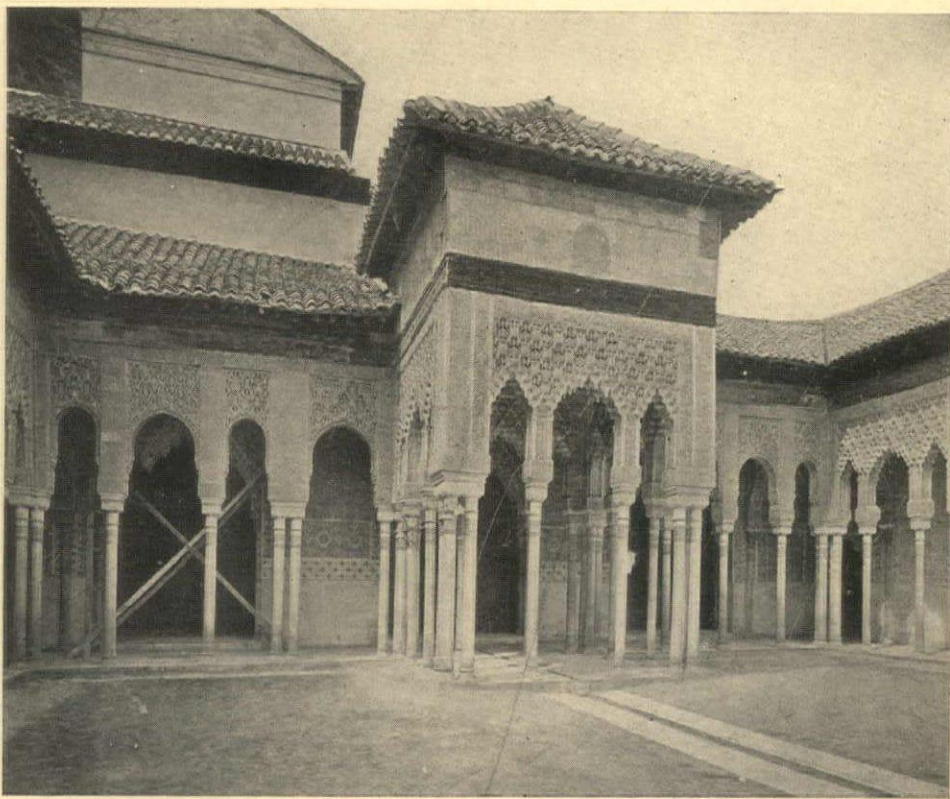


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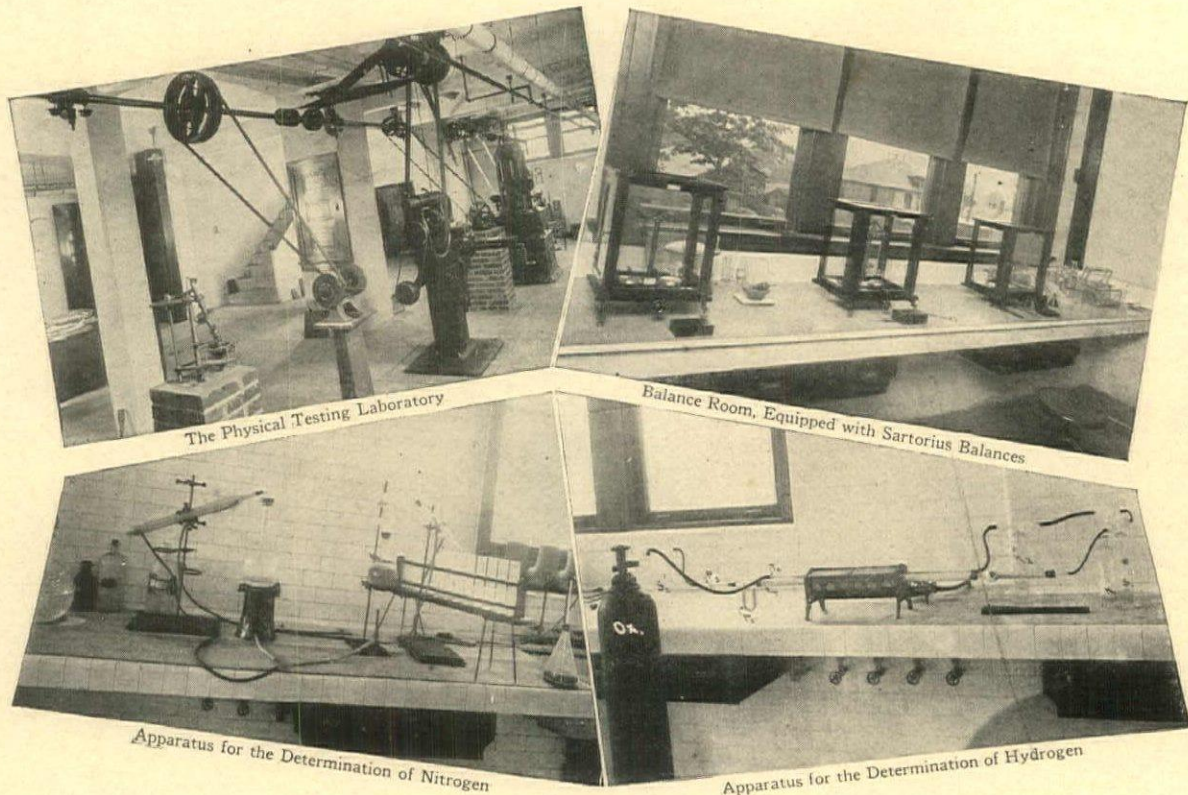
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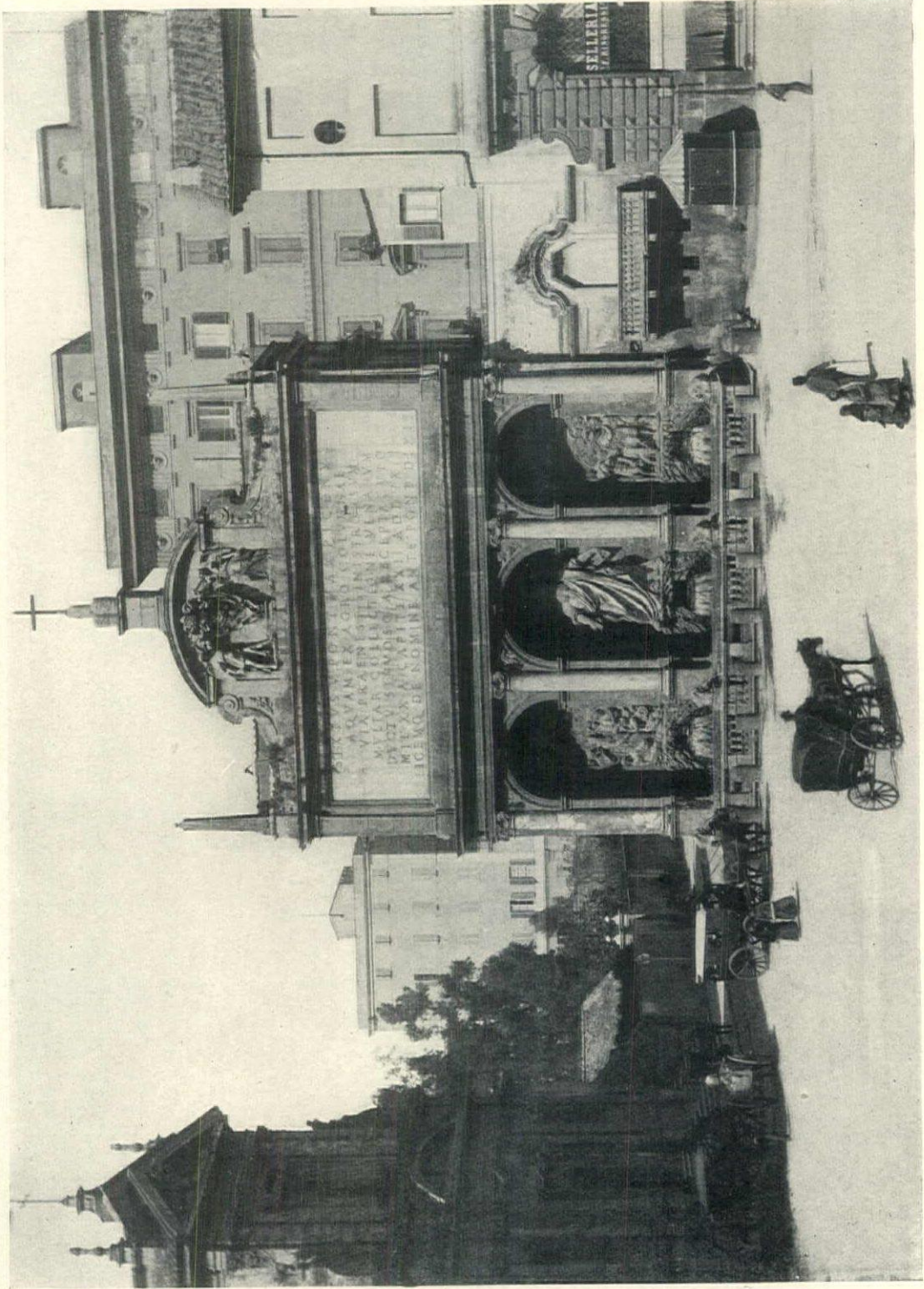
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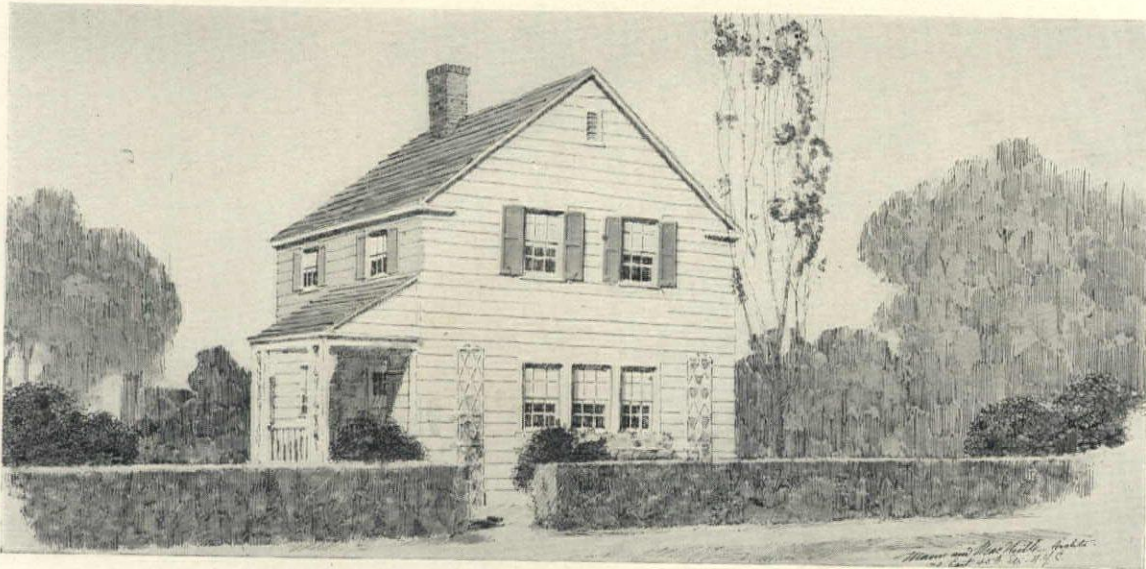
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VOL. CXIV

WEDNESDAY, OCTOBER 30, 1918

NUMBER 2236



A SEVEN-ROOM HOUSE

Industrial Housing at Perryville, Md.

MANN & MACNEILLE, *Architects and Town Planners*

THE housing development at Perryville, Md., for the Atlas Powder Company, as agents for the Government, was recognized as an immediate need early in May, 1918, and Perry R. MacNeille, in charge of the Housing Branch of the Industrial Section of the Ordnance Department, prepared a report outlining the needs and approximating the cost of a development comprising 160 dwellings, three boarding houses, school building, community house, stores, moving picture theater, laundry building, church and fire house.

In accordance with the recommendations of this report, an appropriation was made. Mann & MacNeille, architects and town planners of New York City, as consulting architects for the Housing Branch, were instructed to make a general layout and prepare sketches for the various buildings. From these drawings, and subject to their criticism, working drawings were made by the drafting department of the F. T. Ley Company, general contractors.

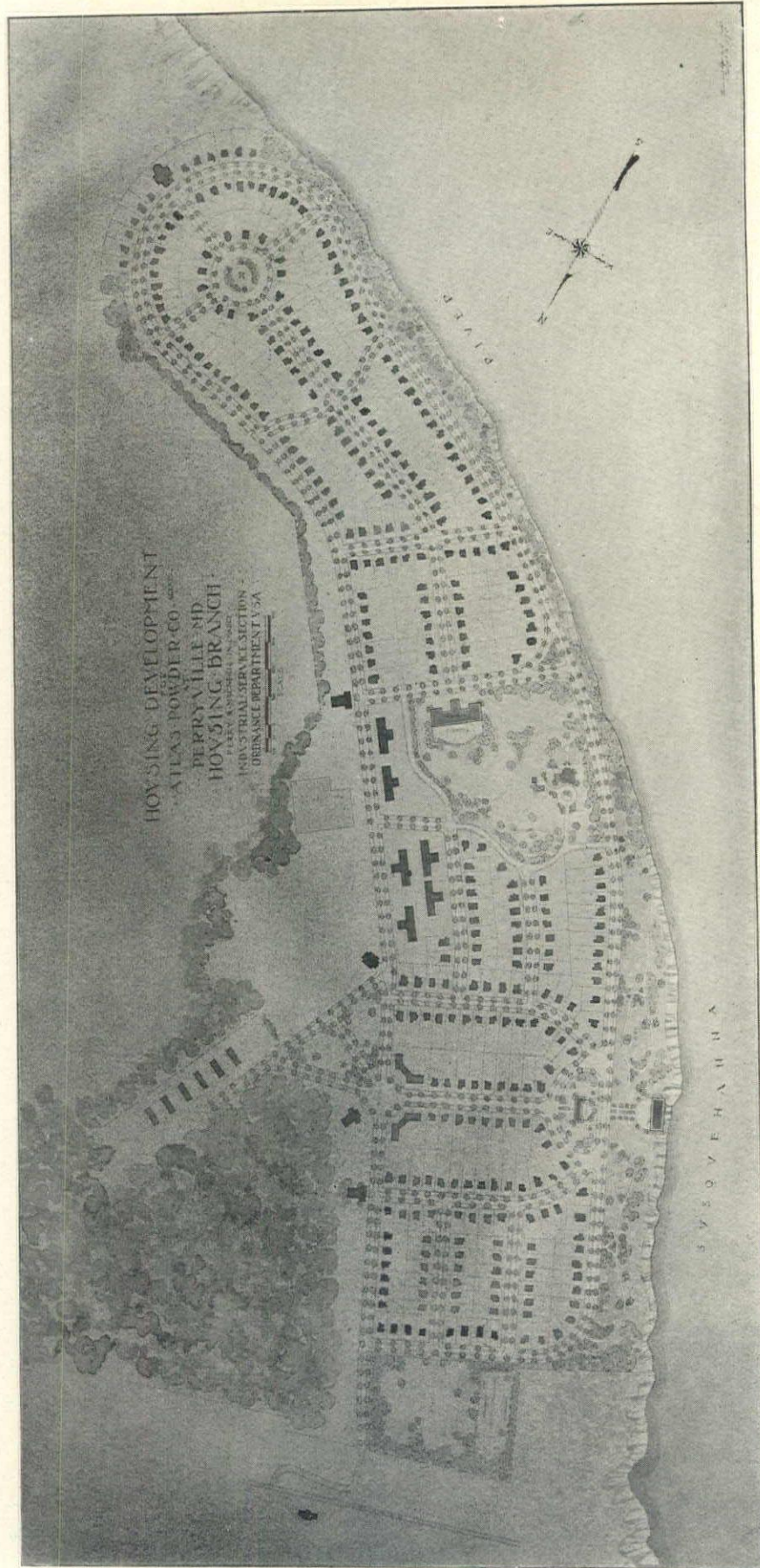
The cost of construction, which is of a permanent type, was paid for by the Government, and at the present date the westerly section is well along toward completion, all of the completed houses being now occupied by employes, who, following the policy of the Government during war times, rent them.

The development is intended to house the employes of the Atlas Powder Company, who comprise engineers, chemists, superintendents, foremen and mechanics.

The available site borders the easterly banks of the Susquehanna River, is adjacent to the plant now completed and under operation, and within easy access from the station of the Pennsylvania Railroad.

This plateau is generally level, sloping gently to the banks, which average 15 feet above the river. It is bounded on the north by a heavy growth of trees, forming a natural screen between it and the plant.

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GENERAL LAY-OUT OF HOUSING DEVELOPMENT, PERRYVILLE, MD.
MANN & MACNEILLE, ARCHITECTS AND TOWN PLANNERS

THE AMERICAN ARCHITECT

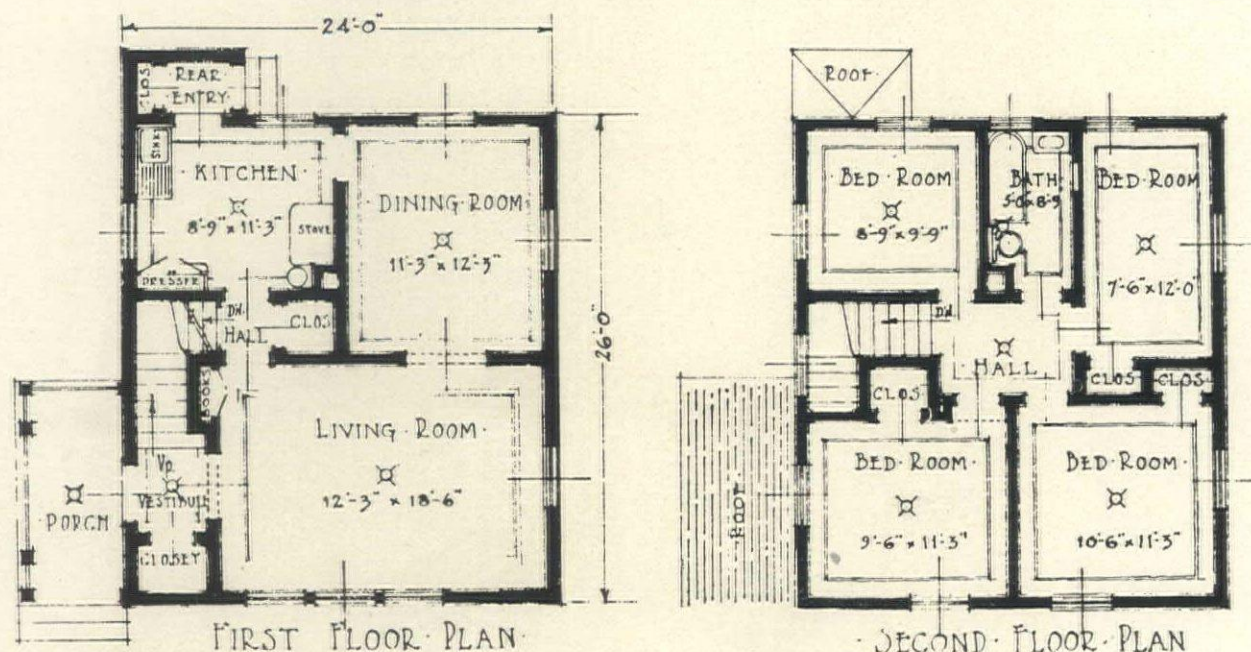
Its advantages are, therefore, actual proximity to the plant with effective separation from it and protection from the noise and smoke; good elevation above high-water level; natural surface drainage; good water supply; accessibility by railroad and by turnpike to Perryville; and its topography and natural scenic features make it a picturesque and eminently fitting location for a home development.

The general layout as here presented follows the river bank with its long axis running in a generally southeasterly and northwesterly direction.

The main avenues run parallel with the river, with the cross streets opening up vistas, and act as

offers the opportunity of securing a centrally located natural park, while the banks of the river have been developed into a park system extending along the entire southerly boundary of the development. The old manse has been remodeled as the residence of the company's manager, and on the high easterly slope dominating the westerly section, and at the head of the central avenue of the easterly section, is located the school.

The Community house architecturally is perhaps one of the most pleasing of the buildings and will be the center of social activities of the employees. Its central location and picturesque setting make it easily accessible to all and a fitting spot for relaxa-



SEVEN-ROOM HOUSE. SEE PAGE 503 FOR EXTERIOR

air channels direct to the water. Central features have been developed in the design by locating the stores about the Circle and laying out to parallel streets, terminating at the water front before the Community House. Suitable shade trees have been planned for the streets with vines and shrubs about the houses, while the yards and gardens are enclosed by hedges.

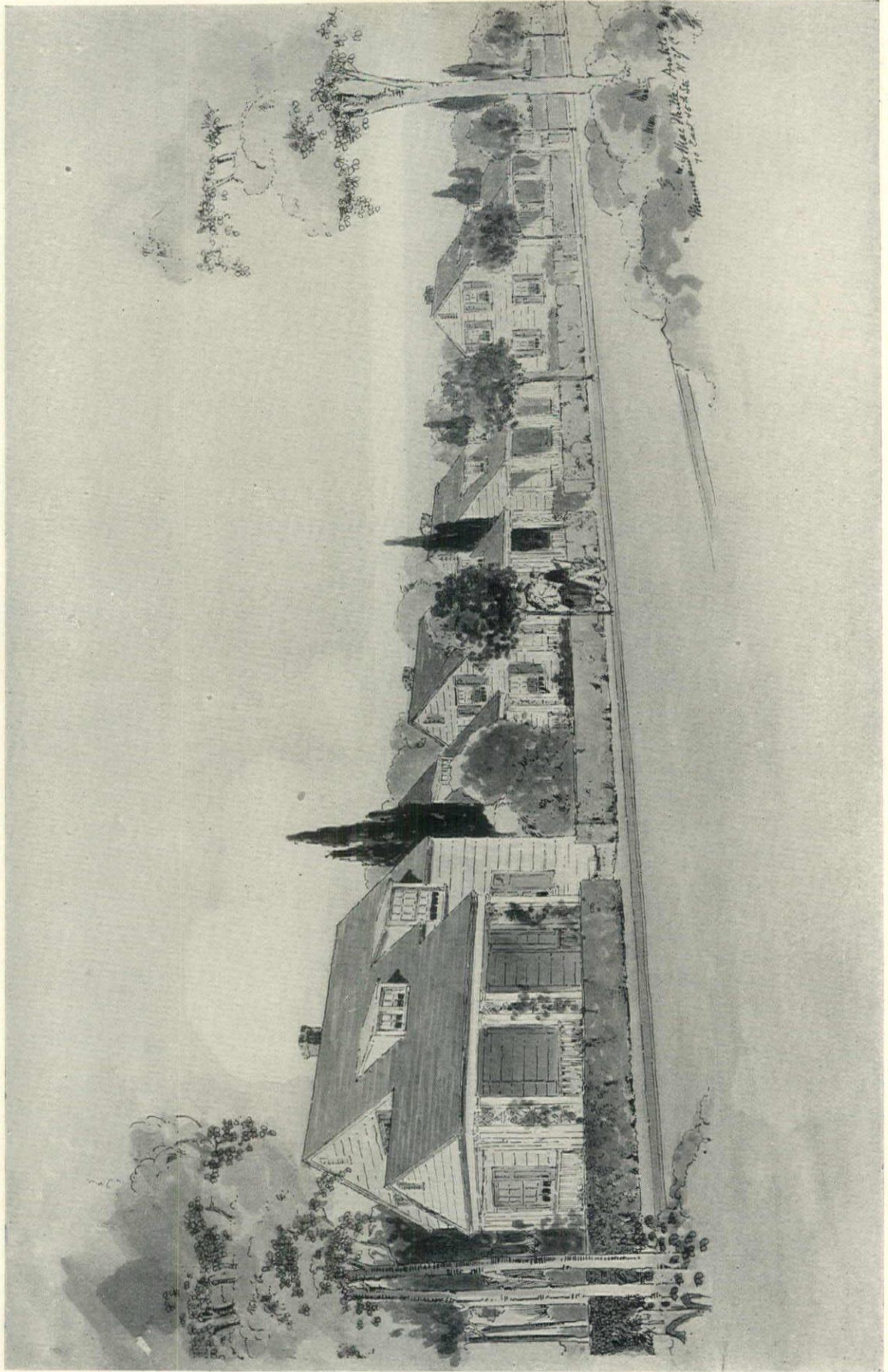
The property is by nature divided into two sections, the first lying between the railroad station and the "Manse," and the second extending from here to the easterly boundary as shown. The first section comprises what at the start was intended to be the complete development, but which later proved inadequate, with the result that the entire scheme will provide homes for 400 families.

Where the two sections join a wooded ravine

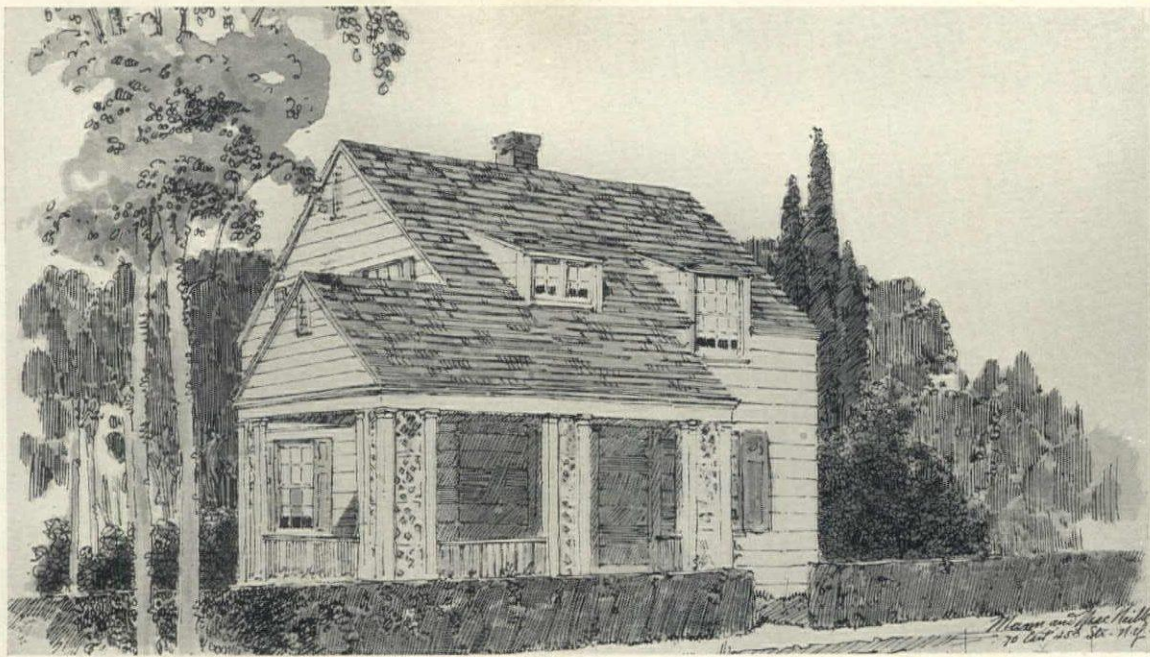
tion and enjoyment. On the second floor is an auditorium 41 ft. by 50 ft., with stage and dressing rooms, and this opens on to a wide porch running along its entire length toward the river. There are also provided lounge, billiard rooms, periodical room, ladies' room, and general kitchen. Along the river side of the lounge is a wide porch under the auditorium porch.

The view up and down the river from these porches is unobstructed while the foreground directly in front is a broad terrace with paths and steps leading down to the river banks. Churches have been located at the heads of streets where they are seen from a distance, and form interesting motives for village vistas. The moving picture theater located near the Circle seats 300 and is thoroughly modern in all its equipment.

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TYPICAL STREET VIEW
HOUSING DEVELOPMENT, PERRYVILLE, MD.
MANN & MACNEILLE, ARCHITECTS AND TOWN PLANNERS



A SIX-ROOM HOUSE

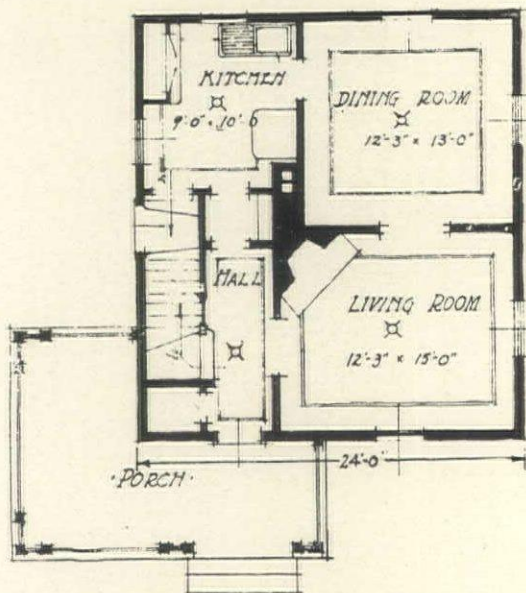
An unusually attractive exterior. The plans, as shown below, are particularly "liveable."

Stores are also located at the Circle, where they are passed by those going to and returning from the plant, while a laundry and pumping station are located as shown on the general layout.

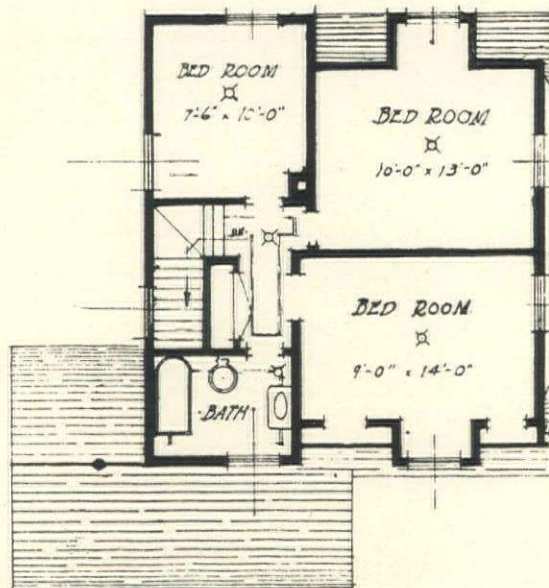
The houses for married men are of different types and sizes in order to offer such rents as are proportionate to the salaries of the employees, but each has a cellar, is furnished with hot air heat, has a complete bathroom and kitchen equipment

and is lighted by electricity. The arrangement and sizes of rooms and closets, and the sanitary provisions as regards light and ventilation, all conform to the best practice.

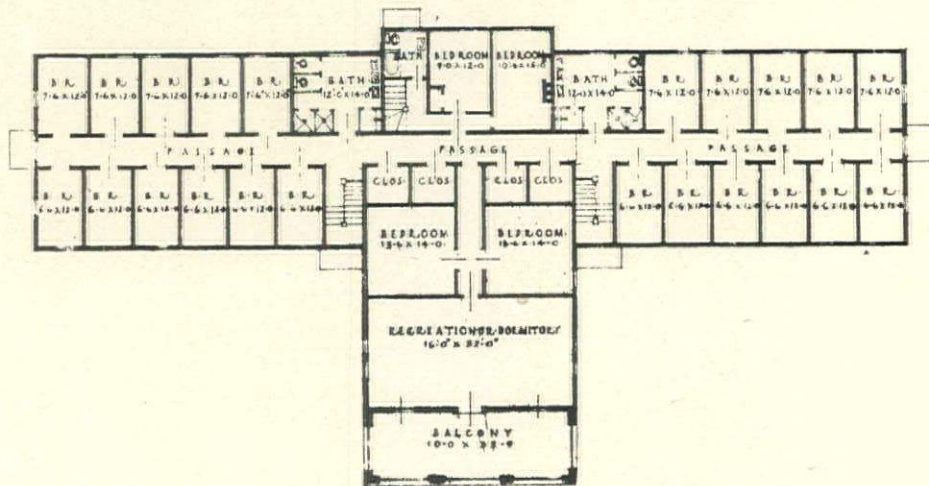
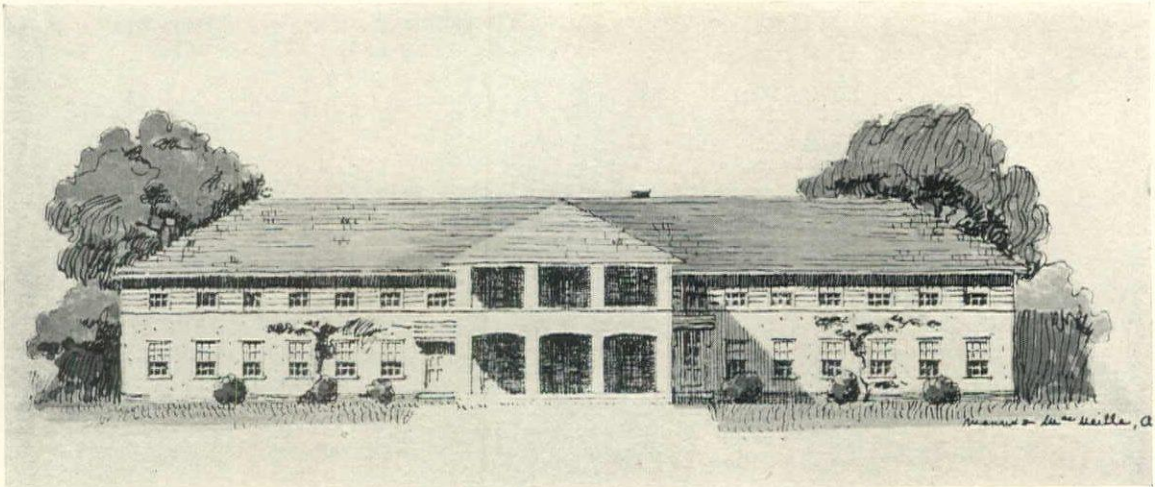
Special attention has been paid to the placing of doors and windows and to the providing of proper wall surfaces for the advantageous placing of furniture; for small rooms can in this way often be made more liveable than larger ones in which it is



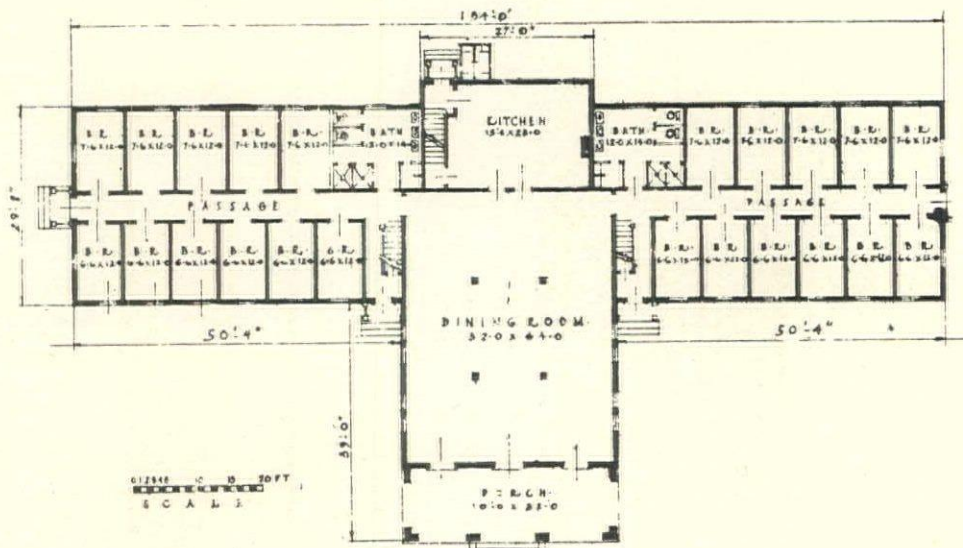
FIRST FLOOR PLAN



SECOND FLOOR PLAN



SECOND FLOOR PLAN



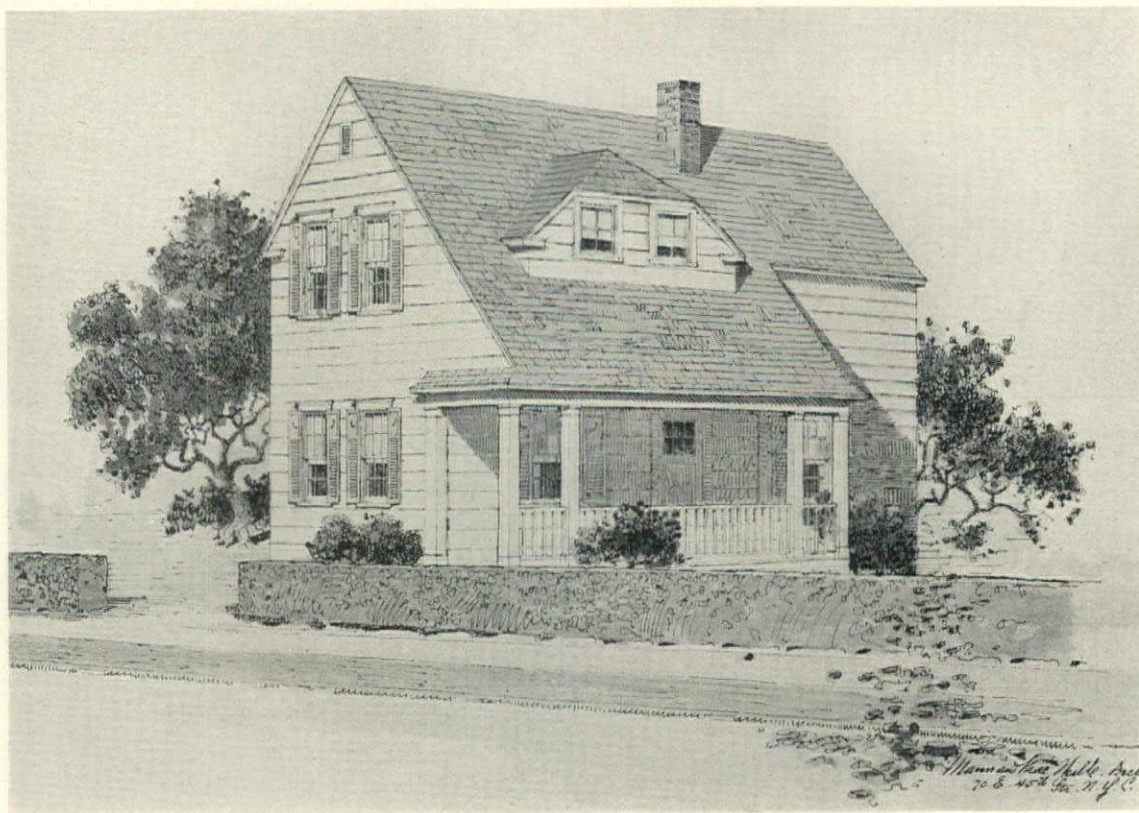
FIRST FLOOR PLAN

BOARDING HOUSE FOR MEN

A Boarding House with Single Rooms for Forty-eight Men, with Ample Dining Room, Recreation Room and Porches

HOUSING DEVELOPMENT, PERRYVILLE, MD.

MANN & MACNEILLE, ARCHITECTS AND TOWN PLANNERS

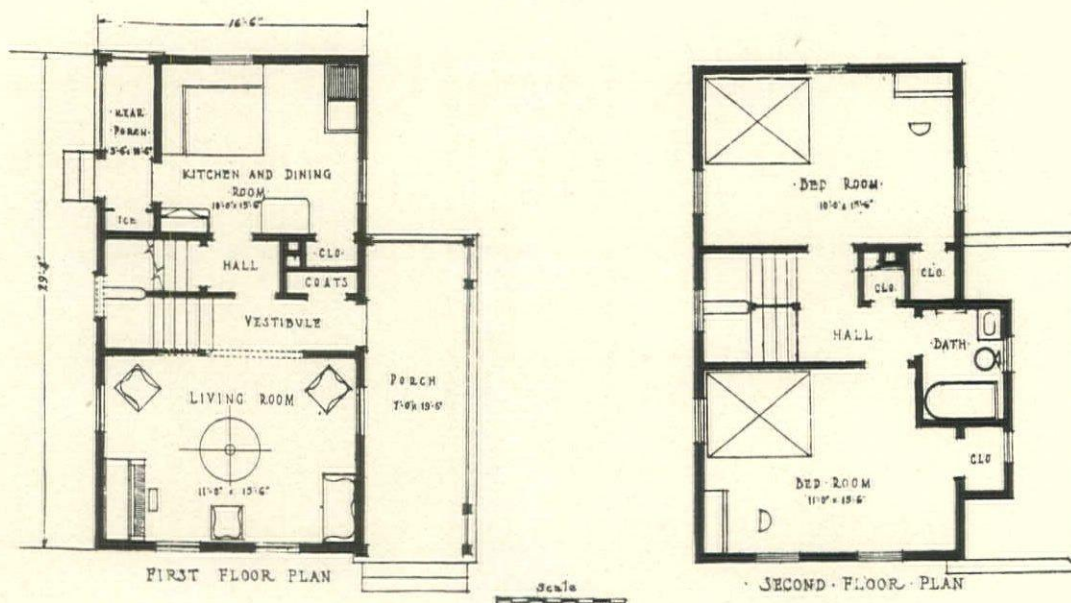


A GOOD TYPE OF A FOUR-ROOM HOUSE WITH BATH
The plan is good, and the living room on first floor an important feature

should future needs require more houses, the adjacent property can be developed advantageously.

The buildings are painted white, have green blinds and lattice, gray shingle roofs, and white chimneys. By a careful study of groupings, of conserving the heights of cornices and roof ridges

and by proper planning, the completed development will be harmonious and distinctive, and will be further enhanced by the advantage taken of a beautiful site to form a picturesque setting and environment for the homes of those employed in a needed war product.



What The Architect's Client Wants

AS success in life depends on the manner in which we can fulfill certain requirements, states *The Architect and Contract Reporter* of London, it may be useful to consider in broad and general terms what it is the architect's clients want in matters of building. What is sometimes defined as the want of appreciation of architecture on the part of the public may prove on analysis to be due to the fact that the architect of to-day has in many cases failed to realize his true functions and overlook certain obvious factors which reflection would convince him were paramount considerations, but to which he in many cases has not given their proper weight. How universal and powerful these factors are can easily be demonstrated.

Very few of us possess means that can be described as being "ample"; building is expensive, and when the majority of men build it is because they have little or no alternative. Most men have calls on them which they must fulfill; the majority also have tastes they wish to indulge if possible, but which they can only gratify to an extent limited by the means they possess after essential claims are met and satisfied.

It is rare to find anyone who builds a house because he wishes to obtain a certain definite æsthetic result, or because he has a passion for architecture in the abstract, and in the great majority of cases the client seeks the service of an architect because he cannot find an existing house to suit him, or because he believes it may prove a good investment; that is to say, his controlling motive is almost purely practical, and whether the client is a practical business man or a lover of some form of artistic expression, with plenty of leisure, the same reasoning applies, though the statement may at first sight seem open to question.

The practical business man will often be a hard critic of the architect's mistakes, which he will be quick to see and condemn; his time is valuable, and he will object to being bothered with the consideration of defects which he puts down to the architect's incompetence. Many architects have discovered to their great disappointment, that the client possessing culture and artistic tastes is equally intolerant of small practical defects which give trouble, but the reason is in reality easy to understand. There is no man who dislikes trouble so much as the man of leisure, and the connoisseur who has an enthusiasm for painting or for collecting furniture or curiosities is usually so much absorbed in the pursuit of a special branch of art that he is in reality indifferent to art as expressed in other terms, and so, while he

has more appreciation of the æsthetic side of architecture than the practical man, he is quite as intolerant of defects which cause his trouble or expense. Both types of client will give their architect a bad time if a house is cold or draughty, if a roof gives trouble, and any failure in the arrangement of the kitchen or service department will act like an irritant poison, working through the servant to the client's wife, and finally to the client, who will hold his architect responsible.

It will be apparent that what the client really wants, whether specifically stated or not, is a house which is convenient and comfortable, will cause its owner the smallest possible expense in subsequent repairs and upkeep, to which we may add that whether a client is rich or poor it is always well to assume that the house may be sold at some future date and should, wherever possible, represent a reasonably good investment of capital. For this reason the architect should possess sufficient knowledge and judgment to insist on advising his client on the matter of site, whether directly consulted on the question or not, for it is human nature to hold the architect responsible, not only for the mistakes he has committed, but for the mistakes he has allowed his client to commit without protest.

If an architect is employed to design a commercial building, such as shop premises, warehouse, or factory, the requirements are even more exclusively practical than in the case of a house. No satisfactory æsthetic result will please the man who finds that full use of the opportunity of displaying goods, space for the easy arrangement of machinery, or proper lighting have been sacrificed. All these and many other details mean a gain or loss which have a direct money value. Again, when we take the case of the hotel, or block of flats, when built as a speculation, the same conditions hold, the problem being to obtain the greatest amount of floor space that can be efficiently lighted and conveniently divided. If the architect overlooks a possible claim for ancient lights his client may find himself compelled to omit an upper story, the deletion of which will mean the difference between profit and loss on the amount expended, while a building may be so planned as to be suitable only for one purpose, when more thought would have resulted in a plan which was capable of arrangement for alternative requirements. We have often seen buildings which were indifferent specimens of architectural design, and found on examination, clever planning and arrangement, proving that the so-called commercial architect had put himself completely in his client's position and considered the building in its income-producing aspect. In so doing

a clear vision of what is evidently the vital and fundamental problem has often given architects of mediocre ability an advantage over their more gifted colleagues.

We do not believe that the world has changed, or that there is reason to regret modern tendencies. At all times, and in all countries, the great majority of buildings were erected for purely practical ends, and the æsthetic expression of those ends has been arrived at unconsciously. It is true that in Italy, and to a less extent in France and elsewhere, a small number of the greatest buildings have been built primarily as architectural monuments, and secondarily,

to serve some practical purpose. In such cases the practical end sought has been the utmost æsthetic expression, and architects have shown their practicality in ignoring other considerations, as Vanbrugh did at Blenheim, but these are exceptions to the general rule which applies to the "habitations of men in all ages." We have everything to gain and nothing to lose in frankly adapting ourselves to the standpoint of our clients, nor will the art of architecture suffer in the process, for history proves it is no exotic plant to be produced by artificial means, but the spontaneous production of human invention directed toward a natural end.

The Objection to "Lump Sum" Contracting

A serious objection from the contractor's point of view, to "lump sum" contracting is that no matter how much time and money he has spent on his organization, he is usually classed with any other contractor who can furnish satisfactory bonds, says *The Western Canada Contractor*. This is due to the lack of appreciation by the average layman of the fact that there can be a very material difference in the structure when completed, as between two different contractors, in spite of all reasonable inspection, although apparently the plans and specifications have been complied with in both cases. This lack of knowledge and experience on the part of the average layman makes it possible for bids to be received at times, from those incompetent to do the work in hand. Naturally, it frequently happens that a good job is spoiled for a good contractor by unintelligent bidding of others, and is spoiled for the owner because he does not receive that for which he pays, and, in addition, frequently has law-suits and other troubles in connection with his work.

But this is not the most serious objection. There have been so many chances taken in the past, and so much "rule of thumb" method used in estimating, together with real and unavoidable losses, due to "acts of God" or other causes beyond the control of the contractor, that very few contracting concerns really have a good standing with the banks. Lack of sufficient funds, by reason of this poor standing, frequently causes a loss in what should be a profitable contract. It is impossible for banks to check an estimate and determine whether at the end of a job the contractor will show a gain or a loss in assets, and they are likely to withdraw credit at a critical time. In addition to this, if a contractor is bidding on all the work in his line which comes up in a cer-

tain territory, he is not likely to receive more than one out of 15 jobs bid upon, and the cost of estimating becomes a very large part of his overhead expenses, as it is hardly possible to estimate, for example, a \$300,000 job at a cost of less than \$500. The only estimate by any bidder that does anyone any good is that of the successful bidder; the balance of the money spent by other contractors on estimating is an economic waste. You can be very sure that the "lump sum" contractor does not forget this when he estimates his cost of a job (or if he fails to include it, he does not know his own cost), and the owner pays in the end; for like railroads, contractors are not Santa Clauses, and like other men, they have a feeling that no one is entitled to something for nothing.

From the viewpoint of the consulting engineer or architect, there are some real objections to "lump sum" contracting, for in the first place he increases his cost of supervision, which could be avoided by doing the work on a "cost plus" basis, and this is an economic waste. Furthermore, he is forced to look upon suggestions made by the contractor with a certain amount of suspicion, and the natural thought is, what advantage would the contractor making the suggestion obtain. In this way he loses a great deal of valuable assistance, because, even though he had confidence in the contractor, the owner, his client, might lose confidence in his expert advice if he were taking suggestions or receiving advice from one whose contractual relations were directly opposed to the interests of the owner. Again, contractors have been known to have some secret understanding among themselves, for this is sometimes done in spite of legislation against such practice. The modern first-class constructing and engineering organizations are the greatest enemies to "pooling," and the greatest friends to "cost plus" contracting.

Electricity a Factor in Reconstruction in France

The following translation from an article in *l'Exportateur Français* appears in a recent issue of the weekly publication of the American Chamber of Commerce in Paris. We read:

The reconstruction of economic life in the invaded regions of France will not be possible without having recourse as largely as possible to electricity. Electricity is the one thing capable, because of its flexibility and unlimited power of expansion, of handling the complex problems which will arise in connection with the reopening of workshops, factories, and mines, and the resumption of social life in general.

The directors and representatives of the large central power stations and electric-lighting plants situated in the invaded regions, banded together under the auspices of the "Syndicat Profession des Producteurs et Distributeurs d'Energie Electrique," are already engaged in studying the problem of reconstructing their central power stations. They have already marked out the broad outlines of their plan as follows:

Those interested, as a technical committee, have been brought together in the "Comptoir Central d'Achats Industriels pour les Regions Envahies", 40, Rue du Colisé, under the provisions of article 20, paragraph 6, of the by-laws of the Comptoir Central. The data in the possession of this committee indicate that the power stations existing in the regions occupied by the enemy represented electrical energy, including units in process of installation, that did not fall far short of 300,000 kilowatts. From the information gathered by the committee, it is only too evident that in the immense majority of cases the electrical machinery, boilers, transmission lines, and in many cases the buildings themselves have been destroyed. It seems prudent, therefore, to face the necessity for replacing practically the whole electric-generating installation in the invaded regions. However, in order to avoid, on the one hand, undertaking a program which would be too ambitious and which would attempt to reestablish at one stroke the electrical situation as it existed before the war, while, as a matter of fact, the reconstruction of the invaded regions will without doubt demand several years, and to avoid, on the other hand, adopting a program so restricted as to cause cruel disappointments to those interested, the electrical committee has agreed to limit its plans, for the time being at least, to the restoration of one-third the energy of the period before the war. This involves the restoration of 100,000 kilowatts.

To aid in solving this particular problem there has already been worked out a map showing the distribution lines existing in 1914. In addition, a new map has been prepared, indicating in a general way the transmission lines that will be necessary for the distribution of energy in the invaded regions after the war. The provisional and theoretical transmission lines that have thus been sketched out have been developed purely from the point of view of the general public interest. No account has been taken of the more restricted interests of electric companies themselves and their individual consumers. The transmission lines contemplated by the committee have been classified in various categories according to the urgency of their installation.

By the creation of a vast system of power generation and distribution established in accordance with a general plan carefully laid out and capable of realization by successive stages as the needs of the invaded regions may dictate, the committee hopes to achieve the maximum efficiency by avoiding the creation of numerous small private central stations, which for the most part are not economically efficient. Moreover, the scientific use of fuel in the projected large central stations will prevent the waste of coal that it is impossible to eliminate in small installations.

Needless to say, in realizing this plan the support of the French Government, as well as of private parties, is absolutely necessary. It is desirable for all those interested, including manufacturers, farmers, municipalities and villages, public institutions, etc., and the public generally to be familiar with the program in course of elaboration, so that they may be in a position to share in the benefits of the work that is being carried on.

A Recent Legal Decision

WAIVER OF LIENS

To waive by contract the right to a mechanic's lien, there must be an express covenant or a covenant resulting by implication from the language used so plain that a mechanic can so understand without seeking professional interpretation as to its legal effect. A provision in a contract to furnish certain terra cotta for buildings by which the contractor agreed "to complete same free and clear of any liens or incumbrances" cannot be construed as waiving any right to a lien for any unpaid portion of the contract price due the contractor. Such a provision is, in effect, limited to the liens of subcontractors and others claiming under the contractor, and in a measure a guarantee by him against subordinate liens.

Waste Reclamation

A meeting was recently held by Hugh Frayne, member of the War Industries Board and chairman of its War Prison Labor and Reclamation Section, with various section chiefs in the War Industries Board and representatives of other agencies concerning the important matter of the reclamation of waste materials. A general plan was outlined for uniformity of method and co-operation among the various agencies in reclaiming materials much needed in the Government's war program.

As an illustration of the value of reclamation work that can be done, Mr. Frayne pointed out that during June and July 17,000 soldiers were completely outfitted with shoes, hats and clothing from material which other soldiers had discarded. All of this material was disinfected, renovated, and repaired or remade, instead of being allowed to go to the junk pile. This work was done through the reclamation division of the Quartermaster's Department.

Plans for After-War Trade in Economic Reconstruction

The time is now ripe for more centralized, concerted work on a program of economic reconstruction after the war, says a report made public by the Bureau of Foreign and Domestic Commerce, Department of Commerce. It is the first of a series of reports to be issued on this subject and is devoted to the plans under consideration by other countries, especially as they bear on future foreign-trade developments.

"The outstanding fact under observation," states the report, "is the recognition in every land and by all statesmen of the problem called 'economic reconstruction.' But of more immediate importance is the fact that England, France, Italy, Germany, and Austria are making preparations to resume their peaceful economic life, with improved facilities for foreign trade, with a national supervision of the use of natural resources for the benefit of their own citizens, and with assistance from the state."

Attention is called to the achievement of our own Government in preparing for after-war conditions, such as the building and organization of a huge merchant navy backed by large and efficient shipyards and docks, the Webb-Pomerene export trade act authorizing exporters to combine for export trade and the leeway in foreign-trade banking now possessed by the Federal Reserve Board and banking system. All told, there has been a very considerable amount of effective work done looking

toward the future, but much remains undone, and the bureau is issuing this analysis of European tendencies as a guide, although calling attention to the fact that each country has its own peculiar problem to work out for itself.

"In England," says Mr. Cutler, chief of the bureau, in his introduction, "judging from present comments on the work of the Committee on Commercial and Industrial Policy after the War, any present attempt to lay down complete and binding policies regarding the future is now recognized as a waste of effort. What is more important is the assembling of facts, taking the basic step to improve our educational, research and promotive organizations and contributing to clear thinking as to the questions involved. Sooner or later we must have a definite program in which work and plans for the future based on known conditions affecting our future may be co-ordinated. I personally feel that the time is now ripe for some more centralized, concerted work to that end."

The report is entitled "Economic Reconstruction," Miscellaneous Series No. 73, and is on sale at 10 cents a copy by the superintendent of documents, Government Printing Office, Washington, D. C., and by all the district and co-operative offices of the Bureau of Foreign and Domestic Commerce.

Vocational Education Plans with States Are Approved

The Federal Board for Vocational Education has approved the plans for vocational education in a number of States for the fiscal year 1919, and made allotment of funds to these States under the Smith-Hughes vocational education law. By the terms of this act, States accepting Federal aid bind themselves to expend an amount out of their treasury equal to that received from Federal sources, the whole disbursement being subject to approval by the Federal Board. Therefore, the amount allotted of Government funds is doubled, the total being the expenditure of the State for vocational education.

The following States, with Federal fund allotments, have just been approved: California, \$58,021.64; Colorado, \$19,273.43; Connecticut, \$31,245.91; Georgia, \$60,948.84; Kansas, \$39,867.34; Massachusetts, \$86,138.70; Kentucky, \$53,701.68; Michigan, \$67,539.35; Mississippi, \$42,888.92; Montana, \$15,000; Nevada, \$15,000; New Jersey, \$62,776.07; New Mexico, \$15,000; North Carolina, \$51,191.24; Texas, \$91,361.83; West Virginia, \$29,417.16.

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Looking Forward to Reconstruction

GOVERNMENT control of trade and industrial relations will probably be more extensively exerted after the war than ever before. Writers of unquestioned authority are almost unanimous in this belief. This fact has been well brought out and clearly stated in a report more fully discussed on another page in this issue, issued by the Bureau of Foreign and Domestic Commerce, prepared by Burwell S. Cutler, chief of the bureau. Government control, it is stated in this report, will be especially a feature of the period of reconstruction. The extent to which such control will be permanent will largely depend on conditions in the various countries.

Production and distribution in different countries had, up to the outbreak of the war, reached certain settled conditions. These conditions naturally became largely unsettled, and in all countries there has been a very careful examination of the existing structure with a view to such rebuilding of methods as would best meet the largely changed state.

In this report, referring to these things, Mr. Cutler states:

As the war progressed there has developed the general impression that the economic régime after the war will be fundamentally different from the old individualistic system and that it will require new facilities and organs

for its proper operation. Thus we find that in two of the most important belligerent countries of Europe—Great Britain and Germany—there are two parallel movements in the work of preparation: The government is creating new instruments or overhauling the old in order to be ready to meet the new conditions created by the war, and private organizations in commerce, industry and finance are getting closer together and co-ordinating their efforts, so as to present a solid front to the anticipated onslaught of their chief rivals.

In this country we shall need to evolve a program that will prepare us to meet and successfully overcome every obstacle to our reconstruction. We shall need so to plan that we will secure for ourselves the measure of success in every commercial and industrial field to which as a nation which has achieved the greatest measure of good results, we are entitled.

IT is significant that with earlier possibilities of peace, there should be a very decided activity on the part of the Government in the formulation of a program for reconstruction. The Overman bill in Congress, providing for a Federal commission, and the Weeks resolution for a joint Congressional committee, are drawn practically along the same lines of reconstruction. *The Iron Age*, in a consideration of after-the-war conditions, refers to these two measures and states: "The United States has been quite behind all the European belligerents in giving attention to the problems in industry which must be met when peace comes."

All of which is quite true, and it might also be added that while we were tardy in preparation, we have achieved in the end the greatest measure of success. But the cost has been large in proportion to what it would have been had we been better prepared at the outset. The same thing may again occur if we defer until after the war the preparation for our rehabilitation. An already greatly taxed people will not then patiently regard methods involving unnecessarily large appropriations.

THERE will be many opportunities after the war to study the advantages of a liberal education such as our men in the service, both at home and abroad, will have acquired. Every man, whether engaged as a civilian worker, or in any of the various industrial occupations, whether as a soldier on land or a sailor on the high seas, will have learned more practical methods, have had a broader view of life and its responsibilities than he could have acquired in any other way. In looking beyond the war to the period of reconstruction, it will be well to remember all these things and to entrust the work to be done to men of broad experience, to those of the most highly developed practical education.

THE AMERICAN ARCHITECT

We shall hope for recognition of such a type of well developed men and we shall also hope that the man whose knowledge is based purely on theory may not be permitted to work his "prentice hand" on these problems. If peace's victories are no less renowned than those of war, one of the greatest victories, the most valuable and lasting, will be the overwhelming demonstration of the value of education acquired by actual experience.

The Opportunity

THERE will be many phases in the after-war period of reconstruction with which architects should be prominently identified.

Will they?

The suggestion has been made by Past-President Mauran that the Chamber of Commerce of the United States is the national vehicle through which to inaugurate the movement towards the preparation of a program of reconstruction, and that the American Institute of Architects should tender its co-operation.

The suggestion is a good one. There has been sufficient opportunity for the profession of architecture to learn of the many opportunities that are open to it to become actively identified with the big problems of the future.

Will it hitch its wagon to this star—or will history repeat itself?

War Labor Problems

NOT only at the present time, but also far into the future of our period of reconstruction, will the establishment of a new basis for wages in the building industries be a problem involving many difficulties in its solution. The activity of the Government in the past, in the matter of labor adjustment, has not been thoroughly co-ordinated and much confusion has resulted. The condition existing is undoubtedly due not so much to any lack of appreciation of the importance of the subject, as to the haste that was essential, leaving little time for study or consideration of all factors involved.

Order is slowly but surely being evolved, and there is developing in the activities of the Govern-

ment in its efforts to solve the labor problem a better method of procedure and one that will undoubtedly achieve some measure of practical results.

The Washington, D. C., correspondent of *Iron Age* has been able to set forth the important steps contemplated by the Government toward its labor policy. These, briefly summarized, are:

(a) Organization of a new general Wage Board, which will report directly to the President, and will be made up of representatives from all the boards now dealing with wage questions in the various Government departments. This board will have supervising authority over all wage decisions.

(b) Establishment of relation of cost of living to wages. This wage board will work out the statistics compiled throughout the country and will seek a uniform line in living costs to guide the settlement of wage controversies.

(c) Settlement of shipyard wage question. This board will deal directly with demands of shipyard workers for higher pay.

(d) Drafting men for war industries. To find a means of securing a speedier recruiting of labor for war industries has become a serious problem. This so-called recruiting is as truly a means of war service as is that carried forward by the army and navy; the services to be given are just as essential. And, for these reasons, it is believed that Government authority, even to the extent of pressure by the Provost Marshal General's office, might be exercised.

Among the many problems affecting labor, none is more vital than this so-called "drafting." And, as stated by the correspondent of *Iron Age*, the use of the word "drafting," implying a compulsory demand on the individual, impedes the easy solution of the question. Some other word, one less intimately associated with compulsion, will need to be found.

Finally, among the specific lines of effort outlined, is:

(e) Recruiting of woman labor. In order to release man power the necessity of substituting woman labor, as far as possible, has from the outset been appreciated by the Government. This policy will undoubtedly be developed to its full possibilities. But up to the present time, as far as is known, no actual program for a comprehensive line of action has been evolved.

Criticism and Comment

The Editors, THE AMERICAN ARCHITECT:

The building industry of the country seems to have received a bad case of shell shock from the great war. We are awaking to the fact that we have been hit but do not quite realize where. Architects and builders have in the past felt that they were an important factor in the nation's life; that their work was considered seriously and that they had a "man's size" work to do. But times have changed.

This is not to bewail the fact that the war has cut down our usual business. That was to be expected, except in the large Government construction centers, and we heartily endorse the Government's request to cut down building during the war to that absolutely necessary. Our trouble seems to be that we have discovered that we are not what we thought we were. When the nation has a real job to do such as to bridge an ocean or build a new highway to Berlin, we are not asked into council, but instead we are gently but firmly asked to stand aside so as not to bother the men who are working. A successful architect past forty-five told me the other day that if he could only find some real work to help win the war by using any of his knowledge or skill, he would be at it immediately. This man has had a busy career for twenty years or more, and is highly trained in a number of fields where he ought to be able to give very valuable service to his country. Why are his services not sought? Is it possible that our favorite sport of finding where the contractor has skinned the job has reacted upon ourselves until both contractors and architects alike are looked upon with suspicion?

The spirit of something different, however, is in the air. Mr. Blackall's article in *THE AMERICAN ARCHITECT* a few weeks ago sounded this note very clearly. Building and engineering magazines and similar publications print articles and editorials on the coming changes in methods. While there seems to be a considerable variety in the proposed remedies, all agree that past methods have not been entirely satisfactory.

Whatever the new order may be, the architect is very greatly affected. It would seem vitally necessary that we should wake up now to a determination as far as possible of what our place shall be in the new adjustment. We need a free and full discussion of these questions at the present time, so that we will be ready to take our place in the new arrangement.

The first and perhaps most vital proposition

which occurs to me, and which is also emphasized by Mr. Blackall, is that the architect must be willing to assume leadership and responsibility. We must cease being moral cowards. This may seem an unwarranted indictment against the past performances of the austere gentleman who has made the big contractors "come across." It is only necessary to remind the reader, however, of how consistently and deliberately we have not only failed to take a business leadership in building enterprises, but we have regularly delegated most of our responsibilities to others, and have not even hesitated to place our own errors on the shoulders of the luckless contractor. We all recognize something similar to: "Contractors will note carefully all parts of the drawings and specifications, and will call the architect's attention to errors or ambiguities before signing contract. Any work erected according to errors in the plans will be replaced at the contractor's expense." "The contractor shall furnish all radiators of sizes shown in plans, and must further guarantee to heat the building in 20 degrees below zero weather to 70 degrees Fahrenheit." On specifications like the latter we have actually asked contractors to submit fair competitive bids.

This is not an indictment against the integrity of the architect. The standard documents prepared under the direction of the American Institute of Architects bear evidence of the high sense of justice and fairness which dominates the profession. This, however, does not meet the main charge against us, that we look to others for results. Our efforts have been to whip the contractor into getting results, and if he has failed, the failure has been his and not ours. If we shall assume leadership in the building field and be a real force in the new adjustment of things, it will be necessary not only to bring about results directly, but to be willing to assume responsibility for such results at the risk of both financial and professional loss.

Just how this may be accomplished is a question which cannot be settled arbitrarily by any man or set of men. In the present shaking up of things, these questions will adjust themselves in their own large way. The point for us to get is, that unless we are thoroughly awake to the situation, the adjustment may be made without taking us into account, and we will have to be content to remain the makers of pictures, furnishing an occasional suggestion on the minor details of big ideas put through by someone else.

THE AMERICAN ARCHITECT

Believing that this is the proper time to discuss new methods in detail, I am giving my ideas of a few of the necessary changes to be worked for. Knowing full well the futility and limitations of arbitrary statements of this kind, I am offering these to stimulate thought, and in the hope that they may lead to further discussion in the same direction.

My principal proposition is to shift the purchase of materials from the contractor to the owner through the architect. This will bring about a series of adjustments somewhat as follows:

In preparing the plans, the architect will assume new duties and obligations, and the price of his services will increase proportionately. In addition to the general plans and specifications worked out as at present, it will be necessary to do much detailed work to get out schedules and separate details and specifications for the various materials and equipment, which can be submitted directly to manufacturers and material concerns for bids. Such bids will be made on designated quantities of specified materials at an exact degree of fabrication, and delivered in a designated manner.

This will first of all mean the work of a thoroughly competent quantity surveyor in the architect's office. There is every reason to believe that a skilled quantity surveyor working constantly on plans prepared in the same office, and having access to the people who prepared the plans at every stage, should prepare very exact schedules of materials, as compared to the present practice where every contractor "estimates" plans from different architects. The majority of contractors would undoubtedly welcome this as a great relief. This will also tend to check any error in the plans before bids are received. The economy of this is evident where quantities are figured once instead of a dozen times.

The work of the architect himself will not of necessity be changed materially, but he will need a competent organization to carry out more exacting detail work. The practitioner whose stock in trade are fine pictures and clever salesmanship would find it harder to operate under these conditions.

The honest material concern would undoubtedly rather sell direct where payment is guaranteed by the owner, and where preliminary information is more exact. The burden of rejected material will fall where it belongs, on the one furnishing it.

The position of the superintendent or "clerk of the works" will be materially affected. At present his position is rather that of the watch dog, and as far as real production is concerned his work is negative. Under the new scheme he would be a man of some consequence. It would be his place not only to see that the work is done properly, but that materials arrive at proper times, and are of

the proper quality as well as quantity. Being in touch with the quantity surveyor who prepared the material schedules, he can check errors very promptly and forestall many of our present expensive delays and other troubles.

How about the contractor! Are we robbing him of his work, or trying to eliminate him altogether? By no means. We are simply leaving him to do the work which belongs to him—to build. His work can be by contract or percentage, and it is not unlikely that the latter would grow in favor. Relieving the contractor of his many duties in estimating, buying and checking materials will give him more time on his essential work of organizing and carrying on effective construction work. The contractor's legitimate field for profit even at present is in well organized labor, effective equipment, and up-to-date methods, and under the new arrangement he could concentrate all his energy on these. His percentage on the capital handled would be automatically increased to give him his just profits. The contractor would undoubtedly furnish all materials needed for forms, scaffolding, and other temporary work which would become part of his equipment. In other words, the contractor would work as at present, but would be relieved of all responsibility for securing the materials entering into the construction of the building. His position would become safer for it is common knowledge that contractors are commonly "stung" by inaccurate estimating and rejected materials. I believe that the contractors over the country would welcome a change of this nature.

And the owner will get what he pays for. But will he be able to know beforehand how much it is going to cost him? He will, if the architect knows his business, and if not—well, that is where the incompetent architect is disposed of.

But would not this lower the standards of architecture? I do not see any reason for believing so. Planning and design could be carried forward on fully as high a plane as at present with better chances of securing well executed work. To my mind there is reason to believe that this will advance the cause of real architecture. We live and work in a commercial age, and we cannot do away with this fact by assuming a high ethical attitude and disclaiming any connection with commercialism. If we can guarantee results on a commercial basis, we will be given more or less freedom to put the new projects into our own architectural forms. We must meet the demands of the times as they exist. We must live in the present, not in the past.

THORWALD THORSON.

Forest City, Iowa.

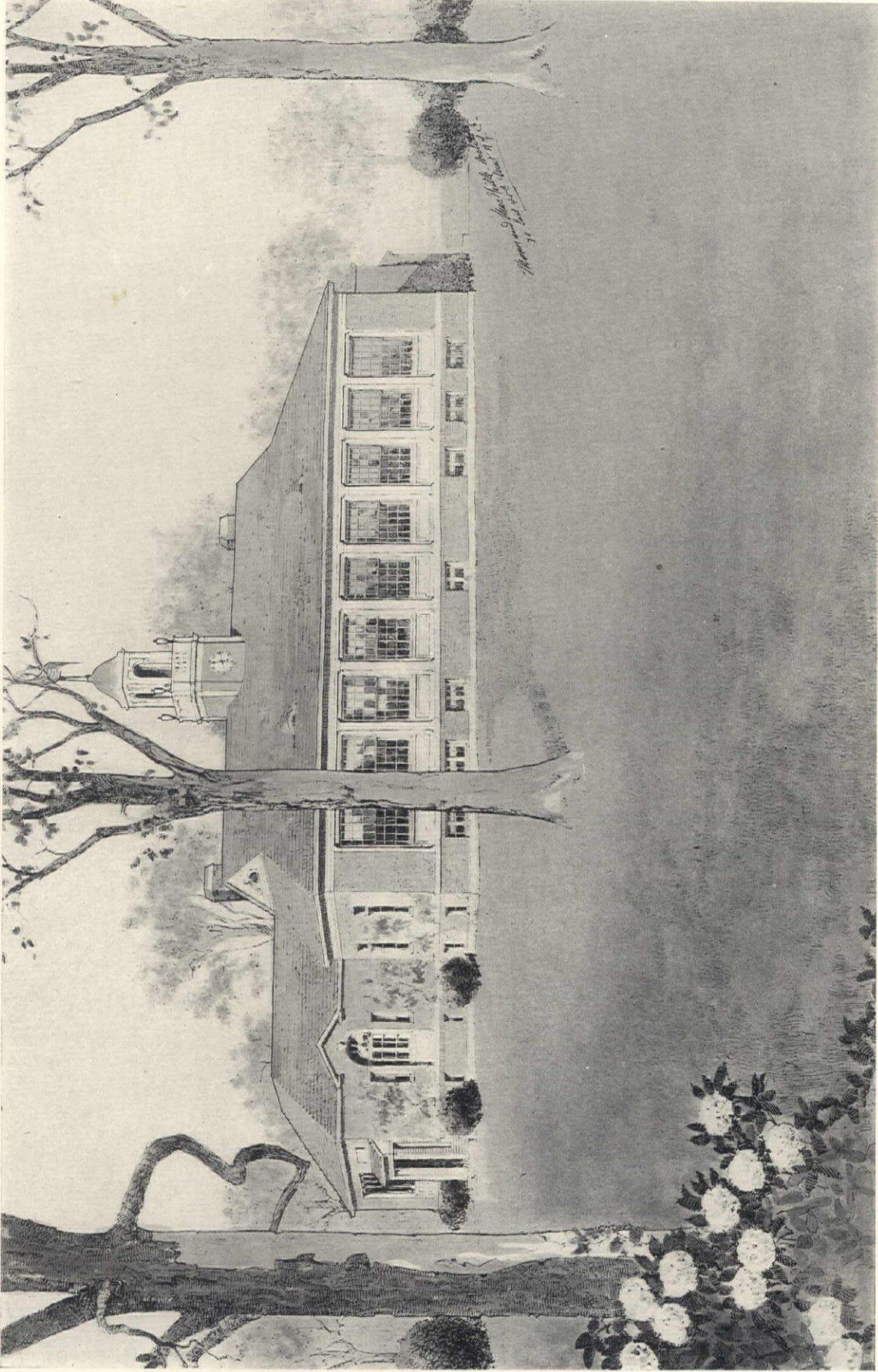


PLATE 129

SCHOOL BUILDING

This building accommodates 140 pupils and is so designed as to be easily enlarged to an eight-room school.

HOUSING DEVELOPMENT, PERRYVILLE, MD.

MANN & MACNEILLE, ARCHITECTS AND TOWN PLANNERS

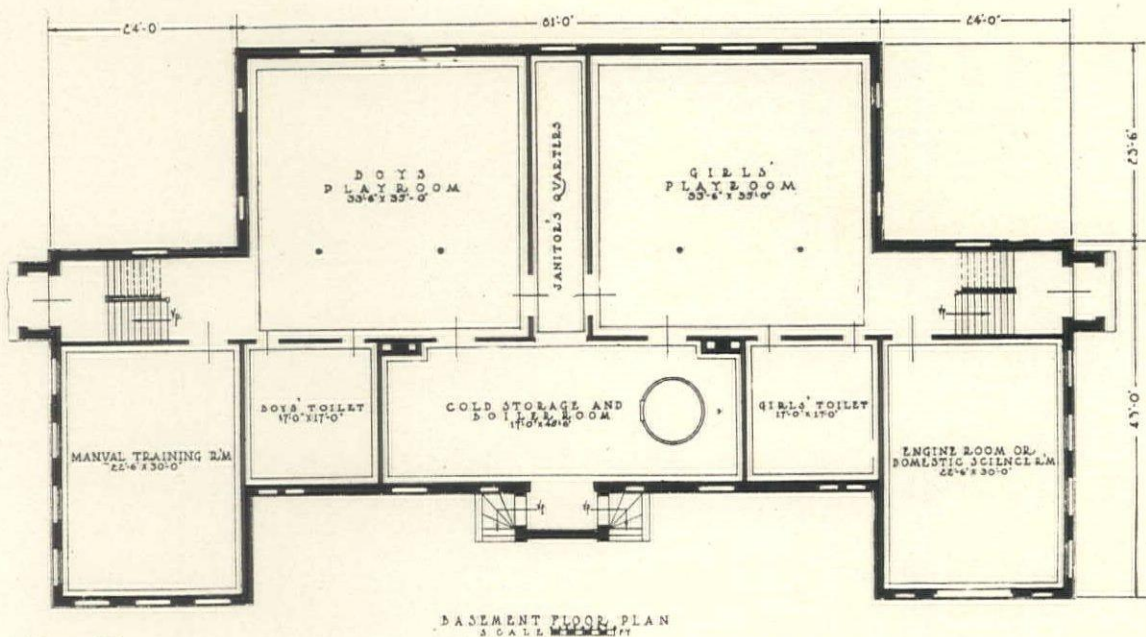
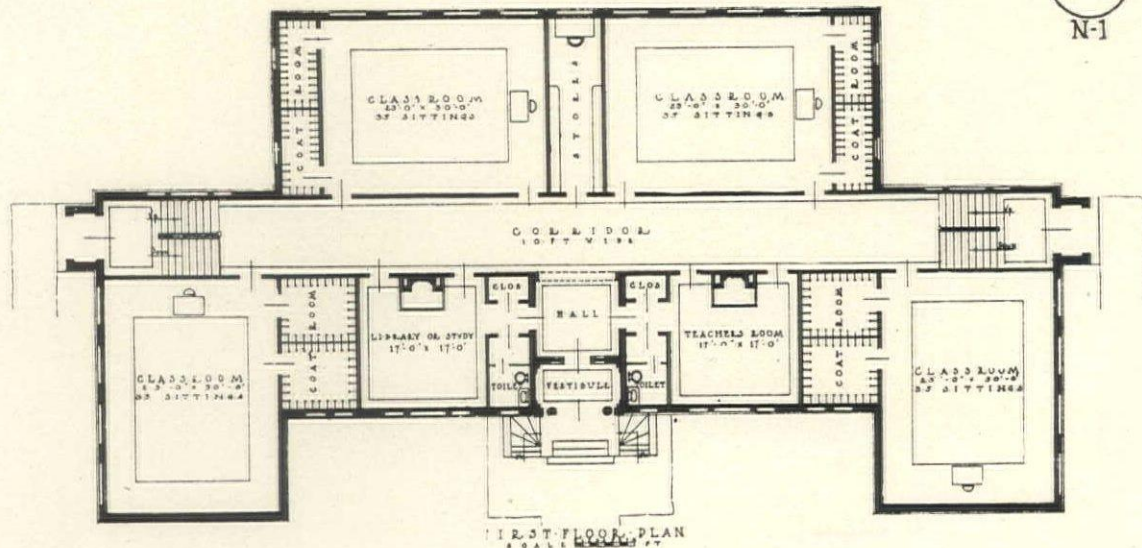
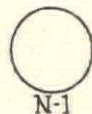


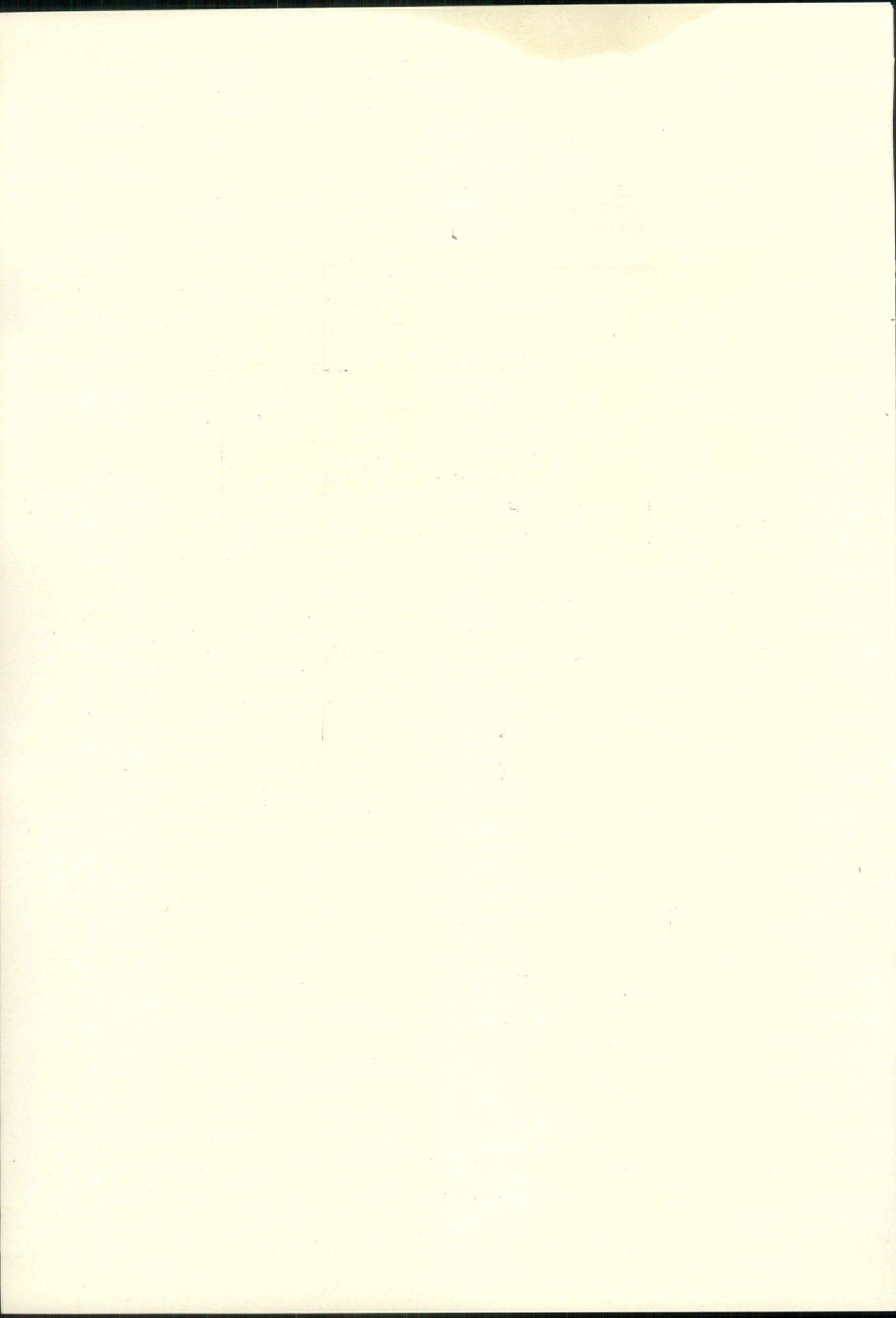
PLATE 130

PLANS OF SCHOOL BUILDING

The disposition of rooms in this plan is simple and direct, and the various facilities provided are complete and well placed.

HOUSING DEVELOPMENT, PERRYVILLE, MD.

MANN & MacNEILLE, ARCHITECTS AND TOWN PLANNERS



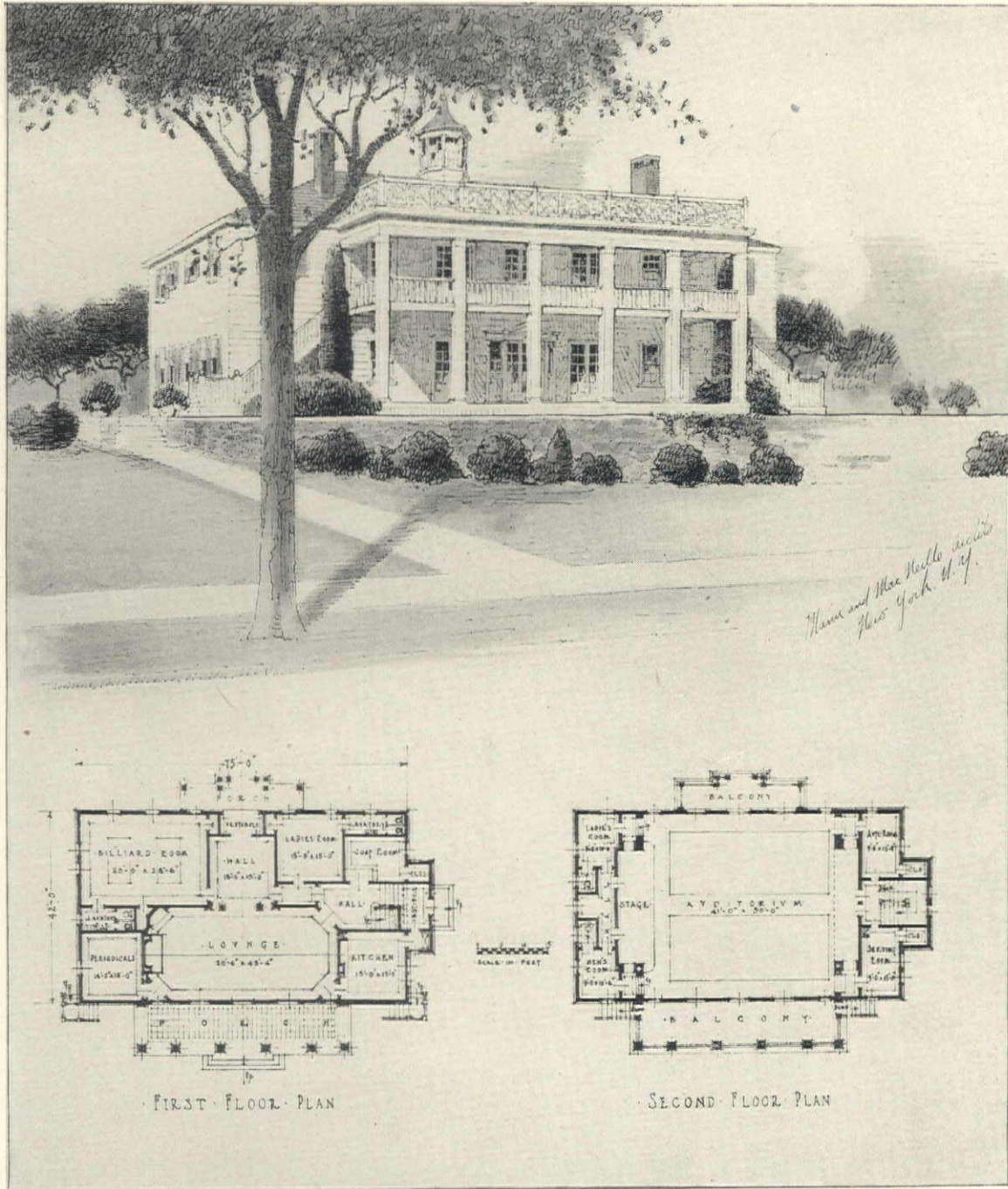
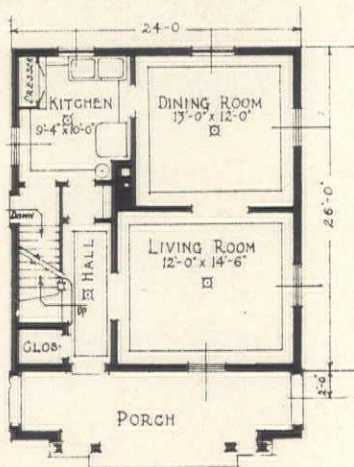
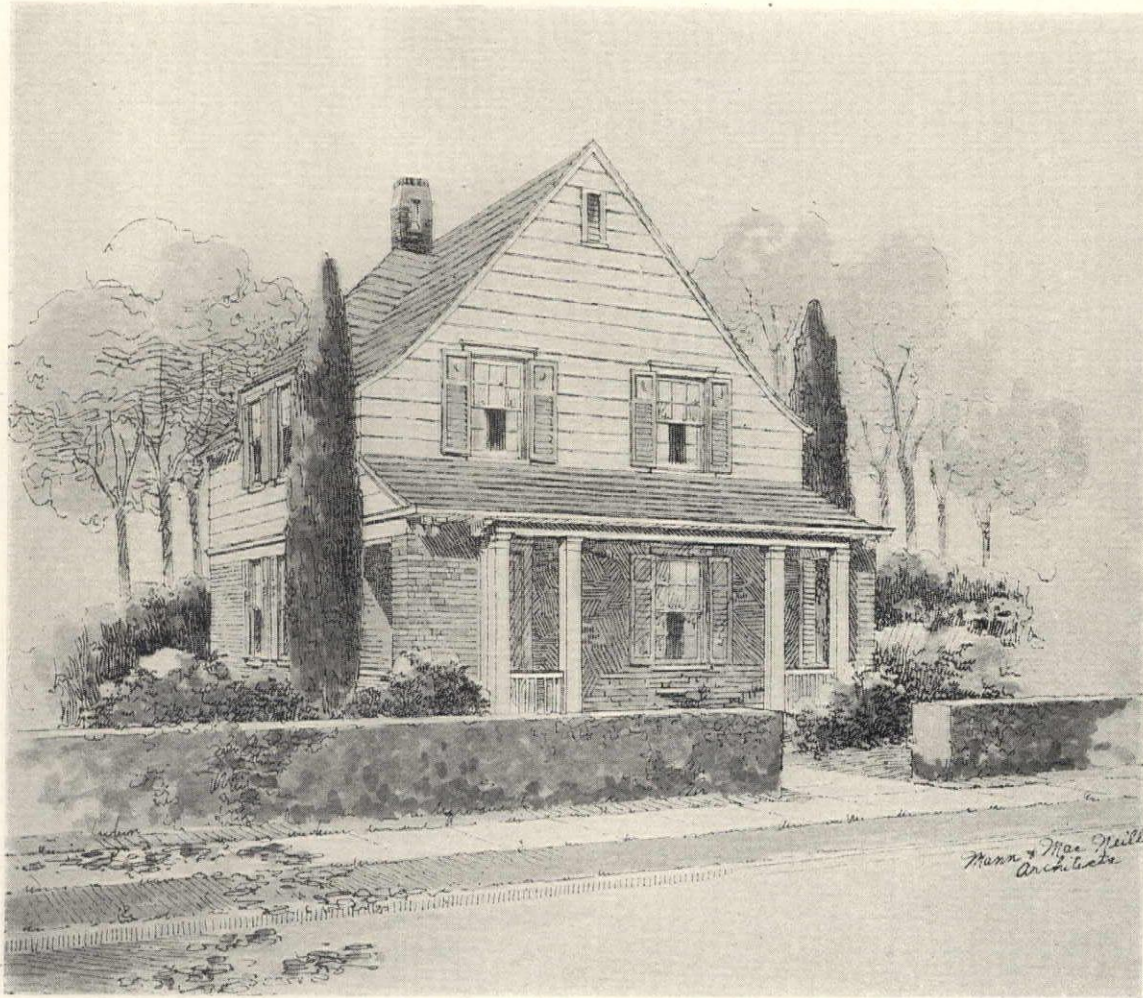


PLATE 131

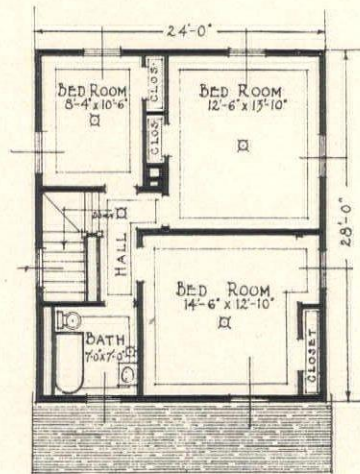
COMMUNITY HOUSE

HOUSING DEVELOPMENT, PERRYVILLE, MD.

MANN & MACNEILLE, ARCHITECTS AND TOWN PLANNERS



FIRST FLOOR PLAN

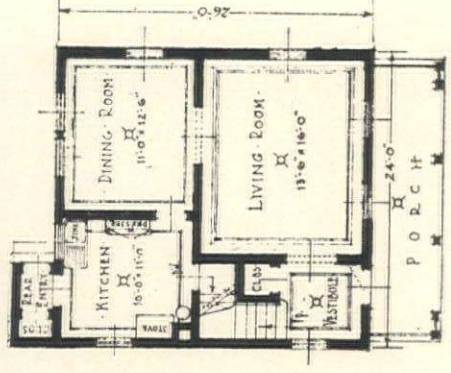
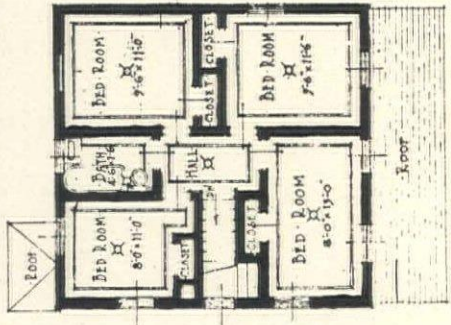
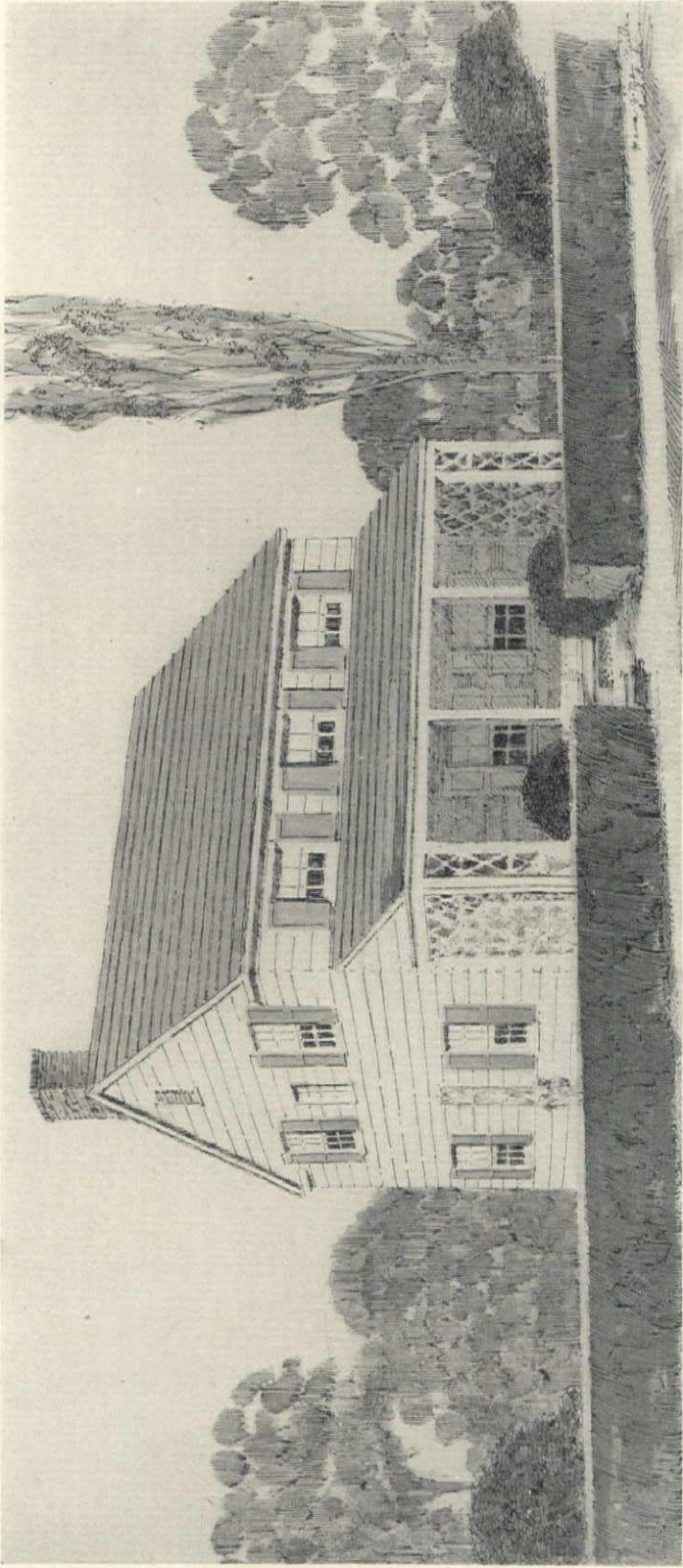


SECOND FLOOR PLAN

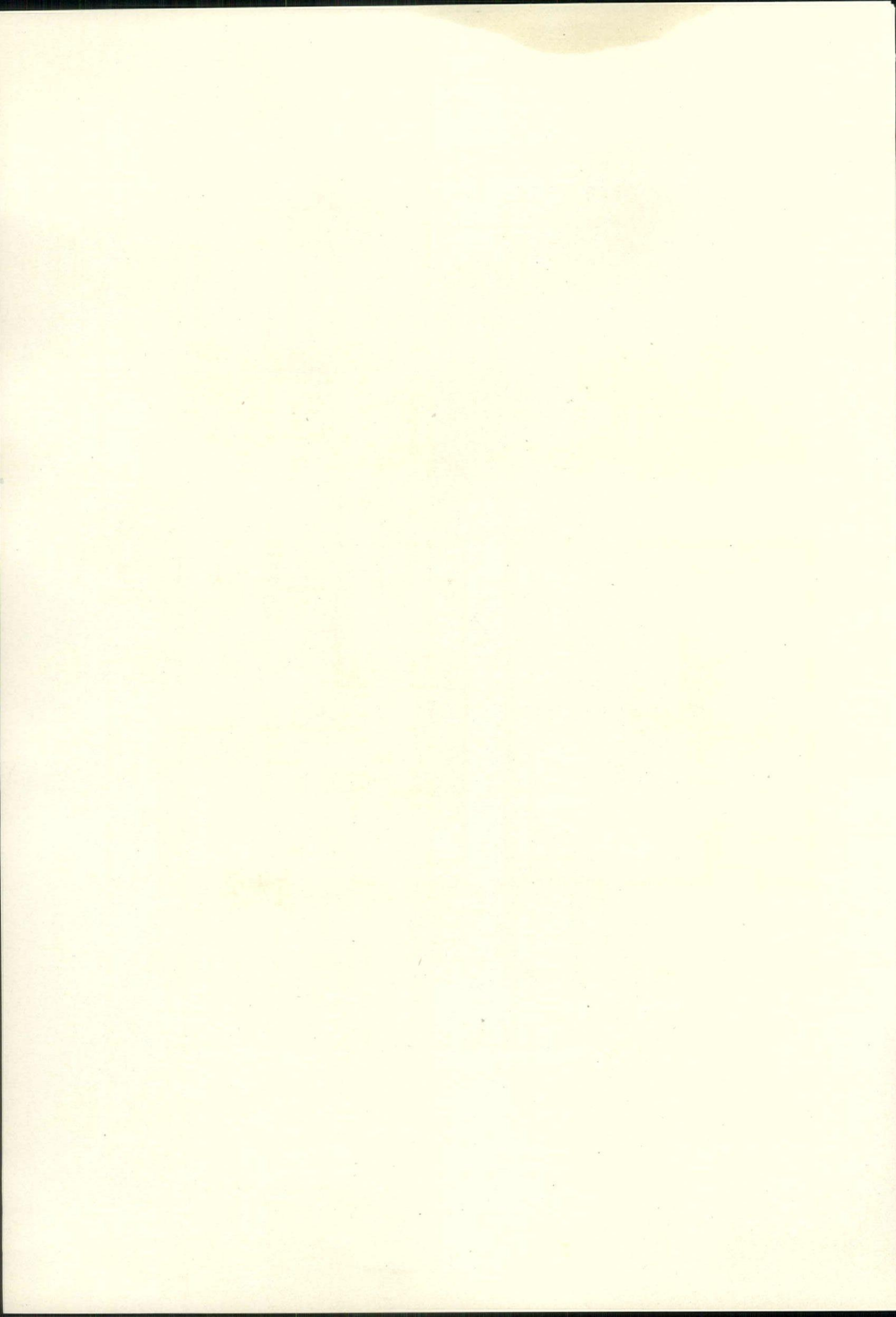
PLATE 132

A SIX ROOM HOUSE, WITH UNUSUALLY LARGE ROOMS
HOUSING DEVELOPMENT, PERRYVILLE, MD.
MANN & MACNEILLE, ARCHITECTS AND TOWN PLANNERS





TYPE OF SEVEN ROOM HOUSE
 HOUSING DEVELOPMENT, PERRYVILLE, MD.
 MANN & MACNEILLE, ARCHITECTS AND TOWN PLANNERS



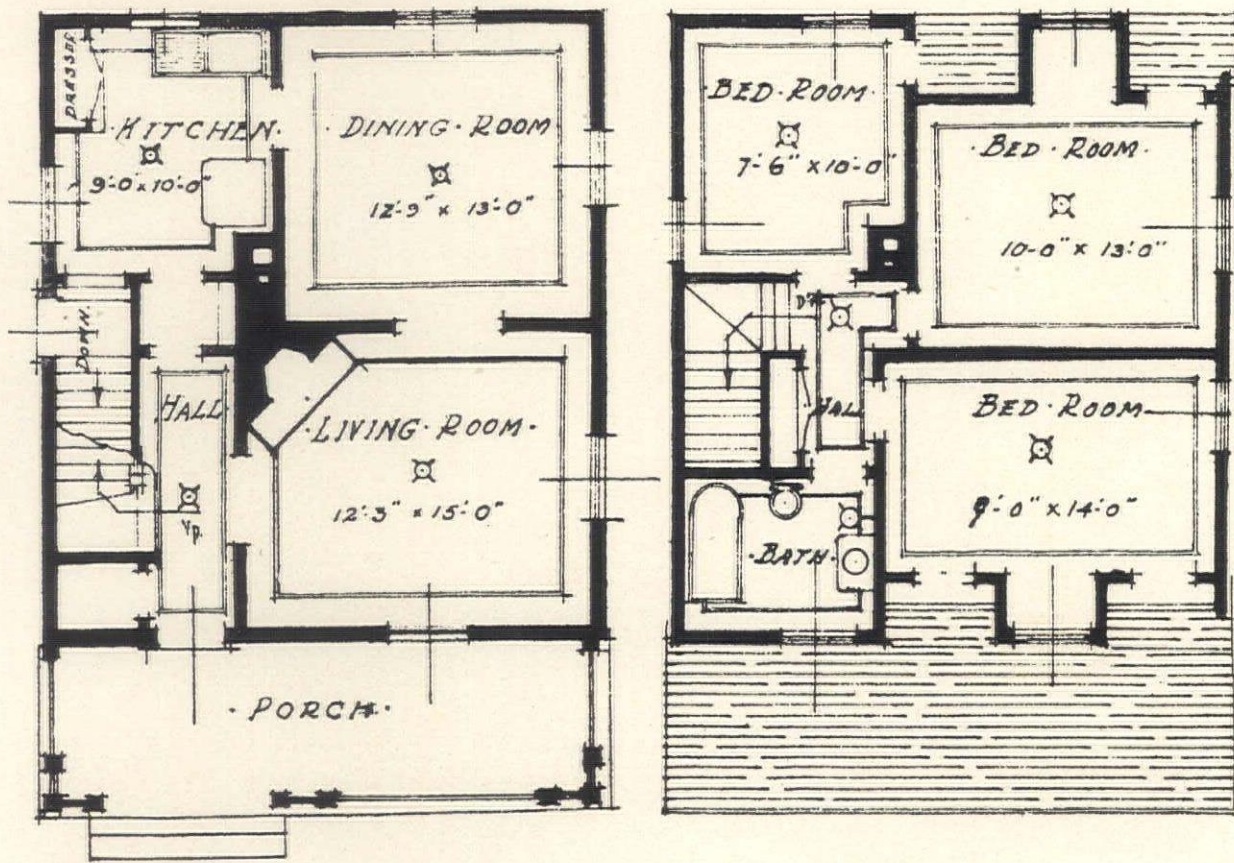
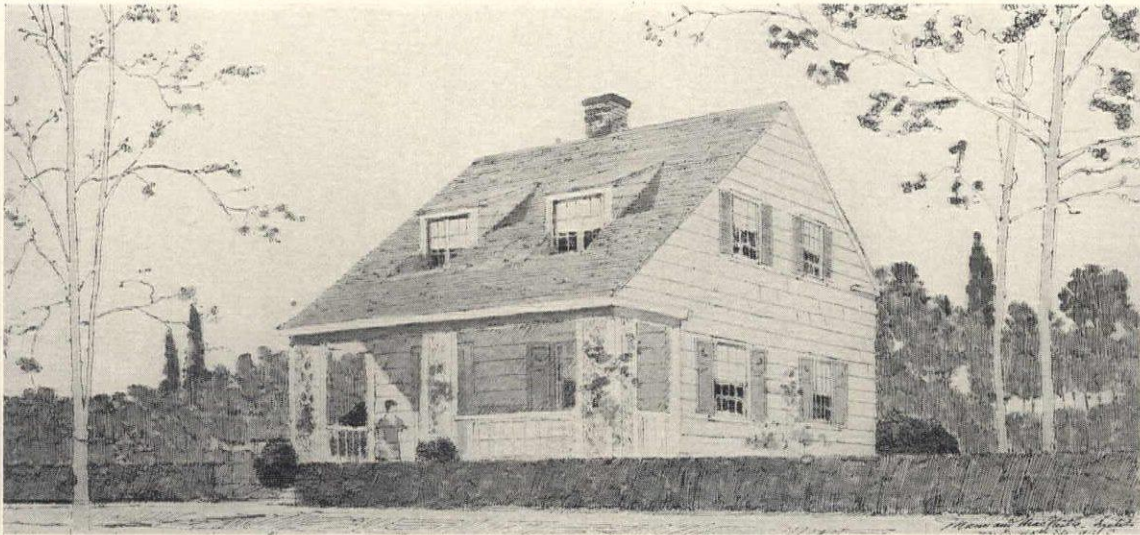


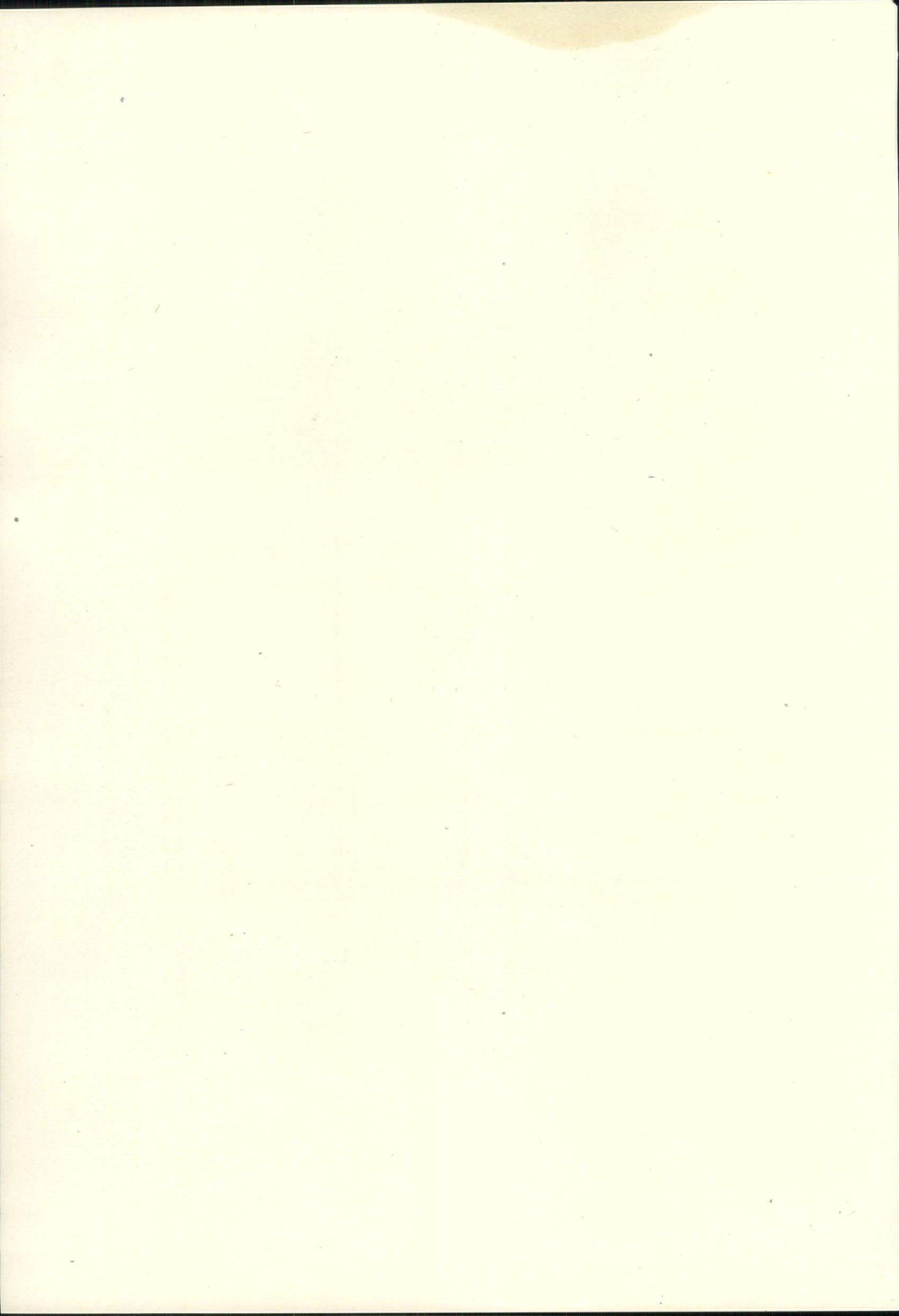
PLATE 134

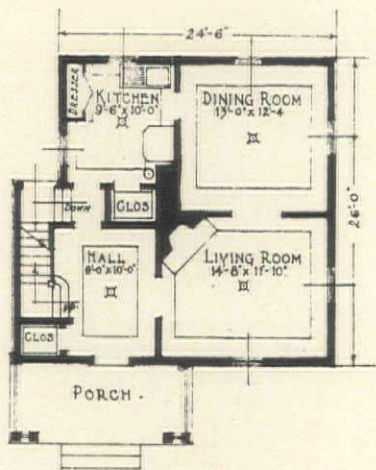
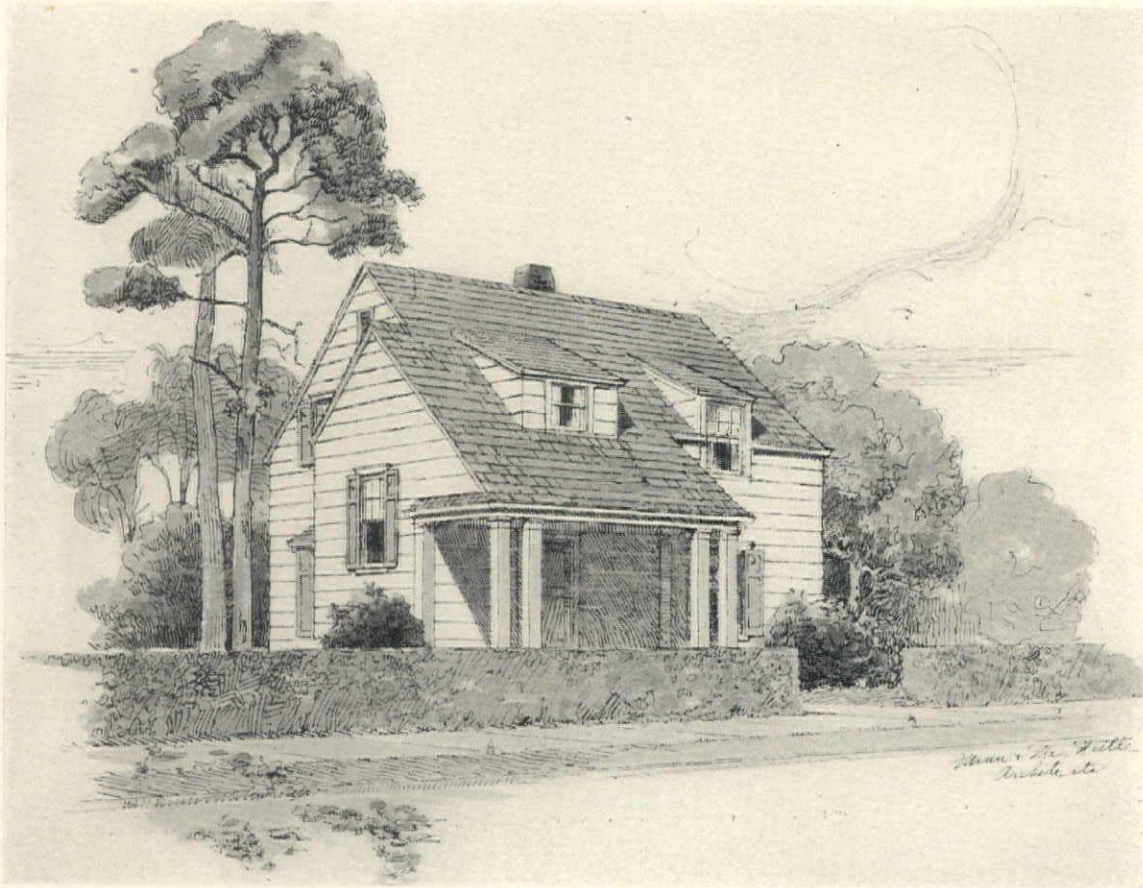
A COMFORTABLE HOUSE WITH SIX ROOMS AND BATH

The living porch is large and appeals to home seekers.

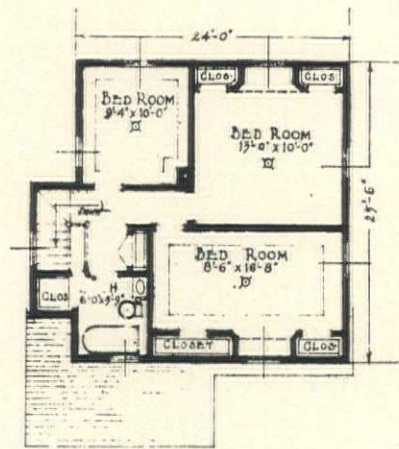
HOUSING DEVELOPMENT, PERRYVILLE, MD.

MANN & MACNEILLE, ARCHITECTS AND TOWN PLANNERS





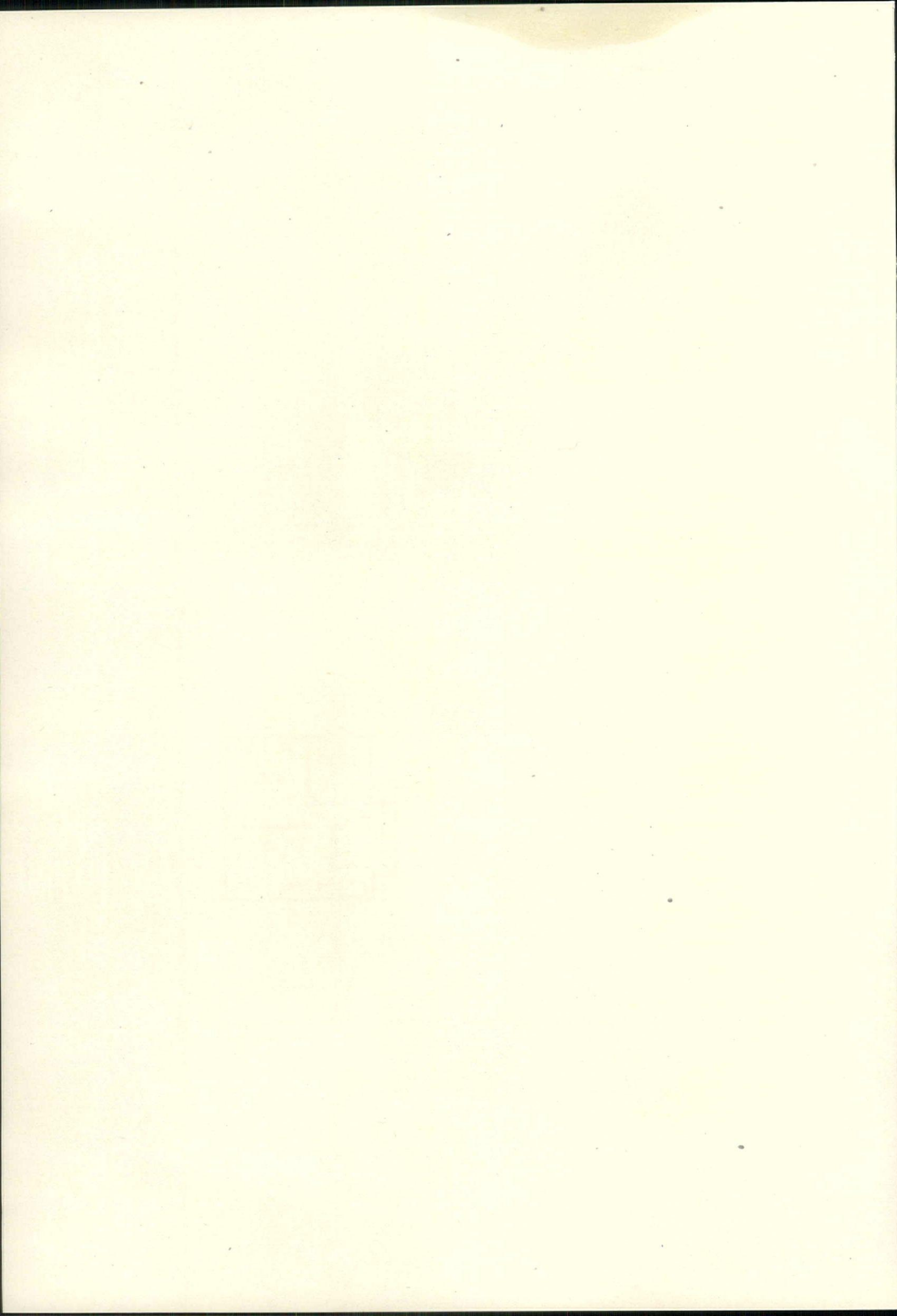
FIRST FLOOR PLAN



SECOND FLOOR PLAN

PLATE 135

A DISTINCTIVE COLONIAL HOUSE WITH LARGE ROOMS
 HOUSING DEVELOPMENT, PERRYVILLE, MD.
 MANN & MACNEILLE, ARCHITECTS AND TOWN PLANNERS



Industrial Progress Stimulated by War

WHEN this war began, Germany practically controlled the world's supply of potash. We have not only developed new potash fields in America, but we have also found a way to take potash from the flue dust of cement works. And we are now independent of the German potash supply for all time.

For years before the war, Germany was buying up the world's supply of castor oil and storing it for use in lubricating airplane engines. We have now perfected a mineral oil that serves as well as castor oil in all but the very fast fighting planes.

We have discovered a way to make coal smokeless by extracting from it valuable by-products that have previously gone to waste.

We have similarly found a way to save half the oils, greases and animal fats that have been lost in use in the past.

We have recently produced a gas mask that can be worn for hours without discomfort even in a rapid advance.

We have introduced improvements in rifles and machine guns that give our soldiers weapons greatly superior to the enemy's.

New methods and appliances for fighting submarines have overcome the U-boat menace. New industrial methods in shipbuilding have speeded up our production beyond all expectation. Improvements in wireless communication have given our troops a great advantage on the battlefield. Improvements in medical science have reduced our army's death rate from disease to one-tenth of the lowest rate established heretofore.

In short, the nations whose inventive genius supplied the Germans with all their modern engines of war, have now so improved on those inventions that the Germans are fighting at an increasing disadvantage on land, on water, and in the air. And civilization is proving its ability to defend itself from barbarism even when the barbarian is armed with weapons which he has borrowed from less backward people.

Plant to Make "Carbocoal"

It is stated by the Fuel Administration that the U. S. Government has become interested in the establishment of a plant at Clinchfield, Va., for the manufacture of "Carbocoal," a smokeless briquetted fuel produced from bituminous coal. This has developed as the result of tests on the briquets made by the Navy Department and two railroad companies. The plant, which is now in the preliminary

stages of construction, is expected to be in operation early in 1919 and will have a capacity of treating several hundred thousand tons of bituminous coal annually.

A new process of low-temperature distillation is used by which coal is so treated as to recover greater quantities of the valuable by-products, such as toluol, sulphate of ammonia, and valuable oils. The briquets are made from the residue. Tests of carbocoal disclose that it contains less than 4 per cent of volatile matter, rendering it practically smokeless, and that it is satisfactory where there is limited grate area and restricted boiler capacity.

No Surplus in Building Trades

As a result of the enlarged military program, calling for the construction of new hospitals and additions to army cantonments and military bases, the surplus which recently existed in building trade lines not only has been wiped out, but there actually exists a shortage in such proportions as seriously to endanger the completion of proposed projects in anywhere near the time set, says the weekly labor report of the United States Employment Service.

The scarcity of carpenters is noticeably acute. Where many recently were looking for work the Employment Service is now looking for thousands to distribute among the army cantonments, where extensions planned for have been held in abeyance waiting relief.

Camp Knox, Ky., which was to have been ready for military occupancy on October 1, may not be completed for several months. At that place alone 10,000 skilled and unskilled men are urgently needed. The most serious shortage facing the authorities at the Camp Knox cantonment is for carpenters. Unfilled orders for 6,000 are registered with the Employment Service. To a lesser degree the same situation prevails at Camp Meade, Camp Bragg, Camp Jackson, Paris Island, and the Navy base at Newport News.

Machinists and machine hands are still far too few in number to satisfy the demands of the war plants. Pennsylvania, New York, Michigan, Illinois, and New Jersey are making urgent appeals that experienced machinists be diverted from nonessential lines into industries in the first line of war-producing industries.

Pennsylvania and Oregon shipyards want caulkers; the demand for ship carpenters and structural iron workers is widespread. Plumbers, bricklayers, tool makers, die sinkers, barbed wire operatives, gauge makers, riveters, and sheet-metal workers are also needed.

Germany's Problem of Reconstruction

From advices coming out of Germany, through neutral countries and other sources of intelligence, writes C. A. Tapper in *Engineering and Cement World*, it is a matter of some importance for American business men to study the manner in which Germany is applying herself to the problem of industrial reconstruction after the war. In that land questions very similar to those already existing in the United States have, of course, long since arisen, and are receiving intensified study. Germany, for example, is confronted with labor troubles like every other nation, and the importance of according this factor definite recognition is fully realized. The German trade unions have not been slow to foresee the possibilities which the economic situation offers of reaping advantages from the conditions which will arise during the period of peace and reconstruction for which they now so bitterly long. In this country, however, the problem is obscured by the uncertainty of the exact nature of trade conditions prevailing after the war, and the measures proposed to be taken are tempered accordingly. In Germany a scheme has been submitted to the Reichstag to ensure that the trade unions shall have a voice in reconstruction questions (in line with the feelers put out by Mr. Gompers at the allied labor conferences in London) and a bill has already been submitted to the federal chamber or Bundesrat for the establishment of chambers of labor, with conciliation committees and arbitration courts, composed both of employers and employed, along lines which had previously been worked out, as far back as the time immediately preceding the war, when the writer was in Duesseldorf and other centers of the movement. Engineer-contractors and other construction interests, which have found their operations hampered in this country by the exactions of labor, should keep watch of developments in this line the world over, as on them will hinge much of our prosperity, or the lack of it, after we have won the war.

New Department of the Engineer Depot

Few realize the immense volume of work accomplished by the General Engineer Depot at Washington in supplying the engineering equipment required by the Army in this country and abroad. The fact that its various departments have often accomplished the seemingly impossible is indicated by the slogan of the depot, "It can't be done, but here

it is." Specifications have been issued and orders placed for supplies to the extent of \$5,700,000 by a single department in a single day. The personnel of the depot comprises a staff of 3600 situated in different parts of the country, with 150 engineers of the first class.

Announcement has been made of a new division of the Depot on Investigation, Research and Development, covering the following subjects: Searchlights; surveying; map production; sound ranging; engineer equipment; testing mechanical and optical devices; physical and chemical research and tests; co-operation and co-ordination; information sources and patents; heavy-equipment developments.

Among the functions of this division are:

1. To review, follow up and initiate improvements in the military equipment and supplies of the Mobile Army, in co-operation with purchasing officers of corresponding equipment and with cognizance of manufacturing facilities and available materials.
2. To conduct or follow chemical and physical tests of material and equipment; and to conduct efficiency tests.
3. To assist in the creation of suitable specifications and advise on technical questions.
4. To assist officers of the depot to develop their ideas into patentable form in order to protect the Government against the payment of royalties for ideas originating in the depot.

Survey Parties Needed by Construction Division of the Army

The Construction Division of the army is without doubt the most colossal organization of its kind in the history of the world. The approximate value of construction projects so far undertaken by this branch of the Government is one billion dollars. The figures representing the material used and the men employed are staggering. Twenty-five thousand workmen have been under the control of the Division at one time.

Among the Division's present urgent needs are 50 chiefs of survey party at \$2,700 to \$3,000 a year; 50 transitmen at \$2,400 a year; 25 levelmen at \$2,100 a year; 125 rodmen at \$1,800 a year; 150 chainmen at \$1,800 a year, and 50 topographic draftsmen at \$2,100 a year. These positions are open to men only, except the drafting positions, which are open to both men and women. All of the positions are in the civil, not the military service.

THE AMERICAN ARCHITECT

Persons interested should apply to the United States Civil Service Commission, Washington, D. C., or to the secretary of the local board of civil service examiners at Boston, New York, Philadelphia, Atlanta, Cincinnati, Chicago, St. Paul, St. Louis, New Orleans, Seattle or San Francisco.

Applicants will not be required to undergo a written examination, the examination being of the "nonassembled" type; that is, the ratings will be based upon education, training, experience and physical ability as shown by the applications and corroborative evidence. These positions offer an excellent opportunity for patriotic service, and the Civil Service Commission urges qualified persons to apply without delay.

Making Forestry Pay

Receipts from the National Forests in the fiscal year 1918 ending June 30th amounted to more than \$3,574,000. Fees from live stock brought in over \$1,700,000, and timber sales yielded over \$1,500,000. Water-power permits brought in a little less than \$100,000. Smaller amounts were received from various forms of land occupancy. Turpentine privileges on the Florida National Forest yielded the Government about \$8,000.

In California co-operative arrangements have been made with 126 individual owners controlling about 250,000 acres of timber lands, whereby the Forest Service assumes the duty of detecting and fighting all fires which may occur. This protection is obtained at an average cost of 1½ cents per acre paid by the owners.—*The Modern City*.

American Efficiency

Engineers with the American Expeditionary Force in France are showing the natives how to build and operate railroads under war conditions. If the road beds have not the stability of the more carefully built roads of that country, the celerity with which they were constructed is a cause of surprise to the French. This country is supplying the steel rails and in this connection it may be of interest that the July output of iron, according to *The Iron Age*, was 3,420,988 tons, compared with 3,323,791 tons in June. The records of *The Iron Trade Review* show production in July of 3,411,597 tons, an increase of 95,540 tons over the June return.

The number of furnaces in blast as the month closed was 364, the largest known under conditions of modern production. The lake ore carrying fleet moved 10,659,203 tons of iron ore in July,

which established a new high record for this month.

Further light was cast by *The Iron Age* on the scope of the steel demand for the armies in France through the announcement that the Government had distributed orders for 200,000 rails to be sent to General Pershing. Of this total the Steel Corporation received 127,000 tons, the remainder being taken by the Bethlehem Steel Corporation and three other concerns.

How to Compute Labor Turnover

The following standard definition of labor turnover and standard method of computing the percentage of such turnover was adopted by the national conference of employment managers at Rochester, N. Y.

Labor turnover for any period consists of the number of separations from service during that period. Separations include all quits, discharges and lay-offs for any reason whatever.

The percentage of labor turnover for any period considered is the ratio of the total number of separations during the period to the average number of employees on the force report during that period. The force report gives the number of men actually working each day as shown by attendance records.

It is recommended that the percentage turnover be computed for each week. All turnover percentages for a week or for any other period should always be reduced to a yearly basis and be reported in terms of percentage per annum.

To compute the percentage of labor turnover for any period, find the total separations for the period considered and divide by the average of the number actually working each day throughout the period. Then multiply by the proper factor to reduce to a yearly basis.

Example:

Method of computing percentage of labor turnover for one week:

Total number of separations during week, 300.

Daily force reports (workers actually on the job):

Monday	1,020
Tuesday	1,065
Wednesday	1,070
Thursday	1,035
Friday	1,040
Saturday	990

Average for week..... 1,037

Percentage of labor turnover:

$$\frac{300}{1,037} \times 52 = 15.04 \text{ per cent.}$$

Prevention of Accidents in Government Nitro Plant

A remarkably low accident record has been effected during the construction of the United States explosive plant C, at Nitro, W. Va., which was begun the early part of January, 1918. This is attributed directly to forethought and careful planning in the elimination of accident hazards through concerted effort in modern methods of safety engineering. This plant covers approximately 1600 acres of land, upon which are constructed hundreds of buildings to be used in the manufacture of smokeless powder. In addition to the plant acreage there are about 900 acres of land, upon which are being constructed thousands of homes in which the operators will live.

No records in the United States accident statistical record books, past or present, have been more wonderful than those now shown at this Government powder plant, where, to date, there has been but two-tenths of 1 per cent of the number of working hours lost by injuries resulting from accidents causing absence of employees.

But six fatalities have occurred at this plant during the past eight months of its construction period, where upward of 19,000 employees have been working overtime and Sundays to complete this gigantic project. Only eight accidents per 10,000 employees per day have occurred, entailing loss of one day or more.

The supervision of this accident-prevention work has been done by a well-organized safety department which, representing the United States Employees' Compensation Commission, at Washington, D. C., has been under the direction of C. B. Hayward, safety engineer in charge. Its activities, coupled with the assistance and co-operation of the officials down to the workmen, have made it possible to create this new mark in accident-prevention work.

Vast Interests Affected by Construction

In reply to Senator Calder's inquiry regarding the plans of the War Industries Board in modifying the restrictions on construction, some very interesting figures were offered, showing the importance of the construction industry. The United States Fuel Administration estimates that the production of building materials consumes 30,000,000 tons of fuel per annum; and the Railroad Administration finds that 25 per cent of the total tonnage normally moved by the railroads is building material.

It is also stated that the direct and indirect war needs of the United States and its Allies for the last six months of the current year already exceed 21,000,000 tons of iron and steel, and that the country's output for the first six months was less than 17,000,000 tons.

These figures, in addition to the need for more labor, were offered as reasons for modifying the restrictions in order to speed up the war program.

—*The American Contractor.*

Labor from Porto Rico

To aid in the construction of new warehouses at New Orleans to be used by the Quartermaster Corps in connection with the shipment of supplies to France, 1200 Porto Rican laborers have been brought to New Orleans on an army transport. These men represent the first consignment of a force of 30,000 Porto Ricans who have registered with the United States Employment Service office in San Juan for work in the United States. They will all be used only on construction work for the War Department, and will be stationed in southern districts where the climate is suitable for their health. Further shipments will arrive at New Orleans as rapidly as transportation becomes available.

Expansion of Our Merchant Marine

The American merchant marine is to-day expanding more rapidly than any other in the world. In August of this year the United States took rank as the leading shipbuilding nation in the world. It now has more shipyards, more shipways, more shipworkers, more ships under construction, and is building more ships every month than any other country, not excepting the United Kingdom, hitherto easily the first shipbuilding power. Prior to the war the United States stood a poor third among the shipbuilding nations.

When the present Shipping Board began its work in August, 1917, there were only 61 shipyards in the United States. There were 37 steel shipyards with 162 ways. About three-quarters of their capacity had been pre-empted by the naval construction program, while private orders overflowed the remaining ways. In the 24 wood shipyards there were only 73 ways.

The largest shipyards in the world in September, 1918, are those of the United States. The Clyde River, in Scotland, historically famous as the greatest of all ship building localities, is already surpassed by two ship building districts on the Atlantic coast, Delaware River and Newark Bay, and by two

on the Pacific coast, Oakland Harbor and Puget Sound. One yard, Hog Island, on the Delaware, is equipped to produce more tonnage annually than the output of all the shipyards of the United Kingdom in any pre-war year. It has 50 ways.

There are now 203 shipyards in the United States. The list comprises 77 steel, 117 wood, 2 composite, and 7 concrete shipyards. Of these, 155 are completed, 35 more than half completed, and only 13 less than half completed. The great plant at Hog Island is 95 per cent completed—built in one year. Its site, when the United States entered the war, was a swampy marsh.

Every month of the past year has added to the number of American shipways, until today the impressive total is 1,020—more than double the total of shipways in all the rest of the world. Of the 927 shipways that are for the Emergency Fleet Corporation of the Shipping Board, 810 are listed to-day as completed, and only 117 are to be added. There are 410 completed ways for the construction of steel ships, 400 completed ways for the construction of wood, composite, and concrete ships.

Zoning Laws Help Business Streets

As a concrete example of how the new zoning regulations in New York help business thoroughfares there is to be seen Fifth Avenue, as decorated during the Liberty Loan drive. This dignified thoroughfare has only become so, and retained its prestige through the operation of the restrictions of the zoning law. The menace of the sweat-shop has been well avoided, and this unusual shopping street has been kept unspoiled. It is not believed that the people of New York would patiently suffer any change in these regulations after experiencing the thrill of local pride evoked by the recent gala aspect of Fifth Avenue. Edward M. Bassett, counsel of the New York Zoning Commission, in discussing the advantages of zoning restrictions in cities has stated:

"People sometimes think that the new building zone law protects private homes and keeps garages in their proper places. They do not realize that the law is constantly and quietly helping business streets all over the city. Formerly there was a constant tendency to use a corner building in a thickly built-up residence locality for store purposes. Often a block-house owner decided that he could make his building earn more if he projected the first floor of his house out to the street line, put in some plate glass windows and rented it for business. In many cases this was done, although all of the neighborhood were block-houses standing back of the street line. Now instead of the sporadic store thrust

among homes where it did not belong, these stores and the tenants who want to occupy them are compelled to go to the business streets. Sometimes new stores are built; more often a store on a business street which would otherwise be vacant, is occupied. Thus there is a constant tendency for business to stay in business streets where it belongs and this centralization of business makes it better for the business street and better for customers, because, as a rule, customers like to have their stores close together in a nearby locality.

Adequate Fuel Supply

The whole question of fuel supply, states *The American Contractor*, has been brought home to industry throughout the world by the demands of war. The weakness of the old system of unregulated control of sources of power, whether in the coal fields or in water power sites, has been shown up, and the need for a consistent development according to a well defined program on the basis of a public utility has been demonstrated. The importance of such a step for the construction industry is evident. To relieve the transportation systems of the country of this enormous burden of fuel tonnage would at once make possible better facilities for the transportation of building material. Since building materials comprise 25 per cent of the total tonnage normally moved by the railroads, the effect is even more apparent. Again, the reduction in the cost of power, which such a program would insure will react strongly upon the cost of producing building materials. A reduction in the cost of material will react in turn upon the demand for building. A better controlled fuel supply is certainly one of the questions which must be considered by any commission or committee on reconstruction which the Government may create.

War and the Individual

"More power to all of us," says a writer in *Advertising and Selling*. "One thing this war is doing for all of us, it is making us realize our own power.

"It is making us willing to change, to grow. It is making us draw upon our reserves of power. It is making us break away from convention. It is making us adopt new standards. It is opening our minds to the fact that we can do pretty much what we find we have to do.

"The war is sharpening our wits. It is making us come out of our shells. It is making us self-reliant. It is making us look to the future with resolutions to do something worth while. It is showing us how little our previous ideas are worth now. It is

developing in us initiative. It is making us work as never before we have had to work.

"The war is making us love our brother men, except the Germans. It is broadening our sympathies. It is making us aware of our neighbors. It is making us lend a hand. It is making us realize some of the bottom truths of religion, that have been formal words to us before. It is making us suffer, and realize the value to character of suffering.

"In business, the war is making us broaden our views, open our eyes to the rest of the world, plan to be a world-merchant, manufacturer, professional person, salesman or advertiser. We now see England, France, Belgium, Italy, Japan, Russia, and all the nations that have helped to bring the Germans to their knees. It is a great help to us that we at last know Germany for the business and industrial thief and pirate she is. It is useful to know all that the war is daily telling us for our future guidance.

"It is our greatest task to realize what the war is doing for us, and profit to the full by it."

Revival of Candlesticks in France

While the war has wrecked some industries in France, it has at the same time created new ones and revived older crafts. An excellent and interesting example of the latter is the art of candlestick making, which has, says *The Scientific American*, taken on a new lease of life. Even in some of the big towns there are houses which are not supplied with gas, where before the war petroleum or spirit was used for lighting purposes. Now that the use of these is closely restricted, recourse has to be made to the old-fashioned candle.

This is true in the country especially, where candlesticks are in great demand, and everyone is buying them according to his means or fancy. At first they were made of copper, but when that metal became scarce, brass was employed. Some of the modern examples have several branches, and are very artistic. A domestic art metal worker at Aix, who has specialized in this kind of work and has become quite a celebrity, has just constructed a series of tall iron candlesticks of very solid proportions which can hold several candles. They have been critically inspected by art metal critics and are claimed to be true works of art, and to appeal to all lovers of ironwork.

The Over-Housed

"Are we," asks *Carpenter and Builder* of London, to have "the rationing of house room?" This query is prompted by the discussion of an article appearing in a London journal, directing attention

to the fact that while there is a shortage of houses suitable for men of moderate sized families, there are a great many instances where childless couples are occupying large houses having up to eight bedrooms and three sitting rooms each. The article asks: What is to be done about this?

Engineers' Society Favors Immediate Planning for Reconstruction

The Engineers' Society of St. Paul has placed itself on record as being in favor of immediate action by public officials and private interests looking toward completing during war time the preliminary steps for construction work after the war, to the end that employment may be promptly furnished to a great number of returning soldiers and to men released from shipbuilding and war munitions plants. There is no question but that such prompt action on the part of officials at this time will have beneficial results in producing a smooth transition from war conditions to peace conditions. A great part of the man-power of the nation is engaged either directly or indirectly in war making. Unless there is work for these men after the war there will undoubtedly be discontent and a difficulty in adjusting the huge economic fabric of the nation to peace-time conditions.—*Improvement Bulletin*.

Professor Warren of Columbus Dies

Charles Peek Warren, of the School of Architecture at Columbia University, died at his home in Woodcliff Lake, N. J., on October 16. Professor Warren was born in 1869. He had been a member of the faculty of Columbia since 1909, serving as adjunct professor of architecture.

Tacoma Society Elects Officers

The Tacoma Society of Architects has elected the following officers for the ensuing year: Roland E. Borhek, president; Earl Dugan, vice-president; A. J. Russell, secretary and treasurer.

Personal

Arthur Brown, Jr., of the firm of Bakewell & Brown, architect, who last year was of the faculty of Harvard University, has been appointed professor of architectural design and theory of architecture by the Regents of the University of California, Berkeley.

Department of Architectural Engineering



RICHMAN BROTHERS COMPANY FACTORY, CLEVELAND
CHRISTIAN, SCHWARZENBERG AND GAEDE COMPANY, ENGINEERS. DANA CLARK, ARCHITECT

Medal for Merit Awarded American Factory Building

THE importance of the building as it affects the community is appreciated by the Cleveland Chamber of Commerce. Its activities along this line are conducted by the City Plan Committee and they have established the custom of awarding a medal for merit to the best designed factory, commercial building of three stories or less and apartment house, that is erected during the year. The awards are made by three juries consisting of five members. Each of the juries have two members appointed by the Cleveland Chapter, A. I. A., one member appointed by the Engineering Society and one member appointed by the Builders' Exchange. The fifth member of the factory jury is appointed by the Manufacturers and Wholesale Merchants' Board; of the commercial building jury by the Retail Merchants' Board; of the apartment house jury by the Cleveland Federation of Women's Clubs.

The juries are asked to give particular attention

to the following factors, the percentages varying in each of the three classes of building:

(a) Aesthetic Value:

- Simplicity.
- Proportion.
- Artistic and practical use of inexpensive materials.
- Adaptability of building to site and neighborhood.

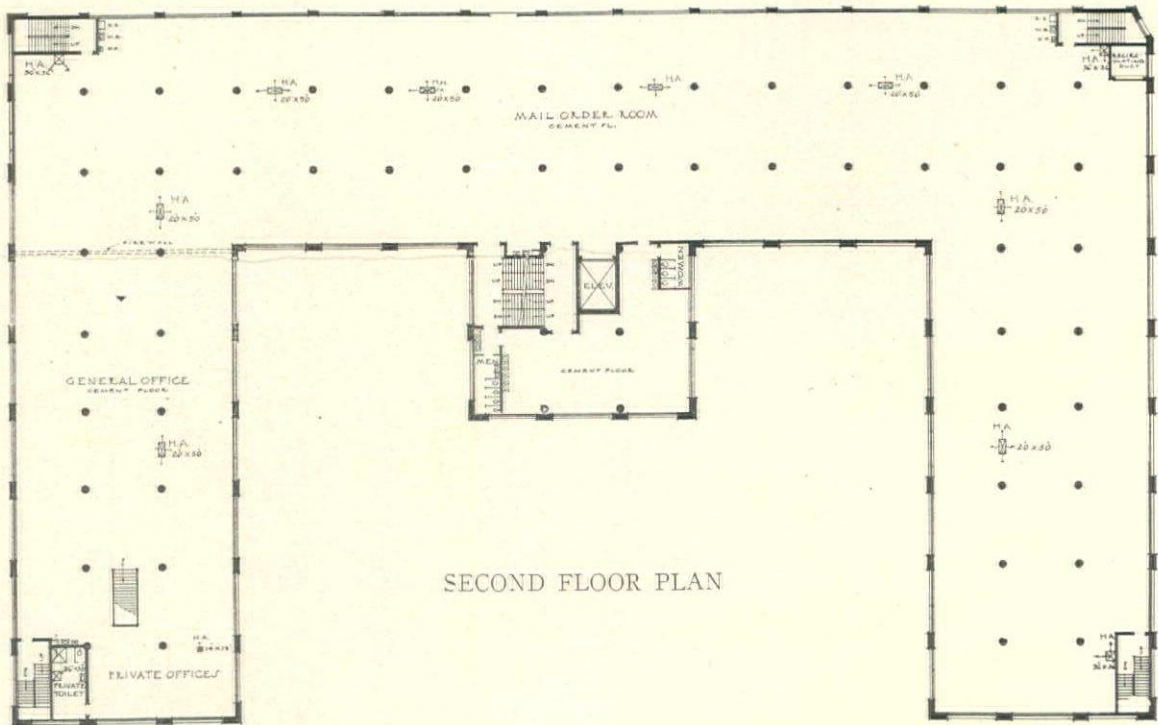
(b) Adaptation of space to use—plan.

(c) Sanitation:

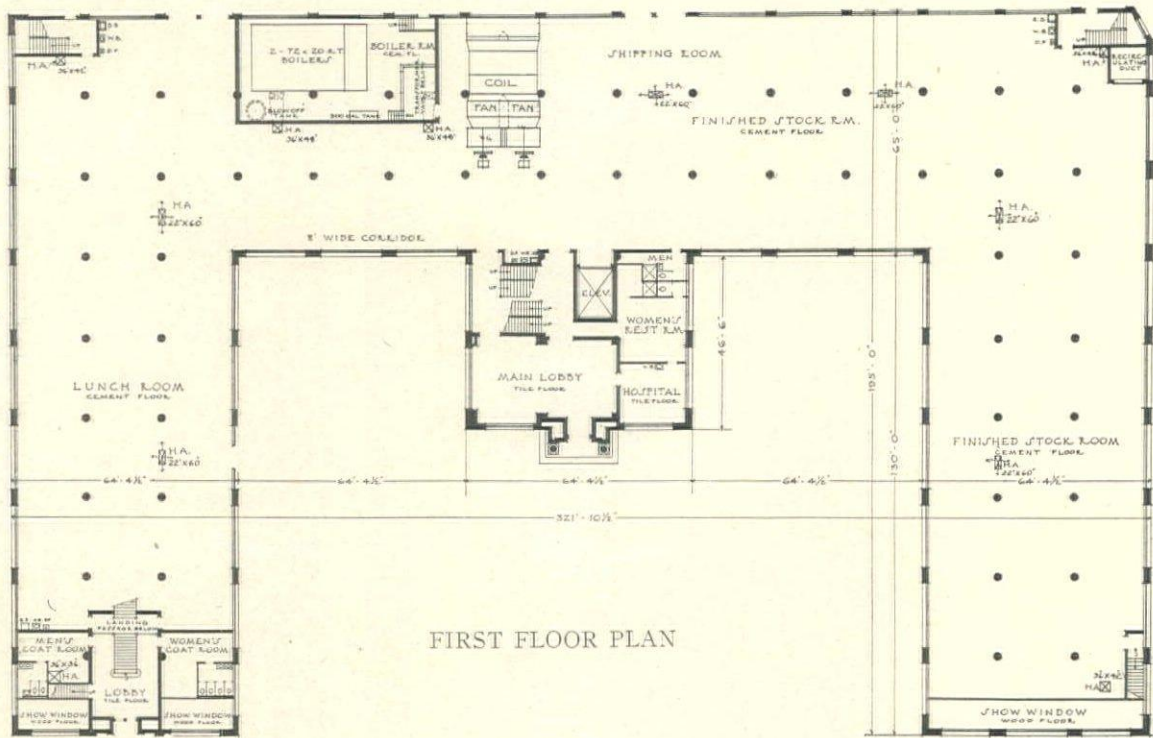
- Fire safety.
- Light.
- Ventilation.
- Provision for thorough and economical cleaning.

The award for the best factory building erected in Cleveland in 1917 was given to the Richman

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SECOND FLOOR PLAN

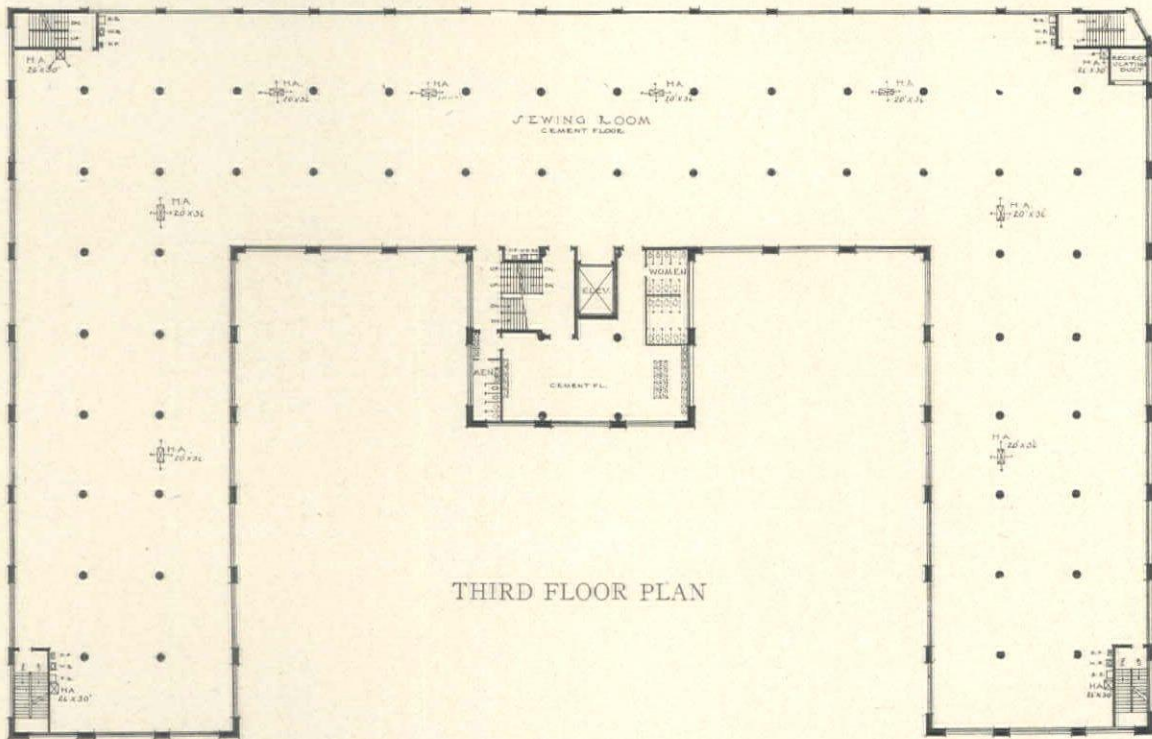
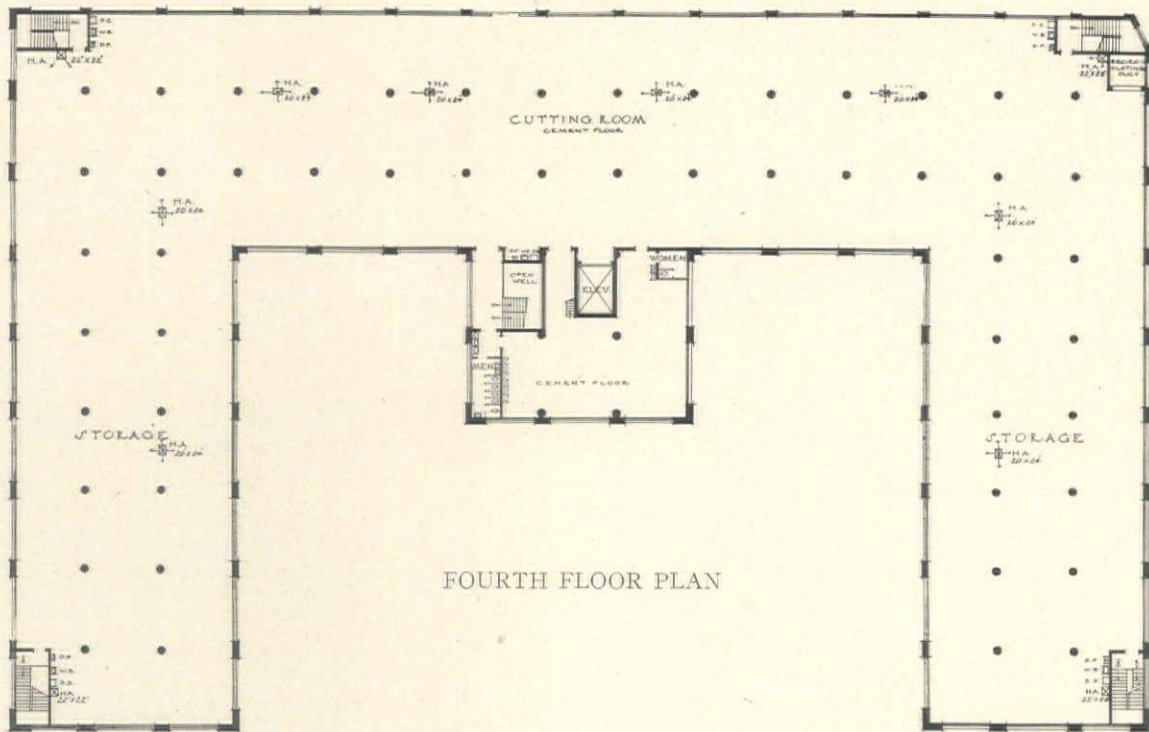


FIRST FLOOR PLAN

Brothers Company at 1600 East Fifty-fifth Street. The building was designed by the Christian, Schwarzenberg & Gaede Company, engineers, who secured the services of Dana Clark, architect, to develop the æsthetic features of the structure. The result of this happy combination of professional training is a prize-winning structure.

The building faces the east, is four stories high and has a length of 321 ft. 10½ in., and an overall depth of 195 ft. The plan is E shaped in form, the main stem being 65 x 321 ft., the end wings 64 ft. 4½ in. x 130 ft., with a central entrance and utility pavilion 46 ft. 6 in. x 64 ft. 4½ in. in size. The large court faces the street, which permits of a more

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interesting elevation and landscape effects in the ways of lawns and flower beds. This building takes its position splendidly in the locality in which it stands and the property upon which it is built is ample to give it a proper setting.

The building has a reinforced concrete skeleton frame and flat-slab floors and roof. The exterior

on the three streets is faced with brick and stone trimmings. The panels are 21 ft. 8 in. x 21 ft. 5½ in., with drop panels and conical caps to the columns. The exterior columns are rectangular in section with bracket caps as shown in the interior view. The window heads are at the ceiling line and the daylight is well diffused over the floor.

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All of the horizontal utility pipes are bedded in the concrete floor slabs, and they consist of electric wire conduits for light and power wiring and gas piping. The central pavilion, all of the toilet rooms and the private offices are heated with steam by an overhead system. The water service is under the first floor, from which risers for the cold water and supply and return risers for the hot water service ascend and return as may be. The heating is accomplished by a fan system. The main distribution is made in ducts under the first floor and from which vertical ducts, reducing at each floor, ascend. These ducts are shown in the interior view. A large vertical recirculating duct is placed in the northwestern corner of the building, through which the cooled air is taken to the fan to be reheated and distributed. This system permits of warming the buildings with the minimum expenditure of fuel and time. The apparatus is centrally located in the rear of the first floor, with fresh air inlets through the rear wall. The air is drawn through the heating coils by two fans, so regulated and dampered that the proper distribution is made as it may be required by the exterior wind and temperature conditions.

Adjoining the blower apparatus is the boiler room which is about 4 ft. below the first floor level, 28 x 56 ft. in size. This room contains the two 72 x 20 R. T. boilers, hot water tanks, feed pumps and other equipment.

The building is served with one elevator, which is within the central pavilion and used for freight purposes only. There are five fireproof stairways, enclosed in fireproof partitions with automatic fire doors. The stairway in the central pavilion is of the double type, making practically six stairways in all. No point on any floor is more than 90 ft. from a stairway and all spaces have access to one stairway regardless of the location of a fire. The safe means of egress are especially well provided for in this building.

As to the interior, the architectural treatment is restricted to the entrances and the private offices. In connection with the main lobby is an information and time-keeper's department and a waiting space. Adjoining is a small first aid hospital and women's rest room. The floor is laid in quarry tile, the walls have a high dado of texture brick laid in pattern. The freize and ceiling are finished in rough floated plaster. The sprinkler pipes in this portion are concealed by a suspended ceiling. The entrance lobby in the south wing is not as large, but is treated in a similar manner. The stairway shown in this entrance leads to the offices on the second floor only, and the stairway to all floors is entered through the

doors shown at the left. The entrance to the offices is closed by the collapsible gates at the intermediate platform. The main entrance is treated in a simple yet dignified manner in harmony with the entire structure.

The report of the sub-committee on medal awards incorporated the following suggestions for factory builders:

After adaptation of the space to its proposed use, the next consideration in a factory should be safety from fire. The protection of human lives and the



THE MAIN ENTRANCE

conservation of the welfare of the business unite in a demand for fireproof construction reinforced by an adequate sprinkling system.

Light and sanitation are requirements secondary in importance only to safety from fire.

Both externally and internally a factory may be attractive with only small additional expenditure.

Use inexpensive materials, but in an interesting way. A skilled designer will know how to do this and will do it more attractively and with less expense than would one with limited or no artistic training.

Utilize light wells and other unbuilt land in courts in front and behind the building and make them attractive.

The disposition of the wall spaces and the win-

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dows is of the first and last importance in making the design good or bad.

Window boxes with flowers and vines will prove welcome though inexpensive additions to factory charm.



OFFICE ENTRANCE LOBBY

The water tank is an opportunity. It is the cheapest way of getting a large architectural effect in Cleveland factory design. It may be both the feature of the individual factory and an arresting point of interest in the sky line of the city.



MAIN ENTRANCE LOBBY

The jury on factory buildings conclude their report as follows:

"The jury does not wish to bring its report to a conclusion without stating that there were a number of other buildings among those visited which were highly commendatory from certain points of view, and we were much impressed by the outstand-

ing but nevertheless interesting features in connection with answers to the problems presented by the heavier type of factory. These great buildings, usually situated in congested manufacturing districts, present great possibilities of increased effectiveness from an architectural viewpoint. At times they appear most interesting compositions of concrete, great glass surfaces and saw-tooth roofs in spite of the fact that no effort has been made for beauty, and it is principally because of their magnitude that they appeal to us. Very often it is that these buildings would lend themselves to a great architectural achievement if put in the hands of a competent designer. This does not necessarily mean great increase in cost of construction nor in a reduction of the utilitarian value of the structure,



VIEW IN STOCK ROOM

but merely a readjustment of the proportions and a realignment of the general composition of the building with possibly a little artistic touch of the master hand at the entrance or in the color of its paintable portions.

"The jury believes that all who build factories and love their city can do an inestimable service to their fellow citizens if they approach even this problem of the designing and construction of a factory building with some degree of respect for beauty as well as utility and financial gain, and it is worth while to make the effort to obtain a wholly satisfactory result whether the factory be small or great, for whatever purpose it is constructed, whether built of the cheapest materials obtainable and though situated in city districts quite void of any architectural interest. May we say that it is only a step toward the advancement of civilization in the moral effect it has upon our fellow men, who are as much affected by their sense of sight when

going to and returning from their daily toil as they are affected by their sense of hearing and that of smell, and we note from time to time the efforts toward the elimination of useless noises and the abolition of horrible odors.

"In summing up this report this jury desires to state that it is its belief after carrying on this search for the best factory building of 1916, that it is quite impossible to judge these larger and heavier types of structures with those built for light manufacturing, as there is little ground upon which to place them for comparison. We therefore respectfully recommend that a division of the award be made in future years, one for the factories for light manufacturing and the second for those structures built for heavy work."

The activities of the City Plan Committee of the Cleveland Chamber of Commerce in regard to the merit of design is confined to the three classes of buildings noted because these kinds of buildings are usually less studied, from an architectural standpoint, than are other kinds of buildings. Generally speaking, large commercial structures, office buildings, banks, churches and public buildings are designed with careful study. The amounts of money invested are such that the architect is carefully selected and he in turn has a proper realization of his responsibilities to his client, the adjoining property and the public. The thought and care which will be given to the design of these classes of buildings, for which awards of merit are given, will increase as a result of the action of this committee and Cleveland will reap the benefit in finding itself a more desirable place in which to live, in a more contented labor and better and more stable real estate values.

Safe Construction of Scaffolds and Falsework

T. F. FOLTZ, *Mechanical Engineer*, PENNSYLVANIA DEPARTMENT OF LABOR AND INDUSTRY, HARRISBURG, PA.

ASIDE from preparing the plan and specification for a structure, the architect has a supervision over its construction. His primary duty to his client is to deliver to him a structure which represents a value commensurate with the monies invested. Another duty, not specified but nevertheless actual, is to inspect the working methods and equipment of the contractor in their relation to the safety of the workers and the public. Also to the prevention of property destruction from fire or action of the elements must direct his attention. An ordinary sensing of human relations actuates the former and a realization of the results of careless waste will induce the latter inspection.

Among the many responsibilities of the architect, these are real and cannot be dismissed by the requiring or furnishing of a bond and liability insurance by the contractor. The following address delivered at the Seventh Annual Congress of the National Safety Council at St. Louis, September 16-20, 1918, is of especial interest.

Mr. Chairman and Members of the National Safety Council: During the year 1917 the Pennsylvania Department of Labor and Industry received the following reports of accidents in connection with scaffolds in the manner indicated:

	Total	Fatal
1. Persons falling from structures during erection.....	217	14
2. Persons injured due to collapse of scaffolds and staging.....	367	11
3. Persons falling from scaffolds and staging	2,121	31
4. Persons injured by material, falling from scaffolds and buildings under erection	385	9
Totals.....	3,090	65

The first group of accidents indicates an absence of protection where such should have been furnished. Poor construction is shown by the record in the second group. The information in the third group, by far the largest, tells us most vividly that we did not provide sufficient guards for the workmen on the scaffolds. Inadequate protection for pedestrians and workmen against objects falling from scaffolds and buildings resulted in the accidents shown in the fourth group. The above records have been taken from the department files with considerable caution, such accidents which could not definitely be blamed on any of the above causes being rejected; the resulting figures, therefore, are most conservative and do not begin to cover all accidents in connection with building construction.

PROBLEMS OF THE BUILDERS

The scaffold problem of the builder, then resolves itself into four items, namely:

1. Determine the necessity for a scaffold.
2. Construct sufficiently strong to prevent a collapse of the scaffold.
3. Provide adequate guards to prevent falls of the workmen.
4. Install protection to prevent injury from material or tools falling on persons.

Poor and inadequate scaffold construction may be traced largely to the desire on the part of builders to use old and poor lumber. Subcontractors generally fail to include sufficient money in their bid to cover this contingency, depending on using scaffolds erected by the general contractor. These scaffolds may have been satisfactory for their original purpose, but in some cases may not be adequate for the use of the subcontractor. Even though sufficient money has been included in the bid for the erection of proper scaffolds, there is a great incentive to skimp this portion of the

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work in order to increase the amount of "velvet." Too much dependence is usually placed on picking up sufficient lumber about the job to construct scaffolds. In this way not only will improper sizes be used but the material may also be mostly inferior and defective.

The work of building the scaffold is too often delegated to unskilled persons, because it is not a permanent structure and appearance is no object. Many accidents can be traced to this cause and it is surprising that we do not have more of them. The contractor should delegate a thoroughly experienced man to be responsible for this work, and all building, changing, and removal of scaffolds should be done under his jurisdiction.

TYPES OF SCAFFOLDS

No attempt will be made in this paper to describe the different kinds of scaffolds used abroad, there being only sufficient time to discuss briefly the various types used in this country. Scaffolds, according to their construction and use, may be divided into the following general types:

- Pole scaffolds,
- Independent pole scaffolds,
- Suspended scaffolds,
- Outrigger scaffolds,
- Carpenters' bracket scaffolds,
- Painters' scaffolds,
- Needle-beam scaffolds,
- Plasterers and decorators' inside scaffolds,
- Horse scaffolds.

POLE SCAFFOLDS

The general construction of the pole scaffold, used mostly by bricklayers, is as follows: "Poles" or "uprights," about 4 inches square in cross section, are erected about 7 feet 6 inches apart on a line approximately 4 feet 6 inches from the wall. Stringers, called "ledgers," $1\frac{1}{4}$ inches thick and from 8 to 12 inches wide—depending on the load they are to carry—are nailed on the poles in a position parallel to the ground. These are spaced vertically about 5 feet apart and serve as the outer bearings for the "putlogs." The inner ends of the latter (often called "putlocks"), having a cross section of about 3 by 4 inches and a length of about 6 feet, rest in holes left in the brick wall.

The putlogs support the platform planks, and there should be a sufficient number of them so that there will be at least three under every plank. With 16-foot planks, about 2 inches thick and 10 inches wide, the putlogs may be spaced the same as the uprights—namely, 7 feet 6 inches apart. If thinner planks are used the putlogs should be placed closer together. The planks, with the above dimensions, will lay five wide in the space between the building and the uprights. Their ends will overlap each other 1 foot, and there should be a putlog under this point of overlapping to avoid the formation of a "blind trap."

It will not be necessary to nail the putlogs or planks in position unless local conditions require that they be erected on an incline, or heavy vibration or other considerations should necessitate such a precaution.

There should be a guard rail, at least 3 inches by $1\frac{1}{2}$ inches in cross section, erected along the uprights, parallel with the platform, and about 34 inches high. A similar guard rail should also extend across any window openings on the building side of the platform where these openings extend to more than 34 inches above the platform. Below this rail, along the outer edge of the platform, a toeboard about 6 inches deep should be provided to prevent material from falling from the scaffold. If material, such as bricks, are to be placed on the platform in piles higher than the toeboard, then the latter should be higher accordingly, or the space between the toeboard and the guard rail should be filled in with boards or substantial wire screening.

In order to eliminate the possibility of the pole scaffold collapsing in a direction parallel with the walls, there should be substantial diagonal braces nailed across the uprights. There should also be braces nailed to the building at various points, such as window frames and other points of attachment, in order to prevent the scaffold from falling away from the building. On blind walls, where there are no points available for nailing braces of this kind, "spring stays" may be used. To make a spring stay, two boards are inserted in the hole in the wall left by the removal of a putlog in raising the platform to a higher level and a brick is then placed between the two boards and pushed to within a few inches of the wall. The outer ends of the boards are then sprung together and nailed fast to the scaffold. The result is that both boards at their inner ends are pressing against the top and bottom of the hole with such force that there is sufficient holding power to prevent the scaffold from falling away from the building.

INDEPENDENT POLE SCAFFOLDS

The design of the independent pole scaffold departs somewhat from that of the pole scaffold. Instead of using the building as the inner support for the platforms, an additional set of uprights is erected close to the building. This kind of scaffold is often used by stone masons, as it is usually undesirable to leave openings in stone walls for the reception of putlogs. These scaffolds are usually made in larger dimensions than the pole scaffolds, and a greater amount of bracing is necessary on account of their being independent of the building for support. Instead of the usual putlogs resting upon the ledgers, as in the pole scaffolds, boards about $1\frac{1}{2}$ inches thick and about 9 inches wide are nailed on the sides of the uprights just above the ledgers and perpendicular to them and the building. These bearers, which correspond to the putlogs, add considerable bracing to the structure on account of being nailed fast.

This scaffold is usually made twice as wide as the pole scaffold, and larger members are used throughout on account of the greater strain upon the various parts. The method of laying flooring is substantially the same as that for the pole scaffold and the same consideration should be given with reference to the guard rails and toeboards. Better footing is required on these scaffolds on account of a greater weight

THE AMERICAN ARCHITECT

resting upon each upright. Where there is any question as to the ability of the soil to hold the pole, there should be a substantial block of wood, about 2 inches thick and 1 foot square, nailed to the bottom of the upright in such a manner that a larger bearing area will be secured. Stones or bricks should never be used under uprights on any kind of a scaffold, as they are very easily knocked from position by trucks or material bumping against the uprights.

SUSPENDED SCAFFOLDS

Pole and independent pole scaffolds are generally used for buildings up to about six stories in height. Above this height the construction of these scaffolds becomes a large item of expense, and there is also a greatly increased element of danger connected with high scaffolds, due to the great weight coming upon the bottom uprights. On high buildings it is now customary to use suspended scaffolds, which usually consist of substantial platform planks resting upon putlogs, each end of which is suspended by means of a cable hung from an overhead beam projecting from the building. These scaffolds are usually equipped with means for raising and lowering the platforms, which consists of a machine for each cable with a drum and means of winding up the cable.

There are two principal types of these scaffold hoisting machines. On one the winding drums are located on the platform and on the other these drums are located on the beams overhead. Advantages are claimed for both systems and no attempt will be made here to justify the use of one over the other. The first type is worked, usually by a lever and ratchet operated directly on the cable drum on the platform; the other is operated by means of worm gears and a sheave wheel driven by a tiller rope which extends within reach of the men on the platform. These scaffolds are usually provided with cables approximately 100 feet long; where it is necessary to work beyond this range the scaffold is relocated to a new position above after the cable is wound up.

Suspended scaffolds should never be used without guard rails and toe boards, on account of the great height at which they are operated. It is also advisable to fill in the space between the guard rail and toeboard with substantial netting having openings no greater than $\frac{1}{2}$ inch.

OUTRIGGER SCAFFOLDS

At certain places, such as under big cornices and for other special construction, platforms are often placed upon beams thrust out from the building. These beams should be of substantial dimensions and excellent quality, and they should be rigidly fastened on the inner ends to floor beams or substantially braced against overhead beams. No dependence should be placed upon these cantilever beams being simply fastened into the wall; they should project inside of the building to some considerable distance and there securely fastened. Guard rails and toeboards should always be used with this type of scaffold and the planks should be provided with the same consideration as used for laying the planks in pole scaffolds. These

scaffolds are not recommended where it is possible to use one of the other types.

CARPENTERS' BRACKET SCAFFOLDS

With the carpenters' bracket scaffold, platform planks are placed upon brackets, which consist of horizontal and vertical members, usually about 4 feet long, and a diagonal member to provide the necessary bracing. These members are bolted together in a substantial manner, and the bracket is placed on the building with its horizontal member perpendicular to the wall. It is held in that position by a bolt anchored at the inner end of the horizontal member, extending through the wall, and bolted on the inside. This bolt, usually about $\frac{5}{8}$ -inch in diameter, should not be simply bolted through the sheathing, but should project through a substantial block that extends across the inside of the studs.

There should be sufficient brackets in order that there may be three under each plank. Thus, with 16-foot planks, the brackets should be no farther apart than 7 feet 6 inches, in order that the planks may overlap each other about one foot over every alternate bracket. This type of scaffold does not adapt itself very readily to the installation of guard rails and toeboards. These rails and toeboards may, however, be installed without much trouble, and where the scaffold is used more than 10 feet above the ground, they should certainly be erected. It is a very common practice to lay the platform planks upon these brackets in such manner that the points of overlapping do not always come upon a bracket. This forms a blind trap and under certain conditions may result in a man being precipitated to the ground below, should he place his entire weight upon the unsupported point of overlapping.

(To be continued)

War Changes Engineering

"Unusual and radical changes are taking place daily, as a result of war demands." Thus comments A. H. Krom, Director of Engineering, who is registering technical men for governmental needs. "Up to the present engineers, as a class, have been governed largely by tradition. Once a mechanical draftsman always a mechanical draftsman. A change to a new line of work was rarely heard of. This is no longer the case. Technical men are changing from one line of work to another; going to school, studying related branches of their profession and striving to establish new standards.

"Oddly enough they are changing their attitude toward technical women. We have daily calls for women to do drafting in new lines of work. The entire engineering profession is undergoing an important change which will result in great gains for the nation. The Division of Engineering, 29 South La Salle Street, Chicago, is registering these changes and indicates they are far-reaching."

Industrial Information

In this Department there is published each week information as to the development of materials and methods, derived from reliable sources.

"First Aid" An Industrial Asset

Man has not yet attained to a mental attitude which will cause him to put forth his best efforts at all times. There are always circumstances and conditions which will give the most faithful of us an added impulse toward that goal. Even when actual indifference is not resented, there is the feeling deep within us that kindness is to be reciprocated, and in one form or another, we rise before it, and excel our past standards.

The Bernstein Manufacturing Co., Third Street and Allegheny Avenue, Philadelphia, has been installing first aid rooms to accomplish just that object. Their equipment includes bed, bedside table, chair, medicine and supply cabinets, sterilizing outfit, stretcher, and the usual linens, instruments, and appurtenances. The makers describe it as simple, strong and inexpensive; it is finished in white enamel, thoroughly baked on and easily kept clean, and guaranteed to fulfill all the requirements of a hospital room.

The morale which results from a "first aid" installation in factories and any large organizations where dangers can befall, is hardly to be overestimated. Benefits result all along the line. First, there may be complete physical examination of employees upon engagement, eliminating those entirely unfit or having diseases dangerous to other workmen, thus raising the standard of the accepted workers from the very start. Second, immediate relief and continued treatment may be given to those incapacitated by injury, thus reducing danger from infection in these times of epidemic, hastening recovery, and encouraging care of minor wounds which if neglected often become serious. Third, those having partial defects may be regularly examined and made more efficient by treatment, change of work, etc. Besides all this, there is the sense of safety and well being which induces a grateful loyalty on the part of the employee and which is inevitably converted into larger output, better service, and higher efficiency in general. These results are so easily obtainable that it will pay architects to investigate and install first aid equipment as widely as possible.

Further information will be forwarded by the Bernstein Co., on request, giving reasons for the use of their equipment and additional details as to its value.

Industrial Organizations Fighting Influenza

The place where men assemble for their day's work, where they spend most of their time, is the place which should care most particularly for their health and comfort. Managers of large organizations are every day growing more and more aware of the value, both egotistic and altruistic, of wholesome surroundings, and many are engaged in actively safeguarding the health of the men and women in their employ.

As an instance of a progressiveness which may well be emulated, the S. F. Bowser & Co. Oil Tank and Pump Works, Fort Wayne, Ind., may be specially cited. To halt the spread of the epidemic of influenza, this company has organized a sanitary campaign for the benefit of all employees and indirectly for the benefit of the city of Fort Wayne itself. Stations, accessible to all, have been installed about the plant buildings, and all employees are requested and expected to have their noses and throats sprayed at least twice daily. Attendants, especially instructed for this purpose, are at hand at all times. The service is entirely free, the company paying all the expenses. Special bulletins have also been posted bearing instructions in the special hygiene required by the conditions. As a further precaution, employees have been sworn in as deputy health commissioners with full power to enforce all rules and laws of the health department. It is their duty to work toward the prevention of the spread of disease through spitting, coughing or sneezing, and to report all cases, however slight, to certain officers of the organizations. Any employee showing the slightest symptoms of influenza is immediately quarantined. Cuspidors, as one of the chief carriers of the influenza germ, have all been removed. The employees, it is stated, are responding to the regulations prescribed, realizing that everything is being done to insure their health.

There is no doubt that this sense of security will largely increase the efficiency of the working force, as it always does.

The Bowser scheme of precaution is but a forerunner of similar efforts in other large industrial plants, which are inaugurating campaigns along the same general lines, for the purpose of promoting the well-being of their employees and the community at large.

Steel Ceilings and Walls

Through the medium of a 10 x 12 inch catalogue of nearly 200 pages and completely illustrated, the Friedley-Voshardt Co., 733 South Halsted Street, Chicago, call attention to the wide variety of designs for art metal ceilings and side walls which they are prepared to furnish. This firm states that it employs its own modelers, and is therefore enabled to make special designs from architects' details.

Steel ceilings and walls have a wide range of usefulness, and their advantages are obvious and numerous. They are durable and sanitary; they can be made highly decorative and ornamental; they are simple and economical to install.

The continuous and panel ceilings and side wall patterns shown in this catalogue are claimed by their makers to combine these essentials in the manufacture of a product which is said to be created from the best available material and workmanship.

Working plans are furnished by these people in all cases where a diagram of the room is provided, as well as detailed plans to show the method of applying the material.

This catalogue, No. 33, gives full particulars as to directions for installing these walls and ceilings, and states that the Friedley-Voshardt Co. also manufactures zinc, copper and bronze statuary, architectural sheet metal ornaments, and sheet metal for the usual interior and exterior purposes.

Elevators

The Travelers' Insurance Co., Hartford, Conn., has issued a very valuable booklet describing the salient points of the subject of elevators and showing how broad, varied and important elevator engineering becomes when it is rightly pursued. It is well known that the Travelers' Insurance Co., maintains an engineering and inspection department, and in thus following the developments of vertical transportation for many years, it has become an active factor in the progress toward better and safer appliances for elevators.

This pamphlet outlines the principal requirements which make for safety in the constant use of the elevator, and points out certain features which are recognized as usual sources of trouble, for the purpose of making architects familiar with what can be done to insure safety by the introduction of such improved methods and devices.

Thousands of people depend on elevators daily,

and it is the practicability of the elevator which has made the construction of high buildings feasible. A tall building would be almost useless were it not for the ever-ready elevator. But, if adequate protection is withheld, and the price of an additional little piece of hardware is permitted to come between a man and his life, the constant anxiety at the possibility of danger so easily avoided, should be enough to awaken all architects to the importance of the safety devices available, and if need be, cause him to choose to eliminate some more attractive but less vital accessory from his building.

Select-O-Phones

The Screw Machine Products Corp., 1012 Eddy Street, Providence, R. I., has issued a series of booklets and folders graphically analyzing the distinction between "busy-ness" and business, and showing how much of the inconvenience to which the average business man is subjected may be banished by the use of a Select-O-Phone. This is an inter-communicating telephone system by which the user connects directly with his desired party without the intercession of an operator. Thus he may talk without fear of "eavesdroppers" and at any time of the day or night, unrestricted by the absence of the operator, all through the use of an automatic switchboard. The installation is said to be so made as simultaneously to permit of uninterrupted conference between two or more individuals at different parts of the building.

This system, being separate and distinct from the outside phone, does away with the congestion by inside-office calls of outside wires bearing legitimate incoming messages.

The operation of the instrument as described assures simplicity and economy. The automatic switchboard, the heart of the system, is a neat, compact, glass-faced case holding the selectors. It is this switchboard which is said to take the place and do the work of a human operator. Neither bulky nor obtrusive, it will harmonize with the usual office furnishings. The Selector operates automatically with a dial on the Select-O-Phone base attached to the regular telephone, connecting your line with the station called. To operate the Select-O-Phone, only one motion is necessary—that of moving the dial to the number desired. The ring and connection are automatic when you lift the receiver.

Architects can obtain much interesting information about this interior service from the manufacturers.



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

A Four-Year Record of Cabot's Stucco Stains

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

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

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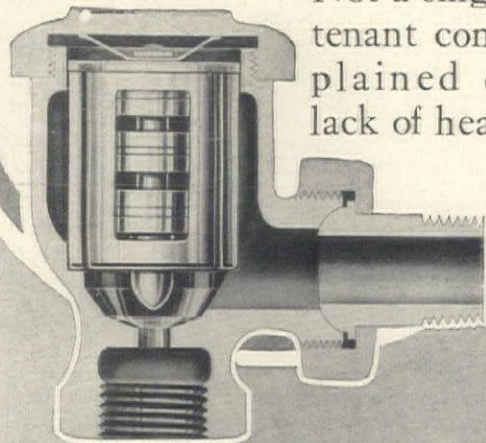
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**NO. 8 HOFFMAN
RETURN LINE VALVE**



Chicago, August 13, 1918.

I am pleased to confirm my verbal conversation in reference to the Hoffman Return Line Valves installed in the Lessing Building last summer.

Although last winter was a most unusual and severe one, we consumed about 800 tons of coal less than the winter previous. This I attribute almost entirely to the efficiency of Hoffman Valves.

Furthermore, I did not have a single call or complaint from any of the tenants because of lack of heat during the entire winter, whereas the winter before, one man was kept busy practically all the time adjusting, cleaning and repairing valves in the 114 apartments in our building. Aside from the increased efficiency of the plant, the saving in fuel and labor more than paid for the valves the past season.

I am, therefore, very glad to give the Hoffman Return Line Valves my unqualified approval and shall be glad to have you use my name as reference.

Yours very truly,
(Signed) A. M. Halley,

Lessing Apartment Bldg., Chief Engineer.
Broadway & Surf Street.

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BUILDING NEWS

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

ALABAMA

FAIRFIELD, ALA.—The Tennessee Coal & Iron Co., Brown-Marx Building, Birmingham, contemplates construction of about 300 homes for its workmen here.

MOBILE, ALA.—The Mobile Shipbuilding Co. contemplates construction of a two-story office building to cost about \$15,000.

MOBILE, ALA.—The Merchants Bank contemplates construction of a building at St. Francis and St. Joseph Streets to cost approximately \$100,000.

ARIZONA

TUCSON, ARIZ.—Edwards & Wildey Co., 515 Black Building, Los Angeles, received contract for constructing two-story brick and concrete building for the Federal Building Co. at \$20,000. It will be 30 x 120 ft. and will be occupied by the United States Immigration offices. William Curlett & Sons, Merchants National Bank Building, Los Angeles, Architects.

ARKANSAS

FORT SMITH, ARK.—The Mo-Ark Oxygen Co. is contemplating the installation of a hydrogen plant in connection with the oxygen plant.

CALIFORNIA

BERKELEY, CAL.—Hall-Scott Motor Co., Fifth and Snyder Streets, will erect concrete machine shop to cost \$40,000. E. T. Foulkes, Crocker Building, San Francisco, Architect.

FRESNO, CAL.—Emmett Riggins was awarded contract for constructing one story brick store building for the Kutner-Goldstein Co., at about \$50,000.

GIANT, CAL.—Construction Division, War Department, Washington, D. C., let contract for building TNT plant here on land leased from Giant Powder Co., to Grant, Smith & Co., Henry Building, Seattle, Wash. \$1,438,000.

MARE ISLAND, CAL.—George Wagner, 251 Kearney Street, San Francisco, was awarded contract for constructing extension to machine shop No. 1 for Navy Department at \$279,000.

OAKLAND, CAL.—Plans have been prepared for the Union Construction Co., 604 Mission Street, San Francisco, for the construction of a plate and angle shop, outfitting wharf, compressor house, storehouse and several other reinforced concrete buildings at a cost of \$100,000.

OILDALE, CAL.—D. A. Evens, Bakersfield, has contract for constructing a school building at \$40,000.

SAN DIEGO, CAL.—Los Angeles Planing Mill Co., Los Angeles, will do the work on eight permanent buildings for the naval air school on North Island at \$58,391.

SAN DIEGO, CAL.—Harris & Stevens, San Diego, have contract by Navy Department for constructing five hospital wards at \$12,660.

SAN FRANCISCO, CAL.—National Carbon Co., Eighth and Brannan Streets, plans to build concrete factory on Kate Street. \$25,000.

VENTURA, CAL.—T. E. Hill & Co., 1126 Title Insurance Building, Los Angeles, has been awarded contract for constructing trade school, gymnasium and cottages Nos. 5 and 6 at Girls' School, at \$62,266.

COLORADO

DENVER, COL.—Wooden barracks to cost \$50,000 will be constructed at the University of Denver for accommodation of the Students' Army Training Corps.

JULLSBURG, COL.—City Council plans to build power plant. \$70,000.

CONNECTICUT

NEW LONDON, CONN.—James Miles & Son, Worcester, Mass., was awarded contract for constructing two subcharging stations for Navy Department at \$16,837.

NEW LONDON, CONN.—Westcott & Mapes, 207 Orange Street, New Haven, Conn., is contractor for constructing foundry, smith and sheet metal shop and brig. for the Navy Department, at \$97,425.

SHELTON, CONN.—S. Blumenthal Co. is receiving bids for one-story, 90 x 125 ft., addition to power plant. G. Aus, 101 Park Avenue, New York City, engineer. \$35,000.

WATERBURY, CONN.—Waterbury Buckle Co., 872 South Main Street, proposes building three-story, 50 x 110 ft., factory. G. S. Chatfield Co., 73 Canal Street, has contract. \$35,000.

DISTRICT OF COLUMBIA

WASHINGTON, D. C.—Turner Concrete Steel Co. received contract for constructing one story concrete and steel freight station for the Pennsylvania Railway Co., at \$60,000.

WASHINGTON, D. C.—The American Phosphorus Co. awarded contract by War Department for the construction of a \$500,000 phosphorus plant near Fairmont, W. Va.

WASHINGTON, D. C.—Hyde & Baxter, 711 Thirteenth Street, was awarded contract for constructing extension to boiler plant for Bureau of Yards and Docks, Navy Department, at \$158,900.

WASHINGTON, D. C.—Construction Division, War Department, Washington, let contract for converting building at Eighteenth and B Streets into hospital to G. A. Fuller Construction Co., Munsey Building.

WASHINGTON, D. C.—Fred S. French Co., New York City, received contract for constructing fourteen apartment houses for the Navy Yard Housing Department.

WASHINGTON, D. C.—Turner Construction Co., this city, was awarded contract for constructing hospital for Navy Department at \$400,000.

WASHINGTON, D. C.—Bureau of Yards and Docks, Navy Department, contemplates construction of marine hospitals at Baltimore, Savannah and New Orleans. Estimated cost for each city is between \$200,000 and \$250,000.

GEORGIA

FORT OGLETHORPE, GA.—Park-Grimes Construction Co., Chattanooga, Tenn., has contract from the War Department for the construction of six additional hospital buildings at General Hospital No. 14, Camp Greenleaf. \$122,984.

ILLINOIS

CHICAGO, ILL.—Logan-Armour Co., Union Stock Yards, Chicago, had plans prepared by R. C. Clark, Architect, care owner, for four-story cold storage warehouse.

GENESEO, ILL.—Architect Robert Seyfarth, 134 S. La Salle Street, Chicago, has plans for a \$30,000 church for First Methodist Church, Geneseo.

GREAT LAKES, ILL.—Henry E. Fox Construction Co., 813 East 125th Street, New York, N. Y., has contract for alterations to administration building, at \$32,660.

GREAT LAKES, ILL.—Paschen Bros., 111 W. Washington Street, Chicago, will construct athletic field house at naval training station at \$71,400.

GREAT LAKES, ILL.—Cadenhead & Co., 30 N. LaSalle Street, Chicago, has been awarded contract for constructing alterations to administration building at \$19,650.

IOWA

CONROY, IOWA.—J. J. Donahue, Williamsburg, Iowa, received contract for constructing store for S. S. Bishop, one story and basement, at \$10,000.

DAVENPORT, IOWA.—Central Engineering Co., this city, received contract for constructing 374 houses, accommodating 300 families, public utilities and town planning, for the Housing Division, Department of Labor.

DAVENPORT, IOWA.—The Gordon-Van Tine Co. has been awarded contract by Wisconsin Steel Co. for constructing a town near Benham, Ky. The project will consist of 30 one story four and five room miners' homes and sixty two story double houses, each apartment containing four rooms. \$300,000.

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Barrett 20-Year Specification Roof on plant of E. R. Durkee & Co., Elmhurst, N. Y. Architect: Russell G. Cory, New York City. General Contractors: Industrial Engineering Co., New York City. Roofing Contractors: New York Roofing Co., New York City.

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MAQUOKETA, IOWA.—Citizens voted a bond issue of \$65,000 for construction and furnishing of municipal light and power plant. D. T. Bauman, City Clerk.

SIoux CITY, IOWA.—The Midland Packing Co. contemplates construction of a new \$1,000,000 plant at the stock yards here and work will be rushed as much as possible.

WATERLOO, IOWA.—Illinois Central R. R. Co., 135 East Eleventh Place, Chicago, Ill., had plans prepared by F. R. Judd, engineer, care of owner, building one-story, 58 x 74 ft., ice house to cost \$25,000. A. D. Baldwin, chief engineer.

KANSAS

ATCHISON, KAN.—T. H. Jones, Atchison, Kan., was awarded contract for constructing the Dell Memorial Hospital at the State Orphans' Home at \$17,000.

FRANKFORT, KAN.—Ross & Peterson, Architects, Kansas City, are preparing plans for the construction of a three-story building for Savoy Hotel Co. to cost about \$50,000.

WICHITA, KANS.—The Wichita Construction Co. was awarded contract for constructing the South Haven School for \$50,000. The building will be of brick construction, two stories and basement, 73 x 93 ft.

WICHITA, KAN.—A new building is to be constructed to take the place of the Washington School, at Pennsylvania Avenue and Third Street, on a tract 600 x 300 ft. Cost, \$80,000.

KENTUCKY

CAMPBELLSVILLE, KY.—King & Denny was awarded contract for constructing foundations for high school building for Board of Education.

LOUISVILLE, KY.—Hospital costing \$300,000, four stories and basement, 450 x 250 ft., to go up at Barrett Avenue, has been designed by Architects Joseph & Joseph, 243 Atherton Building, for Baptist Hospital Association, care Architects. Face, brick; Bedford stone trim; fireproof construction.

STITTTON, KY.—It is contemplated to erect a hospital (2500 beds) to cost \$2,491,600. Advisory Architect, F. B. Wheaton; advisory engineer, F. M. Gunby; owner, United States Government, Gen. R. C. Marshall, Jr., Construction Division, U. S. N. A. All of Seventh and B Streets, S. W., Washington, D. C.

LOUISIANA

BOSSIER, LA.—Bossier Parish contemplates construction of a courthouse and jail here to cost \$66,000.

NEW ORLEANS, LA.—City Council, W. J. Hardee, City Engineer, contemplates construction of a large reduction plant to cost \$1,100,000.

NEW ORLEANS, LA.—First Baptist Church, W. A. Jordan, chairman, 4138 Cleveland Street, will erect addition to building. Cost, \$50,000.

NEW ORLEANS, LA.—John Riess, Hoercum Building, received contract from Bureau of Yards and Docks, Navy Department, for construction of shell house, at \$40,000.

MAINE

BAR HARBOR, ME.—E. K. Whitaker was awarded contract by Navy Department for construction of housing facilities at \$78,252.

MARYLAND

ABERDEEN, MD.—Sutton & Corson, Ocean City, N. J., received contract from Housing Division, Department of Labor, for constructing seventy houses, utilities and town planning.

BALTIMORE, MD.—The Maryland Creamery Co. contemplates construction of a three-story addition to creamery, brick and mill construction, to cost \$50,000.

BALTIMORE, MD.—Morrow Bros. were awarded contract for constructing additions to the plant of the Bartlett-Hayward Co. A toolhouse 100 x 105 ft. will be constructed at \$24,500 and a one-story shell-loading house, 100 x 140 ft., at \$40,000.

CAMP HOLABIRD, MD.—Price Construction Co., Maryland Trust Building, Baltimore, has contract for constructing auditorium for Camp Welfare League. Building to be one story, 250 x 500 ft., \$30,000.

CLEAR SPRINGS, MD.—Construction Division, War Department, Washington, D. C., plans to build and equip various one-story buildings on proving ground. \$75,000.

INDIAN HEAD, MD.—Bureau of Yards and Docks, Navy Department, Washington, D. C., plans to improve powder factory, railroad, etc. Specification 3547. \$45,000.

INDIAN HEAD, MD.—United States Housing Corporation, Washington, D. C., let contract for building 100 houses, three dormitories and one school, also utilities, etc., at Project 496, to W. B. Porch, Sheen Building, Atlantic City, N. J.

INDIAN HEAD, MD.—Wesley B. Perch, Atlantic City, N. J., was awarded contract for constructing 100 houses, three dormitories and one school building.

INDIAN HEAD, MD.—DeKimpe Construction Co., Union Hill, N. J., has contract from Navy Department for constructing bachelor officers' quarters at \$56,700.

MASSACHUSETTS

CHELSEA, MASS.—C. S. Cunningham & Sons Construction Co., 7 Water Street, Boston, Mass. was awarded contract by Navy Department for constructing emergency hospital building at \$260,582.

HINGHAM, MASS.—Kennedy & Peterson Construction Co., 7 Water Street, Boston, will construct dispensary for Navy Department here at \$257,885.

LEE, MASS.—Smith Paper Co. let contract for building three-story, 90 x 100 ft., brick paper mill, concrete foundation, to Lynch Brick Constr. Co., Holyoke. \$60,000.

MICHIGAN

BAY CITY, MICH.—The Austin Co., Cleveland, O., has contract for constructing a building 110 x 100 ft. for the Bay City Foundry Co.

DETROIT, MICH.—W. E. Wood Co., 1805 Ford Building, Detroit, was awarded contract for additional cantonment construction work at Camp Custer, at \$4,500,000.

DETROIT, MICH.—H. P. Friestedt Co., 327 La Salle Street, Chicago, will construct attendants' quarters at the United States Marine Hospital, at \$30,346.

ECORSE, MICH.—Great Lakes Engineering Works will build one-story, 50 x 166 ft., steel and mill construction, blacksmith shop and office, concrete foundation, reinforced concrete floor. Smith, Hinchman & Grylls, 710 Washington Arcade, Detroit, Architects.

MINNESOTA

ANOKA, MINN.—J. L. Robinson Co., 511 S. Seventh Street, Minneapolis, has contract for constructing creamery building for the Minnesota Dry Milk Co., one story and basement, 36 x 120 ft., at \$30,000.

DULUTH, MINN.—McDougal-Duluth Co., Fifteenth Avenue, W., and R. R., plans to build an addition to its shipbuilding plant costing \$750,000.

FRENCH RIVER, MINN.—Emil Tauff, West Duluth, Minn., was awarded contract for constructing fish hatchery for Game and Fish Department, State of Minnesota, at \$11,000.

JANESVILLE, MINN.—A. Summers & Sons have contract for constructing filling station for the Standard Oil Co., at \$5,000.

ST. PAUL, MINN.—George J. Grant Construction Co., 902 New York Life Building, St. Paul, was awarded contract for constructing additions and remodeling Illinois Steel Warehouse at the Midway School, at a cost of \$1,300,000.

MISSOURI

KANSAS CITY, Mo.—Church to cost \$100,000 was designed by Architects Smith, Rea & Lovitt, 602 Finance Building, for Linwood Boulevard M. E. Church, care of J. H. Foresman, chairman, R. A. Long Building. General contractor, J. E. Taylor, 711 Ridge Arcade.

KANSAS CITY, Mo.—Gould & St. John, 1520 Walnut Street, was awarded contract for remodeling building at Thirty-ninth and Main Streets into armory for the Jackson County Council of Defense, for National Guard of Missouri, at \$15,000.

KENNETT, Mo.—Gideon-Anderson Lumber Co. plans to build 12-ton ice plant, bottling works and electric light plant. O. B. Gwyn, superintendent.

ST. LOUIS, Mo.—The Austin Co., Cleveland, has contract for constructing two shell factories in connection with the Laclede gas plant at \$3,830,000.

ST. LOUIS, Mo.—Christopher & Simpson Iron Works Co., Eighth Street and Park Avenue, contemplates building one-story, 75 x 500 ft., concrete and steel iron plant at Big Bend Road and Missouri Pacific Railroad. W. S. Simpson, president. Cost, \$200,000.

SWEET SPRINGS, Mo.—Farmers' Grain Elevator & Grain Co. plans to rebuild grain elevator and warehouse recently destroyed by fire with loss of \$75,000.

BRICK FOR FACTORIES

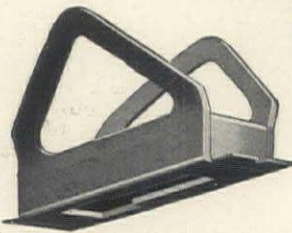
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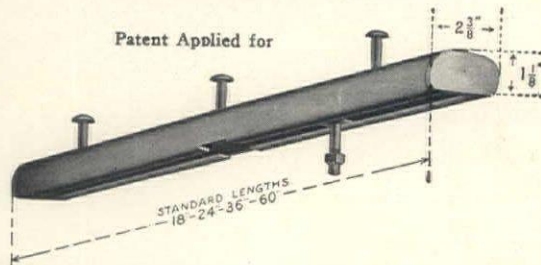


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WAREHOUSES AND REPRESENTATIVES IN PRINCIPAL CITIES



NEBRASKA

ALLIANCE, NEB.—Several small potash plans will be constructed by a company being organized here, with a capital of \$500,000. Lloyd C. Thomas, member.

CLARKSON, NEB.—City is having plans prepared by Henningson Eng. Co., engineers, 1122 Farnam Street, Omaha, for power plant to cost \$26,000.

LINCOLN, NEB.—Philip Kunz, 3307 S. Twentieth Street, Omaha, was awarded contract for constructing church building for the Cross Lutheran Church at \$16,000.

PERU, NEB.—Birchard Construction Co., Lincoln, Neb., received contract for constructing grain elevator for Earl Fisher of Peru.

NEW HAMPSHIRE

PORTSMOUTH, N. H.—Charles E. Currie Co., 10 High Street, Boston, was awarded contract for constructing emergency hospital buildings for Navy Department, at \$70,345.

NEW JERSEY

BELLEVILLE, N. J.—Strombach & Mertens, Architects, 1091 Clinton Avenue, Irvington, N. J., are preparing plans for the Board of Freeholders of Essex County for construct a hospital building to cost \$50,000.

CAPE MAY, N. J.—The Government proposes construction of magazine buildings at the naval air station here. Specification 8205.

CAPE MAY, N. J.—Cramp & Co., Philadelphia, were awarded contract by Navy Department for construction of section base, power house, at \$37,321.

HOBOKEN, N. J.—John K. Turston Corp., 101 Park Avenue, New York City, will construct steam engineering school for Navy Department at \$234,746.

JERSEY CITY, N. J.—Continental Can Co., 111 West Washington Street, Chicago, plans to build three and four-story brick and concrete plant between Fifteenth and Lake Street, cost \$500,000.

LAKE DENMARK, N. J.—Faillace Bros. 56 W. Boston Post Road, Mamaroneck, N. Y., will construct extension to marine barracks for Navy Department at this point at \$50,548.

MORGAN STATION, N. J.—The Government will recuil at once the TNT plant at this place, which was recently destroyed by a series of explosions.

NEWARK, N. J.—Frederick Kilgus, this city, was awarded contract for constructing a large building in connection with the plant of the Oxweld Acetylene Co. at 640 Frelinghuysen Avenue at about \$50,000. Building will be three stories high, 42 x 100 ft. Hollingsworth & Bragdon, 9 East Fortieth Street, New York City, Architects.

NEWPORT, N. J.—Staden-Cosier Co. has had plans prepared for packing house and storage plant. \$150,000.

NEW BRUSWICK, N. J.—William H. McKiever, 1123 Broadway, New York City, was awarded contract by Navy Department for work at radio station at \$5,667.

TRENTON, N. J.—Architect Francis H. Bent, State House, will alter hospital at a cost of \$25,000. Owner, New Jersey State Hospital for Insane, care of S. T. Atchley, Trenton. General contract let to Pauly Jail Building Co., 1 Madison Avenue, New York City.

TUCKERTON, N. J.—Sherman S. Sharp, 656 Washington Street, Cape May, N. J., was awarded contract for constructing marine barracks at \$26,500.

NEW YORK

BALDWIN, N. Y.—Ordnance Division, War Department, Washington, D. C., let contract for building four one-story buildings, brick, steel and reinforced concrete, to Austin Co., 16112 Euclid Avenue, Cleveland. \$70,000.

BINGHAMTON, N. Y.—A. E. Badgley will make repairs to the United States post office building here at \$26,460.

BROOKLYN, N. Y.—American Dock Co., 17 State Street, New York City, awarded contract for building one-story, 75 x 300 ft., warehouse, at terminal, to Barney Ahlers Constr. Co., 110 West Fortieth Street, New York City. \$40,000.

BROOKLYN, N. Y.—T. Engelhardt, Architect, 905 Broadway, will build two-story, 50 x 100 ft., addition to factory on Berry and North Eleventh Streets for New York Quinine Chemical Co., 99 Eleventh Street. \$25,000.

BROOKLYN, N. Y.—White Fireproof Const. Co., Fifth Avenue, New York City, received contract for constructing building and nurses' quarters, Naval Hospital, at \$668,212.

BROOKLYN, N. Y.—Rangeley Construction Co., 405

Lexington Avenue, New York City, was awarded contract for constructing changes in building "B," hospital reservation, for the Navy Department, at \$38,640.

JAMAICA, L. I., N. Y.—The Austin Co., Cleveland, Ohio, was awarded contract for constructing a building 60 x 225 ft. for the Long Island R. R. Co. at \$40,000.

MINEOLA, L. I., N. Y.—Hospital buildings costing \$2,468,000 are contemplated by the United States Government, Gen. R. C. Marshall, Jr., Construction Division, U. S. N. A., Seventh and B Streets, S. W., Washington, D. C.

NEW YORK, N. Y.—Lustbader Construction Co., 103 Park Avenue, this city, was awarded contract for constructing extensions to locker and wash rooms at \$10,785.

NEW YORK, N. Y.—Garage and lifeboat building to cost \$90,000 was designed by Architect David M. Ach, 1 Madison Avenue, for Anton Lowry, 511 West Twenty-first Street.

NEW YORK, N. Y.—Chelsea Fireproof Warehouse Co., 436 West Twenty-sixth Street, is having plans prepared by Wortmann & Braun, Architects, 114 East Twenty-eighth Street, for five-story, 25 x 90 ft., warehouse.

NIAGARA FALLS—Republic Carbon Co. proposes building three one-story additions to plant here, 48 x 100 ft., 90 x 144 ft. and 80 x 340 ft.

ROCKAWAY, N. Y.—A. M. Hazell, Inc., 26 Cortlandt Street, New York City, was awarded contract for constructing dock, oil house and hydrocylinder house at \$18,500 for the Navy Department.

TOMPKINSVILLE, N. Y.—Alwil Construction Corp., 292 Fifth Avenue, New York City, was awarded contract for constructing office building at lighthouse station here at \$23,762.

WATERTOWN, N. Y.—Armour & Co., Union Stock Yards, Chicago, Ill., are receiving bids for three-story, 88 x 110 ft., brick refrigerating plant at 163 Academy Street. About \$35,000. R. C. Clark, 120 Broadway, New York City, engineer.

NORTH CAROLINA

CHARLOTTE, N. C.—J. A. Jones was awarded contract for constructing salad-oil plant for Swift & Co., Chicago, at about \$40,000.

NORTH DAKOTA

FARGO, N. D.—Church costing \$80,000, designed by Magney & Tusler, Architects and Engineers, Metropolitan Bank Building, Minneapolis, Minn., will be built for First Norwegian Lutheran Church, Fargo. General contract let to T. E. Powers, 412 Ninth Street, N., Fargo.

OHIO

CLEVELAND, OHIO—The Cleveland Smelting & Refining Co. will construct a two-story building, 40 x 110 ft., at 7430 Bessemer Avenue, at a cost of \$150,000.

CLEVELAND, OHIO.—The Steel Products Co. contemplates constructing a one-story machine shop addition, 89 x 123 ft., at 2177 E. Sixty-fifth Street, to cost \$30,000.

SANDUSKY, OHIO.—The Sandusky Gas & Electric Co. contemplates constructing an artificial gas plant to cost \$500,000.

TOLEDO, OHIO.—A dormitory and machine shop will be constructed at the university camp in Air Line Junction at a cost of \$200,000.

PENNSYLVANIA

BRUNSWICK, PA.—Atlantic Refining Co., 3144 Passyunk Avenue, Philadelphia, plans to build oil refinery.

CHESWICK, PA.—The Duquesne Light Co. will construct a large power plant for the Government. Estimated cost between \$16,000,000 and \$18,000,000.

DARLING, PA.—The Sleighton Farm State Reformatory contemplates construction of an infirmary building to cost about \$50,000. Ludlow & Peabody, 101 Park Avenue, New York City, Architects.

EMPORIUM, PA.—Construction Division, War Department, Washington, D. C., let contract to build eight units for explosive making plant to Leonard Construction Company, 332 South Michigan Street, Chicago. \$2,000,000.

ERIE, PA.—A. P. Weschler is contemplating construction of a new theater on Tenth Street, between State and Holland Streets, to cost \$125,000.

FRANKLIN, PA.—Chicago Pneumatic Tool Co., 20 Thirteenth Street, Chicago, plans to build one-story, 50 x 150 ft., addition to plant. \$30,000.



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New York City



MT. UNION, PA.—Construction Division, War Department, Washington, D. C., awarded contract for building plant to manufacture explosives to Leonard Construction Co., 332 South Michigan Street, Chicago. \$1,000,000.

PHILADELPHIA, PA.—The Hero Mfg. Co. will construct additions to its plant, including three buildings 200 ft. wide and a temporary corrugated iron, steel frame, boiler house 30 x 30 ft. Cost, \$150,000.

PHILADELPHIA, PA.—Bids will be received soon by the Government for the construction of buildings at the Frankford Arsenal. Brick, stone and concrete construction.

PHILADELPHIA, PA.—Smith Hardican Co., 1606 Cherry Street, was awarded contract for constructing one-story iron and frame warehouse for Keystone Construction & Supply Co. at \$35,000.

PHILADELPHIA, PA.—Burno Pizzinenti, Pitman, N. J., received contract for constructing naval hospital to cost \$26,600.

PHILADELPHIA, PA.—Thomas C. Prafford, 1613 Sansom Street, was awarded contract by Navy Department for constructing clothing-issue building. \$12,850.

PHILADELPHIA, PA.—Charles C. Pace, Marion, Pa., has contract for constructing signal tower and office for the P. & R. Ry. at Luzerne and R. & R. Ry. at \$14,500. A second tower at Erie Avenue and P. & R. Ry. will also be constructed for the Philadelphia & Reading Ry. by Mr. Pace at \$14,000.

PHILADELPHIA, PA.—William Steele & Sons, 1600 Arch Street, were awarded contract for constructing two-story reinforced concrete and brick factory, 83 x 141 ft., for the American Insulation Co. at \$80,000.

POTTSTOWN, PA.—The Austin Co., Cleveland, received contract for constructing a building for the North American Motors Co. at \$24,000.

ROCHESTER, PA.—A temple to cost between \$50,000 and \$70,000 will be constructed here by the Loyal Order of Moose, Junction City Lodge, No. 331.

SHARON, PA.—The Savage Arms Corp. proposes construction of a new and modern power plant on Sharpsville Street.

RHODE ISLAND

CODDINGTON POINT, R. I.—General Heating & Ventilating Co., Milwaukee, Wis., has contract for heating, cold storage and refrigerating systems for Navy Department at \$1,164,350.

SOUTH CAROLINA

GREENVILLE, S. C.—Construction Division, War Department, Washington, D. C., let contract for extension to barracks, hospital units, etc., at Camp Sevier, to Galiban Building Co., Greenville. \$2,000,000.

SOUTH DAKOTA

MADISON, S. D.—Citizens will vote on a bond issue of \$150,000 for the following improvements: \$100,000 for rebuilding and equipping the electric light plant, which was destroyed by fire some weeks ago; \$25,000 for extension of sewerage system and \$25,000 for extending water works system.

TEXAS

DALLAS, TEX.—Appropriations ranging from \$40,000 to \$50,000 for general improvements at Camp Dick have been approved. A new bakery building will also be constructed.

RANGER, TEX.—W. T. Flippen, E. R. Shane and W. A. Sudderth will erect hotel. \$75,000.

VIRGINIA

ALEXANDRIA, VA.—Fleischman Construction Co., 531 Seventh Avenue, New York City, was low bidder for constructing naval torpedo assembling station for Navy Department at this point at \$1,075,000.

CAMP STUART, VA.—Construction Division, War Department, Washington, D. C., plans to improve and extend existing buildings at Base Hospital at a cost of \$448,200. New buildings consist of additional officers' quarters, laboratories, storehouses and alterations to administration building, receiving ward, nurses' infirmary and nurses' quarters.

FORT MONROE, VA.—The War Department, Washington, D. C., has authorized an expenditure of over \$3,000,000 for the construction of additional buildings to include twenty-one classroom buildings and one-story wireless training school.

GRAHAM, VA.—The Pocahontas Manganese Corp. contemplates constructing extensions to its plant.

NORFOLK, VA.—Bureau of Yards and Docks, Navy Department, Washington, D. C., plans to build barracks. Specification 3538. \$220,000.

NORFOLK, VA.—Bureau of Yards and Docks, Navy Department, Washington, D. C., plans to build two radio buildings costing \$22,500. Specification 3546.

NORFOLK, VA.—Philip B. Moser, Architect, Law Building, has prepared plans for M. J. Greenwood for constructing an apartment house to cost about \$60,000.

PORTSMOUTH, VA.—Russell Edward Mitchell, Norfolk, Va., Architect, has prepared plans for the Bureau of Industrial Housing Department of Labor, Washington, for construction of hospital, etc., to accommodate men who will construct dwellings at Deep Creek Boulevard and Old Key Road and at Lambert's Point.

RICHMOND, VA.—Ford, Bacon & Davis, engineers, 115 Broadway, New York City, are receiving bids for one-story, 180 x 600 ft., steel and brick boiler shop here, for Newport News Shipbuilding & Dry Dock Co., 4001 Washington Avenue, Newport News. \$250,000.

SEVEN PINES, VA.—Charles Butler, Architect, 56 W. Forty-fifth Street, New York City, has prepared plans for the United States Housing Corp., Washington, for a hospital building.

YORKTOWN, VA.—Bureau of Yards and Docks, Navy Department, Washington, D. C., plans to build ten magazine buildings. Specification 3544. \$90,000.

YORKTOWN, VA.—Bureau of Yards and Docks, Navy Department, Washington, D. C., plans to build mine filling plant. Specification 3542. \$194,800.

YORKTOWN, VA.—Bureau of Yards and Docks, Navy Department, Washington, D. C., plans to build five storage buildings. Specification 3542. \$750,000.

WASHINGTON

SEATTLE, WASH.—It is estimated that the cost of connecting the city and Puget Sound Traction Light and Power Co. plans will be about \$75,000.

SEATTLE, WASH.—Engineers of the East Waterway Dock & Warehouse Co. have completed plans for the construction of a reinforced concrete power house, 42 x 42 ft. in size, one story, to be erected at the plant of Rogers-Brown Importing Co. on the East Waterway.

SEATTLE, WASH.—The H. Koppers Co., Pittsburgh, Pa., was awarded contract for constructing explosive plant at 2101 Northlake Avenue for the Government. Project will consist of several buildings, including a brick structure 30 x 35 ft., fifteen large steel tanks and certain other equipment required for the manufacture of toluol. The cost of completed plant is to be \$120,000.

SEATTLE, WASH.—Norton & Spangler Plumbing & Heating Co., 338 Henry Building, has contract for the apartments being constructed for the Skinner & Eddy Corp. on Beacon Hill. \$60,000.

SPOKANE, WASH.—General Machinery Co. contemplates construction of enlargements to its plant and installing additional equipment at a cost of about \$50,000.

TACOMA, WASH.—The Skinner & Eddy Corp. contemplates constructing a large electric smelter in this city to cost about \$750,000.

WEST VIRGINIA

WOODSDALE (P. O. WHEELING), W. VA.—The Stratford Springs Hotel Co. will construct a reinforced concrete hotel building to cost \$400,000.

WISCONSIN

BELOIT, WIS.—John Schneberg, Beloit, has the contract for constructing recreation building for the Yates Machinery Co. Building is to be three stories, concrete and brick. \$50,000.

BENTON, WIS.—Leonard Construction Co., 322 S. Michigan Avenue, Chicago, has received contract for constructing two sulphuric acid plants for the Government at \$750,000 and \$500,000 respectively.

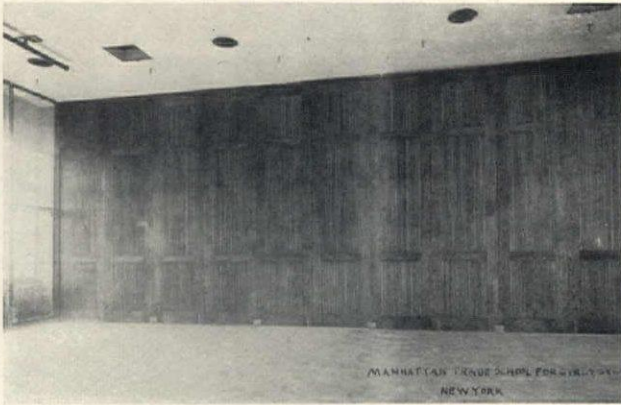
EAU CLAIRE, WIS.—Holmes & Flynn, Architects, 8 S. Dearborn Street, Chicago, are preparing plans for the construction of a church building for the First Congregational Church, to cost approximately \$85,000.

OCONTO, WIS.—Plans have been completed for improvements to power plant of the Oconto Service Co. Mead P. Seastone, State Street, Madison, Wis., engineer.

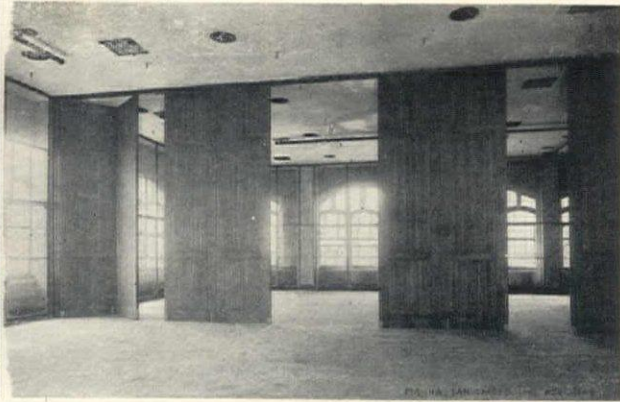
RACINE, WIS.—Standard Foundry Co., Kewaunee Street, plans to build one-story, 80 x 160 ft., brick foundry costing \$50,000. E. B. Funston, 503 Robinson Building, Architect.

Wilson Folding Partitions

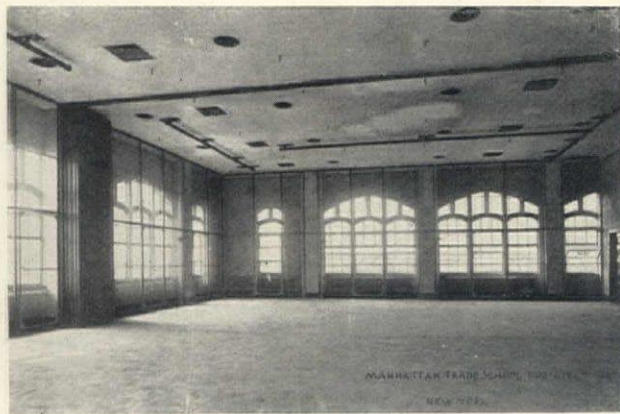
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California Redwood Assn. (o.a.m.)	
Campbell, Walter M.	
Carey, Philip, Co., The (e.f.w.)	
Carrier Air Conditioning Co. of America	33
Carter, Ralph B., Co.	32
Carter White Lead Co.	35
Concrete Engineering Co.	36
Corbin, P. & F.	34
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Crampton-Farley Brass Co. (e.o.w.)	
Crittall Casement Window Co. (e.o.w.)	37
Detroit Steel Products Co.	34
Dixon Crucible Co., Jos.	33 35
Dunham, C. A., Co. (o.a.m.)	
Edwards Mfg. Co.	33
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General Fireproofing Co.	
Gillis & Geoghegan (e.o.w.)	
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Hart & Hegeman Mfg. Co., The (e.o.w.)	
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Indiana Limestone Quarrymen's Ass'n (o.a.m.)	
Jenkins Bros.	32
Johns-Manville Co., H. W.	32

Kimball Co., W. W.	33
Lupton David, Sons Co. (e.o.w.)	29
Magnesia Assn. of America (e.f.w.)	
Majestic Co., The	32
Midland Terra Cotta Co. (e.o.w.)	40
Mississippi Wire Glass Co.	36
Mitchell Tappan Co. (e.o.w.)	34
Mitchell Vance Co., Inc.	25
Muller, F. R., & Co.	
Murphy Varnish Co. (o.a.m.)	
National Building Granite Quarries Association, Inc.	33
National Kellastone Co., The	32
National Metal Molding Co. (e.f.w.)	
Okonite Co. (e.o.w.)	34
Otis Elevator Co., The	39
Patton Paint Co.	
Pitcairn Varnish Co.	
Pomeroy, S. H., Co., Inc.	35
Raymond Concrete Pile Co.	32
Richards-Wilcox Mfg. Co. (o.a.m.)	
Rising & Nelson Slate Co.	19
Samson Cordage Works	33
Society of Beaux Arts Architects	34
Standard Oil Cloth Co., Inc., The	33
Stanley Works	34
Trus-Con Laboratories, The (o.a.m.)	
Truscon Steel Co.	23, 38
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University of Michigan	34
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Western Brick Co. (e.o.w.)	23
Wilson, J. G., Corp., The	27
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Wright Wire Co. (o.a.m.)	
Yale & Towne Mfg. Co. (o.a.m.)	
Yale School of Fine Arts	34
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CEMENT AND PLASTER

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

PLASTER:

Best Bros. Keene's Cement Co., Dept. C, Medicine Lodge, Kans., New York, Chicago. "Regular" for base and finish coats, general plastering; "Fine" for all ornamental plastering; Caen stone, etc.; "Coarse" and "Superfine" for art marble.

National Kellastone Co., The, Chicago, Ill.

SPECIALTIES:

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

STUCCO:

National Kellastone Co., The, Chicago, Ill.

COAL CHUTES

Majestic Co., The, Huntington, Ind.

CONCRETE REINFORCEMENT

REINFORCEMENT:

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

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

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

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

DAMPPROOFING

(See Water and Dampproofing)

DAYLIGHTING

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

DOORS AND TRIM

HOLLOW STEEL DOORS:

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

STEEL ROLLING DOORS:

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

DUMB WAITERS

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

ELECTRICAL EQUIPMENT AND SUPPLIES

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National Metal Molding Co., 1111 Fulton Bldg., Pittsburgh, Pa. "NATIONAL" metal molding for surface wiring; "SHERADUCT" Sherardized and "ECONOMY" enameled conduit; "FLEXSTEEL" flexible conduit and armored cable and a complete line of fittings. Youngstown (O.) Sheet & Tube Co. "Buckeye" rigid conduit. "Realiflex" armored conductor.

PANEL BOARDS:

Benjamin Electric Mfg. Co., Chicago, Ill. "Benjamin-Starrett" panel boards.

WIRES AND CABLES (Insulated):

Okonite Co., The, 501 Fifth Ave., N. Y. C. Caudex potheads, "Mauson" and "Okonite" Tape.

ELEVATORS AND HOISTS

CONVEYORS:

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

ELEVATORS AND HOISTS— Continued

ELEVATORS:

American Elevator & Machine Co., Louisville, Ky.
Otis Elevator Co., 11th Ave. and 26th St., New York. Offices in principal cities of the world. Electric, hydraulic, belt and hand power, inclined freight elevators and escalators.

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ELEVATOR CABLE:

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

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

FIREPROOFING MATERIALS

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

CAGING OR FORMING:

Mitchell-Tappen Co., 17 John St., N. Y. C.

METAL LATH:

Berger, The, Mfg. Co., Canton, Ohio. Concrete Engineering Co., Omaha, Neb. Truscon Steel Co., Dept. 68, Youngstown, O. Representatives in principal cities. Hy rib, "Rib" lath; "Diamond Mesh" lath.

FIRE PROTECTION

FIRE EXIT DEVICES:

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

FLOORS

COMPOSITION:

Barrett Co., The, 17 Battery Pl., New York. Branch offices in all large cities.
Johns-Manville, H. W., Co., New York City.
National Kellastone Co., The, Chicago, Ill.

FLOOR COATING:

Imperial Paint Co., 76 Tenth St., Long Island City, N. Y. "Impaco" cement coating.

FOUNDATIONS

PILES:

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METAL:

Canton Art Metal Co., Canton, Ohio.

ALPHABETICAL INDEX OF ADVERTISERS ON PAGE 28

HARDWARE

BOLTS:

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

BUILDERS' HARDWARE:

Corbin, P. & F., New Britain, Conn.
Stanley Works, The, New Britain, Conn.

BUTTS AND HINGES:

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GARAGE HARDWARE:

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**HEATING, VENTILATION,
PLUMBING**

BLOWERS AND EXHAUSTERS:

Buffalo Forge Co., Buffalo, N. Y.

DRINKING FOUNTAINS:

Cahill Iron Works, The, Chattanooga, Tenn.

FURNACES:

Hawley Down Draft Furnace Co., Easton, Pa.
Majestic Co., The, Huntington, Ind.

LAVATORIES:

Cahill Iron Works, The, Chattanooga, Tenn.

PIPE (Iron):

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

PIPE (Steel):

Youngstown Sheet & Tube Co., Youngstown, O.

SINKS:

Cahill Iron Works, The, Chattanooga, Tenn.

SINKS (Slop):

Cahill Iron Works, The, Chattanooga, Tenn.

TANKS (Closet):

Cahill Iron Works, The, Chattanooga, Tenn.

TRAPS (Radiator):

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

TRAPS (Steam):

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

TUBS (Bath):

Cahill Iron Works, The, Chattanooga, Tenn.

TUBS (Laundry):

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URINALS:

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**HEATING, VENTILATION,
PLUMBING—Continued**

VALVES (Water Line):

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

VAPOR HEATING SYSTEMS:

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

VENTILATORS:

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HOISTS

(See Elevators and Hoists)

INSULATION (Sound and Heat)

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GLASSWARE:

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Northwood, H., Co., Wheeling. Lighting Glass.

METAL:

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MUSICAL INSTRUMENTS

ORGANS:

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IRON**

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

PAINTS, VARNISHES, STAINS

LEAD (Red):

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LEAD (White):

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LITHARGE:

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PARTITIONS

METAL:

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Bankers Trust Bldg., 501 Fifth Ave., N. Y.
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PLASTER

(See Cement and Plaster)

PLUMBING

(See Heating, Ventilation, Plumbing)

REFRIGERATION

REFRIGERATING APPARATUS:

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(See Window)

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

METAL CEILINGS:

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

STAINS

(See Paints, Varnishes and Stains)

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<p>STONE</p> <p>GRANITE: National Building Granite Quarries Association, Inc., 33 State St., Boston, Mass.</p> <p>STRUCTURAL STEEL</p> <p>PRESSED STEEL CONSTRUCTION: Berger, The, Mfg. Co., Canton, Ohio. "Metal Lumber." Pressed Steel Joints and structural members. Truscon Steel Co., Dept. 68, Youngstown, O. Representatives in principal cities. "Kahn" pressed steel beams, joists, studs, plates, etc.</p> <p>STUCCO AND WALL BOARD</p> <p>PLASTER BOARD: Bishopric Mfg. Co., 744 Este Ave., Cincinnati, O. Bishopric Stucco or Plastic Board. The dove-tailed key locks the plaster. Made of creosoted lath, asphalt-mastic and heavy fibre board.</p> <p>STUCCO: National Kellastone Co., The, Chicago, Ill.</p> <p>TERRA COTTA Midland Terra Cotta Co., 1515 Lumber Exchange, Chicago, Ill. N. Y. Arch. Terra Cotta Co., Tel. Astoria 700.</p>	<p>TILE (See Flooring and Roofing)</p> <p>VARNISHES (See Paints, Varnishes, Stains)</p> <p>VENTILATION (See Heating, Ventilation, Plumbing)</p> <p>WATER AND DAMPPROOFING Barrett Co., The, 17 Battery Pl., New York. Branch offices in all large cities. Cabot, Samuel, Inc., 141 Milk St., Boston.</p> <p>WALL BOARD (See Stucco and Wall Board)</p> <p>WELLS Carter, R. B., Co., 152 Chambers St., N. Y. C.</p>	<p>WINDOWS, METAL</p> <p>Crittall Casement Window Co., Detroit, Mich. Solid steel and bronze windows for office buildings, banks, public buildings, churches, university buildings, hospitals, residences, stores, factory offices, etc. Detroit Steel Products Company, Detroit, Mich. Fenestra Solid Steel Windows; Standard side wall horizontally pivoted—Counterbalanced vertical sliding sash—Center pivoted and top hung continuous sash for monitor. Immediate shipment from warehouse on standard sizes. Representatives in principal cities. Lupton's, David, Sons Co., Philadelphia, Pa. Pomeroy, S. H., Co., Inc., 30 E. 42d St., N. Y. Truscon Steel Co., Dept. 68, Youngstown, O. Representatives in principal cities. "United" steel sash in all types; horizontal and vertical pivoted sash; counterbalanced and counterweighted sliding sash; center pivoted and top hung continuous sash; steel and glass partitions; sliding and swinging partitions; sliding and swinging doors; casement sash of all designs.</p> <p>WIRE GLASS</p> <p>Mississippi Wire Glass Co., 216 5th Ave., N. Y. C. Polished Wire Glass—"Romanesque," "Syenite," "Maze," "Pentecor," "Ribbed," "Rough." Figured Wire Glass—"Apex," "Romanesque," "Syenite," "Maze," "Florentine," "Figure No. 2," "Ondoyant," "Pentecor," "Ribbed," "Rough."</p>
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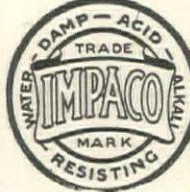
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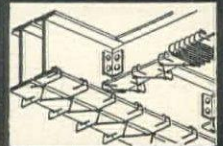
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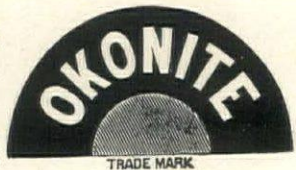
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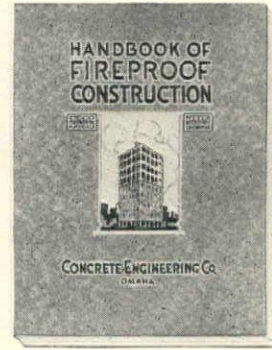
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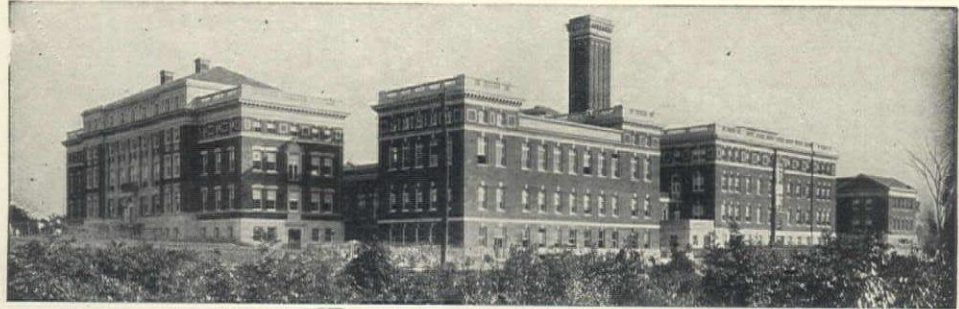
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