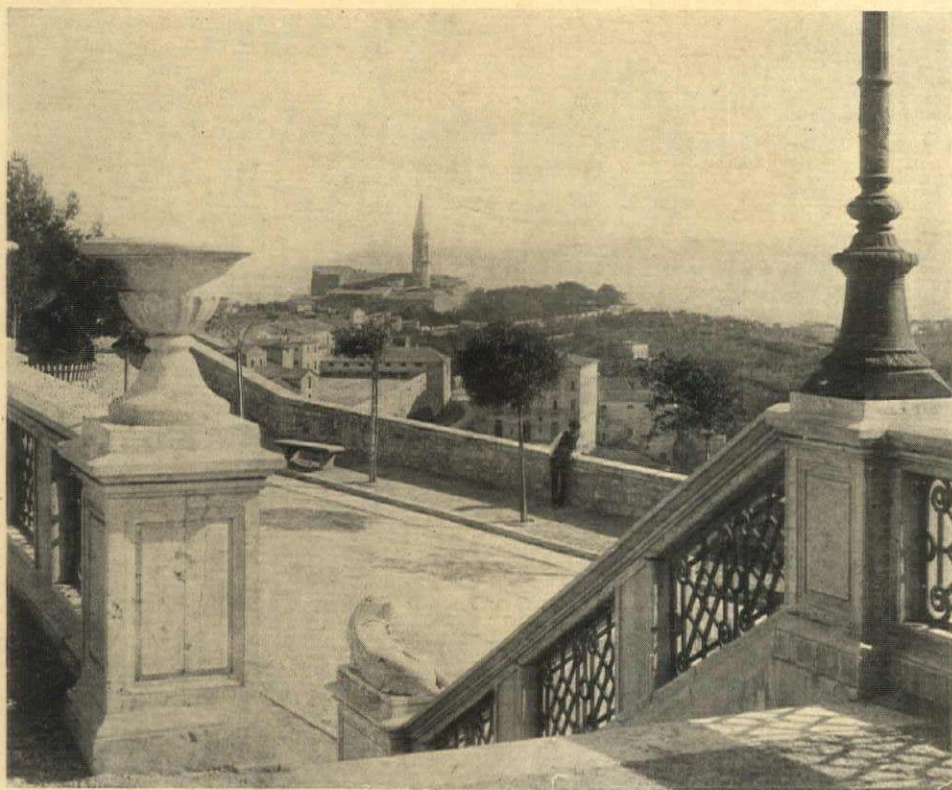


# The AMERICAN ARCHITECT



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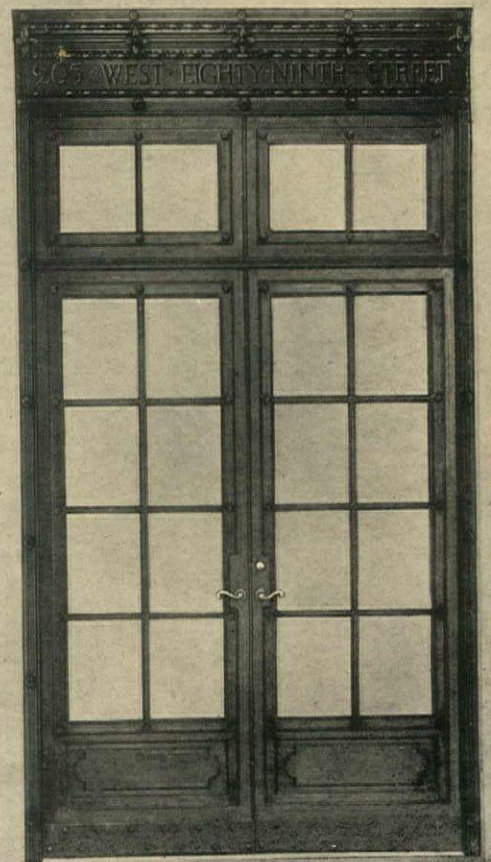
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# THE AMERICAN ARCHITECT

VOL. CXIV

WEDNESDAY, SEPTEMBER 25, 1918

NUMBER 2231

## Modern Roofing Materials—Part III

### Asbestos Shingles and Slates

By CHARLES H. STRINGER

*"Consider the difference between the expressions: beneath my roof, and within my walls, and you will see how important a part of the house the roof must always be to the mind, as well as to the eye."*—RUSKIN.

THE tawny thatch of rural England, the red tiles of sunny Spain, the mottled green copper that tops Gothic structures, perpetuate the desires of architects long gone, to make a roof a decoration as well as a covering. These different forms of roofings, more or less satisfactory, or rather satisfying in so far as the handicraft or handiwork of the time or era is concerned, formed a truly picturesque setting to the architecture of their day, but a real roof must be more than a watershed, and more than merely picturesque.

The roof is the essential part of a building from two standpoints at least: Utility or service is recognized more and more as the main essential, with beauty a very close second. Of course an imperfect roof, in so far as it lacks the picturesque necessary to the harmony of the surroundings, notwithstanding its utility, tends to present a cheapening effect to the whole, whereas a properly designed roof, combining beauty with utility, adds materially to the completed plan. One is just as essential as the other and the various transitory stages of roofing materials, from the straw thatch of the primitive hut to the modern asbestos shingles of mansions of to-day, and their treatment indicate progression in architectural fields.

One may simulate the thatched appearance of old English roofs to a certain extent by laying wood shingles in irregular, more or less curving lines, about one to four inches to the weather, in varying courses which give a certain amount of satisfaction, but this artificial effect cannot compete with the charm of the real; it loses by comparison. And

there are important factors militating against the real thatch, as well as its imitation, in present-day architecture, as the roof of our times must be permanent; upkeep expense must be eliminated; it must be fire-safe and not a source of danger to the building. It must, like any artistic thing, have texture, be good to look upon. It must have character of line which shows thought—a national individuality. It must have color—neutralized color—properly distributed.

Just when man advanced from the straw thatch to the use of plastic clay, molded and baked, cannot be determined by any writer of history, but it is known that plain mud was next spread over the walls and thatch of the primitive hut. Very probably the effect of the sun-dried mud was the inspiration that ended in the molded baked or burnt clay and shale tile of to-day.

Slate appears next and, first quarried in Wales, it was used for pavement stones, sometimes trimmed square and set in a mortar for tiled floors in some of the really old buildings. Occasionally they were merely imbedded in the clay floor, and at other times were laid in irregular shapes and positions in the grounds and used as what we now call flag stones in footpaths. This plan is copied to this day by some of our prominent architects. Slate, even in late years, was frequently used as ballast in ships to keep them submerged to a point of adequate stability, showing how little value was placed upon it. It was thought too heavy to be used for roofing until the natural cleavage was discovered and taken advantage of, finally resulting in its use in a manner now known as a "graduated slate roof." This kind of roof was first used in Wales, in England and then on the continent, and finally reached America, requiring centuries in its migration. Slates vary in color and very pleasing effects can be had by various combinations of the natural colors, and by a wise

selection of color a very pleasing texture is obtained. Some colors are not permanent, nor will they last as long as other colors.

The graceful free lines of the shingle roof have been so intimately associated, from pioneer days, with the architecture of American houses that this form of roof construction can almost be called the national home roof. The timber resources in the early days of this country were so great that nothing but the hearts were hand split and fashioned into roof shingles, and, being plentiful, were, in the light of to-day's prices for the same material, very reasonable. To retain the attractiveness and national individuality of the roof and at the same time to secure permanence and fire-protection was the problem which has been answered by the production of shingles or slates made of asbestos, burnt clay and other more or less fire-resisting materials.

Asbestos is one of Nature's paradoxes—a mineralogical vegetable—fibrous and crystalline, elastic yet brittle—capable of being handled in practically the same manner as wool, flax, cotton or silk, while it possesses wonderful tensile strength and ductility. It adds to the cement mass the necessary tensile strength and resiliency required to permit of manipulation and rough handling. It is the most refractory substance known, and in fact was made use of by the ancient Pharaohs, as cere-cloths, woven by the Greeks of their day (probably ten thousand years before the Christian Era), and becoming one of the articles of commerce between these two countries at that early time.

What material could better be used as a reinforcing agent in cement, another everlasting mineral, in the manufacture of a roof covering? Each fiber of this strange vegetable-mineral, as it has been called, is as light and feathery as thistledown, yet the substance is so rugged and strong that for millions of years it has remained in the same state in which it is found to-day, while the hardest kind of serpentine rock in which it was imbedded has slowly worn away. It is actually older than any animal or vegetable life on earth to-day.

A bunch of asbestos fiber appears so delicate that one might think it would blaze at the touch of a lighted match or dissolve when brought in contact with acid, yet it is unchanged by flame and practically by any commercial acid.

Wood burns—asbestos in its various forms withstands temperatures from 2000 to 3000 Fahrenheit. Stone disintegrates—asbestos defies erosion. Steel rusts—asbestos is immune to climatic and atmospheric conditions. This property of indestructibility in asbestos, which enables it to resist decay and destruction under almost every condition makes it ideal as a roofing material.

Asbestos shingles and slates are comparatively new, yet they have been in use in this and in foreign countries, where they were first made, sufficiently long to demonstrate their permanent and refractory character. They are really not modern when we review the use of asbestos and cement by the ancients, except in the combining of these two particular materials into a thin sheet or slab and employing it as a roof covering.

Many experiments were made with asbestos fibers and various vehicles before the happy combination now employed was finally found to be the perfect and practically indestructible combination. Many fibrous materials were also employed, but nothing was found that was the equal of asbestos for the purpose; all were more perishable and lacked the resilience necessary to withstand the varying degrees of temperature and climatic changes that a good roof covering must stand. Besides none of the other fibers could withstand the excessive temperatures that asbestos could.

Asbestos shingles and slates are formed in several different ways: the wet process of building layer upon layer; the dry process; the semi-wet or plastic process. Each method requires a certain amount of water thoroughly to mix these indestructible refractory tensile asbestos fibers with a permanent binder that has stood the test of the ages, such as a hydraulic cement; the resulting mass is then compressed under enormous hydraulic pressure and cut into various shapes and sizes. They are then allowed to season for several weeks—curing it is called—in order that the cement binder may thoroughly crystallize and the initial "set" reach its maximum before the shingles are exposed to atmospheric and climatic conditions which authorities say causes the cement mass to continue to crystallize in a slower but more positive manner for twenty-five to thirty years—meaning that these shingles become progressively better and better, stronger and stronger, as they age. Each of these four or five methods of manufacture have certain claims of superiority over the others. One method permits the accomplishment of certain desirable points that the other does not.

Just recently there has been an improvement made; two different types have been developed, tapered in shape from a trifle over a half inch thick to about an eighth or three-sixteenths inch thick, and laid in the slate or American method. One type has square edges and a so-called texture surface to represent the wooden shingle; the other type has a rough edge representing the uneven edges of slates and has a roughened surface. These surface effects are claimed to break up the glare of the high lights, and in fact to produce a subdued

## THE AMERICAN ARCHITECT

mellow or "aged" effect. The earlier asbestos shingles are flat and of even thickness, some thicker than others, and corresponding quite regularly to slate, but, even including the new tapered shapes, they are very much lighter in weight than slate.

The finished shingles are punched for nails, and are as easily applied as wooden shingles, requiring no heavier supporting construction. Unlike other roof coverings, however, asbestos shingles actually improve with time, growing more durable as they age on the roof, until they form practically a roof of stone, impervious to fire and the elements.

While meeting every roofing requirement from a practical or utilitarian point of view, the asbestos shingles manufactured now also furnish a roof covering which satisfies the artistic needs of any architectural scheme. In texture and line of demarcation, the tapered types as well as the various shapes of flat shingle (in their various sizes), some with rough, some with smooth edges, afford a pleasing variety of irregular bonds which allow great freedom in the expression of individual taste and meet every architectural requirement.

One of the distinguishing features of asbestos shingles consists in their varied colors, and the possibilities of harmoniously combining these in the laying to produce a distinctive roof. They are made in many colors and shades which harmonize with the landscape like a forest hillside in autumn—with that same indescribable blending of reds, browns and grays of frost-tinted leaves.

Where a certain color tone should predominate, to suit a particular type of architecture, the blending of the desired colors in the necessary proportion and the indiscriminate laying of these colored shingles secures a most artistic result. The wide variety of color effects possible in such combinations allows an asbestos shingle roof to be blended to suit the tastes of architect and owner, and to harmonize perfectly with any architectural scheme or natural environment.

The traditional red roof, so universally associated with buff walls and dark trim in stucco or half-timber houses can be made a brilliant spot, or a mellow, pleasing blend, which, while still a red roof, yet adds a touch of long occupancy in its suggestion of weathering. Crowning a rubble wall, a roof of asbestos shingles gives that agreeable impression of mellow age which ordinarily comes from time alone. Thus, the chief artistic effect of this blend of browns, makes these shingles peculiarly appropriate for architectural schemes which follow earlier days. Nor is the least of the happy results of a blended roof its adaptability to various side wall textures. Whether surmounting a combination of rough stone and clapboard gables or rough

surfaced brick with a half-timber upper story, it adds the finishing touch of artistic unity and dignity; while on the small suburban Colonial frame dwelling, the quiet, good taste of its unobtrusiveness is convincing proof of its real adaptability.

From a cost and maintenance point of view, the artistic appearance of asbestos shingles is not attended with the annual expense which one usually associates with anything out of the ordinary. They can be laid over an old shingle roof, without the trouble and expense of stripping off the wooden shingles, although this is not good practice, as one usually only renews a roof when the old is so far gone as to render it unfit as a foundation for a permanent roof such as an asbestos shingle or slate. In alterations and repairs, however, where the wooden shingle roof is in good condition this practice may be followed. And when it comes to maintenance, the cost for repairs to an asbestos shingle roof is virtually nothing, as its durability increases with age and it needs no painting.

The specifications for laying an asbestos shingle roof in the various methods are very simple—nothing hard or complex. One has only to observe the same rules as apply to any other really good roofing material, by seeing that roof boards of narrow width and even thickness are securely nailed in place, breaking joints, over which one layer or thickness of a satisfactory slater's felt should be laid in a horizontal manner, lapping three or four inches, and overlapping hips, ridges and valleys not less than twelve inches. Parallel with and about a half-inch above the eaves a cant strip of about quarter inch thick and about one inch wide should be securely nailed. In the event of either the flat or tapered shapes of the late of American method being employed the first or undereave course should be a flat oblong-shaped shingle securely nailed lengthwise to and overhanging the eave about one inch, depending upon the pitch of the roof, in order that the drip may clear. A second course entirely covering the first breaking joints should be used (this may be omitted if desired, but its use makes a more massive eave), after which proceed in the regular manner as with wood shingles or slate, with the proper exposure based on covering the head of the second course below not less than two inches, securely fastening each shingle in place with two nails (nails should be driven no tighter than with slate or tile).

For the diagonal or the hexagonal method follow the same procedure as for the American or slate method described above up to and including the first course or undereave shingle, over which, entirely covering it and flush with the lower edge, the triangular starter should be securely nailed, care

being taken that this starter breaks or covers all joints of the underlying undereave shingle. Cover the balance of the roof with either the regular diagonal or hexagonal shingles of the desired size, which of course corresponds to the triangular starter, exposing to the weather the gauge called for by the manufacturer. All such shingles should be fastened securely in place with two nails, using at the lower points the special copper storm fastener provided by the manufacturer for the purpose. (Drive the nails no tighter than with slate or tile.)

All the regular diagonal shingles should be laid with diagonal lines on a 45-degree angle with the eaves. For those who object to the long straight diagonal lines, the hexagonal method at the same cost or expenditure offers a more attractive appearance of short broken angular lines with plenty of shadows.

The hips and ridges on the American style of roof may be covered in the usual slate, shingle or Boston style of laying, but for the diagonal or hexagonal methods asbestos hip and ridge roll or

cresting with a two or three-inch lap as called for by the manufacturer should be employed fastening in place with special ridge roll fasteners furnished for the purpose. In some cases it may be necessary where the hip or ridge pole does not extend above the roof boards to nail a one by two-inch strip to the hip or ridge in order that the hip or ridge roll may have a solid bearing to nail or fasten to. The manufacturers furnish drawings or illustrations showing all the details desired regarding the manner of using the copper storm fastener and the ridge and hip roll fastener.

All chimneys, valleys, dormers or other projections in the roof should be flashed and counter-flashed with copper or other approved material.

"Of steely color and of wond'rous might  
Arcadia's hills produce th' asbeston bright;  
For kindled once it no extinction knows,  
But the eternal unceasing glows;  
Hence, with good cause, the Greeks asbeston name  
Because, once kindled, naught can quench the  
flame."  
—Lapidarium.

## The Architect as a Man

THE following article, reprinted from the *Architect and Contract Reporter* of London, is pertinent at this time as part of the discussion of certain existing conditions of professional practice. Summing up the argument advanced, our contemporary could have reached the same conclusion and with much more brevity had he availed himself of our vernacular and stated that the successful architect must necessarily be a "good mixer." Aloofness is very often mistakenly regarded as a dignified attitude. The ability to "mix" may, as impossible as it will seem, be not incompatible with a certain reserve that will carry with it the proper impression of an architect's ability to serve his client, not only artistically but practically.

The article states:

We are passing through a great crisis in the history of the human race, but whatever the duration of the war may be, we know that an era of peace will follow in which the activities of mankind will resume their customary channels or seek new ones. No class in the whole of the community has suffered so much during the war as the architectural profession, and, as all but a small fraction of their work has been stopped, most architects have had to seek means for bridging over a long period of

forced inactivity. We are told that good often arises out of that which is evil, and the temporary stoppage of their work has made many architects wonder whether there is not a means of establishing their future position on surer foundations than those on which it has rested in the past, and if this can be done the war may very well have been, from a local and specialized standpoint, a blessing in disguise.

We have heard much discussion as to the means to be adopted for educating the public in the value of architecture, but as charity is said to begin at home it is clear that the architect to lead and guide the public must possess the quality which we usually describe as "personality," and moreover must be quick to see and recognize what it is the public is likely to place value upon.

The invention of paper created a fundamental change in the architect's position, and, while it supplied him with a ready means of conveying his ideas, it also divorced him from much personal connection with building and with the men who carried it out. Instead of the architect or master-builder directing everything on the spot, it became possible for him to work in one place while the building he designed was erected in another. It thus tended to make him a solitary being, living apart from his



## THE AMERICAN ARCHITECT

fellows and concentrating his attention on the products of his imagination and their presentation on paper. And in proportion as fresh energy, thought and skill have been directed to the acquisition of greater facility of delineation, there has been a tendency to eliminate close intercourse with clients and employers. Yet when all is said and done, the finest architectural drawing often fails to have the same meaning or charm for the public as a slight water-color sketch. The architectural drawing was practically non-existent in the Middle Ages, and few examples, and those crude parodies of what would be now called architectural drawings, have come down to us from that time, while in the later era of Wren the architectural draughts made as compared with those of to-day are little more than explanatory diagrams, and only in the eighteenth century did the architect begin to express himself fully on paper. The master-builder of the past may be depicted as directing workmen, the architect of to-day—like the poet—often sits in solitude burning the midnight oil and communing with his own thoughts. There is thus a tendency to live out of the world to which we all belong, and to lose touch and sympathy with our fellows. The danger of doing so is apparent, for the architect, though his work may be the noblest of all arts, is at every step bound up with most practical considerations and limitations, and of all men can least afford to ignore practical issues and the financial aspects of life.

The scriptural injunction that we should be all things to all men applies to him, and the ignorance or disregard of the broad interests which sway mankind is, we are convinced, at the root of many architects' failure. It is necessary first of all to be a good citizen, understanding and mixing with one's fellows, and then on this basis building up the technical knowledge and skill which must be mastered and possessed if we want to serve the public and in serving them benefit ourselves. We must know our work thoroughly, but this does not imply that we must ourselves be able to do every part of it; but we must be capable of taking a fair and thorough survey of the whole and see that everything is efficiently carried out by ourselves or by others. The personal pride and delight which many men feel in doing everything "with their own hands" sometimes blinds them to the fact that they are neglecting other and more essential work which might bring them into touch with the public. More than this, the man who learns to work with others helps to build up a school inspired with similar ideas, and more nearly approximates to the old conditions under which some of the greatest work has been done, though we know the names of few individual designers of 300 years ago.

The broader knowledge which we have alluded to and which many architects are deficient in is the understanding of such questions as the finance of building, the commercial and legal aspects which touch it at every side, and the crucial knowledge which would enable them to make the best use of a given site. But even such special knowledge, though a qualification for the architect who serves the public, will not necessarily bring clients to his door unless it is combined with the wider general knowledge and sympathy which make a man popular and interesting to his fellows. We must sadly admit that it is not the great gifts and qualities of men which make them general favorites so much as the possession of that tact which prevents them from boring others, and the sympathy and quickness of mind which is necessary if they wish to follow the thoughts of others and to meet them on their own mental ground. The architect who attends a building committee meeting resolved to put his own special views before his clients may frequently meet with defeat, while another who is quick at understanding and gaging the personal equation of his fellow-men will obtain the result he wishes for with little effort. To be a good listener is good, but to be a good listener because one has nothing to say is not enough, and the architect who would be successful should be able to hold his own in any society and to take part in a discussion at the fitting time. It should be borne in mind that the world being what it is, most of us are made happier by being with those who appreciate and like us rather than those who try to impress us with their ability, and many men have made great positions for themselves mainly because they possess a spirit of camaraderie, tact and good nature. Mankind is, in fact, not strenuously on the lookout for merit, but chiefly asks that a man should in the first place be a good companion and in the second competent and discreet. And the essence of discretion is to be able to avoid the corners of others.

We believe the architects of the new era, if they are to succeed and to effect the "education of the public," should resemble the "surveyors" of the seventeenth and eighteenth centuries, men of the world and masters of affairs, able to understand the standpoint of the society in which they live, and will not be pale and anæmic enthusiasts living in a self-contained temple of art and somewhat despising the average run of their fellows. For do what we may, and think what we will, we are part and parcel of the sum of humanity on whose support we are dependent and whose wants and tendencies we should study and associate ourselves with. All the work of all the schools and all systems of tuition will be valueless for the architect who has neglected

## THE AMERICAN ARCHITECT

the broader foundations which he, in common with men of other callings, should build upon. Not only is the proper study of mankind man, but it is the essential groundwork for everything else.

No single problem in our life stands by itself; thus housing and economics are interlocked and relative, while questions of finance will determine and limit almost every building scheme. Our commercial future, bringing with it building or stagnation, is dependent on the relations of capital and labor, on tariffs and other political issues.

This being so it is necessary for the architect to study and understand more than his own work in order that he may have his proper weight as a citizen and fit himself to play the part of a man of the world.

The man who overestimates the value of what he does is living in a fool's paradise, often with dangerous results to himself, and close and exclusive absorption in one field of study tends to render us oblivious of broad and important issues which may be paramount in the estimation of clients.

### "Lend the Way They Fight!"

"Lend the way they fight!"

This is the slogan adopted by the Liberty Loan Committee of the Second Federal Reserve District for the fourth great drive for funds to carry the war into Germany.

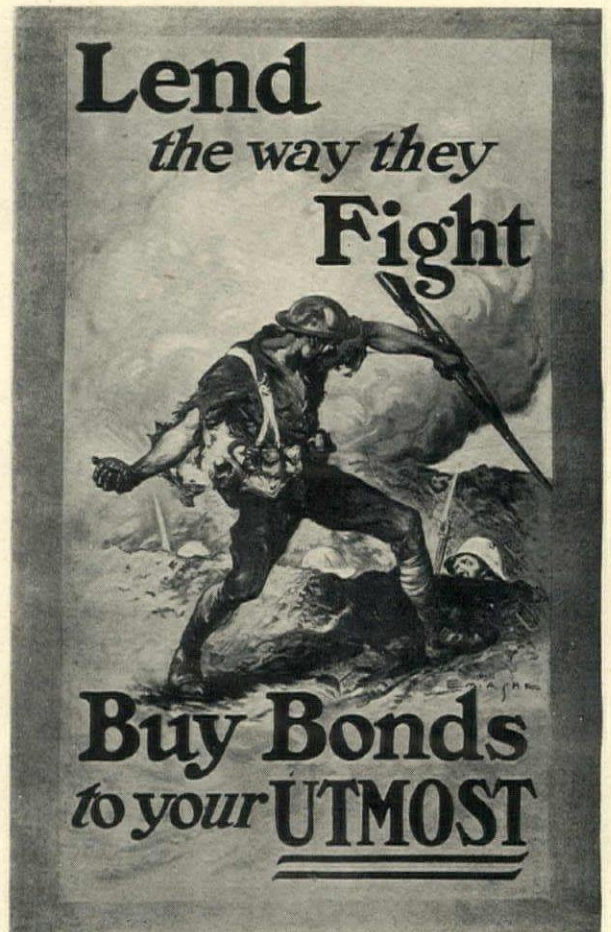
America's soldiers are no longer untried troops. They have proved, on some of the bloodiest fields of France, the stuff of which they are made. Their valor has brought glory to themselves and to the flag they carry.

This is the great fact the managers of the loan want to bring home to the millions whose dollars invested in bonds will make possible the colossal campaign that will take the American colors across the Rhine. If Americans will buy bonds in the spirit with which their sons are fighting, there can be no doubt of victory. All that is needed is for them to lend the way he fights.

Art carries as strong an appeal as words. With the battle cry adopted, it was decided by the Publicity Committee to call upon the art department for a poster that would hammer home the message.

E. M. Ashe was the artist entrusted with the task of putting into colors a poster with a "punch," which would show the spirit with which the legions

of the United States are carrying the war to the Germans. That Mr. Ashe succeeded is demonstrated by the fact that the Chicago, St. Louis, Philadelphia and Cleveland districts already have asked permission to use his painting in their campaigns. Competent art critics have adjudged the poster one of the most effective, as well as one of the most workmanlike the war thus far has produced. It carries a stronger appeal than the one used in the campaign for the Third Loan, which called upon the men and women at home to "lend him a hand."



It shows that Uncle Sam's fighting men are quite capable of holding their own with the finest troops of Europe. All they ask from the nation they serve is to buy the Liberty Bonds that will keep them supplied with food and munitions, as well as equip the hosts who will follow them across the seas upon the steadily increasing fleet of transports, guarded so gallantly by their brothers of the Navy.

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Repatriating Our Soldiers and Sailors

SOME space has been devoted in these columns recently to the subject of allocating the soldiers and sailors returning after the war, to whom our country will be so much indebted. A number of schemes have been advanced from different sources for providing for these men, chiefly on the cut-over lumber lands now lying waste. Most of these schemes have not had the perspective of the entire country's unutilized land resources in view, however, nor have they come from persons in authority, and it is a source of gratification to note that the Government is now contemplating intensive and well co-ordinated action along these lines, of scope and character amply to provide for the need.

Secretary of the Interior Lane has presented to the President and to Congress a comprehensive plan for a preliminary study of the country's waste lands, with particular reference to the irrigation of some 15,000,000 acres of arid land, the drainage of between 70,000,000 and 80,000,000 acres of swamp land and the clearing of about 200,000,000 acres of cut-over land. The plan is to reclaim these territories through governmental agency and thereby provide homes for the countless men who will have

been cut off from their old occupations and associations by the war.

The practicability and indeed the economic necessity of laying these plans now need not be emphasized. Even with the most serious consideration and the most elaborate preparations against the day, the period of reconstruction and readjustment after the war is bound to be a time of terrific industrial strain and stress. Other allied countries are now engaged in definite steps toward meeting this condition, and any neglect of our duty in post-war preparedness will be a pointed indication of the fact that we have not even yet learned one of the most important lessons of the war.

The preliminary study suggested by Secretary Lane will place in the hands of the Government much information, from which it will be possible to work out the actual scheme of reclamation with accuracy and thoroughness. Very little is known definitely now of the possibilities of these vast territories, but it would seem a matter of great good fortune that there are lands reclaimable for these purposes, and that so weighty a motive is inspiring their utilization.

The need for providing farm lands for our men after the war cannot be questioned. Every war has shown that the absorption of the soldier is most easily and satisfactorily accomplished through his return to the land. This is to say nothing of the fact that after years of trench life "a bit of a farm" and a home of his own will seem most like heaven to the average soldier. And having torn them from their old homes, their old associations and their former livelihoods, the least that a grateful Government can do is to make plans to provide for her men as amply and as hospitably as possible.

Speeding Up Our Industry

EUROPE has long since ceased to be amazed at the speed and performance of the administrative branches of our army and navy. They have gazed in wonder when we have built towns in days which they insisted would only be erected in months. Railroads with the necessary sidings and all equipment have been put in successful operation and millions of tons of supplies either stored or transported. American methods have become the standard of the world.

As an example of efficiency and speed of operation, due to perfect organization, the building records of the fast destroyer, those essential factors in our Navy, may be cited.

It used to take us two years to build a fast destroyer. We have just built one in a little more than two months. These craft, costing two million dol-

## THE AMERICAN ARCHITECT

lars each, have the engine power of the old battleship Maine and the speed of a motor boat. Experience has shown that they are the most effective weapon against the German submarine.

At the outbreak of the war, we undertook to build more of them for the American navy than there had been previously in any two navies of the world. When we succeeded in completing one in eight months instead of two years, the navy threw its hat in the air and cheered. Then, with the speeding up of production, another was completed in six months, and it seemed as if we had done the impossible. Now, in the Mare Island Navy Yard, the destroyer Ward has been launched seventeen and a half days after its keel was laid, and it has been completed in seventy days.

And this is no single miracle. We are not building destroyers. We are manufacturing them. The process by which the Ward was manufactured is a machine process, by which we can produce at the same rate as many destroyers as we need. The steel parts are prepared in various plants all over the country, in accordance with standardized plans. These parts are assembled in navy yards, put together at the docks, swung into position and riveted in place by a force of men working night and day. In other words standardized destroyers are being turned out as standard automobiles are turned out, in quantity production. And the navy reports that one flotilla of these destroyers, having steamed a million miles on patrol, has protected 86 convoys and 717 single vessels, and fought 81 submarines without any loss to the destroyers or to the vessels which they escorted.

### War's Ravages of Art

TO architects, among the most lamentable occurrences of this war is the destruction of buildings in France and Belgium, which for centuries have been sources of inspiration and landmarks of the first importance.

Laymen will measure this devastation by a recapitulation of monumental structures, featured in

guide books and forming central points of interest to the peripatetic tourist. But to artists, and particularly to architects, the irreparable loss lies not wholly in such structures, but also in the hundreds and perhaps thousands of minor buildings whose charm of design, mellowed by centuries of exposure, have made traveling in France and Belgium a source of never-ending delight.

War has always caused similar lamentable results. If the damage is now greater and the area wider spread, it is because of the greatly increased power of modern artillery, the long range of its efficiency and the greater skill of those who operate it. When "Big Bertha" threw her shell along more than sixty intervening miles to bring death to an Easter morning congregation and ruin to a church in Paris, a record was set up for range accuracy and destruction.

The menace that war now presents, all the horrors and the regrettable developments of the past four years, will doubtless cause that group of men who shall sit around the historic table where peace will be discussed, so to frame a settlement that the world may not again be set aflame by any nation or nations, and that similar ruin may be averted to the last degree.

Meantime the great damage has been done and our legacies of art have, in many instances, been lost beyond reclaim. We shall, let us hope, learn to safeguard what is left. Let us so advance in art as to leave to our posterity that which will inspire the same deep veneration as does in us to-day the work of the mediæval builders.

No man, no matter what clarity of thought he may possess to aid a prophetic vision, can foresee the future in art. All the precedents, all the safe rules and guides to a conclusion have been shattered. It is certain, however, that in the replacement of the many buildings that have been destroyed in Europe, there will be seen a renaissance in design, a forward movement in methods that, while so dearly purchased, at a price irreparable in lives and inconceivable in wealth, will in some measure compensate and set us forward on better paths of art.

## To Train Employment Managers

The Government has found it necessary to enter the field of education on a large scale. War emergency courses in employment management, conducted by the Employment Management Division of the War Industries Board, under the auspices of five Governmental departments, have been arranged for in nine universities to date. The outline of the courses of study was made by Captain Boyd Fisher, who has general supervision of the work.

These courses in employment management are designed to train men or women who already have a basic experience of at least three years in industrial life and factory methods, and who have come in actual contact with shop problems. Employers of labor, particularly those having war contracts, are urged to suggest men or women from their own organizations as candidates for these courses. With the increasing tightening of the labor situation, it is absolutely essential that large plants have an efficient central employment department. If the Government is to take upon itself the task of furnishing labor when called upon it is necessary that ~~that labor be employed in the proper~~ manner. In other words, each man should be hired to do the thing he is best fitted to do. In these days every man must count and there must be no square pegs in round holes. It has been thoroughly proved that an experienced employment manager, in charge of all hiring and firing, comes very near to solving the labor problem. Therefore it is up to the employer to place his house in order and make the best use of the men with which he is supplied.

The introduction of the employment manager into industry, and the standardization of the services of an employment department is acknowledged to be one of the greatest movements now taking place in the manufacturing industry of this country.

Courses have been arranged for at Harvard, in co-operation with the Massachusetts Institute of Technology, Boston University, in Boston; Columbia University, New York, University of Rochester, Rochester, N. Y.; Carnegie Institute of Technology, and the University of Pittsburgh, Pittsburgh, Pa.; University of Washington, Seattle, and the University of California at Berkeley.

There already have been 172 graduates from the classes conducted thus far. Most of these have returned to their own plants and placed in operation a department of employment. In each case where a central employment department is in vogue there is never a thought of returning to the old-fashioned hit or miss method of hiring men.

The courses of instruction in the various schools run from six weeks to two months, and the classes

are conducted by the foremost authorities in the country on the various subjects covered

The course of study deals chiefly with the problems of employment management. Brief consideration is given, however, to statistics, labor economics, and business organization and management. The materials presented on the subject of employment management covers the organization and equipment of an employment department, the employing of the workers, the training of the workers, the payment of the workers, the control of working conditions, efforts to keep the work up to standard, and the government of the shop. There are no charges for the course, except the outlay for living expenses of students and about \$15 for books and supplies. It has been arranged to begin new classes as soon as each previous class is graduated so application for admission to the courses in any of the above named schools may be made at any time.

Employers of labor having candidates for admission to the classes and individual applicants will be furnished with necessary information concerning qualifications for admission and other data regarding the courses by addressing Captain Boyd Fisher, 717 Thirteenth Street, N. W., Washington, D. C.

## The R. I. B. A. and the Question of Advertising

Under a recent ruling of the Royal Institute of British Architects the rules of professional conduct have been amended permitting members to sign their buildings "provided that they do so in an unobtrusive manner." The *Architects' and Builders' Journal* of London comments on this action, as follows:

A member of the Institute may now sign his building, and the axe of the headman shall not make him afraid. A notice bearing the dreadful heading "Professional Conduct" appears in the current *Journal* of the Institute, but, lo! its effect is not prohibitive, but permissive. So bland an announcement shall be quoted in full: "The Council have passed a resolution substituting the following for Resolutions Nos. 1 and 2, published on page 70 of the last issue of the *Kalendar*: That it is reasonable for an architect's name to be placed on his buildings both during construction and on completion, provided it be done in an unobtrusive manner." So many years having elapsed since its last *Kalendar* was issued, the reader may have mislaid his copy, or have worn it out in the constant endeavor to extract from it the "Poor Man's Daily Portion" of consolation and advice in troublous times. It may be useful, therefore, to quote the two resolu-

tions that have been superseded. They are: "1. That it is reasonable that an architect should sign his buildings in an unostentatious manner, similar to that adopted by painters and sculptors. 2. That it is undesirable for architects to exhibit their names on boards or boardings in front of buildings in course of construction." Is there not some laxity in the draughting of the new resolution? Although the example of the painters and sculptors "goes by the board," so to speak, there is no definite permission to the architect to put up a board advertising his name and address—board and lodging. "It is reasonable for an architect's name to be placed on his buildings both during construction and on completion"; but how is it to be done?—that is the question. "On his buildings," not "on, in, or about" them. May he attach his visiting card to the builder's board, although that is not usually on the building? If he may only place his name—everybody will regret that "exhibit their names" has gone; it had a humorous flavor—unequivocally on the building, then presumably he may not exhibit it on a detached board; nor may he cause it to be carved on the foundation-stone. But all this quibbling is quite unnecessary. Having obtained this measure of freedom, the architect will seldom or never use it, and most certainly he will not abuse it.

### Protests Seizure of Bush Terminal Buildings in New York

The Merchants' Association in New York has made public a protest against the appropriation of industrial buildings at Bush Terminal by the Navy Department. In referring to this protest, Secretary S. C. Mead of the Merchants' Association states that the seizure of the Bush Terminal dispossesses many firms engaged on war contracts and raised the question of the Government's policy toward this phase of industry.

"The results of this action by the Navy Department," Mr. Mead said, "are far more wide-reaching than a statement of the bare facts would indicate. The sixty-four concerns which have received notice to vacate employ about 8,500 employees, or about as many employees as are at work in all of the factories in the city of Jamestown, N. Y., or Wilkes-Barre, Pa. These Bush Terminal concerns have already sought new quarters and have found it almost impossible to obtain satisfactory manufacturing space, and accordingly many, if not most, of them will go out of business. This is not surprising in view of the fact that the metropolitan district of New York is very much congested with industry at the present time.

"In other words, on or before Dec. 1, 1918, there will be relocated, curtailed, or entirely eliminated in New York City industry equivalent to that of the entire city of Jamestown or Wilkes-Barre. In so far as this industry goes to other cities, is curtailed, or is entirely eliminated, New York City directly suffers that much of a decrease in its industry. The result of this action on the commercial and industrial life of New York City will be very harmful, indeed. Obviously, before New York City is called upon to make such a sacrifice, it should be made absolutely certain that there is no other way to fulfill the requirements of the Government."

It is pointed out further that the disruption of business of the sixty-four manufacturers already affected will be very detrimental to the production of essential fittings for ships, parts for airplanes, uniforms, medical supplies and equipment, and many other products which are urgently needed by the Government, and for which they have important contracts.

The Merchants' Association accordingly requested the War Industries Board to investigate the situation at the Bush Terminal for the purpose of deciding whether or not it is to the interest of the entire country and the various Government departments requiring war supplies that the Navy Department commandeer the manufacturing space for storage purposes rather than to construct additional storage space in this district.

### To Check Rent Profiteering

For a long period the Department of Labor has had under consideration measures that would afford relief to the workers from the extortions of the rent profiteer.

With a view to curbing rent profiteering in districts where war work is being carried on, the Bureau of Industrial Housing and Transportation has had introduced in the House a bill empowering the President to requisition houses and apartments where the rent is excessive until after the war. In case the landlord is not satisfied with the compensation declared by the Government to be a fair one, he is entitled under the terms of the bill to sue the Government. In such case he will be paid three-fourths of the amount set by the Government, and the difference between this and the amount he thinks he should receive will be paid him on the decision of the court.

There are several anti-rent profiteering bills before Congress, but this one, introduced by Representative Frank Clark of Florida, chairman of the House Committee on Public Buildings and Grounds,

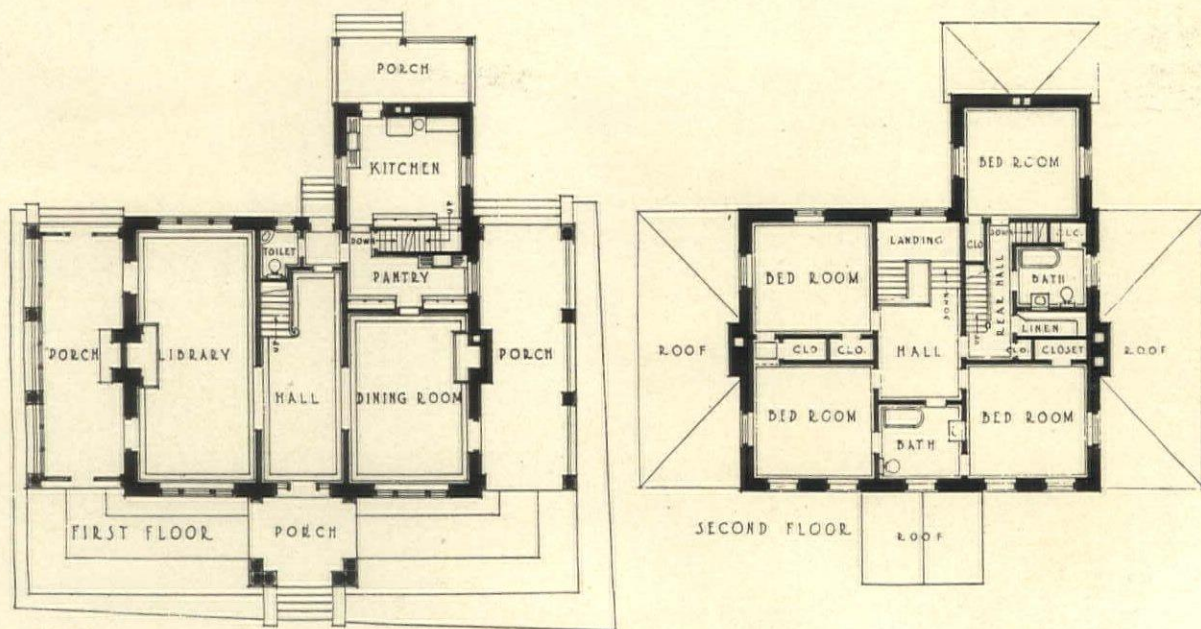
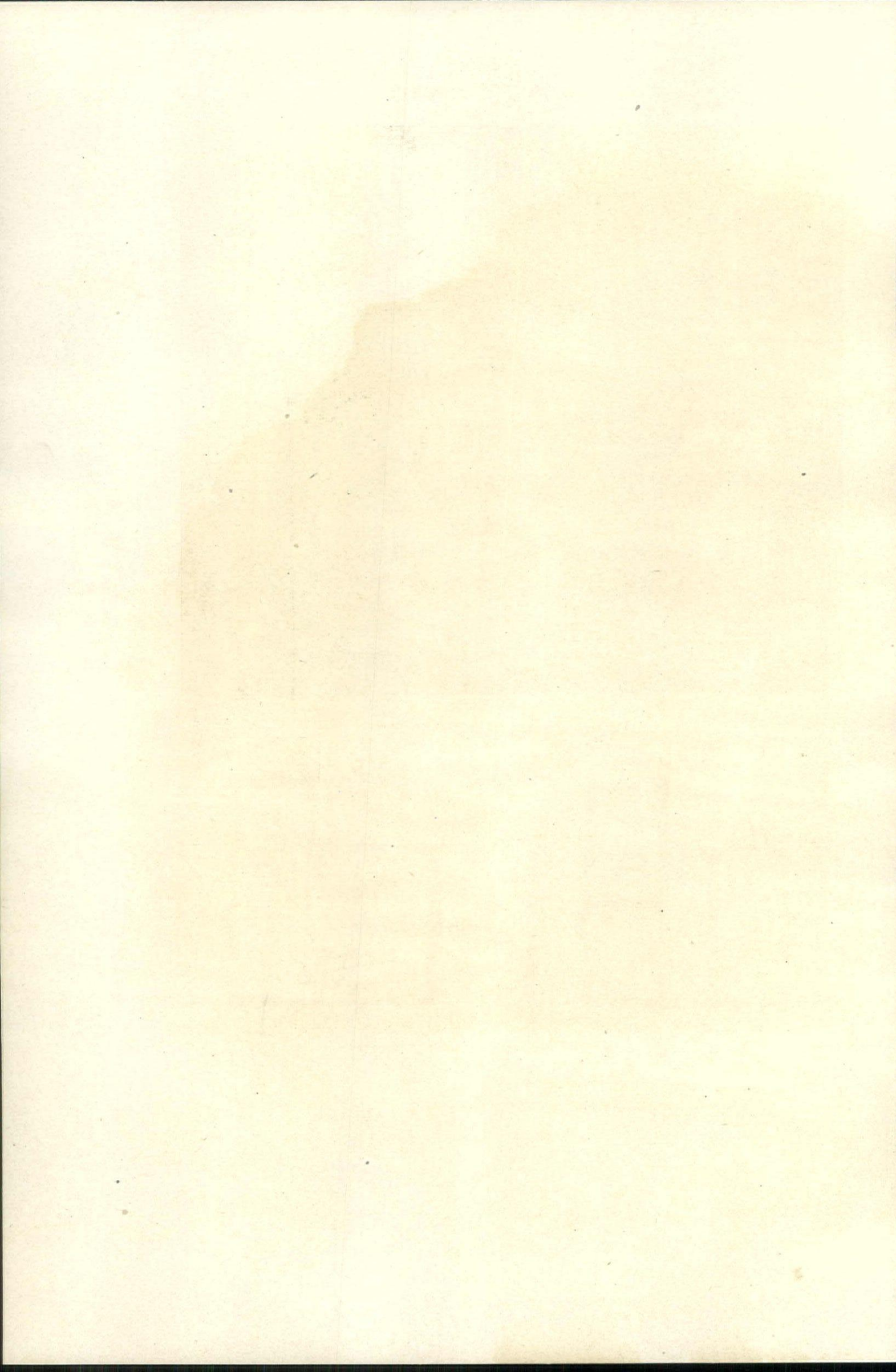


PLATE 95

HOUSE OF WALTER G. EELLS, OAK LANE, PA.  
C. F. SCHERMERHORN AND WATSON K. PHILLIPS, ASSOCIATE ARCHITECTS





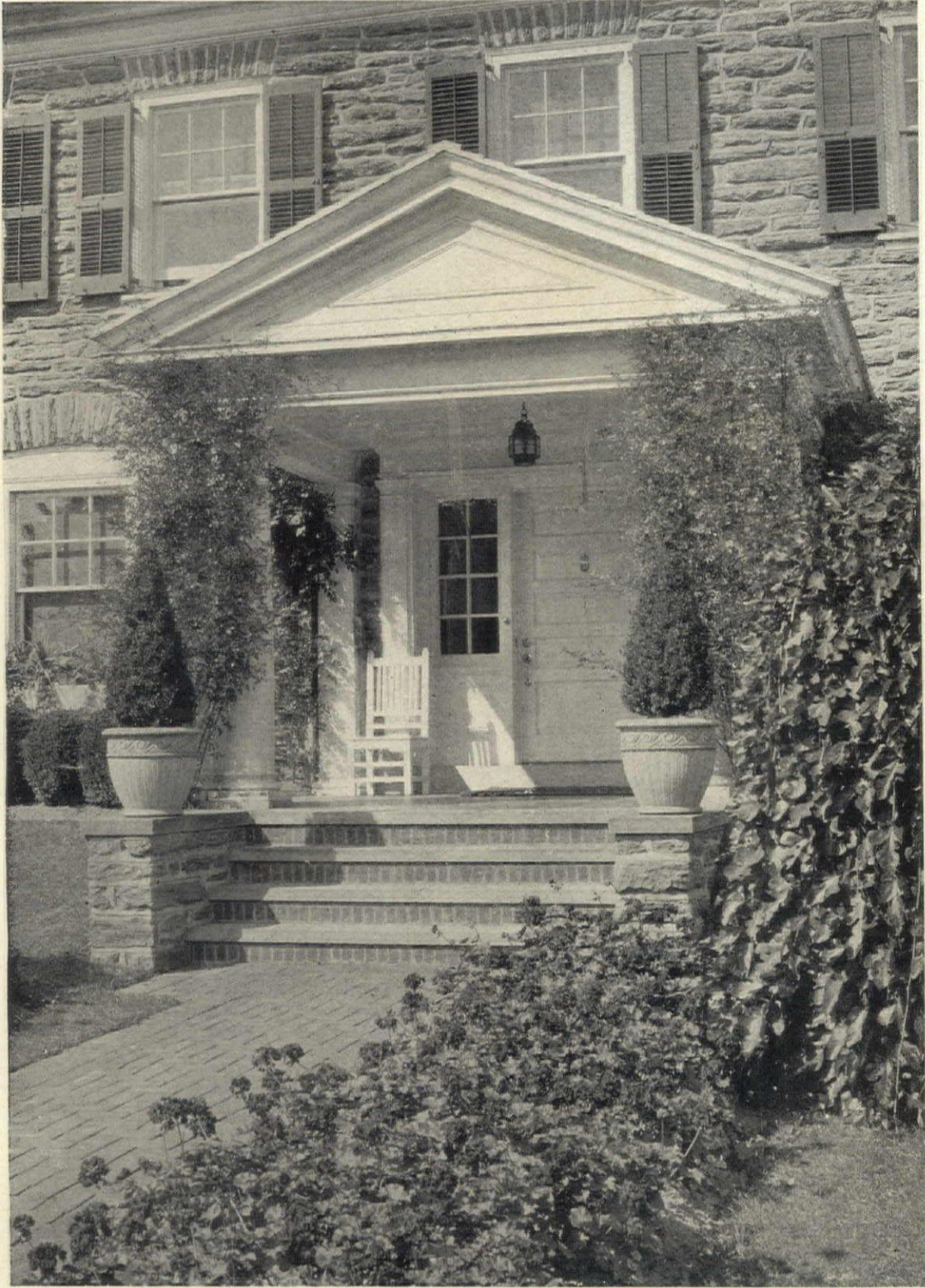


PLATE 96

ENTRANCE DETAIL

HOUSE OF WALTER G. EELLS, OAK LANE, PA.

C. F. SCHERMERHORN AND WATSON K. PHILLIPS, ASSOCIATED ARCHITECTS



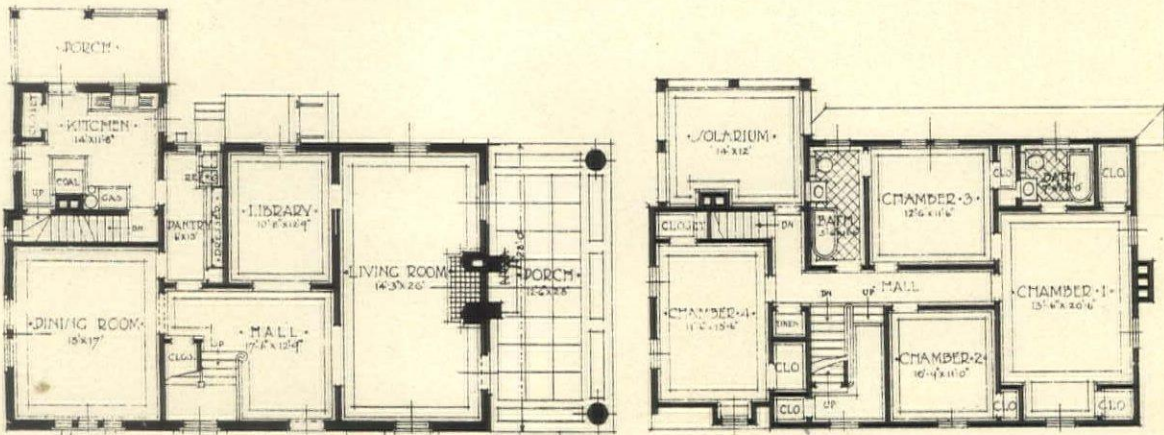
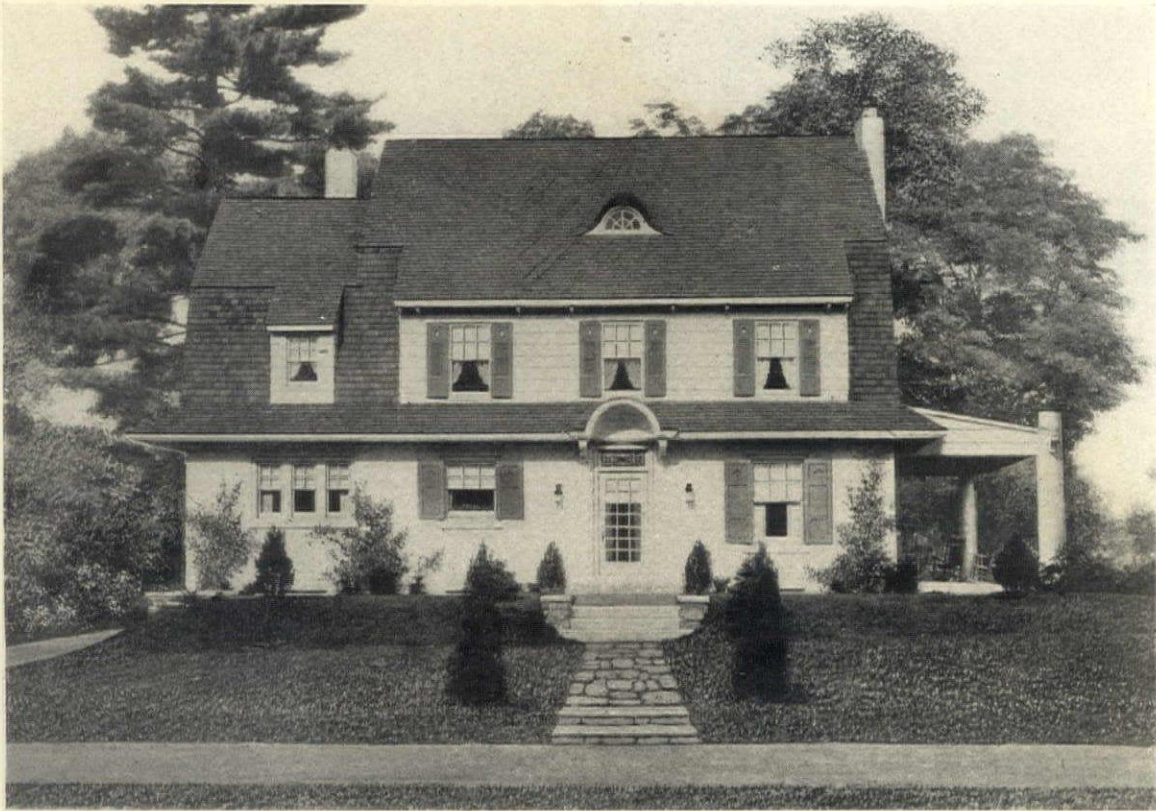


PLATE 97

HOUSE OF CHARLES K. LUKENS, CHESTNUT HILL, PA.  
C. F. SCHERMERHORN AND WATSON K. PHILLIPS, ASSOCIATED ARCHITECTS



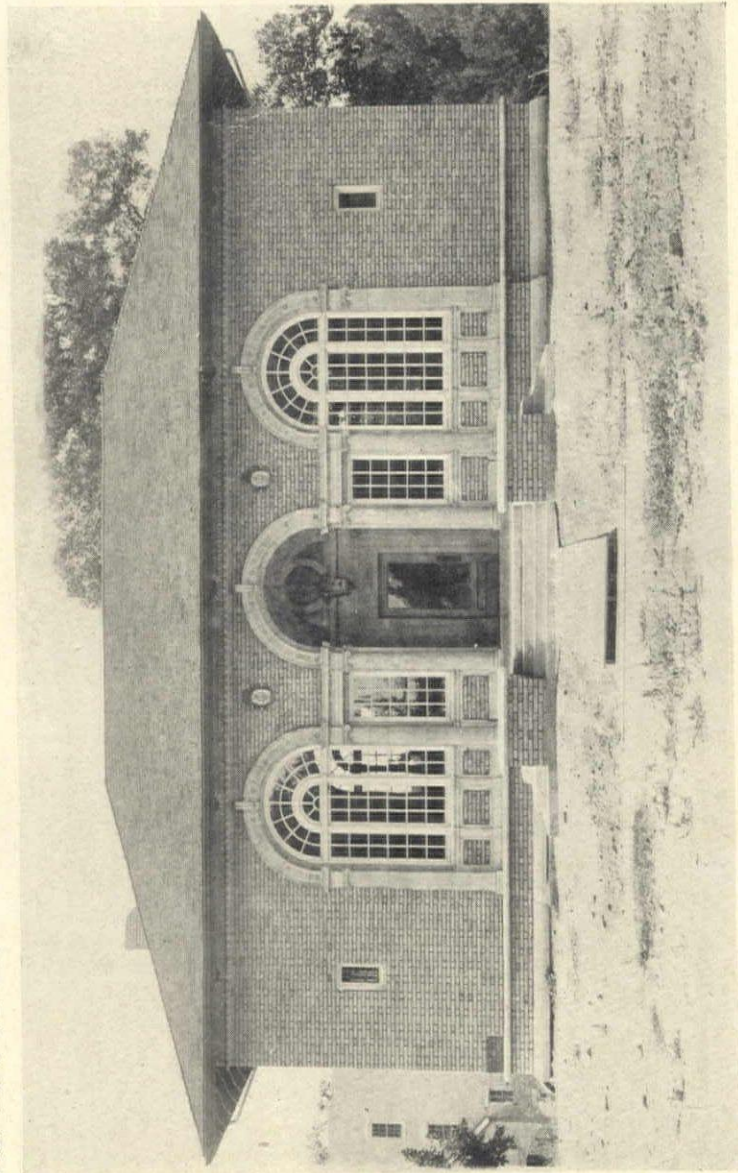
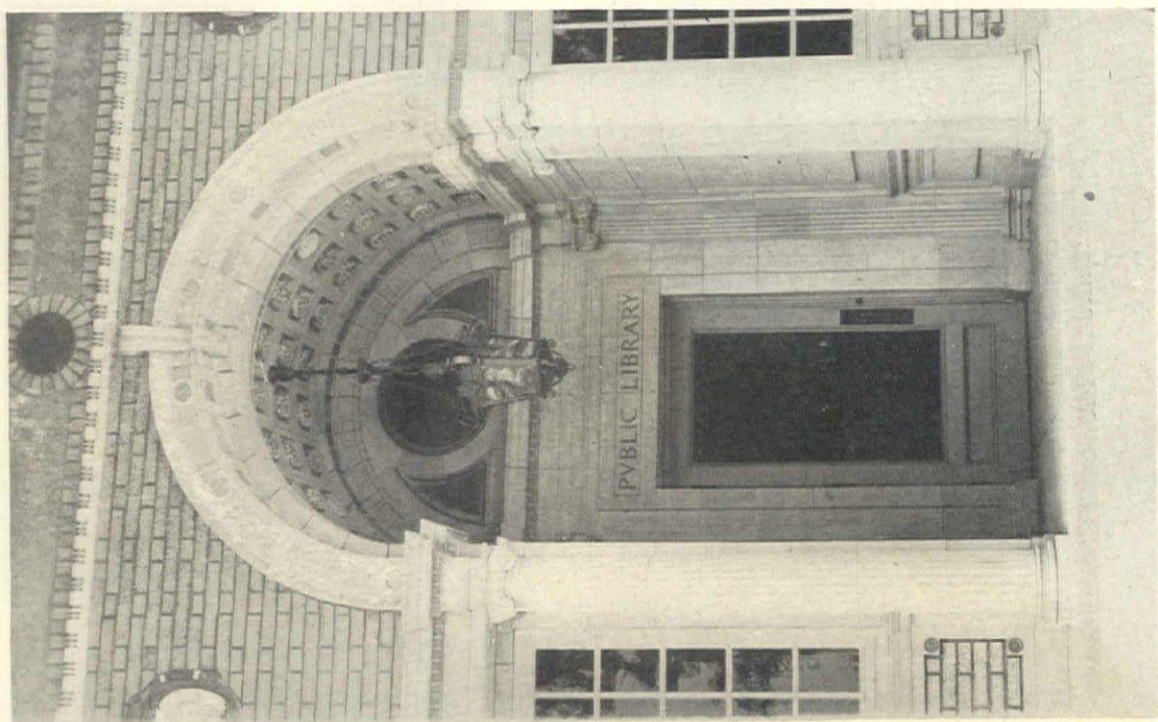


PLATE 98

PUBLIC LIBRARY, LITTLETON, COLORADO

J. B. BENEDICT, ARCHITECT



ENTRANCE DETAIL



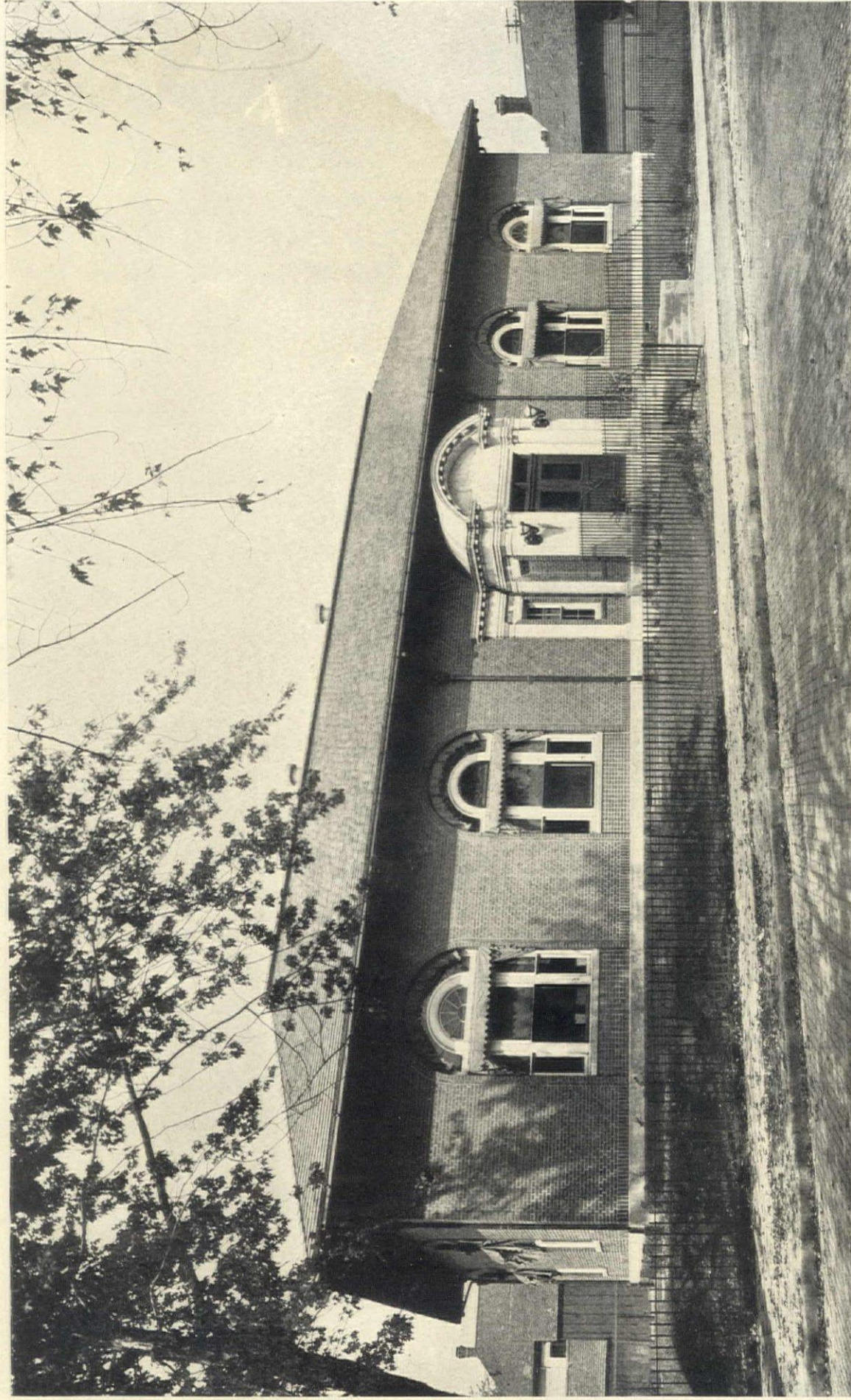
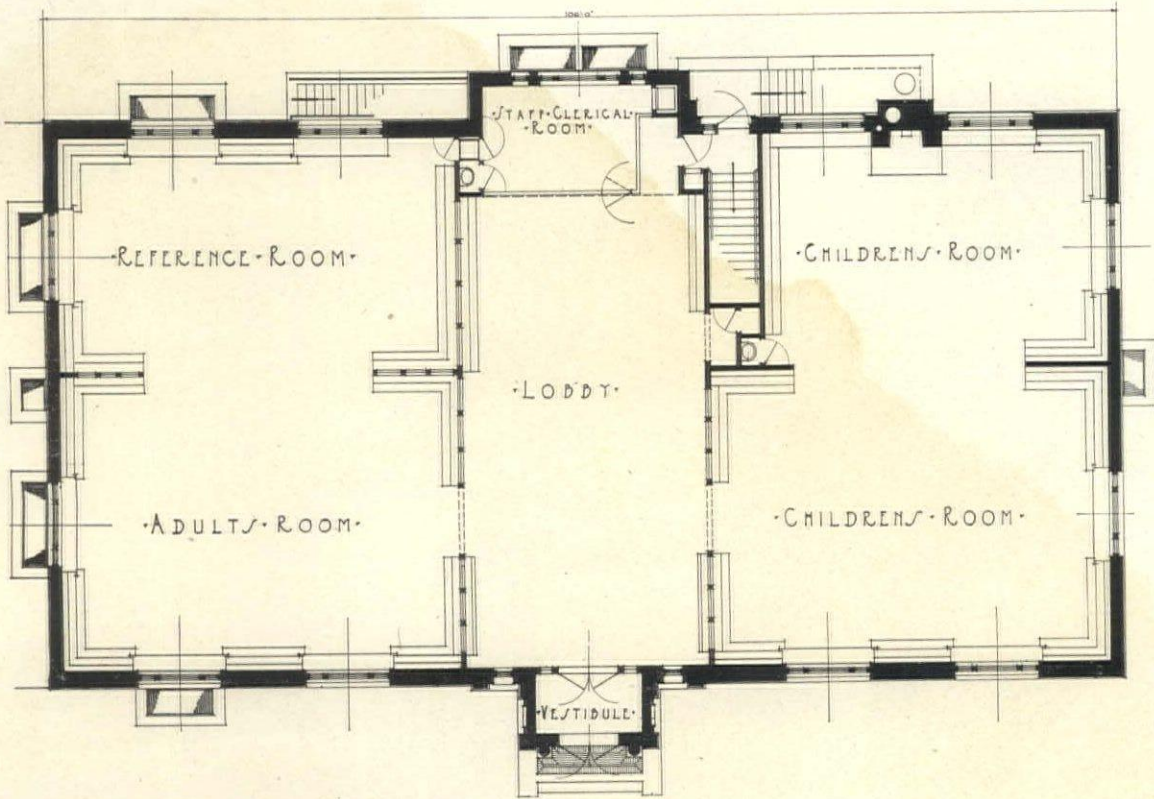


PLATE 99

BRANCH LIBRARY FOR CITY OF DETROIT, MICHIGAN  
MILDNER & EISEN, ARCHITECTS







BRANCH LIBRARY FOR CITY OF DETROIT, MICHIGAN  
MILDNER & EISEN, ARCHITECTS

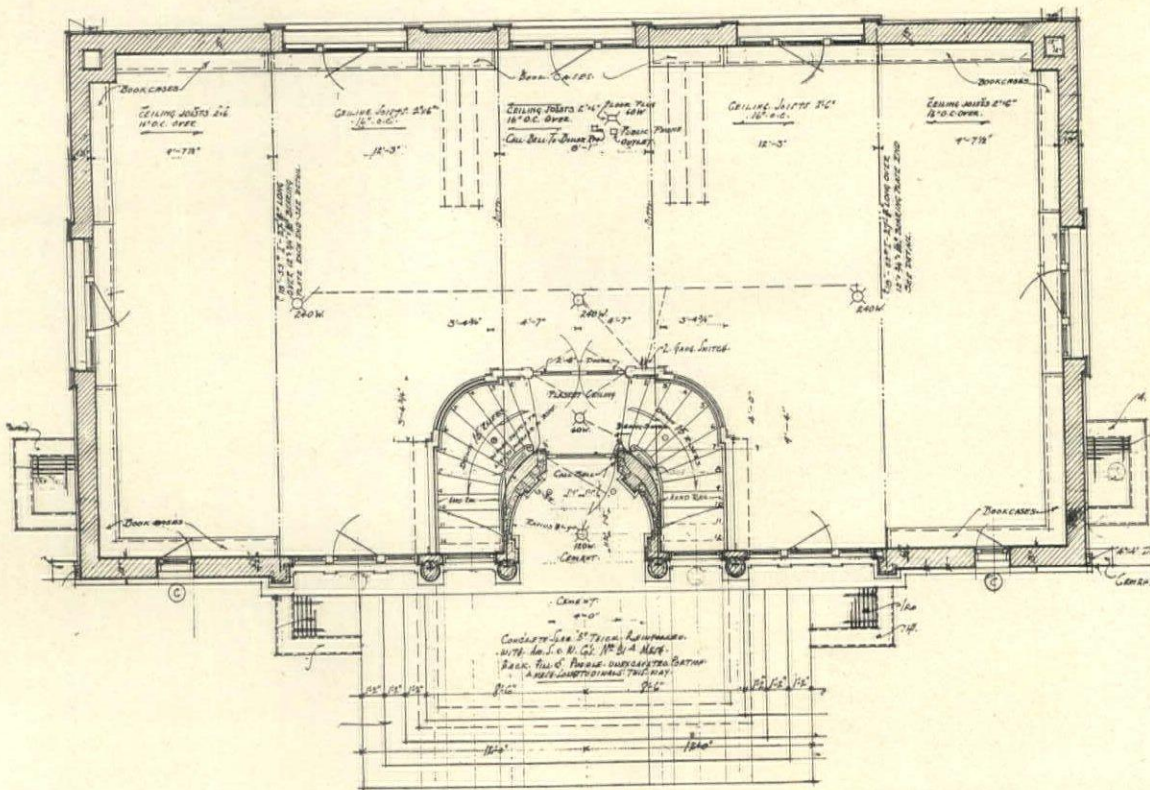


PLATE 100

PUBLIC LIBRARY, LITTLETON, COLORADO  
J. B. BENEDICT, ARCHITECT



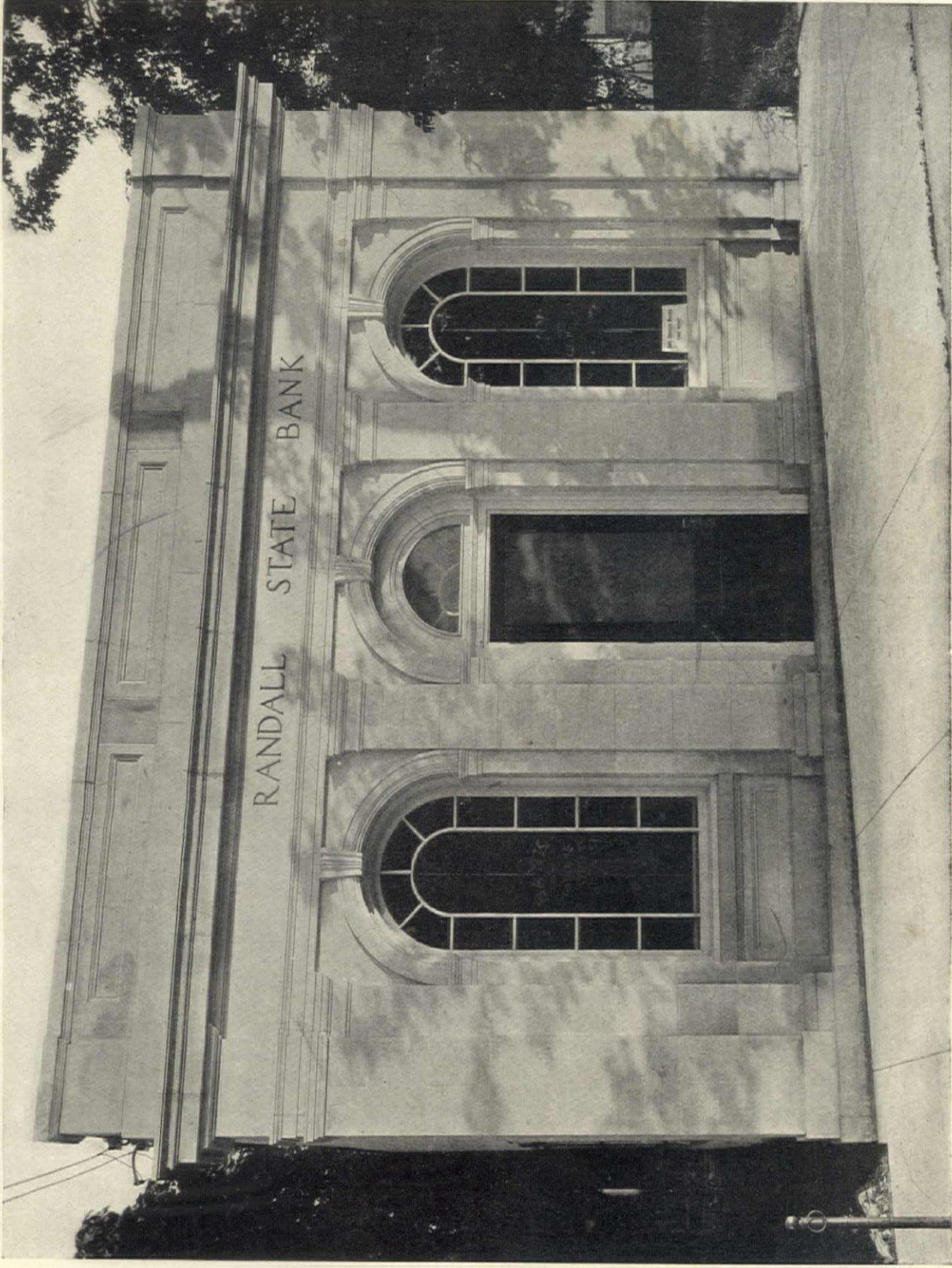


PLATE 101

RANDALL STATE BANK, MADISON, WIS.

JAMES RICHARD LAW, ARCHITECT



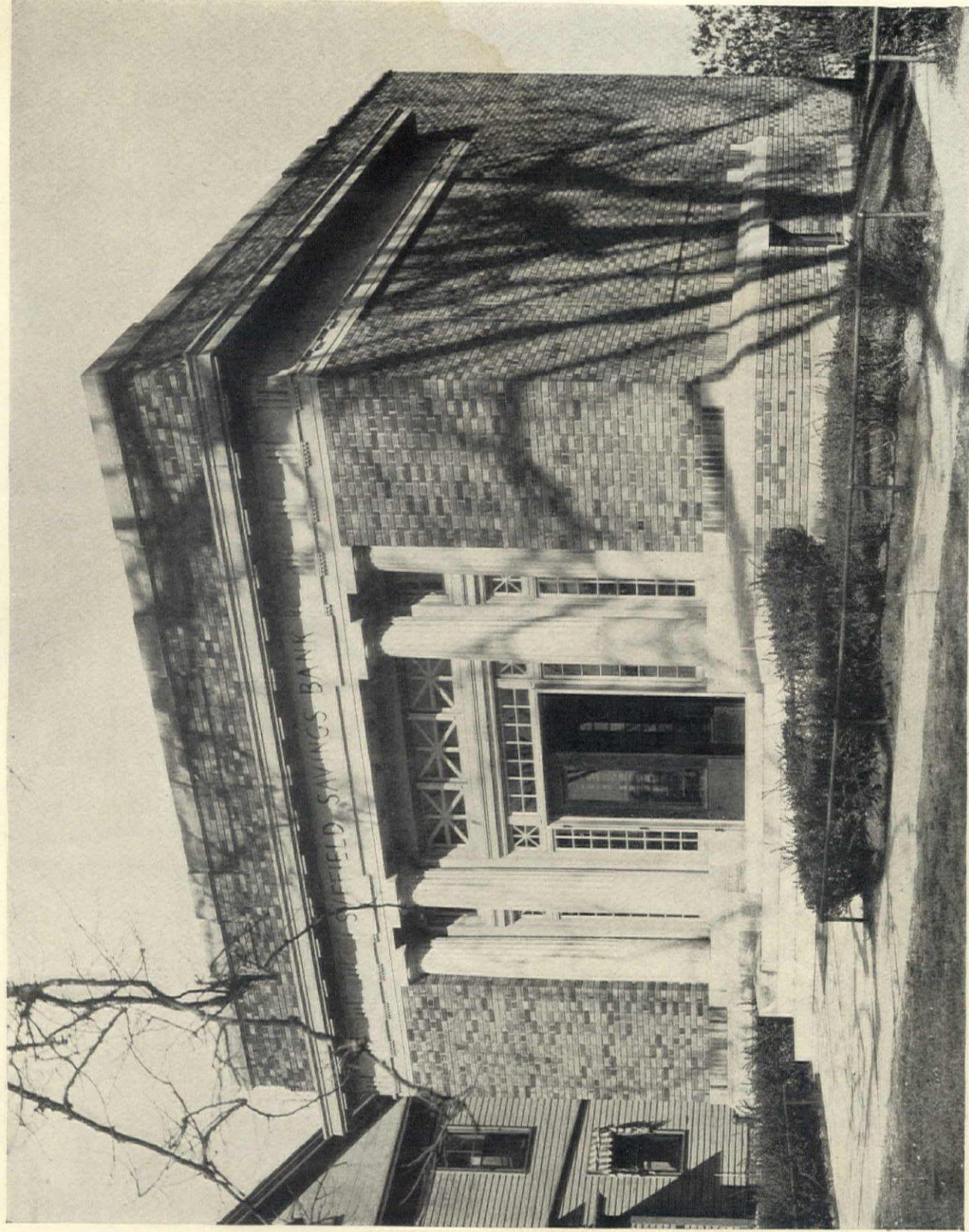


PLATE 102

SUFFIELD SAVINGS BANK, SUFFIELD, CONN.

WALTER P. CRABTREE, ARCHITECT



## THE AMERICAN ARCHITECT

was drafted at the suggestion of the Bureau of Industrial Housing and Transportation of the Department of Labor, and more nearly meets the needs of that branch.

Careful investigations have shown that rents in industrial districts have increased in some instances considerably more than 200 per cent, and that the labor turnover in war industrials, because of the rise in rents, has actually retarded contracts sorely needed by both army and navy.

The Emergency Fleet Corporation has been able to protect its workers from unwarranted rent increases through the agency of a law even wider in its scope than the bill just introduced. It is highly desirable, therefore, to have all war work on an even basis in this respect, so that the labor turnover from one war industry to another will be minimized to the lowest point.

Just claims to increase in rent will not be ignored, but excessive rises imposed because of shortage of housing space, due to the influx of war workers, will not be tolerated.

Investigation has shown that some landlords have raised their rents every time the wage scale of the community has been increased, and that they have disregarded the thought of basing their rents on what might be considered a fair profit on the investment.

The Bureau of Industrial Housing and Transportation takes the stand that at a time when labor is so vitally essential, it is no less than unpatriotic for house owners to seek greater returns than they are justly entitled to.

### Mr. Baruch Explains Ban on Building

In a circular made public by Chairman Baruch of the War Industries Board, the drastic curtailment of building operations and highway improvements that it is proposed to enforce throughout the United States was indicated. It is the intention of the Board to prevent all construction of industrial plants and public buildings and all work on the public highways not necessary in itself and not essential to the prosecution of the war. It is further proposed that no building or highway project not falling within one of the following classifications shall be undertaken except on a permit in writing issued by or under the authority of the chief of the non-war construction section of the priority division of the Board, according to the terms of the circular issued. The classifications referred to are as follows:

(1) After having first been cleared and approved by the War Industries Board, those undertaken directly by or under contract with the War Department or the Navy Department of the United States or the United States Ship-

ping Board Emergency Fleet Corporation, the Bureau of Industrial Housing and Transportation of the United States Department of Labor, or the United States Housing Corporation.

(2) Repairs of or extensions to existing buildings involving in the aggregate a cost not exceeding \$2,500.

(3) Roadways, buildings and other structures undertaken by or under contract with the United States Railroad Administration or a railroad operated by such administration.

(4) Those directly connected with mines producing coal, metals and ferroalloy minerals; and

(5) Public highway improvements and street pavements when expressly approved in writing by the United States Highway Council.

"Should one contemplating building," the circular states, "conceive his proposed project to be in the public interest or of such essentiality that under existing conditions it should not be deferred, then he will make a full statement of the facts in writing under oath, and present same to the local representative of the Council of National Defense, applying to such representative for his approval of the proposed construction.

"While it is not the policy of the Government to interfere unnecessarily with any legitimate business, industry or construction project, it must be borne in mind that there is an imperative and constantly increasing demand for labor, material and capital for the production and distribution of direct and indirect war needs, to satisfy which much non-war construction must be deferred. A full realization of this fact by all loyal and patriotic citizens, including State and municipal, is all that is required to postpone such construction activities as interfere with the war programme.

"The construction projects which must be deferred now may be undertaken when we shall have won the war and will then furnish employment to the returning artisans now on the battle front as well as those who will then be released by strictly war industries."

It is now made plain that practically all building is to be stopped except that the completion of which will assist, or at least will not interfere with war work. Manufacturers of building material have pledged themselves to co-operate and in turn are pledging their customers.

To assist the board in passing on the need and essentiality of proposed new non-war construction, Mr. Baruch has called to his assistance the state councils of national defense, which are asked to investigate through their local organizations and report on all proposed new building projects in their respective territories.

While the recommendations of these local organizations will not be final, they will be followed to the extent that no application for materials for projects coming within their jurisdiction will be considered by the War Industries Board until the council has reported. Final decision in all cases is reserved by the board.

### Personal

The firm of Payne & Adams, architects and civil engineers, New London, Conn., announce that owing to the absence of Major Morris B. Payne, now serving with the Coast Artillery Corps, A. E. F., and the broken health of Mr. B. Louis Adams, who retires from active business for an indefinite period, it will discontinue practice.

## Cleaning London Slums

Referring to the work now going forward in London in the cleaning up of slum areas within the city, the *New York Times* comments editorially as follows:

One of the inspiring incidents of Roman history is the story of Romans buying at a high price the land on which Hannibal's army was then encamped at Capua. That incident revealed the indomitable will of the Roman people quite as clearly as the courage of Roman soldiers on the battlefield. Something similar may be seen in the recommendation of the Committee of the London County Council on the Housing of the Working Classes that the sum of \$17,500,000 be expended in cleaning slum areas within the city, the sum to be spread over seven years in equal installments of \$2,500,000 each. From the committee's report it appears that about \$10,000,000 has already been expended with the result of cleaning fifty-five acres of slums and providing new and sanitary dwellings for more than 160,000 persons.

The committee further recommends that the first steps in the present scheme be the building of houses on estates ripe for development and on sites adjoining insanitary or overcrowded areas. This, the committee says, would serve as, or rather create, a health draft from insanitary to wholesome property. In other words, sanitary homes at reasonable rental are to be offered by the city to dwellers in the present overcrowded districts or slums which, as rapidly as they are evacuated by means of this so-called health draft, will in turn be developed and improved into sanitary quarters similarly acting on adjacent crowded quarters. The estates now in the Council's possession and available for this purpose are capable of accommodating 17,000 persons.

Naturally it is in the great East End where most of these slum regions abound, for there most of the poorer people dwell.

London has for its center the old, or what is now the commercial, city, the place where money is made, and adjacent is the London of West End wealth and East End poverty. The latter may be viewed, also, in quite another light. It is the London of domesticity as contrasted with the London of fashion and pleasure, and the fact that much of the wealth which has made the West End a resort of fashion resulted from the labor of workers in the northern and eastern ends entitles the latter quarters to the care and consideration of the London County Council, and its healthful and beneficial work in rendering the slum districts north and east suitable homes for the laboring classes has been going on on well-considered lines and plans for several decades to the great betterment of the city as a whole. That this work is to suffer no interruptions, even during wartimes, is gratifying and also patriotic in the highest sense.

## Seattle Solves Its Own Labor Problem

Not many weeks ago the labor shortage at Seattle, Wash., shipyards was estimated to be more than two thousand men. To meet this shortage and to provide a remedy, the managements of the several yards called on the United States Employment Service for emergency aid. Lawrence Wood, the Federal Director of the State of Washington, believing that the situation might be handled locally, and relying solely on the patriotism and energy of Seattle in dealing with this urgent problem, instituted a local campaign in which he called on busi-

ness and professional men to enlist as shipyard workers, each for from thirty to sixty days. The response to this call indicated the large measure of patriotism of Seattle men for several hundred professional and business men have gone to the work, headed by the mayor of the city and the president of the Seattle Port Commission.

It is believed that at the expiration of the sixty day period of service of these men the city will naturally adjust itself, as the large number of men engaged in the harvest fields and farms will have been released for other necessary occupations. "Peace hath her victories no less than war" and these men who have offered their services for this patriotic purpose are undoubtedly doing their bit as fearlessly and patriotically as those who have gone to the firing line.

## To Remodel Empty Houses

The question of increased housing facilities in St. Louis, Mo., is being solved by the remodeling of a number of large and unoccupied houses to provide accommodations for industrial workers. Not only will this method afford housing for a largely augmented labor population, but it also puts in the earning class a great amount of real estate that has heretofore been unproductive.

## War Cost to U.S. \$52,000,000 a Day

War bills for the month of August approximated \$1,621,000,000—nearly twice the amount—\$870,000,000—expended in August a year ago.

Thus the war toll is now running about \$52,000,000 a day, or over \$2,000,000 an hour, a slight increase over July.

August figures bring the total cost to America of the war to date to over \$15,700,000,000, and the cost since January, this year, to over \$10,500,000,000.

If August's approximation proves finally accurate, this will be the most expensive war month since America got into the struggle, the next largest being June, when \$1,512,000,000 was expended. The same figures show that the cost to-day is just double that of a year ago.

## The Diminished Output of Material

It is now quite evident that the diminished output of material is due largely to the many phases of the labor problem. Chief among these are inefficiency, the inferior class of the labor available for even the highest class of work. This inefficiency is further



complicated in many cases by the effect of competitive bidding among employers and by the resulting high wages and consequent expensive turnover. It is conclusively proved that despite higher wages, the increased output that would logically be the result has not developed. In fact, there is rather a lessening in output instead of a proportionate increase such as might be expected to result from a higher wage scale. The result of these complicated conditions is that manufacturers are experiencing an increased labor cost while at the same time they are suffering from a diminished output.

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### Refuge Caves in Hospital Plans

Among the many developments that the German method of conducting warfare has made necessary is the cave of refuge as a part of the plan for war hospitals. It is stated that when the Germans bombed a French-American hospital southwest of Soissons they succeeded in hitting the building but did not kill any patients. It develops that the reason for this lack of casualty is that hospitals in the war zone are now fitted out with caves to which patients can be carried as soon as an alarm of an impending raid is given.

Commenting on this unusual feature the *New York Times* states, "Only one thing remains, and that is for the Allies to disguise their hospital ships as battleships, paint out the red cross distinguishing marks, and paint the mercy ships gray, adding false superstructures. Germany is not only ingenious herself, but is the cause of ingenuity in other peoples."

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### Address of the Secretary of Labor

During the course of an address recently delivered in New York by Secretary of Labor Wilson, referring to the annual cost of labor turnover, he states as follows:

"The turnover of labor is in reality the individualistic strike. It is the strike of individual, either a union or non-union man, dissatisfied with conditions, and either unable or unwilling to secure the co-operation of his associates in a collective protest.

"My observation is that the individualistic strike—the turnover of labor—brings us greater loss than all of the collective strikes and lockouts that occur in the country, and anything we can do to reduce that turnover of labor will assist in maintaining efficiency. It is with the hope of being able to reduce that turnover to some extent that we are seeking to build up an organization by which all labor will be handled through one agency."

### Our New Merchant Marine

We have to-day, under contract or construction in the United States, 819 shipbuilding ways. That, says Mr. Hurley, is twice as many ways as there are in all the other shipyards of the world combined.

We turned out in the month of May more steel ship tonnage than we produced in the whole year 1915. In the month of July we more than doubled the May output. In the first five months of 1918 we produced 336,900 tons more than in the two years 1915 and 1916. In the next two months of 1918 we more than equalled the output of the first five months. From August, 1917, to August, 1918, we placed in service a million and a half dead weight tons, of which more than half was built during the last three months of that period.

Of our 819 ways, 751 are for the building of cargo ships. At our present rate of production by 1919 we should be continuously building on each way an average of 6000 tons of steel, wood and concrete ships. If we can average three ships per way in a year, we should turn out 13,500,000 tons in 1919. That is more than has been turned out by Great Britain herself in any five years of her history.

Our boats are not being built by private capital for private ownership. They are built by the United States Government. They will be controlled by the United States Shipping Board. They are being built by the people and they will be owned by the people.

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### A Fence Without Posts

A fence that has no posts is cited by a lumber expert as an object lesson in the utility of wood. This fence without posts is located on the big road near Monroe, Iowa, and has long been a point of interest to travelers in that section.

Years ago, so many years ago that nobody knows when it was, nor who was the labor-saving genius who did it, this fence was built by forcing split boards between saplings. Then the trees grew.

They kept on growing until to-day they are of immense size, and deeply imbedded in them are the ends of those old rails. It is impossible to tell how deeply they extend into the tree trunks. They are weathered and yet they ring as true and sound under a hammer as though just hewn.

It so happened that the trees formed a boundary line for one of the old tracts. The rails were arranged in rows about a foot and a half apart, to a height of five feet, and in this position the trees grew up, and around their ends until one of the most substantial fences imaginable has been created.

# Department of Architectural Engineering

## The Use of Magnesite in Building Construction

*In Three Parts—Part II*

THE physical properties of magnesia cement have been investigated by Raymond Jefferson Roark.\* The preliminary tests were made in neat cement, a 1:3 mortar of standard Ottawa sand and a standard floor mix. A standard floor mix which has given good results was used as consisting of the following proportions by weight:

|                      |                |
|----------------------|----------------|
| Cement .....         | 49.3 per cent. |
| Sawdust .....        | 29.2 per cent. |
| Asbestos .....       | 13.4 per cent. |
| Coloring matter..... | 8.1 per cent.  |

It was later decided to omit the coloring matter and keep the proportions of the other constituents as before. This gave a mix by weight as follows:

|                |                |
|----------------|----------------|
| Cement .....   | 53.7 per cent. |
| Sawdust .....  | 31.7 per cent. |
| Asbestos ..... | 14.6 per cent. |

Comparisons of results showed that the omission of coloring matter had no effect and in the discussion that followed no distinction was made between the colored and uncolored mix, either being accepted as a standard floor mix.

At the suggestion of the manufacturer, the magnesium chloride ( $MgCl_2$ ) was added to the standard mix in the proportion of 85 cubic centimeters of solution to each 100 grams of solid material (1 gallon of solution to 10 pounds of solid material). The solution was used with a specific gravity of about 1.22 or 26 degrees Beaumé. The consistency of the mix so made was considered to be standard, and the mixes made up with sand were considered to be of standard consistency when, as nearly as could be judged, they were the same.

A sufficient number of tests were made of the three mixes—the neat, the 1:3 sand, and the standard floor mix, to determine whether the three were

\*The Physical Properties of Magnesia Cement and Magnesia Cement Compounds; Bulletin 879, Engineering Experiment Station, University of Wisconsin, Madison, Wisconsin, November, 1917.

similarly affected by the different variables and to determine which yielded the most uniform and consistent results. Three cements were used and the tests were made for tensile strength. As the moisture content of the air has an effect on the test pieces during the 7, 14 and 28 days elapsed before testing, it was decided to store them under several conditions. Five conditions were employed, namely, moist air having a humidity of 90 per cent; air in the laboratory having an average humidity of 60



OFFICES OF McKIM, MEAD & WHITE,  
ARCHITECTS

A composition floor is especially adapted to office places subject to great traffic as it is durable, quiet and of good appearance.

per cent and called "normal air"; dry air in a desiccator; a solution of  $MgCl_2$  and kerosene.

The results of this series show:

1. That of the three mixes tested, the standard floor mix gave by far the most uniform results for all cements, all ages and all methods of storage.
2. That of the five methods, storage in kerosene and in normal air gave the most satisfactory results.

## THE AMERICAN ARCHITECT

3. That the ranking of the different cements as to strength and uniformity was different for the different mixes and at different ages.

4. That the relative strength of the specimens at different ages was different for the different mixes—the strength decreasing with age in the case of neat and 1:3 sand mixes, but increasing with age in the case of the floor mix.

confined to storage in normal air, in kerosene and in machine oil. Specimens were broken in 7 and 28 days. The results show:

1. That of the three mixes tested the standard floor mix gave by far the most uniform results for all cements, all ages and all methods of storage.

2. That of the three methods of storage, storage in oil gave the best results with the neat briquettes,



GRILL ROOM, GEDNEY FARMS HOTEL, WHITE PLAINS, NEW YORK.

KENNETH M. MURCHISON, ARCHITECT

A floor made of hard and very dense material used in connection with a hard wall and ceiling covering reflects the sound of walking, placing dishes, conversation and music, resulting in a "noisy" dining room in which satisfactory conversation is impossible. A resilient composition floor in connection with a wall and ceiling covering of sound absorbing material makes a "quiet" dining room. This floor is adequately durable and impervious.

5. That in general the per cent departure from the mean increased as the age of the specimens increased.

Another series of tests was made to check the first series and to determine the comparableness of results obtained by different operators working at the same time. Specimens were made up of the same three mixes and the same three cements that were used before. The methods of storage were

storage in kerosene with the 1:3 sand, and storage in normal air with the floor mix.

3. That the ranking of the different cements as to strength and uniformity was different for the different mixes and at different ages.

4. That for all mixes the strength increased with age.

5. That the per cent departure from the mean was practically the same at the two ages.

## THE AMERICAN ARCHITECT

6. That the results obtained by two operators, both as regards strength and uniformity, varied widely in the tests made on the neat cement and agreed closely in the tests made on the floor mix and the 1:3 sand mix.

Another series of tests were made in which the specimens were made at different times and the tests made at different times in order to determine the effect of different temperatures and humidities at the time of preparing the specimens, during storage and at time of test. It was found that a very considerable difference exists between the results of tests made on different dates, not only as to the actual results obtained but also as to the variation of strength with age.

The results of these three series of preliminary tests show that, in general, all tests intended to show the effect of variables other than the amount of aggregate should be made on specimens of standard floor mix; that specimens should be stored in normal air; that tests should be made at any time after three days and that all tests, the results of which are to be compared quantitatively, should be made at the same time on specimens made at the same time and by the same operator.

Magnesia cement differs very radically from Portland cement in that the former is a natural product

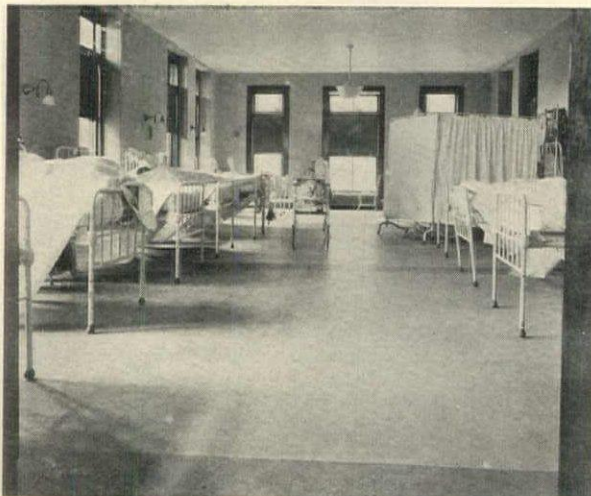
terial and to treat it chemically in order to make a uniform product would entail a prohibitive expense. For that reason no standard product has, as yet, been placed on the market and the architect can make no detailed specification as to the chemical constitution of the material except he desires to use



LABORATORIES, POST-GRADUATE HOSPITAL, NEW YORK.

McKIM, MEAD & WHITE, ARCHITECTS

A composition floor which is quiet, impervious and easy under foot for the operatives.



WARD IN POST-GRADUATE HOSPITAL, NEW YORK

McKIM, MEAD & WHITE, ARCHITECTS

A composition floor which is noiseless, attractive in color, durable, impervious and sanitary.

and the latter is an artificial product. The artificial product can be produced in accordance with a formula and with a uniform result. A mineral like magnesite will vary, the product of each mine differing somewhat in composition and proportion of its elements. The calcined product is a crude ma-

terial. The application of magnesia cement is then governed by the particular product used and the methods employed will vary with the nature of the cement, the weather conditions and other variables. The specification is naturally restricted to the statement of the results to be accomplished and some fundamental factors common to all these cements.

In order to gauge the effect of these variables tests were made to determine the effect of:

1. The chemical constitution of the cement.
2. Variation in the amount of  $MgCl_2$  solution; density constant.
3. Variation in the density of the  $MgCl_2$  solution; amount constant.
4. Variation in both the amount and density of the  $MgCl_2$  solution; amount of  $MgCl_2$  constant.
5. Variation in the proportion of cement to aggregate.
6. Variation in the moisture content of the aggregate.

To determine the effect of the variables listed, tests were made as follows:

1. Tension test.
2. Compression test.
3. Cross-breaking test.
4. Hardness test.

## THE AMERICAN ARCHITECT

5. Expansion test.
6. Change in weight test.
7. Pat test.

The results of these tests are summarized as follows:

1. The standard floor mix, gaged with a magnesium chloride solution having a density of 1.20 (24 degrees Beaumé) in the proportion of 85 c.c. of solution to 100 g. of solid material (1 liquid gallon to 10 pounds), was found to have:

An average tensile strength of 593 lbs. per sq. in.

some instances a decrease in tensile strength was observed.

3. Specimens made of this mix were found to expand during setting, and for some time afterward. In a dry atmosphere the maximum expansion amounted to from 0.10 to 0.30 per cent and occurred in from 70 to 140 hours. After that time the specimens began to shrink, in some cases attaining a length less than the original length. In a moist atmosphere the specimens expanded continuously for as long a time as observed. The rate of



OFFICE FLOOR, YALE AND TOWNE BUILDING, NEW YORK.

LA FARGE & MORRIS, ARCHITECTS

A composition floor which is quiet, durable and has a pleasing appearance.

An average compression strength of 2340 lbs. per sq. in. at 7 days, and of 4000 lbs. per sq. in. at 28 days.

An average modulus of rupture of 1200 lbs. per sq. in.

An average modulus of elasticity of 650,000 lbs. per sq. in.

An average Brinell hardness number of 7.3.

A coefficient of expansion of 0.0000126 per degree F.

2. Specimens made of this mix were found, in general, to increase in strength with time. The increase in compressive strength was very much more marked than the increase in tensile strength; in

expansion varied greatly, but in general decreased after a few days.

4. In general, the weight of specimens decreased during storage in a dry atmosphere and increased during storage in a moist atmosphere.

5. In general, it was found that the strongest mixes were those made with the cements having a high magnesium oxide content and a low lime content. It was also found that the addition of lime to the cement produced a marked decrease in tensile strength. No consistent relation was found to obtain between the strength and the amount of any other chemical constituent of the cements.

6. The tendency to shrink or expand was not

## THE AMERICAN ARCHITECT

found to bear any direct relation to the chemical constitution of the cement.

7. Maximum strength and hardness were obtained with about that amount of magnesium chloride solution necessary to give a good working consistency—that is, about 85 c.c. of solution per 100 g. of solid material. The use of much more or much less resulted in a decrease of strength and hardness. This amount of solution corresponds fairly closely to the amount required, according to the assumed

solution used; in moist air the per cent gain in weight was found to increase with the amount of solution used.

10. The strength, stiffness and hardness were found to increase with the density of the magnesium chloride solution used. Mixes made with a solution having a density less than 1.15 (19 degrees Beaumé) were found to have very little strength. A density of 1.15 would seem to be the least that should be employed in any case.



WOODSTOCK BRANCH, NEW YORK PUBLIC LIBRARY.

McKIM, MEAD & WHITE, ARCHITECTS

A resilient composition floor of the proper color eliminates the noises of walking and glare of the sunlight.

formula for the composition of magnesia cement, for perfect combination between the magnesium oxide and magnesium chloride.

8. In a dry atmosphere the per cent of expansion of the specimens was found to increase with the amount of solution used; in a moist atmosphere the per cent expansion was found to decrease with the amount of the solution used.

9. In dry air the per cent loss in weight of the specimen was found to increase with the amount of

11. In a dry atmosphere the per cent expansion of the specimens was found to increase with the density of the solution; in a moist atmosphere it was found that the per cent expansion at first varied inversely, and later directly, as the density of the solution. The relation between per cent expansion and density of solution did not, however, appear to be very clearly defined.

12. In dry air the per cent loss in weight of the specimens was found to vary inversely as the den-

## THE AMERICAN ARCHITECT

sity of the magnesium chloride solution used. In moist air the per cent gain in weight was found to vary indirectly as the density of the solution.

13. The results of tests on mixes in which different amounts and densities of solution had been used, but in which the amount of magnesium chloride was practically the same, showed that strength and hardness increased with the amount of solution so long as this amount was less than that re-

had been moistened before mixing, in order to secure normal consistency with less magnesium chloride solution, showed that the strength varied directly as the amount of solution used.



RESIDENCE MR. J. R. DE LA MAR, GLEN COVE,  
L. I.

C. P. H. GILBERT, ARCHITECT

A composition finish on stair treads which is quiet, durable and has non-slip qualities.

quired to give normal consistency. This shows that the physical properties of the mix are not dependent simply upon the ratio of  $MgCl_2$  to  $MgO$ , but depend also upon the amount of water used.

14. Strength and hardness were found to increase with the ratio of cement to aggregate. This increase became less marked as the richness of the mix was increased.

15. The tendency to expand was found to increase with the ratio of cement to aggregate.

16. Tests made on mixes in which the aggregate

to cause a quick setting of the cement.

The results of these investigations establish the principal physical properties of magnesia cement as used for floor finishes.



RESIDENCE MR. THOMAS HASTINGS, ROSLYN,  
L. I.

CARRERE & HASTINGS, ARCHITECTS

A composition floor in a service room which is quiet, sanitary, durable and easy under foot.

17. The time of set was found to be affected by the temperature and humidity, and by the density of the magnesium chloride. High temperature, low humidity and the use of a dense solution were found



ROOF GARDEN, RITZ-CARLTON HOTEL,  
NEW YORK.

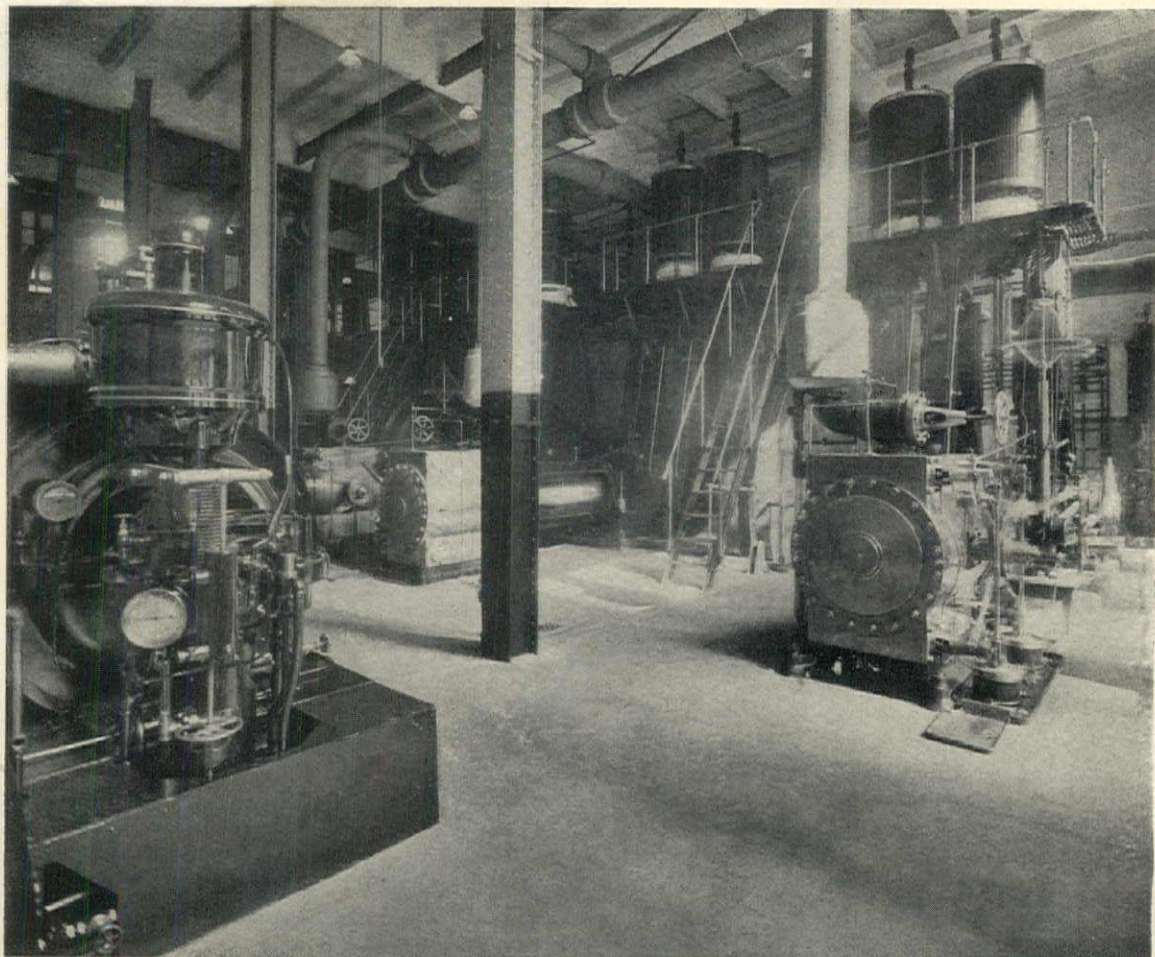
WARREN & WETMORE, ARCHITECTS

## THE AMERICAN ARCHITECT

As a flooring material magnesia cement or composition floors have been compared relatively with eighteen other flooring materials in the *AMERICAN ARCHITECT* of July 24, 1918, page 116. It differs with all other such materials except asphalt, concrete and terrazzo, in that it is installed in a plastic condition. This is a great advantage under conditions where it is desirable to have a base and wain-

cork, sawdust, wood fiber or other like materials. The resilient floor is quiet, elastic, warm and agreeable underfoot. The wearing ability of the resilient type of floor is equal to that of the hard type.

Magnesia cement or composition flooring has characteristics analogous to those found in horn, in that it can be planed, drilled, scraped and burnished. The degree to which this can be done de-



ENGINE ROOM OF A BREWERY.

A composition floor which is durable and free from the dust of abrasion. This dustless quality is very important in places where high grade machine tools, engines and motors are operated.

scoting integral with the floor; in this case the material is used for all these parts. It can be used under nearly all conditions for foot traffic and as a plaster on vertical surfaces and ceilings.

Such a floor can be made covering quite a range in hardness. This is accomplished by varying the character of the aggregate. By using sand or other mineral aggregates a dense, hard, stonelike floor is obtained. This floor will naturally be more noisy than a less dense, resilient floor which is made with an aggregate composed of vegetable matter such as

pend on the character of the aggregate, naturally the resilient grade being more easily manipulated. These qualities are very noticeable as compared with concrete, the latter being brittle and inelastic is more easily disintegrated and abraded by impact or wearing.

These floors can be colored with mineral pigments such as red, buff and black, which permits also of the gray combinations of the white cement and black. Other colors are apt to fade and are not recommended. Floors can be laid in two or more



## THE AMERICAN ARCHITECT

colors, the added cost depending on the design and arrangement of the colors. Exact matching of a sample color is not practical, as the shade will vary to a limited extent with the aggregate used.

Existing floors of this material can be displaced in part and restored with perfect bonding between the old and new portions. They can be used in situations that are not continuously under water and the intermittent application of water has no bad effects. The hard, stonelike floors are much less susceptible to the effect of water owing to their mineral aggregate as against the vegetable aggregates of the resilient floors.

The foundation provided for these floors is an important factor which affects their durability. This can be said of almost any other part of a building with equal truth. When applied to a wooden foundation the boards should not be over 6 inches wide and securely nailed at both edges at each support to prevent cupping of the boards. A tongued and grooved board will offer a much better wood base than a square edge board, as the former are less liable to cup, if properly laid, than the latter. The wood foundations should always be covered with a layer of metal lath of 27 gage, or a similar reinforcement, securely fastened to the surface of the wood at intervals of about 6 inches.

The surface of concrete slabs should be screeded to a level and all holes or pockets eliminated. Cinder concrete filling, either on top of concrete or tile floors, should be made of Portland cement, sand and crushed cinders (not ashes) in such proportions that a dense, solid foundation is provided. A mix of 1:3:6 if properly constructed will be found adequate. In those sections of this country where the electric conduits, gas pipes and other utilities are buried in the structural concrete slab, as they should be, there is no necessity of a cinder concrete fill on top of the structural slab. Such filling is necessary on hollow tile floors and some types of wood construction.

Where cinder concrete fill is used it should always be placed after the plastering is completed. The plaster which drops on the floor is easily ground into the cinder concrete and cannot be removed, and also this kind of concrete, being less strong than stone or gravel concrete, is apt to have holes punched or worn into it during the process of plastering, pipe fitting or other activities.

Lime is extremely detrimental to composition flooring and it is necessary that all traces of lime should be removed from the foundation. This can

be done by washing and scrubbing stone or gravel concrete and wood foundations. It is impossible to remove the lime from cinder concrete foundations, hence the necessity of placing these in position after the plastering is completed.

The architect should specify that all foundations be provided by contractors other than the composition flooring contractor, as these other contractors can do this at a much less cost. They should be delivered to the flooring contractor broom clean for his inspection and approval before installing his material.

These floors should be laid in two ply or layers, the undercoat being  $\frac{3}{16}$  inch thick and the top coat  $\frac{5}{16}$  inch thick. This  $\frac{1}{2}$  inch thickness to be used in case of floors, base, stair risers and treads,  $\frac{3}{8}$  inch for wainscoting or floors of closets and other minor rooms of that kind. The surface should be brought to a true plane, with uniform color, with a trowel and without resort to burnishing, rubbing or scraping. The finished floor should be protected with  $\frac{1}{2}$  inch of sawdust or fine shavings. The temperature of the room where such floors are being installed should not be less than 55 degrees F. These floors should be guaranteed by the contractor for a period of two years.

It should not be required that the contractor make such a guarantee unless the foundation is made acceptable to him by other contractors and that the building is in such condition that the proper temperature can be maintained.

It is readily seen that a hard and fast specification describing the material and mix is not feasible owing to the variations in the cement and that each cement is successfully applied by those who are familiar with its characteristics and manipulations. The specification should then be confined to the following factors:

1. Suitable foundations.
2. Sleeves and protections where pipes subject to expansion and contraction pass through or are bedded in the foundation.
3. Two coat work.
4. Color within reasonable variation of shades.
5. Degree of hardness or resiliency desired.
6. Installation as far as possible after all other construction is finished.
7. Building heated for cold weather installation.
8. Protection immediately after installation.
9. Installation of a proven high-grade cement by a competent and responsible contractor.

# Industrial Information

## “The Floor That’s Built to Fit the Room”

Linotile floors are advertised by the Armstrong Cork & Insulation Company, Pittsburgh, Pa., for offices, churches, theaters, libraries, kitchens, elevators and like purposes. These floors are designed in many colors and patterns and in such schemes as harmonize with almost any sort of interior. The rich warm colors found in Linotile, together with its value from a practical standpoint, make it an attractive floor covering.

There are so many buildings, particularly public buildings, where warm color tones, combined with resilient, silent, warm and sanitary floors are needed, that Linotile ought surely to have found its place in the world.

This flooring is composed of powdered cork, wood flour, linseed oil, various gums and suitable color pigments. As told in the company’s literature, “The several ingredients are thoroughly mixed, then compressed into sheets  $\frac{1}{4}$  in. thick. These sheets are then subjected to a seasoning process until they are cured. The material is then cut into tiles of the desired shape and size.” The tiles are laid with joints sealed by the Armstrong Cork & Insulation Company’s Nonpareil waterproof cement.

There are certain rather obvious merits in a flooring of this type to which attention might be called. The very nature of the materials used in the composition of Linotile insures its being resilient. A flooring which is elastic and easy under foot is a most satisfying thing, particularly in museums, libraries, banks and other buildings where people constantly have to stand. The silent qualities which it is claimed to have are equally important in such buildings. It is further claimed for Linotile that it not only diminishes the noise of foot traffic, but absorbs and deadens sounds arising from other sources.

Another good point about such a flooring is that, without detracting from the monumental character

of many public buildings in which it may be used, it gives a warm and comfortable air to an interior—an effect not too common in such buildings.

The sanitary propensities of the product are especially emphasized by the company. It is stated that the presence of linseed oil—one of the chief ingredients in Linotile—makes it particularly desirable for use in hospitals, dispensaries, kitchens and other such places, due to the germicidal action of that oil even when incorporated into a flooring material. The oil is said to retain this property for several years. Linotile is easy to clean, odorless, durable and moderate in cost, while its value from the standpoint of appearance is unquestioned.

These tiles are manufactured in eleven colors and a great many sizes. Squares, oblongs, strips for interlinings and sanitary cove and base, all  $\frac{1}{4}$  in. thick, are the forms in which the material is available. From these shapes, sizes and colors a great number of designs can be evolved. The possibilities in this direction are indicated by the sample designs shown in the company’s booklet on the subject, in which the color work is unusually good.

The book closes with detailed specifications and drawings covering the use of Linotile in the following ways: Over concrete base; over wood base; over concrete stair treads; over wood stair treads; over metal stair treads.

The merits and possibilities of this product are fully and adequately set forth in this interesting book, which will be sent to architects upon request to the manufacturers.

## San-O-La Ware

The Artbrass Company, Inc., 299 East 134th Street, New York City, issues a monthly bulletin of its products, illustrated and priced. The San-o-la ware consists of a white finish on solid brass, and of nickel-plated ware. All sorts and varieties of bathroom accessories are included in this company’s products, any of which would add to the immaculate and finished appearance of the modern white bathroom.

# BUILDING NEWS

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it at all. Our sources of information are believed to be reliable, but we cannot guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also corrections of any errors discovered.

## ALABAMA

**BIRMINGHAM, ALA.**—Magic City Cotton Oil Co., Fortieth Street and Twelfth Avenue, N., plans to rebuild plant. Loss, \$100,000.

**SHEFFIELD, ALA.**—Building to cost \$30,000 will be erected by Sheffield Chamber of Commerce. J. C. Harris, chairman of Building Committee.

## ARKANSAS

**MARIANNA, ARK.**—Nathan Furniture Co. will rebuild store building to replace structure lately damaged by fire at a loss of \$49,000.

**MARIANNA, ARK.**—Mixon-McClintock Co. contemplates rebuilding structure lately damaged by fire at a loss of \$35,000.

## CALIFORNIA

**FILLMORE, CAL.**—Fillmore Citrus Fruit Association plans to build concrete and tile packing house costing \$30,000.

**FRESNO, CAL.**—Hollenbeck Bush Co., Inyo and H Streets, plans to build planing mill at a cost of \$100,000.

**FRESNO, CAL.**—Madary Planing Mill Co., Kern and H Streets, is having plans prepared for a \$200,000 planing mill.

**SAN FRANCISCO, CAL.**—C. O. Clausen, Hearst Building, is Architect for a two-story dyeing and cleaning plant to be erected by R. M. Gilbert on Fifteenth Street and Julian Avenue. \$10,000.

**SAN FRANCISCO, CAL.**—Rousseau & Rousseau, 110 Sutter Street, have designed a two-story brick building for auto salesroom, costing \$37,000. It will be erected at Van Ness Avenue and Washington Street by the Gerard Investment Co.

**SAN FRANCISCO, CAL.**—C. A. Haber, Monadnock Block, San Francisco, has plans for a settlement house which the Wesley Association of the Meth. Epis. Church will erect at Elgin and McCoffin Streets. Reinforced concrete, 3 stories; \$30,000.

## CONNECTICUT

**ANSONIA, CONN.**—R. Williams, Architect, 185 Church Street, New Haven, has plans for building a brick, rock and concrete church for Hellenic Greek Orthodox congregation. About \$85,000.

**BRIDGEPORT, CONN.**—Calvary Episcopal congregation, Wells Street, plans to build church on North Main and Summit Streets, at a cost of \$65,000. Address G. J. Sutherland, Huntington, Conn.

**BRIDGEPORT, CONN.**—F. W. Mellor, Architect, has designed a one-story, 110 x 200 ft., brick engine house, concrete foundation, on Singer Avenue, for New York, New Haven & Hartford RR., New Haven, costing \$75,000.

**GROTON, CONN.**—One hundred and fifty employees' houses, costing \$1,200,000, will be erected by United States Emergency Fleet Corporation, Philadelphia.

**STAMFORD, CONN.**—Baer Bros., 700 Canal Street, plans to build two factories on Canal Street and Fairfield Avenue at a cost of \$375,000. A. Freeman, 29 West Thirty-fourth Street, New York City, Architect.

**WATERTOWN, CONN.**—Three-story factory costing \$30,000 will be erected for Waterbury Buckle Co., Archer J. Smith, president and treasurer, 872 S. Main Street. Brick.

**WEST HARTFORD, CONN.**—Town plans to build two-story high school on South Main Street, at a cost of \$100,000. C. S. Lane, 1631 Boulevard, West Hartford, chairman building committee.

## DISTRICT OF COLUMBIA

**WASHINGTON, D. C.**—Hotel and apartment building costing \$600,000, eleven stories and basement, has been designed by Milburn Heister Co., Architect, Union Savings Bank Building. Owners, Simmons & Kratkoff, care Architect.

**WASHINGTON, D. C.**—International Machinists' Union is having plans prepared by Milburn, Heister & Co.,

Union Savings Bank, Washington, for office building at Ninth Street and Massachusetts Avenue, 66 x 100 ft., five stories and basement. Cost, \$140,000.

## FLORIDA

**JACKSONVILLE, FLA.**—S. B. Hubbard Hardware Co. proposes to erect store building to replace building recently burned at loss of \$75,000.

**PENSACOLA, FLA.**—Eitzer-Touart Co., American National Bank Building, plans to spend \$100,000 for warehouses.

**PENSACOLA, FLA.**—Housing development costing \$800,000 is in course of preparation by Favrot & Livaudais, Title Guarantee Building, New Orleans, La. Engineer, Arthur Pew, Forsyth Building, Atlanta, Ga. Owner, United States Government, Otto M. Eidlitz, director, Industrial Housing Commission, 613 G Street, N. W., Washington, D. C.

**SANFORD, FLA.**—Virginia Carolina Chemical Co., 11 South Twelfth Street, Richmond, Va., plans to rebuild plant recently destroyed by fire. Loss, \$150,000.

## GEORGIA

**ATLANTA, GA.**—Authority has been received by Major W. W. Wade, construction quartermaster of Camp Gordon, for the erection of additional buildings and other construction work at a cost of about \$2,000,000. Southern Ferro Concrete Co., Atlanta, has the contract.

**BRUNSWICK, GA.**—United States Shipping Board, Emergency Fleet Corporation, Philadelphia, will expend about \$750,000 for erection of dwellings for shipyard employees.

**CHAUNCEY, GA.**—Chauncey Warehouse & Mfg. Co. plans to rebuild warehouse destroyed at a loss of \$90,000.

**MACON, GA.**—National War Work Council, Young Men's Christian Association, 347 Madison Avenue, New York, will erect four "Y" buildings at Camp Wheeler.

**SAVANNAH, GA.**—A navy hospital consisting of eight buildings will be constructed in Savannah at a cost of \$250,000, under Government auspices.

## ILLINOIS

**ALTON, ILL.**—N. S. Spencer & Son, Architects, Old Colony Building, Chicago, have designed a Masonic Temple costing \$50,000. Owner, Masonic Temple Association, care J. W. Beall, Alton. General contractor, W. F. Peterson, 25 E. Jackson Boulevard, Chicago.

**CHICAGO, ILL.**—Factory, 1 sty. 100 x 300 will go up at 12th & Waller. Archt. S. N. Crowen, 30 N. La Salle st. Owner W. D. Allen & Co., 563 W. Lake st.

**CHICAGO, ILL.**—Apartment building costing \$100,000, three stories and basement, 75 x 164, will be erected at Fulton Street and Avers Avenue from plans drawn by William E. Walker, Architect, 30 N. Michigan Avenue. Owner, William C. Parker, care Architect.

**CHICAGO, ILL.**—Store and apartment building to cost \$50,000 has been designed by Walter Ahlschlager, Architect, 111 W. Washington Street. Brick, 24 x 165. Twenty-second Street and Michigan Avenue, site.

**CICERO, ILL.**—Board of Education had plans prepared by Ashby, Ashby & Schulse, Architects, 178 West Jackson Boulevard, for brick school building on Fifty-seventh Avenue, between Twenty-third Street and Twenty-third Place. Cost, \$60,000.

**JOLIET, ILL.**—Board of Education is prepared to build three-story, 74 x 134 ft., school on Joliet Street and McDonough Avenue. C. W. Webster, Cutting Building, Architect. Cost, \$100,000.

## INDIANA

**INDIANAPOLIS, IND.**—Indiana Epileptic Village contemplates building one-story brick addition to asylum at a cost of \$63,000. H. Foltz, 1456 Lemecke Annex, has prepared plans.

**PLYMOUTH, IND.**—Plans have been prepared for a lithographing plant costing \$25,000, one and two stories, 132 x 152. Architect, A. P. Dippold, 4747 Cottage Grove Avenue, Chicago, Ill. Owner, The Clinton Co., care Architect.

## IOWA

DAVENPORT, IOWA.—Liberty Amusement Co., care of H. H. Treffer, president, had plans prepared by Whittitt & Schulzke, Architects, Peoples Bank Building, Moline, Ill., for a three-story, 70 x 150 ft., theater to cost \$100,000.

DES MOINES, IOWA.—Savory Hotel Co., Fifth and Walnut Streets, plans to build eleven-story hotel, 80 x 140 ft., reinforced concrete and brick, on Fourth and Locust Streets.

JEFFERSON, IOWA.—Proudfoot, Bird & Rawson, Architects, 810 Hubbell Building, Des Moines, have prepared plans for two-story, 79 x 152 ft., school.

MT. PLEASANT, IOWA.—Board of Education contemplates remodeling Y. M. C. A. building into high school at a cost of \$90,000. C. W. Cruikshank, superintendent.

## KANSAS

FRANKFORT, KAN.—Rose & Peterson, Architects, Barker Building, Kansas City, Kan., have designed a \$50,000 hotel, three stories and basement, for Savoy Hotel, Frankfort.

WICHITA, KAN.—Board of Education soon receives bids for building a two-story, 74 x 93 ft., brick and stone, high school, to cost \$50,000. S. S. Voight, 601 Fourth National Bank Building, has prepared plans.

## KENTUCKY

LOUISVILLE, KY.—War Department, Washington, will erect motor school for Field Artillery Replacement camp at Camp Zachary Taylor, costing \$150,000.

LOUISVILLE, KY.—Powder plant to cost \$5,000,000 is to be constructed at Pleasure Ridge, near Louisville, by Dupont de Nemours Powder Co., Wilmington, Del. Site purchased. Ordnance Department of United States Government, Washington, D. C., will be in charge.

## LOUISIANA

NEW ORLEANS, LA.—The Government is erecting a navy hospital in New Orleans at a cost of \$250,000.

NEW ORLEANS, LA.—Central Baptist Church, Rev. Dr. W. A. Jordan, pastor, will erect a \$50,000 addition to present structure.

## MARYLAND

BALTIMORE, MD.—Baltimore is to have a naval hospital consisting of eight buildings and costing \$250,000.

BALTIMORE, MD.—F. E. Beall, 306 St. Paul Street, Baltimore, Md., is preparing plans to remodel the Jones residence at 13 Mt. Vernon Place into an apartment house.

BALTIMORE, MD.—The Maryland Creamery Co. will shortly build an addition to the creamery plant, 1734-38 East Pratt Street. It is three stories in height, 50 x 90 ft., brick and mill construction, and will cost about \$50,000.

INDIAN HEAD, MD.—Bureau of Housing, Department of Labor, Otto M. Eidlitz, director, Mills Building, Washington, is having plans prepared by Donn & Deming, 808 Seventeenth Street, Washington, for a number of two-and-one-half-story dwellings to cost \$500,000.

## MASSACHUSETTS

BOSTON, MASS.—Factory 100 x 80 will be erected on Columbia rd. cor. Covington st., Boston, for John West Thread Co., J. A. Haley, vice-pres., 297 Congress st. Proby. brk.

BOSTON, MASS.—Public garage costing \$50,000, 1 sty. 250 x 80, will be built on Fordham rd. from plans drawn by Archts. Dykeman & Murray, 209 Washington st. Owner Wm. London, 18 Tremont st. Brk. and terra cotta.

BOSTON, MASS.—Machine shop and foundry costing \$900,000 will go up at the Navy Yard, Boston, for the United States Government. C. W. Parks, chief Bureau of Yards and Docks, Navy Department, Washington.

BOSTON, MASS.—Immigration station costing \$250,000 will go up in Boston. Supervising Architect, J. A. Wetmore, Treasury Department, Washington, D. C. Owner, United States Government, Washington.

WESTBORO, MASS.—Ward bldg. will be altered at a cost of \$25,000 by Archts. Kendall, Taylor & Co., 93 Federal st., Boston. Owner Commonwealth of Mass., comrs. on Mental Disease, State House, Boston, H. O. Spaulding, M. D., supt., Westboro.

WORCESTER, MASS.—Rockwood Sprinkler Co., 38 Harlow Street, plans to build a one-and-two-story, 107 x 300 ft., steel and concrete addition at a cost of \$50,000.

## MICHIGAN

BATTLE CREEK, MICH.—Hostess House costing \$50,000 is contemplated. Archts. Smith, Coppler & Budd, 527 5th, N. Y. C. Owner Natl. Y. W. C. A., 17 S. State st., Chicago. Tallmadge & Watson, representatives.

CRYSTAL FALLS, MICH.—Hotel will be rebuilt at a cost of \$35,000. 3 sty. Archt. Derrick Hubert, Menominee, Mich. Owner Lockwood Hotel, Crystal. Contemplated.

DETROIT, MICH.—Factory to cost \$30,000 is contemplated by the Hoensheid Steel Treating Co., 845 W. Fort St.

DETROIT, MICH.—Detroit Edison Co., David Whitney Building, is having plans drawn for a locomotive crane shed to cost \$46,000.

DETROIT, MICH.—Church costing \$20,000 has been designed by Archt. Chas. Bolton & Son, 1321 Walnut St., Philadelphia, Pa., for Trinity Reformed Church, Rev. F. W. Bald, pastor, 7 Mile rd. & Lake av., Detroit.

DETROIT, MICH.—J. G. Kastler & Co., Architects. 524 Chamber of Commerce Building, have prepared plans for a bakery and store, three stories and basement, 63 x 156, to cost \$100,000, and to be erected at Michigan Avenue and Herbert Street, for Polonia Baking Co., 320 Thirtieth Street. Brick, stone and terra cotta.

DETROIT, MICH.—Hospital laboratory, operation room and office, one story and basement, 70 x 90, has been designed by Louis Kamper, Architect, 752 Book Building, for the House of Providence, N. E. corner W. Grand Boulevard and Fourteenth Avenue. General contract let to John Finn & Son, 2375 Woodward Avenue.

FERNDALE, MICH.—Village plans \$75,000 to build high school costing \$75,000. J. C. Graves, clerk.

MARINE CITY, MICH.—S. C. McLouth plans to build one-story, 50 x 100 ft., reinforced concrete and steel mill building and 40 x 80 ft. jig mill, concrete foundation, at shipyards.

## MINNESOTA

MANKATO, MINN.—City plans the erection of a school to cost \$100,000.

MINNEAPOLIS, MINN.—Lincoln Co. had plans prepared by J. A. Burner, Architect, 545 McKnight Building, for three-story, 74 x 85 ft., brick courthouse costing \$100,000.

## MISSISSIPPI

CLARKSDALE, MISS.—Sommers & Landry will erect two-story business building to replace structure lately damaged by fire. Brick; \$30,000.

## MISSOURI

INDEPENDENCE, MO.—National Supply Co. is having plans prepared by Mills, Rhines, Bellman & Nordhoff, 1234 Ohio Building, Toledo, Ohio, for warehouse and office building costing \$75,000.

JOPLIN, MO.—Hotel Annex (servant's room, laundry & engine room) is proposed. Cost, \$30,000. 2 sty. & bas. 60 x 120. Archt. A. C. Michaelis Miners Bank bldg. Owner Connor Hotel Co.

## NEW HAMPSHIRE

PORTSMOUTH, N. H.—United States Government, C. W. Parks, chief Bureau of Yards and Docks, Navy Department, Washington, D. C., plans erection of emergency hospital buildings costing \$75,000.

## NEW JERSEY

BAYONNE, N. J.—Taintor Mfg. Co., First Street and Lexington Avenue, plans to improve and extend plant at a cost of \$50,000.

BLOOMFIELD, N. J.—General Electric Co., Schenectady, N. Y., contemplates building one-story, 90 x 190 ft., steel and brick power house, concrete foundation, to cost \$100,000.

CAMDEN, N. J.—Delaware Shipbuilding & Repair Co., 308 Chestnut Street, Philadelphia, Pa., purchased 12-acre site at Beach and Erie Streets and plans to build shipbuilding plant. J. J. Turney, president.

EAST PATERSON, N. J.—Board of Education, C. Roth, president, plans to build two-story brick school in Dundee Lake section. \$60,000.

EDGEWATER, N. J.—Warner Sugar Refinery Co., 79 Wall Street, New York City, is having plans prepared for five-story, 55 x 96 ft., brick warehouse.

NEWARK, N. J.—Laundry will be erected at an expense of \$35,000 at Wilsey and New Streets. One story, 221 x 285. Architect, E. H. Fougner, 800 Broad Street.

NEWARK, N. J.—The Columbus Crystal Co. is to expend \$25,000 for the erection of a large one-story building in Avenue R. The structure, which is to be used as a storeroom, will measure 100 x 185 feet in ground dimensions. It will be constructed of hollow tile brick.

PATERSON, N. J.—Public school will be built at a cost of \$60,000. 2 sty. Probable Archts. Chas. E. Sleight & Son, 136 Washington st., Paterson.

PAULSBORO, N. J.—Ft. Mifflin Shipbuilding Corp., Widener Building, Philadelphia, Pa., had plans prepared for plant here, consisting of one-story, 60 x 580 ft., and one-story, 120 x 175 ft., plate shop; one-story, 76 x 350 ft., forge shop; one-story, 60 x 175 ft., copper shop; two-story, 60 x 200 ft., paint shop; one-story, 100 x 530 ft., erecting shop; two-story, 100 x 530 ft., joiner shop, etc. L. A. Gilliam, general manager.

TRENTON, N. J.—Warehouse costing \$25,000, one story, 50 x 300, will go up at Twenty-third and Hayes Avenue, Camden, for R. H. Beaumont, 1043 Drexel Building, Philadelphia, Pa. General contract let to J. S. Rogers Co., Moorestown, N. J.

TRENTON, N. J.—One-story storage bldg. costing \$20,000 will go up at New Rose st. Archt. J. O. Hunt, 114 Montgomery st. Owner Sanitary Ice & Coal Co., Wm. B. Maddock, pres., on prem. Brk.

TRENTON, N. J.—Church, Sunday school & parsonage costing \$25,000 are to be erected at Broad st. & Annabella av., Trenton. Archts. C. W. Bolton & Son, 1321 Walnut st., Phila., Pa. Owner Pilgrim Presby. Church, Rev. J. A. Hughes, Annabella st., Trenton. Brk. construction.

#### NEW YORK

ALBANY, N. Y.—Herkimer County, N. Y., propose a \$125,000 tuberculosis hospital. Archts. R. E. Sluyter, 1st Nat'l Bank bldg., Herkimer, & Pembr & Campaigne, 24 James st., Albany, N. Y., & Ilium bldg., Troy, N. Y.

BROOKLYN, N. Y.—Carlson & Wiseman, Architects, 226 Henry Street, are drawing plans for a hospital, four stories, 80 x 80, to cost \$70,000.

BROOKLYN, N. Y.—Cohn Bros., 363 Stone Avenue, Brooklyn, N. Y., have plans for a two-story brick garage to cost \$35,000 for R. Cohen, 225 Park Avenue, New York.

BROOKLYN, N. Y.—Baptist Congregation of the Redeemer had plans prepared by Helmle & Corbett, Architects, 190 Montague Avenue, for church, Ocean Avenue. About \$65,000.

BROOKLYN, N. Y.—Archts. & Engrs. C. D. Cooley Co., Century bldg., Pittsburgh, have plans for a bakery costing \$50,000. Owner B. A. Cushman Co., Inc., 772 Nostrand av., Brooklyn. Brk. Drawing plans.

BROOKLYN, N. Y.—Board of Education is having plans prepared by C. B. J. Snyder, Architect, Municipal Building, New York City, for six-story, 143 x 145 ft., school on West Seventeenth Street. Cost will be \$150,000.

BROOKLYN, N. Y.—Jay & Johnson Corp., Jay and Johnson Streets, is having plans prepared by H. Holder, Architect, 242 Franklin Avenue, for altering and repairing six-story factory with two-story, 50 x 96 ft., brick addition, at a cost of \$50,000.

BUFFALO, N. Y.—Archts. Lewis & Hill, Brisbane bldg., have plans for stores and apartments to cost \$20,000. 2 stry. 60 x 65. Jefferson & East Utica sts. Owner John Loflin, 609 Lafayette av.

BUFFALO, N. Y.—The United States Hame Mfg. Co., 135 Tonawanda Street, Buffalo, will build a four-story addition to its plant, 30 x 50 ft. and 30 x 84 ft., at an estimated cost of \$25,000.

ERIE, N. Y.—The Modern Tool Co., Erie, will enlarge its plant by the erection of an addition to cost \$70,000.

NEW YORK, N. Y.—L. F. J. Weiher, Architect, 271 East 125th Street, has plans in progress for repairing six-story brick factory on Lafayette Street at a cost of \$40,000.

NEW YORK, N. Y.—Seven-story, 50 x 92, store and apartment, at 52 W. Seventy-second Street, will be altered at a cost of \$40,000 by Irving Margon, Architect, 355 E. 149th Street.

NEW YORK, N. Y.—Board of Education is having plans prepared by C. B. J. Snyder, Architect, Municipal Building, for five-story, 60 x 142 ft., brick school addition on Tremont Avenue. \$300,000.

NEW YORK, N. Y.—Storage building and offices costing \$20,000, four stories, 50 x 80, 551-553 W. Twenty-second Street, have been designed by Renwick, Aspinwall & Tucker, Architects, 8 W. Fortieth Street. Owner, Margaret C. MacNuts, 191 Ninth Avenue.

NEW YORK, N. Y.—John Wanamaker, Tenth Street and Broadway, has retained Thomas W. Lamb, Architect, 644 Eighth Avenue, to design a three-story photo studio costing \$40,000, to be erected at Park Avenue and 175th Street.

NEW YORK, N. Y.—D. Everett Waid, Architect, 1 Madison Avenue, has designed a ten-story store and loft building, costing \$350,000, to go up at 38-42 E. Twentieth Street. Owner, Dr. Charles E. Nammack, 42 E. Thirty-ninth Street. Builder, Fred. F. French Co., 299 Madison Avenue.

NEW YORK, N. Y.—Clubhouse to cost \$125,000 will go up on Green Island, Bolton Landing, N. Y. Architect, C. A. Patterson, 15 E. Fortieth Street, New York City. Owner, Green Island Improvement Co., John Boulton Simpson, president, 12 W. Forty-fifth Street, New York City.

OSWEGO, N. Y.—Hessler Fdry. & Mfg. Co., Mitchell Street, plans to rebuild plant recently destroyed by fire. Loss, \$100,000. G. J. Hessler, president.

POUGHKEEPSIE, N. Y.—One-story, 60 x 180, factory addition to cost \$40,000 is proposed. Owner, Knickerbocker Motors, Inc., care W. C. Guilder.

ROCHESTER, N. Y.—Church and parish house will be erected at a cost of \$75,000, one story, 40 x 80. Foster & Gade, Architects, 132 Sibley Block, have drawn plans. Owner, St. John's Mission, Dr. John K. Burleson, care St. Paul's Episcopal Church, East Avenue, corner Vick Park.

#### NORTH CAROLINA

BELHAVEN, N. C.—City will build electric light plant to cost \$25,000.

#### OHIO

AKRON, OHIO.—Factory and office to cost \$50,000 has been designed by Henry & Murphy, Architects, Second National Bank Building, for the Kelly-Springfield Co., Thomas C. Marshall, general superintendent, Kelly Avenue. East Akron. General contract let to W. A. Franklin & Son Co., 146 N. Howard Street.

CINCINNATI, OHIO.—Le Blond Machine Tool Co., Eastern Avenue, contemplates building two-story reinforced concrete and brick factory, reinforced concrete floor, on Eastern Street, to cost \$50,000. G. Drake, Union Trust Building, has drawn plans.

CLEVELAND, OHIO.—Van Dorn & Dutton, 2978 Woodhill Road, plans to build one-and-two-story, 60 x 178 ft., brick and concrete factory costing \$40,000.

CLEVELAND, OHIO.—Chemical plant (eighteen buildings) will be erected at a cost of \$1,500,000 for Union Chemical Co., Cleveland. Builders, J. H. Ott & Co., 1340 Chestnut Street, Philadelphia.

CLEVELAND, OHIO.—Art school will be erected at a cost of \$30,000 on Juniper Road and Magnolia Drive. Architects, Hubbell & Benes, 4500 Euclid Avenue. Owner, Cleveland School of Art, Georgia T. Norton, Juniper Road and Magnolia Drive.

COLUMBUS, OHIO.—A \$70,000 apartment building, three stories and basement, 60 x 112, will be erected at Franklin and Parsons Avenue, from plans prepared by J. Edgar Outcalt, Architect, 1014 Columbus Savings & Trust Building. Owner, H. C. Ludwig, Columbus Savings & Trust Building. Brick.

DAYTON, OHIO.—E. J. Mountstephen, 805 W. B. Building, is Architect for high school, two stories, brick, steel and reinforced concrete, costing \$80,000.

LAKEWOOD, OHIO.—Factory (add.): \$100,000. 2 sty. 60 x 500. Halstead Avenue, Lakewood, Ohio. Archt. A. M. Dean, care owner, Templar Motor Car Co., M. P. Gramley, pres., 736 S. Guardian bldg.

LIMA, OHIO.—A. C. DeCurtins, Architect, 503 Opera House Block, has designed a bank costing \$50,000 for the Citizens Loan & Building Co., Owen Francis, president, 321 N. Main Street.

LORAIN, OHIO.—Archt. Chas. E. Oelschlager, 1613 Walnut Street, Philadelphia, has plans for residence: \$20,000. 2½-story, 45 x 73, for P. J. Cullen, 558 Brownell Avenue, Lorain. Brick and frame.

LORAIN, OHIO.—Baltimore & Ohio R. R., Columbus Road and Champlain Avenue, Cleveland, proposes building one-and-two-story reinforced concrete, steel and brick railroad shop, boiler house and storeroom. Cost, \$150,000.

ORRVILLE, OHIO.—Ohio Blower Co., Detroit and West Ninety-third Streets, Cleveland, plans to build two-story plant, reinforced concrete and brick, to include machine shop, pattern shop and foundry, and to cost \$100,000.

STEELTON, OHIO.—Sixty residences will go up in Steelton, Ohio, at a cost of \$240,000 for the Carnegie Steel Co., J. D. Fladd, East Youngstown, Ohio. Frame, two stories and basement, 24 x 30.

WARREN, OHIO—Permanent headquarters for the War Savings campaign, Market Street and Court House Park, will be erected. Permanent foundation, 18 x 14, frame.

YOUNGSTOWN, OHIO—A \$75,000 bakery has been designed by C. D. Cooley & Co., Architects and Engineers, Century Building, Pittsburgh, Pa., for the Youngstown Bread Co., Mahoning and Floral Avenues, Youngstown.

YOUNGSTOWN, OHIO—Plans have been drawn for \$20,000 residence and garage. Architect, R. J. Keich, 409 Western Reserve Bank Building, Warren. Owner, F. D. Waddell, 124 Fortes Avenue, Youngstown, Ohio.

ZANESVILLE, OHIO.—Y. M. C. A. will erect a \$250,000 bldg. 4 sty. & bas. 132 x 140. Assoc. Archts. C. D. McLane, 301 Robinson bldg., Rock Island, Ill & A. A. Hanson, Peoples Bank bldg., Zanesville. D. S. Snedekar, secy. Y. M. C. A., Main, nr. 3d. Zanesville. Plans drawn.

#### OREGON

PORTLAND, ORE.—The Marshall Wells Hdw. Co., Johnson and Fifteenth Streets, Portland, have retained MacNaughton & Raymond, Concord Building, to design a concrete warehouse, 100 x 200 ft., costing \$50,000. General contract has been awarded to Thos. Muir, Henry Building.

#### PENNSYLVANIA

BRISTOL, PA.—Hospital costing \$75,000 will be erected from plans by Carroll H. Pratt, Architect, Bristol. Owner and builder, Merchants Shipbuilding Co., W. F. Smith, city manager, Bristol.

CLAIRTON, PA.—Three story grade school costing \$85,000 will go up at Miller av., Baker & School sts., Clairton, Pa. Archt. C. W. Bates, 701 National Bank bldg., Wheeling. Owner B. of E., Dr. A. W. Colcord, pres., Holcomb & 3d sts., Clairton.

ERIE, PA.—Triangle Tool Co. increased capital from \$30,000 to \$100,000 to build extensions to plant.

GRANVILLE, PA.—Hauer & Mowere, 3110 W. Columbia Avenue, Philadelphia, have designed a four-story brick hospital for the Knights of Malta, Granville, Pa.

PHILADELPHIA, PA.—Marlin Rockwell Corp., Fiftieth and Lancaster Avenues, plans to alter two-story 305 x 598 ft., factory at a cost of \$30,000. L. Delaney has drawn plans.

PHILADELPHIA, PA.—Nine-story office building, 38 x 138, costing \$100,000, will go up at Richmond and Norris Streets, for Wm. Cramp & Sons, M. W. Hand, vice-president, on premises. General contractor, Stacey Reeves, 2011 Market Street.

PITTSBURGH, PA.—Top add. costing \$60,000, 1 sty. 70 x 150, is proposed for store at Penn av. & Cecil way. Archt. Thomas Hannah, 209 9th st. Owner Joseph Horne Co., Penn & 5th st. Brk., tile & re. conc.

PITTSBURGH, PA.—Braun Bros. Baking Co., Island Avenue and Magnolia Street, proposes building two-story, 50 x 75 ft., brick and reinforced concrete bakery addition costing \$125,000. C. D. Cooley & Co., Century Building, Architects.

PITTSBURGH, PA.—A one-story and basement, 50 x 162, garage to cost \$20,000 will go up at Luna Street, Pittsburgh, Pa. Architect, R. C. Clark, 208 S. La Salle Street, Chicago. Owner, Hammond Packing Co., G. A. Nickholds, superintendent, 6400 Hamilton Avenue, Pittsburgh. Reinforced concrete.

WEST CHESTER, PA.—Stewardson & Page, Architects, 316 Walnut Street, Philadelphia, Pa., have prepared plans for a hospital addition to cost \$35,000, one story and basement, 41 x 39. Owner, Chester County Hospital, Dr. Edw. Kerr, chairman Building Committee, 141 E. Lancaster Street, Downingtown, Pa.

WHEATLAND, PA.—Grade school has been designed by Architect E. E. Clepper, First National Bank Building, Sharon, Pa., for the Board of Education of Wheatland school district. J. M. Roulebush, secretary, Wheatland, Pa.

WILLIAMSPORT, PA.—West Branch Steel Co., 25 West Third Street, increased capital from \$100,000 to \$300,000 and plans to build extensions.

#### RHODE ISLAND

BRANCH VILLAGE, R. I.—(Providence P. O.)—Housing Facilities—Andrews Mills Co. proposes building twelve two-and-one-half story, 28 x 40 ft., brick and frame houses, concrete foundation, to cost \$55,000.

MIDDLETOWN, R. I.—Newport, Fall River & Providence Hotel Association plans to build six-story concrete and brick hotel on Easton's Beach to cost \$700,000.

#### TENNESSEE

JACKSON, TENN.—Union University, H. E. Watters, president, has plans by R. A. Heavener, Jackson, for repairing dormitory to replace burned structure, three stories, brick, \$15,000.

MEMPHIS, TENN.—General Hospital to cost \$400,000 is being designed by Archts. S. Hannaford & Son., 6th fl., Hubert blk., Cincinnati, for Meth. Hosp. Assn., care L. M. Stratton, Memphis.

#### TEXAS

AUSTIN, TEX.—University of Texas, Dr. R. E. Vinson, president, is considering the enlargement of radio school and automobile school. Cost, \$800,000.

DALLAS, TEX.—Baylor Medical College is reported considering the erection of a six-story additional building, brick, at a cost of \$75,000.

#### VIRGINIA

IVY, VA.—Archdeacon F. W. Neve and others are interested in erection of a school as memorial to Meriweather Lewis. It is planned to erect a \$75,000 structure.

NORFOLK, VA.—Store and office building costing \$25,000, two stories, 81 x 117, will go up at 229-233 Granby Street. Peebles & Ferguson, Architects, Law Building, have prepared plans. Owner, Benjamin Lowenberg, Columbia Building. General contract let to Johnson Constr. Co., Law Building.

RICHMOND, VA.—Four-story hospital costing \$150,000 will be erected at Mulberry st. & Grove av., 130 x 80. Archts. Carneal & Johnson, Chamber of Commerce bldg. Owner Retreat for the Sick, 319 N. 12th st.

#### WASHINGTON

SEATTLE, WASH.—F. Waterhouse & Co., Central Building, plans to build shipping terminals to include wharf 900 ft. long, 150 ft. wide. Cost, \$3,500,000.

SEATTLE, WASH.—Organized labor has purchased a lot at the northeast corner of Market and Thirteenth Streets as a site for a labor temple which will be three stories, 90 x 120 ft., and cost \$125,000. Plans have not yet been drawn for the structure.

SEATTLE, WASH.—The erection is contemplated of several buildings for training officers during the inclement weather, two buildings for clothing and hat repairing estimated to cost \$17,000, additions to the heating plant of the base hospital and four other structures, two 40 x 52 and two 40 x 26 ft. They will cost \$23,250 and are all for Camp Lewis.

#### WEST VIRGINIA

HUNTINGTON, W. VA.—O. J. Morrison Department Store Co., Charleston, is having plans prepared by L. J. Dearn, Architect, for six-story, 65 x 160 ft., store.

#### WISCONSIN

KEWAUNEE, WIS.—The Wisconsin Shipbuilding & Navigation Co. has acquired 40 acres in Kewaunee and is having plans prepared for a plant to cost over \$200,000.

PLAIN, WIS.—St. Luke's congregation is having plans drawn by H. T. Liebert, Architect, Wausau, for church building, rectory and residence. About \$100,000.

### FIRE LOSSES

*Reports of fires published in this department include only cases in which the magnitude of losses sustained and the surrounding circumstances indicate the probability of restoration or reconstruction.*

BALTIMORE, MD.—Fire broke out at 326 W. Baltimore Street, damaging the Baltimore Umbrella Mfg. Co. to the extent of \$60,000.

CAMDEN, N. J.—Fire damaged the plant of the N. Y. Shipbuilding Co. at Camden, N. J., to the extent of \$1,000,000.

PITTSBURGH, PA.—Munhall High School, Eleventh Avenue and Martha Street, suffered a \$50,000 fire loss.

TOLEDO, OHIO.—Fire in the one-story brick roundhouse and repair shop of the Terminal Railway, New York Avenue and City Boulevard, destroyed the building at a loss of \$90,000.



Stained with Cabot's Stucco Stains  
Harland A. Perkins, Architect, Boston

## A Four-Year Record of Cabot's Stucco Stains

Gentlemen: Wakefield, Mass., November 11, 1911.  
Last spring I used over two hundred gallons of your Waterproof Cement Stains on Miss Boit's new house at Wakefield. This was a job I was very particular to have right, and I am glad to say your material has proved entirely satisfactory in every way.

JAMES F. SHERRITT.

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In September, 1915, an examination of the Boit residence by an expert decorator showed that the Cabot's Cement Stains had worn so well and grown so soft and beautiful with age that he advised against re-coloring the stucco when the other parts of the house were painted. This is typical of the results obtained. These Stains tint stucco surfaces in soft, rich colorings that grow more charming under the action of the weather.

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5-5

# WINSLOW WINDOW

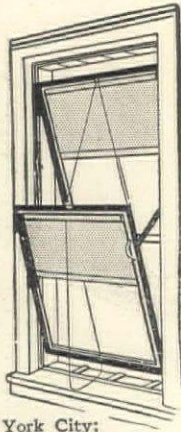
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- Solid rolled steel
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## It Costs No More to Use WATERLOO REGISTERS Than Other Kinds

But occupants of homes where these registers are used have the satisfaction of knowing that theirs are the very best.

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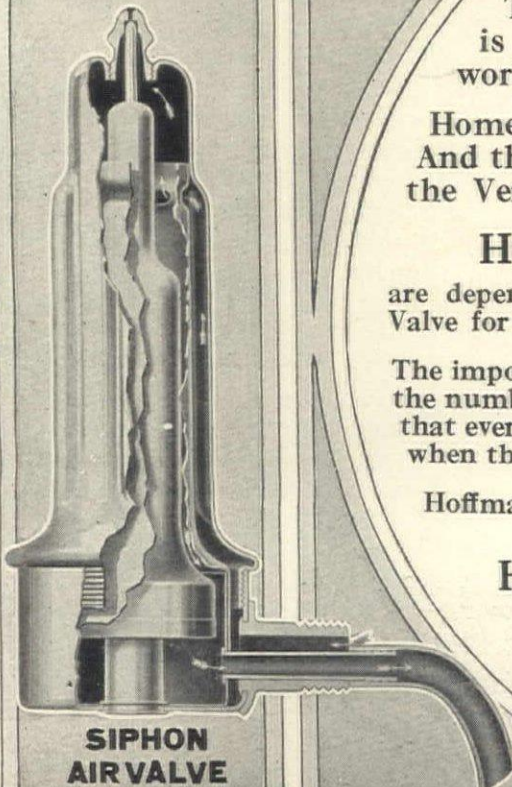
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Homes poorly heated cannot be comfortable. And they cannot be well heated, by steam, unless the Venting Valves are dependably operative.

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The importance of insuring full heating service is multiplied by the number of houses involved. It means a lot to make certain that every radiator in every house shall operate to full capacity when the proper steam pressure is on.

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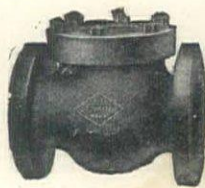


Fig. 295

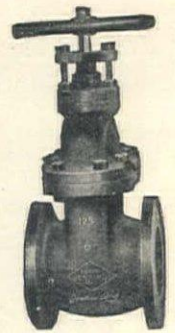
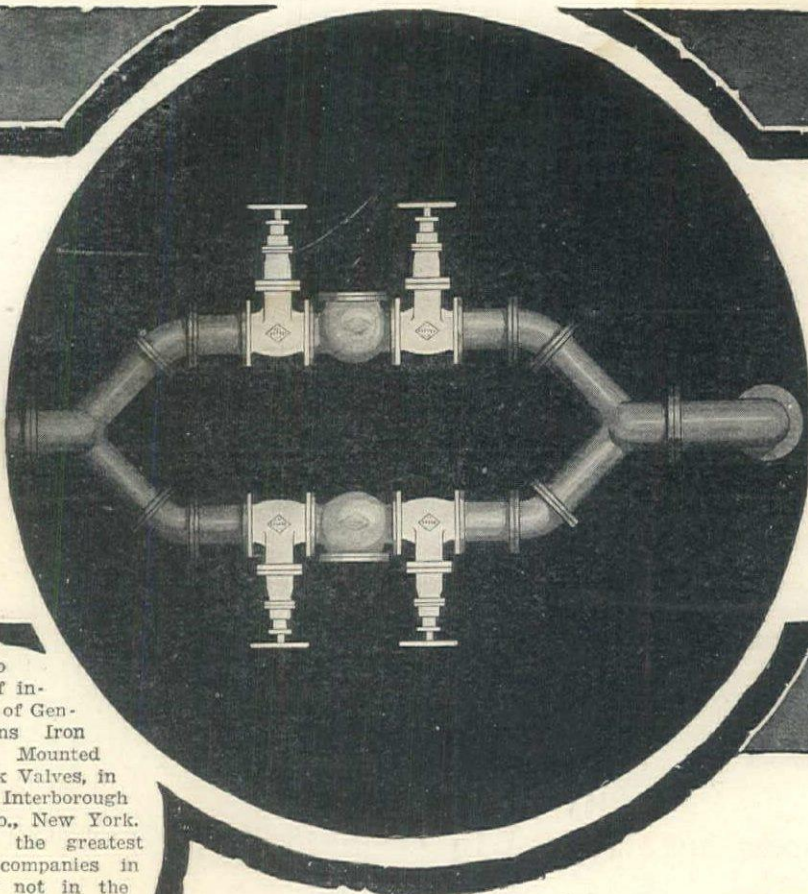


Fig. 326

Two views of installations of Genuine Jenkins Iron Body Brass Mounted Gate and Check Valves, in the plant of the Interborough Rapid Transit Co., New York. This is one of the greatest street railway companies in the country—if not in the world. Where dependability counts—there you will find the Diamond Trade Mark.

## The Lever Controlling a

**A**ND a valve spindle is only a spindle—but—

When it comes to suddenly closing the valve, "putting on the brake," the spindle must be dependable.

parts, made of metals specially chosen for the job in hand.

That is why the spindle of a Genuine Jenkins Valve, like the rest of the valve, lasts and lasts and lasts—and at all times gives dependable, quality service.

You turn the wheel, and the spindle accurately directs the disc-holder (or wedge, in the case of a gate valve) to absolute contact with the valve seat.

### How Spindle Metals are Selected

In constructing spindles for various patterns of Genuine Jenkins Valves, as in making other parts, the con-

You should not have to think about such a small item as the valve spindle—or other small parts—in purchasing valves, and—you don't have to, when using Genuine Jenkins Valves. But you should know that different valves, designed for specific purposes, have spindles and other

Cross Section, Brass Globe Valve.



Brass Globe Valve.

*Spindle of Jenkins Valve, made redhot, beaten with hammer, and tied into a knot—without even cracking.*



Specify VALVES:  
JENKINS (Diamond Trade Mark)





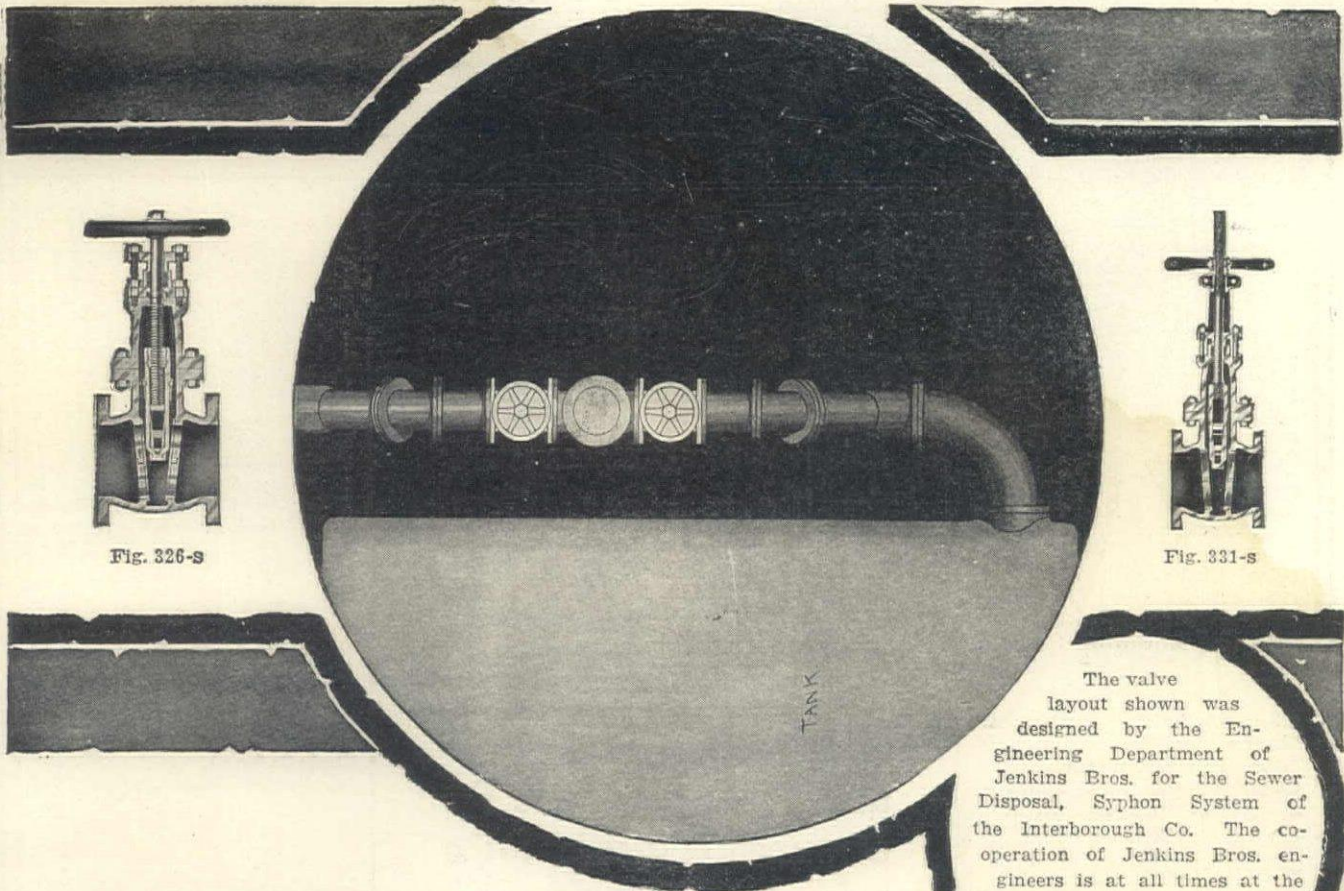


Fig. 326-s

Fig. 331-s

The valve layout shown was designed by the Engineering Department of Jenkins Bros. for the Sewer Disposal, Syphon System of the Interborough Co. The cooperation of Jenkins Bros. engineers is at all times at the service of customers in planning difficult or unusual equipment layouts.

## Brake Is Only a Lever

ditions to be met govern the selection of the metals.

In addition to the tensile strength required to withstand rough human handling, spindle metals must be able to withstand corrosion.

Note that all Genuine Jenkins brass and iron body globe, angle, cross and Y valves, standard and extra heavy patterns, and gate valves of the inside screw pattern, have manganese bronze spindles.

Gate valves of the outside screw and yoke pattern are regularly made with steel spindles.

The latter *can*, however, be furnished with manganese bronze spindles (instead of steel) at slight additional cost, and are recommended for all places where corrosion might occur.

All steel valves have spindles of monel metal, a natural alloy of 70% nickel, with very high tensile strength, which expands and contracts almost as does cast steel.

—and so for other valves for special purposes, the spindle, like the rest of the valve, is constructed to meet the specific requirements of the service in hand.

Do *you* know absolute dependability?

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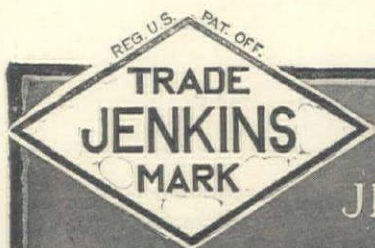
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American Elevator & Machine Co., Inc. 36  
 American Lead Pencil Co. (o.a.m.).....  
 American Pressweld Radiator Corp.  
 (e.f.w.)..... 38  
 American Rolling Mill Co., The (e.f.w.)...  
 American Sheet & Tin Plate Co. .... 37  
 American Steel & Wire Co. .... 37  
 Associated Tile Mfrs., The (e.f.w.).....  
 Atlas Portland Cement Co. .... 35  
 Automatic Refrigerating Co. (e.f.w.).....

Barrett Co. (e.f.w.).....  
 Benjamin Elec. Mfg. Co. (e.o.w.).....  
 Berger Mfg. Co., The ..... 34  
 Best Bros. Keene's Cement Co. (e.o.w.)...  
 Bishopric Mfg. Co., The ..... 34  
 Bostwick Steel Lath Co. (e.o.w.).....  
 Boyle, John. & Co., Inc. ....  
 Buffalo Forge Co. ....

Cabot, Samuel, Inc. .... 27  
 Cahill Iron Works, The ..... 34  
 California Redwood Assn. (o.a.m.).....  
 Campbell, Walter M. .... 36  
 Carey, Philip, Co., The (e.f.w.).....  
 Carrier Air Conditioning Co. of America. 35  
 Carter, Ralph B., Co. .... 35  
 Carter White Lead Co. ....  
 Chase & Co., L. C. ....  
 Cheney Bros. (o.a.m.).....  
 Concrete Engineering Co. ....  
 Corbin, P. & F. .... 2  
 Corrugated Bar Co. (o.a.m.).....  
 Crampton-Farley Brass Co. (e.o.w.)... 37  
 Crittall Casement Window Co. (e.o.w.)...

Detroit Steel Products Co. .... 40  
 Dixon Crucible Co., Jos. .... 36  
 Dunham, C. A., Co. (o.a.m.).....

Edwards Mfg. Co. .... 36

General Electric Co. (e.o.w.).....  
 General Fireproofing Co. ....  
 Gillis & Geoghegan (e.o.w.).....  
 Glidden Co., The .....  
 Globe Automatic Sprinkler Co. ....

Hart & Hegeman Mfg. Co., The (e.o.w.) . 37  
 Hart Mfg. Co. (e.f.w.)..... 38  
 Hartmann-Sanders Co. (o.a.m.).....  
 Hawley Down Draft Furnace Co. .... 34  
 Hemlock Manufacturers, The (o.a.m.)....  
 Higgins & Co., Chas. M. (e.o.w.).....  
 Hoffman Specialty Co. .... 27

Imperial Paint Co. (e.f.w.).....  
 Indiana Limestone Quarrymen's Ass'n  
 (o.a.m.).....

Jenkins Bros. .... 28, 29  
 Johns-Manville Co., H. W. .... 36

Kimball Co., W. W. .... 35

Lupton's, David, Sons Co. (e.o.w.).....

Magnesia Assn. of America (e.f.w.).....  
 Majestic Co., The .....  
 Midland Terra Cotta Co. (e.o.w.).....  
 Mississippi Wire Glass Co. .... 34  
 Mitchell Tappan Co. (e.o.w.).....  
 Mitchell Vance Co., Inc. .... 34  
 Muller, F. R., & Co. .... 36  
 Murphy Varnish Co. (o.a.m.).....

National Building Granite Quarries Asso-  
 ciation, Inc. .... 35  
 National Kellastone Co., The ..... 34  
 National Metal Molding Co. (e.f.w.).....

Okonite Co. (e.o.w.).....  
 Otis Elevator Co., The ..... 36

Patton Paint Co. ....  
 Pitcairn Varnish Co. ....  
 Pomeroy, S. H., Co., Inc. .... 37

Raymond Concrete Pile Co. .... 35  
 Richards-Wilcox Mfg. Co. (o.a.m.)..... 31  
 Rising & Nelson Slate Co. .... 36

Samson Cordage Works. .... 35  
 Society of Beaux Arts Architects. .... 36  
 Standard Oil Cloth Co., Inc., The ..... 34  
 Stanley Works. .... 35

Trus-Con Laboratories, The (o.a.m.)....  
 Truscon Steel Co. .... 39

United Lined Tube & Valve Co. .... 36  
 United States Rubber Co. (o.a.m.).....  
 University of Michigan. .... 36  
 University of Notre Dame. .... 36

Waterloo Register Co. .... 27  
 Weisz, G. A. .... 36  
 Western Brick Co. (e.o.w.).....  
 Wilson, J. G., Corp., The .....  
 Winslow Bros. Co. .... 27  
 Wolff, L., Mfg. Co. (e.o.w.).....  
 Wright Wire Co. (o.a.m.).....

Yale & Towne Mfg. Co. (o.a.m.).....  
 Yale School of Fine Arts. .... 36

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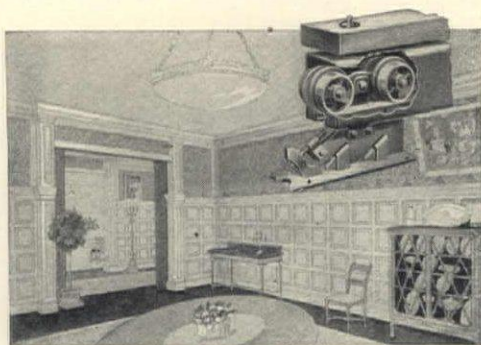


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# DIGEST

## Of Manufacturers' Data

### ARCHITECTS' OFFICE EQUIPMENT

#### PENCILS:

Dixon Crucible Co., Jos., Jersey City, N. J.

### CASEMENT WINDOWS

#### METAL:

Pomeroy Co., Inc., S. E., 30 E. 42d St., N. Y.

### CEMENT AND PLASTER

#### CEMENT:

Atlas Portland Cement Co., The, 30 Broad St., New York. Manufacturers of Atlas Portland Cement and Atlas-White Portland Cement. Sales Offices: Chicago, Philadelphia, Boston, St. Louis, Minneapolis, Des Moines, Dayton, Savannah. Mills: Northampton, Pa.; Hudson, N. Y.; Hannibal, Mo. Sales Manager: C. A. Kimball.

#### PLASTER:

National Kellastone Co., The, Chicago, Ill.

#### SPECIALTIES:

Truscon Steel Co., Dept. 68, Youngstown, Ohio. Representatives in principal cities. Corner beads, "Kahn" curb bars, "Trus-Con" slotted inserts; "Kahn" adjustable inserts; "Trus-Con" National socket inserts; "Kahn" elastic filler and armor plates for expansion joints.

#### STUCCO:

National Kellastone Co., The, Chicago, Ill.

### CONCRETE REINFORCEMENT

#### REINFORCEMENT:

American Steel & Wire Co., Chicago-New York. Berger, The, Mfg. Co., Canton, Ohio. Truscon Steel Co., Dept. 68, Youngstown, Ohio. Representatives in principal cities. "Kahn" System reinforced concrete; "Kahn" bars; "Rib" bars; "Rib" lath; "Florestyles," "Floredome," etc.; flat and beamed ceilings of all types.

### DAMP-PROOFING

(See Water and Damp-proofing)

### DAYLIGHTING

Berger, The, Mfg. Co., Canton, Ohio.

### DOORS AND TRIM

#### HOLLOW STEEL DOORS:

Interior Metal Mfg. Co., Jamestown, N. Y.; Bankers Trust Bldg., 501 Fifth Ave., New York. Hollow steel doors in all standard sizes.

#### SLIDING DOOR EQUIPMENT:

Richards-Wilcox Mfg. Co., Aurora, Ill.

#### STEEL ROLLING DOORS:

Edwards Mfg. Co., The, 319-349 Eggleston Ave., Cincinnati, O. Send specifications for estimate.

### DUMB WAITERS

Sedgwick Machine Wks., 159 W. 15th St., N. Y.

**T**HIS department is intended to assist our subscribers in readily determining the names and addresses of manufacturers of products in which they may be interested, together with brief data about their material.

The headings and sub-headings are arranged alphabetically and have been selected in accordance with the intent of meeting the architect's thought in preparing his specifications.

If the information desired is not found here, it will gladly be supplied by the Service Department of THE AMERICAN ARCHITECT.

### ELECTRICAL EQUIPMENT AND SUPPLIES

#### CONDUITS AND FITTINGS:

National Metal Molding Co., 1111 Fulton Bldg., Pittsburgh, Pa. "NATIONAL" metal molding for surface wiring; "SHERADUCT" Sherardized and "ECONOMY" enameled conduit "FLEXSTEEL" flexible conduit and armored cable and a complete line of fittings.

Youngstown (O.) Sheet & Tube Co. "Buckeye" rigid conduit. "Realflex" armored conductor.

#### DOOR OPENERS:

Richards-Wilcox Mfg. Co., Aurora, Ill.

#### OUTLET BOXES:

Hart & Hegeman Mfg. Co., Hartford, Conn.

#### RECEPTACLES:

Hart & Hegeman Mfg. Co., Hartford, Conn. Hart Mfg. Co., Hartford, Conn.; N. Y. C., Boston, Chicago, Denver, San Francisco, Detroit, Toronto.

#### SOCKETS:

Hart & Hegeman Mfg. Co., Hartford, Conn.

#### SWITCHES:

Hart & Hegeman Mfg. Co., Hartford, Conn. Hart Mfg. Co., Hartford, Conn.; N. Y. C., Boston, Chicago, Denver, San Francisco, Detroit, Toronto. "Diamond A" Push Button; Rotary and Snap; Remote Control; Hotel Door.

### ELEVATORS AND HOISTS

#### CONVEYORS:

Otis Elevator Co., 11th Ave. and 26th St., N. Y. C. Gravity spirals.

#### DOOR EQUIPMENT:

Richards-Wilcox Mfg. Co., Aurora, Ill.

#### ELEVATORS:

American Elevator & Machine Co., Louisville, Ky.

Otis Elevator Co., 11th Ave. and 26th St., N. Y. C. Offices in principal cities of the world. Electric, hydraulic, belt and hand power, inclined freight elevators and escalators.

### ELEVATORS AND HOISTS Continued

#### ELEVATORS (Hand Power):

Sedgwick Machine Wks., 159 W. 15th St., N. Y.

#### ELEVATOR CABLE:

American Steel & Wire Co., Chicago-New York.

#### HOISTS (Ash):

Gillis & Geoghegan, 545 W. Broadway, N. Y. C. "The G. & G. Telescopic Hoist"; Model A, hand power cellar to sidewalk; Model B, cellar to wagon; Model C, like A, but electric power; Model D, like B, but electric power.

Otis Elevator Co., 11th Ave. and 26th St., N. Y. C. Automatic coal and ash hoists, blast furnace and ship hoists.

### FIREPROOFING MATERIALS

Johns-Manville, H. W., Co., N. Y. C.

#### METAL LATH:

Berger, The, Mfg. Co., Canton, Ohio.

Truscon Steel Co., Dept. 68, Youngstown, Ohio. Representatives in principal cities. "Hy Rib," "Rib" lath; "Diamond Mesh" lath.

### FIRE PROTECTION

#### AUTOMATIC FIRE DOOR HARDWARE:

Richards-Wilcox Mfg. Co., Aurora, Ill.

#### HOSE:

United States Rubber Co., New York City. Cotton-Rubber Lined; "Eureka" Paragon and "Red Cross" Brands. Unlined Linen-Hose; "Eureka Best," "Eureka 20th Century" and "Eureka Worthy" Brands.

### FLOORS

#### COMPOSITION:

Johns-Manville, H. W., Co., N. Y. C.

Franklyn R. Muller & Co., Waukegan, Ill.

National Kellastone Co., The, Chicago, Ill.

### FOUNDATIONS

#### PILES:

Raymond Concrete Pile Co., 140 Cedar St., N. Y. C. "Raymond" concrete piles are made by driving a reinforced steel shell which is left permanently in the ground. This shell is then filled with concrete.

### FURNITURE AND DECORATIONS DRAPERIES, UPHOLSTERIES, WALL COVERINGS:

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#### METAL:

Canton Art Metal Co., Canton, Ohio.

ALPHABETICAL INDEX OF ADVERTISERS ON PAGE 30

**HARDWARE**

**BOLTS:**

Corbin, P. & F., New Britain, Conn.

**BUILDERS' HARDWARE:**

Corbin, P. & F., New Britain, Conn.  
Richards-Wilcox Mfg. Co., Aurora, Ill.  
Stanley Works, The, New Britain, Conn.

**BUTTS AND HINGES:**

Corbin, P. & F., New Britain, Conn.  
Stanley Works, The, New Britain, Conn.  
(Ball-Bearing)—Steel, brass, bronze.

**DOOR CHECKS:**

Corbin, P. & F., New Britain, Conn.  
Richards-Wilcox Mfg. Co., Aurora, Ill.

**GARAGE HARDWARE:**

Richards-Wilcox Mfg. Co., Aurora, Ill.  
Stanley Works, The, New Britain, Conn. Garage door holders and garage door hinges.

**HEATING, VENTILATION  
PLUMBING**

**BLOWERS AND EXHAUSTERS:**

Buffalo Forge Co., Buffalo, N. Y.

**DRINKING FOUNTAINS:**

Cahill Iron Works, The, Chattanooga, Tenn.

**FLOOR DRAINS:**

Crampton-Farley Brass Co., Kansas City, Mo.

**FURNACES:**

Hawley Down Draft Furnace Co., Easton, Pa.

**LAUNDRY TUBS:**

Cahill Iron Works, The, Chattanooga, Tenn.

**LAVATORIES:**

Cahill Iron Works, The, Chattanooga, Tenn.

**PIPE, IRON:**

United Lined Tube & Valve Co., 173 Franklin St., Boston, Mass. Lead, tin or brass lined iron pipe.

**PIPE (Steel):**

Youngstown Sheet & Tube Co., Youngstown, O.

**RADIATORS:**

American Pressweld Radiator Corporation, Detroit, Mich. Branch offices in all principal cities.

**REGISTERS:**

Waterloo Register Co., Waterloo, Iowa.

**SINKS:**

Cahill Iron Works, The, Chattanooga, Tenn.

**SINKS (Slop):**

Cahill Iron Works, The, Chattanooga, Tenn.

**TANKS (Closet):**

Cahill Iron Works, The, Chattanooga, Tenn.

**TRAPS (Radiator):**

Johns-Manville Co., H. W., New York City.

**HEATING, VENTILATION,  
PLUMBING—Continued**

**TRAPS (Steam):**

Jenkins Bros., 80 White St., N. Y. C.  
Johns-Manville Co., H. W., New York City.

**TUBS (Bath):**

Cahill Iron Works, The, Chattanooga, Tenn.

**URINALS:**

Cahill Iron Works, The, Chattanooga, Tenn.

**VALVES (Air):**

Hoffman Specialty Co., 130 No. Fifth Ave., Chicago, Ill. Siphon Air valves; Siphon Air and Vacuum valves; "Air Line" valves; Junior Quick Vent Air valve; Quick Vent "Float" air valve; Quick Vent "Float" Air and Vacuum Valve; Return Line valve for vapor, vapor vacuum, modulating and vacuum heating systems; vapor vent valve.  
Jenkins Bros., 80 White St., N. Y. C.

**VALVES (Radiator):**

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Jenkins Bros., 80 White St., N. Y. C.

**VALVES (Water Line):**

Jenkins Bros., 80 White St., N. Y. C.

**VAPOR HEATING SYSTEMS:**

American Dist. Steam Co., No. Tonawanda, N. Y.

**VENTILATORS:**

Burt Mfg. Co., The, 77 Main St., Akron, O. Manufacturers of all types of ventilators, both stationary and revolving.

**HOISTS**

(See Elevators and Hoists)

**INSULATION (Sound and Heat)**

**BUILDING:**

Cabot, Samuel, Inc., Boston. "Cabot Quilt."  
Johns-Manville Co., H. W., New York City.

**LIGHTING FIXTURES**

**GLASSWARE:**

Mitchell-Vance Co., 503 W. 24th St., New York City.  
Northwood, H., Co., Wheeling, Lighting Glass.

**METAL:**

Mitchell-Vance Co., 503 W. 24th St., New York City.

**MUSICAL INSTRUMENTS**

**ORGANS:**

Kimball, W. W., Co., Chicago, Ill.

**ORNAMENTAL BRONZE AND  
IRON**

Polachek, John, Bronze & Iron Co., 480 Hancock St., Long Island City, N. Y.  
Winslow Bros. Co., 4600 W. Harrison St., Chicago, Ill.

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**PAINT (Steel Protective):**

Dixon, Joseph, Crucible Co., Jersey City, N. J.

**STAINS:**

Cabot, Samuel, Inc., Boston. "Cabot's" Creosote Stains, Stucco Stains, Brick Stains, Old Virginia White and Old Virginia Tints.

**PARTITIONS**

**METAL:**

Berger, The, Mfg. Co., Canton, Ohio.  
Interior Metal Mfg. Co., Jamestown, N. Y.; Bankers Trust Bldg., 501 Fifth Ave., N. Y. Interchangeable Hollow Metal Partitions.

**SLIDING PARTITION EQUIPMENT:**

Richards-Wilcox Mfg. Co., Aurora, Ill.

**PLASTER**

(See Cement and Plaster)

**PLUMBING**

(See Heating, Ventilation, Plumbing)

**REFRIGERATION**

**REFRIGERATING APPARATUS:**

Johns-Manville, H. W., Co., New York City.

**ROOFING**

**ASBESTOS:**

Johns-Manville, H. W., Co., New York City.

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**SLATE:**

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**TILE (Reinforced-Cement):**

American Cement Tile Mfg. Co., Pittsburgh and New York. "Bonanza" roofing tile.

**SASH**

(See Windows)

ALPHABETICAL INDEX OF ADVERTISERS ON PAGE 30

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| <p><b>SASH CORD</b></p> <p>Samsen Cordage Works, 88 Broad St., Boston.</p>  | <p><b>STUCCO AND WALL BOARD</b></p> <p><b>PLASTER BOARD:</b></p> <p>Bishopric Mfg. Co., The, 744 Este Ave., Cincinnati, Ohio. Bishopric Stucco or Plastic Board. The dove-tailed key locks the plaster. Made of crossotted lath, asphalt-mastic and heavy fibre board.</p> | <p><b>WATER AND DAMPPROOFING</b></p> <p>Cabot, Samuel, Inc., 141 Milk St., Boston.</p>   |
| <p><b>SHEET METAL</b></p> <p>American Sheet &amp; Tin Plate Co., Frick Bldg., Pittsburgh, Pa.</p>   | <p><b>STUCCO:</b></p> <p>National Kellastone Co., The, Chicago, Ill.</p>   | <p><b>WATER SUPPLY SYSTEMS</b></p> <p>Carter, R. B., Co., 152 Chambers St., N. Y. C.</p>   |
| <p><b>FORMED PRODUCTS:</b></p> <p>American Sheet &amp; Tin Plate Co., Frick Bldg., Pittsburgh, Pa.</p> <p>Berger, The, Mfg. Co., Canton, Ohio.</p>  | <p><b>TERRA COTTA</b></p>  | <p><b>WINDOWS METAL</b></p>  |
| <p><b>METAL CEILINGS:</b></p> <p>Berger, The, Mfg. Co., Canton, Ohio.</p> <p>Canton Art Metal Co., Canton, Ohio.</p>  | <p><b>TERRA COTTA (Architectural):</b></p> <p>N. Y. Arch. Terra Cotta Co., Tel. Astoria 700.</p>   | <p>Detroit Steel Products Company, Department No. 9, Detroit, Mich. Fenestra Solid Steel Windows are made from Solid Rolled Steel Bars interlocked by patented Fenestra joints. Ventilators are equipped with adjustable, removable butts. Fenestra Gravity Cam Latch automatically locks ventilators when closed. Patented Channel Section gives ventilators double weathering.</p> |
| <p><b>STAINS</b></p> <p>(See Paints, Varnishes and Stains)</p>  | <p><b>TILE</b></p> <p>(See Flooring and Roofing)</p>   | <p>Pomeroy, S. H., Co., Inc., 30 E. 42d St., N. Y. Hollow metal fire retardant windows in 27 standard types.</p>   |
| <p><b>STONE</b></p> <p><b>GRANITE:</b></p> <p>National Building Granite Quarries Association, Inc., 31 State St., Boston, Mass.</p>   | <p><b>VARNISHES</b></p> <p>(See Paints, Varnishes and Stains)</p>  | <p>Truscon Steel Co., Dept. 68, Youngstown, Ohio. Representatives in principal cities. "United" steel sash in all types; horizontally and vertically pivoted sash; counterbalanced and counterweighted sliding sash; center pivoted and top hung continuous sash; steel and glass partitions; sliding and swinging doors; casement sash of all designs.</p>                          |
| <p><b>STRUCTURAL STEEL</b></p> <p><b>PRESSED STEEL CONSTRUCTION:</b></p>  | <p><b>VENTILATION</b></p> <p>(See Heating, Ventilation, Plumbing)</p>  | <p><b>CASEMENT:</b></p> <p>(See Casement Windows)</p>  |
| <p>Berger, The, Mfg. Co., Canton, Ohio. "Metal Lumber." Pressed Steel Joists and structural members.</p> <p>Truscon Steel Co., Dept. 68, Youngstown, Ohio. Representatives in principal cities. "Kahn" pressed steel beams, joists, studs, plates, etc.</p> | <p><b>WALL BOARD</b></p> <p>(See Stucco and Wall Board)</p>  | <p><b>WIRE GLASS</b></p> <p>Mississippi Wire Glass Co., 216 5th Ave., N. Y. C. Polished Wire Glass—"Romanesque," "Syenite," "Maze," "Pentecor," "Ribbed," "Rough." Figured Wire Glass—"Apex," "Romanesque," "Syenite," "Maze," "Florentine," "Figure No. 2," "Ondoyant," "Pentecor," "Ribbed," "Rough."</p>  |

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|----------------------------------|--|
| Metal Lumber.....244-250         | Steel Ceilings.....31  |
| Reinforcing Plates.....216-217   | Sidewalk Lights.....834-837  |
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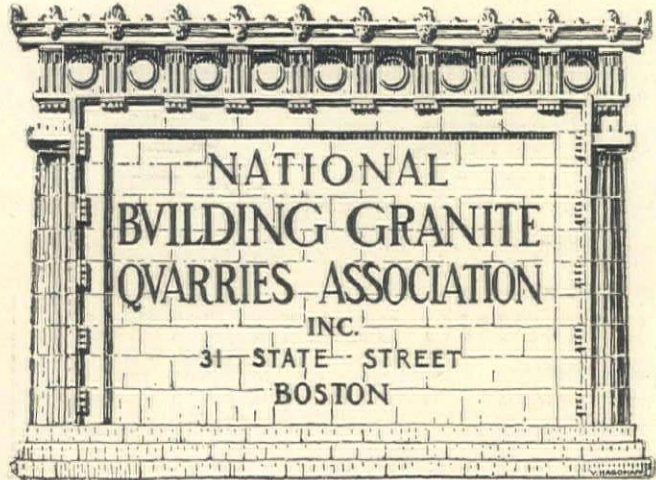


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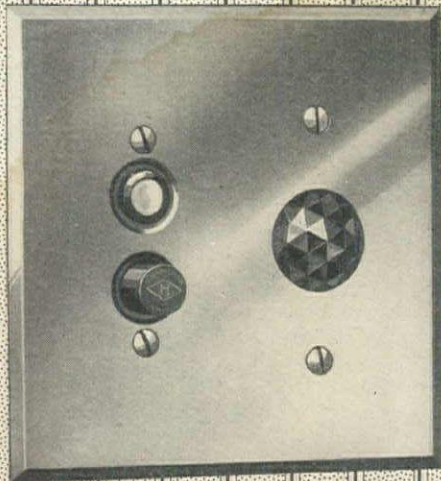
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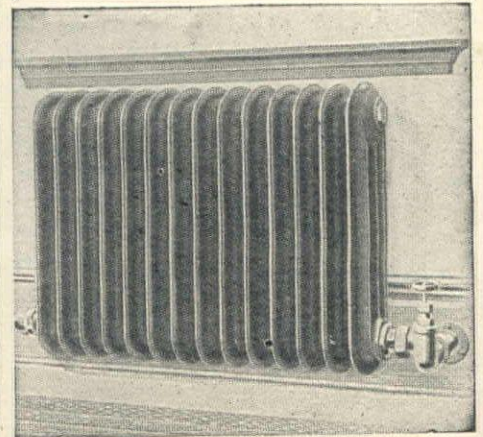
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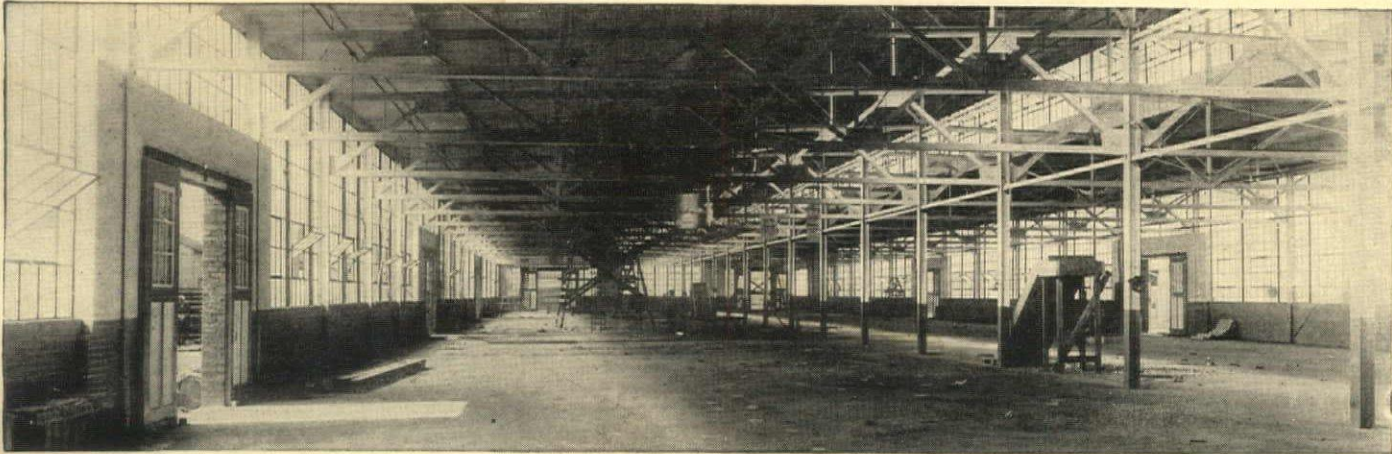
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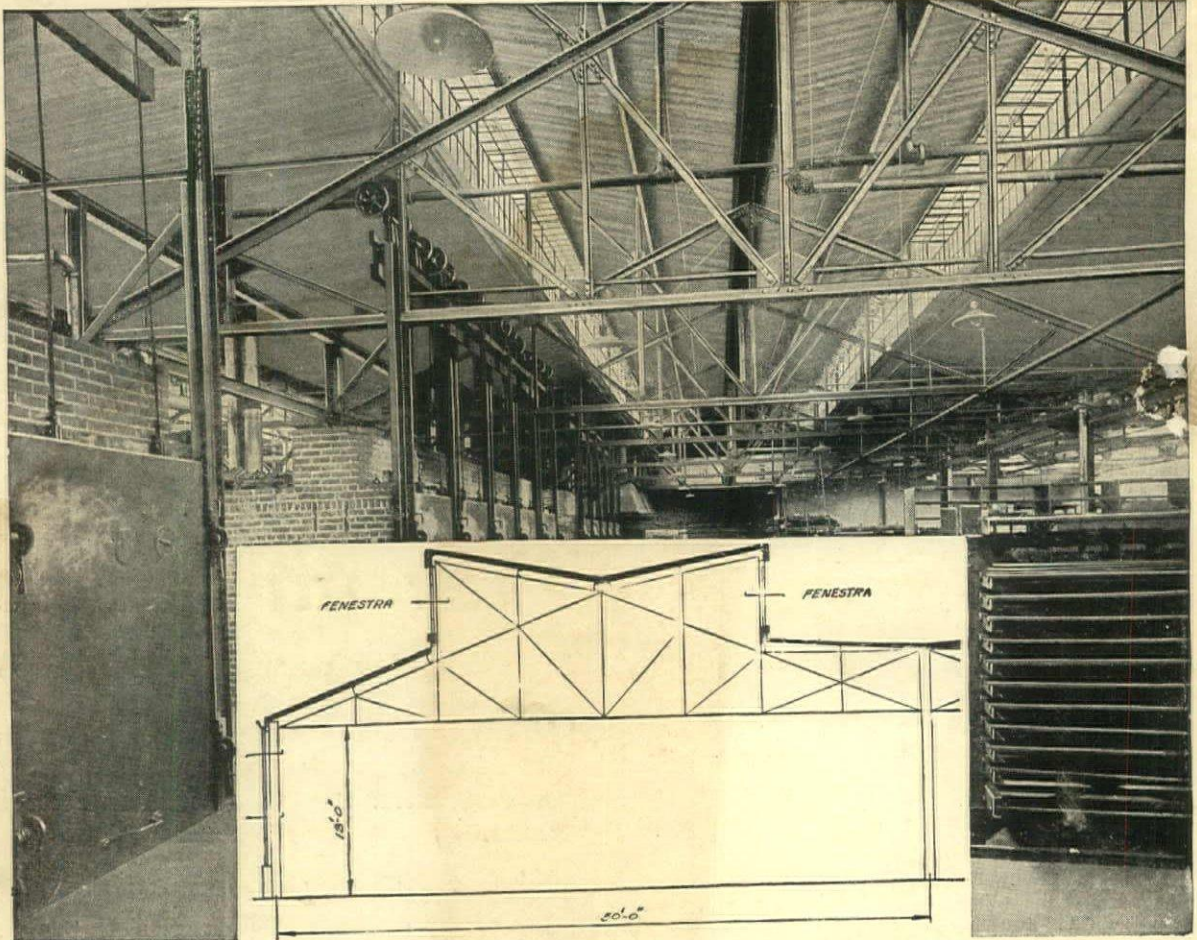
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