paint Manufacturers' Association of the United States, a scheme has been found which seems to indicate that it may be commercially applicable and which, so far as the tests have gone, gives the wooden shingle a high degree

\*An address delivered in New Orleans by Dr. Herman von Schrenk.

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of fire resistance. In fact, it makes it more nearly fire-resistant than some of the materials now allowed in cities where ordinances restrict the use of the wooden shingle.

A large number of tests have been made with this paint, the results of which have been most encouraging.

The application of paint to shingles is not a new thing, and in and of itself will very considerably act as a fire-retardant. Quoting from the government bulletin above mentioned:

"When shingles are exposed to the weather for a short time they take on a rough, fuzzy appearance, due to the fibers on the surface becoming loosened. The sun from without and the heat from within the building combine to extract every trace of moisture from them. If a cinder or spark happens to strike the roof the roughened surface tends to hold it there, and it is likely to set the roof on fire before it goes out. One way of lessening this danger is to paint the roof. The paint smooths down the rough surface of the wood, making it much easier for cinders to roll off to the ground when they strike the roof; it prevents the shingles from warping and forming pockets for the cinders to lodge in, and if cinders do stick on the painted surface considerably more heat is required to ignite it than to fire the rough surface of the unpainted shingles. Dried paint is mostly metallic or mineral pigment from which the oil is all evaporated, and in itself is not inflammable. Painted roofs have the advantage of being more attractive than unpainted ones, though it is a mooted question as to whether oil paints lengthen the life of a shingle roof. Where buildings are frequently exposed to danger from flying sparks or cinders, some means should be employed to make the roofs reasonably safe from them."

### What Is Labor Unrest?

The human mind, says *Engineering News-Record*, is the most complex piece of mechanism in the world. It is the master mechanism. How it works nobody knows. What it will do individually and collectively under any given conditions, nobody knows—not even its owner.

The man who digs your ditches has depths you cannot plumb. You see him come and go every day and his coming and going become a part of your daily habit of thought, like the coming of your morning newspaper. Some day he doesn't blend with the scenery as you are accustomed to viewing it. Unknown to you there has been some crisis in his life; his mental depths are in turmoil; age-old questions come to the surface. Placidity becomes turbulence and you are annoyed—unless

you have become similarly turbulent yourself, in which event you are not annoyed. You understand.

Your ditch digger has thousands of years of his ancestors' life and thoughts and yearnings slumbering in his soul and speaking when he is roused. He has not always been a ditch digger. Some centuries past in Asia Minor, in Greece, in Italy, along the whole line of civilization's push upward, he has been oppressor and oppressed, just as you have been—mostly oppressed, for the oppressed have always been in the majority.

One life begins and ends; but the blood-flow is continuous from generation to generation. The thousands of years behind us speak in us and to us and through us every day. The greatest thinkers, ancient and modern, affirm this.

There has been more stirring of the human depths since August, 1914, than there had been in the whole period since our Civil War. All of our accustomed grooves have been upset. In our social bearings we lack a sureness of direction. The guide-posts have become weather-vanes. Our placid gray matter has been set seething. The former smooth surface of our minds which reflected the current weather, the passing clouds and the orderly seasons is turbulent; the sediment of the centuries is bubbling to the surface from the depths.

We get into channels. Channels are comfortable. They fix direction. Where you are going doesn't worry you. It suffices that you are comfortably on your way. Then something happens and destroys the channel. You and your ditch digger face each other with the eternal question of your mutual relationship in your eyes. The thousands of years back of each of you is compacted in the look. *And you couldn't phrase the question in words if you tried.* You don't try, either of you. Instinctively you know it, but to save your souls neither of you could say it.

If you tried to say it, you would both use the words you used in the channel—wages, open shop, cost of living. Especially the ditch digger would. He couldn't phrase the concentrated protest of ten thousand years in a moment of crisis any more than he could think it logically in a year in the channel. It is too big, too overwhelming, too much a rising of his whole being.

So when you ask him what he is turbulent about, don't quibble about the lack of a clear-cut answer. It can't be made; you couldn't make it yourself. But if you want his answer, get it in his reactions. Hear him give approval to war against the Kaiser; note the set of his features when the war profiteer is mentioned; watch him as he listens by the hour to the man you would call an agitator; catch his constant sanction to the opportunities open alike to

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everybody and his equally constant suspicion of opportunities not possible for *his* children. The public schools are never afraid to go direct to the people for money; the universities are.

Business based on the idea of maximum cash returns to the owner, at any cost to competitors, to labor, to the social order, to the Government, was bound to be a boomerang.

The labor unrest is the instinctive protest of ten thousand years against all this.

### What England Teaches

A striking contrast between English and American industrial housing centers is drawn by Richard S. Childs in *The Outlook*. Growing up in England at the numerous munitions centers all over the country are new garden cities. These are being designed by the ablest city planners in Great Britain, not only for convenience, not only for economy, but for a certain ideal of beauty as well. The writer lays particular stress upon this physical aspect of comfort and pleasant community life. Gretna, he tells us, is the largest of these towns, with 16,000 inhabitants, "prettily and cozily housed amid green lawns and winding roads, with water, gas and sewers, playgrounds, churches, schools and public buildings, all complete, where two years ago was only vacant moor. . . . Life is worth living in these villages. Workers were withdrawn for six weeks from one great arsenal to build a dance hall in the village, and the statesmen of England say it paid in munitions output."

No wasteful broad streets have been constructed for trifling traffic. Instead of long, monotonous straight lines of curb and roof and wall, there are easy curves and irregular vistas, and the houses stand in groups at broken angles to catch the maximum sunlight.

The significance of such development is summed up in the following analysis: Had private landlords supplied these homes, we would have seen this different sequence of events: 1. Munitions plant lo-

cated. 2. Influx of population, local land values boom. 3. Munitions plant cries for labor and offers high wages. 4. Builders try to buy land to put up houses for labor, pay inflated price for land, charge for it in the rent. 5. Labor finds high wages nullified by high rent and fades away. 6. Munitions plant offers higher wages. 7. Landlords levy higher rents and owners of empty land announce higher prices.

The result—high cost of munitions, unceasing labor turnover, disorganization, labor troubles, landowners and speculators making fortunes. That is the American method.

In England it is different: The English national government located these towns, built them, and "owns every house, park, fence, bush, road, pipe, and wire in them." These lands were taken, not at the new value that followed the establishment of munitions centers, but at vacant land valuation before the war. The nation, unlike the private landowner, charges rents only on a basis of costs, and not the maximum that the well paid munitions worker can stand.

As a result of all these things, the continuous coming and going of restless, discontented workers has in a large measure subsided.

In the United States all the plants and shipyards, it is estimated, have an annual turnover of 600 per cent, and the other unfortunate conditions present are too well known to need mention. No man will give up a good position where living conditions are satisfactory to take one with better wages where they are intolerable. Therefore the irresponsible and unstable quality of large numbers of men doing work in our plants and shipyards.

To attract a dependable class of people, to make these building projects of enduring use, to expedite our victory in the war, our newly organized construction division of the War Department should build not merely houses, but stores, schools, churches, theaters, libraries, and the other adjuncts to normal, wholesome life, without which high grade labor cannot be attracted except at excessive cost. Will we not learn from England?



## Recent Books

**THE RURAL SCHOOL PLANT, FOR RURAL TEACHERS, SCHOOL BOARDS, ETC.,** by S. A. Chalman, Commissioner of School Buildings for Minnesota. Full cloth, 250 pp., size 6 x 9 inches, illustrated. Milwaukee; Bruce Publishing Co.

Believing that investigations during recent years have revealed conditions that seriously affect the physical aspect of rural schools, and equally strong in the belief that such conditions are indefensible, the author set about the preparation of this book. It fills a decided need and serves a very useful purpose.

The object of the book is to point out these physical defects, and to suggest such measures as will increase the efficiency of the rural plant.

The work is divided into fourteen chapters, which progressively discuss all the important phases of the small, one-or-two-teacher rural school. Primary conditions, costs, legal requirements and building standards, as derived from the best actual tests, are very carefully considered. A chapter on essentials and non-essentials is important as showing just what, in the author's opinion, based on long experience, are mandatory requirements in this type of school.

Housing the teachers for these schools, always found in small and sparsely settled localities, has become a problem to be considered in order to keep the same teacher for a reasonable number of school terms. A chapter devoted to this topic is interesting and indicates a problem and its solution that have not been considered very generally.

Architects will find this book an interesting and useful addition to their working libraries.

**THE NATURAL STYLE IN LANDSCAPE GARDENING.** By Frank A. Waugh. Full Cloth, size 6 x 9 inches, 151 pages, illustrated. Richard G. Badger, publisher, the Gorham Press, Boston. Price, \$2.50.

The natural style in landscape gardening, or a style opposed to the more formal, or architectural, treatment of large areas out of doors, has in this country, as it has for a considerably longer period in Europe, found increasing favor. A "natural

style" in landscape work might be described as the work of nature, reverently treated by the hand of man.

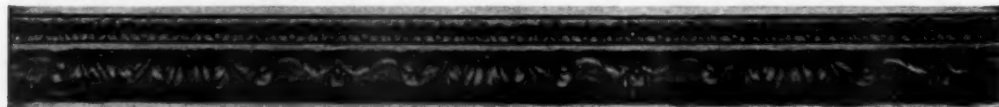
Every artist knows that it is not true, as unthinking people often declare, that nature never errs. The well-trained painter, he who knows best the rules that guide the most approved composition, is conscious of the fact that he cannot always set down the general view with good results, and that there is necessity, oftentimes, for some partial rearrangement. The faculty of elimination is one that all great painters have possessed. All successful landscape architects must cultivate, if they are not born with it, a sense of correct judgment. In fact, the art of the painted canvas and that of landscape architecture have much in common. The painter has but the view as bounded by the lines of his frame to deal with, while the landscape architect must needs compose his pictures from many points of view, and with many changing framings.

There is a certain fascination in this work, and a large element of patience necessary in its accomplishment. Gardens are not produced in a season; in fact, they are more often the result of years of constant superintendence.

These essential things Mr. Waugh has steadily kept in mind in the preparation of this admirable book. He sees in the tendency to design and plan modern gardens in a more natural landscape style a change wholly for good. He regards with satisfaction the fact that the ill-natured polemics of the seventies have disappeared altogether from garden literature of the day.

Just what constitutes a natural style it is difficult to determine. Authorities have differed radically on this question. The author discusses these matters, and entertainingly takes his reader into the history and development of gardens.

The book is divided into eight chapters which treat of the development of the native landscape, the form and spirit of the work, and discuss the principles of structural composition. There are chapters on the art of grouping, the features and furnishings of gardens and an interesting concluding chapter on the Open Field.



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### The Third Liberty Loan

NO body of men in the United States has been more loyal to the country and its best and highest interests than architects. They have, in many instances, given up their profession and have gone into the army through the media of the officers' training camps. They have in many other instances continued work in their profession for the Government at great personal sacrifices. So during the drive for the Third Liberty Loan, which began on April 6, the architects of America may be counted upon to do their full share.

Architects will realize that they are not only supporting their professional brothers in arms by buying as heavily as their means will permit of Liberty Bonds, but they are sustaining the nation—and, indeed, the whole civilized world—in a crisis such as the history of the world has never witnessed.

### Signing the Building During Construction

THE question of a revision of the Code of Ethics of the American Institute of Architects so that architects might be permitted to place their names on their buildings during construction was advanced last winter by the Illinois Society of Architects.

This matter will no doubt be acted upon at the convention of the Institute, to be held in Philadelphia this month.

In all the many opinions expressed on this subject there has not been any serious objection presented. Premising that favorable action will be taken by the convention, it may not be amiss to suggest a form of announcement that would seem desirable in the case of structures where the architect had been selected by means of a duly organized competition, held under the direction of the American Institute of Architects.

Why not place a notice in a prominent position on buildings of this character in this form:

JOHN WILLIAM SMITH

Architect

*The design for this building was  
selected by a competition held under  
the direction of*

*The American Institute of Architects*

As previously stated in these columns, the public interest in any structure centers more largely during its construction than at any later time. It is in that period that curiosity on the part of the public as to the authorship of the design is shown. After completion only architects or *dilettanti* in art will seek to learn the responsibility for the building—the interest of the general public will have lapsed.

There is no one thing that will better serve to place architects in their proper position than a propaganda of this sort. If it had been a custom to place the names of architects prominently before the public during the past three years, many of the unfortunate conditions now confronting the profession would have been avoided.

### Utilizing Present Hospital Facilities

IN the current issue of the *New York Medical Journal*, Dr. Richard F. Borden of Fall River, Mass., advances an idea that is worth serious consideration. His suggestion is that, instead of the construction of a great number of new special military hospitals by the Government for the care of sick and wounded soldiers and sailors, special wards in hospitals already in existence in this country be utilized, increasing their capacity where necessary by extensions and additions, both temporary and permanent.

Dr. Borden backs his suggestion with many excellent reasons, the principal ones being that disease can be more effectively treated and controlled by concentration in large establishments; that, in view of the difficulties in producing sufficient quantities

## THE AMERICAN ARCHITECT

of new equipment, the fuller use of existing facilities would be more economical; that the question of operating staffs would be simplified, as the doctors and nurses now employed could be more efficiently utilized under this plan; and lastly, he urges it for its effect on the patients, as by that method a majority of them could be sent to hospitals in the vicinity of their homes, and would thus be brought more nearly into contact with their families, greatly to the comfort of both the patient and his family.

Of course, all the present hospitals would not be available nor adaptable for such purposes, and many more of those that were would require extensive enlargement, but this would only be an added reason for following this course. There are, in almost all localities, continual demands, even in normal times, for increased hospital accommodations which are often not obtainable because of lack of funds. By wise and careful planning of the necessary enlargements they could be made, at least in part, available for permanent occupation after the exigencies of war had ceased, thereby conserving labor and material that would, in the case of isolated temporary structures, built simply to cover war needs, be wasted.

Dr. Borden outlines in his article a skeleton of a possible solution of the problem on these lines, and of the difficulties that he foresees would arise. To the average layman it would seem that his plan would meet and overcome most of the objections that could be raised against such a course. The idea seems sound, sensible and economical, not only in original cost, but in the running expense as well, and it is felt that the proposition should receive the most thorough consideration and investigation at the hands of the branch of Government service in charge of this important subject, with a view to ascertaining the possibilities of such a program.

### To Utilize the Country's Water Power

**B**Y a large majority, no less than half a million business executives, who comprise the membership of the United States Chamber of Commerce, adopted on March 27 resolutions calling on Congress to make provision for harnessing the millions in water power that now run to waste. The vote, it

is learned, was taken through the more than one thousand commercial organizations throughout the country which compose the National Chamber of Commerce. This vote represents a wide range of industrial interests and opinions, and its result should reliably indicate to Congress how the business men of the country regard this important question.

The report issued by the committee points out that it is estimated that the undeveloped water power of the country exceeds the total steam power now in service, and that the Federal government controls a large part of these water power resources.

The fact that many collateral advantages will result from the development of water power for the good of the community as a whole, rather than for the investor, is responsible for the present lack of water power development. Chief among these advantages are the conservation of coal and oil, exhaustible natural resources, which once used can never be replaced, the consequent saving of railroad equipment needed for their transportation, the saving in labor at the mines and on the railroad, and also of the large volume of labor in distribution. This saving, it is conservatively estimated, will exceed a hundred million dollars annually.

Now, as never before, the public has been forced to realize the importance of the conservation of fuel and labor. The crises through which we are passing accentuate the necessity for the formulation of a wise and fair policy as to this question on the part of the Federal government.

The conservation of every natural resource, with the exception of water power, means a restriction of its use. Even its moderate consumption is a direct and absolute loss of material. Conversely, every horse power of water power not used is an absolute loss, while its harnessing to some useful purpose saves not only the horse power but also the large and complex equivalent that would be necessary to produce it by steam. All these facts and many others have been embodied in the report of the American Chamber of Commerce. When they are read before Congress, it is confidently expected that some comprehensive program will result whereby the moribund attitude of the Government may be awakened to a vital consideration of a very important economic development.

# Digest of Commercial and Financial News

Affecting the Practice of Architecture

## American and English Income Taxes

In comparison with the tax levied in England on incomes our own income taxes are moderate, indeed.

In England the tax on incomes of \$1,000 is 4½ per cent; in America nothing.

In England the tax on incomes of \$1,500 is 6¾ per cent; in America nothing for married men or heads of families, and 2 per cent on \$500 for an unmarried man.

In England the tax on an income of \$2,000 is 7½ per cent; in America nothing for a married man or head of a family, and 2 per cent on \$1,000 for unmarried men.

The English income tax rate also increases more rapidly with the growth of the income than ours, a \$3,000 income being taxed 14 per cent, \$5,000 16 per cent, \$10,000 20 per cent, and \$15,000 25 per cent, while our corresponding taxes for married men are respectively two-thirds of 1 per cent, 1½ per cent, 3½ per cent and 5 per cent, and only slightly more for the unmarried, due to the smaller amount exempted, the rate being the same.

## What Peace Means

To come to any appreciation of what part the United States may play in world affairs at the close of this war, and by what means it is to hold its position, a clear idea must be had of what the coming of peace will immediately involve. The warring countries for a considerable period must direct their efforts largely toward taking apart, or demobilizing, the vast and intricate war machine, and toward rearranging society, not according to pre-war standards, but according to the new requirements which a long and disastrous war has made unavoidable.

## Organizing for Peace

It is beginning to be realized that the individual nation must organize for peace just as it did for war, if it is to give effective aid to mankind in recon-

structing the structure of a civilization which it took 1400 years to build up and less than three years to break down. The first step toward such an organization for peace, however, must be the clearing away of the débris of war. In this America will have the advantage of being able to turn more quickly to what may be termed development as distinguished from demobilization and rebuilding.

## New Industries

There are governmental policies, financial arrangements, legislative and military restrictions of all sorts in nearly every country which have created new forms of industry, developed new methods of doing business, established investments and set up important obligations. To eliminate those no longer essential, to readjust relationships and make them suitable for peaceful pursuits—to clear the field for progress—is a stupendous undertaking which will demand all the wisdom of mankind.

Moreover, for Europe especially, must come the period of rebuilding—a replacement as well as readjustment. Outside the matter of rebuilding, in itself tremendous, there is the equipment of farming, mining, industrial and transportation enterprises, small and large, which have been destroyed or disorganized by the war. The needs of every European country along these lines must be studied, and studied carefully, by those who would fully appreciate the opportunities for service and for gain which they offer.

## America's Strategic Position

Aside from a favorable position at the opening of this race for commercial supremacy, America has certain other advantages of importance. At the foundation lies a huge gold reserve upon which can be built a structure of credit sufficient not only to finance our own enterprises, but also to give aid to those of foreign countries. To guide and assist these credit extensions we have a banking system characterized by some of our rivals as ideal. This

## THE AMERICAN ARCHITECT

system will lend itself to the extension of American financial houses into foreign countries. Already a beginning has been made, not only by the setting up of branch banks and foreign offices—establishments which may be termed money and credit depots for the advancing trade army—but also by the organization of merchandise banks, institutions with the usefulness and working of which European nations have long been familiar.

### Co-operative Effort

Up to the present time the task has devolved largely upon individuals, corporations, and associations who have no official standing. A great deal has been done in a desultory, detached sort of way, but no medium for interchange of opinion except the press, or for co-operative effort, has been created. This country seems not yet to have sensed the fact that the day of individual efforts and purposes, as distinguished from co-operation and public service, has passed; that this war has established not only the interdependence of nations but also the interdependence of individuals and classes within the nation and that common understanding, counsel, and co-operation are surely to be the watchwords of the future.

### Economic Strength

Economically the position of America is solid and inspiring. With an immense population, compounded of many elements, she is assured of a richness and variety of productive effort that rightly directed will give her pre-eminence in satisfying the multitudinous wants of her world neighbors. An abundance of untilled farming land, inexhaustible mines, rich forests and ample water supply both for

power and transportation invite this population to their conversion into wealth. Our inventive genius in the past has revolutionized the forms of industry. For the research worker in the industrial field there were never greater opportunities than now. Back of these powers of production stands the fact that we shall have at the close of the war a merchant marine and facilities for maintaining it such as America or any other nation never has known before. To bring all these factors of industrial, commercial and financial strength into complete co-operation is a task for which the American faculty for organization is excellently fitted.

### The Task Before Us

In the United States there has been, so far, no organized undertaking on the part of the Government looking to the solution of the problems of reconstruction. The future political and military relations of this country to the rest of the world have been set forth by the President, but neither he nor the Congress has approached the question of financial, industrial, and social reconstruction as a whole. Here and there in war measures or in the proposals of Department heads may be discerned evidences of individual investigation and thinking, but thus far there has been no co-operative and avowed effort along this line as in other countries. No special body to enter upon this work has been organized here, and while it may be fairly assumed that such Departments as those of the Treasury, the Interior, Agriculture, Commerce, and Labor are devoting much of their time to reconstruction measures there is as yet no agency for the co-ordination of their findings and the suggestion of general policies unless it be Congress itself, a purely political body.





PLATE 125

THE NATIONAL BANK OF COMMERCE, DETROIT, MICH.

ALBERT KAHN, ARCHITECT; ERNEST WILBY, ASSOCIATE





PLATE 126

DETAIL OF PRINCIPAL ENTRANCE

THE NATIONAL BANK OF COMMERCE, DETROIT, MICH.

ALBERT KAHN, ARCHITECT; ERNEST WILBY, ASSOCIATE



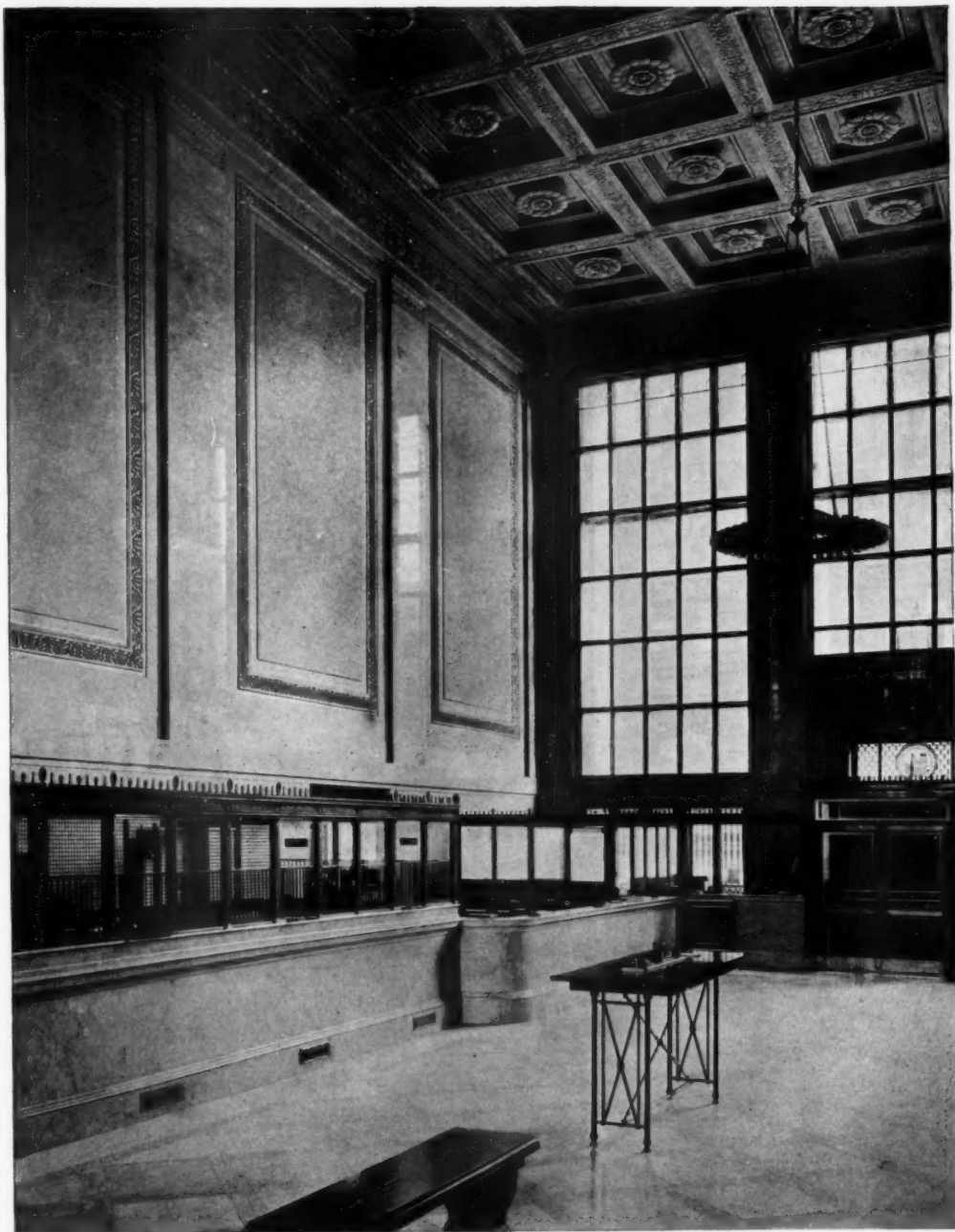


PLATE 127

MAIN BANKING ROOM

THE NATIONAL BANK OF COMMERCE, DETROIT, MICH.

ALBERN KAHN, ARCHITECT; ERNEST WILBY, ASSOCIATE





PLATE 128

DIRECTORS' ROOM

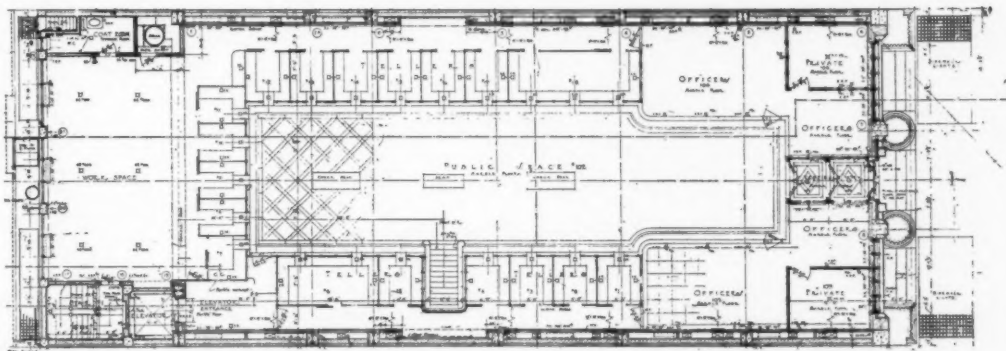
THE NATIONAL BANK OF COMMERCE, DETROIT, MICH.

ALBERT KAHN, ARCHITECT; ERNEST WILBY, ASSOCIATE





SECOND FLOOR PLAN



FIRST FLOOR PLAN

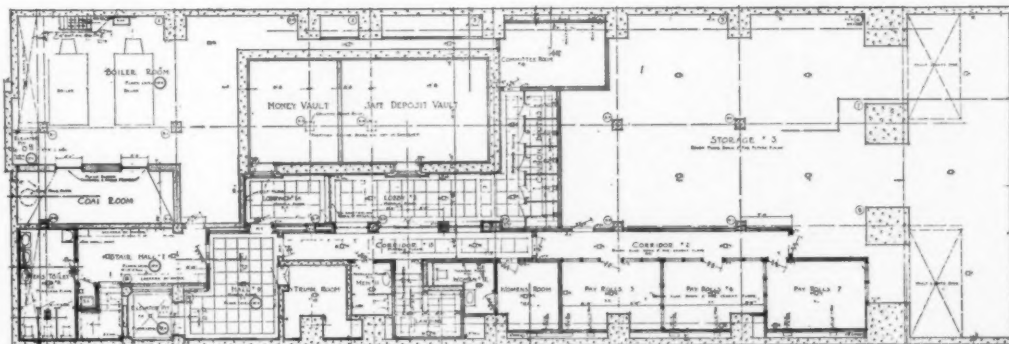


PLATE 129

BASEMENT PLAN

THE NATIONAL BANK OF COMMERCE, DETROIT, MICH.

ALBERT KAHN, ARCHITECT; ERNEST WILBY, ASSOCIATE





METAL COUNTER SCREEN



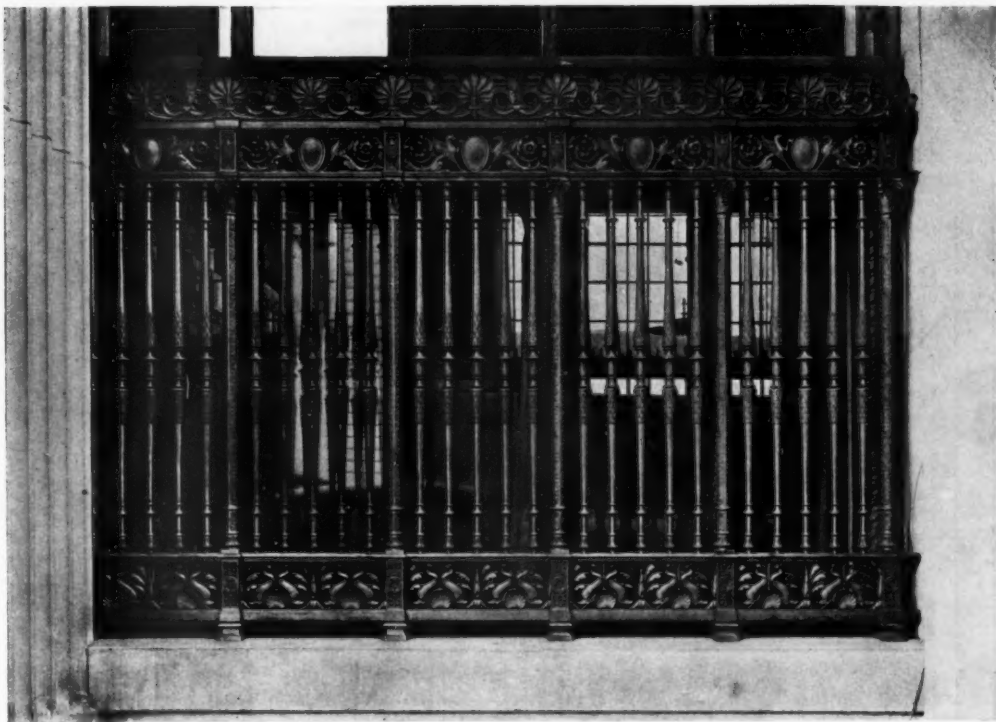
PLATE 130

THIRD FLOOR PLAN

THE NATIONAL BANK OF COMMERCE, DETROIT, MICH.

ALBERT KAHN, ARCHITECT; ERNEST WILBY, ASSOCIATE





METAL GRILLE



PLATE 131

FOURTH FLOOR PLAN

THE NATIONAL BANK OF COMMERCE, DETROIT, MICH.

ALBERT KAHN, ARCHITECT; ERNEST WILBY, ASSOCIATE



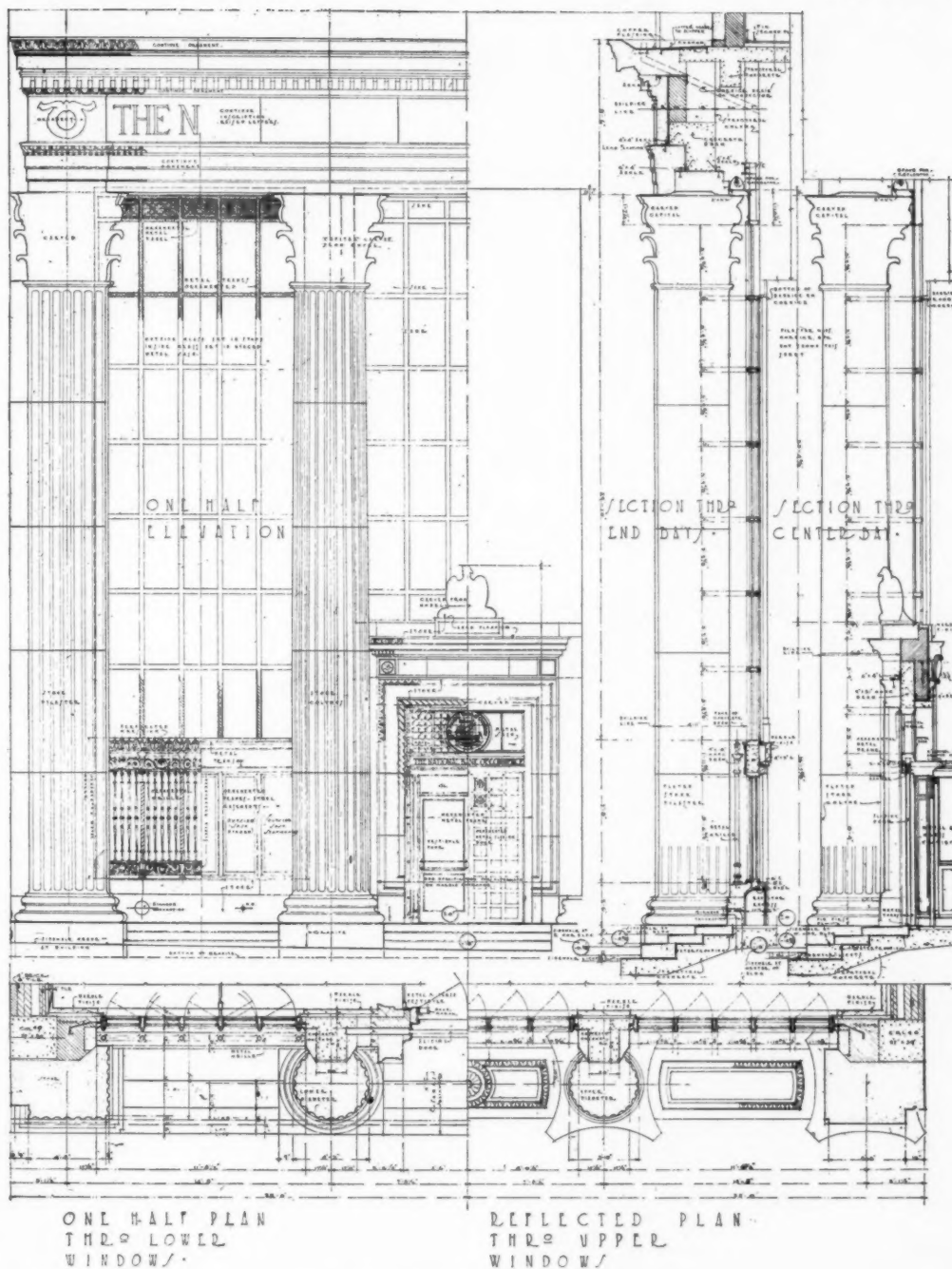


PLATE 132

DETAILS, LOWER PART, FRONT ELEVATION

THE NATIONAL BANK OF COMMERCE, DETROIT, MICH.

ALBERT KAHN, ARCHITECT; ERNEST WILBY, ASSOCIATE



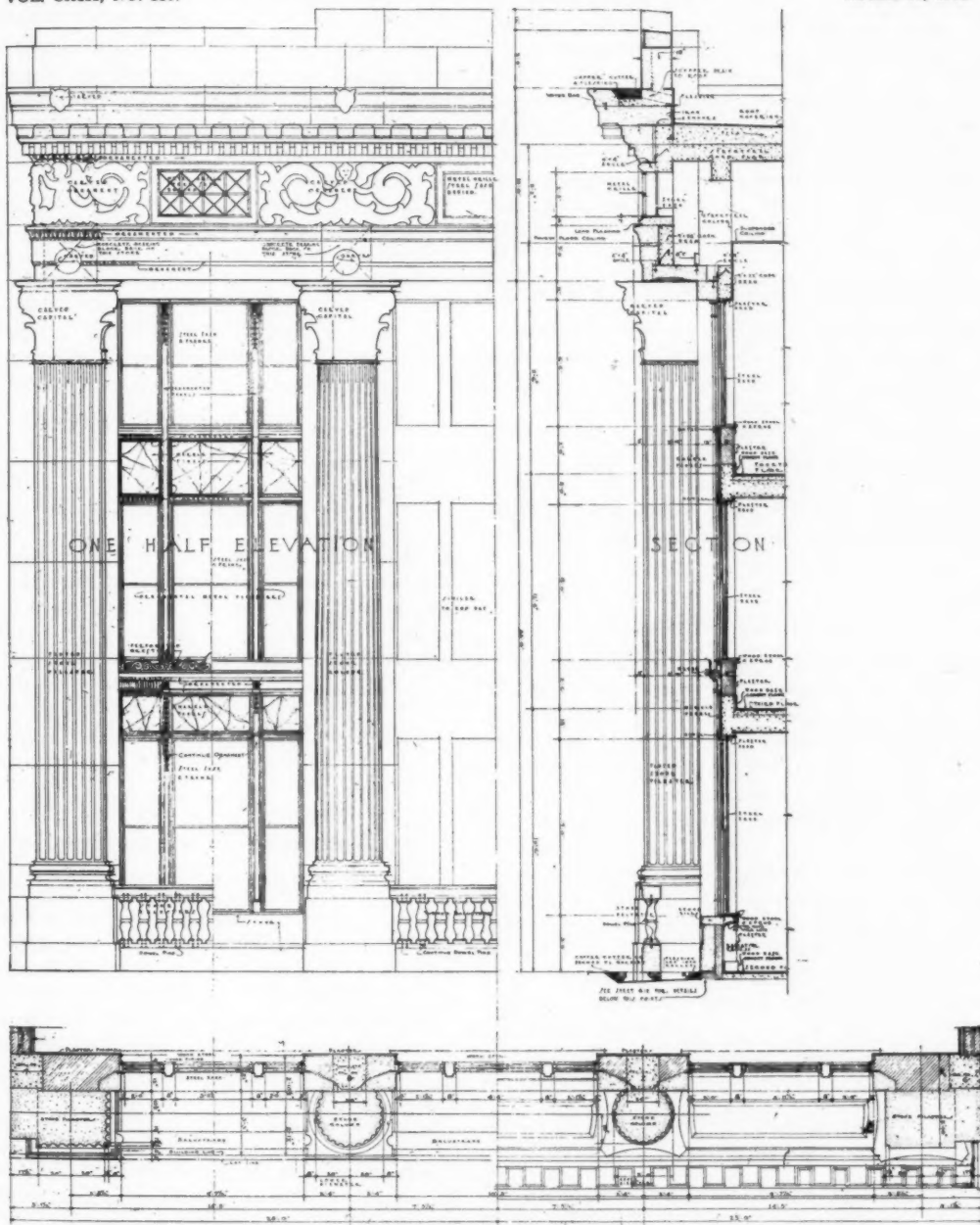


PLATE 133

DETAILS, UPPER PART, FRONT ELEVATION

THE NATIONAL BANK OF COMMERCE, DETROIT, MICH.

ALBERT KAHN, ARCHITECT; ERNEST WILBY, ASSOCIATE



### Congratulates Us on Our Willis Polk

*The Building News* of London in an editorial in a recent issue remarks:

"We do not know who Mr. Willis Polk of San Francisco is, but we can, at any rate, congratulate our American friends on the evolution of a type of which we thought we had a British monopoly in bygone days in Mr. Ayrton! Mr. Willis Polk of San Francisco's mission is to prevent the execution of the accepted design for the proposed California State Building. Mr. Polk, always aggressive, has addressed a letter to the Chief Justice of the Supreme Court of California, from which we pick a choice bit or two."

Thereupon follow lengthy extracts from Mr. Polk's letter to Judge Angelotti, printed in full in a recent issue of *THE AMERICAN ARCHITECT*.

### Saving Three Billion Dollars by Price Reduction

In a statement recently made by W. S. Gifford of the Council of National Defense he advised the Committee on Military Affairs of the Senate that there had been a saving to the country of more than three billion dollars as a result of the reduction in the price of iron and steel.

He further stated that this saving was based on the lowering of the price at the time the reduction was first ordered.

### Government to Commandeer Property for Housing Relief

Senator Chamberlain, at the request of the War Department, has introduced a bill providing that the Government may requisition any property, personal, real, or mixed, of any citizen of the country for use in wartime. By Presidential proclamation this property may be taken over and used, the compensation to be fixed by competent authority.

Under the broad provisions of this measure nothing would be exempt from commandeering. Its purpose is to facilitate the seizure of housing for war workers everywhere without the delay entailed in building houses or buying them. But its provisions are so broad and drastic that it is almost certain that it will not pass unamended. It was referred to the Committee on Military Affairs.

The bill empowering the President during the war to take over private property of any kind, personal or real estate, with compensation for the owner, whenever deemed necessary for the national

security or conduct of the Government has been generally approved by real estate interests. The majority of those interviewed on the subject had no criticism whatever to make, the consensus of opinion being that the President should have the right at the present time to take over real estate necessary for the proper conduct of the war. In explaining the bill the Acting Secretary of War said it was very desirable to avoid delays of condemnation, to save money, and at the same time do justice to property owners.

### Touraine Chateau Destroyed by Fire

One of the most ancient and interesting chateaux of Touraine, built by Sully, the minister of Henry IV, was practically destroyed by fire recently. The artistic treasures which it contained, which were of great value, were saved. This chateau was named *Sully-sur-Loire*, after its founder. Sully passed a great deal of his time there, and Henry IV was a frequent visitor. Voltaire wrote the greater part of the *Henriade* there.

### Organize Architects

An organization consisting of thirty architects of the State of Kansas was recently completed at Topeka under the name of the Kansas Society of Architects. The new organization has for its purpose the promotion of artistic, scientific and practical efficiency in the profession. It also will work toward the education of the general public on architectural subjects.

The first annual meeting of the new society will be held in Topeka the first Friday in June. The following first officers of the society have been elected: A. R. Mann of Hutchinson, president; Ray Gamble of Topeka, vice-president; Frank Squires of Topeka, secretary, and Charles Cuthbert of Topeka, treasurer.

### 16 Cannon-Making Plants Completed

Virtual completion of sixteen plants for the manufacture of mobile artillery cannon for the American army was announced recently by the Gun Division of the Bureau of Ordnance. In a memorandum to Acting Secretary of War Crowell, outlining its work, the division summed up its other accomplishments as follows:

Construction of smokeless-powder plants in face

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of the necessity of doubling the present output. These are now under way.

Expenditure of approximately \$40,000,000 for plant facilities to manufacture artillery cannon, with an estimate that \$300,000,000 will be spent for cannon alone within two years after the outbreak of the war.

Negotiations in many cities for the erection of plants for the extraction of toluol from illuminating gas.

Conservation of the supply of ammonium nitrate and acids and construction at Government expense of a plant for the fixation of atmospheric nitrogen and its final conversion into ammonium nitrate.

Construction now undertaken of a gas-filling plant to cost approximately \$1,500,000 and the construction of five large shell-filling plants to cost in the aggregate \$25,000,000.

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### Landscape Work for Camp Meade

Camp Meade, the Maryland cantonment, has been placed in charge of a landscape architect, Arthur F. Paul of Philadelphia, and will be transformed from its present unsightly aspect into a city where there is something to see besides sand and khaki.

The plan is to produce a parklike training ground with the use only of those things of beauty which already exist in nearby woodlands. Trees will be transplanted, swamp land will be drained and filled in, grass will be planted, and attractive walks will be developed. A different plan has been devised for each regiment, and the various commanders will be consulted and their approval received before work is carried out. The improvements are expected to cost very little because of the proximity of all the necessary material, and the proposed changes are sure to benefit our men.

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### An Authentic Report on Labor Conditions

In the first weekly summary issued by the United States Employment Service, it is stated that there has been a general surplus of labor in the East, Middle West and Pacific Coast, and a shortage along the Gulf. The building trades, mechanics, skilled trades, common and farm laborers were covered by the summary.

Due to essentials of new construction, there is, along the Atlantic Seaboard from Delaware to Maine, including Pennsylvania, and in the Middle West, a surplus of workers in the building trades.

Along the Pacific Coast the summary states there

are more mechanics, skilled tradesmen and common laborers than jobs, while in Louisiana, Mississippi and Alabama both skilled and unskilled labor is in demand. Little surplus of farm labor is reported in any section. There have been insistent calls for farm labor from the Southwest, along the Gulf, and even as far north as Maryland.

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### Prospects in City Planning

A tendency is now apparent to limit the height of buildings and cause the city development to be in an outward direction rather than an upward. In our two largest cities, where skyscrapers have been stretching up without a prescribed height, millions of dollars are now being spent to widen streets and otherwise correct the mistakes that have resulted from lack of sufficient foresight in planning.

Prof. C. E. Merriam of Chicago calls attention to the contrast between New York, with its forty-story structures, and Los Angeles, surrounded by thirty suburban communities. He does not question that in time to come cities will limit the height of their buildings and the amount of space each may occupy, and he looks forward to a day when the city government will in all cases have a deep and important influence upon construction.

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### Anglo-American University Proposed

It is anticipated that at the close of the war a much larger number of students than usual will be going to England for post-graduate courses. The establishment of an Anglo-American university at Plymouth to commemorate the co-operation of the two great Anglo-Saxon nations in the war is being agitated in England, and has found favor in educational circles.

Plymouth, of course, for historical reasons, as the port from which the Mayflower sailed, is peculiarly appropriate as the home of the proposed university, but there are practical reasons as well for its choice. It is the center of a large population, but has no institution of higher learning anywhere near it. In the last twenty-five years England has seen the foundation of a number of universities in populous provincial centers, such as Birmingham, Leeds, and Liverpool, but no provision has been made for the needs of people living further west than Bristol. Consequently, if a university were started at Plymouth, there should be no lack of students for the ordinary courses on which the advanced studies for Americans could be based.

### Southern California Chapter, A. I. A.

The one hundred and fifteenth regular meeting of the Southern California Chapter, A. I. A., was held March 12, 1918.

As guests of the Chapter there were present: P. H. Adams, architect, of London, England; H. E. Davis, member of the New York Chapter; E. C. English of Champagne, Ill., architect and engineer.

For the Committee on Public Information, Mr. J. E. Allison, chairman, reported that the committee had handled the collection of drawings, photographs, etc., submitted for the medal of honor, and had forwarded the same to the jury of award at San Francisco. He also reported that the committee was in communication with the architects of Phoenix, who were desirous of repealing the State law of Arizona, which calls for competition on public work—a law similar to that of California, known as the law of 1872—and to pass a measure like that of the present law of California governing the practice of architecture.

For the City Planning Committee, Mr. Withey reported that the resolution made by the Chapter to the City Council petitioning for the drafting of a city planning ordinance had progressed.

Communications were read:

From the Washington State Chapter of Architects relative to the nomination of Mr. Edward W. Donn, Jr., for candidate to the Board of Directors of the Institute. It was moved by Mr. Walker, seconded by Mr. Allison, and duly carried, that this Chapter endorse the nomination of Mr. Donn.

From the New York Chapter with reference to a protest against the movement to present and erect replicas of the George Grey Barnard statue of Lincoln in the capitals of one or more of the nations now allies of the United States. It was moved and resolved that the Chapter endorse the resolution of the New York Chapter.

From Mr. E. C. Kemper, executive secretary of the A. I. A., stating that an authorized jury of Fellows of the Institute had selected Mr. J. E. Allison as a candidate for a fellowship, his name to be voted on at the next Institute convention in Philadelphia, requesting that the Chapter ratify Mr. Allison's name as candidate. It was resolved by a unanimous standing vote that Mr. Allison's nomination be approved.

The report of the jury of award on the medals of honor was read and followed by the presentation of medal, accompanied by certificate, to Mr. Reginald D. Johnson in recognition of the architectural merit of the R. W. Rives house at Santa Barbara, for the award in "Class B" as provided in the program. In "Class C," medal and certificate

were presented to Mr. J. E. Allison, for Allison & Allison, in consideration of the architectural merit in the State Normal School of Los Angeles.

Under the head of "Papers and Discussions," Mr. P. H. Adams was introduced and talked briefly on the Quantity Survey System as used in England, and in closing spoke of the effect of the war on the practice of architecture in general.

The secretary presented a resolution calling upon the Board of Directors of the Institute to consider at its next convention revising and amending Section 13 of the Canon of Ethics. After a short discussion it was moved by Mr. Martin, seconded by Mr. Austin and unanimously carried, that the resolution be adopted.

### Annual Exhibition of Philadelphia Chapter A. I. A. and T. Square Club

The twenty-fourth annual exhibition of the Philadelphia Chapter of the American Institute of Architects and T. Square Club was opened March 23 in the Art Alliance Building, Walnut Street, Philadelphia. It remained open until April 5.

### Decoration of Our Streets

Why not a city always beautiful? asks the New York *Tribune*. Beauty is a word that somehow seldom comes to American lips—even in its restricted application to women. The looks of things, the fact that even plain, ordinary objects of everyday existence, like pots and pans, and elevated railroads are either beautiful or ugly, just as are the things that we have been educated to term "works of art"—are, in fact, works of art, whether we so regard them or not—all this has never occurred to most Americans. When we have thought of beauty it was usually as something extraneous and applied, a frame or fringe, or extra gewgaw—seldom as a quality inherent in the structure of everything we see, or touch, or know.

The decorations of our streets have been applied for an occasion. But they have served to bring out all the latent beauty in our buildings and streets. They have converted our city of horrible contrasts into a thing of living, unified beauty. Why sink back into our lethargy of blindness? That is the question which New Yorkers ought to put to themselves. If beauty is so pleasant on a gala occasion why not see to it that its essential spirit is spread over all our days? Why spoil our skyline with egregious signs? Why permit atrocities of archi-

## THE AMERICAN ARCHITECT

ture anywhere? Why not carry our city planning a step further, and open up the long-needed connecting highways with civic centers duly controlled as to architecture and yielding up vistas in every direction?"

### Concrete Has Many Uses

Concrete, because of its great resistance to fire and to the shock of explosions, is adaptable to a wide variety of uses, according to the United States Geological Survey, Department of the Interior. It is cheap, easily and quickly handled, sanitary, and durable, and its characteristics render it of great military importance. Among the military uses to which concrete is put are the construction of armories, barracks, roads, bridges, coast and interior fortifications, gun emplacements, trench linings, bomb-proof shelters, magazines for explosives, tunnels, retaining walls, sea walls, wharves, dry docks, water reservoirs, aqueducts, sewers, sewage-treatment works, incinerators, stables, floors, roofs, munition-factory buildings, warehouses, fuel-oil tanks, barges, and even in the interior of battleships.

### First Concrete Ship Launched

So successful was the recent launching at a Pacific port of the world's largest reinforced concrete ship that her builders announced that they would immediately begin construction of fifty-four similar ships. It is expected that all will be completed within eighteen months.

Six weeks from the day the concrete was poured into the forms, the 7900-ton ship, named the Faith, took the water. Not a hitch marred the operation, and engineers declared themselves so satisfied with the launching that it would be unnecessary, in their opinion, to give the Faith a trans-Pacific towing tryout, as had been intended. Engines will be installed at once, and the Faith will be put into commission as soon as she can be fitted out.

Experts who witnessed the launching predicted that concrete construction would mark a new era in shipbuilding, and that the speed with which such ships could be turned out undoubtedly would have an important bearing on the successful prosecution of the war.

The floor of the vessel is about four and one-half inches thick; the sides four inches, with a great steel shoe down the bow. Imbedded in the concrete are 540 tons of steel; a continuous basketwork of welded steel mesh, and hundreds of heavy iron bars, also welded together.

A watertight wood flooring resting on the bottom

beams constitutes the double bottom of the vessel. No provision is made for water ballast, the theory being that the vessel will travel without ballast, riding safely with her heavy bottom. Six concrete bulkheads divide the vessel. The main deck is wood, laid on concrete stringers; the shelter deck is concrete. The dead weight is put at 600 tons more than that of a steel vessel of like capacity. The vessel will burn oil, using 160 barrels a day, and her reinforced concrete tank will carry thirty days' supply.

### Protection for Italian Art

The most complete effort to protect works of art from damage and destruction the world has ever seen, so it is stated, has just been finished by Italy's Department of Antiques and Fine Arts, the head of which is Corrado Ricci.

It is estimated that no less than a million sacks of sand have been used in this work and that ten thousand temporary wooden frame structures of every size have been erected in the various cities and districts where necessary.

So far, however, there has been no effort by the Pope or the rulers of the Vatican to protect the Sistine chapel or any other of the Vatican museums filled with many of the world's most valuable paintings, frescoes, bronzes, and sculptures.

Many of Rome's treasures on the Capitoline Hill and elsewhere have been shielded or stored in bomb-proof locations, either in Rome itself or in secret places in the south of Italy, as has been the case with many works of art of north Italy. The vast protective work undertaken in Venice three years ago by Ugo Ojetti has been practically duplicated all over Italy.

### Costs Will Not Decrease

Building material costs are adjusting themselves. People who have an interest in construction generally are beginning to understand that the days of low cost—if they ever come again—are far distant, says a Chicago realtor in the *National Real Estate Journal*. The war has caused a huge increase in everything that goes into building. The increase thus far has been excessive, it is true, but not so excessive as some may think.

Labor prices will remain high for a long time. The decrease in men through losses in the war, the rebuilding of shattered Europe, even after peace comes, and the consequent demand for labor, means that, under the working of the inexorable law of supply and demand, labor is going to be high for a long time. This applies both to skilled and unskilled labor.

## THE AMERICAN ARCHITECT

For practically the same reason material costs are going to remain high. It will not only be because of the manufactures of war necessities, but from the demand for peace necessities which will come after the war. Institutions of production have been destroyed and will have to be rebuilt. Demands of an extraordinary nature have been made upon every branch of industry and production, and factories which have supplied these demands have been demolished in the war zone, while others have been converted to other uses.

In short, all industry has been metamorphosed, and to get them to a sound basis will mean the consumption of huge quantities of material, aside from that directly required in the process of reconstructing that portion of the world shattered in the war. That means a continuance of high building costs.

Now, what will builders do? Inevitably they must adjust themselves to changed conditions, and they are already beginning to do so. They are realizing that high costs are stable now, and they must predicate future operations upon high costs. That does not mean a restriction of building. It really means an extension, once the people interested get the idea out of their heads that by waiting they will save money in material and labor. They will adjust themselves to changed conditions.

### Lincoln Highway Breaking Down Under Heavy Traffic

BILL TO PROVIDE FOR GOVERNMENT MAINTENANCE  
INTRODUCED IN SENATE

If the bill introduced into the United States Senate becomes a law, the main highways of the country, including particularly the Lincoln Highway, will be converted into military roads under Government control and with the Government paying part of the repair cost.

The bill was introduced because of the growing realization on the part of the War Department and Congress of the great destructive effect of the heavy Government trucks, which in increasingly greater numbers are making use of the Lincoln Highway and other main roads in the East in the transportation of Government supplies to Atlantic ports.

The magnificent macadam highways of Pennsylvania were not built to take care of the type of traffic now continuously flowing over them, and the Lincoln Highway is suffering rapid destruction not only from the Government trucks themselves, but from the commercial trucks running in increasing

numbers and in accordance with the Government's desire, relieving the railroads of a burden of many thousands of tons of freight.

The bill which was introduced by Senator J. W. Smith of Maryland provides that because of the deterioration and possible destruction of many permanently improved highways, unless unusually large expenditures are made for their maintenance and repair, due to the Government army trucks, the Secretary of War after an investigation of the facts shall on petition of a state highway commission, declare such roads as military roads, and the Government shall then contribute in suitable instalments its portion of the funds necessary to maintain these highways in good condition.

This money which will be available should the bill become an act will be entirely aside and in addition to the Federal aid provided by the Bankhead-Shackleford Act.

### Guy Lowell Receives Italian Medal for Bravery

A dispatch from Italian Army Headquarters in Northern Italy states that Guy Lowell, architect, was honored Sunday (March 31st) when the Duke of Aosta conferred the medal for valor for conspicuous bravery during an aerial bombardment of Padua. The citation states that Maj. Lowell, chief of the American ambulance service in Italy, during the bombardment, careless of his own peril, "directed operations calmly."

### City War Gardens

The president of the National War Garden Commission has issued an appeal to residents of cities to help in the war garden movement. The extensive use of "slack lands," as he calls the backyards and vacant city lots, would help materially in the food production problem. Aside from the practical results of such cultivation, there would be a distinct gain in civic beauty through the transformation of dirty city lots, filled with ashes, tin cans, and papers, into a garden covered with beautiful greens.

### Paul J. Pelz Dead

Paul J. Pelz, the architect who designed the Congressional Library and other public buildings in Washington, died in that city on March 30. Mr. Pelz was seventy-six years old, and a fellow of the American Institute.

# Industrial Information

## McCray Refrigerators

A series of catalogs, covering every type of refrigerating installation, is issued by the McCray Refrigerator Company, which maintains salesrooms in all large cities, and has its main office and factory at Kendallville, Ind. There is a book devoted to refrigerators for grocers; one of market coolers and refrigerator counters; one of refrigeration for hotels, clubs, hospitals, etc.; one of refrigerators for florists, and one of refrigeration in the home.

Each type of installation is amply illustrated; the company's system and construction explained, and the possibilities of different types of refrigerators pointed out. A partial list of installations is given in each book.

Any of these catalogs can be obtained on request.

## Repairing the Enemy Ships

*The Walworth Log*, which is published monthly by the Walworth Manufacturing Company of Boston, Mass., contains an interesting article on "Repairing the Enemy Ships." It tells of the systematic damage wrought upon the machinery of German ships interned in American ports. The engine machinery suffered principally. The details of restoration, by electric welding, are illustrated by means of photographs, while excerpts from the speech of Capt. E. P. Jessop, U. S. N., before the American Society of Naval Engineers, make clear the method.

## Fire Gun Company in New Offices

The offices of the Fire Gun Manufacturing Company, formerly of 17 Battery Place, have been removed to 115-119 Fourth Avenue, New York City. Offices and factory are both to be found at this address.

The Fire Gun manufactured by this company is a double acting liquid pump. The liquid vaporizes and blankets any fire instantly. It is made in two

sizes, one 15 in. long, with an approximate capacity of 1¼ qts., and the other 21 in. long, containing approximately 1¾ qts.

In the booklet issued by the company it is claimed that this gun is especially effective in dealing with fires of hazardous liquids, which cannot be extinguished by water. The smaller size is designed particularly for automobile use, and is said to reduce automobile insurance 15 per cent. This fire gun is recommended and labeled by Underwriters' Laboratories and passed by the Bureau of Fire Prevention, New York City Fire Department.

## Cheaper Permanent Construction

During the last nine months of 1917, to quote from *Expanded Metal Construction*, the house organ of the Northwestern Expanded Metal Company, Chicago, Ill., building construction was very materially curtailed, especially all work on residences and apartments. One reason for this reduction was due to the fact that the increased prices for labor and material made it impossible to sell or rent such property on a basis that would produce a satisfactory return on the money invested.

Most of this work was not entirely abandoned, but was held up for the time being with a hope that there might be a reduction in the prices of labor and material. Those builders who carefully investigated the situation have become thoroughly convinced that these prices will not be reduced to any appreciable extent for a number of years to come. The next step was to determine on a change in materials and type of construction that would reduce costs.

Many large builders of residences and apartments have found that the use of stucco construction for the exterior is a possible solution. The results obtained by the tests carried out at the Bureau of Standards of the United States Government have established the permanence and reliability of stucco over metal lath as an exterior wall covering.

The best type of stucco construction is that in which the metal lath is applied directly to the exterior of wooden studding without the use of any

## THE AMERICAN ARCHITECT

sheathing boards. In this construction, three coats are applied to the exterior and a fourth coat is put on the inside of the lath between the studding, resulting in a stucco wall covering having a thickness of 1½ inches. The outer edges and about half way back on the sides of the studding are painted with a waterproofing mixture or otherwise waterproofed before beginning to apply the stucco, to prevent the wood from absorbing moisture from the stucco and thereby preventing it from setting properly. Bracing is provided by the use of one row of bridging midway between the floors.

### Showers

The Speakman Supply & Pipe Company of Wilmington, Del., has three booklets which are available to anyone interested in their product. One is their catalog G-W, which contains a full description of their various types of showers and accessories. "All about Speakman Showers" is another, which is respectfully dedicated "To the Unshowered." In it may be found photographs of a number of important installations, together with a discussion of the advantages and merits of shower bathing. The third is a little folder, "The Happy Way of Bathing." It consists of a graphic representation of the joys of a shower, and the particular joys of a Speakman shower.

### New Device for Blueprint File

The National Company, engineers and manufacturers, 275 Congress Street, Boston, Mass., have recently put on the market a blueprint file which has features worthy of consideration.

The extreme simplicity of this file constitutes its greatest charm. The device consists of a folding wall rack, 30 x 24 in., from which are suspended "Presto" holders, in which blueprints, tracings, and papers of various sorts may be clamped. These holders are made up of two strips of oak, in various lengths, with a patented catch which holds the papers in place. Pressure upon this catch releases the contents. The middle clamp is set off center, to hold narrow prints.

Each holder, it is stated, has a capacity up to sixty prints, and each rack affords room for six holders. Other points of interest in connection with this holder are the removable index card on

the frame, which shows the contents of each holder readily; the fact that the contents of each holder are easily available, without disturbing any of the others; and the simplicity of design used, which means, of course, that the chances of lost parts, of breakage or other disorder are minimized.

### Details of Metal Lath Construction

The Berger Manufacturing Company of Canton, Ohio, in their Bulletin No. 16, "Expanded Metal Lath; Its Use and Practical Application," present some very useful details of metal lath usage. These drawings, which are accompanied by text matter of the same descriptive sort, point out a great many ways in which metal lath can be used, and the manner in which its application should be made.

The presentation of these actual details of construction should be very valuable to the architect, particularly when given in so complete a way and covering every need so fully as in this instance.

A statement of materials used in the manufacture of this metal lath, the method of its application, and standard specifications for exterior plastering on expanded metal lath are given also.

### Metal Weather Strip Tests

The opinion is advanced by the Monarch Metal Weather Strip Company, 4121-25 Forest Park Boulevard, St. Louis, Mo., that scientific tests of heat loss through window leakage, before and after the application of metal weather stripping, have never been made. In a letter addressed to certain architectural and engineering publications, and to other persons and organizations prominent in these fields, they ask co-operation in bringing about such a test, believing that metal weather strips contribute very materially to fuel conservation.

As set forth in this letter, tests have been made to ascertain the value of innumerable other materials used in building, and laws have been passed in some communities as the results of many of these investigations, but, except for such private tests as may have been made by metal weather strip companies themselves, nothing has been done to ascertain the value of the metal weather strip, which this company feels contributes as much to fuel saving as many other devices.

# Department of Architectural Engineering

## A New Code for Testing Heating Boilers

THIS is the age of standardizing material things. This movement is compelled by business necessity, and by no other means can true comparisons of things be made. One is accustomed to the standard grades of cement, lumber, wheat, oil and numberless other commodities, and appreciates the security derived from such measurement.

It is customary for each manufacturer of low pressure heating boilers to rate the capacity of his product on tests planned and conducted by himself. These capacity ratings may be truly representative of the test results, but it is known that these results can be varied to suit the wishes of those conducting the tests. These variations correspond with the difference in the methods employed, and while the methods may be correct in a general way, the results are not truly comparative.

To standardize the measure of low-pressure heating boiler efficiency has been a difficult problem for many reasons. The result of several years' work on this matter was the acceptance, by the American Society of Heating and Ventilating Engineers at their annual meeting in January, 1918, of the report of its committee on code for testing low pressure heating boilers.

The object of the proposed standard test is to measure the amount of water evaporated per pound of coal consumed, which is the true valuation of boiler capacity. This code presumes to measure this work of evaporation only and does not propose to rate boilers in the usual acceptance of that term. But the code proposes a formula by which the boiler capacity per hour is measured in British thermal units, and proposes that if rating is desired in equivalent square feet of direct radiation the capacity in B.t.u. be divided by 250 for steam and 150 for hot water.

This can be illustrated by assuming a plant that requires 3000 square feet of direct radiation, which amount multiplied by 250 gives 750,000 B.t.u. radiated per hour. The total heat of one pound of saturated steam at atmospheric pressure is 1150

B.t.u., and in this case it would then be necessary to evaporate 652 pounds of water per hour plus the amount condensed between the boiler and the radiating surfaces. As the steam pressure is raised there is an increase in the number of heat units in a pound of steam. But as a pressure of 10 pounds only adds ten heat units to a pound of steam, this factor is of small moment in the ordinary plant.

The interest of architects in this code lies in the fact that, if all boilers are tested as prescribed in the code, they have a true comparison of the various boilers submitted for approval, as to their ability to make steam and also as to the consumption of fuel for the work done.

The manufacturer is not compelled to test his boilers as prescribed by the code here presented, but if architects specify generally that the boiler must be tested according to the code, the manufacturer will of necessity do so. Some architectural organizations recommend standard specifications for the use of their members, and in many instances the producers have recognized the necessity of complying with these specifications. As this code is accepted by the leading technical society interested in such matters it can be accepted as the best and most advanced recommendation on the subject. The code follows:

### APPARATUS AND INSTRUMENTS

The apparatus and instruments used in testing should include the following:

- Feed water tanks calibrated or to be used in connection with weighing scales; air pumps, if water is to be fed by compressed air; weighing scales for weighing fuel, ashes, etc.
- Differential U-tube (with inclined leg) draft gages, at least three in number, for measuring draft tension; first, loss in draft through the fuel bed; second, loss in draft through flues.
- Accurately calibrated instruments for measuring temperature of gases, water, and steam.
- Steam separator for attachment to steam pipe, separator to be thoroughly covered with non-conducting material.
- Blanket covering consisting of one-ply 2-lb. asbestos paper and 1-in. hair felt, which would make a desirable covering for the boiler.

# THE AMERICAN ARCHITECT

Gas analysis apparatus for determining composition of the flue gases (Orsat).

Log sheets on which to keep accurate record of various readings.

## RULES FOR CONDUCTING EVAPORATIVE TESTS

1. Inasmuch as the object of the test is to ascertain the amount of water evaporated per pound of coal fired, all measurements and readings should be taken in such way as to give this result.

2. The boiler should be set up and connected to a suitable chimney flue.

3. The boiler should be thoroughly boiled out with a solution of sal soda, potassium hydrate, or sodium hydrate and then thoroughly rinsed with clean water to remove any foreign matter.

4. The piping should be connected in such a way that the steam may be carried to a point away from the boiler and piping arranged so that its condensation may not flow back to the boiler itself.

5. The separator should be attached to the flow pipe and from the bottom of the separator a pipe should be connected in such a way as to form a water seal and with an open end so that surplus water may be conducted into a pail or barrel for weighing at completion of test.

6. The piping should connect the calibrated water feeding tanks into the return of the boiler, with all necessary valves and connections, thermometer cups, etc. The water should be fed to the boiler continuously from calibrated tanks, thus showing every pound of water that enters the boiler.

7. Special care should be used in all readings.

8. Where weighing tanks are used or water is fed by gravity extra precautions should be taken to avoid error in readings.

9. Three draft gages, suggested as part of the equipment, should be used to determine pressure loss in the ashpit, pressure loss through the fuel, and pressure loss through the flues of the boiler.

10. The steam pipe from the boiler should be left open to the atmosphere so that the test can be carried on at atmospheric pressure, as we believe that running a boiler under pressure gives no more accurate results as regards capacity and efficiency than may be obtained by evaporating the water at atmospheric pressure.

11. *Starting.* It is recommended that a preliminary fire be made and the boiler run until such time as water in the boiler steams, when the preliminary fire will be dumped, the ashpit thoroughly cleaned, and air-dried wood placed on the grate and kindled. The test shall be considered as starting at the time of firing the charge of wood. On this charge of wood shall be placed the coal. The wood shall be considered as having a heating value equal to 40 per cent of that of an equal weight of coal.

The weight and temperature of the water in the boiler at the start should be recorded.

Against the boiler should be charged all of the coal and wood used during the test, and at the end of the test the boiler is to be given credit for the unburned fuel, and the quantity of water fed to the boiler during the test, less any water thrown out in excess of a quantity represented by the condensation of the pipe and separator.

12. Readings should be taken at periods not over those indicated in the log.

13. Gas analysis should be made at least every hour to get fair average results.

14. *Stopping.* When the time set for the end of the test arrives, the fire should be dumped and combustion stopped by some other method, such as spraying the fire with water. The contents of the fire pot when dumped should be placed in tightly covered cans, where they may be left to cool.

After cooling, the unburned coal and ash should be separated, the unburned coal weighed and deducted from the total quantity of fuel fed to the boiler. A proximate analysis of the coal should be made in order to determine its various constituents.

## RATING

On the question of commercial rating or capacity, we have no suggestion to offer except that as a basis of comparison the item 11 in report form appended (Fuel Available) should be calculated from area of fire box and depth to center of fire door not exceeding 20 in., less 20 per cent for reserve, and item 12 (Time Fuel Available Will Last) figured on the basis of eight hours.

A formula for calculating rating is given by the 1913 Committee in its report and is endorsed by us in modified form as follows:

$$\frac{C \times E}{T} = \text{boiler capacity per hour in B.t.u.}$$

Where  $C$  = pounds of fuel available for one firing period;  
 $T$  = time fuel available will last;

$E$  = the total B.t.u. considered available per pound of fuel at boiler outlet, not exceeding results shown by tests.

If rating is desired in equivalent square feet direct radiation, divide capacity in B.t.u. by 250 for steam and 150 for hot water.

## REPORT FORM FOR TEST OF LOW-PRESSURE HEATING BOILER

- 1—Name and catalogue rating.....
- 2—Grate surface; width..... length..... area.....
- 3—Date of test.....No. of test.....
- 4—Normal operating firing periods.....
- 5—Duration of test.....
- 6—Times fired.....
- 7—Longest interval between firing.....
- 8—Fuel, name.....Size.....
- 9—Fuel, calorific value.....
- 10—Fuel capacity, pounds.....
- 11—Fuel available (less re-kindling reserve).....
- 12—Fuel available. Time will last, hours.....
- 13—Fuel weight as fired, lb.....
- 14—Fuel moisture, per cent.....
- 15—Fuel weight fired, less moisture, lb.....
- 16—Fuel weight unburned (including..... lb. recovered from ash pit)..... lb.....
- 17—Fuel burned in test, lb.....
- 18—Fuel burned per hour, lb.....
- 19—Fuel burned per sq. ft. grate per hour, lb.....
- 20—Ashes, lb.....
- 21—Clinker, lb.....
- 22—Combustible, lb.....
- 23—Temperature, steam or flow, Fahr.....
- 24—Temperature, feed water or return, Fahr.....
- 25—Temperature, gases leaving boiler.....
- 26—Temperature boiler room.....
- 27—Temperature outside air.....
- 28—Draft intensity in smoke pipe.....
- 29—Draft intensity over fire.....
- 30—Draft intensity in ash pit.....
- 31—Friction loss through flue.....
- 32—Friction loss through fuel.....
- 33—Friction loss through inlet.....
- 34—Steam pressure in boiler by gage.....
- 35—Steam pressure in receiver by gage.....
- 36—Percentage of moisture in steam.....
- 37—Percentage of CO<sub>2</sub> in escaping gases.....per cent
- 38—Weight of water fed to boiler.....
- 39—Weight of water evaporated, corrected for moisture in steam.....
- 40—Equivalent evaporation from and at 212 degrees.....
- 41—Evaporation per hour of test.....
- 42—Evaporation per lb. of coal as burned.....
- 43—Evaporation per lb. of combustible.....
- 44—Capacity, total available B.t.u.....
- 45—Capacity per hour B.t.u.....
- 46—Capacity total available sq. ft. radiation.....
- 47—Capacity, per hour, sq. ft. radiation.....
- 48—Efficiency of boiler.....
- 49—Efficiency of boiler and grate.....

|                                       |        |
|---------------------------------------|--------|
| 50—Losses, grate .....                |        |
| 51—Losses, stack gas.....             |        |
| 52—Losses, incomplete combustion..... |        |
| 53—Losses, unaccounted for.....       |        |
| 54—Smoke pipe, size.....              | Length |
| 55—Chimney, size .....                | Height |
| 56—Draft .....                        | Inches |

## New Plant of Pyle-National Company

DAVIDSON & WEISS, Architects

**A**NOTHER example of the present-day tendency to construct manufacturing plants which may be compared in every detail to a completely equipped and well finished machine, presenting something good to look at, as well as affording maximum utility, is embodied in the new factory of The Pyle-National Co., 1337-1357 North Kostner Street, Chicago.

The group of buildings consists of a two-story, fireproof office building, 46 x 124 ft.; a machine shop, 122 x 300 ft., of steel frame and mill roof construction; forge shop, 48 x 94 ft.; foundry, 79 x 204 ft.; power house, 57 x 76 ft., and a one-story warehouse, 94 x 168 ft.

The machine shop, a view of which is given, has a mezzanine floor 32 ft. in width on either side, with narrower connections at the ends. Most of the machine tools at present in use are under the mezzanine floor, the lathes being staggered to economize in space. The general construction of the shop is well shown in the illustration. More machine tools are to be placed in the shop, but the major portion of the central part of the floor will be reserved for the assembly of valve gear. All of the large tools,



SHOP OFFICE—THE PYLE-NATIONAL COMPANY, CHICAGO

some of which can be seen in the background of the half-tone, are motor driven, the smaller tools being group driven. The machine shop and, in fact, every building in the group, even the forge shop, are equipped with sprinklers. As a result of this protection, together with the character of construction and the general care that is exercised against fire, the insurance cost is less than 4½¢ per \$100. The fire equipment includes a 60,000-gal. gravity tank and a 1200-gal. fire pump. The flooring is of factory maple laid on concrete.

The machine shop is served by a 7½-ton traveling crane controlled from the main floor. The mezzanine floor is served by a 6000-ton elevator. On this floor are located winding, nickel-plating, pattern-making and small-machine departments. Conspicuous in the photograph are the heating and



PLANT OF THE PYLE-NATIONAL COMPANY, CHICAGO  
DAVIDSON AND WEISS, ARCHITECTS

THE AMERICAN ARCHITECT



MACHINE SHOP



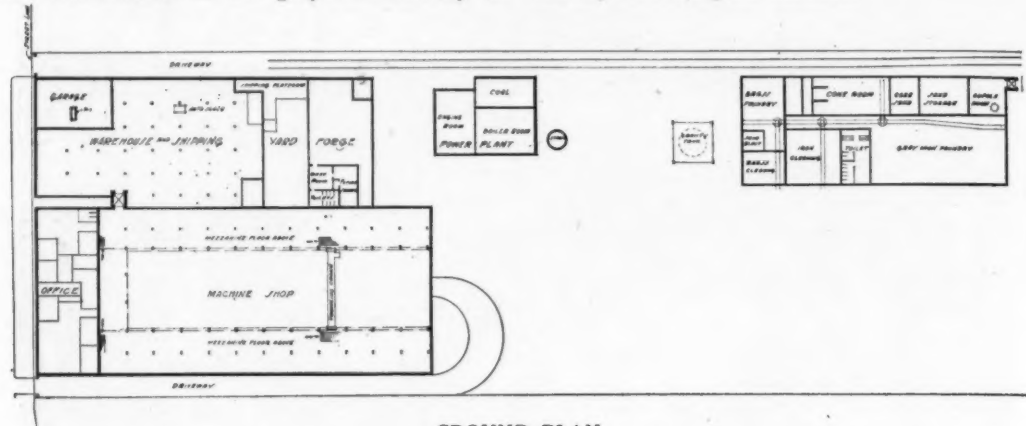
FOUNDRY—PLANT OF THE PYLE-NATIONAL COMPANY, CHICAGO

## THE AMERICAN ARCHITECT

ventilating pipes, the machine shop being 50 per cent direct and 50 per cent indirect heated. The foundry heating is entirely indirect. Artificial light is provided by nitrogen lamps with reflectors.

The construction of the gray-iron foundry is

side near the end of the building. Adjoining the foundry is the core-room, containing two ovens large enough to accommodate trucks, and an oven of the drawer type. The company also has a brass foundry containing six furnaces.



GROUND PLAN

much the same as that of the machine shop. It is served by a 5-ton traveling crane, also operated from the floor. Production is confined almost entirely to standard duplicate work and is largely done on molding machines. The cupola is located at the

The forge shop is notable because of the high ceiling, ample space and good light it possesses, all of which afford a decided contrast with the old-time shop of its kind.

The boiler room has an interesting alignment of



BIRD'S-EYE VIEW—PLANT OF THE PYLE-NATIONAL COMPANY, CHICAGO



ADMINISTRATION BUILDING—THE PYLE-NATIONAL COMPANY, CHICAGO

equipment. It contains two 200-hp. and one 75-hp. water-tube boilers, which carry a working pressure of 225 lb. The boilers are equipped with stokers, and the ash is handled by a siphon ash conveyor. To permit of convenient storage of six carloads of coal the boiler room is depressed 5 ft. below the engine room floor. The latter will contain a 385-kva. turbine generator set and a 750-cu. ft. air compressor. The power plant has a 150-ft. brick stack sufficient for 800 hp.

This plant was designed by Davidson & Weiss, architects, and the mechanical details were supervised by Patterson & Davidson, engineers, Chicago.

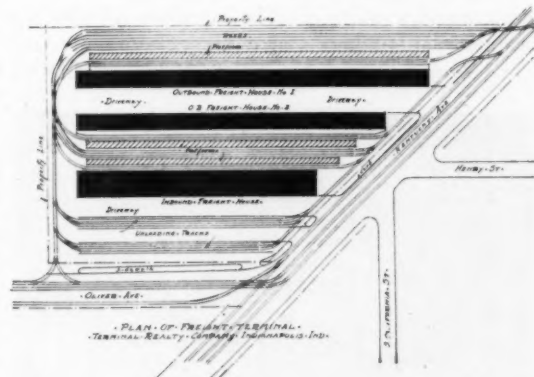
### An Interurban Freight Terminal

INTERURBAN transportation has developed into an important industry, both in passenger and freight service. The freight service differs from that of the steam roads in that it consists largely of small package freight similar to express service. At the same time heavy bulk freight is handled, and in some localities the moving of coal is an important part of the service.

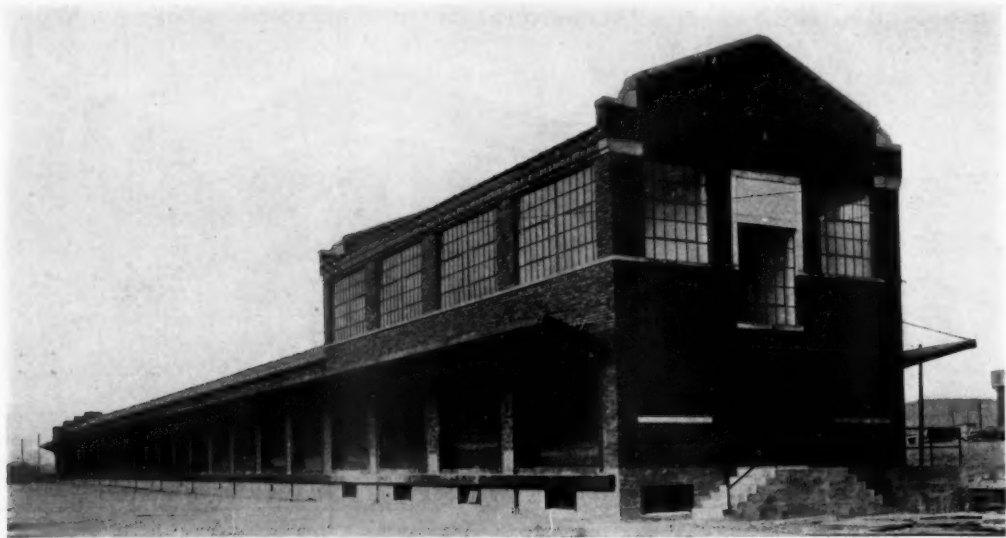
The movement of these trains through the larger cities is sometimes done over the existing car lines, and in the larger and more congested centers the movement of freight trains through the streets is restricted to certain hours during the night. These things naturally impose conditions that differ from the handling of freight at steam road terminals, in that the unloading and loading of cars must be done at greater speed and with artificial light. The receipt of freight for train shipment and distribution to the city is done by trucks in the ordinary way.

Freight service was inaugurated on interurban lines entering Indianapolis in 1902 and since that time there has been a constant growth of this service, which necessitated the building of the plant here illustrated. The first unit built is the outbound freight house Number One, four hundred feet in length.

The equipment of interurban roads tends to equal that of the steam roads in many respects, and this



terminal is designed in accordance with those standards, but with special reference to the character of the freight to be handled. On the track side is a shipping platform, which is not usual in steam road freight houses. On the team side the usual backing up arrangement is used. On both sides are canopies pitched toward the building, eliminating the hanging gutters. In this case the water is saddled to cast iron down-spouts run in chases in the wall. The exterior is faced with a rough faced brick in reds, dark blues and brown and Bedford stone trimmings. The roof is covered with a red



INTERURBAN FREIGHT TERMINAL, INDIANAPOLIS  
FERMOR S. CANNON, ARCHITECT

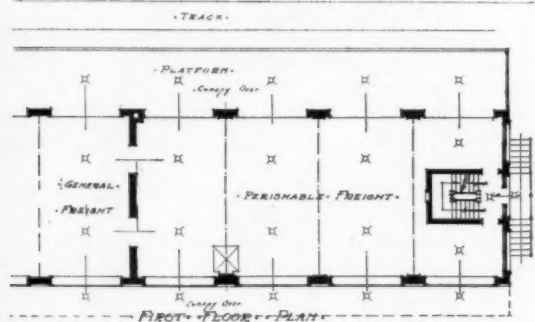
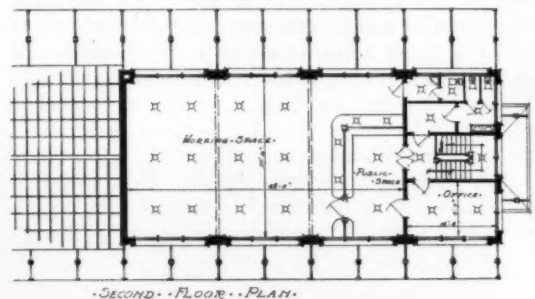
concrete factory roofing tile. All door openings into the freight house are equipped with rolling steel doors and heavy cast iron jambs. Metal sash is used in the windows.

Heavy timber construction is used throughout; the office portion is finished with plastered walls and ceilings and wood trim. The basement contains the heating plant, toilets and a record storage room. The office and perishable freight rooms are heated.



INTERIOR

Especial attention was given to the distribution of electric light in order to care for the particular conditions that obtain in this service. The cost of this building was approximately \$3.00 per square foot



of floor space, including the heating, plumbing and electric work.

This terminal is owned by the Terminal Realty Company. The building designed by Fermor S. Cannon, architect; electric work by A. Schlesinger, in charge of electric distribution for the T. H. I. & E. Ry.; the layout of the terminal by Thomas B. McMath, chief engineer for the owners.





#### FACADE OF THE CATHEDRAL OF QUIMPER

The spires are modern, having been added in 1854, but it was happily possible to carry out the old design since the amortissements which had been left by the ancient builders de-

termined the proportions. On the gable between the two towers is seen the restored statue of King Grallon, the legendary founder of the cathedral.

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