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EATON, INDIANA, PLANT—REID MURDOCH & CO.
GEORGE C. NIMMONS & CO., *ARCHITECTS*

Three Buildings Which Produce the Necessary Materials for a Vegetarian Dinner and a Smoke

By GEORGE C. NIMMONS, F.A.I.A.

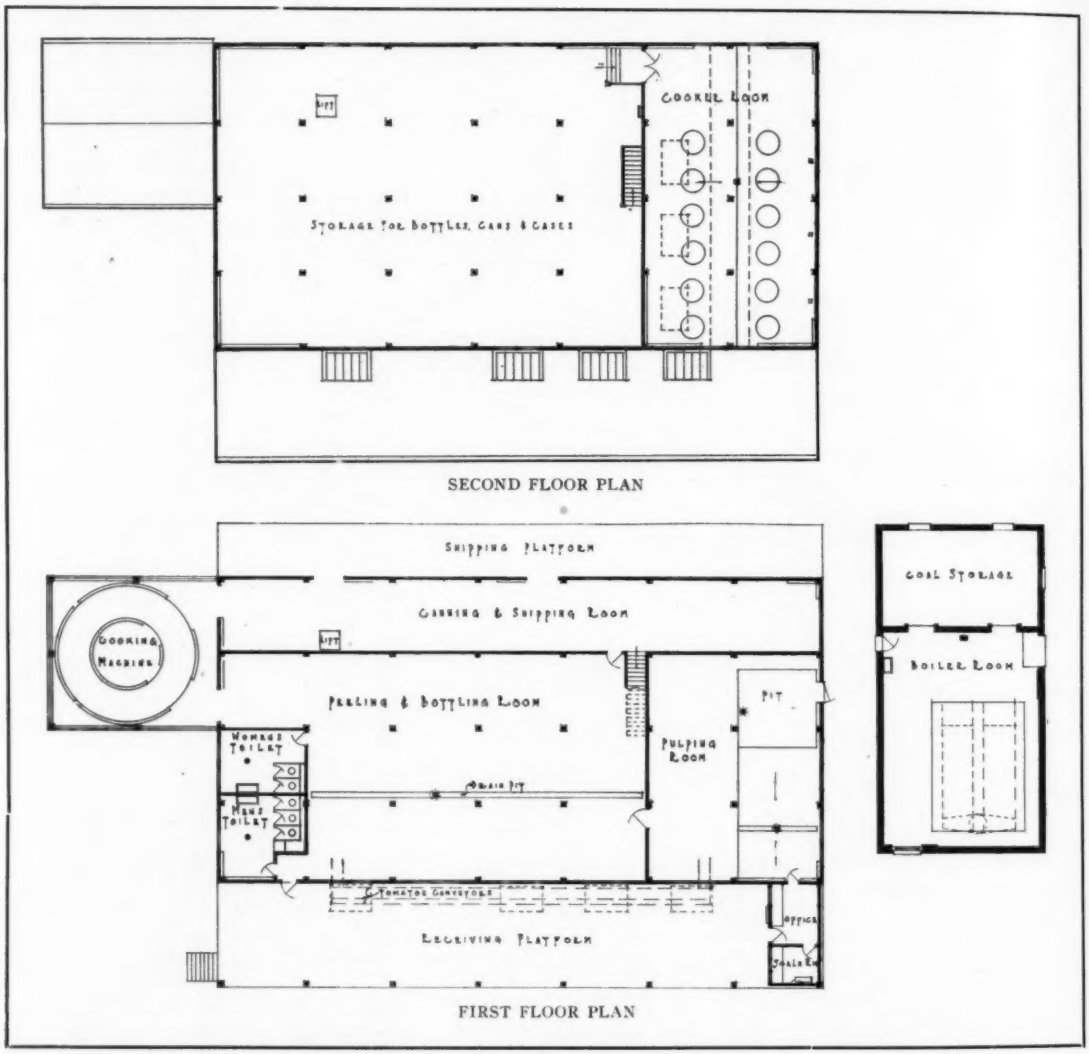
BEFORE partaking of the mental repast of contemplating and digesting the account of the manufacture of the food products to be described, the host desires to announce that there will be a brief discussion, with the cigars, of some aspects of the present condition of architectural practice.

The first course consists of canned tomatoes and catsup. The manufacture of these are the requirements for the little building, at Eaton, Ind., which is one unit of a number erected this year for Reid Murdoch & Company, wholesale grocers.

The operation begins at the plant by raising the tomato plants from selected seeds in hot beds. These are distributed among the farmers who grow the tomatoes and bring them in their wagons to the receiving platform of the building where there are two traveling-belt conveyors to carry the tomatoes into the building. On one conveyor the farmer places the more perfect tomatoes for canning, and on the other the remaining tomatoes for catsup. The tomatoes are never touched again by hand, except in one minor instance, until they are safely deposited in hermetically sealed cans or bottles in the form of cooked tomatoes or catsup. The conveyor for catsup takes the tomatoes into the pulping room on the first floor where they are scalded and reduced to pulp with the seeds and skins removed. From here they are pumped into vats in the cooker room directly above, where, after the cooking and the adding of the various ingredients, they run by gravity back to the storage vats on the first-story ceiling. From these vats the catsup flows into bottling machines where they are automatically bottled and placed in cases ready for shipment. The tomatoes to be canned arrive on their conveyor on the first floor where they are put through their process, the most interesting part of which is the machine where the cooking tanks are arranged in a circle, and where the prepared tomatoes are picked

up in their cans by a small traveling crane and put through the process of cooking. From there they go directly into the shipping-room where they are prepared for shipment.

It may be of interest to note that by this modern process tomatoes are turned into food products about as rapidly as the farmer can haul the tomatoes to the factory and put them on the conveyors. The amount of labor saved and the improvements in sanitation over the old hand process are in line with the progress made in harvesting wheat. In olden times when they harvested wheat and threshed it by tramping it out, or by the use of flails, it took five hours to produce a bushel of wheat, while now it takes only ten minutes. All of these modern food-producing processes may, therefore, be credited not only with producing our food efficiently, but also with the fact that if we didn't have them nearly all the people of the earth would necessarily be engaged in producing food instead of the other things which they now have a chance to do.



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The second course of this repast consists of the products manufactured by Reid Murdoch & Company, in their plant at Hammond, Ind. Here

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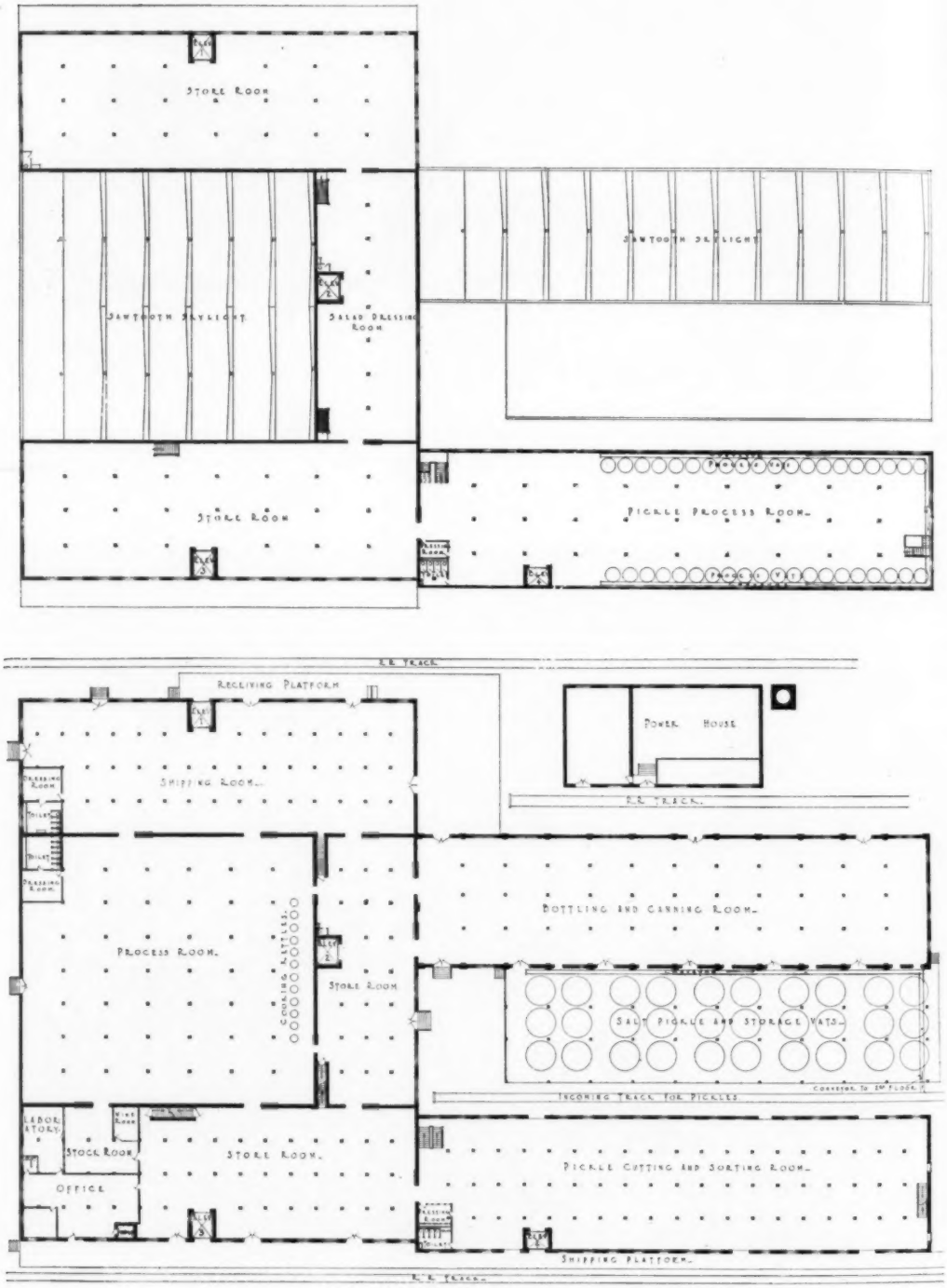
LABELING AND PACKING ROOM
HAMMOND, INDIANA, PLANT—REID MURDOCH & CO.
GEORGE C. NIMMONS & CO., *ARCHITECTS*



HAMMOND, INDIANA, PLANT—REID MURDOCH & CO.

GEORGE C. NIMMONS & CO., *ARCHITECTS*

are produced all sorts of vegetables other than tomatoes; all kinds of fruit preserves and jellies, together with pickles, olives, relishes, salad dressings and other delicacies to make the meal complete. The activities are so varied that it probably would be uninteresting to give more than a general account of the plant and arrangement of the building, together with its relation to some of the products produced. The building, almost snowbound by the recent great blizzard, as shown by the illustration, is to have, in the future, an office department built out in front of it carrying out a design intended to make the building more attractive. However, the front windows are to have flower boxes as soon as the weather permits.

The important part and the center of nearly all of the activities of the plant is the process room arranged in the center of the front part of the plant. Here all the various cooking and preserving processes take place. The process room is arranged so that all materials travel back to the kettles in the rear, as shown in one of the illustrations. Here the cooking is done and the product is usually conveyed to storage vats where the bottling and handling is done automatically. Some of the bottling machines appear in one of the illustrations, showing how the bottles are filled. They are already labeled and placed in cases ready for shipment.

The plant is served with four railroad tracks which deliver the raw materials at the essential points and carry away the goods from the shipping-rooms. The manufacturing rooms are covered with saw-tooth skylights giving excellent light and ventilation for the various processes. The floors, walls and different parts of the building are constructed of materials which aid in keeping the place scrupulously clean and sanitary.

Another illustration shows the girls at work putting the labels on certain products and making them ready for shipment. The pickling process, which takes place in the rear, requires an area and equipment of considerable size and importance. The cucumbers are received on the incoming track, deposited in salt pickle vats on the first story, and from there taken by the conveyors to the second-story process room, after which they are sent down

PROCESS ROOM, SHOWING COOKING KETTLES

HAMMOND, INDIANA, PLANT—REID MURDOCH & CO.

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BOTTLING ROOM

HAMMOND, INDIANA, PLANT—REID MURDOCH & CO.

GEORGE C. NIMMONS & CO., *ARCHITECTS*

to the first floor underneath for packing and then stored away in vinegar in the basement until they are properly cured for shipment.

In connection with the plant is also a factory where boxes and packages of various kinds are made for the different kinds of goods. All power, light and heat needed are also produced at the plant.

The cigars now to be indulged in are those manufactured by the Havana-American Company at their plant on West Twelfth Street, Chicago. Cigar plants have always been the most conspicuous for their lack of sanitation and the absence of the proper provisions for employees. The melting-pot idea must have come from the typical cigar factory where the poorest classes of nearly all nationalities may be seen assembled together in this work. The smoker ordinarily might not consume his favorite Havana with the same relish as he does, if he could see the conditions under which some of these cigars are made. Our guests, however, need have no unpleasant sensations from this source when they inspect the interior views of the Havana-American plant and trace out the conveniences and accommodations shown for help by the plant. This plant is 455 ft. long by 112 ft. wide and two stories high. It is devoted exclusively to making cigars, and the arrangement of the building has been worked out expressly for that purpose. The process of manufacture is simple and the plan of the building allows for a direct progression in the building from one end to the other. The tobacco, in the form of bales, is received in the first story at the west end of the building where they are opened, assorted and the leaves are processed in the sweating-rooms so as to prepare them for the making of cigars. They are then taken upstairs from this point, by the elevator, to the stripping department and have the stems of the leaves removed. The next process is the curing which takes place in the room adjoining the stripping department, and from there they go directly east through the process of cigar rolling where the various sizes and shapes of cigars are made. From this department they then enter the packing-room where they are assorted, boxed and made ready to ship.

The shipping-room is the room directly below, in the first story, where they are taken down by the elevator and shipped away. The large space on the first floor, between the receiving end of the building and the shipping-room on the east, is occupied entirely by the offices and the accommodations for help. All of these appointments are plain, sanitary and durable and include many features usually not found in cigar factories. The entire building is well ventilated by a constant supply of fresh air through the mechanical ventilating system.

The employees are paid by the number of cigars made or the amount of work done, and it is usually a difficulty in a cigar plant to have the employees work long enough to produce a reasonable amount of work in a day. In this factory, however, the experience was, when it was first completed, that the employees were so unusually comfortable and well provided for that they nearly all worked up to closing time, and in some instances the manager had to turn them out at the close of the day because they would rather remain there than at home.

Now, as we have finished with the eatables and got the smoke well started, it remains for the discussion to be introduced.

This can probably best be done by putting the question as to why the architects are not more generally employed at this time, when there is more building of a certain kind being done in the country than ever before.

Naturally, the first place to look for the reason is in the nature of the work itself. The work being done in such vast quantities is, of course, for private individuals and corporations, and for the Government as required by the war. The nature of this work is severely plain and utilitarian and of a kind that must be constructed with the greatest possible speed.

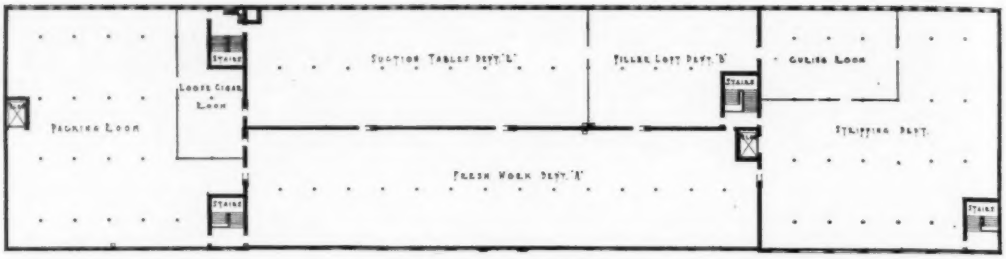
In connection with nearly all of this work, it has evidently been assumed that the drawings are of such a simple nature and the services required of such a character that there is nothing to justify the employment of an architect. The way things have gone and the evidences appearing as the work goes forward seem to establish the fact, beyond the question of a doubt, that the officials of the Government and all these people who have buildings of the war type to build, have undoubtedly concluded that the plainness and simplicity of these problems make them unsuited or inappropriate for architects to handle. As an evidence of this, or at least as an evidence that something is wrong, the surprising situation exists that architects of the country as a whole, who are supposed to be the greatest constructive agencies the country has, are now less employed than the members of any other profession, and this in face of the fact that the country is doing the greatest amount of building in its history.

It is not that the architects are unwilling to do this work, because they have tried to get it and they are eager to do their share. They, one and all, are

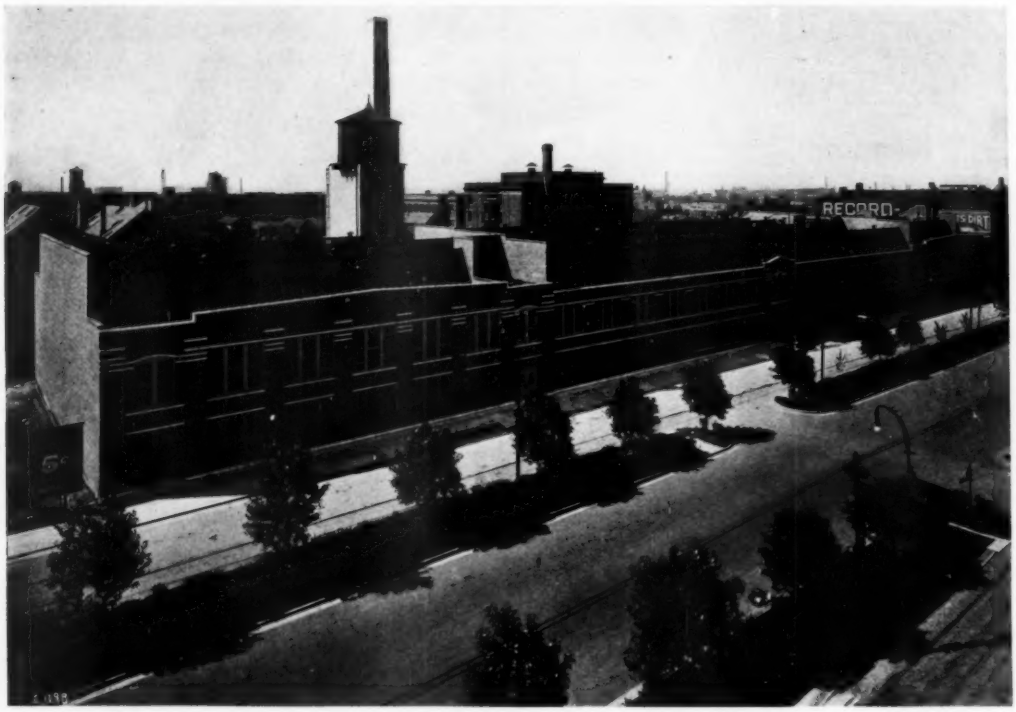
TOBACCO STEMMING ROOM

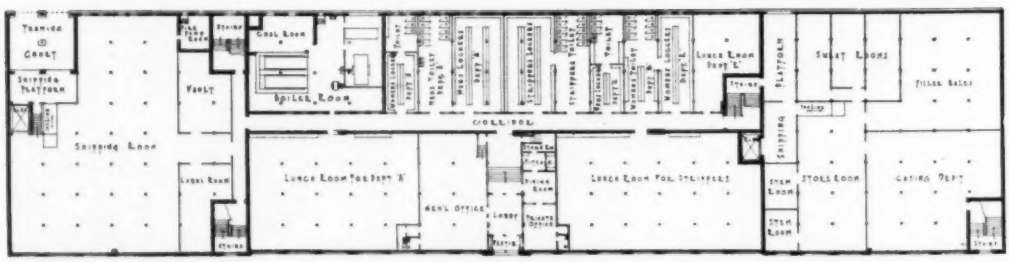
BUILDING FOR HAVANA-AMERICAN CO.

GEORGE C. NIMMONS & CO., *ARCHITECTS*



SECOND FLOOR PLAN





FIRST FLOOR PLAN

TOBACCO FACTORY FOR THE HAVANA-AMERICAN CO.

GEORGE C. NIMMONS & CO., *ARCHITECTS*

CIGAR ROLLING ROOM

BUILDING FOR HAVANA-AMERICAN CO.

GEORGE C. NIMMONS & CO., *ARCHITECTS*

filled with admiration and pride for the wonderful service being given by the engineers, their brothers in constructive lines.

When the whole situation is canvassed and the different causes for this state of affairs are examined, the most reasonable analysis indicates that the basic functions of architecture and its practice are sadly misunderstood. There seems to be no other way to account for the present situation, especially when these functions are reviewed, scrutinized and the usual attitude of the people toward them is recalled.

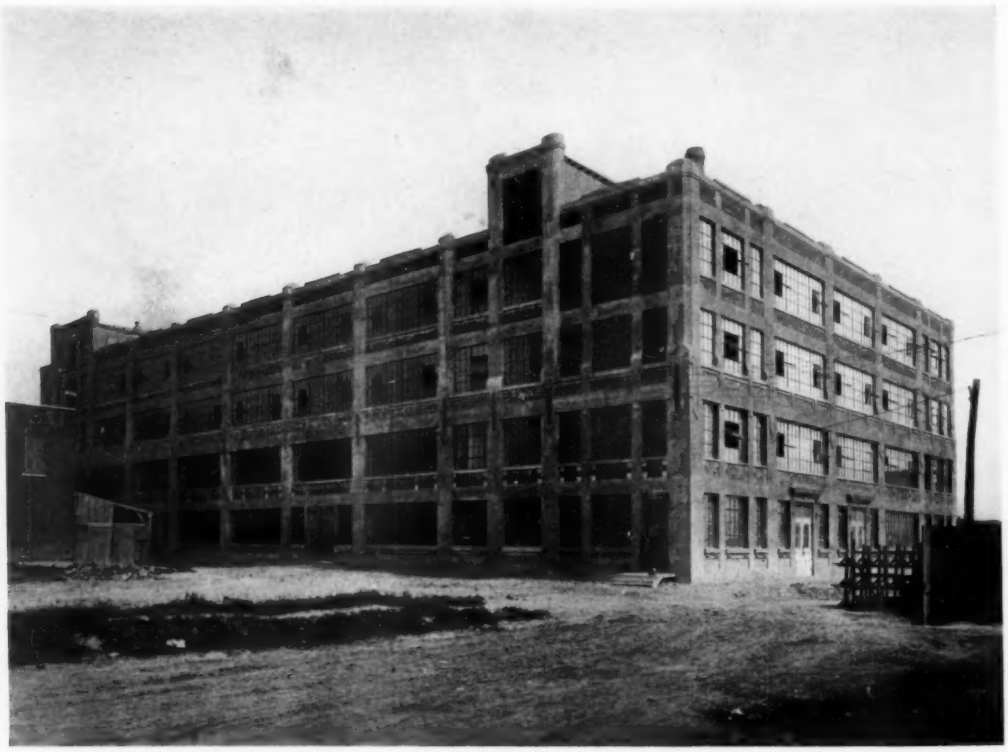
People outside of the profession know little or nothing of the training and practice of an architect. The universal impression seems to be that the education of an architect has largely to do with his preparation to create the ornamental features of a building. They do not understand that these ornamental features, properly made, can grow only out of a plan and construction that are given far greater importance by the architect than the ornament. They do not know that the faculty of imagination in an architectural student is trained specially along certain lines, so that the student will be prepared, as no other profession or calling would prepare him, to plan, to arrange, to invent, and to devise features in a building that will tend to make it perfect. They do not know that the mental faculties of the architectural student are all developed to the maximum, so that he can create things for a building, devise ways for overcoming obstacles and solve the problems that arise in every case.

It seems to be assumed that the plans of these buildings in question are so simple that any one can make them, and the fact is entirely overlooked that defects in the plan of a simple, plain building are often harder to detect than they would be in a more complicated one. The fact that any error in the arrangement or design of these buildings might be of tremendous consequence does not seem to create any particular anxiety about having experts study them thoroughly. Then there is all of the experience and the ability which the architect has gained from practice that specially fits him for letting contracts, handling the work and securing the maximum speed in building construction. All of these

and many other things are overlooked in these days when the people fail to employ the kind of service that would help them most in construction work.

The architect is not complaining and will undoubtedly offer no protest, as the present situation is nothing more than the natural outcome of the lack of knowledge of architecture which existed before the war, and it probably could not be changed suddenly. There are, however, some things which the architect can do that will in time accomplish much, and that is to start a campaign of educating the people generally, in at least the rudiments of architecture. Another thing that seems important at this time is to undertake, as far as possible, the design and erection of all those buildings of a plain and simple character, help to build the factories, warehouses and industrial buildings, help to make them better and thereby show the people that architecture has as much to do with the planning and working out of the practical problems of a building as it has with the ornament. The people ought to understand that the architect is the one best fitted, by reason of the nature of his profession, to plan and design any building regardless of how plain and simple its character may be.

This, after all, has wandered far from the path of an after-dinner speech, but the indulgence of the reader is respectfully requested.



BUILDING OF THOMPSON & NORRIS CO., MONTREAL, CAN.
LOCKWOOD, GREEN & CO., *ARCHITECTS*

Facts, Factories and Frills

Some Comments on the Architectural Development of the Industrial Building

By Harvey Wiley Corbett, B.S., A. I. A.

Architecte Diplomé du Government—Ecole des Beaux Arts

NOT so very many years ago anything with four walls and a roof (it didn't have to be a tight roof either) was good enough for a factory. The dirtier and darker it happened to be, the better. If it was smelly, too, that was an added attraction, being an indication that real work could be done there. The architectural critic fired his last and bitterest shot when he remarked in criticism of any building, "It looks like a factory." To build one was bad enough—to work in one was worse. And to be the architect of one almost resulted in professional ostracism.

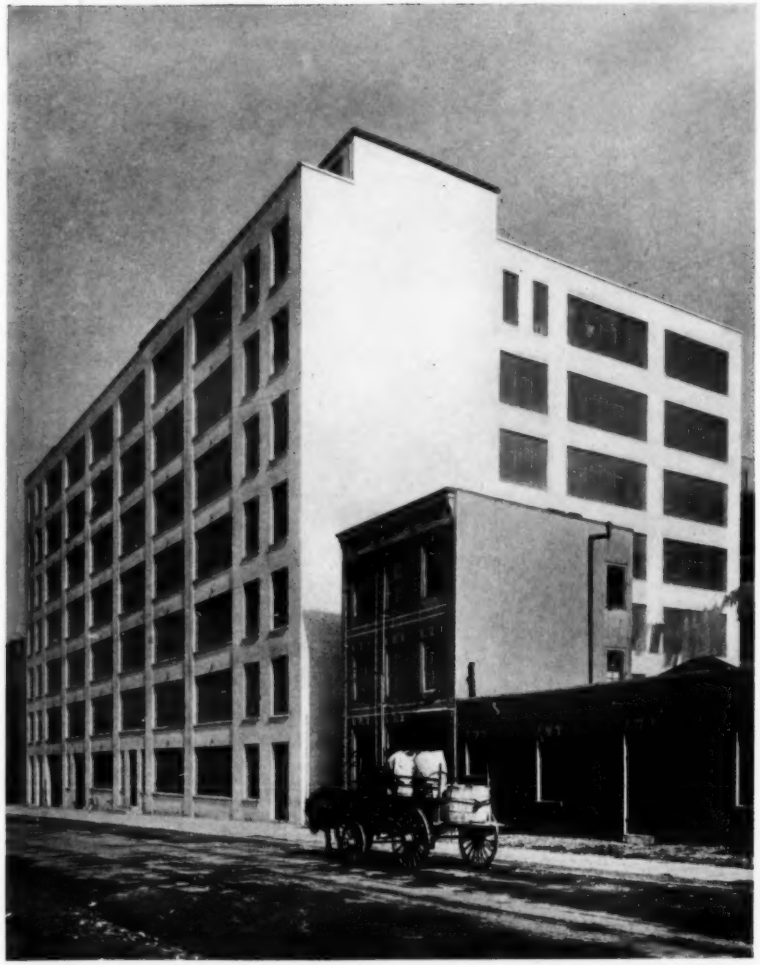
But times have surely changed. Nowadays we sometimes wander into what we suppose to be the private estate of one of our multi-millionaires. We drive over broad roads, lined with ancestral elms. The rambling old ivy-covered mansion, with its leaded panes and many-chimneyed silhouette, looms large in the distance. We finally arrive in the grand fore-court, only to find a most modern and up-to-the-minute industrial plant. Lawns, flower beds, tennis courts, recreation fields are found on the outside; perfect light, ventilation and sanitation on the inside. Life in the factory seems to have reached the final goal of the ideal existence. Just enough work to make the recreation period appreciated, and just enough play to keep Jack (and Jill, too) from being dull.

The architect can now design a factory and not keep the fact a secret, but point with pride to the result. Some great and truly beautiful industrial plants and many fine manufacturing buildings have been erected in recent years. The conditions are so changed from the original factory idea that this modern achievement can hardly seem to be the outgrowth of the former

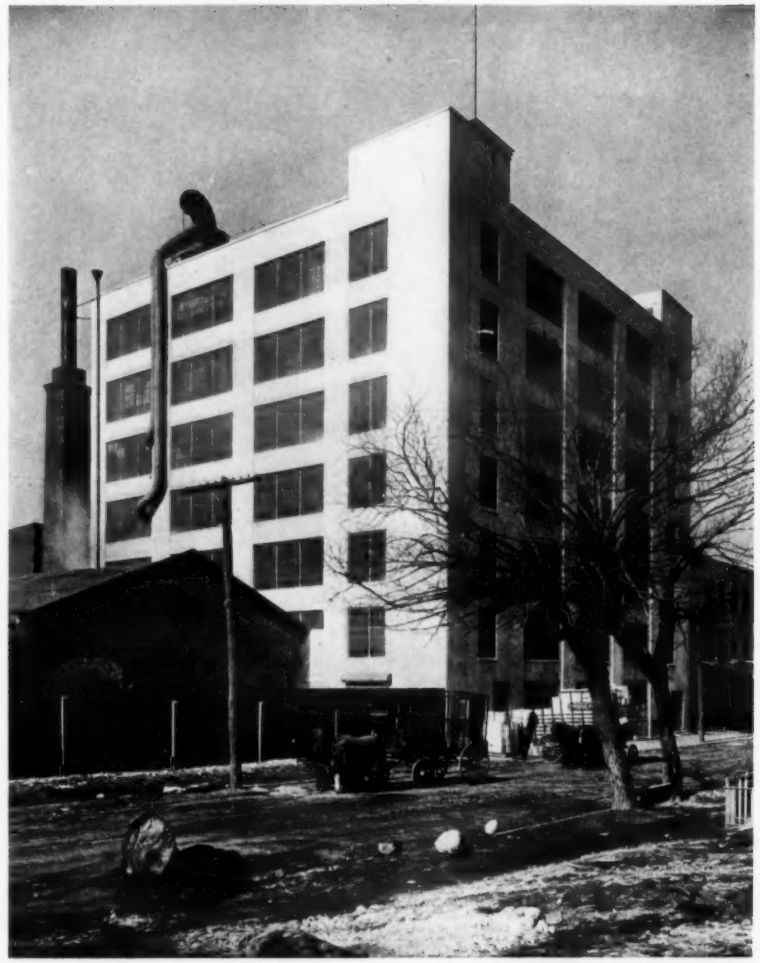
DETAIL OF MAIN ENTRANCE

BUILDING FOR SPERRY GYROSCOPE CO., BROOKLYN, N. Y.

HELMLE & CORBETT, *ARCHITECTS*



FACTORY BUILDING OF RALPH LEININGER, ESQ., BROOKLYN, N. Y.



FACTORY BUILDING FOR PATHE FRERES, BROOKLYN, N. Y.

HELMLE & CORBETT, *ARCHITECTS*

DETAIL ENTRANCE VESTIBULE
BUILDING FOR SPERRY GYROSCOPE CO., BROOKLYN, N. Y.
HELMLE & CORBETT, *ARCHITECTS*

crude efforts. Yet we know the process has been a fairly gradual one, so gradual, in fact, that many owners of manufacturing concerns hardly know it exists, are hardly conscious of the change, except as they grudgingly comply with existing factory laws.

We might attempt by pictures, plans and data to show the steps in the development of the industrial building. The files of THE AMERICAN ARCHITECT give a very complete history of what has happened along these lines. But the thing we are primarily concerned with is not so much *what* has happened, but *why* it has happened. The changed attitude in regard to factory building on the part of certain big manufacturers, and many little ones, must have come about because of some very good reason. If we can discover this reason we will have a convincing argument to lay before those owners and manufacturers (and there are many of them) who still cling to the old idea that new goods can best be made in an old shack.

Let us examine for a moment the steps that have been taken from the first crude building to the latest conception of the industrial plant. As we have seen, the first factory was any old shack, and the first man to plan it was the mechanical man, or factory superintendent, connected with the plant. The theory was that the only man to plan a factory was a factory man. This idea, on first reading, seems very sound and is still upheld by many manufacturers who can see no reason for calling in an "outsider," so to speak, to do something that the "man on the job" knows all about. I am afraid these same men would say the only person to plan a kitchen is the cook who is to work in it.

But some of the broader minded of them made the great discovery that cooks are only human and can change (and frequently do), while the kitchen is a fixture which cannot be changed except at great expense. Besides, the new cook never likes the old one's arrangement, so they concluded that the next kitchen would be planned, not for a particular cook, but for any intelligent cook, so that they could change cooks when they wanted to. They began to see that the factory man had grown up from the factory worker and that his vision was limited by too intimate a knowledge of his special work. They felt the need of a broader viewpoint and they called in an "outsider." That was the first step in advance.

In the earlier stages of this new idea, an engineer, who was not necessarily a specialist in the particular process of manufacture he was called to work on, but who was familiar with the mechanical op-

BUILDING FOR SPERRY GYROSCOPE CO., BROOKLYN, N. Y.

BUILDING FOR THOMAS SHOE CO., BROOKLYN, N. Y.

HELMLE & CORBETT, *ARCHITECTS*

eration of manufacturing processes in general and with the simple forms of building construction of the cruder sort, was the type of man consulted. His effort was to work out a combination between the factory operation and the building in which it operated, in an effort to co-ordinate all the various phases of the process and house them suitably.

He fulfilled a long-felt want, and factory conditions improved under his influence, but he, too, was limited in his point of view. Because of his training, he was essentially a "practical" man. It was hard for him to see beyond the purely mechanical phases of his problem. The human factors appealed to him less than the mechanical. Workers were just so many more machines to be placed and buildings were just so many more inclosed spaces in which to place them.

And so it came about that some manufacturers, fully realizing the scope of their problem, felt the need of some man, not necessarily greater than the engineer, but certainly with a still wider angle of vision, to guide the work. Just as the factory man had been replaced by the engineer, the engineer was replaced by the architect. The factory man could do only a part of the engineer's work; the engineer could do only a part of the architect's work. Each in turn included the other in his field and added something further.

Now what did the architect add that his predecessors in the work did not have? Those manufacturers who still have no use for architects would tell you that all he added was "frills"—and expensive frills at that. This article is certainly not a defense of the so-called architect whose only function in life is that of adding "frills." If an architect is employed at all, it is because he has a broader point of view than either of his predecessors, and can produce something that yields an actual financial return greater than could be obtained by any other method. It is because he is able to bring to the industrial problem something of real value which the others have not brought. That something is a *comprehensive sense of arrangement*. This means *arrangement* from every possible angle, not only the logical arrangement of buildings to site, or the economical arrangement of construction types to local conditions, or the mechanical arrangement of incoming raw material and outgoing finished product, or financial arrangement of first-cost and up-keep to final return; but also the practical arrangement for the comfort, convenience and care of workers, the essential arrangement for supervision and inspection by managers and, last but not least, the arrangement of all for the sake of appearance.

If the engineer could do better than the factory man, it was not because he knew less about factories, but because he knew more about mechanics. If the architect does better than the engineer, it is not because he knows less about mechanics but because he knows more about arrangement.

That part of the architect's work for which he gets the most credit (and blame, too) with the unthinking and uninformed layman, *viz.*, the "frills" and "trimmings" of buildings, the cornices, the bands of ornaments, the colored tiles and the texture brick, is only the smallest phase of his real work in any building and particularly in factory building. If he has, among all the other essential ideas of arrangement, a sense of arrangement for appearance as well, his greater knowledge of types of construction, economical spans, column distribution, window spacing, etc., should enable him to save more than any sacrifice made for appearance could possibly cost. I have yet to discover an owner so sordid that he would not prefer a good-looking building if he could get it for less money.

I believe that the architect who feels the seriousness of his mission in this world will find the factory problem just as interesting as the court house or the church. This is a commercial and industrial age, a vast majority of our people are factory workers, and not to be part of this great factor in our national life is to miss a great and growing opportunity.

To be sure, if an architect is wrapped up in "frills" a factory job would bore him, but a court house done in such a spirit would certainly bore others. If he enjoys only the "frills" he lacks that fundamental quality of every true artist,—be he sculptor or painter, bricklayer or diplomat,—a sense of appropriateness, a sense of the fitness of things, in other words, a sense of proportion. Such a man would put all men in dress suits no matter what their occupation, and you could never tell his factories from his art museums.

The true function of the architect is not one of concealment or deceit, but of true and sincere expression. No harm comes from a factory looking like a factory. The artistic crime is committed when it looks like something else. Let's tell our story as clearly and sincerely as we can.

If architects as a profession have failed to grasp the possibilities of the industrial field, it is because of two reasons: a lack of confidence on the part of owners in the willingness of architects to meet frankly and squarely the economic and financial limitations which must be the guide in every successful business venture, and a lack of interest on the architect's part in the purely architectural possibilities in the broadest sense of the factory building.

A work of art does not have to deal solely with the magnificent and the great. The sculptor Mu-

nier creates a finer work of art out of the simple iron moulders than ever could be done with kings. Rodin took the lowest type of man with only dawning intelligence to make his famous "Thinker."

Let us conceive and handle our problems with the same sincerity and simplicity, the same sense of fitting purpose and functional expression, the same feeling for beauty of arrangement and practical service.

There will then be much less camouflage on all our buildings, and no building, however simple its purpose, or lowly its function, will be too unimportant to require and to benefit by the improving hand of the architect.

Influence of Surroundings on Efficiency

By HERBERT LUCAS, *Architect*

WE all remember a play by Mr. Augustus Thomas, written some years ago, in which he showed in a very interesting way the influence that color and surroundings have on one's mental outlook, and, in consequence, on one's physical condition. I was strongly reminded of it in calling upon a client in his office on Wall Street not long ago—an office into which he had just moved.

Upon my remarking what a big, cheerful, sunny suite it was, and what an improvement on his old offices, he said, "Yes, this is a new investment I have made, and a very profitable one, too. You see, I got thinking that I spend about half of my waking hours in my office, so why not have it as sunny and attractive as possible? I find that since moving up here my mental attitude toward my business is entirely different. The surroundings and outlook over the bay act as a stimulant, not only to me but to all in the office, so that the additional rental outlay is entirely justified by the increased efficiency."

Here is the idea that is slowly creeping into business life, and more slowly into the mind of the manufacturer—that is, the increased efficiency that is possible with proper surroundings, not only in the home but in the factory.

By proper surroundings I mean proper light—sunlight where possible—cleanliness, a simple color scheme on walls and ceilings, light and clean toilet facilities, and buildings designed and placed with proper regard for their use and appearance, as well as careful treatment of the grounds surrounding them.

The head of the immense industry that established "Port Sunlight" in England says that an expense of $150,000 per year, which he computes as the amount that his company pays to maintain such conditions, is absolutely justified, as his business shows in all its branches increased efficiency—improved health—and contentment; and he finds that such conditions foster a pride and an *esprit de corps* that are of immense value.

To come nearer home, contrast the plant of the Doubleday-Page Company on Long Island with the average manufacturing plant. Is it any wonder that such a broad-minded policy has been found to justify itself on the right side of the ledger, and, not only that, but to advertise itself all over the world by these very qualities?

Why cannot the same qualities be introduced in all progressive manufacturing plants?

Take for instance the thousands of people employed in factories in New York. Do the directors realize that by providing such improved conditions they could change the whole attitude of their employees toward "their job"? Do they doubt but that it would have its influence in preventing unrest and strikes and all kinds of labor troubles?

The truth of this argument is being demonstrated in many places throughout the country, sometimes in conjunction with a housing community and sometimes not. Wherever it has been tried the result is the same—increased efficiency and fewer labor troubles.

It has been found that on free days at the Metropolitan Museum by far the largest attendance is by foreigners among the artisan and working classes, showing that there is something that they formerly had in their own country which they are seeking here. Can it, therefore, be doubted that people with such instincts would respond to such incentive?—that the result would be shown in better work, a better morale, and better citizenship?

If the idea is good for the rich man on Wall Street, it is equally good for the men and women working in factories. Indeed, it should be of much more benefit, as the contrast between their homes and their working place would be more pronounced.

If, in laying out a manufacturing plant, the directing mind would realize that, in addition to an engineer, he needs also a competent architect and, in some cases, a landscape architect also, the result would show him that his slightly increased expenditure would be "bread cast upon the waters" in the return from his employees, his own pride in a fit-

ting environment, the increased respect of the community in which he is placed, and, most important of all, the contentment and increased efficiency of every one employed therein and the consequent lessening of labor troubles.

The Americanization of Our Industrial Aliens

Under the auspices of the Chamber of Commerce of the U. S. A., a movement has been started looking to the prompt Americanization of our alien industrial population. Many large industries have been induced to co-operate in assisting their alien employees to become American citizens. A large measure of good results has followed, and it is hoped that every manufacturer in this country will join in this work.

After a year's work for the education of foreign-born workmen, the Committee of National Defense states that:

First—in the plant: It saves time in giving orders and directions of work; it tends toward greater safety by teaching men to read signs and understand the work; it makes orders more explicit; it airs the dissatisfaction of the men; it satisfies the men and cuts down labor turnover.

Second—in the community: It brings together different nationalities and gives them common interests; it stimulates in them a civic pride, tending toward better sanitary conditions; it brings them closer to merchants and encourages a fair and intelligent trade; it shows foreigners something better than the segregated district in which they live.

Third—to the country: It is a defense measure: it is the greatest stimulus to naturalization; it shows men the best that we have and creates in them a greater attachment for our country; it Americanizes America.

Americanization has been successfully carried forward in many plants, a few of the more important are:

The General Fireproofing Company, Youngstown, Ohio, has issued a booklet entitled "A Permanent Job," which is being translated into foreign languages so that *all* workmen can understand plant policies and opportunities. A little card folder directing the attention of the men to the desirability of learning English is inserted in pay envelopes.

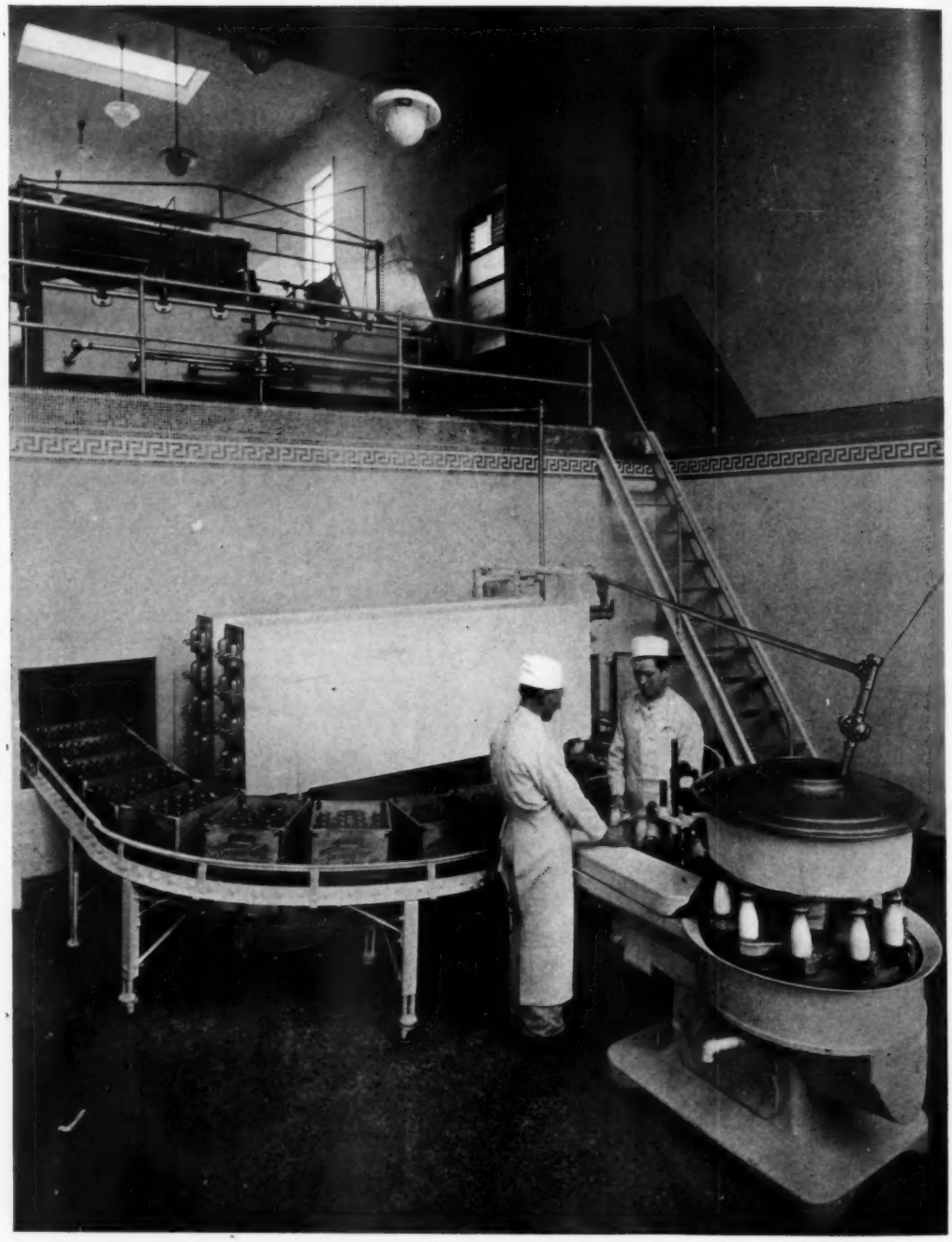
The Rome Brass & Copper Company, Rome, N. Y., has taken a plant survey to learn the number of men unnaturalized, those desiring citizenship, those wishing to learn English, etc. A Settlement House has been constructed as the recreational and social center of the employees and their families.

The Solvay Process Company, Syracuse, N. Y., sent an executive to inquire into the methods employed and results secured in industrial plants actively engaged in the work of Americanizing their alien employees, preparatory to the adoption of the most efficient methods in its own plant.

The Westinghouse Air Brake Company, Wilmerding, Pa., assisted 102 employees to become naturalized in one year. The Air Brake Welfare Club conducts classes in English and citizenship, and supervises generally instructive lectures and entertainments. The company also conducts a "Flower and Garden Contest" yearly for foreign-speaking employees only and through home visits assists families in cases of delinquency, sickness and dependency.

Yawman & Erbe Manufacturing Company, New York City, has taken a plant census of its foreign-born employees which included their names and addresses, nationality, length of residence in the United States, and naturalization status. Those who had not applied for first papers and who could not read or write English, were urged to attend night school. On one side of the card the census data is recorded while the reverse side contains the school attendance record.

Civic lesson leaflets are being distributed in pay envelopes to alien employees of the Pennsylvania Coal & Coke Company, Cresson, Pa.; W. H. McElwain Company, Boston, Mass., and the Scovill Manufacturing Company, Waterbury, Conn. The J. L. Candee Company of New Haven, Conn., is printing these lessons in its house organ.



INTERIOR VIEW, BUILDING FOR BROADWAY DAIRY CO., SEATTLE, WASH.
STEPHEN & STEPHEN, *ARCHITECTS*

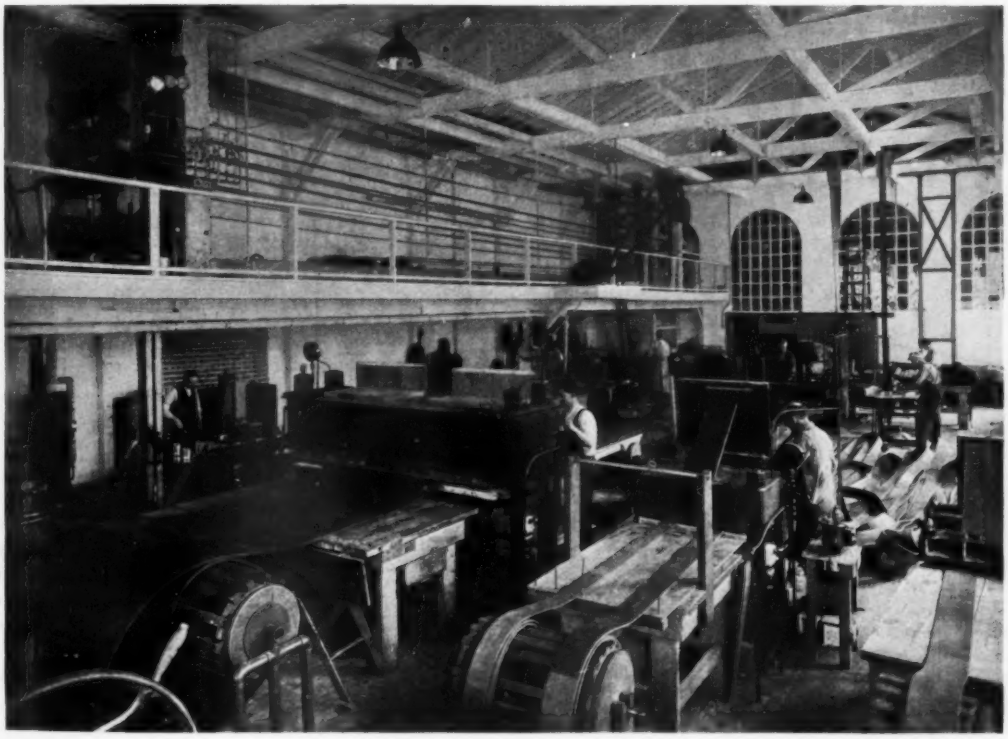
Routing the Product

WHEN the pyramids and the Temple were constructed we might say that man and beast were the prime movers and of about equal social standing. With the coming of the iron age and its attendant factors of steam, electricity and utilization of gravity, the initial burden has been largely removed from man. And as the burden has lifted from man his value has increased through development in craftsmanship and increased demand. The scarcity of labor and the desire to avoid the unreliability of the human element has developed the transportation of commodities through the factory by other means.

In manufacturing processes transportation travels in the horizontal and vertical directions and when this is accomplished by machinery it has its initiative in gravity or mechanical power.

Horizontal travel is accomplished by means of industrial narrow gauge tracks with switches, curves and turntables, the latter device generally being used owing to its allowing the change of direction in any angle without requiring extra floor area. These cars usually are moved by man power for ordinary tonnage, but where the tonnage is great and the distance considerable the movement is made by small steam or electric locomotives. The car is designed to meet the requirements of the particular product to be handled. Single rail overhead tracks are often used with compressed air or differential chain blocks to raise the load from the floor, the travel movement being made by hand-power or electric motors attached to the carriage or trolley. These overhead tracks also have their switches, curves and turntables.

Another means of transportation is the traveling crane, whose use is generally restricted to the moving of extremely heavy objects in foundries, machine shops, stone working shops and like places. These cranes can be operated by hand power for light loads, but are generally electrically operated. Such a crane consists of two girders with trucks on either end which travel in a longitudinal direction



INTERIOR—BUILDING FOR H. N. COOK BELTING CO., SAN FRANCISCO, CAL.
WARD & BLOHME, *ARCHITECTS*

on tracks supported by walls or columns. On these girders is a carriage which travels from end to end of the girders, transverse to the travel of the crane. On the carriage is installed the hoisting apparatus and this entire mechanism affords movement of the product in two directions horizontally and raises it above the floor. By these means every portion of a floor traversed by the crane is covered for the movement of materials.

Another means of horizontal transportation is the gravity carrier system. This device consists of cylindrical rollers whose ends are ball bearing and supported on steel frames. By giving the frame a slight inclination, the force of gravity causes the product to revolve the roller and the movement takes place. The angle of inclination depends largely on the friction developed in the bearings of the rollers and for long travels it is important to have the incline as small as possible. These carrier systems can be made in short lengths, resting on movable trestles, for use in different situations such as unloading freight cars, etc. In a factory, however, where the routing is permanent, the carrier is fixed in its position. They have switches and curves or the direction of travel can be changed by simply stopping one carrier in contact with one going in another direction, allowing the article to roll from one to the other. In these systems it sometimes happens that inclines are required to elevate the material from one level to another and in this case the elevating section has motor driven rollers or moving sections similar to the escalator.

The applications of these gravity carrier systems are infinite in number and there is scarcely a product that cannot be satisfactorily transported by them. It would be impossible to enumerate these uses within the confines of this article. The advantage in this system of transportation is the fact that gravity is the motive power which operates without cost and the flexibility of its installation. By purchasing standard units the device can be used in numberless locations and for many kinds of work.

Belt conveyors are often used, but are not as flexible in their application as the roller carriers and require some application of motive power to operate them.

Vertical transmission upwards is secured by several types of apparatus. One of the most common is the link-belt chain, which is operated by sprocket gears. To the chains are attached buckets, platforms or other receptacles to hold the articles during their movement. The gears receive their motive power from direct connected motors or belts. A very wide range of material can be handled in this way and the use of these elevators is quite common. They can be arranged to unload automatically onto a gravity carrier, thus accomplishing both vertical and horizontal movement, the only requirement being the loading and unloading at the origin and terminus of the travel. In some cases this also can be done by force of gravity or automatically, thus eliminating the human factor entirely.

Another means of vertical transportation is the elevator which is operated by steam, hydraulic power or electricity. These machines require the services of men to load and unload them and for the transportation of heavy or large articles are the only means available. The latest development in this type of transportation is the operatorless elevator, whose movement is controlled by push buttons, which automatically open and close the doors and also start and stop the machine at any desired floor level. Another, and very valuable feature, is a leveling device which automatically registers the platform absolutely with the floor under any and all conditions of loading. This latter feature is very important in saving the time ordinarily consumed in stopping a platform at approximately the right level, which is next to impossible under ordinary conditions.

The moving of the product vertically and downward is accomplished by gravity and the apparatus consists of inclined planes or chutes or of a spiral inclined plane built about a center pole. This device has inlets and outlets at each floor and with removable and adjustable parts the traffic can be diverted at any floor onto counters or to conveyors. The speed of travel depends on the inclination and the weight and friction surface of the article. This, like the gravity carrier, is the cheapest form of transportation, as the movement is actuated by gravity.

The use of electric driven trucks is becoming quite common and has many advantages, for they require less room in turning corners, as they have no tongue, which is required by the trucks pulled by hand. Having sufficient motive power, they can be coupled to trailers and a train can be moved at one time. They probably afford the most flexible and quick moving means of horizontal transportation adapted to factory or warehouse use. Their operation, however, involves the expense of motive power and men for operation.

This brief survey outlines the principal means of transportation with the exception of aerial transmission. This method is based on the use of steel cables, from which are suspended receptacles which hold the product. They can operate in one direction by gravity and the return has to be made by the use of power. The use of this type of apparatus is used to cover great distances or to cross topographical difficulties. As they are exposed to the weather they are used mostly for the moving of raw materials in bulk.

Some Essential Elements of Industrial Buildings

INDUSTRY conducted within buildings, considered in the phases of manufacturing and merchandising, embraces two elements: material and human. The material elements that affect the efficiency of the human being are heat, ventilation, light and sanitary conditions. Heat and ventilation may also affect a material during its course through the factory, thus serving a double purpose.

At this time it is generally agreed that the efficient operator is a quick asset and that proper working conditions are a profitable investment.

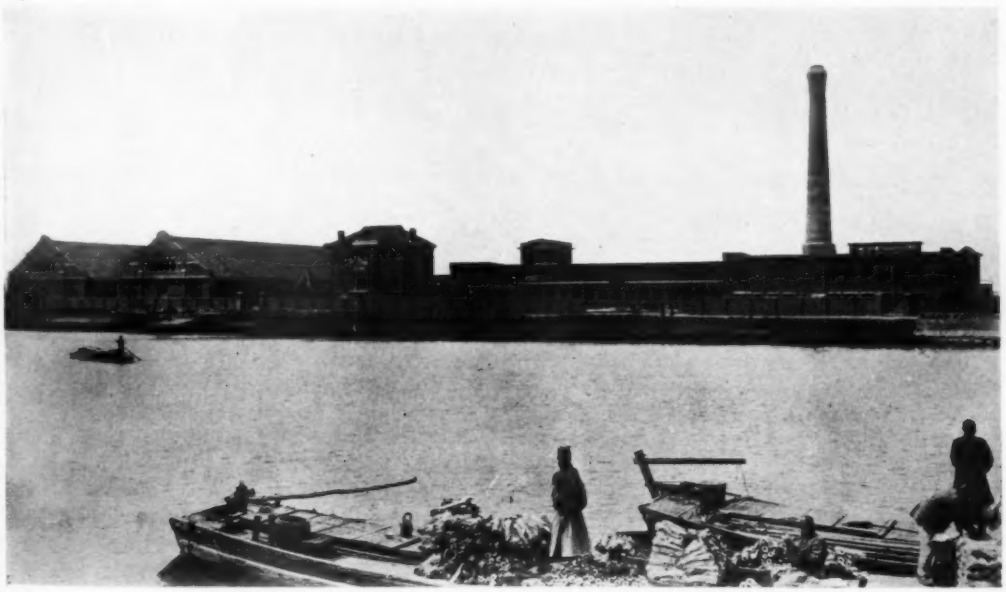
Heating is effected by a direct or indirect system. The direct system consists of heating coils or cast iron radiators placed as required, and the indirect system consists of a blower, steam coil and distributing ducts for the warm air.

Direct radiation produces heat of two kinds, radiant heat and heat of convection. Radiant heat is that kind which leaves a body by radiation and travels in a straight line until intercepted or absorbed by some other body. Radiant heat obeys the same laws as light, its amount varying inversely as the square of the distance. It passes through gases without affecting their temperature or being absorbed to any appreciable extent. The power of absorbing radiant heat is exactly the same as that of emitting it.

Heating by convection is secured by passing currents of air in direct contact with a heated surface. It is only by this rubbing contact that gases such as air can be heated. Direct radiation then develops these two kinds of heat. The blower or fan system heats by convection only.

Machine shops, locomotive shops and similar occupancies do not require much ventilation, as the number of operatives is small compared with the cubic contents of the room. Foundries and plating shops require ventilation to remove the smoke and gases arising from the work. In the case of shops fabricating metal or repairing machinery which is cold when brought into the shop, the use of direct radiation is desirable in order to heat the article and the tools the operative handles.

When it is necessary to condition the air to a fixed degree of heat and moisture content a blower or fan system is necessary. This condition obtains in cotton, worsted and silk mills, paper mills, tobacco factories, bakeries, malt houses and like



YU YUEN TEXTILE CO., TIENTSIN, CHINA
LOCKWOOD, GREEN & CO., *ARCHITECTS AND ENGINEERS*
A 25,000 spindle mill, built by Chinese capital, spinning Chinese cotton with American machinery

places. When the reverse condition is required by supplying warm dry air to print shops, candy and macaroni factories, film drying plants, etc., the same system of heating is used. Where a positive and fixed amount of ventilation is required, as in garment factories where the cubic contents per person is quite small, this same system is necessary.

Remembering that radiant and convected heat are essentially of the same nature, in one case it is received by the person directly from the source of heat and at a high temperature and in the other case it is received from the air and at a low temperature, one is able to select the kind of a heating system suitable for the needs. Neither system is universal in its application, but both from the aspect of economy in steam cost and complete and immediate circulation of steam in the apparatus should be equipped with air removal or vacuum heating devices.

A blind man and a dark shop are equally useless from an industrial viewpoint. Light is necessary to efficient work and to safeguard the employee. The importance of light is recognized in some states which fix, by legislative enactments, the minimum intensity of illumination in factories. The intensity of illumination can be accurately measured by a simple and inexpensive apparatus and a working knowledge of this feature of building construction is necessary for the designer of industrial buildings.

Light is of two kinds: natural and artificial. The proper distribution of daylight is accomplished by means of windows and skylights. Where light is only available by way of windows in the side walls a flat ceiling is desirable as offering no obstruction to light and avoiding shadows on the ceiling. The glass area required can be computed on a basis of ideal conditions, to which increments of area must be made for exterior conditions such as the interference of nearby buildings and other factors. On the same basis the skylight areas are estimated. These methods will be explained in detail in THE AMERICAN ARCHITECT in a series of articles pertaining to this subject.

FORGE SHOP, HUBBARD & CO., PITTSBURGH, PA.
BERNARD H. PRACK, *ARCHITECT*

The modern factory window is made of solid steel bars of sections varying with the maker's designs. This type of window has now been developed to a point of complete efficiency in structural strength, minimum obstruction to light, distribution of movable or ventilating sections and weatherproof qualities. Owing to their strength and the ease with which very large areas can be reinforced without sacrificing glass area this type of window is supplanting the use of wooden windows. As compared with wooden windows they

are permanent and not affected in their operation by changes in temperature. Another very important feature of this type of window or skylight is the ability to operate a large number of openings by devices of different kinds and this is accomplished easily and effectively.

Until recently factories have been lighted by open flame gas jets, carbon incandescent lamps and arc lights, but they do not find themselves a part of modern methods of illumination. Remarkable improvements have been made in both the gas and electric lighting fields, and the same general rules for using these mediums apply to both. Lighting service is available now that was considered to be impossible until recently. These improvements are in the lamps themselves and all increasing the intensity of illumination. Artificial illumination can be measured accurately and its service is constant in quantity, not dependent on a clear sky for its intensity. For this reason designing for artificial lighting is not so difficult as designing for daylighting.

In general, artificial lighting units are placed overhead or for specific illumination by individual lamps placed close to the work. Sometimes both methods are necessary. The overhead lamp should be placed as high as possible and out of the range of the eye. With lamps of sufficient capacity and reflectors of the right shape an even diffusion of illumination and of a pre-determined intensity can be secured. All light should be reflected downward in this class of buildings, and the necessity for white ceilings has its importance in daylighting. The size and shape of the lamp is of importance owing to its relation to fixed or movable parts of the equipment, such as traveling cranes. For this reason the architect must be quite familiar with the various kinds, shapes and effectiveness of lamps.

In order to design light distribution intelligently

INTERIOR OF SHELL SHOP, WESTINGHOUSE ELECTRIC MFG. CO., PITTSBURGH, PA.
BERNARD H. PRACK, *ARCHITECT*

the character of the work and the kind of machinery used must be indicated on the plan and the required intensity of illumination decided on; with this data the result of the design should be satisfactory. The absence of lamps of the proper size is inexcusable in the modern shop.

The sanitary equipment of industrial buildings has received the same consideration that has been given to the other elements discussed, although this is probably due in part to State regulation, and the improvement has been quite notable.

The water closet, urinal, lavatory, shower bath and drinking fountain are essential to a satisfactory installation, and we here present the important features of each unit.

In buildings of this type the individual water closet is found to be the only satisfactory way to handle this feature and the latrine is no longer used. This fixture embraces the bowl, seat and flushing apparatus. The bowl should always be of the syphon jet type with a high water line of large area so as to reduce the fouling surface of the bowl to a minimum. The syphon action must be positive and of sufficient force to always empty the bowl. The discharge or waste portion should be of such capacity that the bowl will not become clogged. The bowl should be sufficiently heavy and extra strong to resist rough usage. For men a deep extended lip, containing a water area, should be provided and for women the raised flushing lip is recognized as a necessity. Of course a flushing rim is essential. The crescent type of seat is preferable and it presents construction difficulties that require careful consideration before the selection is made. These difficulties have been overcome by some manufacturers of wooden seats and by the making of composition seats. Automatic flushing mechanism is preferable, as it insures the positive clearing of the bowl of its contents. Hand operated flushing apparatus is suitable for some classes of users but the automatic is, on the whole, preferable. This flushing apparatus should be simple in design and very substantially constructed in order to resist the wear of constant usage. Stalls, with or without doors, are desirable and should be of slate, marble or metal so as not to be easily disfigured by cutting.

The urinal is equally as important from a sanitary standpoint and the tendency is toward the one-piece earthenware fixture which includes the back, sides and bottom at the floor level. These units should be set about six inches apart to permit cleaning between them. A yellow glazed earthenware fixture is obtainable and at a very reasonable cost. The bowl attached to a back with stall sides has the disadvantage that a floor drain is absolutely necessary, and the trap of this drain will become empty and permit the entrance of sewer gas into the room. The fixture recommended should be automatically flushed where this is permitted by those who control the use of water, otherwise a hand operated flushing service should be provided for each unit. The floor in front of these fixtures should drain to them with a decided pitch.

Lavatories are of two kinds: individual bowls or troughs accommodating several persons. They are arranged in batteries, double or single rows as desired. Self-closing faucets are not satisfactory, and the preference is for a lever-handle, quick-opening fixture. The use of this type of faucet insures the user the privilege of using running water, which is a sanitary necessity in lavatories used by a large number of persons. The gooseneck spray is almost a necessity in shops such as foundries or other places where dust is a result of the work, as it permits washing the hair. The individual bowl is preferable for women. The selection of the faucet is a matter of importance in this fixture.

The shower bath is a part of many installations, and the tendency is to use a fixture with an adjustable spray. With this fixture the water can be sprayed on the head or deflected so as to strike the level of the shoulders or otherwise. This feature makes it usable both by men and women. A one-operation, quick-opening valve is desirable. This valve should open the cold water service first and completely, then admitting the flow of hot water to the desired temperature. By the use of such a fixture it is impossible to scald the user. This valve should be well constructed and simple in design. The stalls are generally of slate or metal, with either short doors or curtains. The floor of each stall should be free from the waste water of the adjoining stall and have its individual floor drain. As a safety measure, the stalls and a portion of the floor in front of them should have a non-slip surface.

Plants having a hospital and the office portions require a different class of fixtures in some respects, which will not be discussed here. The lockers should be of metal and these are standard in their design and construction. There is, however, a necessity for thorough ventilation for the locker rooms.

The floors of toilet rooms should have a non-absorbing surface and vitreous tile or plastic composition is used largely for this purpose.

Sprague Electric Works, Bloomfield, N. J.

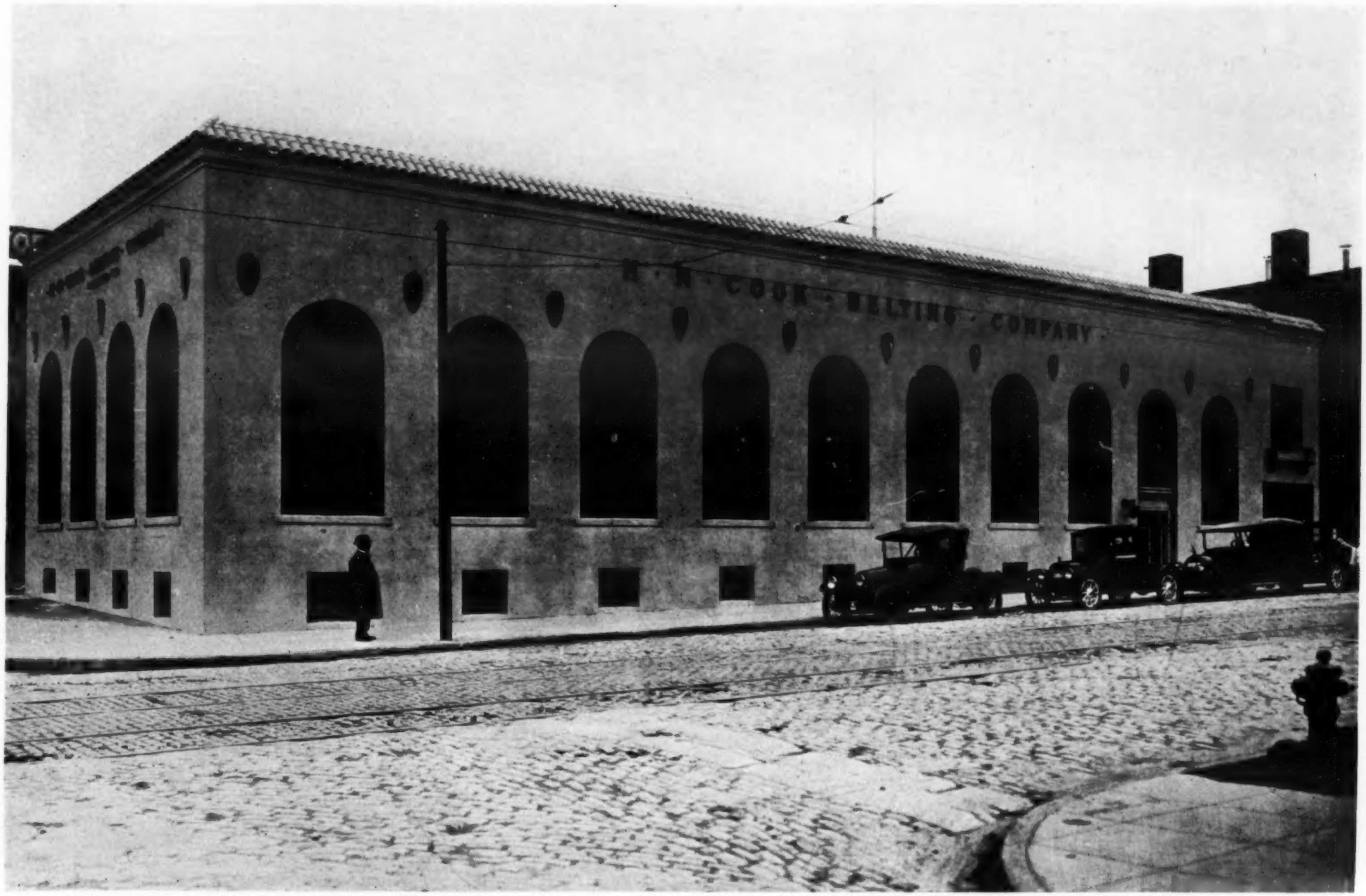
C. G. Hulth and Harris & Richards, *Associated Architects*

THIS plant is six stories in height, the roof of which is designed to be a future seventh floor and to be used for office purposes; it is designed for a live load of 100 lb. per square foot. The second and third floors are designed for a 250 lb. load and the fourth, fifth and sixth for a 200 lb. load. The main building is 75 x 550 ft., with a wing 75 x 175 ft., containing two service towers 40 x 40 ft. and 50 x 60 ft. in size. The construction is of the flat slab reinforced concrete type, with all the bays 25 x 25 ft. in size; the exterior is faced with brick; the windows of metal counterbalance type, glazed with clear glass in lower portion and with ribbed glass above. There are five fireproof stairways, four of which are smokeproof. Provision is made for five elevators and the installation consists of one passenger and two freight elevators, the latter having the new device known as microdrive apparatus which registers the car exactly at the floor level regardless of faulty stopping by the operator.

The interior of the building has its ceilings painted flat white to diffuse the light; columns and walls light cream, to prevent harmful reflection, and a 5 ft. 6 in. high dado of a gloss green. The artificial lighting consists of four lights in each bay, which affords an equal distribution of illumination. The heating plant is of the direct radiation type, using cast iron radiation and operated with a vacuum system of circulation.

The building was planned by Mr. C. G. Hulth of the company, associated with Harris & Richards, architects. Mr. A. Vogel, of the company, had charge of construction.

BUILDING FOR SPRAGUE ELECTRIC WORKS, BLOOMFIELD, N. J.
C. G. HULTH AND HARRIS & RICHARDS, *ASSOCIATED ARCHITECTS*



BUILDING FOR H. N. COOK BELTING CO., SAN FRANCISCO, CAL.
WARD & BLOHME, *ARCHITECTS*

(For description see page 253)

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Our Need for Buildings

WHAT is ahead in the field of industrial building? While some of the country's leading financial lights are working at high tension to check the building activity which they blithely characterize as "unnecessary" and "wasteful," England is going forward with a great volume of building, despite the fact that the war, from Britain's viewpoint, is not "three thousand miles away."

Little errors of understanding are apt to grow into serious mistakes if allowed to go unchecked. This has happened in the case of a number of American economists who have pointed to certain "facts" relating to building in England as indications of the course the American people should pursue. In most of these cases the facts have been greatly exaggerated, but the exaggeration has been accepted without controversy.

Statistics are annoying to many people, particularly to the man who is trying to prove something that is not so. Perhaps the statistics of English building which follow, though drawn from so modest a source as the *Statist* of London, may serve a useful purpose by illuminating some of the arguments advanced by these proponents of building stagnation.

The value of factories and workshops constructed during the first half of 1917 was $9,570,000. For the corresponding period of 1913 construction of the same class had a total value of $8,170,000. For the entire year 1916, construction of factories and workshops showed a total value of $16,830,000, as against $14,100,000 for the year 1913.

These figures speak for themselves. And they do not take into account the additional millions of dollars expended during 1917 in similar construction in the United States due to this country's effort to supply England with war materials that England could not produce for her own use.

It is true, of course, that construction of dwelling houses, churches, schools, etc., has decreased almost to nothing in England. But, as THE AMERICAN ARCHITECT has pointed out, construction of such buildings had to stop because everything that involved the importation of any class of unnecessary goods had to stop. Cargo space has been too greatly needed for foods and munitions.

The point that Mr. Frank Vanderlip and some other patriotic and enthusiastic Americans are overlooking is this: The business of war, in some respects at least, is more exacting than the business of peace. Industries must be housed before they can produce war materials; workmen must be housed, or they will not work. Railroads must be supplemented with adequate warehousing facilities or they become choked, and fail, as they have recently. And assuming that the war may last three years, the building trades and industries of the United States, working at top speed, could not in that time complete all of the work that is really needed to provide actual facilities for the conduct of the war and for the maintenance of the great business machine, as essential as bullets to the victory of American arms.

It is natural that many people misunderstand the term "war industries." Who would regard a proposed candy factory as a war industry? Certainly no one who was as ignorant of the processes of making war as some of our leading citizens seem to be; but any of them might understand if some one were to explain that candy factory's actual purpose—the making of chocolate and cocoa for consumption by American soldiers in France.

A factory to turn out lamp chimneys; another to make dry batteries; another to produce watch cases, and a thousand others of equally remote-from-war character, could be waived aside readily enough; but oil lamps are used in the dugouts; dry cells are essential in the operation of telephones, signaling apparatus, automobiles, and many other instruments of war; and as for watches, the American army will put a million out of commission in one season.

England's statistics afford but a hint of what must come in the United States. The chain is endless. The American farmer, to feed the world, must have more and better machinery, more buildings for the storage and handling of his products. The manufacturers of farm machinery must have larger plants to build more machinery to help us feed more people. The handling of greater grain crops will call for more elevators, more railroad cars, more milling plants. The storage of the resulting food products will necessitate greater warehousing capacity—and so on indefinitely.

In times like these the use of railroad cars for the storage of goods is almost a crime. But to-day it is a crime that is literally forced upon the business men of the country because there is no warehouse space obtainable from one end of the Atlantic seaboard to the other. Is it wasteful to build warehouses that will permit of the unloading of a hundred thousand or so of cars which are now idle along the East coast because there is no place to put the merchandise they contain?

As a matter of fact, the country never before stood in such crying need of building on a great scale as to-day. True, it is building of certain restricted types, but it is building that ought to be done—building that ought to be done *now*.

It is building that should be done under the supervision of American architects. They, on the whole, are qualified to handle the task. Who else is?

How much more time are we going to waste before we set about formulating a definite plan for handling this huge problem?

The Architect and the Industrial Plant

A STUDY of the record of the construction of the majority of the buildings illustrated in this issue emphasizes the fact that architects are as capable of executing a project, complete in every detail and in record time, as are those contracting organizations which also assume the functions of the architect. In fact an architectural organization can far excel such a contracting organization for the reason that it has had a more diversified experience in design and has a wider range of choice in the selection of the contracting factor. Added to this is the elimination of the element of profit which must of necessity influence the contractor. The architect's financial interest is limited, thus enabling him to assume an unbiased position as between the owner and the contractor.

In some cases, however, the architect has been known to cater unduly to the financial interest of the owner, and such a course, if persisted in, is always disastrous to the architect. The influence of the contractor is often too little appreciated, and it is, in the hands of a strong organization, an element of great strength. But when the architect assumes a course of exact justice toward all of the interested parties his position is unassailable and commands the respect of all.

The qualifications which enable the architect to successfully execute such commissions are easily recognized. The primary factor, of course, is a thorough knowledge of construction and the characteristics of the materials employed. By a close contact with the sources of supply the availability and cost of materials is a matter of definite knowledge. Also a knowledge of the process of manufacturing which is to be housed in the structures is essential to an intelligent solution of the problem. All of these things require constant and earnest application on the part of the directing force in the architect's organization. A democratic personality which compels the friendly interest of all interested parties is essential and far outweighs the influence of the financial benefits that are to be dispensed.

The unit price contracts enable the contractor to purchase and secure the delivery of materials in part, place his equipment and thoroughly organize the job pending the preparation of plans, and, as described in connection with a project specifically referred to, permit the construction to keep pace with the production of the plans.

By limiting the selection of contractors to those known to be capable of rendering the particular service desired and having the faculty of working in harmony with the other interests, the work proceeds without interruption, except that due to the elements. In the person of the architect must be combined the executive ability of a commander and the judicial character of a mediator.

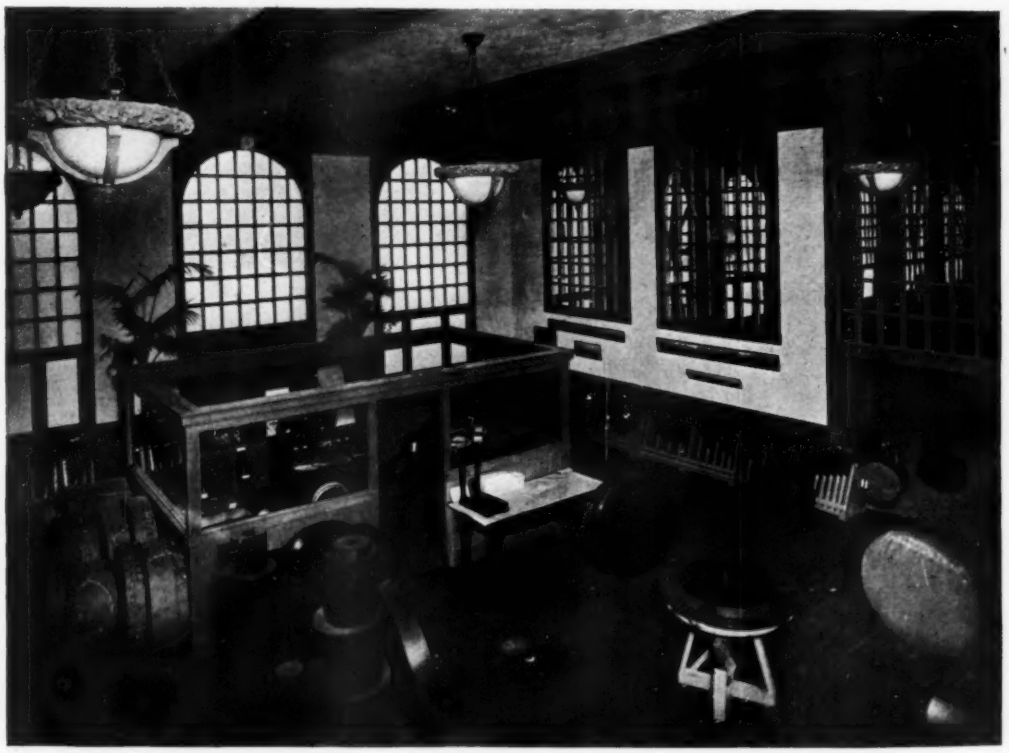
It is often asserted that great speed of construction is obtained at the expense of economy in cost and that the unit price contract contributes to this loss, and also it is claimed that these conditions entail a loss in architectural design. The first two contentions are true, measured in terms of money expended; speed always costs money, and by the same token extreme slowness and delays are expensive, as every contractor knows. A much closer estimate of unit costs can be made from a finished plan, as the unit prices thus obtained are the result of a complete and detailed estimate. But it is generally the case in high-speed constructions that profits accruing to an early occupancy are of more value than the added cost, and in this event a true economy is effected. It does not follow that there is a loss of merit in architectural design. In the construction of industrial buildings the first requirement is utility, and this necessarily fixes the main

structural features, as well as the disposition of the exterior openings and wall surfaces. It follows then that so-called architectural treatment is simply a superficial application to a predetermined disposition of mass, walls and openings. This can be accomplished under pressure of speed conditions very successfully because the whole scheme must be one of extreme simplicity based on the proper proportioning of the decorative features in connection with color effects. Scarcely any other factors can be utilized. It is simplicity of design in buildings of this class that makes them possess charm and beauty.

There are many architects who possess these qualifications, and their methods and successes may well be studied by all that are interested in the construction of industrial plants, and especially at this time. The same principles of organization are applicable and as essential to the satisfactory execution of any project of whatever kind, modified to suit the particular conditions appertaining to each undertaking.

WRIGLEY BUILDING, TORONTO, ONTARIO, CANADA
BERNARD H. PRACK, *ARCHITECT*

FLOOR PLANS



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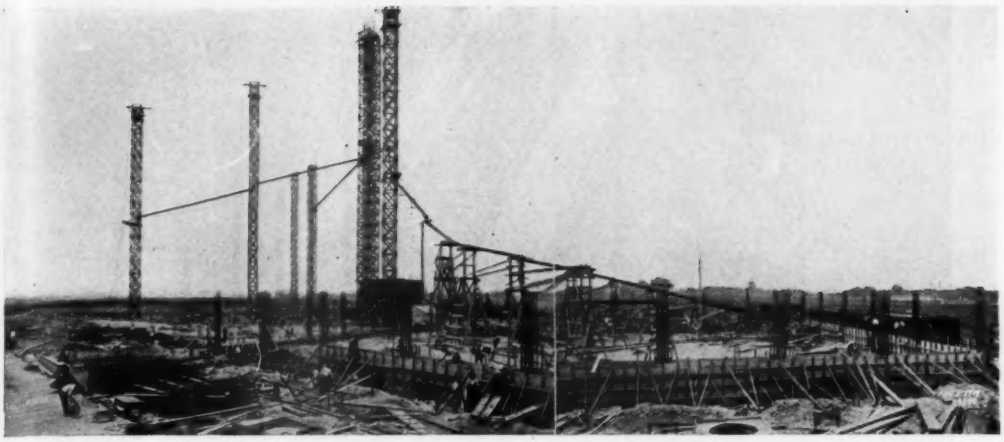


PROGRESS PHOTOGRAPH, AUGUST 3, 1917

Manufacturing Plant of the Continental Can Company, Inc., Clearing, Ill.

DAVIDSON & WEISS, *Architects*

ONE of the most important industrial building projects completed during the past year in the Chicago district is the plant of the Continental Can Company, Inc., having a daily capacity of 2,000,000 cans. These buildings are located in the Clearing District, a rapidly growing manufacturing center adjoining that city. The property has a frontage of 900 ft. on the south side of West Sixty-fifth Street, with a depth of 960 ft.

Several features embraced in the execution of this project are worthy of special consideration. The buildings are most excellently designed and constructed for this specific purpose, but the methods used in producing the plans and awarding the contracts are worthy of study.

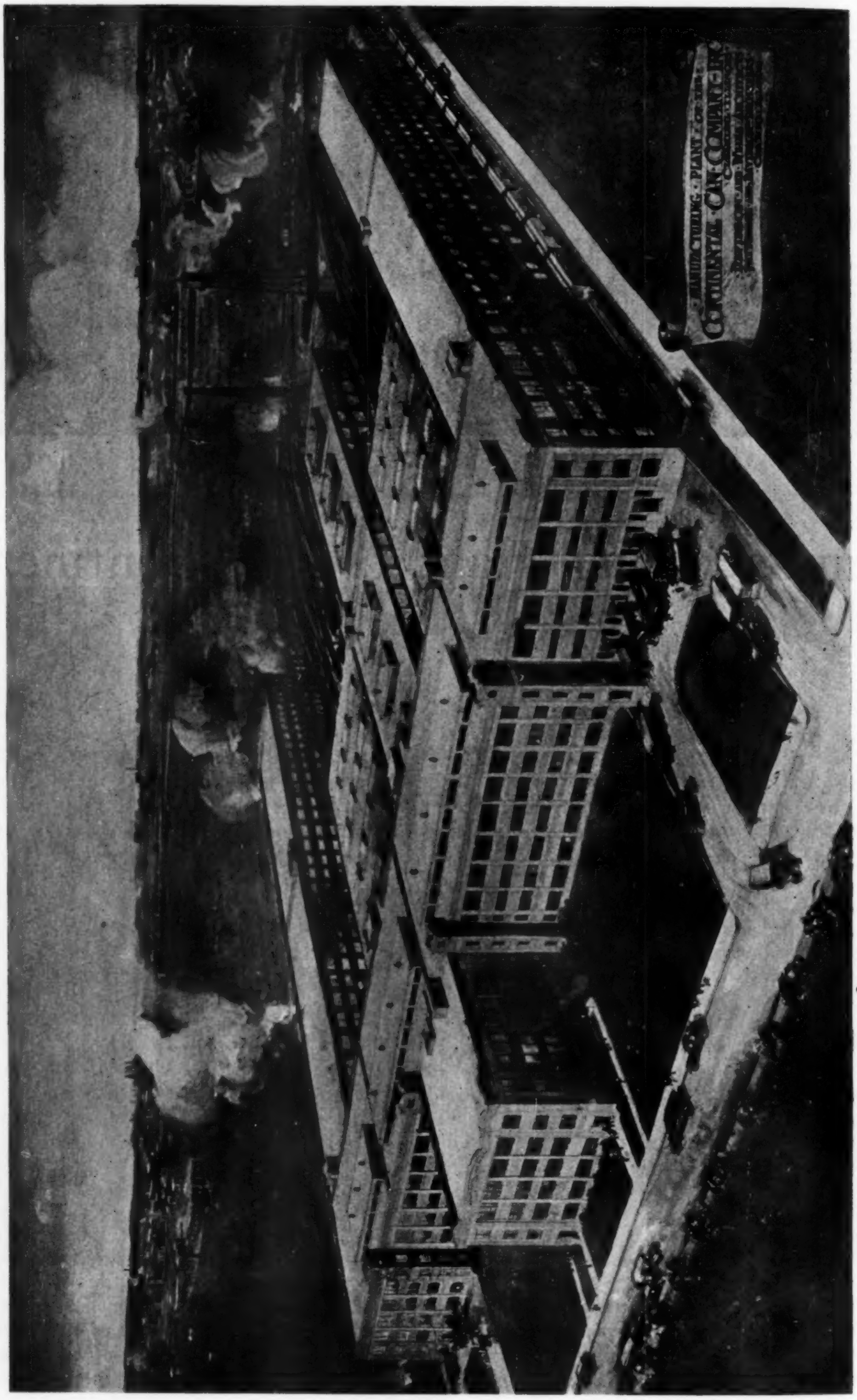
The plant now built consists of six units covering a ground area of 202,860 sq. ft. The buildings constructed have a street frontage of 440 ft. and are placed 120 ft. from the lot line, except the administration building, which is 20 ft. from the lot line.

Of the units constructed, A is the administration building, with a frontage of 120 ft. and a depth of 100 ft., four-story reinforced concrete construction, having a total floor area of 48,000 sq. ft. This unit contains the general administrative offices, the dining rooms, locker rooms, wash rooms and hospital for the entire plant, as well as toilets, although the other units have individual toilet facilities.

Unit B has a frontage of 440 ft., with depths of 120 and 140 ft.; a ground area of 57,600 sq. ft. It is a four-story reinforced concrete building with total floor area of 230,400 sq. ft. On the fourth floor of this unit the cans are formed and the center portion is lighted by a monitor section as shown by the illustrations. The balance of this unit is used for storage purposes.

Unit C is 80 ft. x 240 ft., 4-story mill construction, with total floor area of 76,800 sq. ft., and is used for storage purposes.

Unit D is a train shed with twelve tracks, each of which has a capacity of eight cars. Ten of these tracks are for shipping the manufactured product and are numbered 3 to 12 inclusive. For car lot shipments the cans are delivered by a gravity apparatus along the concrete platforms to the car which is being loaded. The tracks 1, 2, 13 and 14 are receiving tracks, and the incoming freight, which consists mainly of sheet tin, is transported from the cars to the stock rooms by electric motor-driven trucks. The reinforced concrete platforms are 12 ft. 6 in. wide and 306 ft. long, with 24 ft. 6 in. space between for two tracks and 11 ft. space between for single tracks. At the head of this train shed is a concourse platform 15 ft. wide. In the center of the shipping platforms is a row of steel columns 20 ft. on centers supporting steel lattice trusses of 37 ft. span. On these trusses rest the wood roof pur-

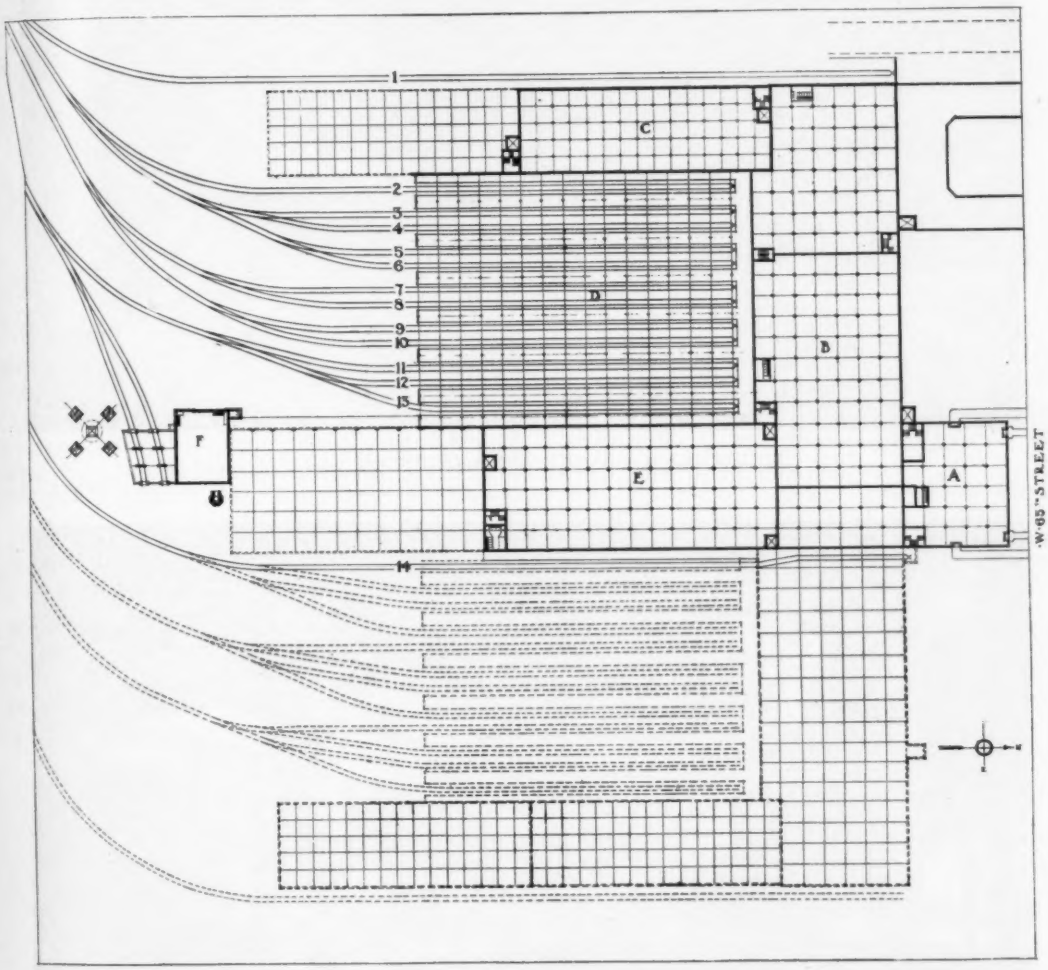


lins supporting the roof boarding. The lower chord of the trusses carries the channel iron beams which support the gravity shipping apparatus. This entire section is well lighted by skylights in which are placed ventilators. This unit is 240 ft. wide and 320 ft. long, with an area of 76,800 sq. ft.

Unit E is 120 ft. wide and 280 ft. long, two-story reinforced concrete, with total floor area of 67,200 sq. ft. The first floor of this building is used for lumber storage and carpenter shop, where the crates for small shipments are made. The second floor contains the presses where the ends of covers of the cans are made.

Unit F is the powerhouse, 70 ft. 6 in. x 52 ft. in size, with a ground area of 3660 sq. ft. Immediately adjoining the powerhouse is a reinforced concrete coal storage bunker of 300 tons capacity, in the rear of which is the tower supporting the 60,000-gallon sprinkler system tank.

The buildings now constructed have a floor area of 502,860 sq. ft., and the proposed future extensions will cover a ground area of 177,600 sq. ft. with twelve railroad tracks.

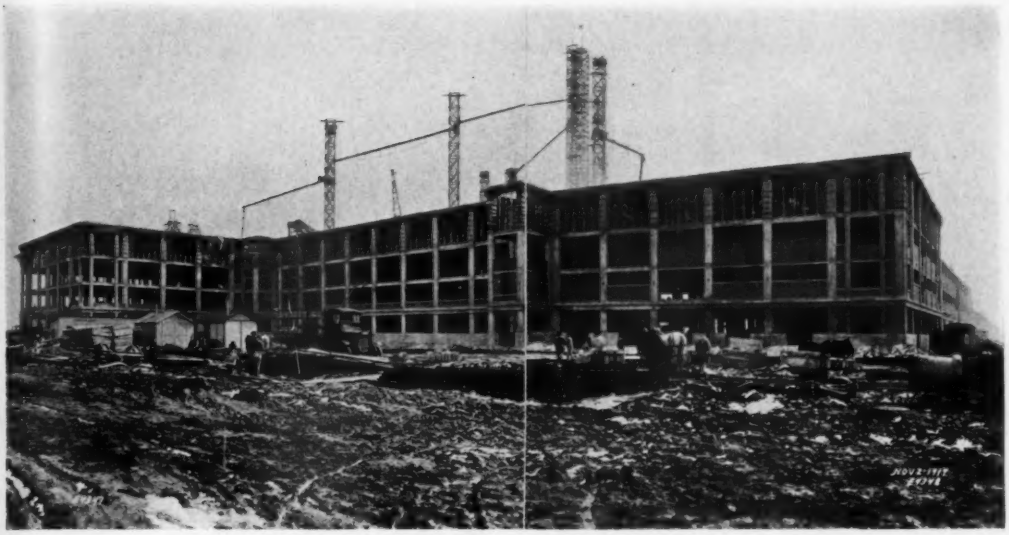


GROUND PLAN, CONTINENTAL CAN CO.
DAVIDSON & WEISS, *ARCHITECTS*

The reinforced concrete buildings are designed for the standard four-way flat-slag construction and for the various loads as required. Provision is made for the construction of additional buildings by leaving a seat for the future slab. The reinforcing bars project and are bent into hook form into which the future slab bars will engage. The panels

REINFORCED CONCRETE WAREHOUSE, UNIT B

REINFORCED CONCRETE FACTORY SPACE, UNIT B



PROGRESS PHOTOGRAPH, NOVEMBER 2, 1917

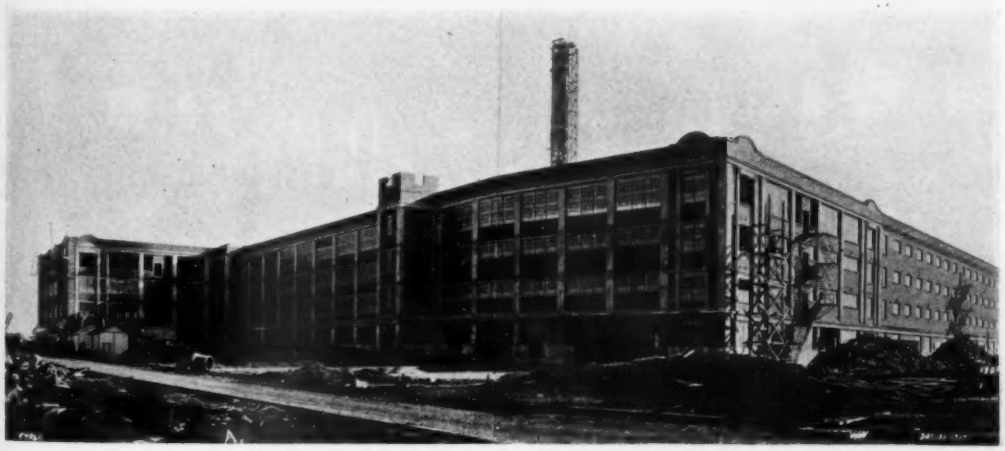
are uniformly 20 ft. x 20 ft. in size in this class of construction.

The mill construction building is of the standard type as used in the Central States, with panels 16 ft. x 16 ft., the lumber throughout being Southern pine and Douglas fir, with wearing floors of maple.

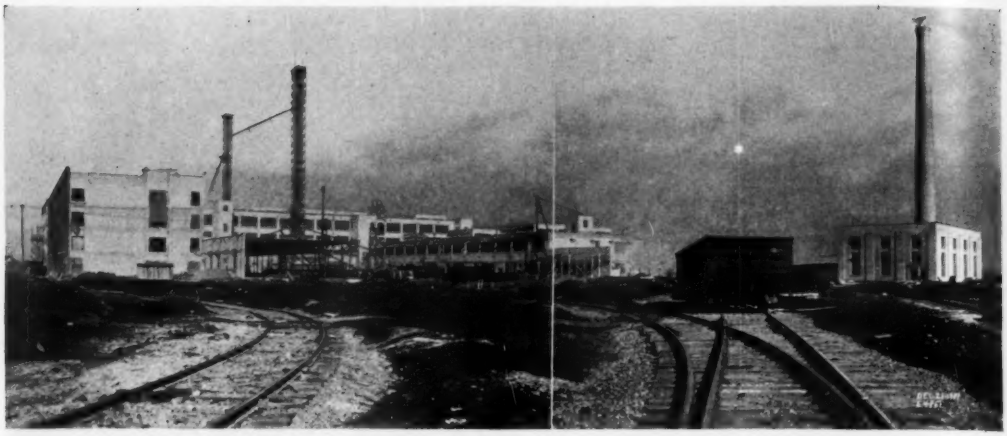
The entire plant is equipped with automatic sprinklers, wet system, except the train shed unit D, which, of course, is a dry system. The plant is heated with a direct radiation steam plant. The steam mains and returns and other utilities are carried from the powerhouse to the buildings in a reinforced concrete tunnel adjoining track 13 on the east.

In deciding on the type of construction it was found that a reinforced concrete building would cost complete but 7 per cent more than standard mill construction and the concrete type was used for the bulk of the work.

The quick execution of this undertaking was made possible by the executive ability of the architect in producing the plans and securing a perfect co-ordination of the many interests involved. The land was transferred on June 22, 1917, and on that day the architect received orders to proceed with the work and the plans were started. Actual construction work was under way within one week after the plans were started.



PROGRESS PHOTOGRAPH, DECEMBER 21, 1917



PROGRESS PHOTOGRAPH, DECEMBER 21, 1917

The work was not let to a general contractor, separate contracts being awarded for each classification of work and forty-seven separate contracts were let. The contracts were of two kinds, one class being based on unit prices and another being for a definite sum. The unit price contracts were for the mason work, including all excavation, filling and grading, all plain and reinforced concrete and brickwork. The miscellaneous carpenter work, including finished flooring, heavy framing and floors, roof construction, doors, windows and trim were of wood. Other unit price contracts were for struc-

MILL CONSTRUCTION WAREHOUSE, UNIT C

tural steel and miscellaneous iron, sheet metal column casings, heating system, fire and metal doors and shutters, steel sash and glazing.

The fixed sum contracts included those for electric elevators, gravity tank, automatic sprinkler system, asphalt pavements, fire escapes, plumbing, drainage and gas-fitting, water tube boilers, radial brick chimney, sheet metal, lightning rod, painting, roofing and plastering.

The plant was built from blueprints of pencil tracings made as the drawings were developed. This required a considerable amount of overtime work in the drafting-room in order to keep ahead of the contractors. This procedure was possible, as the work was not under the local jurisdiction of any building department requiring permits, and was only amenable to a few regulations of the State Factory Inspection Department. The buildings, excepting only the powerhouse, were under roof before the working drawings were entirely completed.

Notwithstanding the scarcity of steel, the reinforced concrete sections were completed some weeks ago in advance of the mill construction section, owing quite largely to the inability of the timber producers to procure cars for the transportation of the material.

The time of construction was confined practically to five months, as the owners were able to begin the installation of machinery and equipment December 1.

The plant of the Continental Can Company, Inc., was designed by and erected under the supervision of Davidson & Weiss, Architects, Chicago.

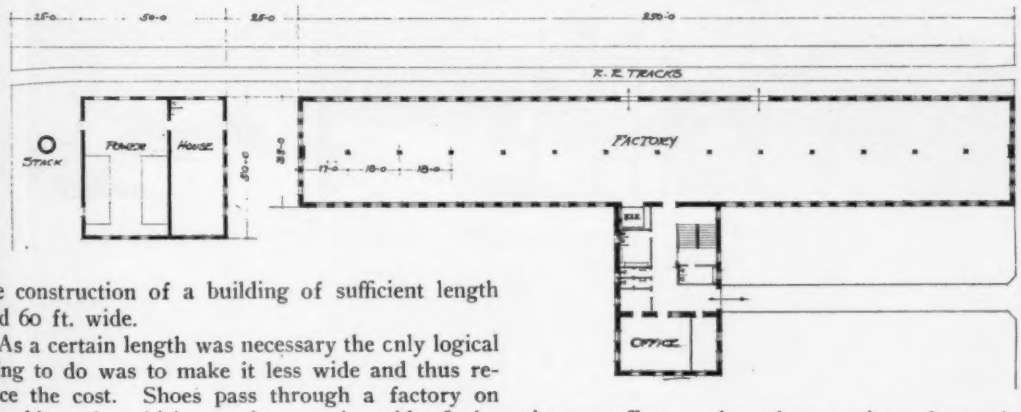
Shoe Factory at Litchfield, Illinois

A. B. GROVES, *Architect*

THE capacity of a factory is measured by the number of the operatives it will house. In the St. Louis district, shoe factories are built 60 ft. wide with two rows of posts. As the machinery and operatives occupy one-half of the width of the outside bays, the number of the operatives is fixed by the total length of the outside walls. In this case the available funds would not permit of the construction of a building of sufficient length and 60 ft. wide.

As a certain length was necessary the only logical thing to do was to make it less wide and thus reduce the cost. Shoes pass through a factory on movable racks which are about 12 in. wide, 60 in. long and 72 in. high, on rollers and with shelves on which the shoes are placed. A study of the existing shops showed that two of the three bays were filled with empty and loaded racks and the area of one bay was occupied with machinery and racks in transit. It was then decided to build a factory 39 ft. wide and change the routine of the work in, through and out of the factory to conform to this plan. The result is a cleaner looking and more efficient factory.

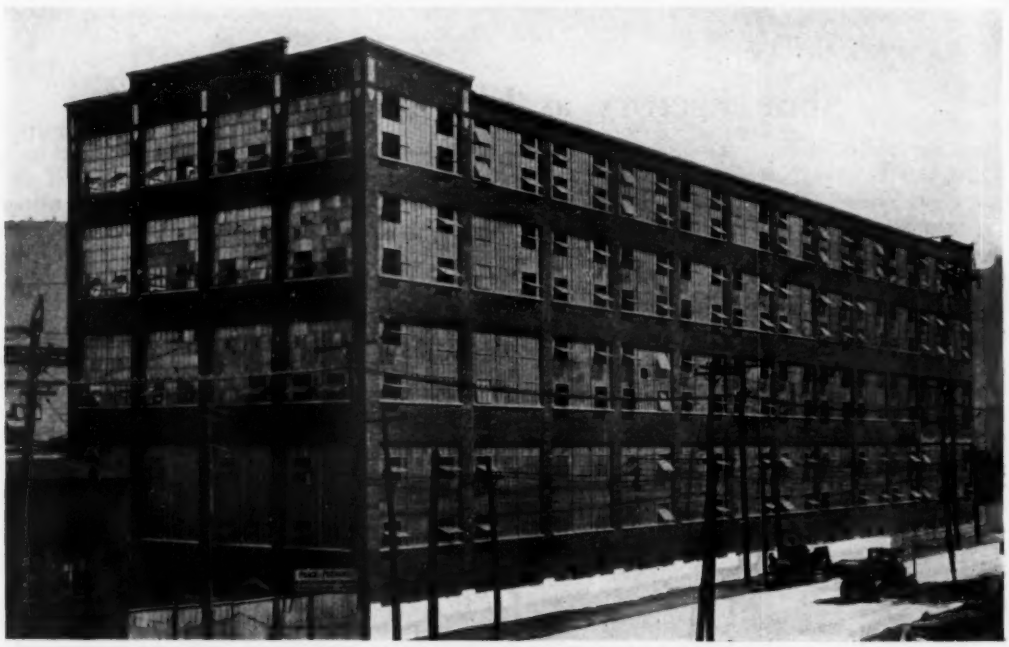
The windows are 4 ft. wide with 2 ft. 6 in. brick piers between. The angle iron lintels were shipped to the job in car lengths and this construction permitted the use of lighter sections, due to the continuous effect, and made a saving of practically all of the shop work. Otherwise the building is constructed with 2 x 14-in. joists 14 in. centers, 10 x 14-in. girders with column spacing of 18 ft. on centers; the posts range from 14 to 10 in. square with cast iron post caps and foot plates. The building is equipped with an automatic sprinkler sys-



tem with steel tower and tank in the yard, a system of wiring for power and light, plumbing system of about 125 fixtures and a power and heating plant. The chimney is of reinforced concrete 150 ft. high, with 5 ft. inside diameter. Each of the four floors has 10,000 sq. ft. of working space, with elevator, stairs and toilets located in a 40-ft. square wing.

The contract was awarded on a cost plus a fixed sum basis and all days were to be considered as working days, except when the temperature was less than 15 degrees Fahr. above zero and when rain or snow fell. The lowest temperature during the construction period was 15 degrees Fahr. below zero. The material was bought from stock and consisted of fourteen carloads of lumber, delivered from St. Louis in seven days, 300 window frames from the same city, made and delivered in ten days, twenty-five carloads of brick from Belleville, delivered as required, sand and gravel from Alton. The building was completed in fifty working days and thirty days thereafter $75,000 worth of machinery was in place and 400 operatives making shoes.

The building was designed and construction supervised by the office of A. B. Groves, represented by A. A. Aegerter, structural engineer, and is owned by the Brown Shoe Company of St. Louis.



BUILDING FOR WESTINGHOUSE MACHINE CO., EAST PITTSBURGH, PA.
BERNARD H. PRACK, *ARCHITECT*

FACTORY BUILDING OF GEORGE R. GREGG CO., TORONTO, ONT., CANADA

BERNARD H. PRACK, *ARCHITECT*

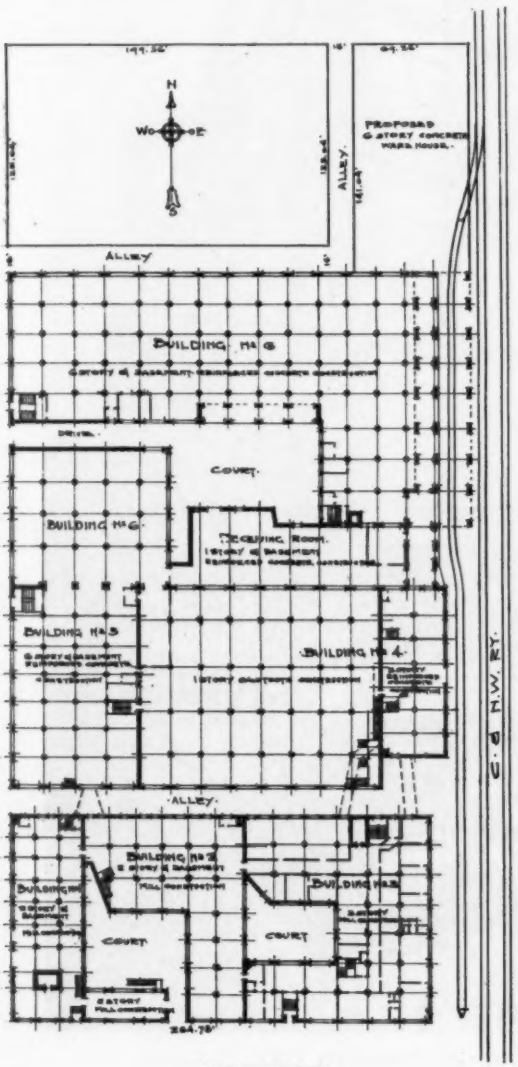
The Stewart-Warner Speedometer Corporation

L. G. HALLBERG & COMPANY, *Architects*

THE growth of a manufacturing company is well recorded in the construction of its plant. This is particularly noticeable in the case of the Stewart-Warner Speedometer Corporation, whose plant is located on Diversey Parkway, Chicago. The buildings range from a one-story saw-tooth-roof building to the last section built, which is six stories and basement of reinforced concrete construction. This latter section has 21-ft.-square panels, with the first floor designed to carry a live load of 2250 pounds per sq. ft., other portions 500 pounds and the lightest being 125 pounds.

The plant is served by an elevated steam railroad in the rear, from which a switch track passes through the rear bay of building 6. From this track the coal is dumped directly into storage bins in front of the boilers. Although buildings 5 and 6 were built at different times, they are well connected in design with a very good effect.

These buildings were designed by and erected under the supervision of L. G. Hallberg & Company, Architects, Chicago.



PLOT PLAN

Building for H. N. Cook Belting Company

WARD AND BLOHME, *Architects*

(For illustrations see pages 248, 253 and frontispiece)

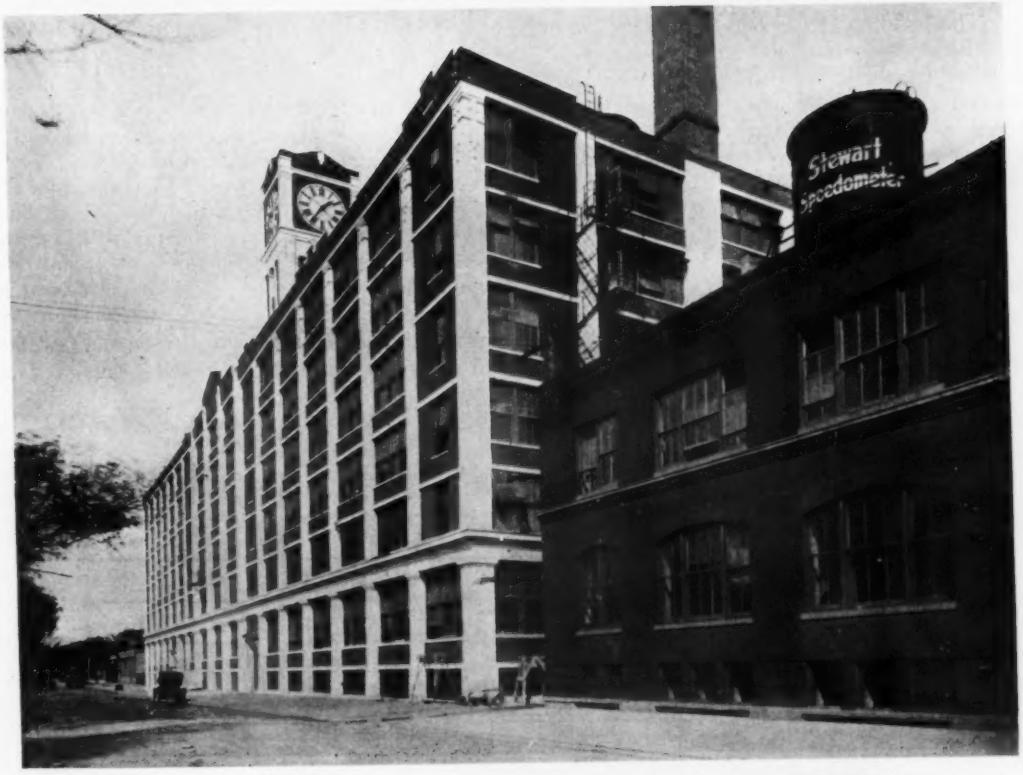
THE factory district of the average American city is generally considered to be a "back yard" where the externals receive scant attention. This is especially true of the small factory, and it is the very successful treatment of this problem in the H. N. Cook Belting Company's factory that makes us realize what a factory district might be. The elevation, with its large and well proportioned windows which afford ample daylight, is extremely simple in design and has an air of quiet dignity.

The basement of this building is half below grade, providing sufficient light and raising the first floor to a shipping and receiving level. The factory and salesroom are quite high, with a balcony along the side of the former. Over the driving-in space at the end of the building are placed the offices on a mezzanine floor. The entire arrangement is very compact and has a bright and attractive appearance. The exterior walls are of concrete, finished in a soft cream tone, and the trimmings and finish are in verde antique.

The building was designed by and erected under the supervision of Ward and Blohme, architects, San Francisco.

Interior Fire Alarm Ruling

By an amendment to the Code of Ordinances of the City of New York, effective Jan. 7, 1918, private schools are exempted from interior fire alarm systems required by the fire commissioner. Fire alarm systems, to be approved by the fire commissioner, are required to be installed in all hotels, lodging houses, public and private hospitals and asylums, department stores and public schools.



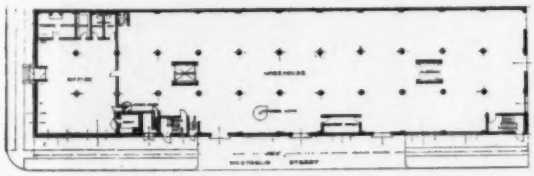
CHICAGO PLANT, STEWART-WARNER SPEEDOMETER CORPORATION

L. G. HALLBERG & CO., *ARCHITECTS*

Building for the Globe Warehouse Company

FULLER & ROBINSON COMPANY, *Architects*

THIS building is located on Dongan Avenue, Westerlo and Church Streets, Albany, N. Y., four stories and basement in height and 60 x 232 ft. in size. The building is of the flat-slab reinforced concrete type with floor panels about 19 ft. square. The first and second floors are designed for a live load of 300 pounds per sq. ft., and the third and fourth floors for a 250-pound load. Owing to the nature of the soil, it was found necessary to provide reinforced concrete piles under the foundations. The building is inclosed with brick curtain walls, with steel windows and wired glass.



FIRST FLOOR PLAN

Railroad freight is handled through the Church Street end and wagon shipments on the Westerlo Street side. The building is equipped with two freight elevators, one large spiral chute and one small package chute, a steam-heating plant and automatic sprinkler system.

This building was erected in 1916-17 and cost 13.5 cents per cu. ft., including the concrete piles. Without the piles the cost was 12.1 cents per cu. ft.

This building was designed by and erected under the supervision of Fuller & Robinson Company, Architects, Albany.

The Twentieth Century Storage Warehouse

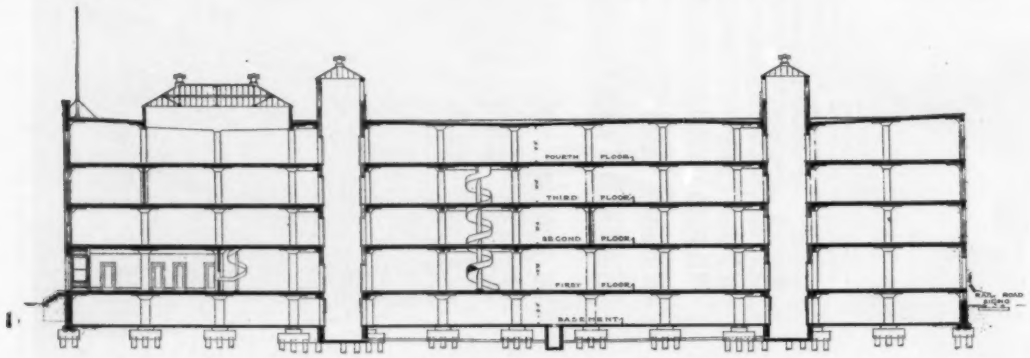
LOVE & HUNT, *Architects*

(See pages 267-269 for illustrations)

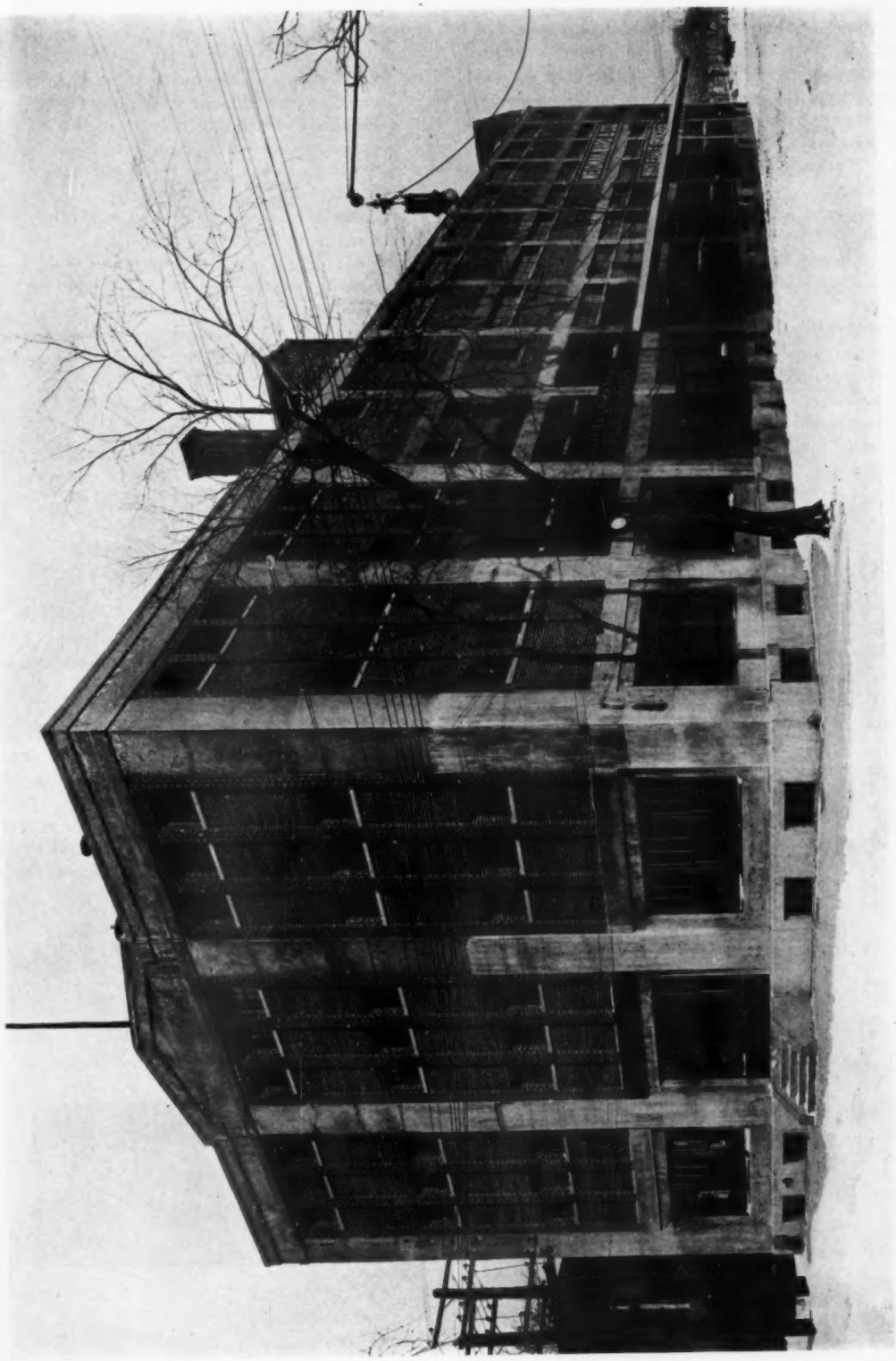
THE storage of household goods has become a well-standardized business during the past twelve years and the use of old stables and lofts for that purpose is disappearing through the competition of properly constructed warehouses. The modern warehouse was largely developed in the Central States cities, where to-day some of them also include completely equipped banks in conjunction with other facilities.

The modern storage warehouse includes an office, reception room, private offices, ladies' parlors and toilet rooms as a necessary part of its business service department. These are attractively finished in a manner comparable to a bank or brokers' offices. The storage facilities should include burglar-proof safe deposit vaults for the keeping of papers, jewelry and other small valuables; storage vaults for trunks, silverware and other bulky articles; piano storage rooms, moth-proof rooms for carpets and rugs, and in the case of the building illustrated a room for the storage of paintings. This latter room is similar to one in the Cleveland Museum of Art and consists of rolling racks, similar in principle to a laundry drying rack, which has a screen to which the painting is fastened in position and the rack pushed into its pocket and locked.

This class of buildings are of some fireproof type of construction, and furniture and other bulky articles are stored in compartments with fireproof walls and doors. These rooms are of various sizes and in some floors large spaces are left open for the storage of carriages and large lots. The receiving and shipping departments are on the first floor and in some warehouses the moving vans are taken



LONGITUDINAL SECTION, GLOBE WAREHOUSE, ALBANY, N. Y.
FULLER & ROBINSON CO., *ARCHITECTS*



GLOBE WAREHOUSE, ALBANY, N. Y.
FULLER & ROBINSON, *ARCHITECTS*
(See page 264 for description)

to each floor for loading or unloading by means of an elevator. The offices and piano rooms are the only ones that are heated, and in the case of this building the piano rooms have low ceilings caused by dividing that portion of the first story by a mezzanine floor.

The elevation of such a building naturally consists of blank walls, as daylight is not required except to light the corridors. The architectural treatment then is largely a matter of the color and texture of the walls, which is generally secured by the use of brick laid in pattern and varying bands. Some very beautiful effects have been secured in these buildings, and their beauty has in no way affected the appearance of solidity and security which such a building should possess.

The building here illustrated is a good example of the warehouse which contains every convenience and service demanded by modern conditions. It was designed by and erected under the supervision of Love & Hunt, Architects, Philadelphia.

Factory for the Motor Starter Company, Long Island City

BALLINGER & PERROT, *Architects and Engineers*

(For illustrations see pages 271-273)

A very handsome factory building is that erected for the J. K. Stewart Estate, at Long Island City, and planned to meet the needs of a particular industry. The structure is of the flat-slab reinforced-concrete type of construction with a 12-in. concrete fire wall dividing the building into two sections—on one side of the door's opening is a sliding and on the other side a hinged automatic fire door. The building contains three fireproof stair towers, one at each end and one adjoining the fire wall.

The building has a frontage of 80 ft. on Jackson Avenue and a depth of 345 ft., the main building being five stories and basement in height. A one-story annex covers a further frontage of 80 ft., with a depth of 184 ft. For convenience in shipping a platform extends along one side of the smaller building, running into the basement of the larger structure.

A well-designed tower rises 75 ft. above the roof and encloses a 40-thousand-gallon tank which supplies the automatic sprinkler system. The house supply tank is also located in this tower. All of the exposed structural surfaces and the cornices, hand courses and other decorative features are executed in concrete, finished with a white cement paint.

The windows are constructed of rolled steel, except the bulkhead and show windows, which are made of copper. The metal factory windows are glazed with rough wire glass, except one pane of polished wire glass at the eye-line. The building is heated by direct radiation by means of a vacuum heating system of the overhead main type. There are four elevators—one passenger, one 10,000-pound capacity, one 7000 and 3000-pound freight elevators.

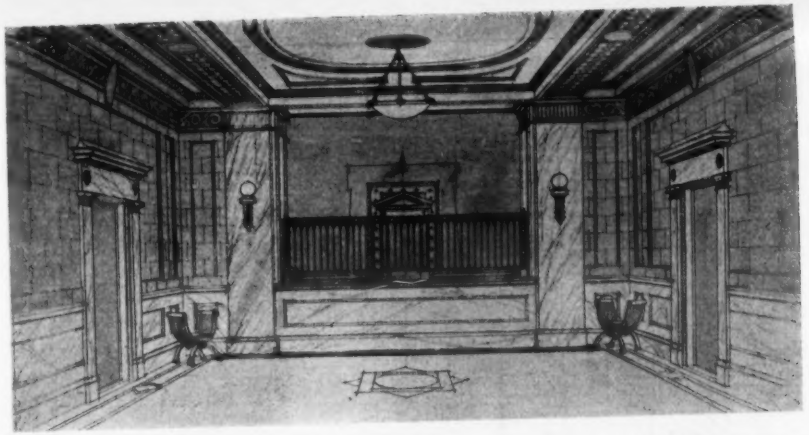
One interesting feature of this building is the placing on the wall of each story a chart showing the location of each kind of service pipe that is built in the floor construction. This will facilitate the making of any repairs or changes and also reduce their cost. The building is also completely equipped with spiral gravity conveyors for the transfer of the stock from floor to floor.

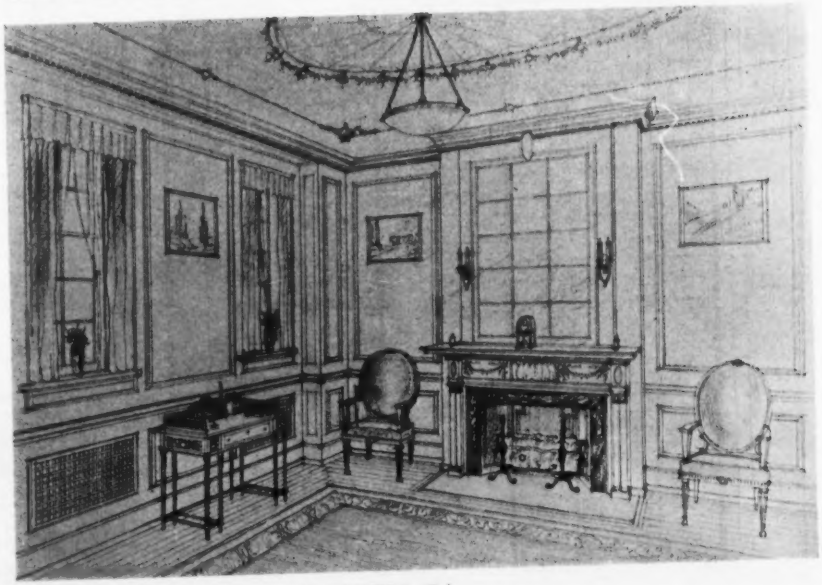
The building was designed by Ballinger & Perrot, architects and engineers, New York and Philadelphia, and the construction supervised by John H. Bull, their resident engineer.

PLANT OF EGYPTIAN LACQUER MFG. CO., KEARNEY, N. J.

LOCKWOOD, GREEN & CO., *ARCHITECTS AND ENGINEERS*

An entirely new plant for the manufacture of metal lacquers

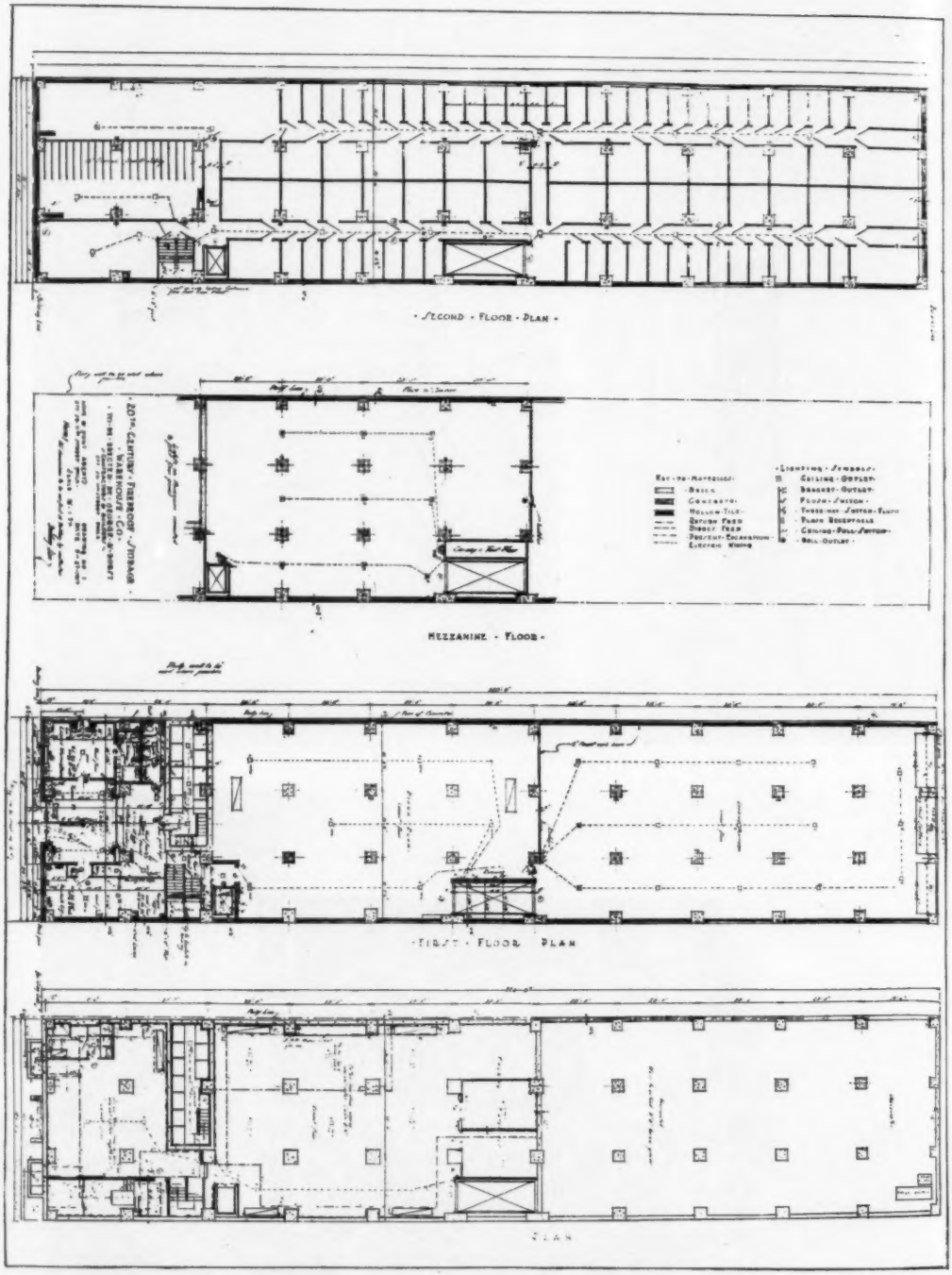




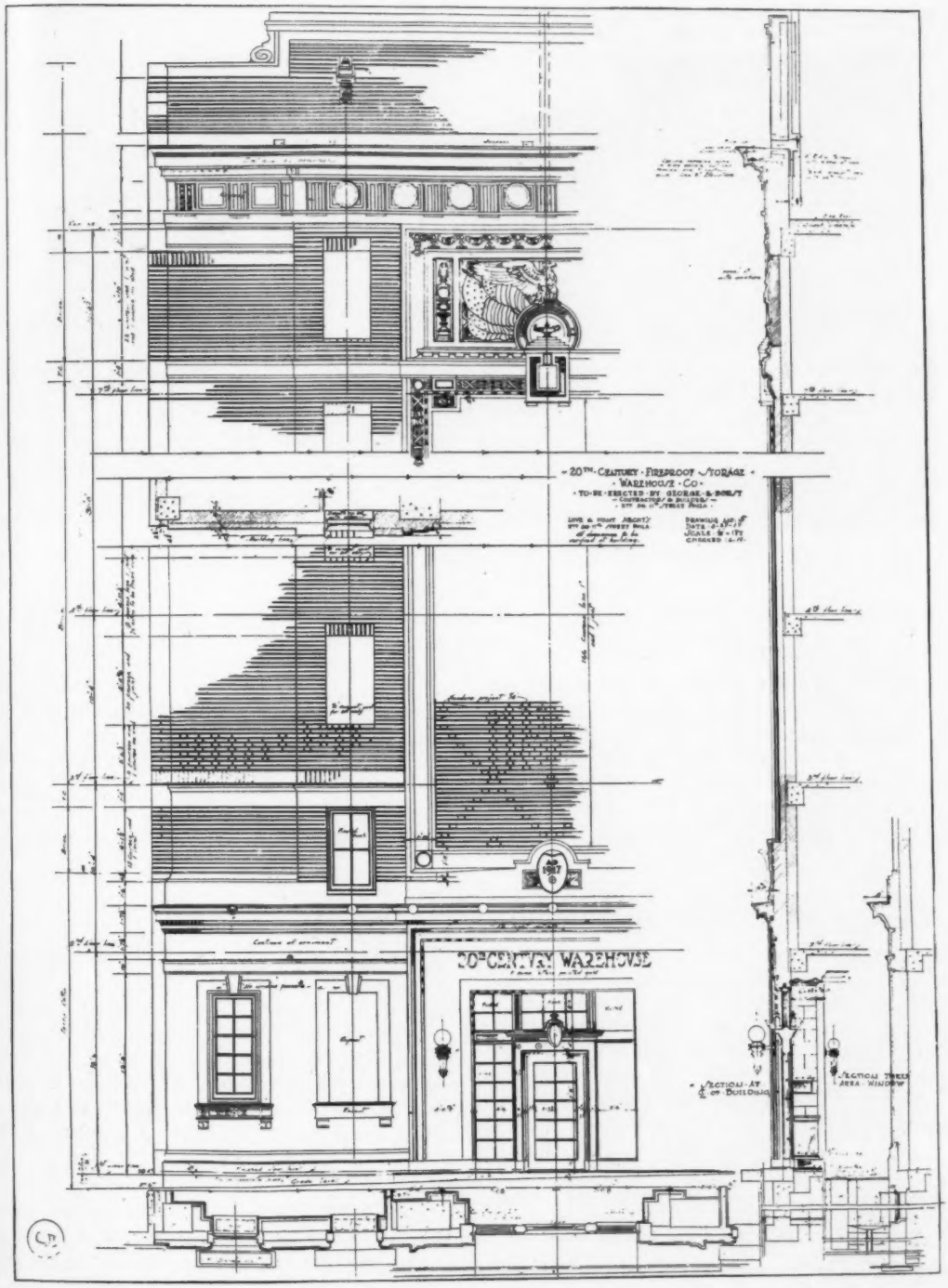
TWENTIETH CENTURY STORAGE WAREHOUSE, PHILADELPHIA, PA.

LOVE & HUNT, *ARCHITECTS*

(See page 264 for description)



FLOOR PLANS, TWENTIETH CENTURY STORAGE WAREHOUSE, PHILADELPHIA, PA.
LOVE & HUNT, *ARCHITECTS* (*See page 264 for description*)

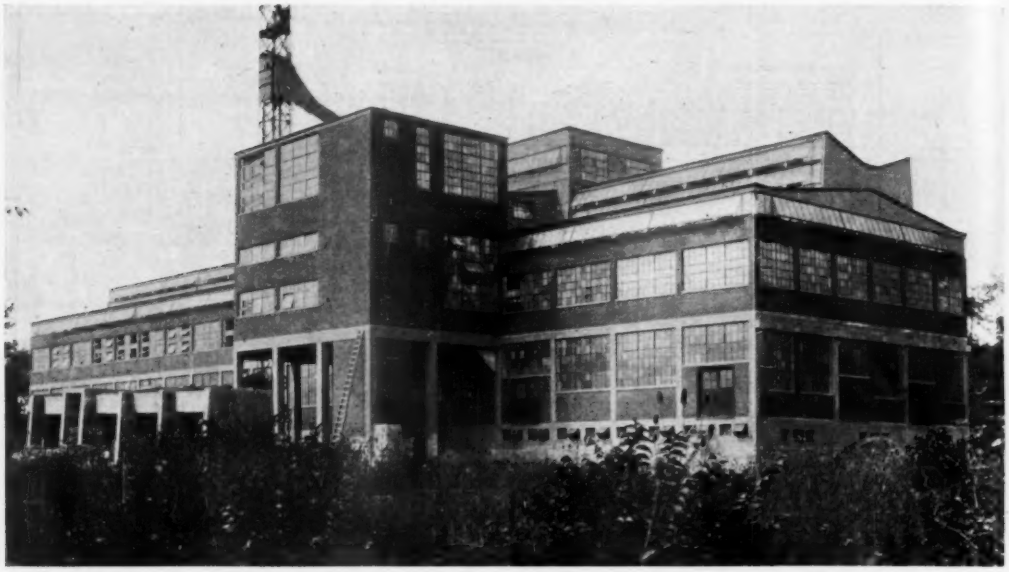


EXTERIOR DETAILS

TWENTIETH CENTURY STORAGE WAREHOUSE, PHILADELPHIA, PA.

LOVE & HUNT, *ARCHITECTS*

(See page 264 for description)



MECHANICAL FOUNDRY FOR CANADIAN WESTINGHOUSE CO., Ltd., HAMILTON, ONT.
BERNARD H. PRACK, *ARCHITECT*

Publishers' Notice

Owing to difficulties in transportation, together with scarcity at the mills of the better quality of print papers, the publishers of THE AMERICAN ARCHITECT are forced to announce that this publication will be printed on the coated paper used prior to July, 1917, until such time as the present stocks of dull coated paper can be replenished.

Zoning Board Plan Adopted

Detroit has conferred new and extensive powers to its city plan and improvement commission. From now on this body of men has the right not merely to recommend measures to beautify the city, as heretofore, but to enforce them effectively through its recently acquired privilege of demanding the co-operation of any department of municipal government.

Nominations for Officers of the American Institute of Architects

Burt L. Fenner, who was nominated for president of the American Institute of Architects, has addressed a letter to the secretary of the institute withdrawing his name from consideration.

The *Institute Journal* for January publishes the nominations of C. Grant La Farge as president and Elmer C. Jensen as second vice-president.

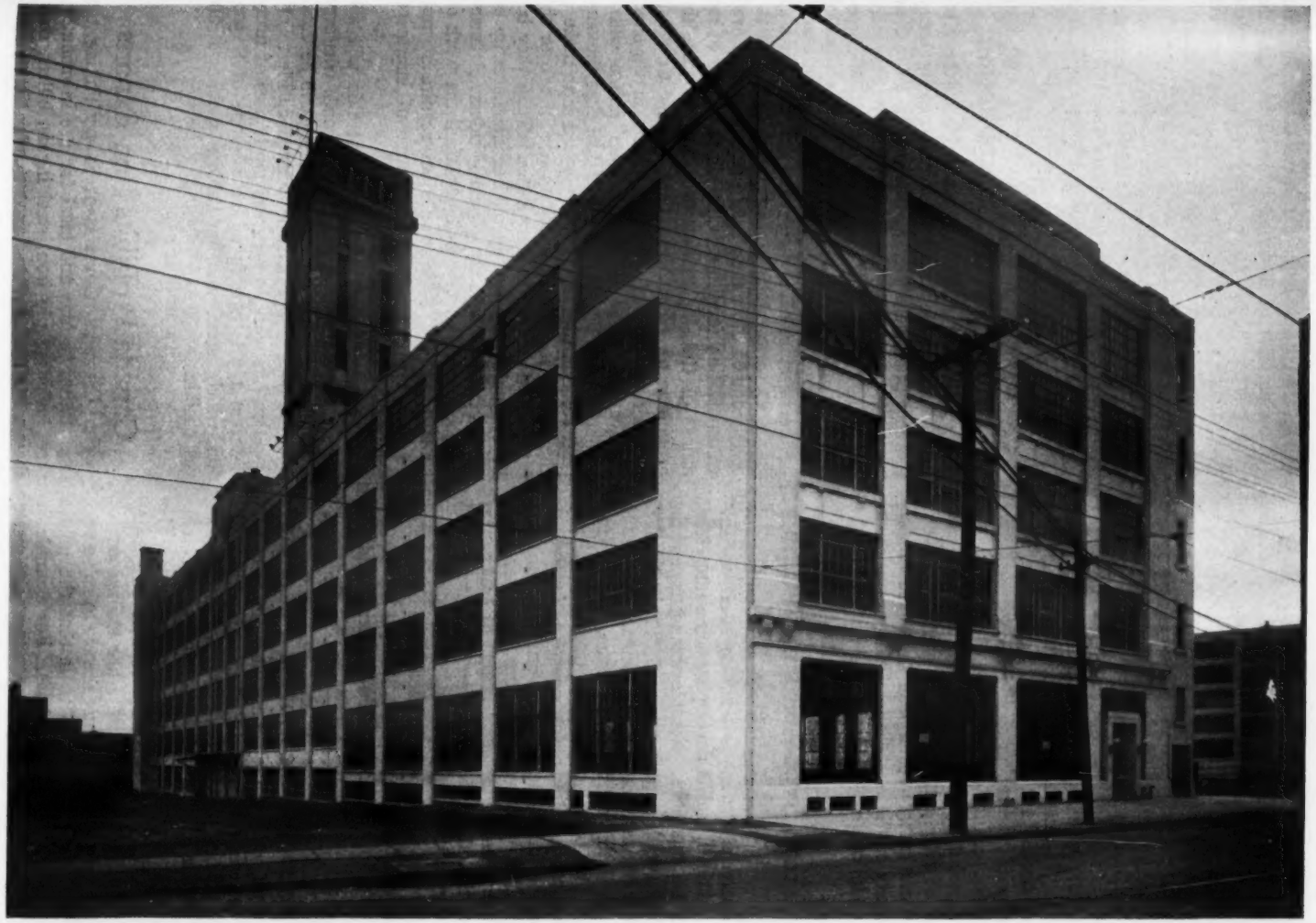
A further group of members, in a memorial, state the need for a convention limited as to number of delegates, and the transaction of only necessary routine business. It is further proposed to amend the by-laws, relating to eligibility of president and directors, for the duration of the war and continue the present officers in office for the ensuing year.

Obituary

Mr. George B. Ferry, Architect, a resident of Milwaukee since 1881, died recently of heart failure. Mr. Ferry, until a few years ago a member of the firm of Ferry & Clas, planned many notable buildings in Wisconsin, including the Milwaukee public library and museum, the Milwaukee Auditorium and the state historical library at Madison. He was a member of the American Institute of Architects.

Harold William Baerresen, a prominent Denver architect, died at his home at 1733 High Street on Jan. 20. He was seventy-two years old at the time of his death.

Mr. Baerresen had practised his profession in Denver for the past forty years, retiring a year ago because of ill health.



FACTORY BUILDING FOR THE MOTOR STARTER CO., LONG ISLAND CITY, N. Y.
BALLINGER & PERROT, *ARCHITECTS*

(*For description, see page 266*)

Good Housing Should Be Written Into War Contracts

That the War Department stipulate in its contracts with manufacturers of munitions that the men they employ shall be suitably housed, just as it does in each of its contracts for the manufacture of clothing for the army and navy, which stipulate that such clothing shall not be made in sweatshops or under unsanitary conditions, is the suggestion of Joseph Fink, secretary to Commissioner John J. Murphy of the New York Tenement House Department. "If manufacturers do not provide good accommodations for their help," says Mr. Fink, "the national government should insist upon it, for bad housing conditions have been the cause of tuberculosis and other life-destroying diseases. An increase of tubercular people in overcrowded sections would quickly result, and lower the producing capacity of the workers to the detriment of the nation in its crisis."

War Time Expedients in Building Materials

The material market is adapting itself to war-time conditions, and is developing some interesting and unusual capacities. Notable among these is the use of terra cotta chips in concrete. The scrap piles of the various terra cotta companies are destined to disappear, if this substitution proves entirely practicable. The pressing need of Government construction work, calling for concrete, involves a demand for large quantities of crushed stone and gravel. The weather conditions, together with barge shortages, and general dearth of transportation facilities, should help to bring this material into use wherever it is easily available. It is estimated that a number of the vast brickbat piles of some of the Eastern brick manufacturers' yards may be utilized for foundations for Government buildings.

Engineers as Economic Teachers

The time will come when a civil engineer will be considered censurable if he does not persistently bring to public attention his knowledge of ways of saving public money and increasing general efficiency, says *Engineering and Contracting*. The public, for the most part, is incapable of solving economic problems. Engineers are trained economists and their function is not merely to solve economic problems, but to see to it that the public takes action along economic lines. For example, it can be demonstrated that it pays to treat city water with liquid chlorine, for the reduced loss of health and life is worth far more to society than the small cost of chlorinating the water. Or, again, it can be demonstrated that it pays to meter city water, for the annual cost of metering is much less than the saving in fuel and fixed charges on the excess plant needed where meters are not used. These are but typical economic facts well known to engineers. Engineers discuss these things among themselves and bewail public blindness to such facts. But who will ever enlighten the public unless engineers do? The time has come for civil engineers, individually and collectively, to teach the public and to lead it to action.

Housing and Transportation

A meeting at which representatives of the Merchants' Association and of several nearby Jersey municipalities were present was just called in New York by J. Roger Flannery. Mr. Flannery is assistant to the President of the Emergency Fleet Corporation, a Pittsburgh manufacturer, who was called into service by the Shipping Board to take charge of the question of finding room for the increased staffs at various shipyards. It appears that the chief hope of these men lies in supplying improved transportation facilities. Officials in charge of the affairs of the shipbuilding program recognize the proximity of New York City, Jersey City and Newark to some of the large plants in Bayonne, Elizabeth and the numerous other points where shipbuilding is in progress, and feel that the simplest solution of the housing question is to make it convenient for the workmen to live in one or the other of these neighboring cities. This, they believe, would very largely obviate the necessity of constructing elaborately planned industrial towns which, no matter how well organized the work of construction might be, would yet require a great deal more time than the alternative of improving the transportation facilities.

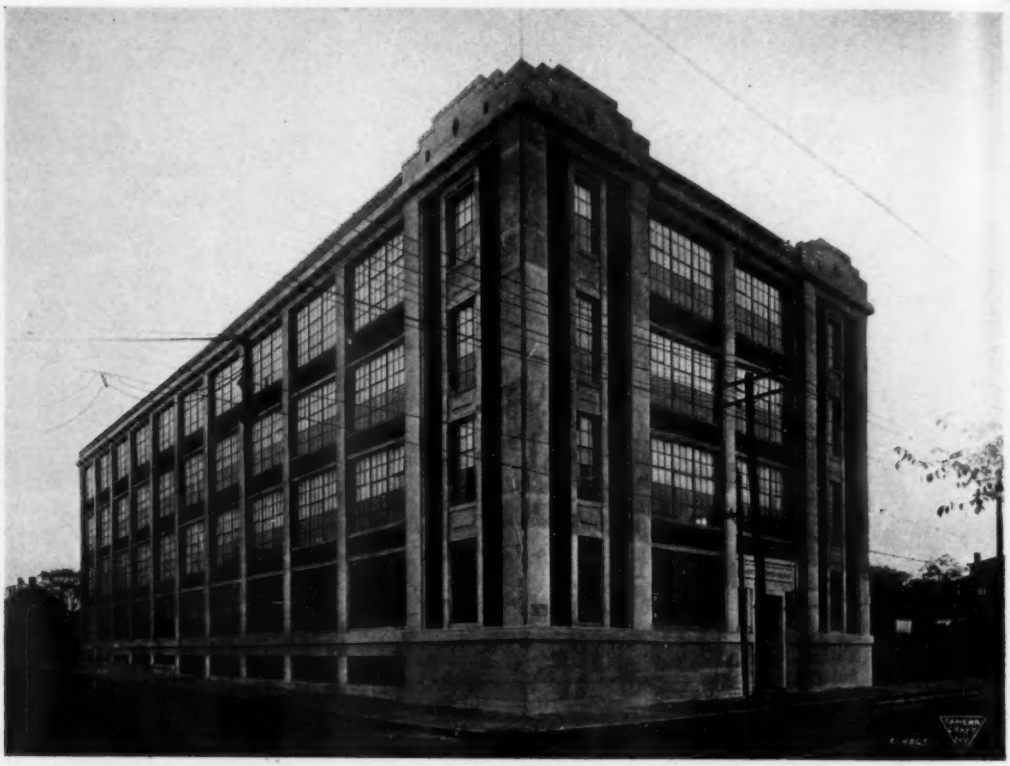
Of course, it is understood that this will not relieve the situation in its entirety, and, wherever it is felt necessary, extensive building will be done. Already we are told that the Emergency Fleet Corporation has work in progress for houses of many different types, costing on an average of $2,500, for which some of our ablest architects are responsible.

Canada Prohibits Iron Exports

The Canadian Government is prohibiting the exportation of iron and steel for use in manufacture, including pig iron, steel ingots, billets, rods, shapes, angles and plates, except under license from the Department of Customs.

FACTORY BUILDING FOR THE MOTOR STARTER CO., LONG ISLAND CITY, N. Y.

BALLINGER & PERROT, *ARCHITECTS*



BUILDING OF HENRY G. THOMPSON & SONS CO., NEW HAVEN, CONN.
LOCKWOOD, GREEN & CO., *ARCHITECTS*

Shipping Board's Housing Program

A General Plan Soon to Be Adopted

Mr. J. Rogers Flannery has been appointed Director of Housing for the Emergency Fleet Corporation, with headquarters in Washington, D. C. The Shipping Board has made appropriations for additional housing facilities in shipyards, Congress having given assurance that the funds used for this purpose will be replaced. There has been $1,200,000 assigned for workers at Newport News, Va., and additional funds have been appropriated for the Government yards. Methods of administration of the funds, or the relation of the houses to the private yards have not been made known.

The general housing program is in the hands of the Department of Labor and the housing section of the Council of National Defense. No announcement has yet been made regarding their plans. It is said that when a general program is definitely decided upon, the cantonment division of the Quartermaster's Corps, presided over by Brigadier General Isaac W. Littell, will be called upon to handle the work.

Bill for Housing Passed

House Ratifies $50,000,000 Measure with Minor Changes

The Administration bill, already passed by the Senate, appropriating $50,000,000 to provide housing facilities for employees of shipyards engaged in Government work, was passed by the House on Feb. 12, without a roll call.

The House adopted some minor amendments, which the Senate may accept to obviate necessity of sending the measure to conference.

Scotch Rents Increase

That the house shortage and rent problem in the United States and England has its parallel in Scotch cities is shown in a report to the United States Government by Consul H. D. Van Sant, located at Dunfermline, Scotland. In this city rents have increased from 50 to 100 per cent over normal times, and the demand for dwellings far exceeds the supply.

BUILDING FOR BROADWAY DAIRY CO., SEATTLE, WASH.

STEPHEN & STEPHEN, *ARCHITECTS*

From Gutenberg to Götterdamerung

The subscription department of THE AMERICAN ARCHITECT having through error sent a request for a subscription to a firm of architects already subscribers, had their letter returned with the following endorsed thereon:

"Commendable enterprise, but have taken THE AMERICAN ARCHITECT ever since the invention of printing and hope to take it until the Shades of Götterdamerung fall."

Competition for Gomez Monument

The following communication has been received from Mr. V. Laborde, Acting Consul General of Cuba:

"I beg to advise you that according to an official cable to this Consulate, of recent date, the Government of Cuba has decided to receive the proposals for the monument to General Maximo Gomez up to the first Monday of May, 1919, instead of March 31, 1918, with the purpose of having more competitors.

"The erection of the monument in Havana must be finished by August 1, 1924."

Housing Bill Indorsed

TO IMPROVE HOUSING CONDITIONS OF WOMEN

A bill to provide $50,000,000 to aid in providing quarters for shipbuilders has been indorsed at a conference held in Washington and attended by the Secretaries of War, Navy and Labor, and by chairman and vice-chairman of the Shipping Board.

Mrs. John D. Rockefeller, Jr., in a conference with Secretaries Baker, Daniels and Wilson, urged certain plans for improving housing conditions among women employed in Government work. The Department of Labor is considering better housing conditions for women workers, and other appropriations for taking care of the influx of workers to industrial centers will doubtless be urged later on.

New Army Buildings to Cost $268,650,000

DEPARTMENT DISCLOSES ITS PLANS FOR HUGE ORDNANCE, STORAGE AND GAS PLANTS

Many new construction projects for the army, including munition plants, ordnance depots, storage plants, port terminals, hospitals, aviation work, cantonments, and housing were disclosed in a statement given the Senate Military Committee on Feb. 12 by the War Department. The work will cost a total of $268,650,000, and while some of the projects have been announced before, in most cases the location and cost have not been given.

The statement shows that $37,000,000 will be spent in building a gas-making plant at Edgewood, N. J., while forty interior storage depots, to cost an aggregate of $30,000,000, are to be erected at unnamed points. On aviation work, including a new cantonment, the location of which was not given, $46,000,000 will be expended. Ordnance depots are to be built on the South Atlantic coast and at some seaport at a cost of $4,000,000 each, and one on the Middle Atlantic coast at a cost of $6,000,000. An ammunition depot at some seaport is to cost $7,500,000, and a like sum is to be expended for an ordnance depot in Central Pennsylvania.

Another item is that of $250,000 for a high explosives plant at Sandy Hook, N. J.

Landscape Architects Saved Government Money

Landscape architects, by careful planning of American army cantonments, have saved the federal government $800,000 on each cantonment, it was reported at the annual meeting of the American Society of Landscape Architects in New York.

A. R. Nichol of Minneapolis said the building of fourteen of the cantonments was supervised by members of the society. In each case the grouping of buildings and the installation and heating plants had to conform with the landscape and topography.

Speakers at the convention reviewed the work showing how the decision to use two story buildings saved space and money. Army officers gave up their own ideas when society members submitted their plans.

Grouping of buildings and location of parade grounds, roads, railroad terminals and power and heating plants were worked out by leading landscape architects. Many of the problems were new in America and work on the cantonments was begun only after all the plans had been complete and approved.

Concrete Housing

For the purpose of investigating industrial concrete housing, the American Concrete Institute has appointed a committee of which Leslie H. Allen of the Aberthaw Construction Company of Boston is chairman, and John E. Conzelman of the Unit Construction Company of St. Louis is a member. Both Mr. Allen and Mr. Conzelman are members of the National Housing Association. Each member of the committee has been asked to prepare a paper on various phases of the subject, which later may be published in book form.

Standardized Steel Structures for Emergency Purposes

Standardization is an economic necessity during these times of stress. Waste of materials, time and money must be eliminated. The standardization of energies and of materials makes for maximum economy.

The Trussed Concrete Steel Company of Youngstown, Ohio, is producing a standardized type of steel building which is claimed to be well fitted for emergency purposes. All the parts of the Truscon Steel Buildings are stored in the company's warehouses ready for immediate shipment.

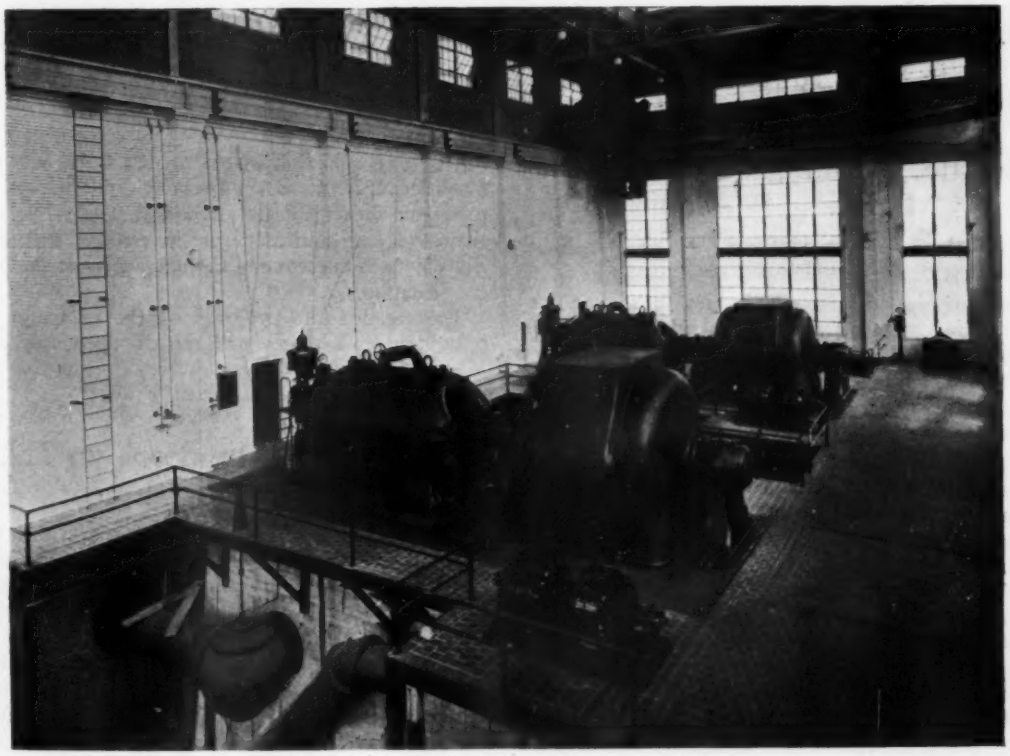
These steel buildings are manufactured from incombustible materials, and are known to be fire-resisting. They are sanitary, well ventilated, easily and quickly erected, and are available in many types and sizes. Buildings of any width up to 60 ft., and any length in multiples of four can be constructed of stock units.

The various types of roofs available further increase their range of usefulness. Any desired sort of roof surfacing, including asbestos shingles, tile, slate, composition, etc., are available. The use of these roof surfaces means additional thickness, which gives better insulation against heat and cold than that afforded by a steel plate roof.

The Truscon Steel Building can be taken down and re-erected, enlarged or reduced in size. Any combination of glass area can be provided from stock sections. Window panels, solid panels and doors are interchangeable.

Engineers and Architects of California

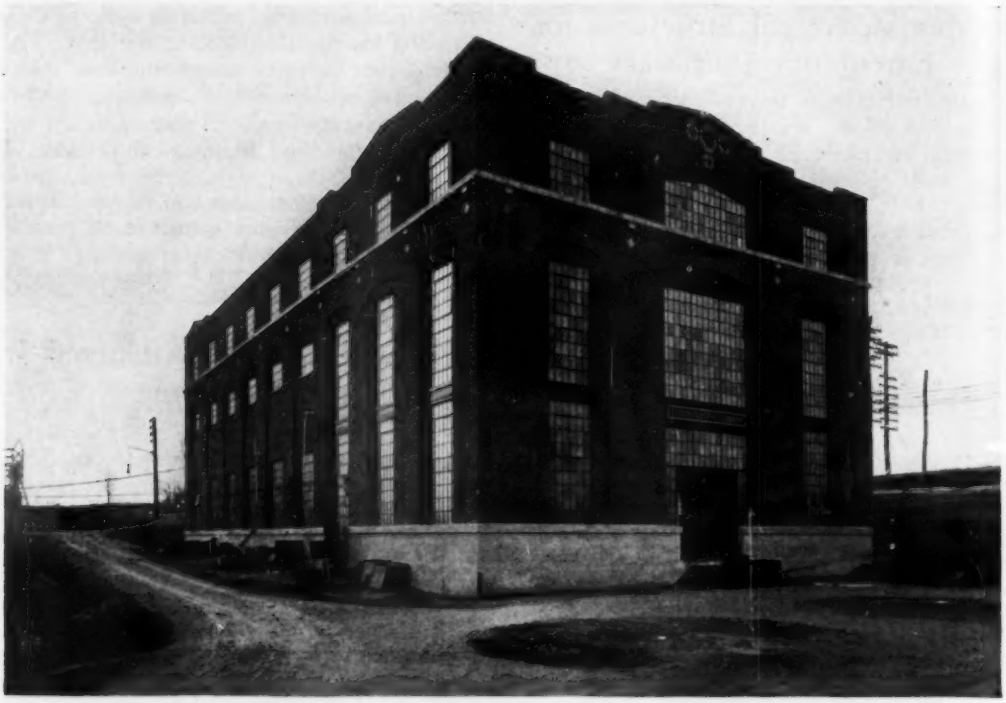
At the annual meeting of the Engineers and Architects of Southern California, the following officers were elected: H. Z. Osborne, Jr., president; J. J. Backus, first vice-president; H. L. Smith, second vice-president, and A. B. Benton, E. E. Bergstrom, A. H. Koebig and George P. Robinson, directors.



TURBINE ROOM

DOMINION POWER & TRANSMISSION CO., HAMILTON, ONT.

BERNARD H. PRACK, *ARCHITECT*



POWER HOUSE, EDISON ELECTRIC CO., LANCASTER, PA.
BERNARD H. PRACK, *ARCHITECT*

Seattle, Washington, Solving its Housing Problems

MEMBERS OF A. I. A. OFFER FREE SERVICE IN CO-OPERATION

A campaign to remodel houses in such a way that they can accommodate an additional family is being carried on by members of the Washington State Chapter of the American Institute of Architects. This is a movement the purpose of which is to intensify the alteration and remodeling of existing buildings throughout Seattle so as to provide housing for three thousand additional families. It is being pushed forward independent of the temporary housing projects for industrial workers now gathered in that city.

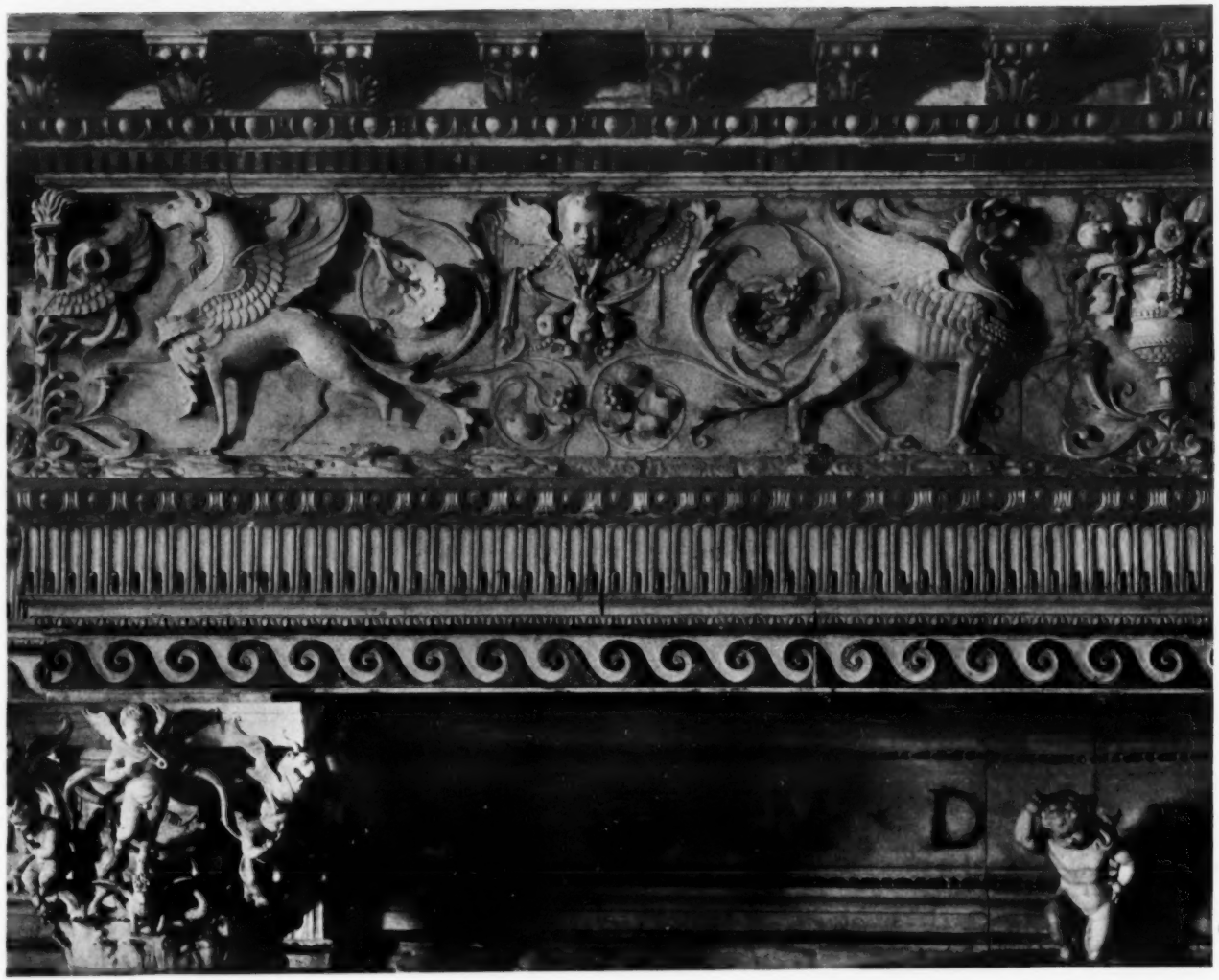
Fifty architects there have agreed to make recommendations without charge to owners desiring so to remodel. They will be assigned by the city architect of Seattle to go with owners personally, inspect their buildings, and advise. They will also supply applicants with an approximate estimate of the cost of such remodeling. These architects make no bid for business, but will, as an additional help, perform any further services desired at one-half the regular charge for alteration work.

It is expected that hundreds of owners will thus be enabled to place unprofitable buildings in the profitable class. By this method of remodeling, conservative, safe and moderate investment will materially help in overcoming the exigencies of the present situation.

To expedite the progress of the campaign the offer of free services will remain open only until March 1.

Bush Terminal in Brooklyn Taken Over by Government

That section of New York known as Bush Terminal, Brooklyn, with its many warehouses, piers and loft buildings, has almost in its entirety been confiscated by the Navy Department. What is alleged to be the largest business structure in the city of New York will soon be erected there as a storehouse for naval supplies and for the manufacturing, packing and shipping of goods for United States war vessels. As a result of the vast war activities of the Government, that region is expected to develop into the largest manufacturing and export center in the United States.



DETAIL OF ENTABLATURE OF THE HIGH ALTAR, CHURCH OF FONTEGIUSTA, ALINARI, ITALY (1517)