

The AMERICAN ARCHITECT



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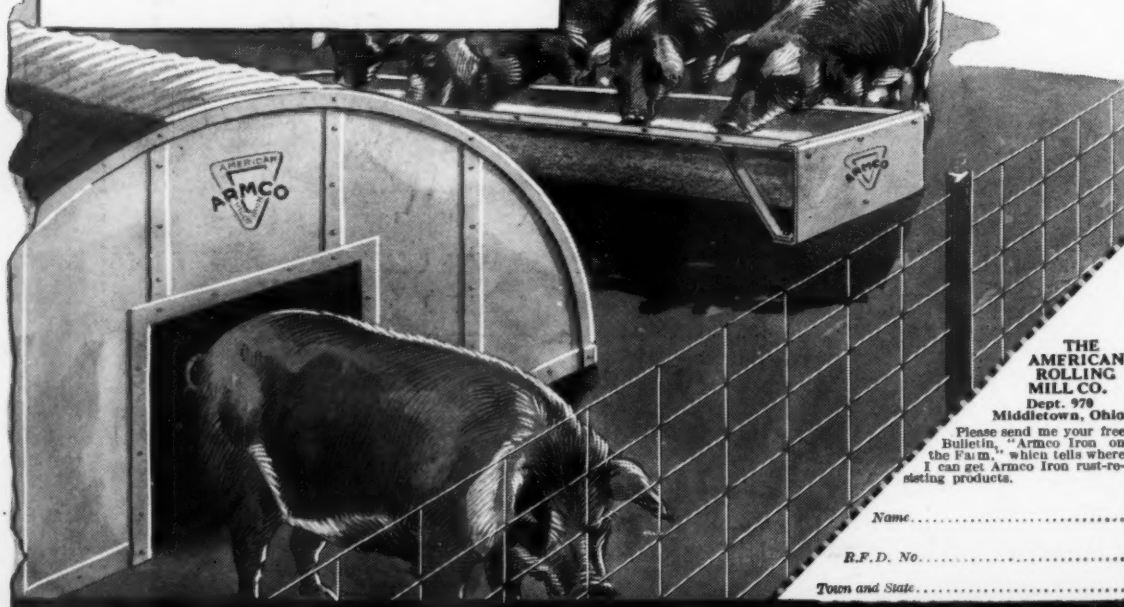
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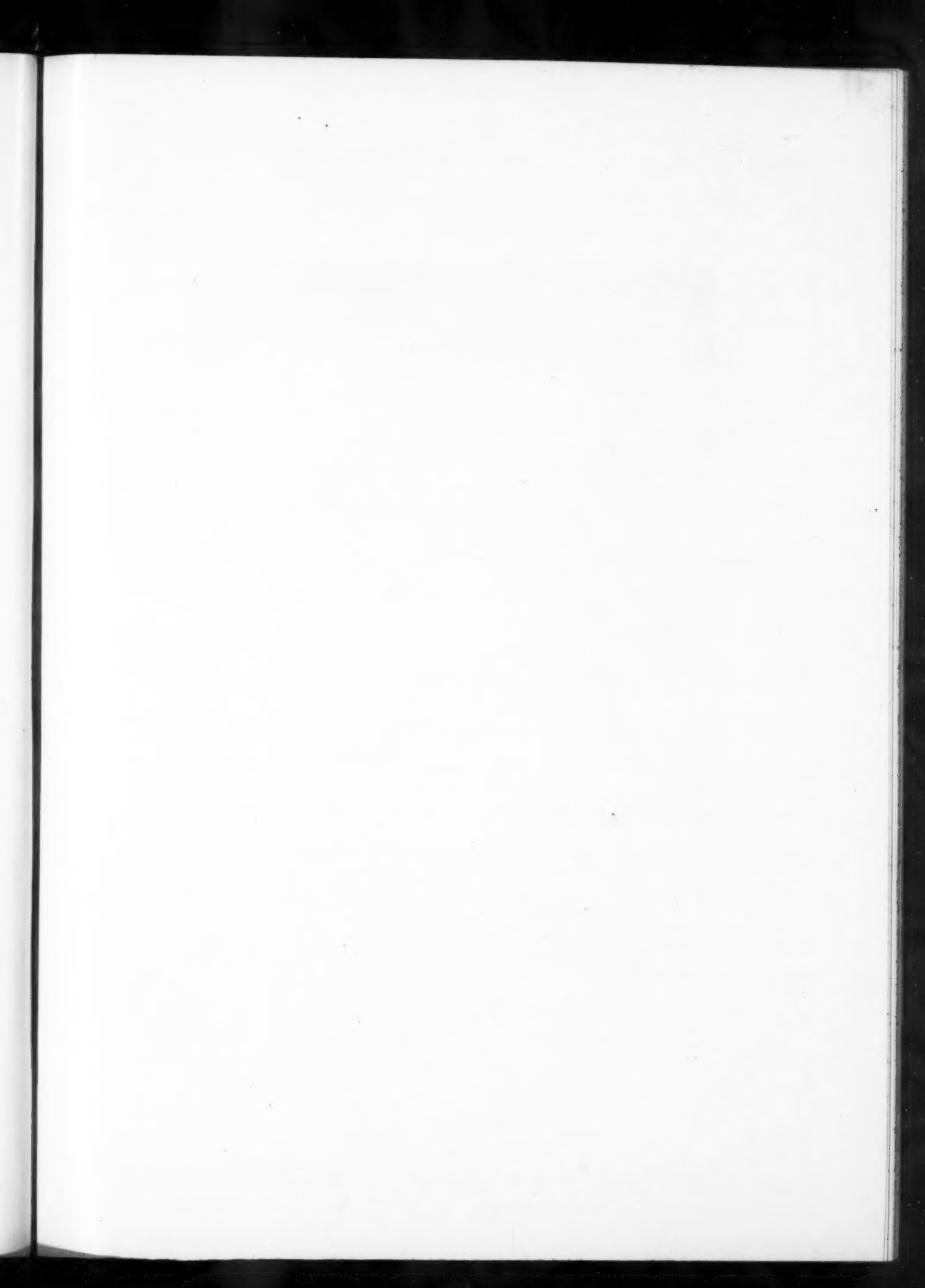
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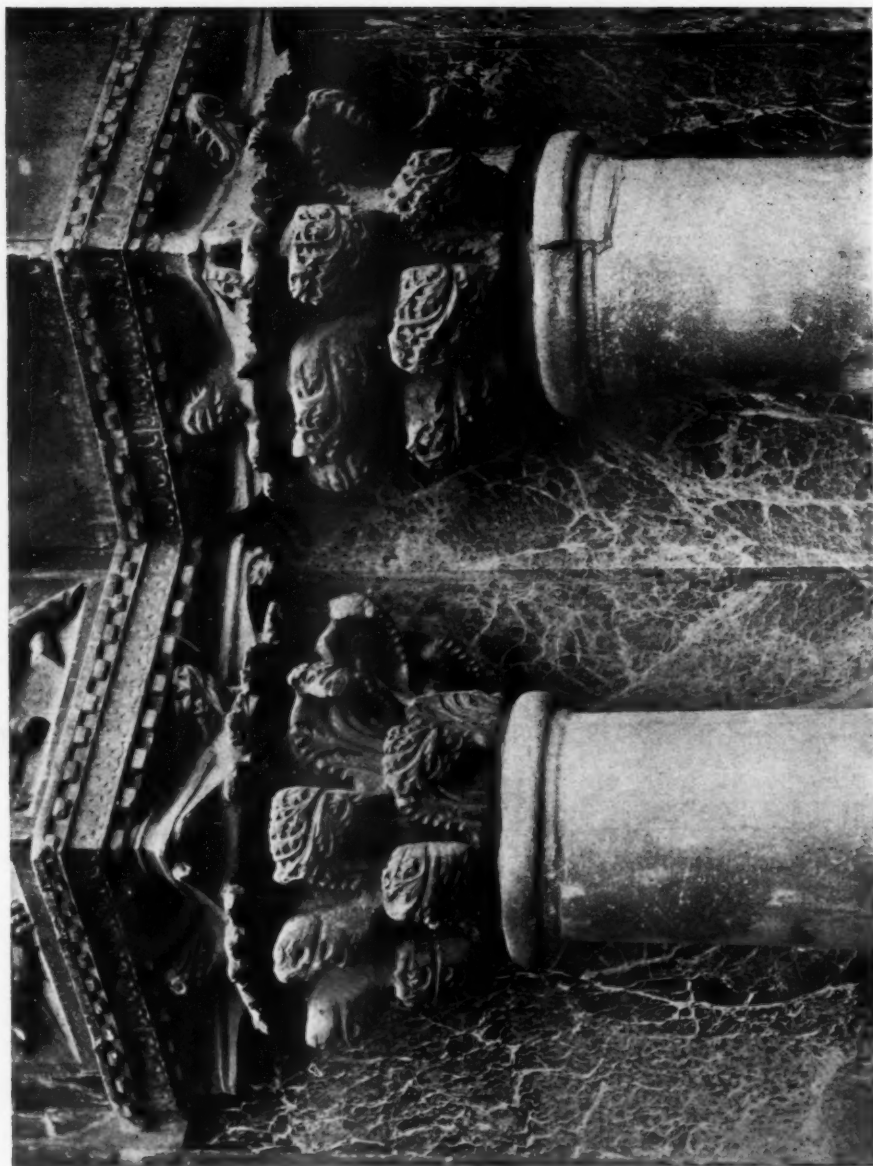
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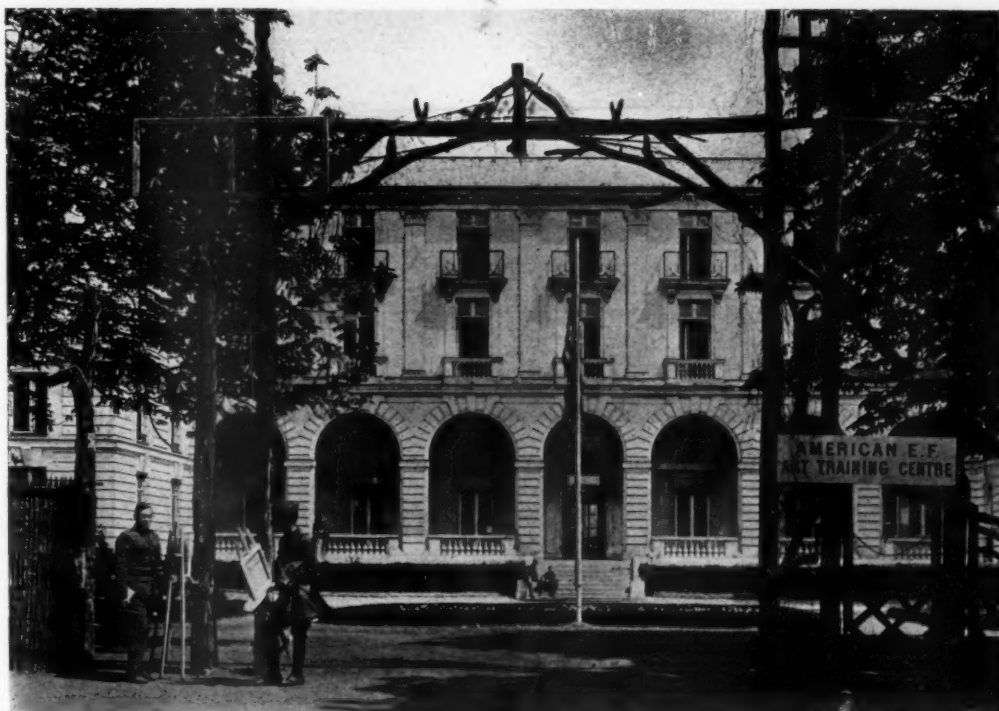
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THE A. E. F. ART TRAINING CENTRE AT BELLEVUE, NEAR PARIS

Here upward of four hundred soldier art students pursued their courses under American and French instructors.

A Soldier's School of Art

The Development by the A. E. F. of a University for Art Education in France

THE instructions given in fine and applied arts to members of the A. E. F. during the months of the armistice was one of the notable successes in the large educational organization of which it was a phase. Over 1800 young architects, painters, sculptors and students in commercial and industrial art received instruction in regular courses while thousands of others benefited from the general lectures given by such men as Lloyd Warren, Director of the Beaux Arts Insti-

tute of Design, Thomas Hastings, Treasurer of the American Academy of Arts and Letters, Lorado Taft, Prof. John Galen Howard, Director of the School of Architecture of the University of California, Ernest Coxhead and John Bakewell of San Francisco.

The idea of having courses in the fine arts for the soldiers originated with Mr. George S. Hellman of New York, who has written largely on many aspects of art, and to him also the credit is due for

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the subsequent ideas of starting an art college near Paris, courses for the soldiers in the famous academies and ateliers of Paris itself, a college of fine and applied arts for the A. E. F. at Beaume and courses in the hospitals and convalescent camps.

The development of these ideas could not have been possible without the co-operation of a body of men who formed perhaps the most interesting single group of the combined record of art and warfare. While Mr. Hellman retained for himself the organization and the direction of the college at the

that perhaps the greatest benefit to the students would accrue from an intimate knowledge with the architectural and other art monuments of France itself, and a generous scheme of travel was devised whereby the great churches, castles, museums, etc., could be seen by the soldier-artists, with opportunity at the same time to make measured drawings, both of the buildings and the details, and water colors and sketches by the painters.

It is easy to understand that a great plan of this kind made instantaneous appeal to the French, and



SOLDIER ARCHITECTS OF THE A. E. F., AT THE ATELIER LALOUX

A. E. F. University, the direction of the American Expeditionary Forces art training center at Bellevue became the splendidly achieved task of Lloyd Warren, director of the Beaux Arts Institute of Design in New York; the organization and headship of the hospital section with its branches in twenty-seven hospitals and convalescent camps was left to the capable hands of Capt. Aymar Embury II, of New York, the work of the Paris ateliers was under the supervision of Cyrus W. Thomas, secretary of the American Beaux Arts Architects of Paris.

Apart from all this atelier work, Mr. Hellman and his associates had from the beginning realized

an honorary advisory committee, including many of the most famous names among French artists and French public officials in the realm of art, co-operated in many directions. As the work developed and bore fruit, the French magazines and newspapers wrote enthusiastic articles concerning it and in all the salons of Paris it was the talk of the day. Not only the public buildings but many private homes in French cities were made available for the studies of these young soldiers, and not only did the famous academies and ateliers of Paris, such as Academy Julian and Colorossi and the Ateliar Laloux and Jaussley, open their doors, but practically

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all the great painters and sculptors of France received the students and showed them their work and discussed with them the methods and the aims of art.

Opportunities like these have never before been given to any group of Americans and the cordial relations that result will be recognized as a potent factor in cementing the friendship between France and America.

What, of course, in the final analysis made this remarkable work possible, was the fact that behind it was the American Army. In the beginning, when the army educational college, of which Prof. John Erskine of Columbia, was chairman, undertook the entire instruction of the A. E. F., the commission was under the auspices of the Y. M. C. A. It was from the Y. M. C. A. that the first funds were received to start the art work. When, however, the eminent educators associated with the commission were taken over by the American army and the army educational corps was formed, its

members being given the status and privileges of officers, all that vast and varied material received for the instruction of architects, sculptors and painters was provided by the army itself and the most enthusiastic interest was shown throughout every branch of the army.

Brigadier General R. I. Rees, the military head of the work, spared no efforts to obtain every privilege and opportunity for the art students, as perhaps is best made evident by the fact that at a time when according to formal regulations, three students was the exact quota to be sent from the college of fine arts at Beaume to visit Paris, a restricted arrangement, ways were found by him for 2000 students to visit and study that metropolis. General Pershing himself was not less enthusiastic and other famous generals followed with keenest interest the work of the art students. Army men ranging from the enlisted man to major became members of the various sections that had instruction, this being possible inasmuch as the govern-



FAÇULTY OF THE A. E. F. ART TRAINING CENTRE AT BELLEVUE

In the front row, left to right are Captain Howard, assistant to the Director; Mr. Hellman, Director of Art Instruction throughout the A. E. F.; Brigadier-General George H. Grey, commandant; Mr. Lloyd Warren, Director and Dean, and Mr. Solon Borglum, Head of the Department of Sculpture. At Bellevue as at Beaume the great majority of Faculty members were officers of the A. E. F.

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ment and its associates had lists of those members of the A. E. F. who previous to entering upon their military duties had been engaged in the practice or study of art.

The service rendered by these army men was as earnest and as intense as the work of the students themselves and indeed one could often see officers and enlisted men engaged in a joint piece of labor both on their travels and in their classroom work. That spirit of true democracy which makes a fraternity of lovers of art was one of the fine side issues of the entire work and this without in any way in-

When one realizes how eager these very soldiers had previously been to get back to America, this becomes a most impressive fact.

To name the sixty or seventy men and women (for a group of women art instructors took charge in the hospitals) would be to include not alone such a long list of very distinguished American names but also distinguished Frenchmen.

A very important branch of the art work of the A. E. F., was that of the College of Fine and Applied Art at the University at Beaune. In the record of this university and the vital things which



THE ARTS FACULTY AT THE AMERICAN EXPEDITIONARY FORCE UNIVERSITY

In the first row from left to right are Captain C. V. Burger, Head of the Department of Painting; Prof. E. B. Homer, Dean of the College and Head of the Department of Architecture; George S. Hellman, the Director; Lorado Taft, Head of the Department of Sculpture; Ernest Coxhead, Chief of the Department of Field Work, and Major Warren, Military Advisor. The College of Fine and Applied Arts had over four hundred students.

terfering with the order and discipline that is a part of army life.

Owing to the term of the A. E. F. that was so much speedier than had at one time been anticipated, only about one-half or between three and four thousand applicants entered upon them and these three or four thousand were probably only a small fraction of the soldiers who desired to take up these courses, as the applications could not reach the office of the director unless they had been approved by the commanding officers who were privileged for military reasons to withhold their assent. Even so, the work was so successful that almost all the art students who were given a voice in the matter asked that the course might be continued during the summer.

brought it into being will be found a unique chapter in the history of American art education.

George S. Hellman, the Director of Instruction, in an article published in a recent issue of the *New York Times*, graphically presents an account of the conditions under which this university was born. He writes: "Under the leadership of General Rees, Colonel Reeves, and Professor Erskine, an institution arose practically out of thin air; and if an art college started with hundreds of students, when three weeks before not a member of its Faculty had been chosen, and three days before there was not a drawing board or a paint brush or any other art material at camp, what was it when a dozen other colleges solved similar difficulties?"

The officers of the French Government assigned

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to assist in this organization and administration frankly expressed amazement at the marvelous exhibition of American executive ability, and praised the rapid accomplishment of a result which at the outset they were equally insistent could not be attained in a sufficiently reasonable time to be of value.

"Field Work" at the University, or the phase of study that embraced the work of observation out of doors, became a strenuous undertaking during a cold and wet winter, which developed into an equally unpleasant spring. No rigors of climate, however, were able to lessen the enthusiasm with which the student pursued this work. This field work was under the supervision of Ernest Coxhead, architect, of San Francisco. Major Cunningham was head of the department of decorative arts, Captain Burger of the Department of Painting.

With the assistance of usual army methods of transportation, supplemented by such railway travel as could be arranged, the students covered every part of France where an observation of ancient monuments, works of art or other things that might be properly included, was desirable.

Quoting from Mr. Hellman's article, we learn that, "Under expert guidance on the instructional side, and efficient leadership on the military side, (for our Faculties were so organized as to include officers who understood the many details involved

in wartime travel,) between 400 and 500 of our students were temporarily away from their studios during the month of June alone. On the walls of our two main institutions the results of these travel trips were exhibited, side by side with the more formal work of classroom hours; and literally thousands of visitors (French as well as American) had their enthusiasm aroused by these drawings and paintings." And again, "When our young architects made the blueprints and supervised the erection of a hundred buildings at the A. E. F. University; when the painters decorated clubhouses and the university theatre, and posters were made for lithographic reproduction in connection with social hygiene; when designs were submitted for commemorative monuments, and when in so many other ways the talents of the soldier artists were called into play, the interest of army officers constantly increased; and it may be permissible to refer to the recent statement of General Pershing to the effect that he personally shared the intense enthusiasm of the art students."

Another department of this valuable operation was the school of architecture at Le Mans, started by Ernest Coxhead who eventually became chief of Fieldwork. Later, another such school was opened at Coblenz by George F. Plowman, the etcher and art critic.





WOMEN'S ROOM

UPTOWN OFFICE, EQUITABLE TRUST CO. OF NEW YORK, 45TH STREET AND MADISON AVENUE

YORK & SAWYER, ARCHITECTS

Craftsmanship in Furniture Design

WHEN, during the last convention of the American Institute of Architects, that body unanimously voted a special medal to a master craftsman for excellence in the allied crafts, it placed a stamp of approval of the profession of architecture on the development of the highest craftsmanship in this country.

The work of master craftsmen in the United States has not perhaps kept pace with that of the artist-architect. There has been much recrimination as to just where the fault lies for these conditions. Architects have stated that the craftsmen have not developed sufficient ability to inspire confidence while the craftsmen have claimed that the fault lies in the architects in seeking to retain for themselves all the merit of the original com-

position, leaving for the craftsman but to slavishly interpret the design that has been handed to him. It is not the purpose at this time to enter into a discussion of this controversy, but rather to set forth some conditions now existing in the United States, and particularly with reference to the aspect of interiors of buildings.

Unfortunately a large number of architects have failed to realize that to a greater or less extent a building is merely the vehicle to carry its equipment in order to render the most efficient and economical service for which the building has been erected. Naturally architects have contested this idea, believing that the building itself is the main thing, while its artistic equipment is perhaps of secondary importance. On the other hand, the de-

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signers feel that their work complements the building to an extent that gives it the added touch of necessary refinement and will state affirmatively that all buildings should be designed from the inside out and not from the outside in.

These varying viewpoints are of course to be readily understood by the impartial observer and the object to be obtained in the highest development of craftsmanship in this country would be the co-ordination of these various opinions and the co-operation of architects and the artistic craftsman in a result that will not only make the building of the best artistic development without, but in serving its utility within, leave nothing to be desired in its artistic results.

Confining the present article to the development of furniture forms and designs and their relation

to the interior treatment of the building, there are so many incongruities to be observed wherever one travels, so many unfortunate things that might with ordinary care be easily avoided that the question of furniture as related to interiors becomes one of very considerable importance. When the furniture craftsman has developed ability to produce in quantity and at a reasonable price certain standard lines of furniture that will meet approval, it is very certain that the architect will be willing to abandon his own efforts in furniture design when he finds he has such valuable co-operation from the craftsman. But unfortunately there has not been reached to-day a condition that will warrant this confidence on the part of the architect, and he is therefore compelled in a great many instances where he desires to conserve all the unities of scale,

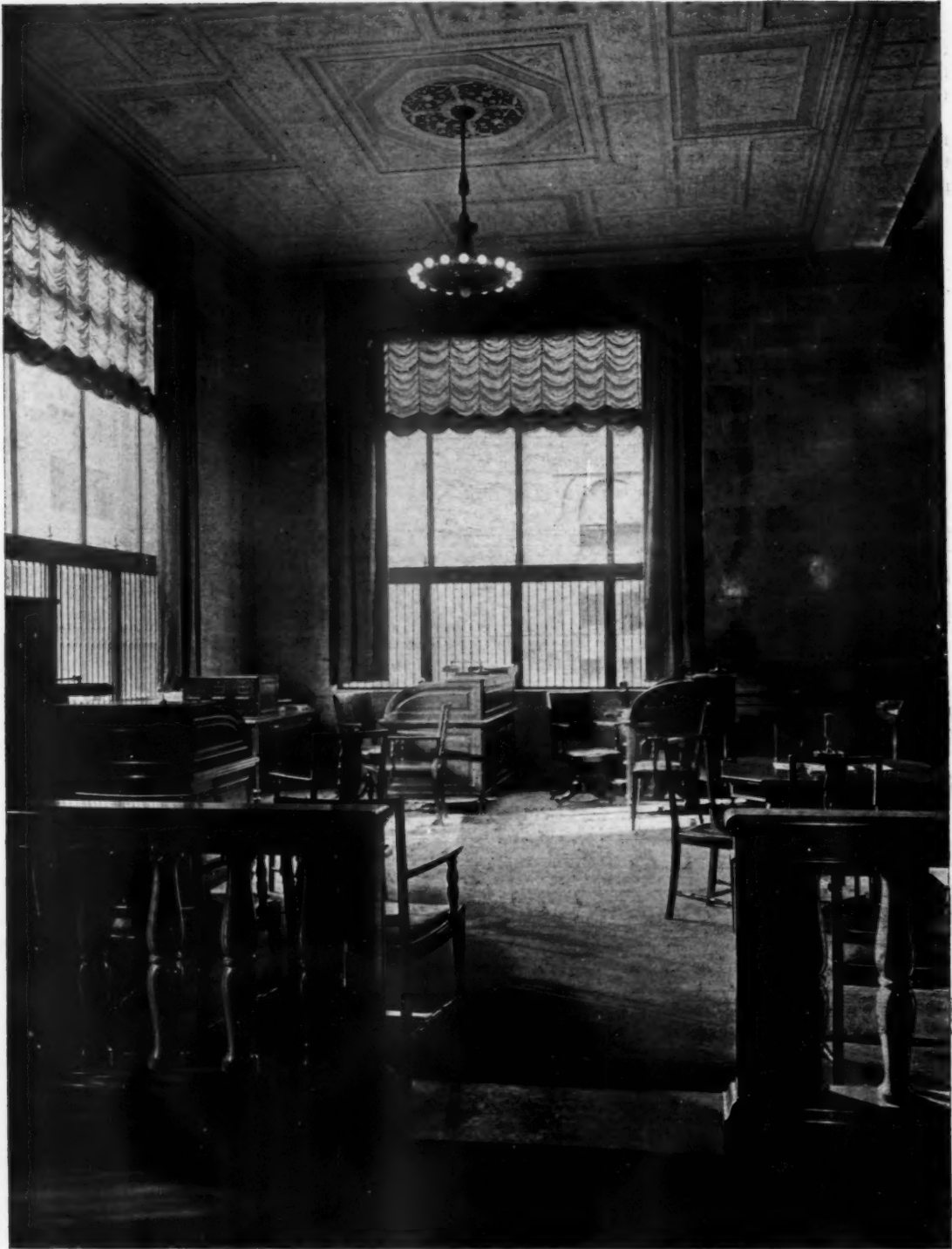
form, adherence to periods of design, to design for himself and have executed the furniture that will complete the equipment of the building. Feeling this way, it is natural, therefore, that he should sometimes fail to recognize that there is fast developing a group of men whose work in furniture design as supplementing the work of architects is of the highest order.

There is a third factor that must unfortunately be discussed in this connection. While there is often a satisfactory agreement of opinion between the architect and the furniture craftsman as to just what is necessary to fittingly complete the interior, the client will be found to be so insistent as to his ability to determine these important matters as to attempt to dominate the result. Naturally when the client has the deciding vote in this matter he outweighs both the architect and the man who has been selected to design the furniture, and the result has been to create a certain demand for such examples as are to be found in the furniture departments of many of our department stores. These hybrid collections as a rule are degenerate in their every aspect. The usual evils appear to have been first to select some noteworthy and generally acceptable example, then the entire force of the manufacturer devotes all its mental energies to accomplishing its production in the most eco-



WOMEN'S ROOM, UPTOWN OFFICE, EQUITABLE TRUST CO.
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OFFICE SPACE
UPTOWN BRANCH, EQUITABLE TRUST CO. OF NEW YORK, MADISON AVENUE AND 45TH STREET
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nomical manner. All the refinements that existed in the original are discarded as increased items of cost; the very curves and form that make it in the first instance a work of art are smoothed out to again cheapen the cost. The wood in which the original was executed is discarded and another that has neither the beauty in color nor grain substituted, and when this copy has passed through these many vicissitudes it is offered to an indiscriminating public under the alluring title that it has stolen from a highly artistic original.

Every building in this country is full of this sort of trash. Its appeal to the average buyer is first that it is relatively cheap, that it is "near artistic" and that it will serve its purpose. This sort of thing has been going on for years and its continuance will tend more than anything else to the retardance of the highest development of furniture craftsmanship.

In that type of building where the cost runs into hundreds of thousands and perhaps millions of dollars, it becomes vitally necessary that the craftsmanship of the equipment shall be equally as good as the artistic interpretation of its architecture. As the marshal of the forces to carry out a building project, to its final conclusions, the architect must necessarily surround himself with experts in the various fields in which they are competent. As these men have been selected for their competence, it necessarily should be concluded that their advice and counsel should be carefully heeded and in most instances followed. If he fails to do that he has deprived his experts of the very quality that in the first instance led to their selection.

The rise and fall of furniture design in this country presents a very interesting study. Starting in our Colonial period when furniture forms were largely those that had been imported from abroad or brought over by the Colonists as part of their Lares, they possessed characteristics of line and form that have served as standard for subsequent decades. As long as these standards were adhered to and as long as these types of furniture were placed within the type of house where they belonged, there was perfected an effect of good furniture that suited all the laws of refinement and culture on the part of the people who lived in the house where such furniture was placed. Then there followed erratic periods of design where a wild placing of ornament was an attempt at originality that smacked strongly of vulgarity and created furniture types that were nightmares of bad taste. Further, it was common to observe in the ordinary interior as many different period styles as there were distinct pieces of furniture, and all the quiet refinement of the colonial domestic in-

terior was sacrificed to a blatant over-developed style.

From the Civil War period up to to-day there has been in the higher class and more expensive furniture a very marked improvement and this improvement is due to the work of craftsmen decorators, who in co-operation with architects have produced interiors that are seldom, if ever, excelled. But the real work of education in furniture design lies not in the expensive type, for that will take care of itself, but in those inexpensive types that form the household furnishings of every middle class family in this country. It is in the highest development of this class of so-called ready made furniture that the furniture craftsman will find opportunity for his artistic effort, and it is through them and through them only that we may hope to see an abatement of this artistic misdoing. Just how these things can be best accomplished it is difficult to say, but there is no doubt if the architect and the craftsman and designer of furniture can assume more intimate relations, they will be able to create an influence for good taste that will early mitigate and later overcome what now is a most deplorable public taste in the matter of furniture.

Hygienic Cottage Furniture at Shoreditch

THE main object of the recent exhibition held at the Technical Institute in Shoreditch, England, was for the purpose of suggestions and experiment in the form and construction of furniture. It is not claimed that the furniture shown exhausts the possibilities of design and construction in furniture for cottage use. In so far as possible, the guiding principles in this cabinet work were lightness coupled with strength, fitness for use, comfort, and ease in moving and cleaning. Cost of production was considered; consequently needless details, such as cornices and pediments on wardrobes, are advisedly omitted. Wooden drawer-knobs and racks for looking-glasses are employed in lieu of brass fittings. The dining-room types of chairs, dressers, and tables shown were stained brown and polished. The seats of the birch chairs are screwed or nailed to the curved back and front rails to form a concave seat, insuring comfort, cleanliness, and strength.

For the sake of experiment the designs were varied, avoiding as far as might be the appearance of kitchen chairs, but the main objects besides strength and pleasing character is facility for dusting and utility. The bedroom furniture is made of birch, kauri pine, and whitewood, but its design is

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equally applicable to oak. Space is left under the wardrobe to allow of the floor being cleaned, and on the top there are no pockets for dust. The panels are of "three-ply" grooved into the framing, the whole thing being light and readily moved about. The dressing-table has a wooden support to the looking-glass in place of the usual screw centre. The two easy-chairs for the sitting-room, with adjustable backs, are made at the least cost possible, considering the conditions under which their manufacture was done. Loose cushions allow of cleaning both for the "sofa" and chairs. Small "what-nots" are contemplated for corner positions, as even cottages have things which harbor dust to keep somewhere for decorative or commemorative purposes. All this furniture was made by the older boys in the technical day school from designs by Mr. P. A. Wells, head of the Cabinet-Making Department of the L.C.C. Shoreditch Technical Institute. Permission has been given for the designs to be used for commercial purposes on condition that manufacturers name the source from which the designs are obtained.

A simplification of the arduous domestic duties of the housekeeper is always desirable. When to this is added the simplicity in design, which is by itself a merit, there would seem no good reason for not incorporating these ideas more generally.

The Parlor Passes

THE parlor, that seat of surface grandeur, that place of stage whispers and awful dignity, is passing from the American home. The parlor, states the *Georgia Tribune Herald*, was a heritage of false aristocracy, and in its passing we have one expression of the elusive democracy we are endeavoring to adopt.

When a person entered the parlor of a man's home he clothed himself with due formality, sat bolt upright with his hands crossed, his feet obscured, and used the nicest phraseology. Around the walls of the parlor hung the portraits of the household's ancestors; in the center was a large round table displaying the family album and the Bible, together with the ever-present wax flowers under the domed glass.

A room of this description is now rarely maintained in the modern American home, and this is as it should be. When the first settlers came to these shores Americanism was a thing unknown. Caste was the heritage of long generations, and the informal, "hale fellow, well met" attitude now growing more and more typical of men and women in the United States had yet to develop.

It is to be expected that in these minute-chasing

times much of the ceremony of early days must be dispensed with. People at heart are spontaneous and natural. Why, then, should conventions be stiff and formal, hypocritical, even? If there are to be conventions, why should not pleasant, cheery ones be decreed instead of the bolt upright, dry as dust things that on state occasions occupied the parlor of the past.

Home

THE word home is being dragged around in an unseemly fashion, states an Indianapolis paper.

It used to be understood as meaning any occupied dwelling, any place where an individual or family slept and ate and pursued the common adventures of domestic life. Then came a time when the definition was narrowed to include only those dwellings in which a family resided in peace and in the glow of affection which is born of family compactness and loyalty. It was generally understood that a house had not become a home until children had battered the woodwork. Now people are being led to believe that a home must be owned by the occupier, that the true home spirit can thrive only in a safe harbor.

On the other hand, the apartment hotel has steadily gained in popularity. Many people have hit upon this plan as a means of relief from the worries and cares of the ordinary detached house on its own bit of ground. They live in comfort, and look and act very much like persons who lead normal lives in other kinds of abodes. The apartment house is half way between the detached house and the apartment hotel. The tenant has many of the cares of a house, and if the janitor service is not to his liking, not a few of the troubles of the diplomat and captain of industry. Yet these people seem no different, as met here and there, from the people who dwell in what are described as homes.

A home is not a perch, we are informed by people who are very proud of owning their houses and being safe from sudden flights forced by the sale of rented property; and it must be admitted that there is force in the argument, especially when real estate dealers have worked out methods of house buying which enable almost any settled person with a little money and a good deal of courage to own a house in which he can establish a home. But if ownership is essential, a great many people are homeless, so to speak, and yet they are not unhappy, as homeless people should be. A line can not be drawn so early between what is a home and what is not a home. The word still wants a definition.

Editorial Comment

State Societies and the Institute

IT would appear that President Kimball's address before the annual meeting of the Illinois State Society has stirred up considerable discussion and disclosed, as the *Journal* of the Institute editorially states in its August issue, "the existence of a considerable body of opinion which believes that the very advocacy of state associations is, in itself, a self-confessed failure of the Institute,—a self-confessed failure of its ability to organize the architectural profession and a placid avowal of its willingness to leave the problem to others."

We infer that this confession of failure is supposed to be on the part of Institute members, and if correct in this, we commend the frankness of the *Journal* in acknowledging the shortcomings of the organization it represents.

As a matter of fact, however, it is not readily apparent that advocacy of state societies is a confession of failure of representation. The resolution in the last convention, whereunder the Board of Directors was instructed to encourage the formation of state societies represented the calm judgment of the delegates, and showed, as did President Kimball in his annual address, a disposition to so act toward the entire body of the profession as to make possible an increase in membership of "a thousand in 1919."

It is difficult to comprehend how the encouragement of state societies can be tortured into an admission of either failure or indifference, and it is correspondingly easy to see in this action a tendency toward modernism and the abandonment of ideas that have become archaic.

As stated in these pages when commenting on President Kimball's address, he answered his own question as to the value of state societies when he directed attention to the ultra efficiency manifested in Illinois, where a most efficient chapter and an equally efficient state society have been striving each to outdo the other in a large measure of practical results.

Just what action the Post-War Committee will take on the question of state societies it is, of course, not possible to predict, but it may be safely assumed that a committee that has shown so high a conception as to just what constitutes the essentials of reform of architectural practice will formulate a plan that will meet the approval of a majority of the profession.

The expression of regret that the Post-War Committee was asked to consider this question, and that

it was not deferred to a future convention, is to suggest a method of procrastination not in accord with the necessities of these fast moving times.

We expect and hope that the Post-War Committee, through the wide latitude of its powers, will anticipate many things that would demand consideration of future conventions and by such timely action accelerate reforms that the somnolent advocates of delayed action would defer to the end of time.

The advocacy of state societies is the favoring of all that form of government that has been proven in our national, state and municipal bodies to be best. It will not be an admission on the part of the Institute that it has failed of success, but, on the contrary, it will mean that it stoutly means to achieve it.

The Pictorial Possibilities of Labor

JOSEPH PENNELL is one of the most consistent of men, in that when he has absorbed an idea that he considers worth while, he neglects neither the time nor place to advocate it. His contention, made now more than seven years ago, that in labor the artist had a field of artistic expression greater than any other, he has never failed to press. He has at all times been the most strenuous advocate of the pictorial possibilities of labor, and no man who creates art today has done more to prove those possibilities.

His work during the war was not on the firing line, the trenches or along the line of march to the front. With passes such as few men were able to obtain, and with permission such as perhaps no other man received, Pennell spent days and weeks in the centers where all the various and complicated equipment was, with fevered energy, being manufactured. Munition plants, shipyards, ordnance arsenals, all the places where men toiled day and night to keep up the vast volume of supplies needed, there Pennell was permitted to roam. The confidence that was placed in him was never abused, and while in many instances there were pictorial possibilities greater than any others, but whose illustration would have "afforded aid and comfort to the enemy," Pennell never made the mistake of setting them down.

Other artists in other fields of work during the war time were equally usefully employed, but Pennell, with perhaps the possible exception of Brangwyn, has been the man to glorify labor by art.

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Perhaps no man has had the power of intelligent observation more keenly developed than has Pennell. He always found as subject for his facile pencil some "bit" that while observed by others had never been appreciated at its true artistic value.

For example and to prove a contention, the following extract from a recent address by Pennell is in point. He said:

"Before the war I saw a great deal of Germany. I was there when the war broke out. I do not know if any of you have seen that wonderful steel plant, the Cape of Good Hope Works, at Aberhausen. Well, there are a series of blast furnaces in the background painted every month or so a beautiful blue. The stacks are painted the most gorgeous vermillion, and in front of that wonderful color scheme in the evening, when the sun sets, they have a grass plot. I have never seen such a color scheme in all my life. Little trains carried fiery slag around it, and the color scheme in the evening was beyond words. That thing if put on the highway—Lincoln Highway—would bring more people to see it than any cathedral or church. It is one of the most wonderful spectacles in the world."

Let us hope that some day there will arise an architect-painter—someone able to stand at the head, as do our painters of easel pictures—who will present the many pictorial possibilities of labor in their true artistic relation. With that time come, and with such delineation of all the pictorial possibilities of labor, we shall build up an art in this country second to none in the world.

The war has demonstrated the type of people we are. When we have an art that will typify this type, when our painters are known all over the world as the best pictorial exponents of the art of architecture, and all the various types of labor that create it, we shall have reached a true national characteristic in the painter's art, which will largely compensate for our inability to evolve a national type of architecture.

A National System of Public Roads

FARMERS throughout the country are evincing a deep interest in the movement to establish a national system of public roads. They are asking their state highway officials and representatives in Congress for definite information concerning the national highway bill now pending in the United States Senate, and with a clear understanding of the national road project they are in general expressing their approval.

An impression is held in some sections that the continuation of Federal aid will be affected should the pending measure become a law, since it provides for construction and maintenance under exclusive Federal control on such highways as may become state links in the national system. The fear has been expressed that such a step would

result in a lessening of Federal co-operation on purely state and county roads.

Senator Townsend, of Michigan, author of the bill, and Chairman of the Senate Committee on Post Offices and Post Roads, is keeping in close touch with highway problems, particularly during this period when auxiliaries to railways and quicker methods of food product distribution are so urgently needed to check living costs. Noting this tendency of fear that the national highway project might in some way affect adversely the present system of Federal and State co-operation, he has expressed the opinion with emphasis that the Federal Aid plan will in no wise be weakened. On the contrary, the Senator asserts that Federal Aid will be strengthened since the roads are what the people need, and a greater mileage of permanent highways will be constructed and put into use in much less time under the proposed national highway plan than is possible even at the rate roads are now being built.

"The object of the bill introduced by me," Senator Townsend states, "is to establish and maintain a national system of highways according to a national plan connecting the different States of the Union, and affording an example of proper highway construction, which will be beneficial to the States. The bill does not in any manner injuriously affect existing law, in fact it provides that the Commission created under it shall have charge of the Federal Aid Law, and shall make reports annually to the Congress as to what is being accomplished under existing law, and to make such recommendations for the future as the operation of the law and its results seem to be necessary. The two systems of road building are separate and distinct, except that they under control of the same Federal Commission."

The Architect in Public Life

THE election of Frank L. Packard, architect, of Columbus, Ohio, to the presidency of the Chamber of Commerce of that city, presents an instance of the recognition of the administrative and highly trained ability of architects and their value in public life.

Mr. Packard's many years of active and successful work in his profession, during which he executed some of the largest building operations in his state, has fitted him in the highest sense for the important office to which he has been elected. The fact that he has been willing to add to his many professional duties this civic one is to be commended.

It affords an example to architects everywhere, which they can with dignity to themselves and the profession they represent, follow with success.

Beaux-Arts Institute of Design

DIRECTOR OF THE INSTITUTE, LLOYD WARREN

ARCHITECTURE, WILLIAM F. LAMB

SCULPTURE, JOHN GREGORY

INTERIOR DECORATION AND INDUSTRIAL ART DESIGN, ERNEST F. TYLER

MURAL PAINTING, ARTHUR CRISP

Official Notification of Awards, Judgment of July 22, 1919

PROGRAM

CLASS "B"—V ANALYTIQUE

The Committee on Architecture proposes as subject of this Competition:

"AN ENTRANCE PAVILION"

The main entrance of a museum is to be treated with a pediment, expressing thus a high vestibule behind it, which runs perpendicular to the main façade. The floor level of the vestibule is 10 feet above the street, and the entire height of the entrance motive above the level shall not exceed 75 feet, and its width shall not exceed 50 feet.

The building sets back approximately 50 feet from a parkway, and within this space the approach with its accessories may be treated as desired.

Examples of motives of this sort may be seen in the Greek and Roman temples, in many Renaissance churches and in many of our American public and semi-public buildings, particularly in our banks.

JURY OF AWARD: F. A. Godley, R. M. Hood, F. H. Bosworth, Jr., H. W. Corbett, G. A. Licht, F. C. Hirons, P. Cret and J. Gurd.

This Jury served as Jury of Award for all the other competitions at this Judgment.

Number of drawings submitted—8.

AWARDS:

FIRST MENTION:—L. A. Fuller, Los Angeles Architectural Club, Los Angeles.

MENTION:—L. Rombotis, Los Angeles Architectural Club, Los Angeles; P. Goodman, Atelier Licht, New York City; E. R. Armstrong and C. W. Pollitt, Patrons-Ochs & Green, Bethlehem; M. Sillani, Atelier Rebori, Chicago.

PROGRAM

CLASS "B"—V PROJET

The Committee on Architecture proposes as subject of this Competition:

"A SERVICE CANTEEN"

The subject of this problem is a service canteen for enlisted men, such as have been erected in public places in our cities as a sort of free club.

It shall have an attractive appearance, by the use of color or other simple means, but it shall be so designed that it can be quickly and cheaply built. Spaces shall be provided for the following requirements, arranged in as few or as many rooms as desired, viz.: lounging, reading, writing, games, entertainments and eating. This last shall be planned for the cafeteria system. A kitchen, a small office and washroom, the latter containing showers in addition to the usual conveniences, shall be provided for in separate rooms. Porches are optional.

The building may be in one or two stories but shall have no basement. Heat will be furnished by stoves and fireplaces. The total exterior dimension including porches shall not exceed 60 ft. by 120 ft.

Number of drawings submitted—6.

AWARDS:

FIRST MENTION PLACED:—R. W. Craton, Columbia University, New York City.

FIRST MENTION:—P. E. Bierly, Atelier Licht, New York City.

MENTION:—E. C. K. Schmidt, "T" Square Club, Philadelphia; E. Pickering and D. K. Frohwerk, University of Kansas, Lawrence.

PROGRAM

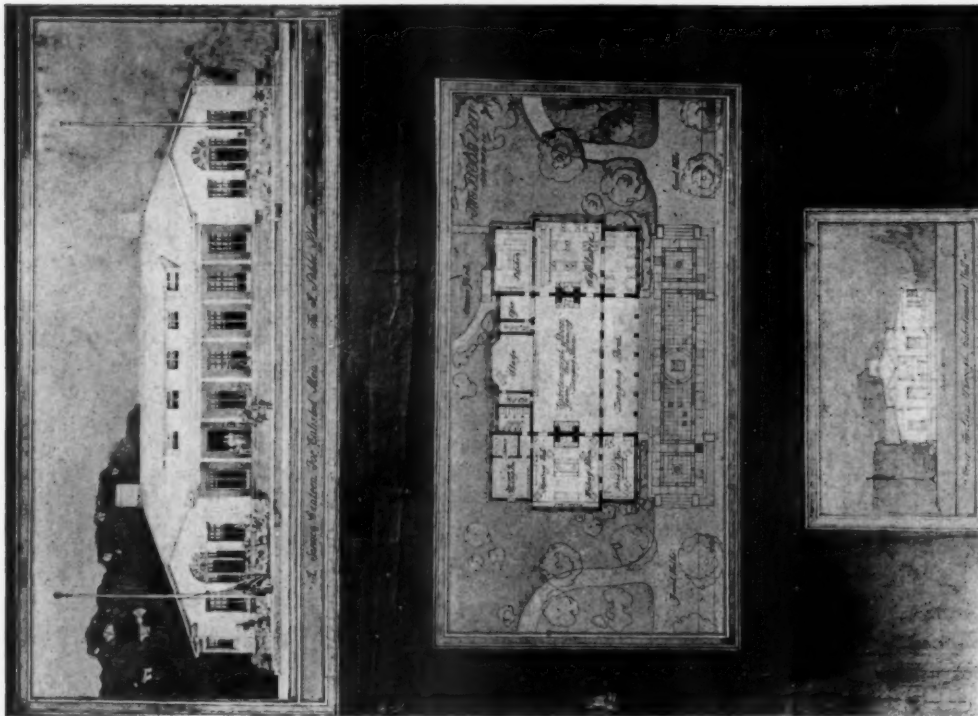
CLASS "A"—V PROJET

The Committee on Architecture proposes as subject of this Competition:

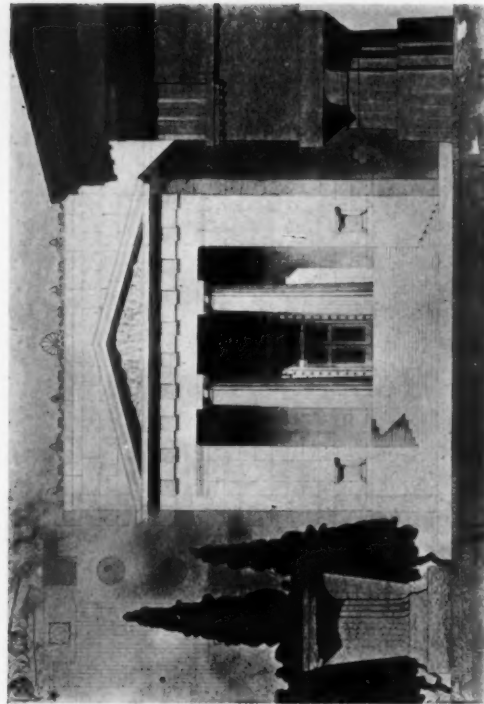
"THE ENTERTAINMENT ANNEX OF A HOTEL"

It is becoming more and more the custom to utilize the entertainment facilities offered by large hotels both for private and public purposes. The ball room is used not only for large dances and balls but for all sorts of entertainments, such as weddings, large receptions, concerts, tableaux or small theatrical productions and public or private meetings of all kinds. Large banquets are also given in the ball room, though it is usually customary to provide a banquet hall in connection with the ball room suite where dinners or suppers may be served in connection with other entertainments or where smaller banquets may be given.

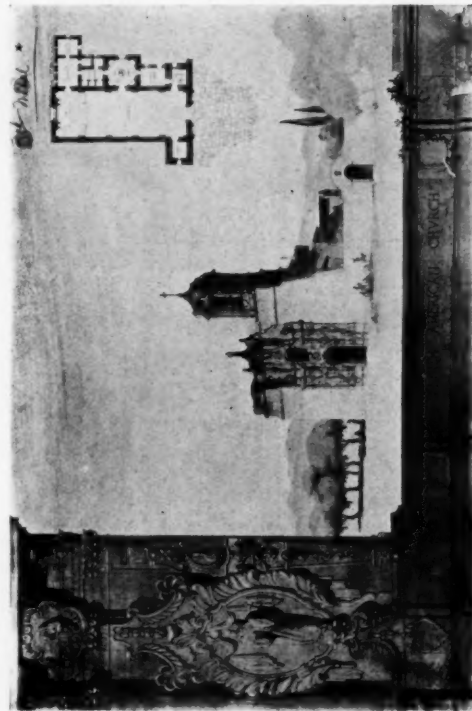
THE AMERICAN ARCHITECT



R. W. CRATON, 1ST MENTION—PLACED, COLUMBIA UNIVERSITY
CLASS "B"—V PROJET. A SERVICE CANTEN

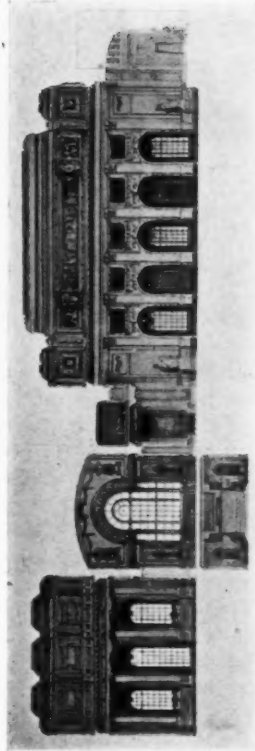


L. A. FULLER, 1ST MENTION, LOS ANGELES ARCHITECTURAL CLUB
CLASS "B"—V ANALYTIQUE. AN ENTRANCE PAVILION

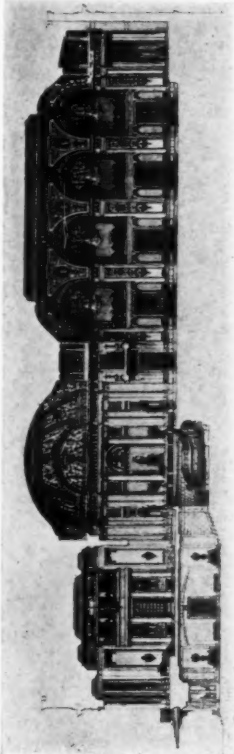
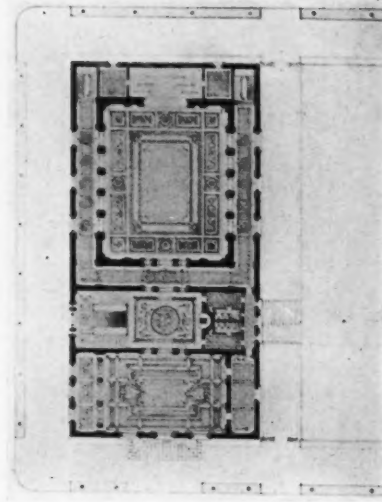


D. R. WILKINSON, 3RD MEDAL, LOS ANGELES ARCHITECTURAL CLUB
CLASS A AND B. ARCHAEOLOGY—V. PROJET
A SPANISH-AMERICAN CHURCH

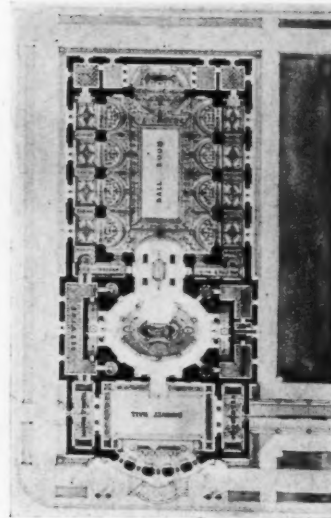
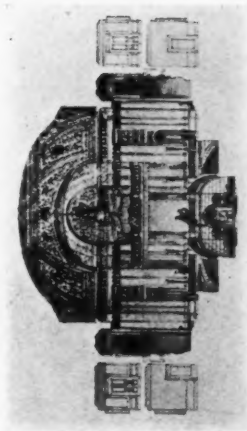
THE AMERICAN ARCHITECT



S. H. BROWN, 2D MEDAL, T SQUARE CLUB, PHILADELPHIA



J. K. SMITH, 1ST MEDAL, UNIVERSITY OF PENNSYLVANIA



CLASS "A"—V PROJET. THE ENTERTAINMENT ANNEX TO A HOTEL
STUDENT WORK, BEAUX-ARTS INSTITUTE OF DESIGN

THE AMERICAN ARCHITECT

In one of our larger cities, a modern hotel has recently been opened and it has been found that the extensive use of the hotel's facilities for private entertainment interferes with the comfort and quiet of the regular guests. Therefore the owners have decided to build an annex for this sole purpose. The property to the rear of the hotel has been acquired. It is a lot 100 ft. x 200 ft.; one of the long sides and two of the short facing streets and the other long side at the rear of the hotel. The annex shall be separated from the hotel though there may be connection by means of a passage or bridge.

The first floor of the annex shall provide ample facilities for guests arriving in carriages, a large entrance vestibule with a reception and stair hall, checking and dressing rooms for men and women with toilet arrangements for each. Kitchen and service requirements will be located on this floor.

The second floor will be reached by a grand staircase leading to the foyer or upper stair hall. From this shall open the grand ball room and the banquet hall. Small retiring rooms for men and women and the necessary service pantries shall be provided. The ball room may be provided with a small stage with dressing rooms and a balcony with promenade may be added.

The subject of this program is the treatment of this second floor.

Number of drawings submitted—4.

AWARDS:

FIRST MEDAL:—J. K. Smith, University of Pennsylvania, Philadelphia.

SECOND MEDAL:—S. H. Brown, "T" Square Club, Philadelphia.

MENTION:—M. E. Kressly, Pennsylvania State College, State College.

PROGRAM

CLASS "A" AND "B" ARCHAEOLOGY—V PROJET

The Committee on Architecture proposes as the subject of Competition:

"A SPANISH-AMERICAN CHURCH"

In the southern portions of California and Mexico the Spaniards developed their native style of architecture along lines which were different though highly reminiscent of the buildings in Spain. California adobe construction led to the Mission Style in which the mass was similar though the decorations simpler than in Spain. In Mexico a closer relationship is found and more elaborate decoration has been used. A characteristic of Spanish-American architecture is the use of plain wall surfaces and the massing of ornament about the window or door openings. Examples may be found in the Missions of California, the churches of Mexico and an excellent modern adaptation in the Exposition Buildings at San Diego.

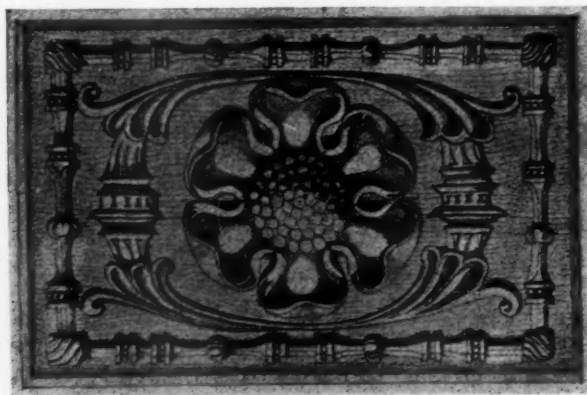
The subject of this competition is a small Mission Church. The greatest dimension shall not exceed 100 ft. A bell tower should be a feature of the composition.

Number of drawings submitted—4.

AWARDS:

THIRD MEDAL:—D. R. Wilkinson, Los Angeles Architectural Club, Los Angeles; R. Nickel, "T" Square Club, Philadelphia.

MENTION:—R. P. Rodgers, Atelier Fowler, Baltimore; E. E. Davis, University of Texas, Austin.



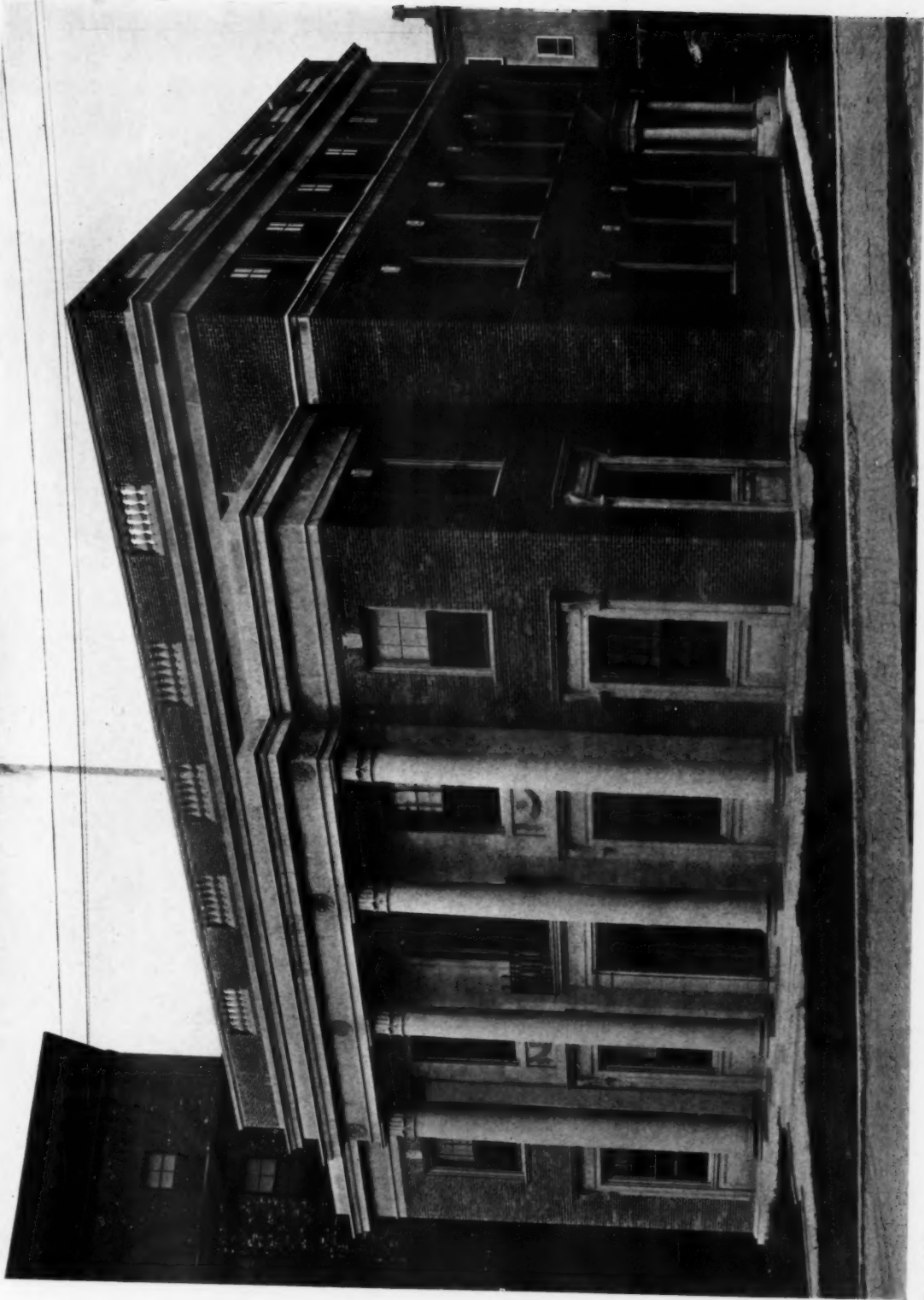


PLATE 85

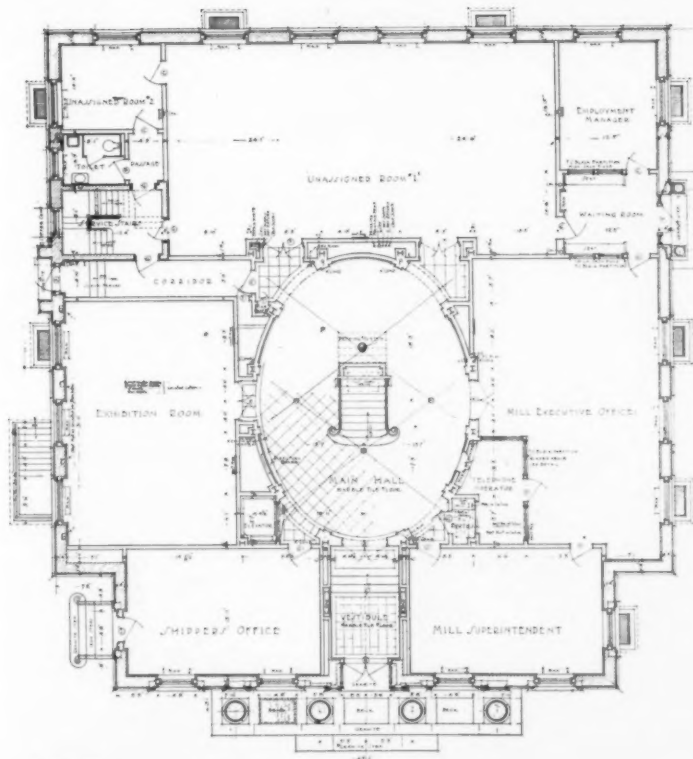
OFFICE BUILDING FOR WALTER BAKER CO., LTD., DORCHESTER, MASS.

GEORGE F. SHEPARD, ARCHITECT



PLATE 86

DETAIL OF PRINCIPAL ENTRANCE
OFFICE BUILDING FOR WALTER BAKER CO., LTD., DORCHESTER, MASS.
GEORGE F. SHEPARD, ARCHITECT



FIRST STORY HALL
AND
FIRST FLOOR PLAN

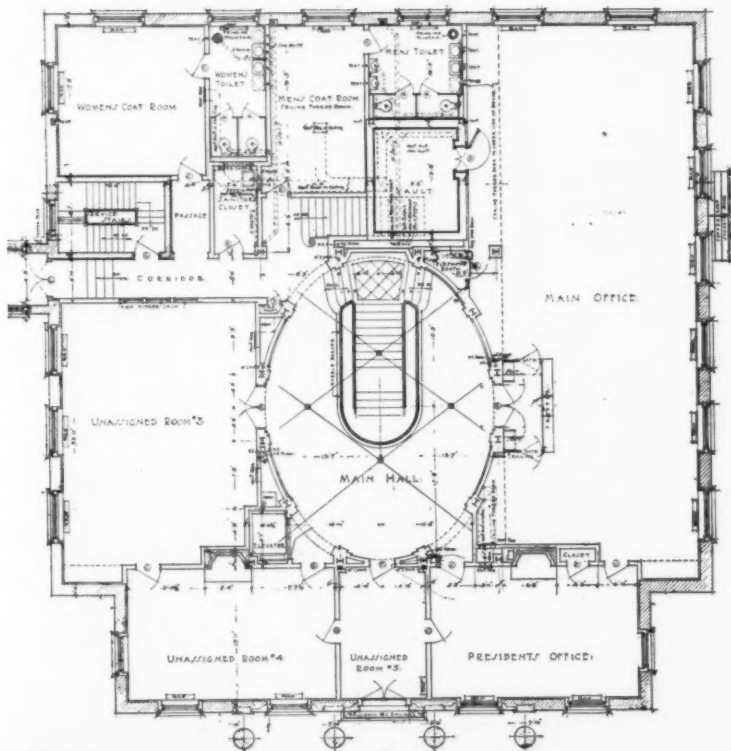
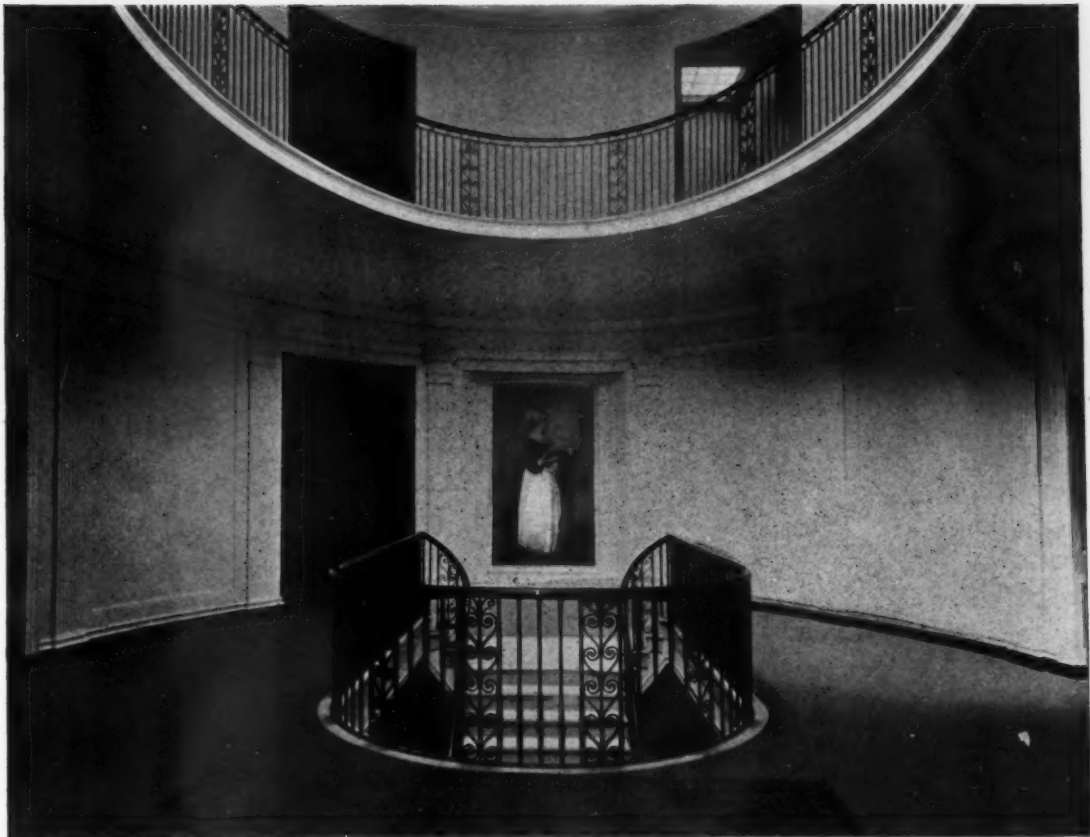


OFFICE BUILDING FOR
WALTER BAKER CO., LTD.,
DORCHESTER, MASS.



GEORGE F. SHEPARD, ARCHITECT



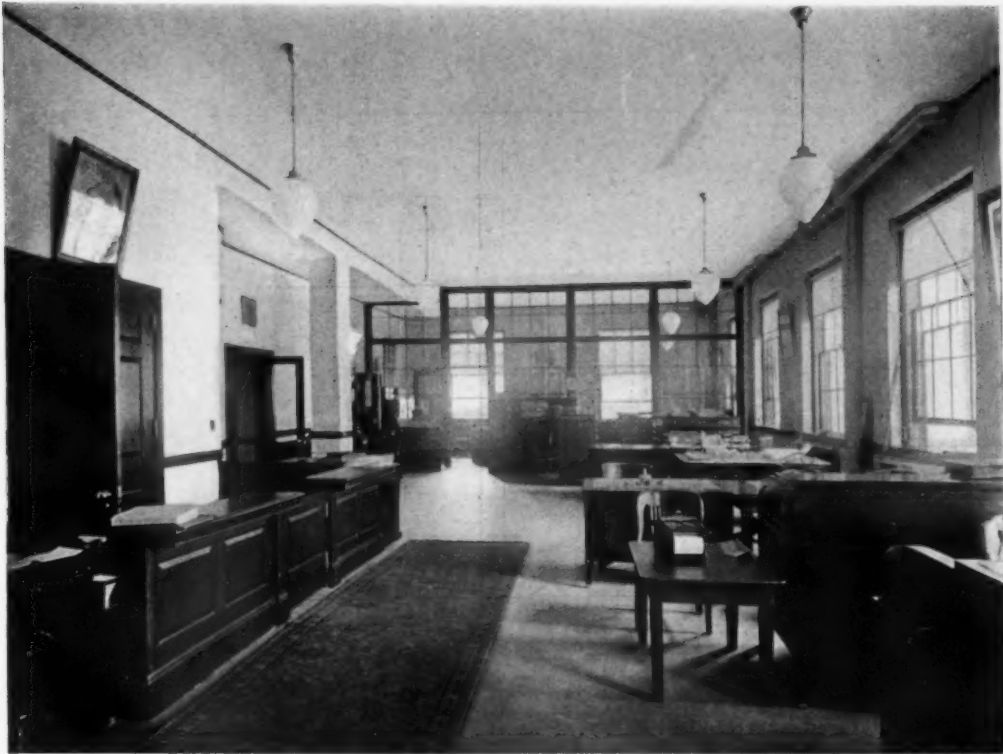


SECOND STORY HALL
AND
SECOND FLOOR PLAN

OFFICE BUILDING FOR
WALTER BAKER CO., LTD.,
DORCHESTER, MASS.

GEORGE F. SHEPARD, ARCHITECT





EXECUTIVE OFFICES



PLATE 89

EXHIBITION ROOM

OFFICE BUILDING FOR WALTER BAKER CO., LTD., DORCHESTER, MASS.
GEORGE F. SHEPARD, ARCHITECT



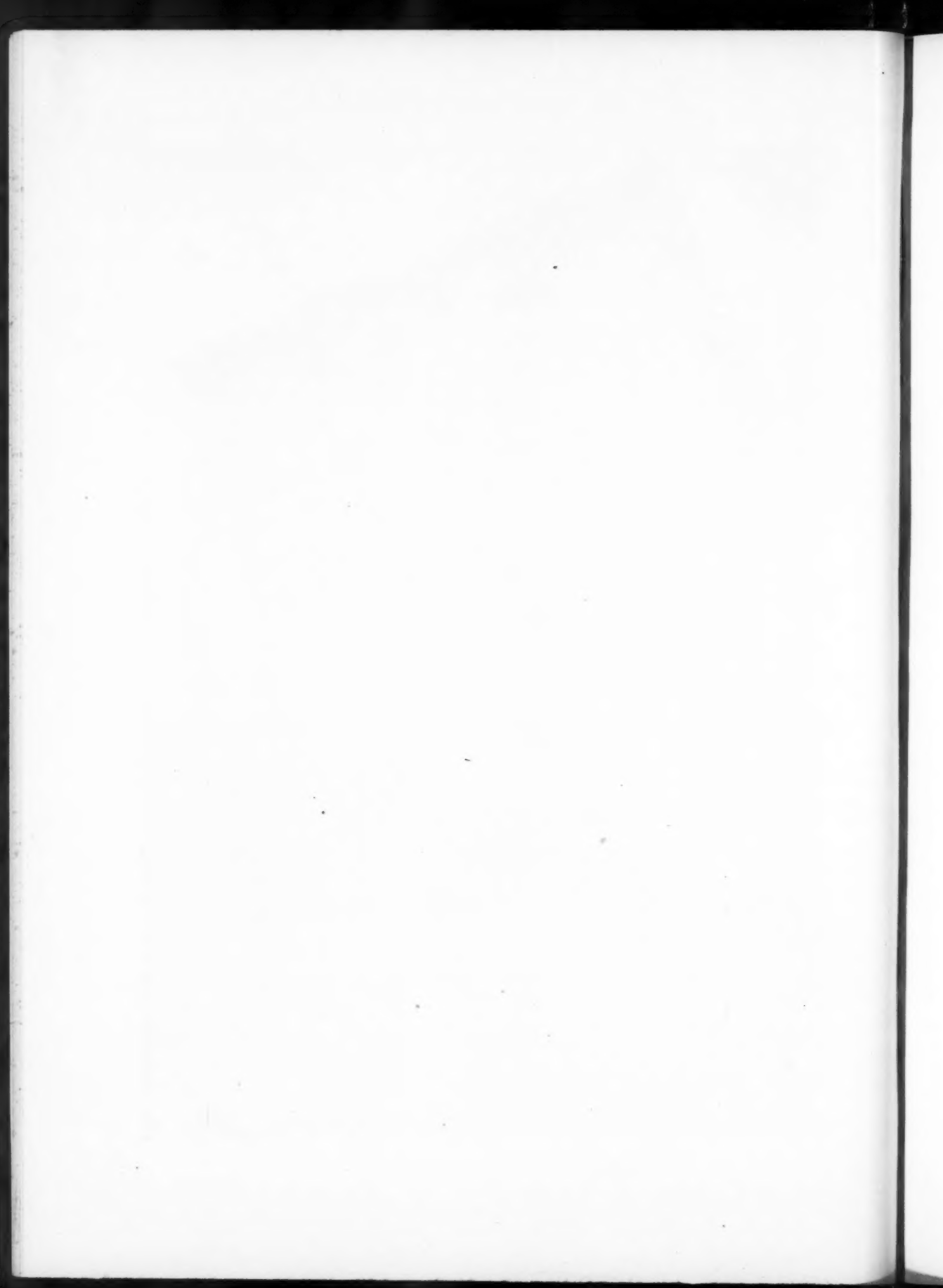


PLATE 90

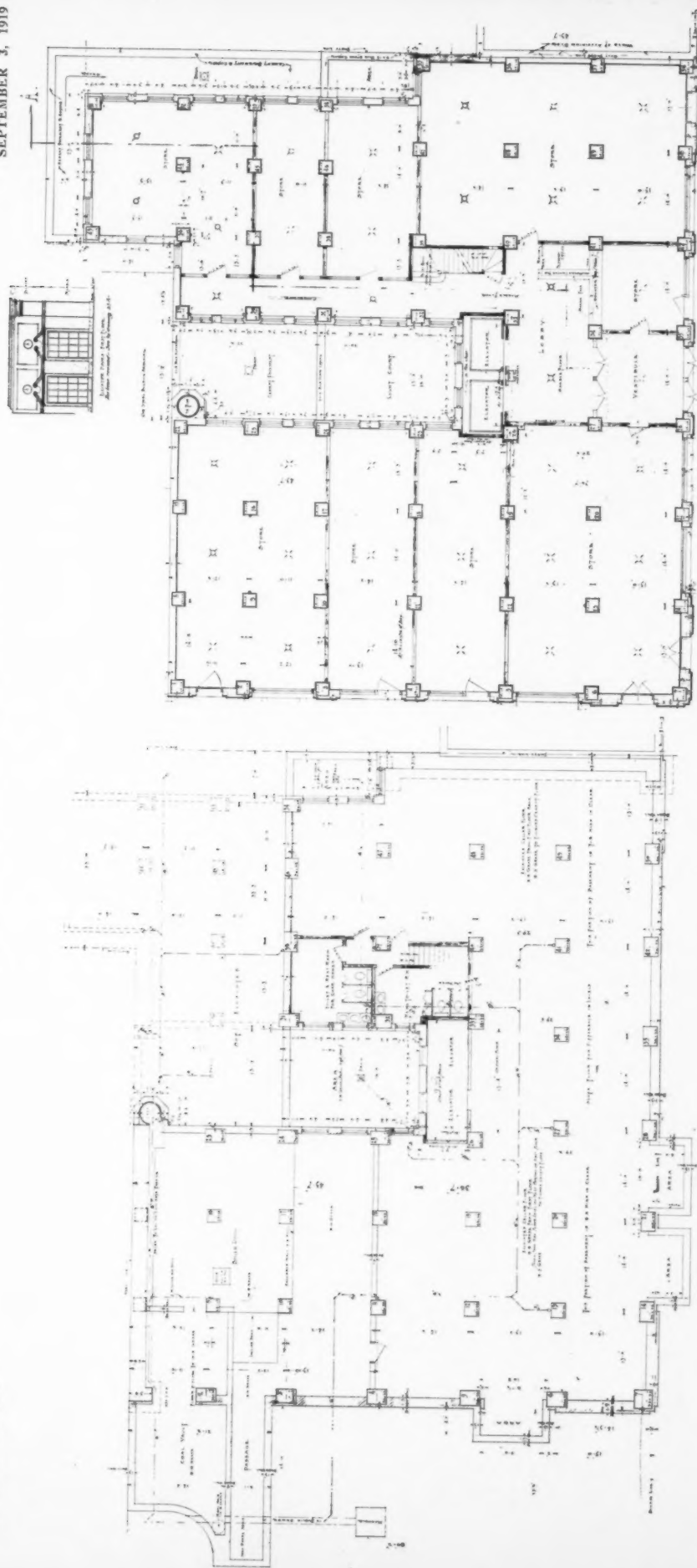
HURLEY-WRIGHT BUILDING, WASHINGTON, D. C.

C. L. HARDING, ARCHITECT

(See Engineering Section for descriptive article)



SEPTEMBER 3, 1919



FIRST FLOOR PLAN

BASEMENT PLAN

HURLEY-WRIGHT BUILDING, WASHINGTON, D. C.
C. L. HARDING, ARCHITECT

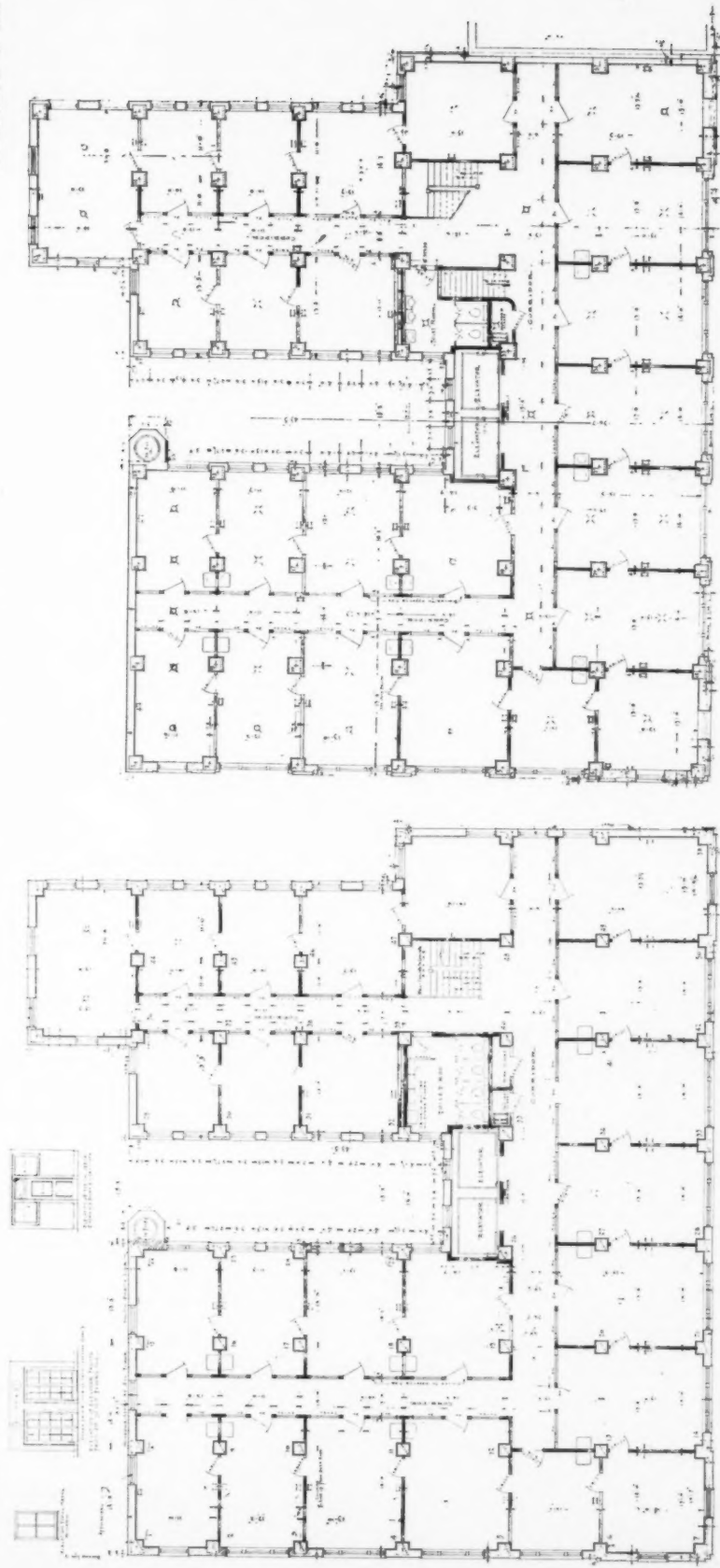
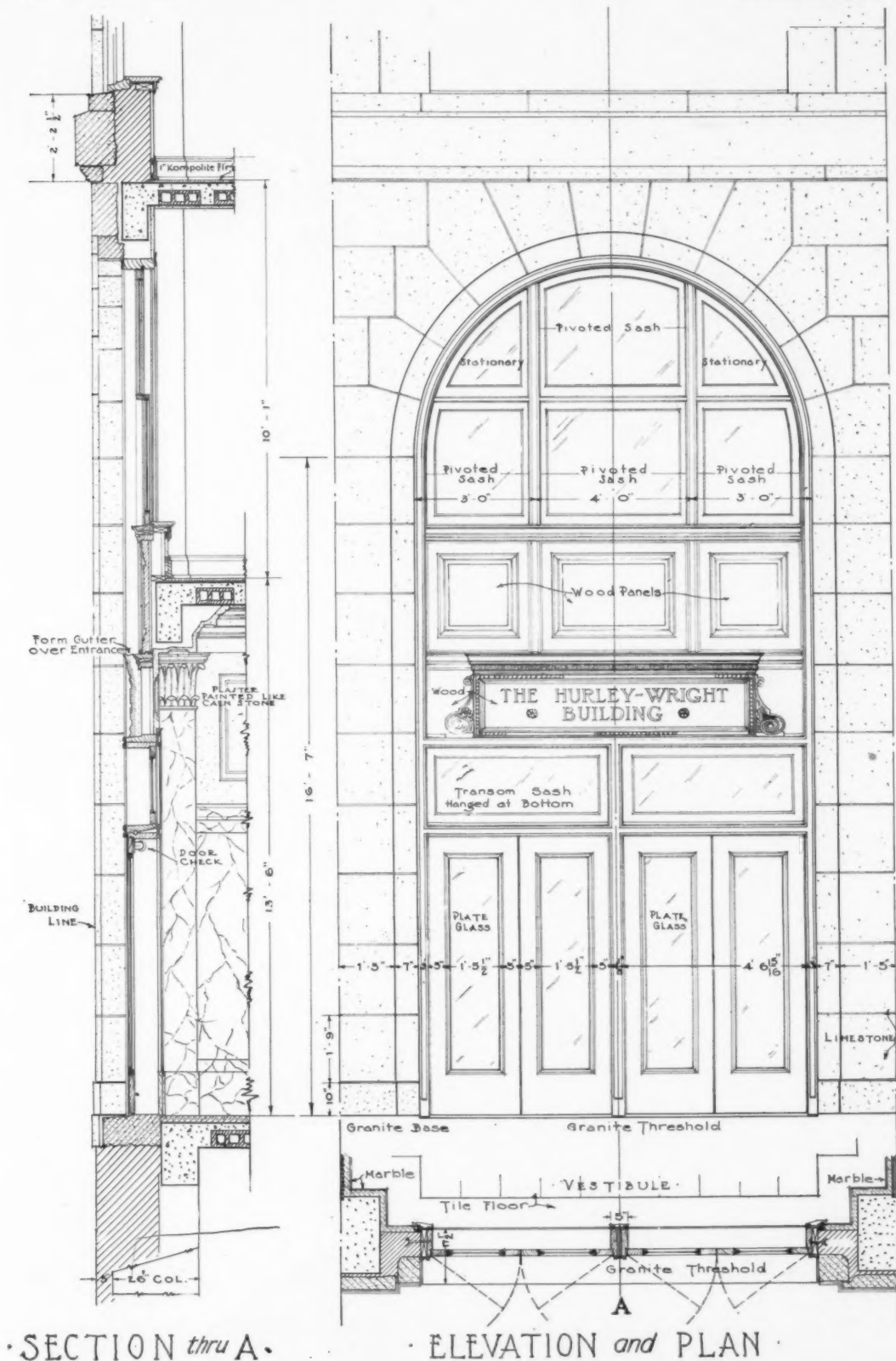


PLATE 92
TYPICAL FLOOR PLAN

SECOND FLOOR PLAN

HURLEY-WRIGHT BUILDING, WASHINGTON, D. C.
C. L. HARDING, ARCHITECT



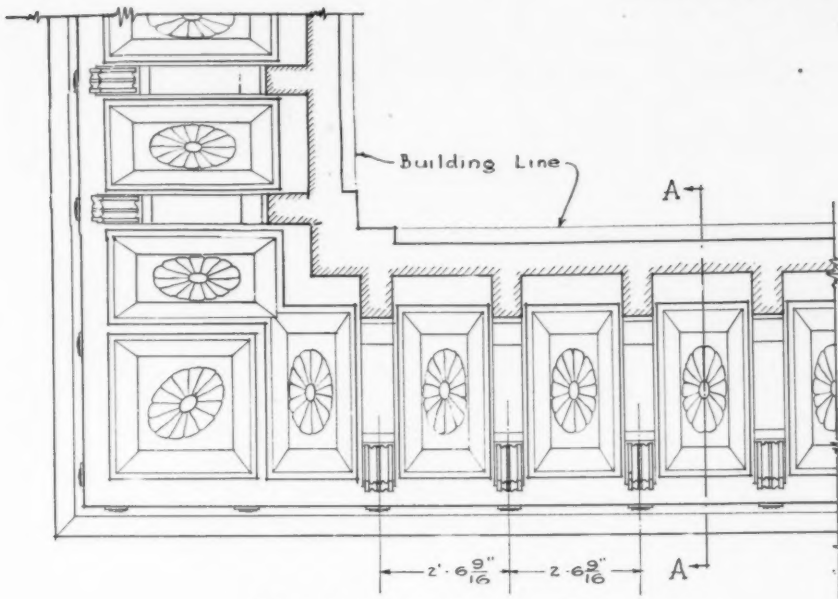
SECTION thru A.

ELEVATION and PLAN

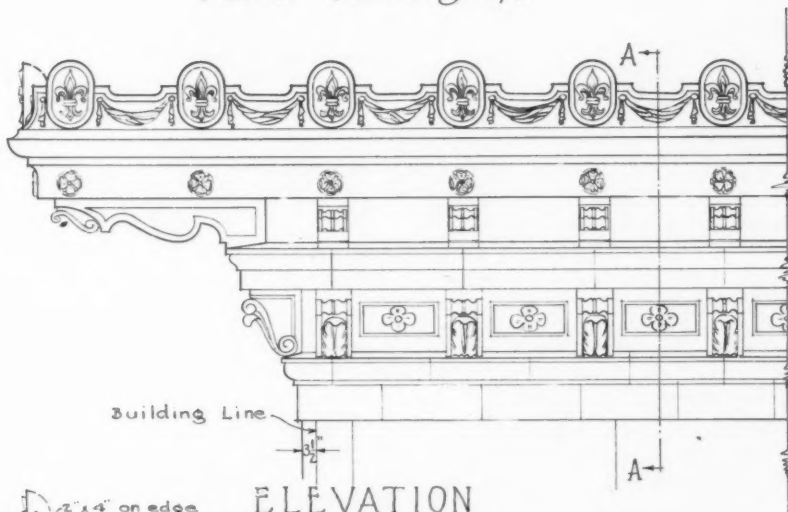
PLATE 93

HURLEY-WRIGHT BUILDING, WASHINGTON, D. C.

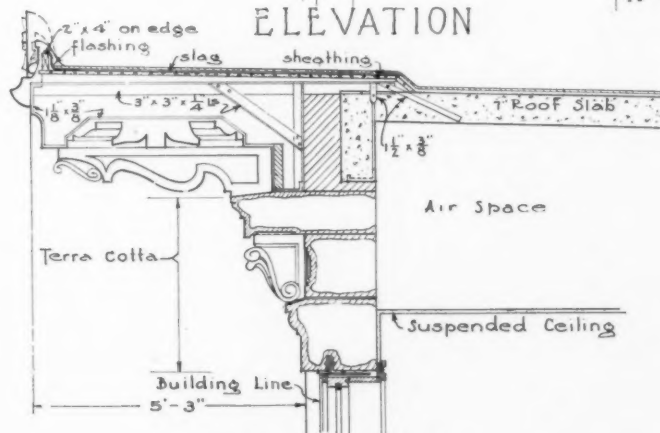
C. L. HARDING, ARCHITECT



PLAN (Looking up)



ELEVATION



SECTION A-A

How the Cost-Plus Contract Safeguards Both the Owner and Contractor

By A. E. WELLS

IF a half dozen street urchins are caught by a burly representative of the law while engaged in the pastime of shooting craps, the law against gambling acts. Law makers have recognized that gambling is an unnecessary evil and have, so far as possible, put a stop to it.

Yet an owner and a contractor can gamble with a million times the stake of the street urchins without fear of the law and it is done constantly under the guise of the lump-sum contract.

For under its terms the contractor agrees that for a certain sum of money he will guarantee the owner against all the unknown conditions involved in putting up a structure. Whether he makes his figured profit or whether he loses so heavily as to be put out of business rests partly on his ability to figure costs but largely on his luck in failing to meet those conditions which would increase costs.

Both parties to this contract stand to gain or lose. If the job costs 20 per cent more than estimated the owner gains to the other's loss. If conditions make considerable saving possible, then the contractor gains to the owner's loss.

Building contractors are dropping out year by year. New names replace the old with considerable frequency. The missing firms are those who have been expected not only to build according to specifications and within the time limit but to gamble that their costs will be within a fixed contract price. Gambling against variables such as the forces of nature and the conditions of labor is largely the reason for the changing personnel.

The contractor is an expert retained to assemble certain materials into a finished structure. The question being asked today is "should the contractor insure the owner that his structure will not exceed a definite contract price." In a competitive bidding the cost of this insurance is paid generally by the low bidder out of profits or, as frequently happens, out of his capital, for the reason that he is more likely to get the contract as he scales down his allowance for contingencies. In fact, the man whose bid includes a safe allowance for insurance against higher costs cannot expect to obtain work under the competitive bidding system. The inevitable result is the bankruptcy of many contractors and an additional cost to the owner or the

surety company to complete the unfinished contract. This situation has come to such a point that surety companies are refusing to write surety bonds on fixed price contracts except under specially favorable conditions and frequently recommend to owners the cost-plus-a-fixed-fee contract.

But from the owner's standpoint is it not preferable to know in advance what a certain project will cost? It is true that a careful estimate is due him. It should be made by a reliable contractor and checked by owner's architect and engineer. Such a figure should be more satisfactory than a competitive bid which does not necessarily show the cost of the building but only what some contractor is willing to gamble is the cost of the job.

An issue of bonds for office building or other structure can as well be based upon a careful preliminary estimate as upon a contractor's best guess. The cost may run above the estimate in either case. It can only run below the estimate under the cost-plus-fixed-fee plan. Is not the owner entitled to the possible saving?

Additional financing may be an unfortunate necessity but is there reason why the contractor should be asked to underwrite the accident of greater cost?

At the Chicago meeting of the Associated General Contractors of America, November 21, 1918, this topic was discussed and Brigadier-General R. C. Marshall, Jr., chief of the construction division of the U. S. War Department, pointed out the fault of the usual pre-war basis of contract. He showed the impossibility on recent War Department work of asking for competitive bids, because speed was the essence and detailed plans and specifications were never complete at the time when construction must start. On such work it was, therefore, out of the question for a contractor to bid on a flat contract price basis. It would not have been fair to either side. As a result there was developed a form of contract known as the cost-plus-sliding-scale-fee contract.

General Marshall said that early in the spring of 1918, the program of work before the construction division was so extensive that it seemed advisable to have the merits of this form of contract again passed upon and a committee of eminent business men unqualifiedly endorsed this form of con-

THE AMERICAN ARCHITECT

tract. In General Marshall's own words at the convention of general contractors:

"No contractor should be called upon nor permitted to undertake the performance of any contract that within the four corners of the paper upon which it appears is, or may be written the financial bankruptcy of the contractor. It is unjust, it is inequitable, it is uneconomic. The great lesson of this war on the subject of the relationship between the contractor and the owner is the cost-plus contract. This represents the only equitable basis under which a contractor may perform constructive and economic services for the owner. It is the only form of contract which affords protection to both parties. To me all the energies, the thought and experience of this country within its own continental lines during the past year and one-half of this world struggle shall have been in vain unless out of it shall grow, as a permanent institution, solidifying the economic relationship between the contractor and owner, the cost-plus contract."

Money tied up during construction earns nothing until the building is ready for occupancy and the interest often amounts to a considerable sum. When we have opportunity to work with the owner, architect and engineer from the very inception of plans and when we begin foundations as soon as the general contour of the building and equipment are determined upon, we are able materially to cut down the period during which the owner's capital is unproductive. Under the lump-sum contract it is necessary that the plans be complete before bids are taken, which may delay occupancy for months, and without occupancy a building investment is poor as a dividend producer.

But while speed is of first importance in most building contracts, yet fairness to both parties is an equally good reason for its general adoption and on that basis our company is now operating almost exclusively. We feel that the owner should reap any benefit we are able to bring about. To give us incentive to make such savings we ask a moderate percentage of that saving under the estimated cost. Our standard contract calls for a return to the owner of 90 per cent of such savings all of which would have accrued wholly to the contractor under the lump-sum plan. We believe 10 per cent of the saving to be an adequate incentive for the contractor. We have almost invariably made savings for the owner below the estimated cost on our cost-plus contracts and such savings have not been through the padding of preliminary estimates but through changes or economies in construction made with the consent of owner, architect and engineer,

which produced either a structure more adaptable to its purpose or of lower cost with equal value. Such changes could be made only with difficulty under the lump-sum contract as the average owner is averse to changing original specifications because of the generally high cost of "extras" or divergence from the original basis of bidding.

The cost-plus-fixed-fee basis has been adopted for the major manufacturing and merchandising operations. Automobile makers do not gamble with a fixed price but from season to season vary their selling prices accordingly as costs rise or fall. There is less of general price advertising than before the war and now many standard articles of commerce, once fixed as to price like the Ingersoll Dollar Watch, are today on a new basis and tomorrow may be higher or lower according as costs dictate.

Unquestionably the contractor is called in because he is an expert in building and not to absorb the risk is entailed in the lump-sum contract. It is not the purpose of the owner to buy price insurance along with his building then cost-plus-fixed-fee is a better basis.

Find Old Silver Plate

A hoard of battered silver plate dating back to the fourth century has been found on the estate of the British foreign minister, A. J. Balfour. It is described as one of the most remarkable archeological discoveries ever made in northern Europe. Mr. Balfour had agreed with the excavators that all finds should become the property of the nation, and the silver vessels have been transferred to the Queen Street Museum in this city. The silver is said to be exceptionally pure.

The site of the discovery is known as Traprain Law. It was once a fortified area, which covers sixty acres and gives evidence of occupation at intervals during the first four centuries of the Christian era. It is believed to have been at one time the site of a Celtic settlement under Roman rule. Its latest inhabitants are thought to have been Saxon pirates.

Excavators for the Queen Street Museum struck a small pit which was filled to the brim with battered silver vessels and a few coins of the Emperors Valens and Gratian. The vessels were crushed and disfigured indicating that they were regarded as booty and intended for the melting pot. They include flagons, chalices, platters, bowls and spoons. On them can be deciphered Christian symbols, such as Chi-Rho, Alpha, Omega and Iesus Christus. Scenes portrayed in relief are mainly from Bible history.

Current News

Zoning and City Planning in Portland, Ore.

The City Planning Commission, of Portland, Oregon, has issued a pamphlet intended as a practical outline of the reasons for zoning the city of Portland. It includes a summary of the results of the housing survey and findings of the City Planning Commission.

The war has brought home to Portland, as to many other cities of the country, the urgent necessity of guiding city growth in the future to follow a well thought out plan.

The Portland City Planning Commission was permanently established in December, 1918. It takes up its work with all the impetus behind it of what has been learned from the war, and with a series of fundamental data maps completed, with which to immediately proceed on a constructive program of zoning, the determination of major street plan and of many other practical improvements, the adoption of which will effect great saving to tax payers, particularly to the small home owner, who, after all, forms the bulwark and strength of any city.

The zoning of Portland is the first fundamental step, which carried out should effect a stabilization of property values that will provide greater security for mortgage loans, protect home neighborhoods as well as business investments, and make possible a fairer and surer basis of assessment for the county assessor. The work of the City Planning Commission is important to the county as well as to the city, as zoning will insure from depreciation the assessed values and sources of direct revenue for both the county and the city government.

Copies of this pamphlet may be had by addressing Charles F. Fisher, Secretary, 424 City Hall, Portland, Oregon.

Government Urges Good Housing

The United States Home Registration Service is not content with the inspection and the listing of housing accommodations. It is quite generally alive to the fact that some of its most important duties relate to the improvement of existing properties and the promotion of an adequate supply of housing.

The significance of housing to industrial efficiency and contentment and to the community welfare has never been demonstrated more convincingly than during the past few years. But even to-day cities are too apt to be satisfied if the general run of their houses is passable. Some such agency as the United States Home Registration Service is indispensable, if there is to be a general conviction that every single building which houses people must be conducive to the health and to the development of American ideals.

Every house tends to put its stamp, whether for good or evil, upon its occupants. It affects their ideals and their outlook upon the world. More obviously still it affects their health and efficiency, their temperament, their habits. This influence, moreover, it exercises upon family after

family, if not upon generation after generation. For the house is of longer life, on the average, than its occupant.

Statistics go to show that, on the average, a building designed for six families, will, during its life, house from 500 to 700 persons. Where the building accommodates 12 families and is of a somewhat lower grade so that the shift of occupants is more frequent, it will in all probability be the home of from 1200 to 1500 persons. It is a serious fact that the more deficient the house the wider will be its circle of influence, is a community concern—indeed, one of the most vital of community concerns.

Houses once built tend, in their main features, to remain unaltered. Very seldom are houses materially improved along the lines most essential to personal or social well-being. This is particularly true of the larger houses, designed to accommodate a number of families. It is unlikely that there will be any reconstruction of such a sort as to improve the dimensions of open spaces and thus the sources of light. Indeed, if there have been vacant lots adjoining, these may acquire buildings which diminish or shut off the supply of light. The dark spaces within the house, therefore, almost invariably remain. The same is true of the general arrangement of halls and rooms and of the other factors that affect ventilation. The building of a house, thus, represents the creation of a relatively fixed mold through which courses the lives of many different individuals. The house must be right from the start, and must get ample light and air from its own lot.

Highest Residential Rentals in the World

The high-water mark of residential rentals in the world will be attained in an apartment house to be erected at once on the north corner of Fifth Avenue and 72nd Street, negotiations for which have just been closed. The building will be 12 stories in height, and will contain 17 apartments, 10 simplex and 7 duplex. According to the owner's estimate, the gross annual rental for the seventeen families will be \$441,500, which, figured on the basis of square footage, will be the largest rent for apartment residential purposes ever realized in the world. The rentals of the apartments will vary from \$18,000 to \$30,000 each.

Plan to Make Better Gardens

One way which a recent experience indicates successful for tidying up back yards, is to have a competition and award a prize for the best result. It is conceded that back yards might well be utilized in better grace than is at present generally done. A tenement yard is frequently a disgrace to the community in which it is located. From that low standard but little care and attention are necessary to spruce up the little area, and make it something decent and attractive.

The present instance occurs in Passaic, N. J., where the Passaic Trust & Safe Deposit Co. offered the prizes.

Describes Chinese Built Pagoda

China's shrines, including those in the much discussed Shantung, are described in a bulletin from the Washington headquarters of the National Geographic Society.

Coleridge could not have selected a phrase more apt than "stately pleasure dome" had he intended to call attention to the best-known form in Chinese architecture. Like so much of the wrought beauty of China, such as is still seen in parks and gardens, pagodas are the work of the Buddhist church almost exclusively," says the bulletin, which is based on a communication from Frederick McCormick.

The most beautiful specimens are in the Yangtse Valley, where pagodas are most numerous. Every important Chinese and Manchurian city is garlanded with them. From the walls of Peking a dozen pagodas and towers may be counted within the city, and with a good glass half a dozen famous ones may be seen rising from the surrounding plain.

Pagodas range in height from twenty to more than 200 feet, and are of various shapes—round, square, hexagonal, octagonal, etc. They always have an odd number of stories, ranging usually from seven to nine, and sometimes possessing eleven and even eighteen.

The Chinese have appropriated the pagoda as a counterpoise to evil and used it, subject to their rules of geomancy.

At the city of Tung, in the Peking plain, a region in past years visited by earthquakes, there is a prominent pagoda which at one time had more than 1000 bronze bells suspended from its cornices, most of which are still in place. The people have this story as to its construction: A water owl lives underground at this place and when he shakes his tail it causes earthquakes. Geomancers located the end of his tail, and the pagoda was built on it to hold it down. At the same time this did not prevent the water owl from winking his eyes; but, as his eyelids have not been accurately located, a second pagoda has not yet been built. As a result, tremblings of the earth still occur.

The wonder inspired in the breast of the traveler who visits China's vast remains of abandoned capitals, extensive temples ranged in successive court and on terraces of the mountains, its pagodas, p'ai-lous, bridges, and canals, is equalled by the awe inspired by the silence and splendor of the tombs of China's emperors. The tombs of the kings of the "Six Kingdoms" in Shantung, though now only earthen pyramids terraced with little fields, have the air of the Pyramids of Egypt.

The Ming tombs, near Peking, are the most famed in our day, perhaps, because they are relatively in a good state of preservation and are accessible to travelers. They are approached through the five-arched stone p'ai-lou, already mentioned, and by an avenue of stone animals nearly two miles in length. The sacred buildings are placed on the southern slope of the mountains and nearly inclosed by their encircling spurs.

The place has an inspiration to all travelers. In front of the tomb of Yung Lo there is a sacrificial hall that is one of the largest buildings in China, and is perhaps only exceeded in dimensions by the Tai Miao, or ancestral temple of the Manchus, attached to the Forbidden City, Peking.

In the matter of tomb-building, the Emperor of the "Three Kingdoms," 220-265 A.D., greatly exceeded the Mings. He ordered his son to build for him seventy-two tombs, so that his enemies would not know which contained his tablet. The achievement may be noted of another ancient emperor who constructed his tomb and then built, peopled, and garrisoned a city near by for its protection. Perhaps the Chinese, who have performed the

greatest of engineering feats, have surpassed the Egyptians, Persians and Greeks in this direction also.

Older than these, and what may be called the one shrine in all China green with the devotion of the people, is the tomb of Confucius in Shantung. Here worship continues through the ages, under the patronage of all dynasties, since the fifth century, A. D., when the Emperor Kao Ti set the example of imperial sacrifice there.

As time went on the different dynasties neglected the tombs of their predecessors, so that now the tombs of the Manchus are the best specimens of mausolea in China.

The Manchus followed the Chinese custom and law in respect to their ancestors. Solemn juniper forests enclose their sepulchers, which are approached through magnificent p'ai-lous and are preceded by stately buildings. There are no less than five imperial Manchu burial places. The original is at Hsin-King, eastern Manchuria, and is called the Yung Ling. Two are at Mukden and two in the region of Peking.

Invite Public to Contribute Inscriptions for Memorials

WASHINGTON, D. C., Sept. 1.—The American Federation of Fine Arts has opened a new field for competition. The organization has invited the public to contribute suitable inscriptions for war memorials. It is expected that the call will have a widespread appeal to the American people.

Charles Moore, chairman of the committee on war memorials, has announced that selected inscriptions will be published from time to time with due credit to the author. The inscriptions may embody quotations or be entirely original. The committee will not consider suggestions which are not simple, dignified and in harmony with the memorial on which it will stand.

The committee has received a letter from Cecil Harcourt Smith of the Victoria and Albert Museum regarding war memorials. The letter reads in part: "Long after the time when the great war will have become little more than a name in history, the monuments of it (some of them) will survive, and future generations will look to these for something that may tell them of the spirit which promoted the erection; for the most part they will look in vain. They will find attached to these monuments merely a banal phrase or two repeated ad infinitum, most a bald, chilly, perfunctory statement of facts."

London Troubled by House Shortage

Very grave fears are entertained in responsible quarters as to the housing situation in England next winter. It is estimated by government officials that by the beginning of winter there will be an excess of population over housing accommodation, even at the low pre-war standard, of about 2,000,000 adults. During the summer months, when a great deal of time can be spent in the open air, the worst consequences of overcrowding are not apparent, but the crisis may be expected about next November.

In the judgment of those in authority, whose business it is to face the problem in all its aspects, one of the most alarming possibilities of the imposition of 2,000,000 crowded population is the outbreak in epidemic form of diseases of the worst kind. The War Cabinet is now considering a plan which it is estimated would serve at the beginning to house about 100,000 of those who most urgently need homes.

Cutover Timberlands Increase in Value

The time is coming, and at no distant date, when the owners of Southern cutover timberlands, especially in the Coastal Plain area, will be paid for the privilege of clearing their lands of the yellow pine stumps that now disfigure them. This is the opinion of Clement S. Ucker, vice-president of the Southern Settlement and Development Organization, who has just returned from a trip of several weeks extending through the South Atlantic States.

The clearing of cutover lands in the South has appeared to some people to be a serious problem, although competent authorities have estimated that pine stump land can be cleared by the use of high explosive or by other modern methods at a cost of not more than \$10 per acre.

The situation foreseen by Mr. Ucker in which the cutover land owners will be paid for letting their land be cleared arises in part out of the fact that the supply of rosin and turpentine obtainable from the standing pine timber of the South is perhaps not so plentiful as it once was. Also the demand for these articles, which are known in the markets of the world as "naval stores", as well as for other by-products of the lumber industry, has increased, due first to war conditions and since then to the necessities of the reconstruction period and the return of peace.

Investigations and experiments, says Mr. Ucker, have shown that there is a high percentage of naval stores and other valuable substances in the yellow pine stumps that dot the coastal plain area from the Chesapeake Bay to the Rio Grande. Scientists say that this is due to the fact that after the tree is cut the roots do not die immediately. On the contrary, millions of tiny rootlets continue for a time to absorb food and moisture from the earth which are transmitted upward in the form of sap to the stump. The latter thereby becomes even more thoroughly saturated with valuable oils, etc., than was the trunk of the tree.

The result is that millions of pine stumps throughout the Southern States constitute a veritable mine of materials needed by many industries and many countries for various purposes. These materials can be made available by pulling the stumps out with powerful machinery and putting them through the process of distillation. The stumps are becoming so valuable, it is said, that there will be competition to purchase them.

There are plants running successfully in Georgia and other Southern States where pine stumps are being successfully converted into rosin, turpentine, pine oil, various other oils, acetate, tar, pitch, alcohol and other valuable products. In some cases 20 to 25 by-products are being obtained by certain processes involving the application of intense heat in an oven or retort, after which even the residue is valuable charcoal.

The uses of rosin and turpentine in the soap, paint and other industries is generally understood. Pine oil is valuable in making various chemical preparations, and other wood oils and by-products have their well recognized uses. The demand for alcohol is very great, and ethyl alcohol as well as wool alcohol is made from pine chips. Rosin extracted from the stump chips by one process leaves pulp suitable for making paper. The success of many of these operations whereby valuable by-products are recovered from pine stumps has been demonstrated scientifically, practically and commercially, through co-operation of government experts, lumbermen, cutover land owners and distillation plants.

Pending the clearing of his holdings, the cutover land owner is putting them to use by grazing cattle, sheep and goats, which is becoming one of the largest industries in the South. According to George M. Rommel, chief animal husbandman of the Department of Agriculture, the grazing capacity of the Southern cutover lands is such as to permit great expansion of the livestock industry in the South-eastern and Gulf States.

Works Out World Center Scheme

A magnificent scheme for a new city to form a world center, housing international interests and uniting peoples and nations for the attainment of peace and progress, was worked out by Hendrik C. Andersen, in conjunction with the French architect, E. M. Hebrard, and published just before the war. What then must have seemed to many a hopelessly Utopian scheme has to-day acquired a new actuality. The new city is now proposed as a memorial city to those who fell in the war for liberty and progress, and an administrative center for the League of Nations. The description of the city, as given in a publication called *World Conscience*, issued by Mr. Anderson from 3. Piazza del Popolo, Rome, is most interesting. The beautiful symmetry of the plan of the city suggests at once its idealistic character; there never was a site where such a plan could be exactly carried out; but it is a noble conception, and, since the League of Nations must have a home, why should it not be nobly planned?

Camouflage in Peace Times

WASHINGTON, D. C., Aug. 30.—The Arlington experimental farms, erected by the Department of Agriculture, will not be demolished as a result of Secretary Houston's plan to meet all objections against their architectural lines. The farms are located between the Arlington National Cemetery and the Lincoln Memorial. Senator Phelan, of California, recently introduced a resolution for the removal of the structures, which he described as "unsightly".

The Department of Agriculture will have the roof treated with a chemical paint, which is warranted to be an effective camouflage. In event the paint fails in its mission, the secretary will have expert foresters arrange a screen of trees. Senator Phelan plans to direct the attention of Congressional committees to the war structures on the Potomac.

Use Sandstone for Pottery

Des Moines Boy Scouts are in a fair way to become rivals of the Indians and Mexicans in the art of pottery making.

The Scouts employ sandstone instead of the clay of ancient work. They are shaping pitchers, match cases, bowls, plaques and a wide assortment of other articles, and the results are receiving praise.

The objects are said to be as nearly perfect as it is possible to make them.

The contour and design were acquired by using a harder surfacing stone on the sand.

Some of the youthful shapers of stone receptacles add a touch of the wild and untamed to their pieces by daubing black paint here and there on a red sand surface. Varnish keeps the sand from dropping.

Developing Stained Glass Art

Dublin has developed greatly the stained glass art industry and many churches which used to get stained glass from Munich now get it at home. The reputation of Irish glass has been grown and extended beyond the borders of Ireland and windows have been supplied not only to churches in England but across the Atlantic.

A remarkable window has just been on exhibition in Dublin. It is the memorial which the Duke of Connaught is putting up in Ottawa to the memory of the eight members of his Canadian staff who fell in the war. The window was designed by a young Belfast artist, Miss Geddes.

It represents a procession of soldier saints, Longinus, Sebastian, Martin, Edmund, Joan of Arc and King Louis led by St. Michael and St. George and followed by King Arthur's knights, meeting a warrior escorted by the Archangel Gabriel and Raphael and the Angels of Death and of Peace.

Re-Employment of Service Men

The valuable work of the Re-employment Committee of New York City has been made generally known by press reports appearing from time to time in the daily papers. The following letter received from this bureau should receive attention by all whom war has touched:

"The Re-employment Bureau of New York City, 505 Pearl Street, has completed its first three months' operation with a record of nearly 12,000 successfully placed soldiers, sailors and marines. With this excellent record behind it, the bureau now faces the contingency of an increasing demand for its services—from 500 to 800 men are applying for jobs daily—without sufficient funds to continue operation beyond the end of another week. The welfare organizations have generously contributed more than \$50,000 to the support of the bureau, but their funds for this purpose are nearly exhausted. Unless new sources of revenue are found at once, the bureau will be compelled very shortly to disband its organization, close its doors and leave the returning service men to their own devices in seeking a livelihood. This, all agree, would be a great mistake. To prevent it and to allow the bureau to continue its excellent work for employers as well as service men, \$75,000 are needed. Funds are being solicited through the 80 employers' organizations co-operating with the Re-employment Bureau. Gifts of any denomination are acceptable. Checks should be sent to: Alfred L. Smith, executive secretary, Re-employment Committee of New York City, 233 Broadway, New York City."

For Better Public Highways

WASHINGTON, D. C., Sept. 1.—The possibility of another period of transportation congestion is once more bringing the public highway to the front.

While it is admitted that the railways must necessarily form the nations' long distance transportation lines, the auxiliary power of the public road, through the development of the gasoline engine and the motor vehicle, is receiving thoughtful attention in official circles.

Public discussion of high cost problems and the railway situation ran into the country road at two points during the past few days. The first point touched was that the public highway is a potential short haul freight and express line, and that with a national system of improved roads, intersecting each State north, south, east and west,

there will thus be constructed the basis of a comprehensive, nation-wide system of traffic arteries with which state and county systems may connect. With such a system provided the development of freight and express transportation is anticipated far beyond comprehension. Its advocates assert that the motor truck, as it appears on the public highway to-day, is but an infant compared to what it will be, once the public roads are built to permit its enlarged use.

Those who doubt the possibilities of the highway freight and express as factors in the reduction and stabilizing of food costs are told to look back over the development of the railway and note that the beginning was upon a basis far less promising as a practical proposition than the basis upon which the gasoline-driven vehicle stands to-day.

Dropping back to the point of short haul delivery, attention is being called to the fact that the radius of highway shipping is being gradually extended as modern roads are being built. Advocates of a national highway system, the creation of which is provided for in the Townsend bill, now pending in Congress, have encountered the argument that approximately fifty miles is the maximum of motor delivery. Their answer is that while this may be true, it is true only at the present time because of the illogical connections and the general conditions of the road.

The same economic conditions which forced railway development is forcing a national development of the public highway, and the advocates of a national highway system assert that each day's discussion of the present economic situation produces additional reasons why the Federal Government must get down to highway building on a nation-wide scale and in dead earnest.

In a sense, the legislative mind at Washington seems to be approaching the present phase of economic problems somewhat in a spirit of weariness. "Will we ever get anything really finished?" is a question which seems to express their feelings, since so many problems, like the proverbial cat, keep coming back.

But one fact seems to be making itself very clear, and that is that since the public highway is the first lap between the producer and consumer, the logical place to begin cutting down living costs is by eliminating permanently the time-consuming and fuel-wasting roads. To accomplish this purpose the construction of a national highway system as a necessary and logical connection with state and county systems is being looked upon with increased favor.

Cincinnati's Billboard Ordinance

Through the efforts of Cincinnati's Building Commissioner, George E. Rendigs, an ordinance has just been enacted prohibiting the maintenance or erection of billboards in any residence block without the consent in writing of the owners of a majority of the property on both sides of the street. For a long time the residence sections of the city, its suburbs and its beautiful hillsides have been disfigured by hideous billboards. No place was too fair for them to invade. They have caused property values to decrease and have given rise to all kinds of nuisances wherever they exist. The Building Commissioner had a strong public opinion back of him which caused the enactment of the ordinance without difficulty. Already several prosecutions have begun under the new ordinance. It is certain to prove a boon to residence property in Cincinnati and Building Commissioner Rendigs deserves great credit for introducing and pushing it through. Every city in the country needs this protection.

Quarter-Sawed Oak Chair Posts at Plain-Sawed Prices

By proper handling at the rip saw, a plain-sawed oak board can be cut so as to yield a slight amount of true quarter-sawed and a large amount of semi-quarter-sawed material. All of this material is suitable for bending; in fact, tests by the Forest Products Laboratory, Madison, Wis., in cooperation with a large chair manufacturer, have shown that the semi-quarter-sawed stock can be bent in the hot-plate bender with less surface checking than either the true quarter-sawed or the plain-sawed stock. This is of particular significance to the chair manufacturer, for it means that the purchase of 2-in. quarter-sawed oak plank for chair-post stock is unnecessary.

A common type of back post is 1 x 2 in. in cross section, with the quarter-sawed surfaces appearing in the front and back, or narrow faces. Considerable saving may be effected by the selection of as much true and partly quarter-sawed back-post stock as possible from a 1-in. plain-sawed oak board. The flat grained portion of the board may then be used for other chair parts where the flaked surfaces are not essential.

When the chair part to be bent is square, as is frequently the case, it is obviously unnecessary to purchase any quarter-sawed material at all. An entire plain-sawed board can be worked up into quarter-sawed parts.

Makes Statement on Railroad Situation

The Board of Directors of the Chamber of Commerce of the United States has issued a formal statement about the demand of railroad labor organizations for government ownership, as follows:

"The demands of the railway labor organizations create a situation which calls for the most serious attention and deepest thought of all citizens. These demands raise vital questions which affect directly every phase of life throughout the United States. They constitute a definite program for government ownership, and this despite the fact that government ownership has proved to be disastrous wherever it has been applied.

"Any proposal for government ownership of railroads, whatever the provision for operation, raises questions which every citizen must eventually consider for himself. To increase the present public debt from thirty billion dollars to fifty billion dollars in order to acquire the roads would severely strain the credit of the nation and depress the value of the Liberty and Victory bonds held by millions of people. The public as a whole through the government would be asked to assume the burden and financial risks of railway capital, while the roads would be run by and for the managers and employees. The suggestion of possible reduction of costs of transportation and betterment of service under such a system is purely theoretical and has not been established in practice by the government operation of the railroads. On the contrary, in this country as elsewhere the very opposite results have been shown.

"Government ownership means a retarded development of the railroads. Because of the war the country is sadly behindhand in railroad construction. Additional facilities must be added at once and enormous railway extension must be made during the next few years to meet the actual demands of our country's growth. This calls for the highest type of individual initiative and enterprise. Politics must be kept out of the railroad business. To make

the railroads public property and those who operate them government employes are to throw the railroads into the arena of party politics. In such an event there would be serious danger of autocratic control of the government by government employes.

"The overwhelming trend of public sentiment throughout the United States is opposed to government ownership of the railroads. The organizations constituting the membership of the Chamber of Commerce of the United States, scattered throughout all sections of our country, have just declared with practical unanimity in favor of adhering to the policy of corporate ownership and operation of the railroads under a comprehensive system of government regulation and with the return of the roads to their owners as soon as adequate legislation, such as the National Chamber asks, can be enacted.

"The Chamber of Commerce of the United States believe in the maintenance of that most vital principle of our American institution—private initiative.

"At its recent annual meeting in St. Louis it declared it to be essential that our government should scrupulously refrain from entering upon any of the fields of transportation, industry, commerce, or any phase of business that can be successfully undertaken and conducted by private enterprise."

"The concrete and actual question that confronts the country now is, shall we depart from these fundamental principles?

"Government ownership would monopolize and deaden, rather than democratize and revive, railroad transportation. It would paralyze a great industry whose vigorous development is essential to the happiness and prosperity of all our people."

"Cone Dwellers" in Asia

Refutation of the common belief that apartment houses are a development of modern methods in building and that the idea of housing 30 to 50 families under one roof was thought of first in the nineteenth century, is contained in an article on "The Cone Dwellers of Asia Minor," published in the *National Geographic Magazine*. The late Dr. J. R. Sitlington Starrett, traveler and explorer, the author of the article, presents a history of his inspection of the land of the Troglodytes whose homes in the Cappadocian valley were shaped by the eroding action of flowing water some 2,000 years before Christ, and stand to-day, "walk-ups" it is true, but nevertheless nature's own apartment houses.

The habitations are cone-shaped. Pumice stone is the material of which they are made, and to protect them from the action of rain nature provided them with roofs of lava that was belched from nearby volcanoes.

Traveling at Home

A diminutive world has been laid out on two acres of Santa Barbara, where boys may study geography by "Actual contact."

"Boyland" was founded at Santa Barbara in 1916 by Prince Hopkins. It is a self-governing institution. The oceans are from two to three feet deep. Every big wrinkle, river, valley and great mountain in the earth's surface has been reproduced faithfully.

The school is now attended by youngsters, who enjoy themselves as never before traveling from the United States to Europe in three seconds and in scaling mountains by a mere lifting of the foot.

To Complete Brumidi Frieze

Visitors to the capitol at Washington forty years and more ago remember the scaffolding in the rotunda and the artist Brumidi laboriously painting on the frieze. Death stayed the hand of the Italian painter in 1880, and the historical series beginning with the landing of Columbus remained unfinished. The decorative work was begun by Constantino Brumidi, and after his death Filippo Costaggini continued it for nine years, using the Brumidi designs, for which, the report is, the Brumidi family were never paid. Last month, Charles Ayer Whipple, a Massachusetts painter who has an international reputation, was appointed to complete the frieze with appropriate designs. For the last quarter of a century congress has argued over the bare spaces in the frieze. The designs of Costaggini were not acceptable. In the space left Mr. Whipple will introduce three subjects, continuing history to the present time—"The Spirit of 1917," the "Lusitania," a symbolic group, and the battle of Château Thierry. The only other battle scene in the series is the Battle of Lexington. Senator Lodge estimated that an appropriation of \$20,000 would complete the frieze and enable Mr. Whipple to restore paintings which have deteriorated.

Forest Products Laboratory's Peace Work

MADISON, WIS., Aug. 30—Work for railway car building companies has just been arranged at the Forest Products Laboratory here. Many of the companies have had much trouble, it appears, as a result of heavy losses in drying stock used in building railway cars. They wish the laboratory to give them the benefit of its information on more efficient and economical methods of handling various species during the drying process. Laboratory representatives are now visiting the various car-building plants with the idea of working out such changes in their present kiln-drying methods as will reduce their losses and difficulties to a minimum.

In the pulp and paper field the laboratory, in addition to continuing its study of the suitability of various species for pulp and paper, has already made plans to extend the use of wood pulps in the manufacture of twine, artificial silk, rugs and textiles; to promote the utilization of waste products by bringing together the pulp and paper industry and the industries which can use pulp and paper wastes, such as the tanning industry and the roofing-felt industry.

School of Art at Boston University

An anonymous donor has founded a department of art and architecture in the School of Education of Boston University. The new department will go into operation at the opening of the university year in September. The curriculum of the first year will offer introductory and fundamental studies. In the second year the program will consist of advanced studies. The courses will be open to all students in the School of Education and to students in the College of Liberal Arts and the College of Business Administration who secure recommendation of the dean of their school. Only students will be admitted who have met the entrance requirements for collegiate standing in the School of Education.

Canadian Draftsmen Form New Organization to Stimulate Profession

An association of draftsmen in Canada has just been formed at Toronto, embracing all branches of the profession, including the arts and science of building, construction, engineering and marine. The main objects of the newly formed organization will be "to encourage more sound training" and "ensure better recognition of the draftsmen as a co-ordinate to the architect and engineer." The society has been officially organized as the Draughtsmen's Association.

Standardizing Lumber Grades

The leading lumber organizations are not only seeking to standardize molding patterns so as to eliminate many that are useless, but a start has also been made toward standardizing lumber grades.

For example, there are ten or twelve different associations, representing as many different species of wood, all of which list a grade of No. 1 common, and a series of shop grades which are similar in name. The idea is to get these all to represent as nearly as practical an equal similarity in actual lumber grades, so that a man may know in a general way just what to expect in a given trade, no matter what the timber species. The idea is a good one that should have the earnest support of all concerned.

Personal

Walter S. Adams, Jr., architect, Mullin Building, Morristown, Tenn., desires to receive manufacturers' samples and catalogues.

Charles L. Hoffman, architect, has opened an office for the practice of his profession at 110 N. Seventh Street, Richmond, Virginia. He desires to receive literature and manufacturers' samples.

Charles W. Attwood and Ernest H. Trysell, architects and engineers, Detroit, Mich., announce that they have opened offices at 603 Temple Building. The partnership will be conducted under the name of Attwood & Trysell, Architects and Engineers. They desire to receive manufacturers' samples and catalogues.

Major T. M. Newton, Assistant State Architect of New York, who has just returned to duty after two years' service abroad, received the decoration of the Legion of Honor, as well as a citation from Gen. Pershing for conspicuous service in his work at the A. E. F. artillery school. Major Newton is the youngest son of Gen. John Newton of New York, who commanded the First Corps at Gettysburg and later became Chief of Engineers, U. S. A., and who was widely known for his part in blowing up the rocks in Hell Gate.

Charles W. McKay has assumed charge of the appraisal division of L. V. Estes, Incorporated, industrial engineers, 202 South State Street, Chicago, Ill. The appraisal division specializes in the appraisal of industrial properties for Federal income tax purposes and in the appraisal of public utility properties in connection with rate cases. Mr. McKay is well known in both the industrial and public utility fields. He is a member of the Advisory Council of the Industrial Extension Institute. The past year he has supervised the appraisal of nearly \$40,000,000 worth of industrial and public utility properties.

News from Various Sources

Three thousand Japanese have arrived in Lower California, with evident intention of settling there.

Word is had from Sioux City, Ia., that not only are there no houses to be rented, but that manufacturers of tents were unable to satisfy the demand.

Journal of Commerce states that French industry shows signs of revival in many directions in spite of coal shortage, lack of local transport and labor troubles.

Announced from Tokyo that prominent Japanese business men have decided to float a \$25,000,000 company for purpose of laying cable line between United States and Japan.

Dispatch from Santiago, Chile, states that a \$10,000,000 program of construction was decided on by Municipal Council in order to give work to unemployed and alleviate social unrest.

According to figures collected, combined forces of Federal Gov't, States and counties will spend more than \$340,000,000 in new construction and maintenance of nation's network of highways.

A press dispatch from Para, Brazil, states that several expeditions are on their way to explore commercial possibilities of vast regions of Brazil, opening of which received impetus by war.

Wall Street Journal states that large British engineering company will produce 16-20 horsepower five-passenger motor car and sell it at approximately \$1,500. Car built for test purposes was run successfully 30,000 miles.

Bureau of Memorials, War Camp Community Service, states that plans to erect war memorials in form of buildings to be used as social centers have been decided upon by 236 cities, towns and villages in the United States.

Journal of Commerce states that principal British passenger steamship companies will make their maiden venture with fuel oil soon. Advantages of oil fuel are by now clear to all boards of large steamship companies.

Forest Service announces that net receipts from national forests for year ending June 30, 1919, reached total of \$4,358,414.86, making increase of \$783,484.79 over receipts for previous year, and setting high-water mark in receipts.

According to N. Y. *Times*, German Gov't has formulated a plan by which factory workers, through their councils, will have equal authority with directors in all economic and social questions, wages and increase in production.

Four existing organizations of farm laborers in Paris have federated under name of Federated Land Union and joined General Labor Confederation. They have asked for application of 8-hour day or its equivalent in agricultural work.

Belgium will proceed at once to electrification of principal railroads, in accordance with decision recently taken by commission having charge of matter. First electric line will be from Brussels to Antwerp and will cost 15,000,000 francs.

M. Demorlaine, Inspector of Forests and Rivers and Professor in Agronomical Institute, France, estimates amount of damage caused to forests of France directly or indirectly by war, at 600,000 hectares of forest, worth 1,600,000,000 francs.

Deutsche Allgemeine Zeitung of Berlin advances novel plan for abolishing strikes on public utilities. Advocates compulsory universal service in vital industries and public utilities for stated period, idea being to have a reserve army of workers in event of strike.

The Shipping Board has announced that concrete ship *Atlantus*, first of her type to be delivered from an Atlantic shipyard, and second concrete ship to be operated in Atlantic waters, will be turned over by Shipping Board for operation in West Indian service.

Reconstruction Research Division, Council of National Defense, has received information to effect that control of food and commodity prices generally, with a reduction of cost of living all along the line, is being sought by Italian Government through system of national aid in establishment of co-operative purchasing organizations.

Belgian Government has undertaken a project for reclaiming devastated farm lands in battle zone. Farms will be taken over from owners and worked under latest scientific principles, and then returned in first-class condition to them. Owners are to be paid 5 per cent interest on prewar valuation of property during operation by Government.

Resolution by Senator Frelinghuysen, proposing investigation of coal situation by Senate Interstate Commerce Committee, authorized Aug. 15 by Senate, provides for inquiry into production and marketing of coal, with view to ascertaining causes of present high prices.

A commission consisting of Belgian and British architects has been formed to study and report on reconstruction of Ypres. The town is to be rebuilt on the same site, and inhabitants will be required to preserve in rebuilding homes the same style which characterized Ypres before the war.

Department of Agriculture announces publication of bulletin entitled "Range Management on the National Forests," by J. T. Jardine, inspector of grazing, and M. Anderson, grazing examiner. This gives results of fourteen years' experience in range management which Forest Service has had since it assumed charge of forests. It states that Service has been working steadily to increase country's supply of meat, wool and hides by developing methods of handling stock on range, which will allow as large an increase as possible in number of sheep and cattle grazed without injury to forests.

Financial and Commercial Digest

As Affecting the Practice of Architecture

United States Must Act Quickly in Supplying Europe's Needs

COMMENTING on the critical financial situation existing in Europe today, Charles H. Sabin, President of the Guaranty Trust Company of New York, says that he has been deeply impressed by the recurring reports from authoritative sources concerning the critical condition of Europe's financial affairs.

"They sharply drive home the lesson that this country must act, and act quickly," Mr. Sabin states, "not only to save the business situation in other countries, but also in its own interest, because of the extent to which we are involved in their affairs, and the absolute dependence of our prosperity upon their rehabilitation. Unless the United States can find foreign markets for its present highly stimulated production there will inevitably be a business recession in this country.

"We have in a large sense the welfare of the whole world in our keeping today, and upon the wisdom and far-sightedness which we show in discharging this obligation will depend, in large measure, not only the progress of other nations, but our own future as well. I do not mean to speak as an alarmist in the situation, because I believe absolutely that if the established countries of Europe are given the co-operation which we are able to give at this time, there will be no question of their making good upon their obligations and justifying any credit or consideration which we may extend to them, but the fact is that we over here are 'fiddling while Rome burns.'

"The need of European countries is immediate and every day's delay makes their situation more difficult. Their pressing needs are for food, raw materials, coal and machinery. These can only be supplied to them through extension of credit on our part, as they have neither the gold nor the goods with which to make immediate payment. Food for the hungry and work for the idle must be provided if they are to maintain stable political conditions and begin production. These bald facts are obvious to all who have studied the situation, but failure to appreciate their bearing upon our own affairs has apparently delayed action on our part.

"It is certain that American banking institutions cannot handle the credit demands presented without co-operation. Such co-operation must be accorded by our Government, our manufacturers and producers. By team-play between these important factors in the situation, Europe can be put on its feet financially and industrially, and this country will be placed in a position of unchallenged leadership in the business affairs of the world. The amounts involved are far too large for any other method of handling.

"Just what form this co-operation should take is a matter of detail which can be worked out in common conference, but there are some steps which it seems to me can be taken immediately and should not be delayed. Recognizing the importance of the problem presented to American business interests, the last Congress appropriated one billion dollars for the extension of American foreign trade, and placed the amount at the disposal of the War Finance Corpora-

tion, but, as it has worked out, some of the restrictions placed upon the use of this fund have made its extensive employment impracticable. The restrictions which limit the amount of these loans and specify that they can be made only through American corporations and upon their endorsement throw the whole credit burden upon our home institutions, which is not fair to them and makes them hesitate to take advantage of the offer. In my judgment, this law should permit the extension of credit to foreign buyers in good standing, with the endorsement, if need be, of foreign banks and foreign governments, and our Government should assume whatever credit risk is involved in the situation, which should be negligible.

"As there is the twofold purpose of promoting American trade and of meeting the crying needs of Europe, and this is in the interest of our people as a whole and of Europe as a whole, it seems to me to be a situation in which Government responsibility must be assumed and Government leadership, with the co-operation of our financial and business institutions, must take up the burden in the general interest.

"There is also a large fund still available for food provision, which should be used as rapidly as possible for the prevention of famine and the restoration of normal health and working conditions in the war-swept countries.

"This is a time when all thought of profits, particularly exorbitant profits, represented in either commodity prices or interest charges, should be forgotten, and the simple necessities of the situation faced. Our first and single duty now is to restore the world to normal conditions. If we are able to do our part properly in bringing that about, the question of profits will be cared for in the future. This country is facing the greatest opportunity and the greatest obligation in its history, and if the sacrifices which have been made in the war are not to be in vain, we must rise to meet them. I am sure that if our people generally and our representatives at Washington could have the appreciation of the situation which has been forced upon us by those who have studied it first hand in our interest, there could be no delay in meeting it."

The Predicted Labor Shortage and Commodity Prices

That there is no apparent prospect that labor will be in sufficiently large supply to cause any hope of a reduction in wages, and that if there were any such hope it would be put out of the question by the present greatly advanced standards of living, is the conviction of architects and builders. In the steady increase in the cost of labor, from which has developed a serious condition of unrest throughout the country, there is but little hope of relief.

But one branch of industry so far has shown a desire to go at the matter in a straightforward, common-sense way. In their appeal to President Wilson to act on the high cost of living the Locomotive Engineers have indicated that they prefer a drop in commodity prices to a raise of pay. This sensible attitude is to be commended,

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but it is not easy to see results while methods of accomplishment are not apparent.

The scale of high wages paid by the Government in some of its branches during the war is responsible for the steady increase in the cost of labor since 1914. This scale naturally soon spread to other industries not governmentally controlled. The resulting rise in the cost of production has been followed as a matter of cost by a rise in prices. Then came the general demand for higher wages. There is no dodging the issue. The increased wage scale has caused higher commodity prices. And conditions cannot become stabilized until the laboring man realizes that he must content himself with a share of the economic output in proportion to what he contributes. At present everyone wants the big profits, with little disposition to share losses and hardships.

With regard to the labor shortage, which it is predicted will assume serious proportions before the close of the year, one authority places the total at the tremendous figure of five million. It is known that a very large number of aliens, principally of the unskilled labor class, have left this country at the rate of from one to two thousand a day. Occasionally five thousand have departed in twenty-four hours. Among them are many going to Europe to see relatives with whom they have been unable to communicate during the war. They are taking with them savings of good wages earned in munition plants, shipyards and other factories. It is doubtful if many will return. At any rate, the present immigration laws will not allow the loss to be replaced at the present.

In the building field the labor shortage is principally in the non-skilled class. Nevertheless, the lack of skilled workmen in other lines, that may impair road work of railroads and transportation companies, will have a direct bearing on construction. It is certain, however, that there will be a shortage until the condition of unrest is settled and our ports are open to immigrants. This naturally tends to maintain wages at a high standard and even causes them to go still higher than they are at present.

Building Needs of Country Growing

"Almost one-half of the 1919 building season still lies ahead of us, and there is time for much good to be done toward the relieving of the housing shortage," says S. W. Straus, commenting on the building and construction situation in the United States. He continued: "In New York City alone there is an estimated need for one-half billion dollars' worth of new buildings, in addition to \$100,000,000 worth of alterations, making a gross shortage of \$600,000,000. The amount of this building deficiency is more than three times as much as the yearly average amount of new projects during the 10-year period of 1905 to 1914. On a basis of population, the present housing shortage in New York City is equal to the normal needs of 250,000 people.

"In a somewhat less acute extent the same conditions prevail in all important American cities, and the coming winter will witness much suffering unless an immense amount of building work is done during the ensuing months. There is no fundamental reason why anyone should postpone building operations at this time. Much harm has been done in the past through the belief that prices might come down. However, we have seen a steady advance in all commodities, and there is nothing to indicate a change in these tendencies.

"In all likelihood the longer one delays in starting building operations, the greater will be the cost of the enter-

prise. The conditions which will keep prices on a steady upward scale may be epitomized as follows:

"Continued upward tendency of all labor costs, demand of laborers for shorter working hours, shortage of unskilled labor due to restricted immigration and increased emigration, unprecedented shortage of all types of buildings, vast amount of public works needed by federal government and various states and municipalities, restricted output of building materials owing to labor troubles and transportation limitations, continued upward trend in the prices of all commodities, tendency toward better living conditions by the masses of the people.

"What is needed right now more than anything else is mental stabilization or a complete understanding by all interests that building costs are not coming down, but that they are going steadily higher.

"Holding off at this time marks a definite loss in view of increasing costs, while to build now means a continued and rapid enhancement of one's investment, provided it is made under proper conditions.

"With the present shortage of houses it is not likely that conditions of normality can be restored for several years. A tremendous amount of industrial expansion is necessary to meet new business conditions, which will absorb capital, labor and building material. We are bound to develop our resources more in the next 10 years than ever before in our history. We are getting ready for an export business such as we never dreamed of in ante-bellum days.

"And all this expansion will mean the rebuilding of railroads and wharfs, the reconstruction of public roads, the improvement of harbors and the erection of a vast number of buildings of all kinds.

"We may, therefore, expect that for a number of years to come there will be prodigious building operations going on in this country, and, with the continued shortage, there will be a consistent tendency toward higher rentals, which will be to the advantage of the investor in real estate and the home owner.

"We must learn to judge the future by the standards of the future, not by the standards of the past. The future will bring higher prices, but we will adjust ourselves according to these conditions. And we must remember that better standards of living necessitate higher prices. Better homes, a more refined environment, superior educational advantages, all mean increased costs. To build now, therefore, constitutes patriotism, thrift and good business logic."

Immigration and Emigration

Both immigration and emigration are figuring in the Washington discussions of labor problems. Union labor opposition to immigration is taking the form of various proposals for increasing the present restrictions, or forbidding immigration entirely for a period of years. Such a solution, it is claimed, would simplify our present difficulties with Japan, which could hardly protest against discrimination, if we barred all immigrants.

On the other side of the ledger stand the figures compiled by the Department of Labor to show that the present year's exodus of alien workers totals 1,300,000, which threatens a serious shortage in many industries that have been dependent upon alien laborers for their recruits. In the milling and coal mining regions alone, the Department of Labor found that the following percentages of the following nationalities planned to leave this country:

Austro-Hungarians, 28.2; Poles, 15.04; Russians, 35.70; Croatians, 21.75; Lithuanians, 9.72; Roumanians, 64.20; Italians and Greeks, 11; Serbs, 36.90; and Slovaks, 34.50.

Late Building Material Market Reports

(From Our Special Correspondents)

Architects See Little Hope of Early Strike Settlement

LITTLE hope for an early settlement of the tie-up in the New York City building trades was felt by either the employers or the workers this week. The men are determined to hold out for their original demands; the builders say the employees should have lived up to the agreement which, for the bricklayers, was to have been in force until the first of the year. Little building work is being done in New York, for most of the employers are members of the Mason Builders' Association. About 7,000 bricklayers are on strike.

Frank E. Conover, president of the Mason Builders' Association, which is affiliated with the Building Trades Employers' Association, says there is little hope for a settlement when the bricklayers demand that the umpire to settle the wage question decides between \$8 and \$10 a day. The men are receiving \$7 now and Mr. Conover contends this must be made the minimum.

"At the last meeting between the representatives of the Mason Builders' Association and the representatives of the bricklayers' unions," said Mr. Conover, "the president and secretary of the Bricklayers' International Union also were present and participated in the deliberations. This was on Aug. 14.

"Being unable to come to a definite understanding, the bricklayers agreed that the question of wages be left to an umpire. Representatives of the Mason Builders' Association agreed to this also. The question to be decided by him was to be, 'What shall the wage be between \$7 per day, now called for in the existing agreement, and \$10 per day as is at present demanded by the bricklayers?'

"The wage, as determined by the umpire, was to begin on Aug. 15 and continue until the expiration of the present period. This proposal was refused by the bricklayers, who demanded that the question should read 'between \$8 and \$10 per day.'

"This demand of the bricklayers could not be accepted by the representatives of the Mason Builders' Association, as the rate to be distributed must be between that now stated in the agreement, namely, \$7 per day, and that demanded by the bricklayers.

"This fair proposal was refused by the representatives of the bricklayers, and the bricklayers stopped work the next morning on the operations conducted by the members of the Mason Builders' Association in direct violation of the present agreement."

The Building Trades Employers' Association has denied the report that it is contemplating a lockout of its employees. A stock ticker report said such step was planned. Settlements between the painters, paper hangers and decorators and their employers continued at the union headquarters. More than 6,000 strikers are back at work, and the strike will be over by the end of the week, says Philip Zausner, secretary of the union.

Attempt to Stabilize Lumber Prices

CHICAGO, ILL., Aug. 30.—Lumber manufacturers, especially of both southern and northern pine, are making a special effort to stabilize prices, since they feel that such a movement, though perhaps curtailing present profits, will be of permanent benefit. Lumber prices, in general, have been gradually increasing and many stocks continue low. In some districts the orders have not been quite as pressing as earlier in the summer, because of harvest activities, but this is only a temporary respite. Car shortage has been less acute than earlier, but it is predicted, when the crops begin their big movements and coal orders pile up with cooler weather, that sufficient cars will not be available for lumber.

Many have indicated it as their belief that the increases in lumber prices are unwarranted, even though labor costs are very high, and this statement has even been made by some retailers, but in some places a deluge of orders has driven manufacturers to raise prices in self-defense to shut off trade. Some urge that manufacturers who have not sufficient stocks to meet the demand should get out of the market and keep out rather than create abnormal prices. Generally speaking, the clamorous activity of the late spring has subsided and the demand is more nearly normal. There is, however, no indication that prices will drop to any extent, and many predict continued, if slower, increases.

Because of conditions in some sections, more buyers have been visiting the mills than ever before, preferring to give their orders in person rather than by mail. This has resulted in a better understanding of conditions and has been followed usually by larger orders than were previously planned.

Midsummer Building Activity

CHICAGO, ILL., Aug. 30.—A recession from the enormous building activity of June is seen in the values of building contracts awarded during the early weeks of July. June was, however, an extraordinary month, and July figures of previous years always show a decrease. In spite of this, building demands have kept up remarkably well for the season.

The recession is most marked in the Chicago district and began before the slump caused by labor troubles. In Chicago the peak of building activity was reached the week ending June 21, the total value of contracts for that week being estimated at somewhat over \$72,000,000. For the week ending July 26, the amount was near \$19,000,000. Construction activity started earlier in the Chicago district, which includes Illinois, Wisconsin, Iowa and part of Missouri and Kansas, with Indiana and Michigan, and has exceeded every other district in the country, even up to and through the week of July 19. It is, therefore, quite natural that as construction work started here earlier, this section should be the first to show a decrease.

(For Building Material Price Table see page 328-A)

Department of Architectural Engineering

New Elements of Floor Construction as Introduced in the Hurley-Wright Building, Washington, D. C.

CLARENCE L. HARDING, *Architect*

OF recent developments in reinforced concrete construction, that having the most important bearing on building design is undoubtedly the invention and development of the flat slab or girderless type of floor construction. While its use has increased rapidly in warehouse, garage and industrial buildings, yet in other types of construction it has found but little favor. This is due, among other things, to the peculiar column construction, which requires a flaring out or mushrooming at the top, thus forming a large column capital and often requiring a square or rectangular "drop-head" as well. The girderless floor, however, has many advantages which would be desirable if incorporated in office and similar buildings. The flat ceiling lends itself readily to indirect or semi-indirect illumination; it eliminates the necessity for locating partitions along beams; it reduces the construction cost due to the simpler forms needed and also permits of more economical plastering. Where sprinkler systems are installed, it permits a better arrangement of the piping and spacing of heads.

It is therefore interesting to note the method by which these advantages were obtained, without incorporating the objectionable column head feature, in an office building recently erected at Eighteenth Avenue and H Street, Washington, D. C. This structure, known as the Hurley-Wright Building, is illustrated in the plate section of this issue. The structural framing plan, as well as several photographs showing the floor construction, are shown in the accompanying illustrations.

The building is twelve stories high, with light court at the rear, covering an area of 8400 sq. ft. in the ground story and 7700 sq. ft. in the upper stories.

While there is nothing unusual in the height or layout, the structural features are of interest. The columns are of reinforced concrete, with vertical

and spiral reinforcement. The interior columns in the first story have an average core diameter of 24 in., and an overall dimension of 28 in. x 28 in., being spaced approximately 14 ft. on centers in each direction. The floor construction is of especial interest. Throughout the entire interior, beams extending below the slab are eliminated, except in the case of those framing around floor openings, such as the stair well and elevator shafts. The result is a flat ceiling free from beams. This structural feature made it possible to lay out all rooms without considering the necessity of arranging partitions with reference to beams. In several portions of the building, such as the boiler room, there was a decided advantage in eliminating beams because of a necessarily low ceiling height.

Due to this feature, it was possible in the practical construction of the building to effect a number of economies. In plastering there was a large saving owing to the elimination of beams. However, the most pronounced saving was accomplished in the actual erection of the structural portion of the building. The form work was very simple, inasmuch as it was necessary to build only a flat, continuous decking. The column forms also were simple, as there was no complication in the forms at the junction with the slabs. It was merely necessary to lay out the forms for a square column which framed directly into the flat slab. The steel was simply placed, as the bars were located in the joists, which were clearly defined after the tiles were in place, as can be seen from the illustration of the work.

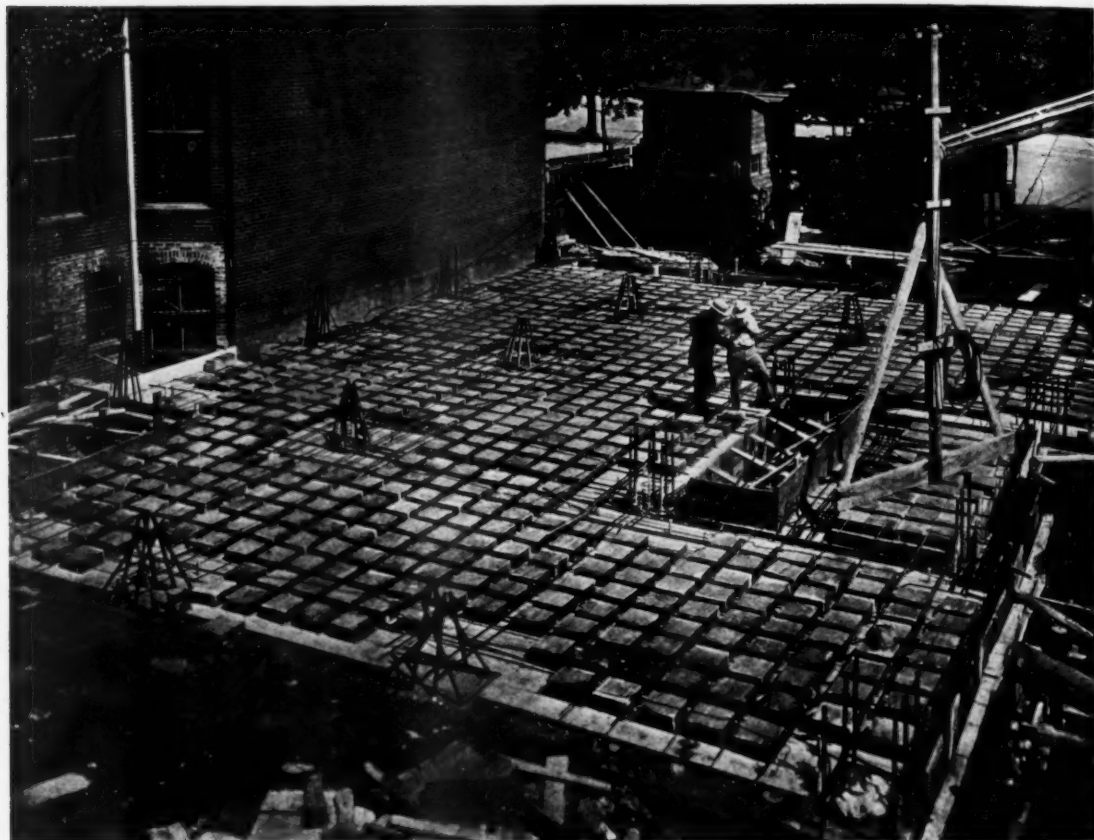
The structural design of the slab was unique, inasmuch as it combined all the advantages of the flat slab type of floor construction with the light dead load of the joist type. The principle of the design is based on the flat slab theory, eliminating the capital, usual for factory and warehouse construction where heavier loads are encountered. Clay tiles with ends closed were used throughout.

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By this method a considerable financial saving was accomplished in the entire structural design, including columns and foundations, because by the use of the hollow tiles the dead load of the slab was decreased twenty to thirty per cent as compared with a solid slab. In all cases, however, the design provided for a solid slab directly around the

are required, is its unquestionable economy, when liberal designs are permitted.

In buildings having ceilings which are to be plastered, another feature must be given important consideration, namely, the matter of deflection. It is therefore necessary in using a solid flat slab to provide a minimum thickness in order to guard



COMPOSITE TYPE OF FLAT SLAB FLOOR CONSTRUCTION BEING INSTALLED IN HURLEY-WRIGHT BUILDING, WASHINGTON, D. C.

The hollow blocks clearly define the location of the reinforcing steel. Note the simplicity of form work required for this type of floor.

columns, as shown on the typical floor plan, to meet structural requirements.

Before the selection of this design figures were received on several other types of construction and a very appreciable saving in the quantity of reinforcing steel was made by using this compound type of floor construction.

One of the reasons why the flat slab type has proven such a marked success in buildings for factory and warehouse occupancies where heavy loads

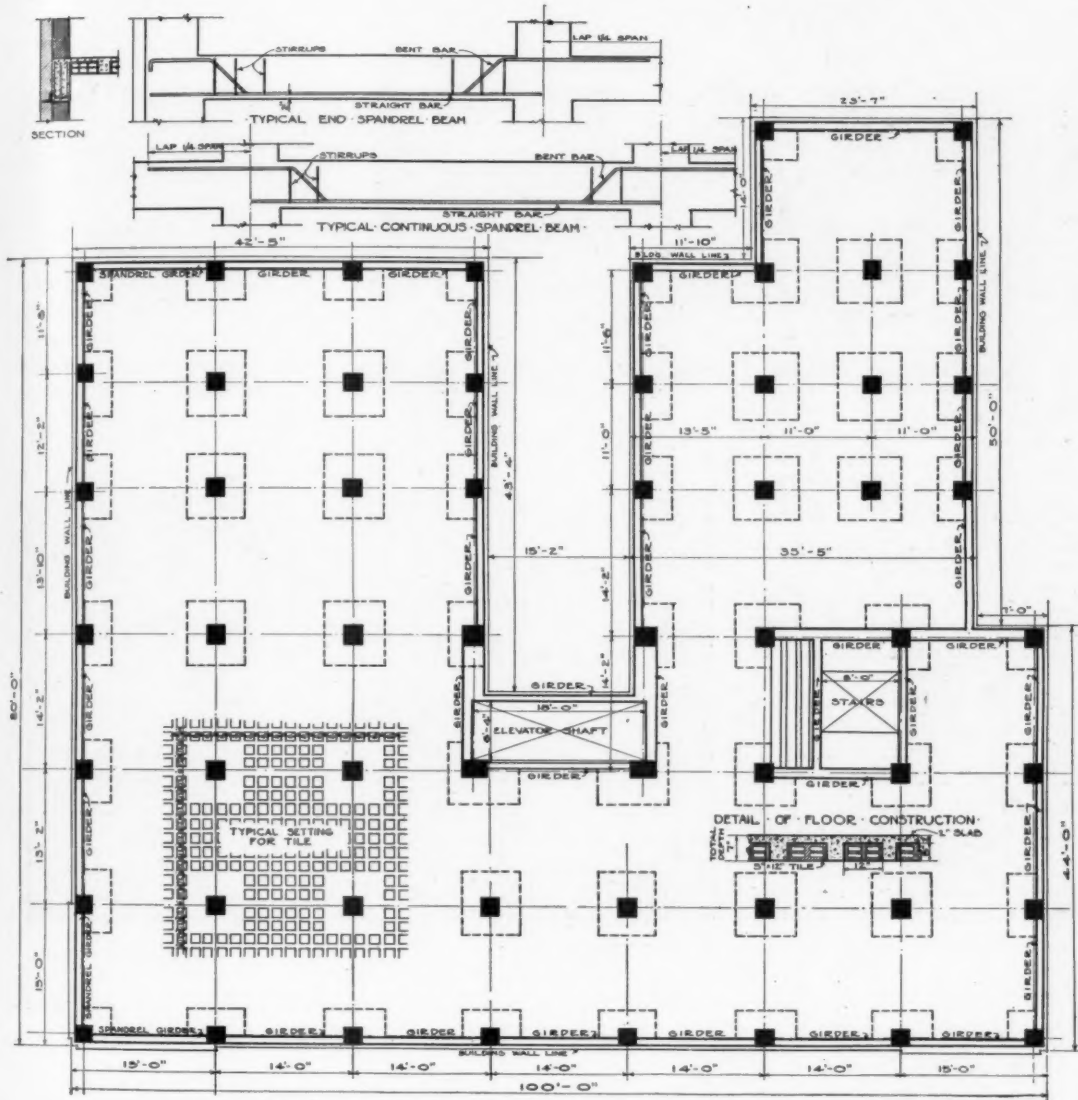
against undue deflection. For this reason, as well as those previously mentioned, there has been very little progress made in the use of such construction in buildings for office, hotel or similar purposes requiring relatively light live loads, as the deflection limit would have to be exceeded to obtain an economic design.

The design here described and illustrated shows a marked progress in the development of flat slab construction for buildings of this type, and pos-

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sesses an added advantage over the solid flat concrete slab in the matter of plastering. For practical reasons it is necessary to have the surface of all wood forms as smooth as possible on the side in contact with the concrete. In order to facilitate

forms no objection, but rather adds to the appearance, but for work to be finished with plaster the smooth surface provides no key to hold it, and on this account requires further treatment, which is expensive, and at best not very satisfactory. The



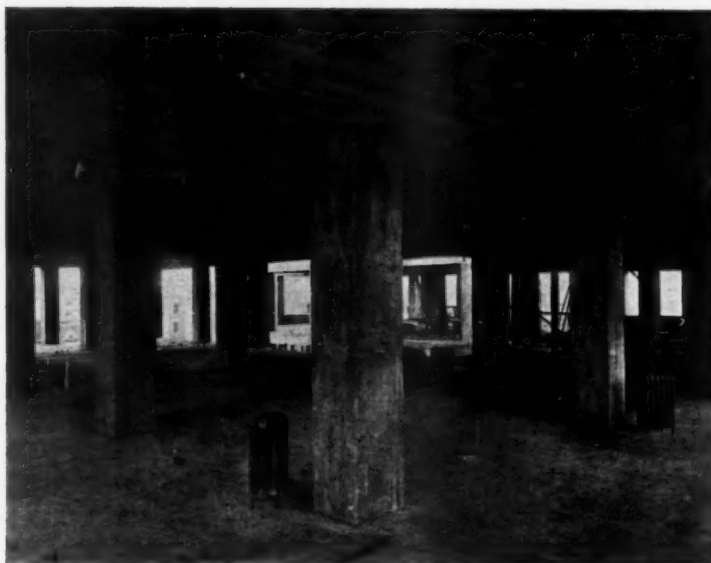
TYPICAL FRAMING PLAN, HURLEY-WRIGHT BUILDING, WASHINGTON, D. C.

Square panels around columns are constructed of solid concrete slabs. Slab over tile fillers is two inches thick throughout, and total thickness of floor construction is but seven inches

the removal of the forms, this side is not only planed, but often oiled as well. Therefore, after the removal of the floor slab forms there is left a smooth surface on the underside of the concrete. Where this surface is to be painted, such a feature

treatment of concrete surfaces for plastering was discussed at the recent annual meeting of the American Society for Testing Materials, and it is likely to receive further discussion. By the use of tile fillers in the compound type of flat slab floor this

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INTERIOR VIEW AFTER FORMS HAVE BEEN REMOVED

The rough surface forms an excellent key for the plastered ceiling while the flat ceiling incorporates many advantageous features

objectionable feature is entirely eliminated and a good key for the plaster furnished.

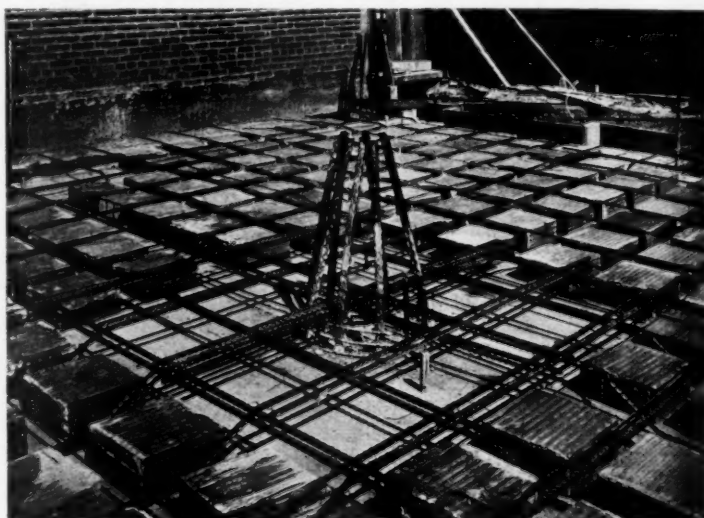
Unfortunately structural engineers have been handicapped in the design of reinforced concrete by the precedent of structural steel and timber construction. It has taken too long a time to fully appreciate the possibilities of reinforced concrete as a structural material. It is encouraging to note the present trend toward more liberal action on the part of Building Department officials relative to this type of construction, in the design of which the approximate determination of analytically indeterminate stresses is necessary.

In developing the design described, the structural engineer,

who for a number of years had been intimately connected with flat slab design and construction, felt that, could a flat slab type be designed with light dead load, the same possibility of success for its adoption in office buildings, hotels and similar structures could be secured, as has already been the case in industrial buildings.

The results as illustrated in this building herewith described have demonstrated the correctness of this theory.

The Hurley-Wright building was planned by Clarence L. Harding, Architect, Washington, D. C., while the structural design was worked out by Earle P. Press, of the Flat Slab Engineering Company, Chicago, Illinois.



METHOD OF TYING FLOOR AND COLUMN CONSTRUCTION TOGETHER

Column head is formed of a solid concrete slab, seven inches thick, and reinforcing steel of floor construction is run through in both directions

A Recent Development in Electric Illumination

THE introduction of the Mazda lamp into electric illumination some few years ago marked a distinct step in advance. The further development of this lamp brought forth the gas-filled type (known as Mazda C), probably the most economical electric lighting unit on the market. The Mazda C-2 variety of this type has the correct screening properties incorporated in the glass of the bulb to produce artificial daylight of the afternoon sunlight quality.

Recently a further development has produced the White Mazda lamp, here illustrated and described.

The first announcement of the successful development of this lamp was made at the National Electric Light Association's Convention in Atlantic City on May 21, 1919. This announcement was necessarily brief, for all the essential data had not at that time been standardized. It is now possible to present more detailed information.

The outstanding characteristic of this lamp is the pleasing softness of its light. The large volume of light which the small filament emits is diffused to a point where the bulb itself appears luminous. The brightness of the bulb is about 13 candles per square inch over the brightest square inch of area, which is, of course, far below that of the filament of an ordinary incandescent lamp. This lamp is made in the 50-watt size, and, notwithstanding the low brightness of the bulb, supplies more light than the 50-watt Mazda B lamp.

It has been pointed out by many illuminating engineers that glare (which, however defined, is ultimately light which hurts the eye) is to a considerable extent a matter of brightness contrast. The familiar illustration of automobile headlights, which glare at night but which are scarcely noticeable during the day, will be recalled. Because of the softness of its light, the white lamp can be used satisfactorily in locations where any other incandescent lamp, unless frosted, would be objectionably bright. Frosting the bulb has always proved an effective means of reducing the brightness of small incandescent lamps, but the practice has not been widely followed, largely because the frosted bulb collects dust and dirt more quickly than a clear bulb and is more difficult to clean. The bulb of the white

Mazda lamp is smooth, and is as readily cleaned as a clear-glass bulb.

There will, perhaps, be a tendency to use this new type of lamp without reflecting equipment because of the softness of its light. However, for most locations the bulb is still too bright to be used alone; moreover, it must be remembered that reducing glare is only one of the functions of the reflector. From the standpoint of effective distribution of the light generated, it is just as important that a good reflector be used with this as with any other incandescent lamp.

Broadly, the field for the new lamp lies in the replacement of the smaller sizes of lamps in existing reflector equipment. The effect produced by the use of these lamps in semi-indirect fixtures is particularly pleasing, for distinct shadows of the bowl edge and the bowl suspension, and all striations on the ceiling, are eliminated because of the large area from which the light comes. For the same reason they are also particularly desirable for portable lamps, where their use will eliminate the formation of grotesque, and frequently annoying, shadows upon the walls or upon the pages of a book, fringe shadows, which are often very disagreeable, are eliminated.

In Table 1 are given the results of tests made to determine the effect of the diffusing bulb upon the output of lighting units. It will be noted that there is little difference in the absorption of any of the units tested when equipped respectively with Mazda B and with white Mazda lamps.



Fig. 1—White Mazda
50-Watt Lamp
(Approximately One-Half Scale)

Table No. 1—Data on Light Output

Type of Unit	Output in Per Cent Of Bare Lamp Output	
	MAZDA B	White MAZDA
Glass bowl, 6-in. diameter.....	85.4	87.6
Glass bowl, 7-in. diameter.....	84.8	86.1
Enclosing unit	77.5	76.4
Enameled-steel bowl	60.5	61.3

With regard to the service which may be expected from the white lamps, it may be said that laboratory tests indicate a satisfactory degree of ruggedness for home lighting, office lighting and hotel and

public building lighting, where these lamps will probably find their chief application. The low bulb brightness may result in the new lamps, despite their higher wattage, being used to replace many smaller lamps used on extension cords for the inspection of machined interiors and similar places difficult to light with any general lighting system,

and only trials under service conditions can establish what degree of rough handling in drop-cord service the white Mazda lamp will withstand.

This lamp has an illuminating value of 490 lumens and is made in the pear-shaped bulb. It will be noted from the illustration that the bulb is tipless, its diameter at the largest point being $2\frac{1}{2}$ inches.

Idiosyncrasies of Building Materials

Brick

OF all the manufactured building materials, none enjoys a lineage more ancient than brick. Composed of the earth itself, no material has so well served its purpose through remote ages down to the present day.

Its influence on architectural design has been very great, and its power of artistic expression in the hands of the architect is large. Throughout the major part of Europe, good brick making clay could always be had in abundance, and as good building stone is so often scarce the use of brick and its influence on building design became extensive. This influence extended to America in the Colonial days, when brick was imported from Europe for the dwellings of the wealthy settler in the new world. In ancient and mediaeval times, brick, then of but one type, was often faced with a veneer of cut stone or plastered with stucco. During recent years the development of brick with a variety of surface textures and colors has greatly broadened the power of expression obtainable by its use and such added facings no longer become an artistic necessity.

During the past decade, great progress has been made in brick manufacture. In order economically to produce large quantities, plants greatly increased in size have been erected, and many of the smaller plants discontinued. Where these smaller plants formerly turned out but 25,000 brick per day, the larger ones now produce 350,000. By using improved methods of manufacture, the bricks are only twice handled during the entire process of manufacture. In the successful making of brick, considerable skill and knowledge are necessary. Such complexities as securing a proper mixture, sometimes quite difficult due to the varying strata of the clay bank; the proper grinding and screening to secure the desired texture in the finished product; correct burning in the kiln, and others, call for the skill made possible only by long experience. Care of handling to prevent disfigure-

ment and the regulation of the drying process, requiring scientific temperature control, are other factors of importance. Here improper regulation may cause a high percentage of loss in the output.

A trip through a modern brick plant will soon force the impression that both skill and painstaking labor are required to make good modern brick, although the simple process of manufacture used during its early history was then considered adequate.

The principal ingredients of brick are clay and protoxide of iron. The presence of protoxide of iron causes the reddish color after burning, this color varying in shade according to the proportion in which this ingredient is present. Other foreign materials may have beneficial or detrimental effects. The most common of these are:

Carbonate of lime, which in any large quantity renders the clay unfit for brick making.

Sand or silica, which should not exist in any excessive quantity, as it renders the brick too brittle and destroys cohesion in the clay.

Magnesia, or a small percentage of lime, which will change the reddish color produced by the iron into a cream or buff shade and in small quantities is not detrimental to the clay.

In the mottled or Pompeian brick, the mottled effect is produced by coloring matter in the clay or by mixing clays of different chemical compositions.

In the process of manufacture, three grades of common brick are produced: Arch brick, which, being nearest the fire, are very often hard burned; red brick, which are usually well burned, and salmon or pale brick, located furthest from the fire, are usually soft and underburned.

While no standard size has yet been adopted, that recommended by the American Society for Testing Materials is $2\frac{1}{4}$ in. x $3\frac{3}{8}$ in. x 8 in. Western brick usually run larger than this.

Hard brick should not absorb more than 10 per cent by weight of water, should have a crushing

strength of not less than 3500 lbs. per square inch and a modulus of rupture of at least 600; medium brick should not absorb more than 18 per cent of water, have a crushing strength of not less than 2000 lbs. per square inch and a modulus of rupture of at least 450. Brick below this latter standard should be classified as soft and should never be permitted in the exposed face of exterior walls.

To destroy the output of soft brick would be wasteful, but to allow its use in locations where it is manifestly unsuited would be still more wasteful and in addition harmful. There is a place for the soft brick and if used in a wall it belongs in the interior. It should never be placed where exposed to the weather or in any section carrying a heavy load. Piers and sections of walls under girders should be built entirely of hard or medium burned brick.

Attention is directed to the fact that a pale brick is not necessarily a soft brick. The light color may result from the chemical ingredients in the clay. This can be easily determined by striking two bricks together. If soft, the resultant sound will be a thud, whereas, if well burned, a clear ring will be emitted.

A brick giving a pleasing appearance is the water struck brick, previously manufactured to a large extent in New England and yet made in a limited way. However, there is now on the market a rough textured brick, which is considered by many just as beautiful. By its use a wider range of color shade is obtainable, and it can be turned out in much larger quantities.

Brick, through a long line of descendants, has become at once the most democratic and the most aristocratic of building materials. One thing yet needed to place the brick building industry on a higher plane is not more bricklayers, but more craftsmen in brick, who can see in their work something above dollars and cents. Attempts have been made to establish schools of bricklaying, and these have proved both successful and helpful in many cities. To increase these ideas, and maintain them free from the influence of trade unions, will mark a desirable step in advance in the art of brick-building.

From its lowly birth, brick proceeded through the centuries until the days of the Renaissance, when its highest perfection as a building material was reached. The modern architect has a wider range of types, a larger selection of colors and of textures, yet it is doubtful if he will ever excel in the perfection of the use of brick as a method of artistic expression the Italian and French buildings which stand to-day as the highest exposition of brickwork.

How to Distinguish Douglas Fir from Sitka Spruce Lumber

Douglas fir and Sitka spruce are frequently put to the same uses, but they do not have exactly the same properties. This fact makes it desirable to have a ready means of identifying the lumber of these species. The use of the following key prepared by the Forest Products Laboratory should help in telling the two woods apart:

Color—The color of Douglas fir, as seen on a freshly cut longitudinal surface, is orange-red to red; that of Sitka spruce is pale pinkish brown. The color varies in both species, however, so that the darker spruce is about the same as the lighter fir. There is a marked contrast in color between the heartwood and sapwood in Douglas fir; in Sitka spruce the difference is less pronounced, both being quite light in color. Douglas fir is not so lustrous as Sitka spruce which has a "silky sheen."

Annual Rings—In both species each annual ring is made up of a light, soft band or layer, known as springwood, and a dark, dense band known as summerwood, the summerwood being on the side toward the bark. In Douglas fir the bands of summerwood are usually very conspicuous and clearly defined from the springwood, but in Sitka spruce the springwood merges gradually into summerwood.

Resin—Douglas fir is more resinous than spruce and often shows abundant exudations on cuts made before the lumber was seasoned. Such exudations of resin are scarce in spruce.

Tangential Surface—Tangentially split surfaces (surfaces made by splitting along the rings) of Sitka spruce usually have numerous slight indentations giving it a "pocked" or dimpled appearance never found in Douglas fir. This characteristic is more pronounced in spruce with narrow annual rings and may be missing entirely in wide-ringed material, especially that near the center of the tree. Therefore, this observation should be made where the rings are narrowest. Occasionally the eastern spruces also show this uneven tangential surface to a slight extent. Some trees of western yellow pine also develop a "pocked" appearance of the wood, but the pine can be distinguished by the larger and more numerous resin ducts.

Bark—Pieces of bark, if found on the lumber, afford a reliable means of distinguishing the two. Douglas fir has a thick bark with characteristic whitish layers. Spruce has a thin bark without whitish layers.

Cell Walls—With the aid of a compound microscope, spiral rings on the inside of the cells similar to the thread in a nut can be detected in Douglas fir, but the cell walls of spruce are without such spirals.

Method of Handling Public Works in Foreign Countries

THOSE who urge the creation of a National Department of Public Works in the United States are merely contending that our affairs should be managed in the way which practically all the modern world, except this country, has found necessary. Without going into details concerning the various laws of foreign countries, it will be of interest to mention their names and the general characteristics of their public works departments:

CANADA.—A Ministry of Public Works presiding over the Department of Public Works with a suitable staff of deputies, engineers, architects, etc., has control over rivers, harbors and all hydraulic works, roads, bridges, public buildings, telegraph lines and surveys.

AUSTRALIA.—A parliamentary committee of nine constitutes a standing committee of public works.

NEW ZEALAND.—Has the most comprehensive public works code in existence, presided over by a Minister of Public Works whose powers include lands and eminent domains concerning the same; roads, surveys, bridges, ferries, rivers, railways, drainage, water supply, mining, water power and irrigation.

FRANCE.—A Ministry of Public Works covering roads and traffic regulations, river and maritime navigation, water power, drainage, irrigation, railroads, mines, public buildings and public monuments.

SPAIN.—A Ministry of Public Works covering roads, railways, waters, rivers, canals, ports, mining and forestry.

ITALY.—A Ministry of Public Works with jurisdiction over post-offices, railways, public buildings, bridges, monuments, prisons, fuel, storehouses, telegraphs, internal navigation, water storage, irrigation, drainage, floods, lighthouses, water power and climatology.

DENMARK.—A Department of Public Works having jurisdiction over buildings, roads, rivers, harbors, water-power, drainage, dykes, ferries, railroads, telegraphs and telephones, postal affairs and transportation. It is of interest to note that this Department of Public Works was, by royal decree of April 27, 1900, set up by a division of the Department of the Interior in much the same way as is now proposed for the United States by the

Engineers', Architects' and Constructors' Conference on National Public Works.

NORWAY.—A Department of Public Works—made by division from the Department of the Interior—with jurisdiction over highways, rivers, railroads, fire insurance, harbors, postal affairs, technical schools and surveys.

PRUSSIA.—A Ministry of Public Works with jurisdiction over coasts, harbors, lighthouses, merchant marine, waterways, public buildings, railroads, highways, monuments, postal service, telegraphs and telephones, rivers, lakes, canals, drainage and hydraulic works.

ARGENTINA.—A Department of Public Works embracing all enterprises and works concerning means of communication, hydraulic works, all construction—either of architectural or other nature, including public buildings, monuments, churches, prisons, barracks, arsenals, forts, shipyards, lighthouses, roads, bridges and all hydraulic and sanitary matters.

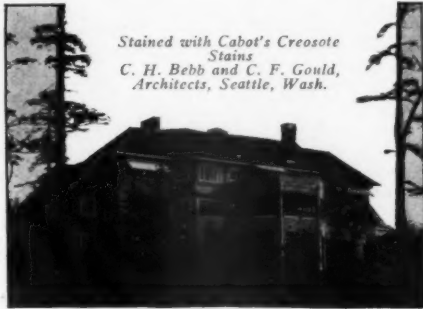
BRAZIL.—A Department of Communication and Public Works having jurisdiction over railroads, highways, interior navigation, ports, rivers and canals, water supply, water power and surveys.

CHILE.—A Department of Industry and Public Works having jurisdiction over all communications by land, river and sea, the utilization and distribution of waters, public buildings, mines, surveys and mappings.

PERU.—A Department of Public Works—formerly a part of the Ministry of the Interior—having jurisdiction over irrigation, hygiene, mines, schools, patents and trade marks, water and state railways.

ENGLAND.—The Commissioners of Works and Public Buildings have control over the lands and buildings of all kinds belonging to the Government, while rivers and harbors and their appurtenances are under the jurisdiction of the Board of Trade. This is the only modern government of any size, except the United States, in which all government activities of this kind are not concentrated under one jurisdiction.

Detailed information concerning the public works laws of any of the countries above mentioned can be secured on application to the Washington office of this Conference, located in McLachlen Bldg.



Stained with Cabot's Creosote Stains
C. H. Bebb and C. F. Gould,
Architects, Seattle, Wash.

Stain Your Outside Woodwork

—shingles, siding, half-timbers, trellises, pergolas, sheds, fences—with

Cabot's Creosote Stains

The rich, transparent coloring effects are more appropriate and beautiful than any other colorings, and they wear better, cost less, and are easier to apply. "Painty" effects spoil the beauty of the wood, and paint costs twice as much. The creosote thoroughly preserves the wood. Don't buy stains that smell of kerosene; they are dangerously inflammable.

You can get Cabot's Stains all over the country. Send for stained wood samples; free

SAMUEL CABOT, Inc., Manfg. Chemists, Boston, Mass.
1133 Broadway, NEW YORK 24 West Kinzie Street, CHICAGO
Cabot's Quilt, Waterproof Stucco and Brick Stains, Conserve Wood Preservative, Damp-proofing, Water-proofing

S-2

ARCHITECTURAL WOODWORK
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CHURCH, BANK AND OFFICE
INTERIORS AND CARVINGS

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PERIOD MANTELS, STAIRWAYS
SPECIAL FURNITURE AND
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HARRIMAN QUALITY WOODWORK

Some of your clients may prefer the BURT Ball Bearing Revolving Ventilator

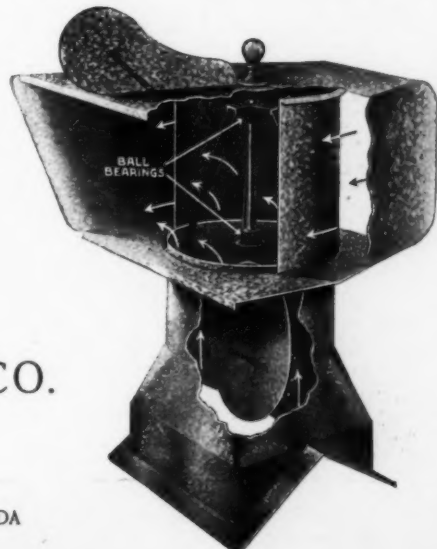
The advantages are:

Owing to its peculiar construction, as shown in the illustration, we take advantage of all the air currents that pass not only over the top and sides of the ventilator, but allow the same to pass directly through the ventilator, thereby creating a partial vacuum and greatly increasing the pulling powers of the ventilator.

This same construction also has a tendency to hold the ventilator steady with the wind, thus preventing a continuous whirling motion which is a faulty feature in some revolving types of ventilators.

It is fully equipped with high grade ball bearings and is positively guaranteed not to stick or bind.

128 page catalog sent to architects on request. See our ad. in Sweet's Index.



BURT MANUFACTURING CO.

77 MAIN STREET, AKRON, OHIO

GEO. W. REED & CO., MONTREAL
SOLE MANUFACTURERS OF BURT VENTILATORS FOR CANADA

Late Quotations in Building Material Markets

(Price quotations now current on building materials and supplies as quoted by dealers and jobbers for delivery in New York and Chicago follow. The quotations set forth are placed before readers of THE AMERICAN ARCHITECT to afford an accurate review of market conditions rather than for use as a basis for actual purchase. They will not only provide knowledge of the exact state of the market as to items quoted, but will also present a basis to judge conditions as affecting correlating materials. Items marked (*) indicate an advance over last week, while those marked (†) record a decline. Other prices did not fluctuate during the week.)

BRICK

New York Chicago

Face brick (delivered on job):		
Common (Delivered at job in Borough of Manhattan only), per thousand.....	\$17.85	\$12.00
Rough red.....	37.00	40.00
Smooth red.....	38.00	40.00
Rough buff.....	42.00	40.00
Smooth buff.....	42.00	40.00
Rough gray.....	45.00	42.00
Smooth gray.....	47.00	42.00
Colonials.....	26.00	30.00

BROKEN STONE

(Delivered on job):		
1½ in. per cu. yd.....	\$2.75	\$2.50
¾ in. per cu. yd.....	2.75	2.50

BUILDING STONE

Indiana limestone, per cu. ft.....	\$1.23	....
Kentucky limestone, per cu. ft.....	1.35	....
Brier Hill sandstone, per cu. ft.....	1.50	....
Gray Canyon sandstone, per cu. ft.....	.95	....
Buff Wakeman, per cu. ft.....	1.50	....
Buff Mountain, per cu. ft.....	1.50	....
North River bluestone, per cu. ft.....	1.05	....
Seam-face granite, per sq. ft.....	1.00	....
South Dover marble (promiscuous mill block), per cu. ft.....	2.25	....
White Vermont marble (sawed), New York, per cu. ft.....	3.00	....

BURNED CLAY

(Delivered on job)		
Block partition:		
3 in., per sq. ft.....	.13	.10
4 in., per sq. ft.....	.15	.11
Chimney tops:		
12 x 12 for 8 x 8 flues.....	\$3.50	\$2.25
Flue lining:		
4½ ft. x 13 ft., per lin. ft.....	.24	.12
4½ x 8½, per lin. ft.....	.18	.16
8½ x 8½, per lin. ft.....	.24	.16
8½ x 13, per ft.....	.35	.20
13 x 13, per ft.....	.60	.45
8½ x 18, per ft.....	.60	.50
13 x 18, per ft.....	.95	.75
18 x 18, per ft.....	1.25	.85
Wall coping (double slant):		
8 in., per lin. ft.....	.18*	.14
12 in., per ft.....	.33	.26
18 in., per ft.....	.54	.30
Wall coping (single slant):		
8 in., per lin. ft.....	.16	.14
12 in., per ft.....	.26½	.30
18 in., per ft.....	.54	.30
(Corners and angles four times the price of one foot of coping the same size.)		

Hollow Tile

(Delivered at job, in New York below 72nd St.)		
2 x 8 x 12 partitions, per 1,000 sq. ft.....	\$70.15	....
3 x 12 x 12 partitions, per 1,000 sq. ft.....	102.00	\$67.90
4 x 12 x 12 partitions, per 1,000 sq. ft.....	114.75	72.50
6 x 12 x 12 partitions, per 1,000 sq. ft.....	153.00	99.60
8 x 12 x 12 partitions, per 1,000 sq. ft.....	....	135.80
10 x 12 x 12 partitions, per 1,000 sq. ft.....	....	167.50
12 x 12 x 12 partitions, per 1,000 sq. ft.....	....	194.60
2 x 12 x 12 split furring, per 1,000 sq. ft.....	63.75	45.30

CEMENT

Per bbl. in 15 cent bags (Rebate 60c. per bbl. for bags in New York). 15 cent bags in Chicago (Rebate 60c. per bbl.).....	\$3.25	\$3.00
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COPPER SHEETS

At the mill, hot rolled, 16 oz. base-price, per lb...33½c.	33½c.	
(From jobber's warehouse add 2 to 3 cents.)		
Cold rolled per lb.....	34½c.	35½c.
From stock in 100 lb. lots and over....	35½c. to 37½c.	37½c.*
For less than 100 lb. lots 2c. per lb. advance.		
Polished, 20 in. wide and under, 1c. per sq. ft. extra; over 20 in. wide, 2c. per sq. ft. extra. Planished, 1c. per sq. ft. more than polished.		
Bottom, pits and flats, 1 oz. and heavier, per lb.....	44c.	44c.
Tinning one side, per sq. ft.....	.06c.	.06c.

CORNER BEAD New York Chicago
Per foot02 .05

EAVES TROUGH

(Discounts from list):		
Galvanized steel.....	60 & 10%	
Galvanized charcoal iron.....	50%	
Copper.....	20%	

FIBRE

Per bushel.....	.36	.30
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FINISHED IRON AND STEEL

(Mill Shipments)		
Bar iron, refined grade.....	2.77c.	2.62c.
Bar iron, double refined.....	3.77c.	
Soft steel bars.....	2.62c.	....
Shapes.....	2.72c.	....
Plates.....	2.92c.	2.65c.

GALVANIZED SHEETS

Nos. 12 and 14 gauge, per lb.....	\$6.35*	\$6.20*
No. 16.....	6.50*	6.30*
Nos. 18 and 20.....	6.65*	6.62*
Nos. 22 and 24.....	6.80*	6.75
No. 26.....	6.95*	6.92*
No. 27.....	7.10*	7.07*
No. 28.....	7.25*	7.23*
No. 30.....	7.75*	7.60*
(No. 28 and lighter, 36 in. wide, 20c. higher.)		

GLASS

(Discounts from manufacturer's price lists)		
Single strength, A quality, first three brackets.....	77%	77%
Single strength, B quality.....	77%	77%
Double strength, A quality.....	79%	79%
Double strength, B quality.....	81%	81%
Plate—up to 5 sq. ft.....	82%	80%
Plate—over 5 sq. ft.....	84%	80%
Plate—up to 10 sq. ft.....	80%	80%
Plate—over 10 sq. ft.....	80%	80%
Polished plate glass (commercial run of thickness and quality) sizes to 5 sq. ft., inclusive.....	80%	....
Sizes over 5 sq. ft.....	82%	....

GRAVEL

¼ in. (Borough of Manhattan only), per cu. yd.....	\$3.25	\$2.50
¾ in. (Borough of Manhattan), per cu. yd.....	3.50	2.50

GRIT

Delivered at job in Borough of Manhattan.....	\$2.25	\$2.00
Delivered in the Bronx.....	2.50	2.25

Plaster Board:

Delivered at job, Boroughs of Manhattan and Bronx.		
27 x 28 x ½.....	37c.	....
27 x 48 x ½.....	34c.	....
32 x 36 x ½.....	22c.	25c.
32 x 36 x ¾.....	22c.	27½c.
32 x 36 x 1.....	24½c.	....

Plaster Blocks:

Delivered at job, Boroughs of Manhattan and Bronx.		
2 in. solid, 12 x 30, per sq. ft.....	11c.	....
3 in. hollow, 12 x 30, per sq. ft.....	11c.	10c.
4 in. hollow, 12 x 30, per sq. ft.....	12½c.	11c.
6 in. hollow, 12 x 30, per sq. ft.....	18c.	....

LATH

Eastern spruce, per thousand.....	\$8.00	....
No. 1 white pine, per thousand.....	....	\$7.50
No. 1 hemlock, per thousand.....	....	6.50
No. 1 yellow pine, per thousand.....	8.25	....

LEAD

American pig, per lb.....	6½ to 7c.	6¼ to 6½
Bar, per lb.....	.8 to 9c.	6½ to 6¾

LIME

Common, 200 lb. bbls., per bbl.....	\$2.50	\$1.50
Finishing, 300 lb. bbls., per bbl.....	3.70	....
Hydrated, in paper bags, per ton.....	18.50	17.50
Hydrated, in cloth bags, per ton (Rebate per bag 10c.).....	22.60	....

LUMBER

(Retail prices per M, delivered.)		
Yellow pine, 2 x 4.....	\$70.00*	\$54.00*
Yellow pine, 2 x 6.....	70.00*	55.00*
Yellow pine, 4 x 4.....	75.50*	60.50*
Yellow pine, 8 x 8.....	72.00*	64.00*
Yellow pine, 12 x 12.....	80.00*	70.00*
Yellow pine, No. 1 boards, 1 x 6.....	100.00*	85.00*
Yellow pine, No. 1 boards, 1 x 12.....	110.00*	95.00*
Yellow pine, B and better flooring (plain).....	100.00*	90.00*
Yellow pine, B and better flooring (quartered).....	125.00*	110.00*
North Carolina pine, flat flooring, No. 2 and better.....	97.00*	85.00*
North Carolina pine, flat flooring, No. 3.....	85.00*	75.00*
North Carolina pine, rift flooring.....	125.00*	110.00*
Norway pine, 2 x 4.....	70.00*	60.00*
Norway pine, 2 x 12.....	85.00*	70.00*
Douglas fir, 6 x 6 to 12 x 12.....	75.00*	67.50*
Douglas fir, 12 x 12 to 14 x 14.....	85.00*	78.00*
Hemlock, 2 x 4.....	63.00*	57.00*

(Continued on page 328-B)

Barrett Specification Roofs

20 Years of Service Guaranteed—

IN the old days buying a roof very often proved to be something of a gamble.

Maybe you got just what you specified, and maybe not.

The cost per square foot was too often taken as the only standard of value—frequently to the owner's subsequent sorrow.

Today all this is changed.

It was the Barrett Specification which first made it possible for building owners everywhere to obtain, through their local contractors, a *standardized roof*, worked out by roofing engineers and based on scientific principles of modern roof construction.

Today we offer to *guarantee* Barrett Specification Roofs for a period of 20 years!

This guaranty is obtainable on any roof of 50 squares or more, in any

town of 25,000 population or over, and in smaller places where our Inspection Service is available.

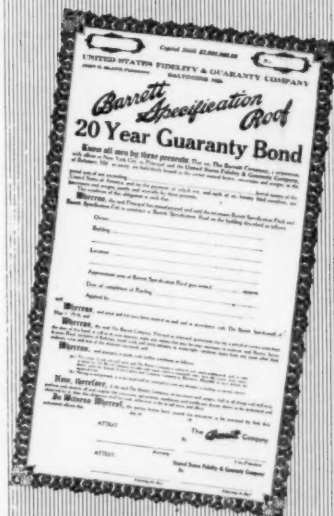
It is a Surety Bond, issued by the U. S. Fidelity & Guaranty Company, of Baltimore.

To obtain this Surety Bond you have only to insert in your building specifications the following:

"The roof shall be laid according to The Barrett Specification dated May 1, 1916, and the roofing contractor shall secure for me (or us) the 20-Year Guaranty Bond therein mentioned."

The guaranty costs you nothing. We merely require that the roofing contractor be approved by us and that we be given an opportunity to inspect the construction.

We shall be glad to send you a copy of *The Barrett Specification*, with diagrams ready for insertion in your building plans.



The 20-Year Bond

We illustrate above the 20-Year Surety Bond that will be given on all roofs of 50 squares or over in towns of 25,000 population or more and in other places where our Inspection Service is available.

New York Chicago The **Barrett** Company Philadelphia
Boston St. Louis St. John, N. B. Pittsburgh
Cleveland Cincinnati Kansas City Minneapolis
Birmingham Kansas City Duluth Milwaukee Dallas Salt Lake
Seattle Toledo Richmond Latrobe Bangor City
Youngstown Washington Elizabeth New Orleans Atlanta Columbus
Nashville Washington Elizabeth New Orleans Atlanta Columbus
THE BARRETT COMPANY, Limited: Montreal Toronto Winnipeg
St. John, N. B. Halifax, N. S. Sydney, N. S. Vancouver



Laying a 20-Year Barrett Specification Roof on Building No. 20 of the National Cash Register Co., of Dayton, Ohio.

THE AMERICAN ARCHITECT

Building Material Market Reports

(Continued from page 328-A)

	New York	Chicago
Hemlock, 2 x 12.....	65.00*	58.00*
Oak, quartered, 1 in., F. A. S.....	250.00*	235.00*
Oak, plain, 1 in., F. A. S.....	175.00*	160.00*
Oak flooring, 13/16, quartered (white).....	275.00*	228.00*
Oak flooring, 13/16, plain (white).....	200.00*	175.00*
Oak flooring, 13/16, plain (red).....	200.00*	178.00*
Maple, 1 in., F. A. S.....	100.00*	95.00*
Maple flooring, 13/16, clear.....	150.00*	140.00*
Maple flooring, 13/16, select.....	140.00*	135.00*
Maple flooring, 13/16, No. 1 factory.....	110.00*	97.00*
Basswood, 1 in., F. A. S.....	105.00*	100.00*
Sap gum, 1 in., F. A. S.....	320.00*	315.00*
Red gum, 1 in., F. A. S.....	120.00*	115.00*
Chestnut, 1 in., F. A. S.....	110.00*	105.00*
Poplar, 1 in., F. A. S.....	150.00*	130.00*
Birch, 1 in., F. A. S.....	90.00*	85.00*
Spruce, random, 2 in.....	70.00*	65.00*
Spruce, wide, 8 in.....	75.00*	70.00*
Spruce, 10 in.....	77.50*	72.50*
Spruce, 12 in.....	75.00*	70.00*
Cypress, 1 in., F. A. S.....	105.00*	90.00*

METAL LATH

Under 100 sq. yd., per sq. yd.....	40c.	35c.
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MORTAR COLORS

Red, per lb.....	.05	.05
Brown, per lb.....	.05	.05
Chocolate, per lb.....	.05	.05
Black, per lb.....	.05	.05

OILS

Linseed, city, raw.....	\$2.25	\$2.48
Linseed, boiled, advance, per gal.....	.01	.02
Out of town, American seed, at.....	2.25	2.48

PAINTS

Leads:		
American white, in oil, kegs; lots over 100 lbs.....	13c.	13c.
White, in oil, 25-lb. tin pails; add to keg price.....	14c.	14c.
Red, bbl., 1/2 bbl. and kegs; lots over 100 lbs.....	13c.	14c.

Dry Colors:		
Red Venetian, American, per 100 lbs.. \$2.00 to \$4.50	\$2.00 to \$4.00	
Metallic Paints:		
Brown, per ton.....	\$32.00 to \$36.00	\$24.00 to \$32.00
Red, per ton.....	35.00 to 40.00	24.00 to 32.00

PIPE

Cast Iron:		
6 in. and heavier.....	\$54.30*	\$53.80
4 in.....	57.30*	56.30
3 in.....	62.30	68.80

(and \$1 additional for Class A and gas pipe.)
(Discounts to jobbers for carload lots on the Pittsburgh basing card; freight rates from Pittsburgh to New York, and also from Pittsburgh to Chicago, in carloads, per 100 lbs., are 27c. An additional 5 per cent discount is allowed to large jobbing interests over those listed below.)

	F.O.B. Pittsburgh	F.O.B. Chicago
Wrought:		
Steel:		
Black, 1/2 to 3 in.....	50 1/2 to 57 1/2 %	42.6 to 49.6 %
Galv., 1/2 to 3 in.....	24 to 44 %	14.6 to 34.6 %
Iron:		
Black, 1/2 to 1 1/2 in.....	29 1/2 to 34 1/2 %	19.6 to 29.6 %
Galv., 1/2 to 1 1/2 in.....	2 1/2 to 23 1/2 %	9.4 to 11.6 %
Steel:		
Black, 2 1/2 to 6 in.....	53 1/2 %	45.6 %
Galv., 2 1/2 to 6 in.....	41 %	31.6 %
Iron:		
Black, 2 1/2 to 6 in.....	34 1/2 %	24.6 %
Galv., 2 1/2 to 6 in.....	21 1/2 %	9.6 %
Steel:		
Butt Weld, Extra Strong, Plain Ends		
Black, 1/2 to 3 in.....	46 1/2 to 56 1/2 %	33 to 43 %
Galv., 1/2 to 3 in.....	29 to 44 %	10.6 to 18 %
Iron:		
Black, 1/2 to 1 1/2 in.....	28 1/2 to 39 1/2 %	
Galv., 1/2 to 1 1/2 in.....	11 1/2 to 24 1/2 %	
Steel:		
Lap Weld, Extra Strong, Plain Ends		
Black, 2 to 6 in.....	48 1/2 to 50 1/2 %	35 to 37 %
Galv., 2 to 6 in.....	37 to 39 %	10 to 12 %
Iron:		
Black, 1 1/2 to 6 in.....	25 1/2 to 34 1/2 %	
Galv., 1 1/2 to 6 in.....	10 1/2 to 22 1/2 %	

PLASTER

	New York	Chicago
Rebate for bags 15c.		
Neat wall cement in 15 cent bags, per ton.....	\$21.30	\$19.00
Finishing plaster.....	24.00	19.00
Lath mortar, in cloth bags, per ton.....	15.05	
Brown mortar, in bags.....	15.05	14.00
Finishing plaster, per bbl. (250 lbs.).....	3.50	
Finishing plaster, per bbl. (320 lb. bbl.).....	4.35	

PUTTY

In bladders, per 100 lb.....	\$6.25	\$4.25
In 1-lb. to 5-lb. tins, per 100 lb.....	6.75	6.50

RADIATION

(A further discount, effective July 1, of 25% on direct radiators, 12 1/2% on wall radiators, and 10% on steam and hot water boilers is announced. This approximates a drop of 36% on radiators and 33% on boilers from prices in effect before the 1st of January, 1919.)
Chicago reports a 57% discount on standard heights.

REGISTERS

	New York	Chicago
Cast iron semi-steel or steel, in black or white japan or electro plate and small faces and borders.....	40%	40%
Wall frames.....	40%	40%
Large faced, 14 x 14 in. and larger.....	60%	60%
Base board registers.....	40%	40%
Base board intakes.....	40%	40%
White enameled goods.....	15%	15%
Solid brass or bronze goods, except grilles.....	net	net
Grilles in black and white japan or electroplate in cast iron, plain lattice design—smaller than 14 x 14 in.....	40%	40%
—Larger than 14 x 14 in.....	60%	60%

REINFORCING BARS

High carbon steel from mill.....	\$48.50	\$49.50
Medium steel from mill.....	48.50	49.50

ROOFING MATERIAL

Tarred Felt Paper:		
No. 1—25 lbs. to 100 sq. ft., per ton.....	\$62.00	\$75.00
No. 2—16 lbs. to 100 sq. ft., per ton.....	63.00	75.00
No. 3—12 lbs. to 100 sq. ft., per ton.....	64.00	75.00
Rosin sized sheathing, per ton.....	60.00	65.00
Corrugated roofing, galvanized, 2 1/2 in. corrugation, over flat sheets, 30c. per 100 lbs.		

ROSIN

Common to good, strained (wholesale), 80 lb., per gal.....	\$17.75*	
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SAND

Mason, per cu. yd.....	\$1.80	\$2.50
Torpedo, per cu. yd.....	1.80	2.50
White sand, per cu. yd.....	4.00	

SHINGLES

Red cedar, 5 to 2, clear, per thousand.....	\$11.00	\$7.00
White cedar, extra star, A star, per thousand.....	11.00	7.00
Cypress, 6 x 18, No. 1 hearts per M.....	17.00	14.00
Cypress, 6 x 18, No. 1 prime per M.....	15.00	12.00

SLATE ROOFING

	F.O.B. cars, Quarry Station	F.O.B. Chicago
Pennsylvania:		
Best Bangor.....	\$7.75* to \$9.00	\$10.20 to \$11.45
No. 1 Bangor Ribbon.....	6.75 to 7.00†	9.20 to 9.70
Pen Argyl.....	6.50 to 7.25*	9.70 to 10.45
Peach Bottom.....	10.50* to 12.50	12.45 to 14.45
No. 1 Chapman.....	6.25 to 7.25†	8.70 to 9.95
Vermont:		
No. 1 Sea Green.....	4.25 to 6.75*	5.95 to 9.50
Unfading Green.....	9.00 to 10.50*	9.40 to 12.50*
Mottled Green Purple.....	9.00 to 10.50*	
Red.....	12.00 to 20.00*	14.80 to 22.80
Maine:		
Brownsville, U'f'g. Black, No. 1.....	12.00	14.10 to 15.10
Slaters felt, 30 lb. roll.....	.92	
Slaters felt, 40 lb. roll.....	1.22	

SPIRITS TURPENTINE

	New York	Chicago
Per bbl.....	\$1.81*	\$1.10

STONE SCREENINGS

Lime, per cu. yd.....	\$2.35	\$2.50
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STRUCTURAL STEEL

Beams and channel, 3 to 15 in., per lb.....	2.72c.	3.47c.
Beams and channel, over 15 in., per lb.....	2.72c.	3.57c.
Angles, 3 to 6 in.....	2.72c.*	3.47c.
Zees and tees.....	2.72c.	3.47c.
Steel bars, half extras, from mill.....	2.35c.	3.37c.

STUCCO

In cloth, per ton (white, mixed).....	\$22.50	\$19.50
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STUCCO BOARD

Medium weight stucco board, plain, per M sq. ft.....	\$42.50	\$45.00
Medium weight stucco board, creosoted, per M sq. ft.....	50.00	50.00
Heavy weight stucco board, plain, per M sq. ft.....	55.00	55.00
Heavy weight stucco board, creosoted, per M sq. ft.....	60.00	60.00
Medium weight stucco board, plain, narrow key, per M sq. ft.....		50.00
Medium weight stucco board, narrow key, creosoted, per M sq. ft.....		55.00
Insulating board, heavy felt background, per M sq. ft.....	50.00	50.00

SHEATHING BOARD

Heavy weight sheathing board, per M sq. ft.....	\$50.00	\$50.00
Medium weight sheathing board, per M sq. ft.....	45.00	45.00
Stucco or plaster board, sheathing board and insulating board are in rolls containing one sheet 25 ft. long and 4 ft. wide (100 sq. ft.)		

WALL BOARD

Wall board, shipped any length, 4 ft. wide, per M.....	\$45.00	\$45.00
Packed flat in cars if ordered in less than car lots. Add \$5.00 per M ft. for crating.		