

The AMERICAN ARCHITECT



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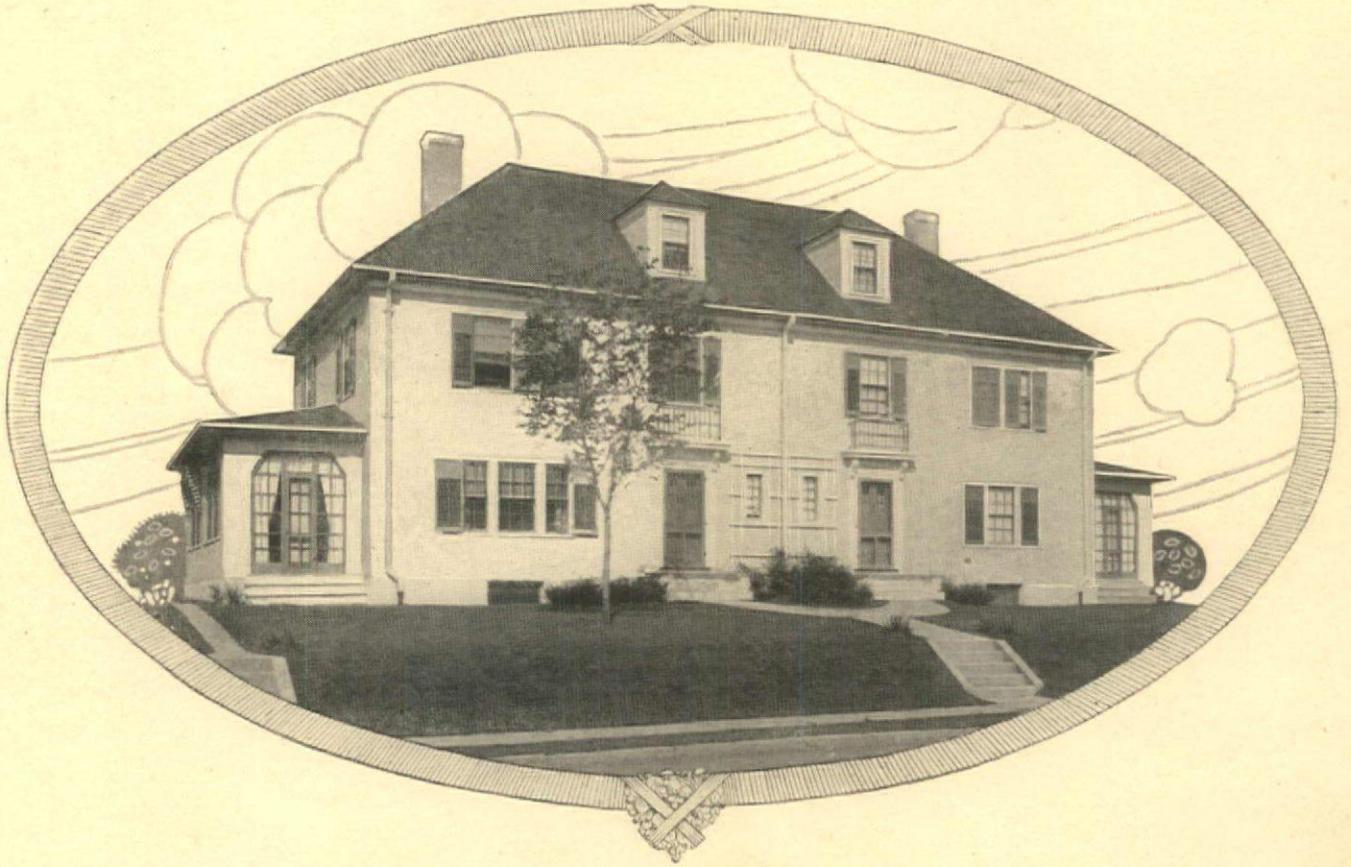
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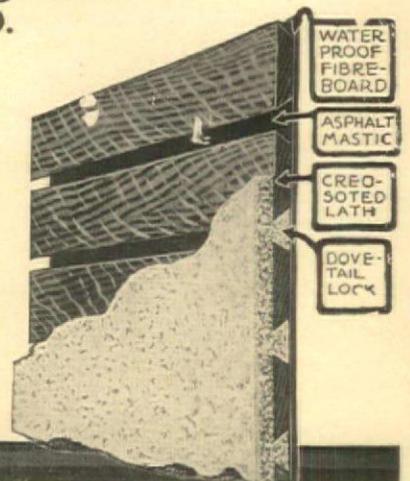
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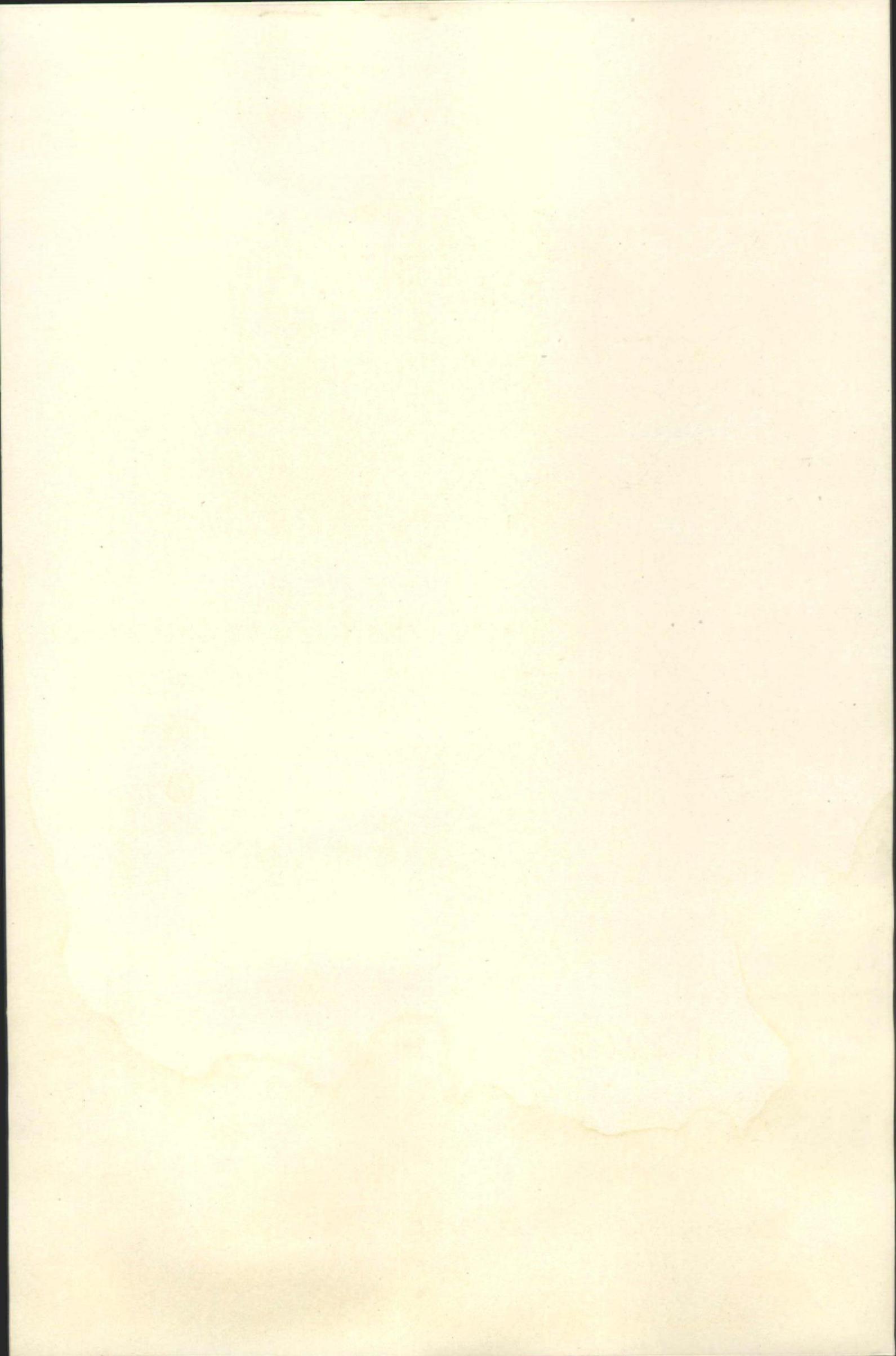
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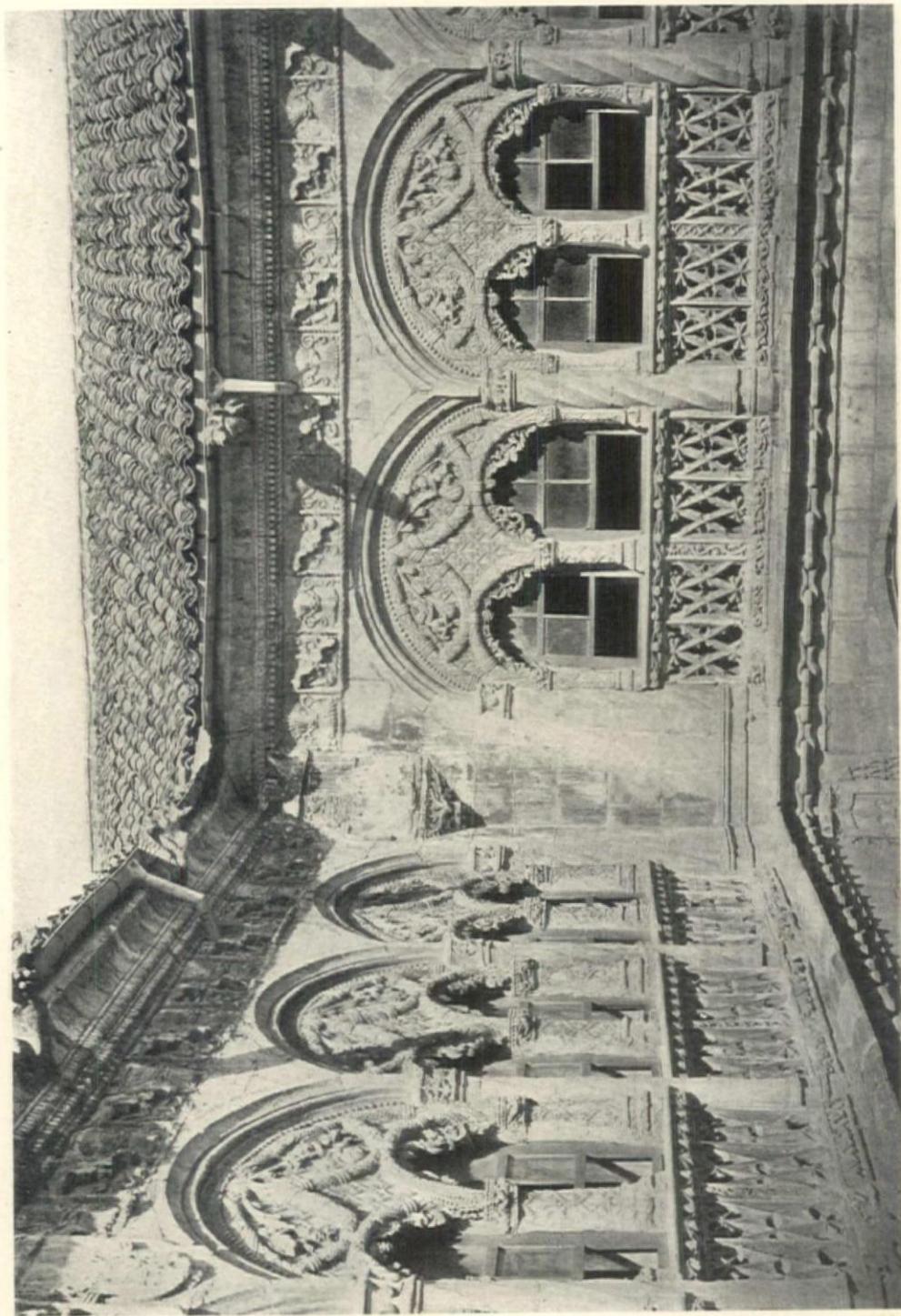
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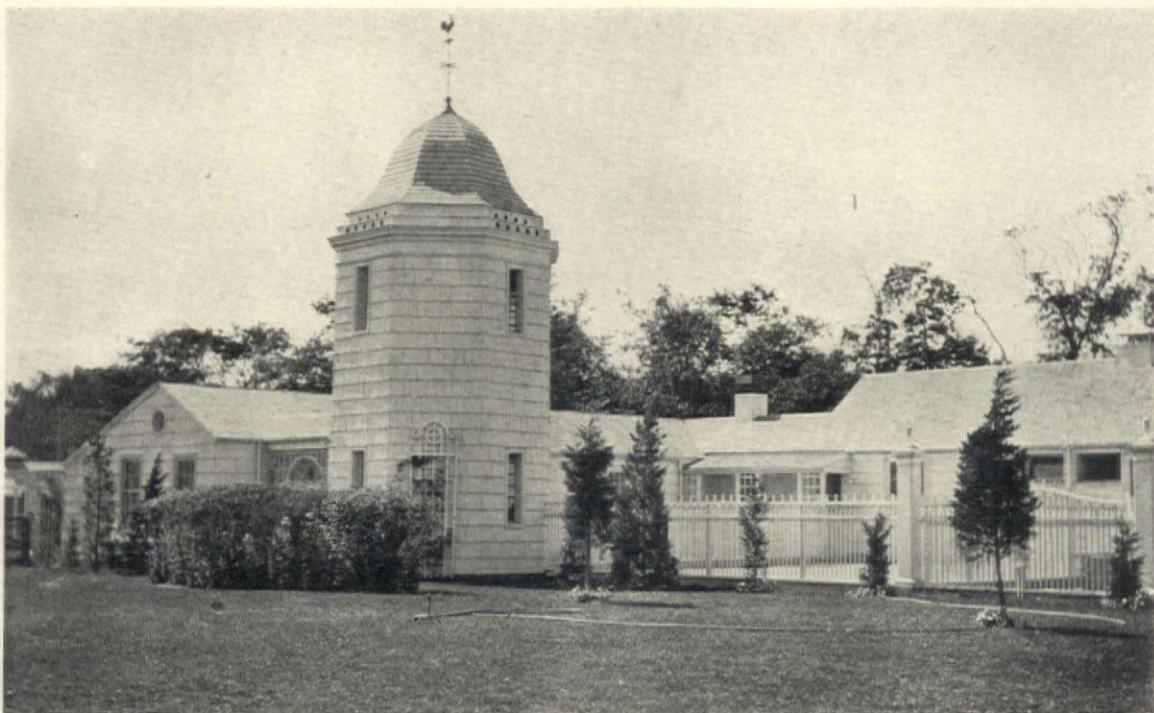
DETAIL, PALACE OF SAN GREGORIO, VALLADOLID, SPAIN

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A FARM BUILDING GROUP, DESIGNED BY ALFRED HOPKINS, ARCHITECT.

Modern Roofing Materials—Part IV

The Wooden Shingle Roof

By E. A. STERLING

THE "roof over our heads" symbolizes the home instinct of all races in all times. It completes the shelter which is indispensable to mere existence and, with food, furnishes the primal needs of man.

The architect or home builder of to-day is not deeply concerned as to the kind of roof shelter sought by his primitive ancestors. Whether the boughs of a tree or the rock of a cave, helps little in today's selection of a roof covering which will shed rain, stay put and give longest service at least cost. About the only determining factor connecting the past with the present is the availability of a suitable material.

It happens that the most readily available and widely used roof has always been of forest origin. A tree affords a canopy better than nothing, and is sought by the shower-caught automobilist of to-day as it was by the savages of yesterday. In the tropical forests the heavy foliage of palms is still used to thatch the huts; while in the northern forests the hunter and camper use the bark of the birch and hemlock or the branches of evergreen trees to roof his lean-to or cabin.

No one has recorded, nor does it matter, when or where the transition to shingles took place. Early civilization certainly knew the principle of the imbricated roof, built of small pieces overlapped to

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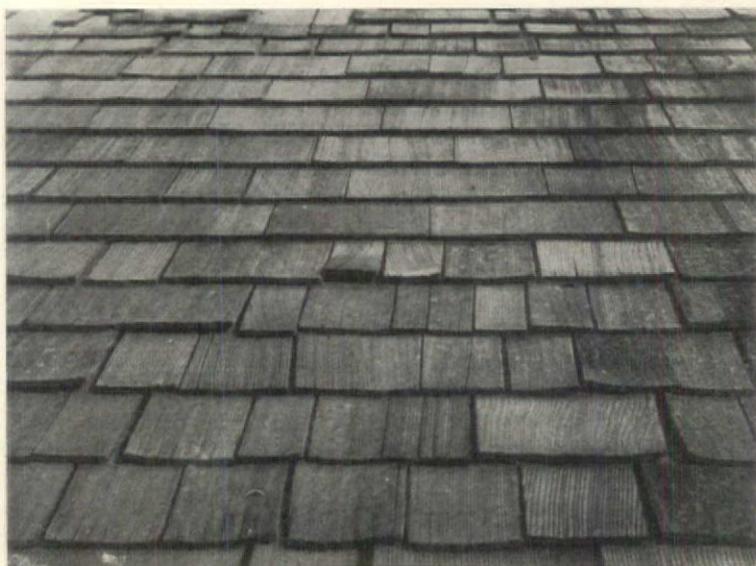
form water shedding joints. Stone and tile roofs centuries old are evidence of this.

In America, the wooden shingle roof, because of the abundance and suitability of the material, has been universally used. As a nation, we were literally born and bred in houses built of wood from roof to cellar. These houses served to shelter and develop a race which has put a diversified wealth of natural resources to their best use and there has been lost nothing of virility in the doing. To have used anything but wood for roofs would have been a loss of energy and a waste of the material most readily at hand.

The "shake" probably preceded the shingle, although it cannot be proven. Anyhow, the former is the cruder form, and is still used in remote forest regions. It is not really a shingle, but a thin flat piece of board, split from suitable straight grained woods, such as white pine, sugar pine, cypress, red-wood, or red cedar. Not being beveled or flattened at one end, it was generally used in longer pieces and often appeared on the sides as well as roofs of pioneer dwellings.

It is logical to suppose that the "shake" was the forerunner of the present shingle, and that some Edison of the early days discovered, or rediscovered, that by shaving one edge to knife blade thickness they would lie flatter or smoother on the roof. In any event, for many years the shingles used were hand made as well as home made. They were produced by the simple process of selecting straight grained logs of durable woods, cutting them into bolts of suitable length, splitting them with a frow into flat strips, and shaving them down to uniform thickness with a drawing knife on the shaving horse. Shingles were thus to be had for the making. Split and shaved shingles, and even "shakes," are still common on many roofs, and are made for home use in forest regions.

Many interesting tales could be told of the early shingle makers. They were experts with their tools, and could turn out a surprising number of shingles a day. But their pride was in their product. Sapwood was carefully split away, leaving only straight grained heartwood in the finished shingle. The selection of the wood was the first care, and, where available, white pine was a great favorite. One of the writer's early recollections is of white pine logs dug from the mud of a swamp, which were salvaged for shingle making. The sap-



One bundle of shingles on this roof was creosoted. Their location can be seen by the absence of checking and warping. These shingles were laid in 1904 and photographed in 1918. The pitch of the roof is too flat for best results.

From a photograph by Dr. Hermann von Schrenck

wood had, of course, rotted away, but the heart was "sound as a dollar". The skill developed in the use of the frow and drawing knife resulted in shingles of uniform size, smooth surface, straight grain, and lasting qualities. It was no small local honor to be a good shingle maker.

Within the last twenty years the home product has been largely replaced by the commercial sawed shingle. To-day, the home builder and farmer in the East will be found using red cedar shingles from Washington or British Columbia, cypress from Louisiana, or other woods from distant forests. It has been a long held opinion that the hand-riven and shaved shingle was superior to the sawn, because the smooth shaved surface, split along the grain, would hold moisture less and last longer. Defects were also entirely eliminated, and the width was adapted to the character of each piece. The wonderful service records of hand made shingles, even of the less durable woods, seem to bear this out, but with present methods of manufacturing and kiln drying the modern first class shingle leaves little to be desired.

For the same reason that the home producers of shingles select the most durable and straight grained woods in the nearby forests, commercial manufacturers supply the market with shingles from the most suitable woods. And these, to the extent still available, are the same woods used before the days of the shingle machine. In the order of their present relative output, they are: red cedar, cypress, redwood and white cedar. A few shingles are also

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produced from pine, chestnut, hemlock and spruce, but with the exception of yellow pine, none of these, according to the statistics, passes the hundred million mark annually. Coniferous woods were always preferred, because they could be made more easily, and were less likely to crack and warp, but in some regions oak and even black walnut shingles have been used.

While a hundred million is a large figure, it is comparatively small in units of shingles, a fact readily appreciated when it is known that the annual output of all kinds is around ten billion. In 1912 it was above 12 billion, but the decrease in building,

This gives Louisiana second place as a producing State. Redwood, yellow pine (local use mainly), and white cedar follow with about half a billion each, while the other species are out of the running as far as quantity production is concerned.

Red cedar will, no doubt, continue to be the principal shingle wood for many years to come. The supply of standing cedar in Washington and British Columbia is very large, and the durability and straight grain of the wood adapt it admirably for roof covering. It is known as the "overcoat wood." Cypress has probably reached and passed the peak of its production, since the supply is more limited.



Attractive use of red cedar shingles on all sides as well as roof. The alternate wide and narrow courses on the first story give desirable contrast.

owing to the war, reduced the production in 1915 to about $8\frac{1}{2}$ billion, with the 1916 output about 12 per cent higher. All of these figures, however, represent only the active mills from which the Government has been able to obtain records—1932 mills in 1916—and since there are many small and temporary mills, the actual production is somewhat above these figures.

Western red cedar is the dominant shingle wood with an annual output of about 80 per cent of the total. This means that Washington produces two-thirds of the supply. British Columbia is also a large producer of red cedar shingles (2,300,000,000 in 1917), many of which are marketed in the United States. Cypress comes next and is the only remaining species producing in excess of a billion shingles.

It possesses, however, the highest qualities, and will continue to be used as long as available. Redwood shingles are fairly common in the middle western and eastern markets, and deserve to become better known and more widely used. The supply is large and the wood excellent for the purpose.

It is interesting to know that white cedar shingles, which are now hardly a factor in the market, were once the most highly desired and widely used roof covering in the East. Their durability and lightness, combined with the desirable gray tone to which they weathered, made them favorites with architects and home builders. The limited output was readily absorbed at high price. The same is true to an extent of white pine, which formerly had high standing as a shingle material, but the disappear-

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ance of the eastern white pine forests and the competition of red cedar has largely driven the white pine shingle from the roofs.

The long life of a good shingle roof is a matter of common knowledge and definite record. Advocates of different kinds of shingles have dug up many interesting records to prove that their favorite is the best. Whether cypress, cedar, redwood or some other wood deserves the banner is not so important as the indisputable fact that good shingles, well laid, will last for generations. One of the most interesting historic records is that of Washington's residence at Mt. Vernon on the Potomac, which was roofed with cypress shingles in 1743, by Lawrence Washington, and was not completely re-shingled until November, 1913, so that some of the original shingles were in actual outdoor service 170 years. Repairs were made to this roof by George Washington in 1785, and actual specimens of the shingles put on at that time show them to be in sound condition.

Another record is that of the Bergen homestead in Brooklyn, N. Y., which was roofed with cypress when built in 1662, and when the old house was torn down in 1890, some of these shingles were in fair condition after 228 years of continuous service. We find a further record in a house built by the parents of Commodore Steven Decatur, famous in the early history of the American Navy. The roof of this house was perfectly sound in 1884 when wrecked by a cyclone after 110 years of service.

Cypress again comes to the fore with a record in the house built by the Austen family at Clifton, Staten Island, in 1710; shingles from this roof were still sound 200 years later. And so the records go.

Other woods have shown up equally well. The Dayton house, built in 1670, with a frame of white oak, sheathing of white pine, and with split shingles of white cedar, remained in good condition in the New England climate for nearly 250 years. One of the shingles now in the possession of the writer shows no deterioration on account of decay, although where exposed to the weather, erosion by the elements has worn off the fiber to half the thickness of the shingle.

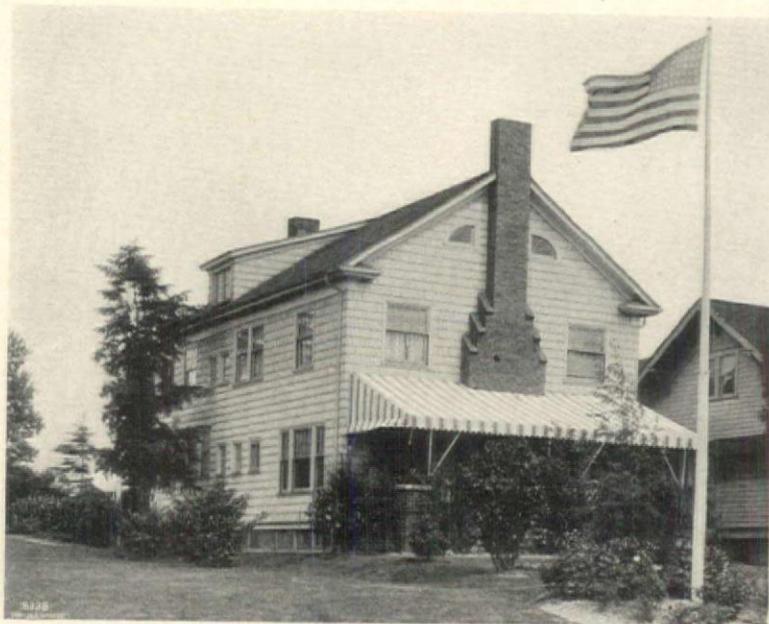
White cedar and white pine shingles on various old houses throughout the East remained sound until worn out or the structure destroyed. Red cedar, which is now so extensively used, did not become available until more recent

years, so that most of the records of actual service do not exceed 50 years. The inherent quality of the wood to resist decay is, however, so thoroughly established by the evidence of cedar logs which have remained sound after lying for centuries in the moist, decay-producing conditions of the forest floor that a life equal to any recorded for other kinds of shingles, is a practical certainty.

These longevity records are a direct criterion of what can be expected to-day from shingle roofs if shingles of equal quality, and laid with equal care, are used. Accepting the general opinion that the split or hand-riven shingles are far superior to those produced by present methods of quantity production, the fact remains that the shingle roof of to-day is good for forty or fifty years or more, if made with an aim to permanence. Cheap construction does not give the best results, and the lasting qualities of a roof are in direct relation to the care with which it is built.

To state the outstanding advantages of the wooden roof is largely a repetition of recognized facts. That they are light and durable is well known. The factor of lightness is certainly an advantage in itself, while it makes for economy in the whole structure by reducing the weight and amount of lumber in the frame and roof.

Durability in a roof is not entirely a question of resistance to decay, but equally important is the ability to stay put. The elements continually exert all sorts of stresses which tend to disintegrate or tear the roof to pieces. The shingles are alternately wet and dry, and hot and cold, while the wind



Typical use of wood shingles as siding for a house. They are laid with a wide expanse to the weather.

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searches for loose pieces which may be torn off. That wooden shingles are remarkably resistant to hail and cyclonic disturbances is well illustrated in the storms which swept over the Gulf States during the past few years, particularly in 1916. Many roof



Barn roof of hand-shaved hemlock shingles after forty years' service.

coverings either leaked or were blown off bodily by the wind, but in practically every case well nailed wooden shingles stood fast.

The relative economy of different roofs should be based on annual charge rather than first cost. The present abnormal prices and the constant fluctuations make it inadvisable to attempt comparisons, but in most estimates the wooden shingle is shown to be cheapest in the long run, and in most cases even in initial cost. This of course applies especially to permanent structures, since houses and farm buildings are erected not only for the life time of the individual but for the use of future generations. The shingle roof, since it will last the

longest and cost the least per annum, is the one which shows the greatest actual economy. Warm in winter and cool in summer is another important factor. We may like to listen to the rain on a tin roof, but certainly no one cares to sleep under one in summer. Wood is well known as a non-conductor of heat. Since cold is simply the absence of heat, the wooden roof serves to stabilize both heat and cold, and to maintain the most comfortable temperature. The extent to which this is evidenced in the shingle roof has been well shown by experiments conducted by Dr. Hermann von Schrenck, with self-recording thermometers placed under roofs of different characters in buildings near St. Louis. Without attempting to summarize the results obtained, it has been clearly shown by Dr. von Schrenck that the air underneath the wooden shingle roof in summer not only becomes heated much more slowly, but also gives off



DETAIL OF FARM BUILDING GROUP.
ALFRED HOPKINS, ARCHITECT

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heat less rapidly in cold weather. It was also found that the temperature under the wooden roof does not go as high in summer as under most roofs. This spells comfort in summer and fuel economy in winter for those who sleep under the good old wooden shingle roof.

When it comes to beauty, there is no ground for argument. Whether weathered down into the natural grays or browns or artistically stained, the wooden shingle gives the last needed touch to the rural or urban home. Nothing is more hideous than the conglomerate collection of roofs which one sees while riding through some sections of the country, and many otherwise attractive towns or homesteads become a blot on the landscape because of their unsightly roofs. The average builder is content to lay his shingles in the good old way with 4 to 6 in. to the weather in straight courses across the roof. If well done there can be many pleasing modifications made, however, in the methods of laying, by selecting special widths, varying the part exposed, or, where freak effects are desired, by wavy lines, and the comparatively new rounded effect of the thatched roof. What applies to the roof of the house is also true for the sides, and shingles brought down either to the first story or to the ground make an unexcelled covering.

It is just plain common sense advice to say: "Don't blame the shingles if your roof goes bad." As in everything else, the well made or the well built roof is the only satisfactory one. The first essential is good shingles which should be of a durable wood, straight grained, well manufactured, carefully inspected, and carrying the trade mark or brand of reputable manufacturers. They should not be too wide, preferably 4, 5 or 6 in.; five butts to measure 2 in. in thickness. The sheathing or roof boards should be sound, placed no more than 2 in. apart, and well nailed. For rafters in houses, 2 x 4's or 2 x 6's, spaced on not over 2-foot centers, spiked solid, will give the necessary foundation. The roof should be given not less than one-fourth pitch to drain off water rapidly, and on one-third or more pitch 16 in. shingles should be laid 4½ in. to the weather; on less than one-third pitch 4 in. to the weather. All joints should be broken at least 1¼ in., and each shingle nailed six inches from the butt, and not less than ¾ in. from the sides with two nails.

Perhaps the most important of all is the nail. Under no circumstances should the ordinary wire nail be used, since it will rust through, the head break, and the shingle become loosened. To get the most out of a wooden shingle roof, they should be nailed with hot-dipped, zinc coated, wrought iron, or old fashioned cut nails, or, if the price is not prohibitive, with solid copper or solid zinc. The

3½d or 4d galvanized cut iron nail is desirable, but if unobtainable or too expensive in the present market, only the best galvanized wire nails should be used.

If in doubt as to the details of laying, the builder can obtain the best sort of information from the various lumber associations. The specifications of the Shingle Branch of the West Coast Lumbermen's Association at Seattle, for example, is full and complete on "How to Build a Forty-Year Roof." The same is true as regards selection of grades and kinds, and from the National Lumber Manufacturers' Association at Chicago unbiased information can be obtained.

The fire hazard of wooden shingles has been given very careful consideration in recent years. Shingle manufacturers are as anxious as any other good citizens to prevent or reduce the fire hazard in towns and cities as far as possible. To this end, they are co-operating with fire chiefs and city officials, and in no case urge the use of their material where it is an actual hazard to life and property. It has been clearly shown, however, that there has been considerable biased criticism and inspired anti-shingle propaganda, while careful investigations usually reveal that the wooden shingle is not the primary or contributory cause of a conflagration. A wooden roof will burn, and so will that of other materials, but well laid shingles which will not blow off and act as flying brands, are not a serious hazard in residential districts. Conflagrations have more than once been stopped at wooden houses with shingle roofs, and since such a roof can be wet down and will absorb and retain moisture, it is often more of a help than a hindrance. The Atlanta, Ga., fire, for example, started in the business center, burned out to the residence district, and was stopped at a frame house. There is ample information on this subject for those who wish to investigate it in more detail.

The question of stains and preservatives is a subject in itself. Where stains are used only for the artistic effect, there is little danger of the builder or architect going astray. Preservative treatment against decay, however, takes one into a field where technical knowledge is essential. With durable wood, such as red cedar, cypress, redwood, etc., preservative treatment is not necessary, although where a creosote compound is used it tends to prevent curling, cracking, and the brooming of the surface on any kind of wood. The greatest economy in the use of a preservative treatment is with shingles of comparatively non-endurable woods, and when properly applied it will give indefinite life to shingles which otherwise would yield but a limited number of years of efficient service.

The City Plan Movement and Improvement for Springfield, Illinois

By GEORGE W. MAHER, F. A. I. A.

ONE of the many great activities that will inevitably follow close after the world war, when victory has been achieved and the ideals of democracy universally established, will be the desire of the entire nation to make of America a more desirable place in which to abide; where orderliness and beauty will prevail; where the humblest hamlet, town or city will enter into the task of improving its material surroundings for the health and happiness of the inhabitants.

This impulse or principle which will be entered into by communities is known as the City Plan Movement, and its purpose is the beautifying of the municipal surroundings of our towns and cities, in a constructive manner so as ultimately to bring forth desirable results.

Our national capital city, Washington, D. C., and also Chicago, Ill., are notable examples of what can be accomplished by the adoption of a well-conceived city-wide plan for future guidance in city growth and expansion. This movement throughout the country, however, is yet in its infancy, and it seems necessary for the architectural profession to call attention to this fact and to make of it a national issue. It is very evident that now is the psychological moment to enter into this great work in a constructive sense. The problem of reconstruction is being nationally discussed and architects should endeavor to impress their aspirations for a greater America upon the public mind.

The training and experience of bodies of men such as the American Institute of Architects and the state architectural societies undoubtedly make them the best qualified adequately to meet this great problem with vision and ability. Indeed, they are generally recognized as the organizations which should take the initiative in respect to the movement, and their services should be invaluable since their work deals with problems of planning, construction and beautification.

There has been public agitation relative to the necessity of shaping our growing communities, but the profession as a whole has not generally taken an aggressive position in this regard; therefore, much of the work attempted by public officials in charge, unacquainted with the comprehensive problems of planning, is unfortunately not always of a commendable nature.

The American Institute of Architects, in addition to being responsible for the resurrecting and adopting of the original plan for our national capital, has also committed itself to the great and public-spirited task of carefully advising its development, that it be executed in an orderly and architectural manner befitting its importance.

The perpetuation and development of the great Mall, with all of its art potentialities, extending from the Capitol Building to the Potomac River, is thus assured for the pride of the American people for all time.

The next movement in this great national task and desire for a greater America should be the planning and beautifying of our state capitals, which contain the public legislative structures of the state. Many of the capital cities in the various states are communities which indicate disorganization, both in planning and architecture, and represent in very small measure the progressive ideals of the state. It is unnecessary to mention that the state capitals are visited constantly, not only by the citizens of the state, but also by the traveler from afar, and here should be emphasized as far as possible our appreciation as a people of the fitness of things in respect to plan, art and architecture. It is true that the public improvements mentioned are not always comprehended or encouraged by competing communities or cities. The beautifying of a central capital city by legislation is discouraged as tending toward favoritism. The larger and more democratic ideal respecting the will of the majority should prevail, and the aspirations of a people as a whole find expression in some concrete form typifying its culture for the edification and approval of the entire state.

The two organizations of architectural societies, the junior and senior, known as the Illinois Society of Architects and the Illinois Chapter, American Institute of Architects, fully realize their responsibility in the movement for a city worthy to be the capital of the great State of Illinois, and have taken action in a way to encourage the development of a better and more beautiful Springfield, which in addition to being the state legislative center, was also the home, and is the burial place, of Lincoln.

One of the direct effects of the new Civil Administration Code of Illinois, now in force, is the

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creation of the Department of Public Parks and Buildings, presided over by an executive officer called a Director. The advisors to the Director in respect to public parks and buildings and art are appointed directly by the Governor of the State.

Governor Lowden has established the very commendable precedent of recognizing the architects, artists and sculptors of the state by appointing such advisers from men of attainment who are recommended to him by the recognized architectural and art societies and other known organizations of the state. The Illinois Society of Architects and the Illinois Chapter, A. I. A., are properly represented on this committee. One of the first acts of the entire committee appointed, which also includes certain distinguished citizens of the state, interested in matters of a civic nature, was the formulating of a tentative plan for Springfield that would form the nucleus for a greater and more comprehensive City Plan which would inevitably follow in the course of events, comprising the entire city and park systems of Springfield. The main object, however, was properly to locate the proposed Centennial Building, and this would not be done intelligently without a study of surrounding conditions.

The good offices of the State architect, Edgar Martin, who is also a member of the architects' organizations, were employed to bring about this desired result. The result was a scheme embracing and defining certain important areas of the city of Springfield and properly correlating all important civic improvements necessary for a definite city-wide plan.

The tentative plan shows the establishing of vistas consisting of streets and thoroughfares leading up to the Capitol, which is of the utmost importance. The plan also suggests a civic center and the location of a great Union Depot in proximity to the civic center.

There is indicated on this tentative plan a location for the future Governor's Mansion, directly on vista with the Capitol Building, also connecting, with boulevards, the Washington and Lincoln park systems and the suggesting of a future city park. The plan thus proposed is the first step toward a City Plan and as such meets with general approval.

The fact that the placing of the new Centennial Building was determined by this tentative plan, and the cornerstone formally laid October 5th, adds

further significance to the wisdom of the act of the Advisory Committee.

It is obvious that it will ultimately be necessary to establish by legislation certain acts creating building zones or building lines along the proposed improvements agreed upon. This will be one of the first steps to be taken in order to safeguard future improvements and will require many years of growth before realization. One of the main features of the tentative plan, approved by the Advisory Committee, was the establishing of a main parkway boulevard, spacious in width and extending directly from the State Capitol Building in grand vista to the tomb of Lincoln, a distance of approximately one and one-half miles. This is an auspicious beginning of city plan work visualizing possibilities far into the future. Such a thoroughfare, lined as it should be with beautiful architectural buildings, public and semi-public edifices, representing the art and culture of the middle west would be the Mall of the capital city of Illinois.

There is in contemplation at the present moment an agitation in the state for establishing a great university at Springfield, which is proposed to be located immediately adjoining the park area surrounding the Lincoln resting place. It is proper and right that an enterprise of such significance should be located here. The movement should receive the attention and support of the entire state and the educational world. The ideal of democracy, of humanity, for which we are fighting today, received its greatest impetus and loftiest human expression from the martyred president. It is fitting that there should be located, close to his mortal remains, in enduring stone and marble, groups of educational halls and buildings worthy of the situation and representative of the culture of the state.

The Illinois Society of Architects and the Illinois Chapter, A. I. A. are, therefore, committed to the proposition to assist in every way possible the fulfillment of these ideals and to make of Springfield, our capital city, a state center worthy in every way of Illinois and the Middle West.

A comprehensive city plan is essential. This is the beginning, the incentive for such a movement, and should, therefore, interest those in authority in order that they may properly present to the people, in tangible form, the worthy undertaking.

October Meeting Illinois Chapter, A.I.A.

THE announcement of the October meeting of the Illinois Chapter, A. I. A., as addressed to the affiliates, contained the following:

On account of the war conditions it was thought best not to attempt the Convocation of the Arts last year. On account of the necessary reconstruction features about to be launched it may be very advisable and timely this year. The following resolution, passed at the annual meeting June 11, 1918, indicates the scope of the work to be undertaken this year, in which the affiliates will be interested:

"Resolved, That the Historical Committee be instructed to co-operate with the Exhibition Committee and the Affiliate Committee to prepare for a Convocation of the Arts to take place during the time of the exhibition.

"That in preparation for this convocation the Chapter devote such meetings as may be necessary to the matter of collecting, discussing and selecting reproductions of works of the so-called "Chicago School" of Architecture and the Allied Arts, beginning at least as far back as the early work of John W. Root and Louis H. Sullivan, with the aim of bringing to view the merits and underlying principles of it and the worthy common factors of it, in such a manner that the art world may see it and a permanent record of it may be kept.

"That a special managing committee be appointed for the collection, display, criticism and selection of the matter in open meetings:

"That the affiliated societies and journals be asked to participate and contribute the same kind of material in their several fields:

"That papers and criticisms be obtained relating thereto and that the whole be put into convenient form for publication in such quantity as may be found advisable."

In further reference to this undertaking, and the desire of the Chapter to enlist toward its success influences outside its immediate organization, it may be pertinent to quote from remarks by Henry K. Holsman, secretary of the Chapter, at the last meeting of the Illinois Society of Architects. He said:

Prof. G. H. Mead, president of the City Club, upon introducing the subject of traction ordinances for the city of Chicago, said, in effect, that England and France had never done so much for civil and social betterment as they have done during the present war.

A reconstruction period is about to begin in this country. While we are doing all we can efficiently to win the war, let us do all we can to make our country better and to prepare the ground for good constructive work after the war. Let us keep our wits sharpened and our fund of information as complete as possible against that day when we may peacefully pursue our beneficent occupations.

I agree with Mr. Maher that a great deal must be done to improve rural architecture and thereby improve rural civil and social life; that constructive organized effort should be made to suggest the immense possibilities for the betterment of individual and national life to be found in better roads, bridges, rural parks, and above all in beautiful, attractive and convenient farmhouses and farm communities. To the end that we as architects prepare ourselves to meet the task of reconstruction better, and as secretary of the Illinois Chapter, A. I. A., I am going to invite you to participate in one of the activities of the

Chapter. I have not been formally authorized to do this and I do not do it with the idea that better work of this kind can be done in the Chapter. The relations of the Society and Chapter are so cordial that we can work together practically as one body in these matters, and should do so.

By way of parenthesis, I may say that at the last Convention of the American Institute of Architects Mr. Davidson and I had occasion to mention the Illinois Society so many times and we exposed the cordial relations of the two so much that one might easily get the impression that they were one and the same body; in fact I believe there was some confusion manifested in some of the remarks made on the floor as to which body was part of the American Institute.

Architecture is a co-operative art. No architect can do anything worth while, either in study, invention or execution, without the suggestion, approval and co-operation of others, and moreover, without others of his own time and place. As a means of intensive and co-operative study of architectural problems, the Chapter proposes, as outlined in the resolution of June 11, 1918, to devote several meetings to the collection, discussion and selection of works of the so-called Chicago School of Architecture and the Allied Arts with the aim of bringing to the surface the underlying principles and common factors of it in such a manner that the art world may see it and permanent record of it may be made and kept.

The work is in the hands of the Historical Committee, whose chairman is Thomas E. Tallmadge, who has already made a considerable collection of some of the most prominent examples.

We can all help and profit by participation in this, either by sending in examples for criticism or selection or by joining the Chapter and taking part in the discussions. If we do not find suggestions for a worthy style, applicable to our prairie farms and rural communities, that will be more appropriate and inviting than borrowed Old-World solutions that surely do not fit American life and modern conditions, we will at least sharpen our wits and deepen our understanding for work in that greatest of all arts—the proper design and arrangement of buildings, grounds, roads and communities that will make them most attractive and economically efficient in their bearing and influence on social and industrial life and the comfort and happiness of the people.

The October meeting of the Chapter showed evidence of the revival of interest inaugurated at the September meeting which opened the season, following the summer suspension, by organizing in the strongest possible way for the work ahead.

One of the most gratifying features of the meeting was the report of Alfred S. Alschuler, chairman of the Architects' Section of the Fourth Liberty Loan Committee. Though less than half of the campaign period had then elapsed, he was able to state that the architects' section had already considerably more than gone over the top. This achievement is one which is particularly commendable and noteworthy under the conditions existing in one of the professions hardest hit by war restrictions, and will be learned of with pleasure.

On motion of F. E. Davidson a resolution was passed providing for the appointment of a com-

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mittee of five members of the Chapter to co-operate with a similar committee of the Illinois Society of Architects in framing a campaign on reconstruction after the war.

Mr. Davidson also offered a motion, which was unanimously adopted, that the Executive Committee consider the advisability of recommending to the Board of Directors of the Institute that the Journal of the Institute include regularly full reports of the activities of the board and of the Institute committees, and also news of the work of the various Chapters. Speaking on this motion, he expressed regret at the lack of information by members of the Institute as to what the organization is doing, and said that at the last Convention it was understood that the secretary was to provide for the sending of monthly bulletins to all Chapters, but that only one bulletin had been received in the half year that has elapsed.

In further discussion of the subject it was stated that the Journal of the Institute does not serve the purpose that the old Quarterly Bulletin did in disseminating to all members information about the Institute. It was the intention, when the Journal was started, that it should "carry on" in this respect; but it was pointed out that the full membership could not be reached that way, the circulation of the Journal being now a matter of voluntary subscription. Publication of full Institute information as suggested in the motion would, however, at least insure its reaching every Chapter regularly, and the Chapters could then keep their members informed.

The secretary read some correspondence relating to the resolution adopted by the Chicago Chapter last May, recommending changes in clauses of the Circular of Advice of the Institute with reference to the revision of article 4 of the Canon of Ethics. It may be of interest to republish the resolution, which was as follows:

Whereas, The American Institute of Architects, at the fifty-first annual convention assembled, revised the canons of ethics by eliminating article 4, namely, "It is unprofessional to advertise";

And whereas, The convention instructed the Board of Directors to revise articles 12 and 23 of the circular of advice relative to principles of professional practice to conform to the above action;

And whereas, It is deemed advisable for the Chapters of the American Institute of Architects to advise the Board and the Board invites the co-operation and suggestion of the Chapters:

Therefore, be it resolved, By the Illinois Chapter, A. I. A., that clause 12 of the circular of advice be revised to read as follows: "The Institute relies upon its members to keep whatever advertising they may do within the bounds of truth and good taste and of such character as to maintain the high ideals of the Institute."

And be it resolved, That the following two sentences be substituted for the first sentence of clause 13: "Placing the architect's name on a building during construction and

the signature of buildings after completion, in a dignified manner, is recommended by the Institute. Signs should be limited to the name of the architect, the initials of the Institute and the address";

And be it further resolved, That a copy of these resolutions be sent to the Board of Directors of the American Institute of Architects.

By instruction of the President and Executive Committee of the Illinois Chapter a copy of this resolution was also sent to each of the other Chapters of the Institute for their consideration, and with the suggestion that they adopt this or a similar resolution.

The executive secretary of the Institute stated, in his acknowledgment, that the correspondence would be referred to the special committee on advertising, to which the board had delegated the duty of preparing a revision of the Circular of Advice, in accordance with the action taken at the Convention. Some of the letters from officers of Chapters in various parts of the country expressed approval of the resolution and co-operation toward its passage by their Chapters, while others stated that it would be presented for attention. The only adverse communication received was from the New York (City) Chapter, in the form of copy of a resolution expressing its lack of sympathy with the action of the Convention in eliminating article 4 and its feeling that the dignity of the profession was thereby placed in jeopardy, and condemning the recommendations of the Illinois Chapter.

An address was made by J. W. Dickinson on the subject of advertising, in which he urged that architects should advertise, and suggested methods that appealed to him as an advertising man.

Among the affiliates brought into relation with the Illinois Chapter during the last year was the University of Illinois Chapter of Alpha Ro Chi, described in its constitution as organized "to unite in fellowship the architectural students of the university to promote the artistic, scientific and practical efficiency of the younger members of the profession." Because of the distance of Champaign from Chicago this was the first meeting at which representation was feasible. M. A. Abbitt was present on this occasion, and expressed the interest of his organization in a creditable manner which was only the more pleasing for its modesty as addressed to so representative a gathering of the profession he was preparing to enter.

In speaking on one of the subjects discussed during the evening, Henry K. Holsman, the secretary of the Chapter, took occasion to express in a very complimentary way the appreciation he felt was due the architectural press for the effort continually devoted to the welfare and progress of the profession.

Simplicity in Architectural Accessories

HARDWARE

By W. R. HILL

ARCHITECTS have many troubles through their responsibility to the owner for a complete building, of the best materials, to be ready on a certain set date, regardless of all handicaps, and in every particular to be suited to the owner's peculiar temperament.

To do this includes the selection of all types of materials and the smooth handling of all types of men. This requires deep study, broad experience and a disposition capable of meeting all emergencies.

Just couple the foregoing with a preliminary belief on the part of the prospective owner that he is paying the architect for something anybody could do, that he is really a sort of "clerk of the works," and that he, the architect, as a matter of fact just "walks around," and you have the foundation of trouble—real trouble—for the architect.

A great many architects have considered hardware as a particular difficulty in making the details, in selecting types, designs and finishes, in awarding the contract, in getting it at the building on time, and in correctly applying it. There were many reasons for this, but it now seems as if among the many benefits which the United States will derive from the world war, will be a distinct simplification in the architect's use and handling of hardware.

A brief history of the steps by which the hardware industry developed will show why it has branched out into so many unreasonable variations.

In the early colonial days, thumb-latches on the doors, either of iron or of wood, heavy oak bars on the inside of entrance doors, hinges cut out of dad's old boot-tops constituted "builders' hardware."

As our forefathers were increasingly successful in their struggle for existence, they demanded greater comforts and more refinements, and they needed them. Naturally, the change came in hardware just as it came in the planning of the home, the gradual development of architecture, the adoption of graceful lines in furniture, and in all of the many other niceties of home life.

The first step in the evolution was the greater use of wrought iron.

The second was the use of brass, generally cast.

The third was the gradual use of a surface ornamentation that was simply horrible in design.

The development of the foregoing steps from a simple line of a few types of necessary fastenings into a variety that grew beyond all reason was gradual in the beginning but rapid in reaching its peak, which might be placed in the year 1916.

Up to 1916, manufacturers of builders' hardware illustrated and listed in their catalogs everything for which they had patterns. While guilty, they were not solely responsible for this unnecessary variety as the architectural profession was certainly a contributing factor.

The manufacturers were guilty, not only in being willing but even in catering to the desire of architects to have hardware which fitted the most extraordinary bevels, placing of trims, narrow stiles, special designs, odd finishes, etc. *ad libitum* (not to say *ad nauseam*).

The architectural profession was certainly guilty in saying to the manufacturer when he protested: "Well, if you won't make it, someone else will," and then handing it around until someone was found.

Before the United States got into the war, one of the largest manufacturers of builders' hardware seeing confusion, inordinate expense and difficulty in selection in this tremendous variety of designs, finishes and locks, and the duplication of types of such simple and practical articles as hinges, sash fasteners and flush bolts, cut down its line so that instead of a descriptive catalog measuring $3\frac{3}{4}$ in. in thickness, a new catalog was issued in May, 1917, which is only 1 in. in thickness.

Then the United States took a hand in the war and gradually the Government found that it was necessary to require manufacturers in dozens of industries to cut down their lines still more.

Although no official announcement has been made as yet, a report has been prepared by the committee appointed for the purpose to the Conservation Division of the War Industries Board, and will undoubtedly be officially recognized in due time, cutting down the lines of builders' hardware to a war basis.

Now the point it is desired to present to the readers of THE AMERICAN ARCHITECT is this: The architectural profession can help to prevent the return of the old, confusing and delaying variety of builders' hardware by not demanding the little, un-

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necessary, finicky things that they formerly required and by making their details to fit the standard hardware.

By careful study and at a considerable cost, the hardware manufacturers have issued a book entitled "Details to Which Standard Hardware Can Be Applied." This book should be in every architect's library and, better yet, should be consulted by every draftsman when making the details for a building.

It is the earnest hope and belief of manufacturers of all building materials that those lines which have been cut down by federal action will never again return to the old, unreasonable variety. They will return in part, of course, but with the experience acquired by the use of a reasonable, practical line, we should never go back to the old basis.

The architectural profession has at times justly complained that builders' hardware was not at the

building on time. The reason for this was that it was simply impossible for any manufacturer to carry in stock the hardware which the average architect required for the average building. There was always something special. It was either a different bevel, or a different backset, or a lip of strike, or a size of escutcheon, or a shape of knob, or a finish, so that delays were bound to occur. It also meant greater expense, greater difficulty in obtaining decisions from the owner on types, finishes, etc.; in fact, the whole thing was top heavy and cumbersome so that it reached a point where it was difficult to give the architect, owner, or contractor, satisfaction because of too great a variety.

Reducing the assortment and cutting out unnecessary duplicate types will mean better service to everyone and it is for this end that the hardware industry looks for a hearty co-operation on the part of the architectural profession.



FARM BUILDING GROUP
ALFRED HOPKINS, ARCHITECT

THE AMERICAN ARCHITECT

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Co-operation

IT is inconceivable that at a time when all the issues pertaining to reconstruction are so plainly joined, those in control of organizations in the profession of architecture should fail of co-operation in a program for the future.

If in any one of our leading societies there should be shown a disposition on the part of any one man or group of men to retard the preparation for needed reforms, it is certain that when the facts are made public these malcontents will reap the censure that should be laid on all obstructionists.

Just now, minutes are valuable.

Architects may advertise. The Institute has said so. Why not, then, advertise by proper publicity what is being done in these important matters so that all may know that the profession of architecture is alive to its responsibilities, and believes it is entitled to a place on any program of reconstruction. Why not let it be known that it is now ready and fully prepared to assume its responsibilities in carrying forward its part?

If it should happen that the profession is again ignored, there will undoubtedly arise a cry of protest from those whose manifest duty was to have seen to it that architects had a "place in the sun."

There should at once be made public, knowledge

as to what is being done and where everyone who is in a responsible position stands. If stubbornly adhered to differences of opinion have prevented concerted action, it is time such differences were adjusted and that something was accomplished.

Improving the Farmer's Surroundings

AMONG the many things that we shall have to consider when we enter on the period of reconstruction, none will be found of greater importance than how best to assist the farmer to improve his surroundings to an extent commensurate with those of the more favored city dweller.

The majority of the people have never before realized the importance of the farmer's work in our great economic problems until they felt the pinch of rationing as dictated by the food commission. The slogan, "Food will win the war," aroused everyone to a stern realization of the fact that unless we gave all our energies to production and conservation of food, we could not maintain our own army in the field nor could our Allies successfully continue their operations without the food we must send to them. It at once became apparent that the work of the farmer was equally important as the work of the groups of men for whom we were expending vast sums for housing—the industrial worker in the factory and the shipyard.

We have taken the farmer too much as a matter of course. We have become so used to the regular and efficient service of our daily food that we have failed until now to grasp the true significance of its source of production. As the leading industry of the world, agriculture has not received the consideration to which it is entitled, nor has the farmer as the actual producer. We have, since this war started, spent a billion dollars that industrial labor might be adequately housed. We have called to this work the services of the best architects in the country and they have seen to it that the housing of the industrial worker has been as aesthetically perfect as the money available would provide. If we were to keep men on the job, if we were to avoid the enormous cost of labor turnover, we have believed it necessary to surround the factory worker with every available comfort and refinement.

Small wonder, then, that the farmer's sons and daughters, tired of the monotonous surroundings of farm life, the humdrum, commonplace aspect of their homes, should leave the farms and seek work in bustling industrial centers. There has been little to restrain them save the usual ties of affection, and these are often ignored on account of the

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weariness monotony of the daily life on a farm.

It is necessary for our national well-being that a work so long neglected should be taken up and the errors of the past remedied. If, as Mr. Hoover has told us so many times, "Food will win the war," is it not essential satisfactorily to house the producers of food as well as the munition worker and the shipbuilder? And if, when peace comes, many of our present industries now working at top speed will relax in some instances almost to cessation, while agriculture will for all times be the first essential of our production, is it not logical to urge that the farmer, his farm, his house and dependent buildings should receive the governmental consideration which his economic importance warrants?

Farming is a universal industry. It is practiced in every state in the Union. This can be said of none of our industrial enterprises. Its fostering and protection is therefore a nation-wide problem. So that in pointing out a way toward the betterment of farming conditions, the application of any suggested methods will apply generally.

The landscape out of doors, when untouched by the hand of man, is always beautiful. The country roadside has its charm unless marred by unsightly, unkempt and poorly designed farm buildings. While the sons and daughters of our farmers may not stop to analyze the true source of their discontent with farm life, much of it is undoubtedly due to the lack of even casual refinements in their home and its dependent buildings. Why should not all of the various states make it a specific object so to improve the condition of the farmer as to dignify his labor and educate his children to a sense of their great importance as prospective farmers? Some of the states have already taken steps toward this end, notably Minnesota.

In 1915, the Minnesota Art Society, realizing the necessity for the improvement of the farmer's sur-

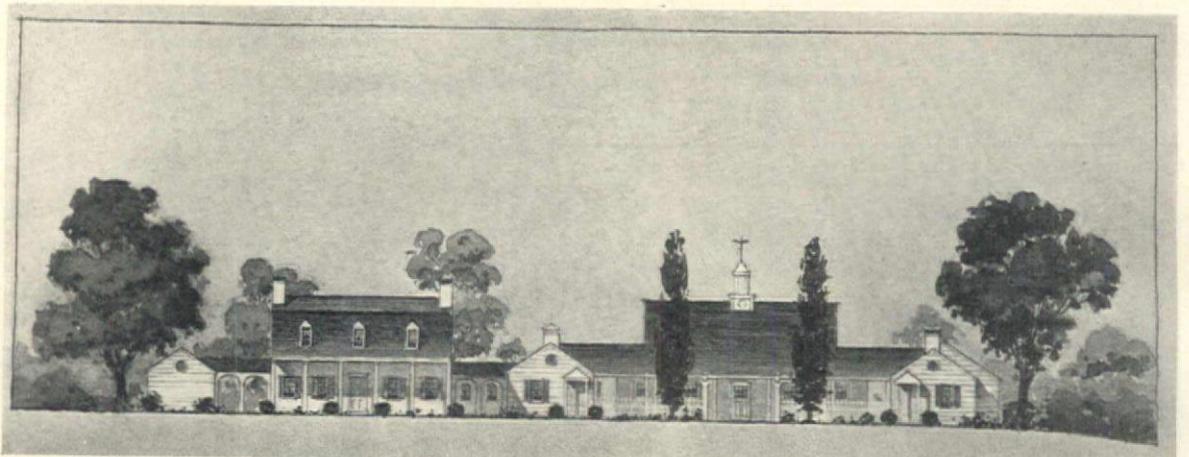
roundings, held a competition for the best design for a Minnesota farm house. These designs, published in *THE AMERICAN ARCHITECT*, issue of June 9, 1915, were a splendid and practical series. The competition was participated in by the best architects of small houses in the state. Just how many of these houses were built it is not possible to determine, but there can be no doubt that this movement by a branch of the Government of the great agricultural state of Minnesota had a far-reaching effect in the betterment of farm houses.

It should not be difficult to impress on the various state legislatures the importance of bettering the social surroundings of our people engaged in agriculture. Many men of prominence had their youthful experiences on the farms of their state.

As to a practical form which this much-needed reform could take, it is suggested that each state create a commission composed of representatives of all the principal elements of our national life. These would be artists, architects, teachers of agriculture, successful farmers and bankers. It should be easy to form such a commission, and in view of the important and patriotic service to be rendered, it should also be as easy to secure a representative group that would serve without pay as it is for the national Government to call to its councils without remuneration the distinguished group of men who constitute its Art Commission.

No professional service either in peace or war would be of greater patriotic value than such a commission organized to secure to the farmers all of those good conditions which should constitute his surroundings and now so lavishly thought out for the benefit of the industrial worker.

The matter is of grave importance, and its urgency is placed before the governors of the various states with the hope that some adequate action may be started.



PROPOSED FARM GROUP AT ST. PAUL, MINN.

ALFRED HOPKINS, ARCHITECT

Criticism and Comment

Service

The Editors, THE AMERICAN ARCHITECT:

Your editorial on "Service" in its main import strikes a timely and vitally important keynote as applied to current architectural practice.

In its wider application this question of service lies at the foundation of civilized Christian ethics, as distinct from all merely natural or brute conceptions of superiority and leadership. It has been said that there are two ways of being great—either by the exercise of one's gifts and powers, whether mental or physical, in the attainment of supremacy over others, and in using their services for one's own aggrandizement; or, secondly, and surely by far the better way, by spending and being spent for the uplift and betterment of one's fellowmen.

Accepting this latter as the true ideal, it becomes simply a question of how to give it practical application in the domain of our own noble and time-honored profession of architecture.

That there has been a wide departure and, from the viewpoint of efficient service, a retrogression in the practice of architecture, since the period when the architect was more nearly that which the title originally stood for—viz., a master builder or craftsman—can hardly be doubted. This is due to several causes, and, anomalous as it may seem, the chief of these is to be found in the advance made in knowledge and invention along tributary lines in the great province of building construction.

It is needless to specify in detail the various departments of industry involved in the erection of an important modern building of almost any description, as compared with that of a mediæval cathedral or other structure of the first class in ancient or pre-reformation times. While it may be true that, from the artist's point of view, we cannot hope to rival, still less to excel, some of the ecclesiastical and other edifices of former times, the diversity of skill and knowledge required in the erection of an average public building in our own generation are such as to demand the time and attention of perhaps ten men, in a supervisory capacity, where one would suffice formerly.

Add to this the radical change brought about by the invention of so simple a commodity as paper, as a medium for directing the mechanic in his execution of the architect's ideas. Before its introduction such drawings as were issued by the architect were of a rough, free-hand character, executed

on parchment, a costly material; and in ancient times it is doubtful whether even this was used. This, of course, necessitated a much closer personal inspection on the part of the master than is now called for. Supplemented as this has been by drafting instruments, insuring an amplitude and accuracy of illustration such as, if faithfully carried out, could hardly be approached by the closest inspection "on the job," we surely have a sufficient explanation of the change from direct to indirect control on the part of the architect.

Presupposing the services of a faithful and competent deputy or clerk of the works, this might not be such a serious evil except for the point mentioned by you, that the architect himself is largely lost to view by his client, and has to suffer the consequence. This, rather than any spirit of aloofness on the part of the average practitioner, explains the present regrettable situation. Doubtless there is a certain proportion of "high-brows" and dilettanti among architects as in other professions. Like the poor, they will probably be always with us. The writer for one, however, does not believe that we have more than our share of that element; and such men sooner or later inevitably meet their Waterloo.

The solution of this problem is, I am convinced, to be found in one word, and that word is co-operation. Without going so far as to say that the vocation of architect and that of building contractor should be merged into one—though even that may be a realization of the future—the personnel of the great majority of firms of architects might well be increased several fold; and where a man is practicing alone, if the extent of his practice admits of it, he would do well to identify two more men with him as partners. No firm under such conditions need to lack direct contact with its clients. The greater the extent and complexity of its practice the greater numerically should be its active membership, and by consequence the greater its prosperity and the degree of efficient service rendered to the general public.

It surely behooves all of us to keep in touch with the trend of our time. We are, or soon will be, living in a democratic age, and architects, in common with other people, must learn the wisdom and advantage embodied in the old saw, *Tempora mutantur et nos mutamur in illis*.

C. WHITLEY MULLIN.

Brooklyn, New York.

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NOVEMBER 6, 1918

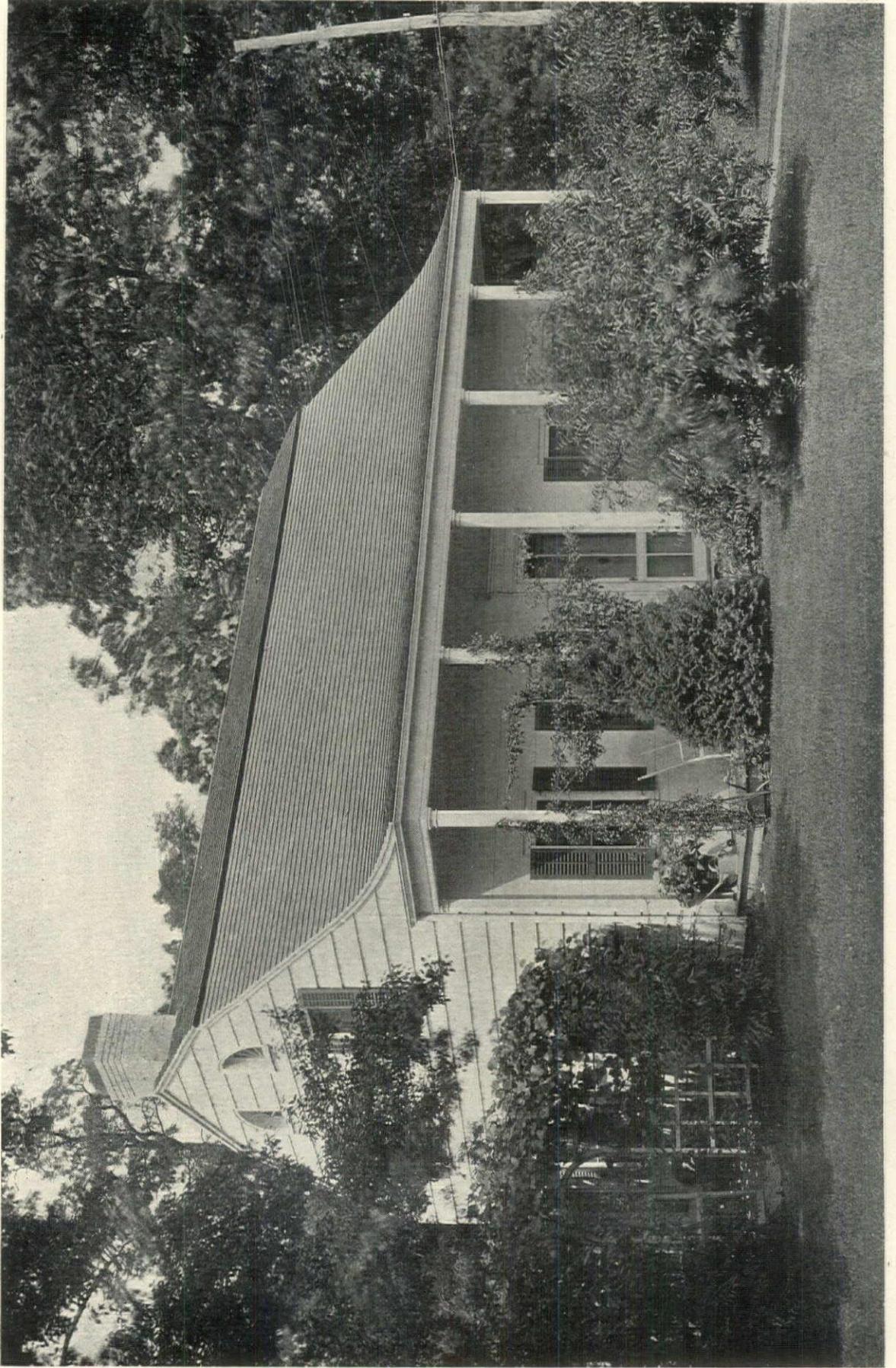


PLATE 136

FARMER'S COTTAGE, GLEN COVE, L. I., N. Y.
ALFRED HOPKINS, ARCHITECT



PLATE 137

DAIRY BUILDING AND FARMER'S COTTAGE, GLEN COVE, L. I., N. Y.
ALFRED HOPKINS, ARCHITECT

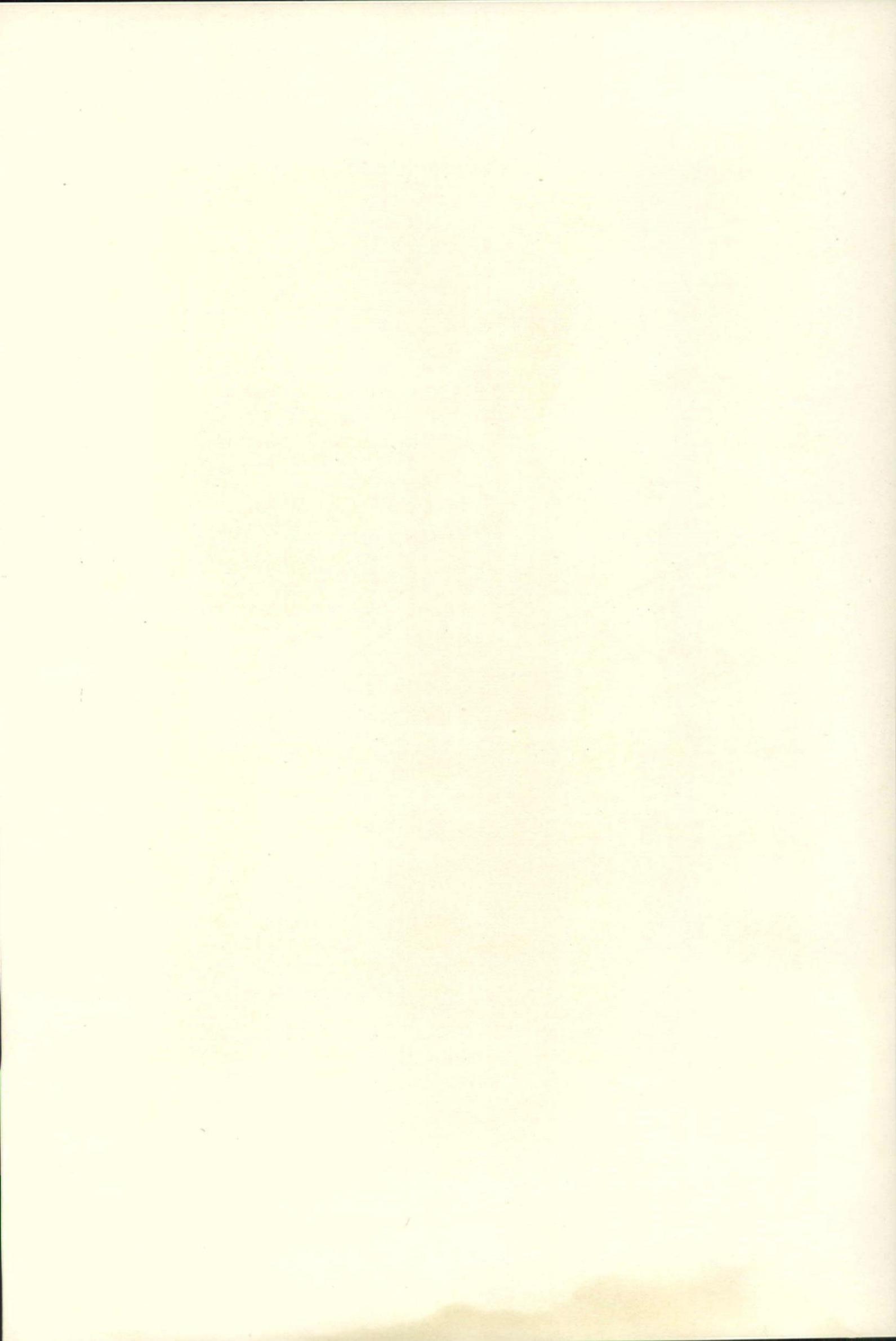
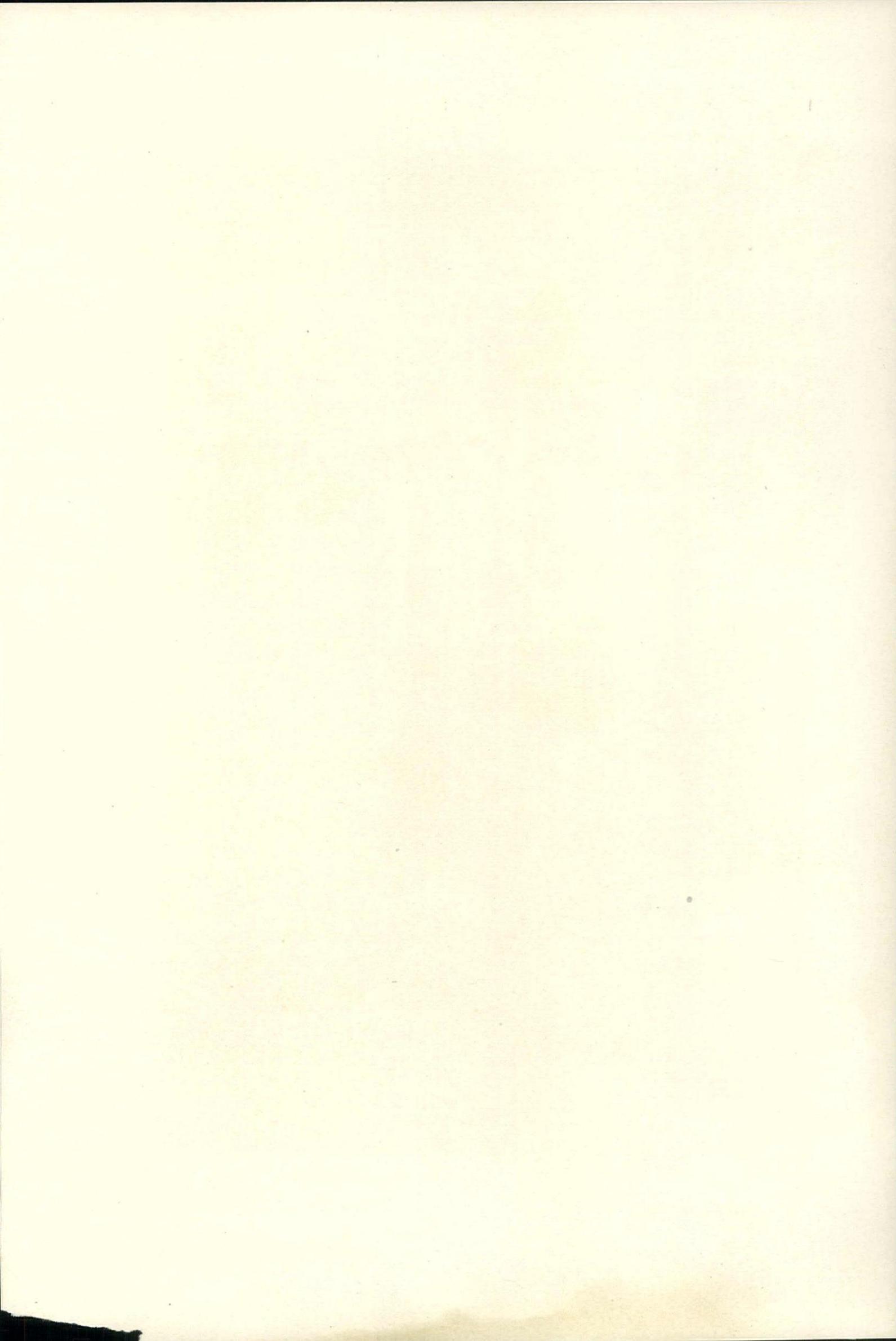




PLATE 138

DETAIL OF FARM BUILDING GROUP, GLEN COVE, L. I., N. Y.

ALFRED HOPKINS, ARCHITECT



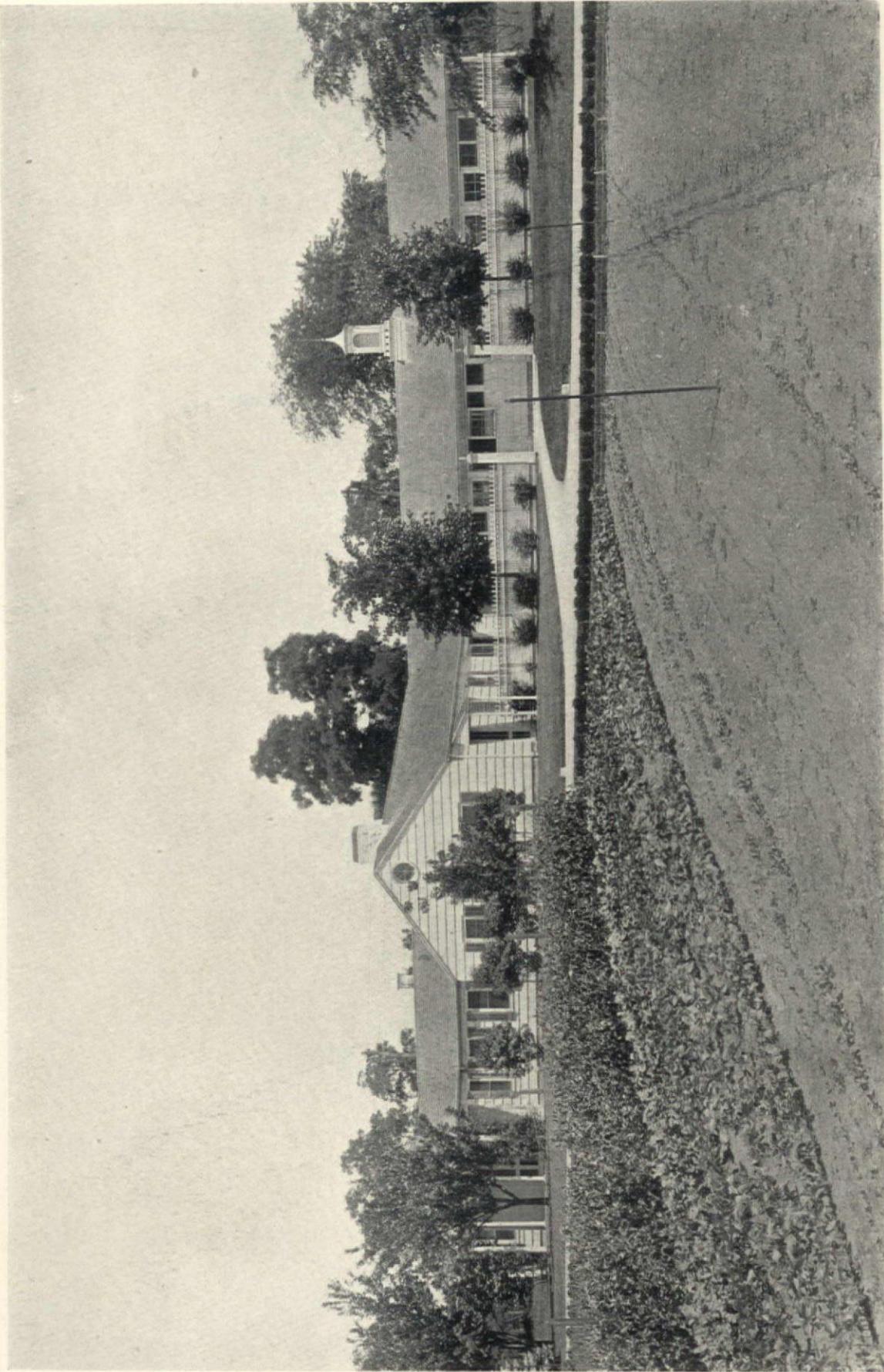


PLATE 139

FARM BUILDING GROUP, LOCUST VALLEY, L. I., N. Y.
ALFRED HOPKINS, ARCHITECT



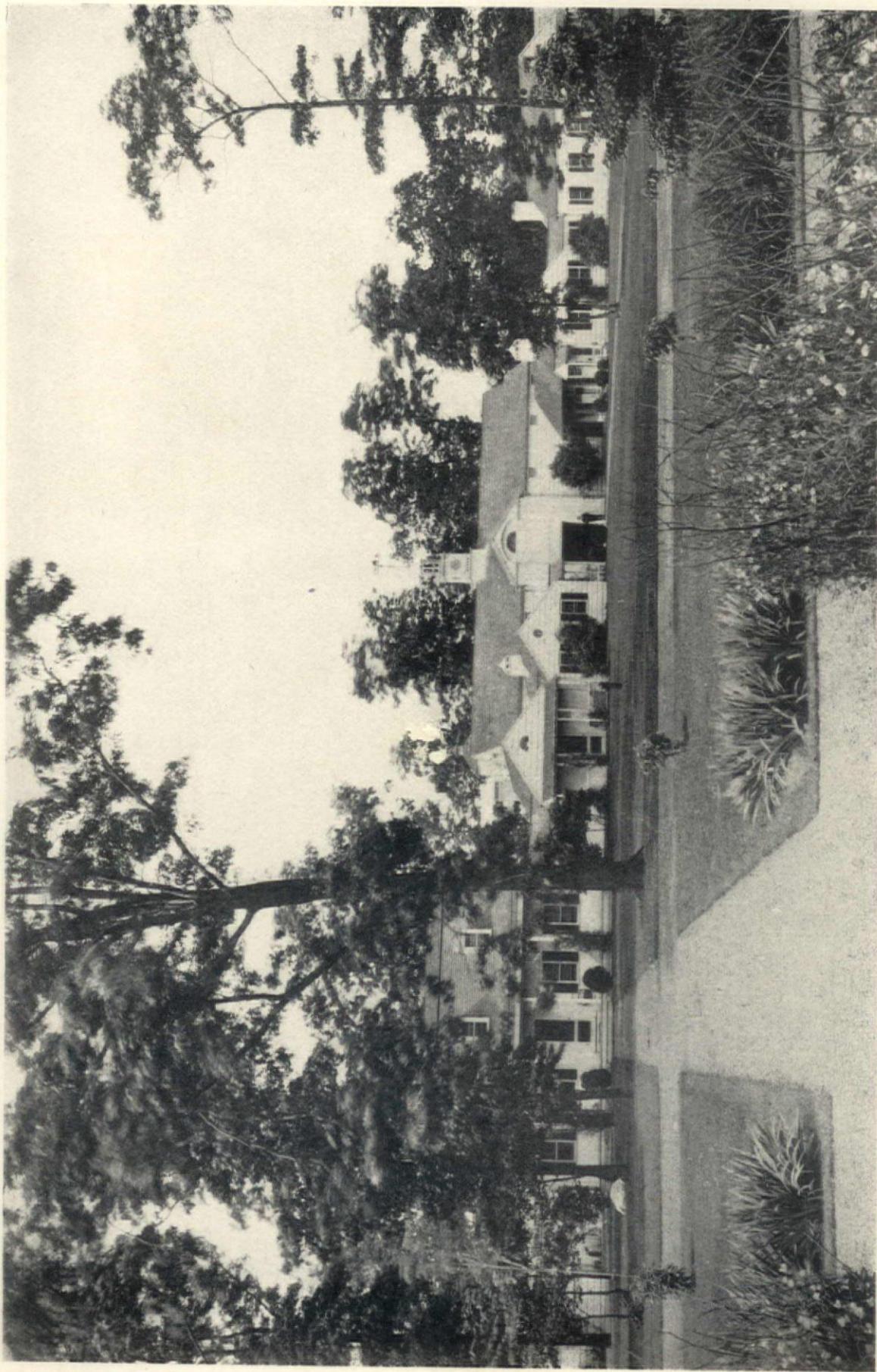
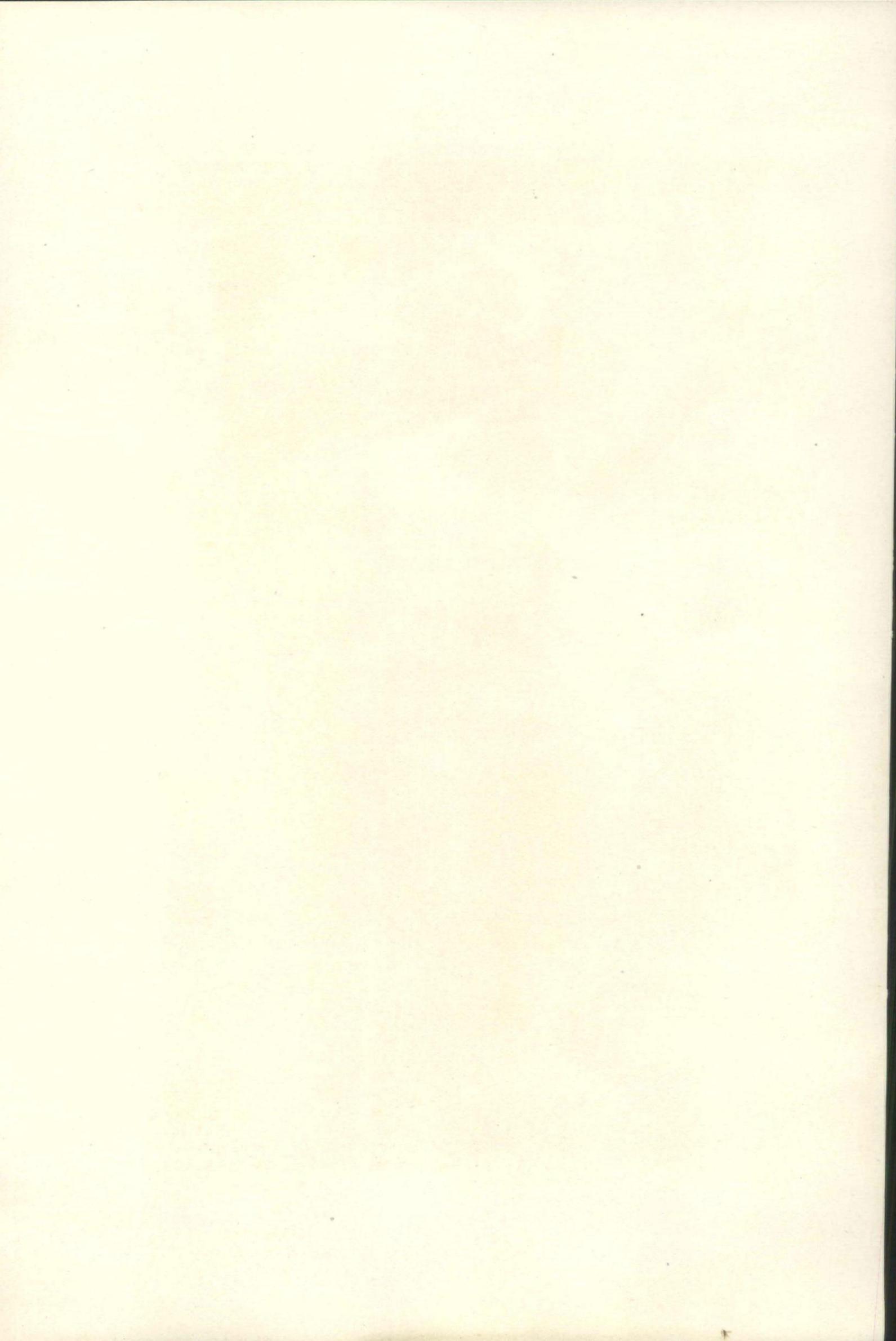


PLATE 140

FARM BUILDING GROUP, BROOKVILLE, L. I., N. Y.

ALFRED HOPKINS, ARCHITECT



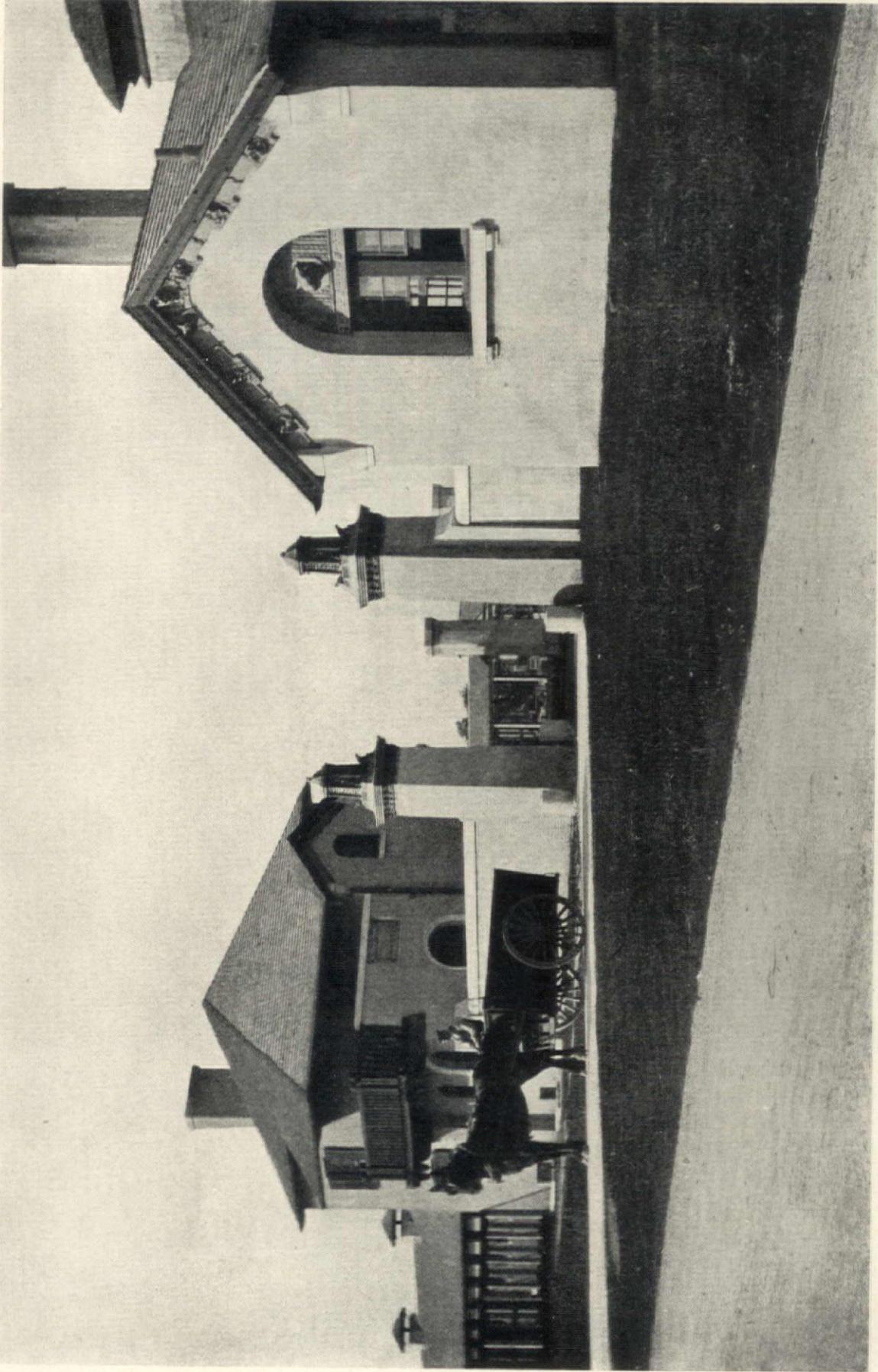


PLATE 141

FARM BUILDING GROUP, OYSTER BAY, L. I., N. Y.

ALFRED HOPKINS, ARCHITECT

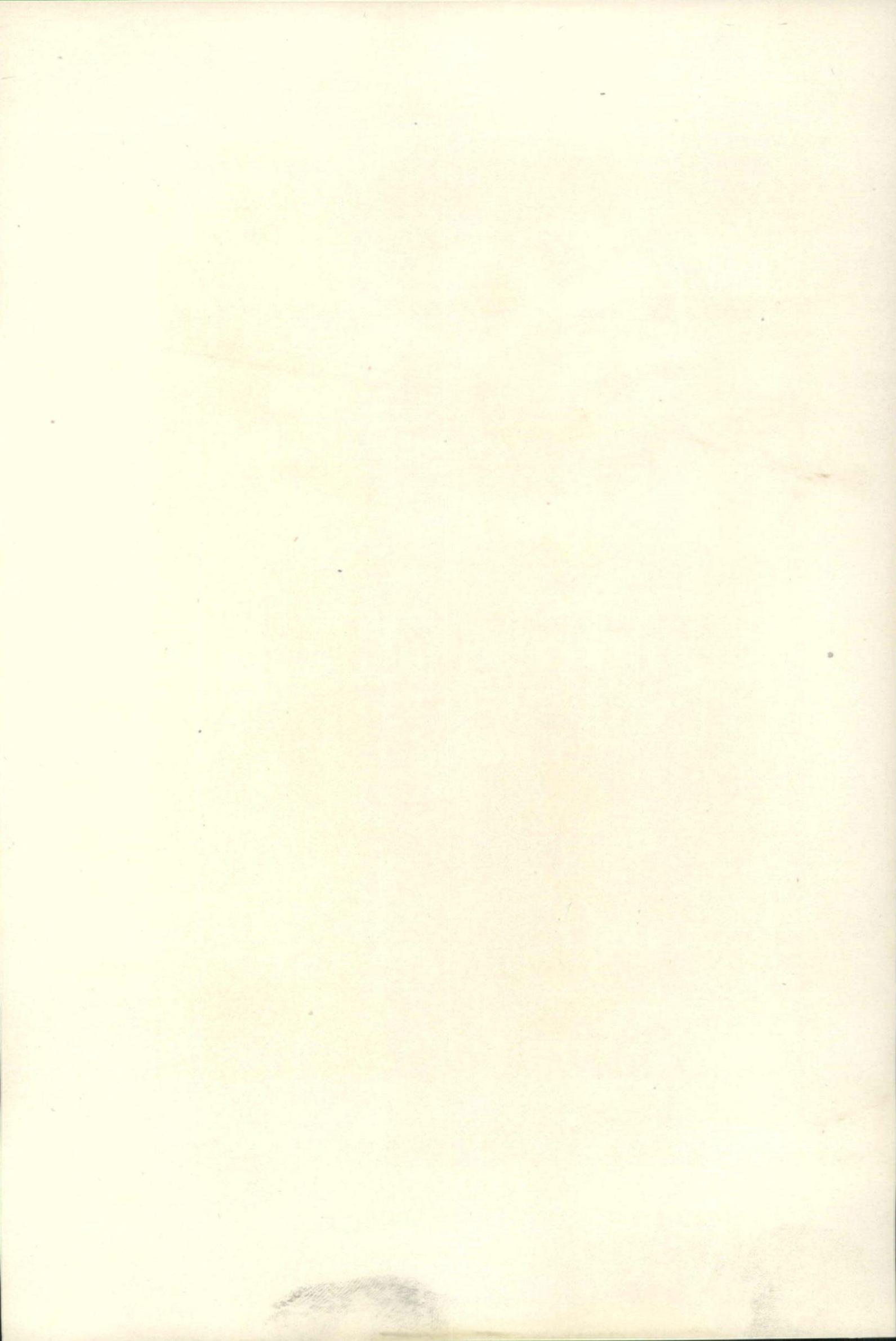




PLATE 142

DETAIL OF FARM BUILDING GROUP, BABYLON, L. I., N. Y.

ALFRED HOPKINS, ARCHITECT

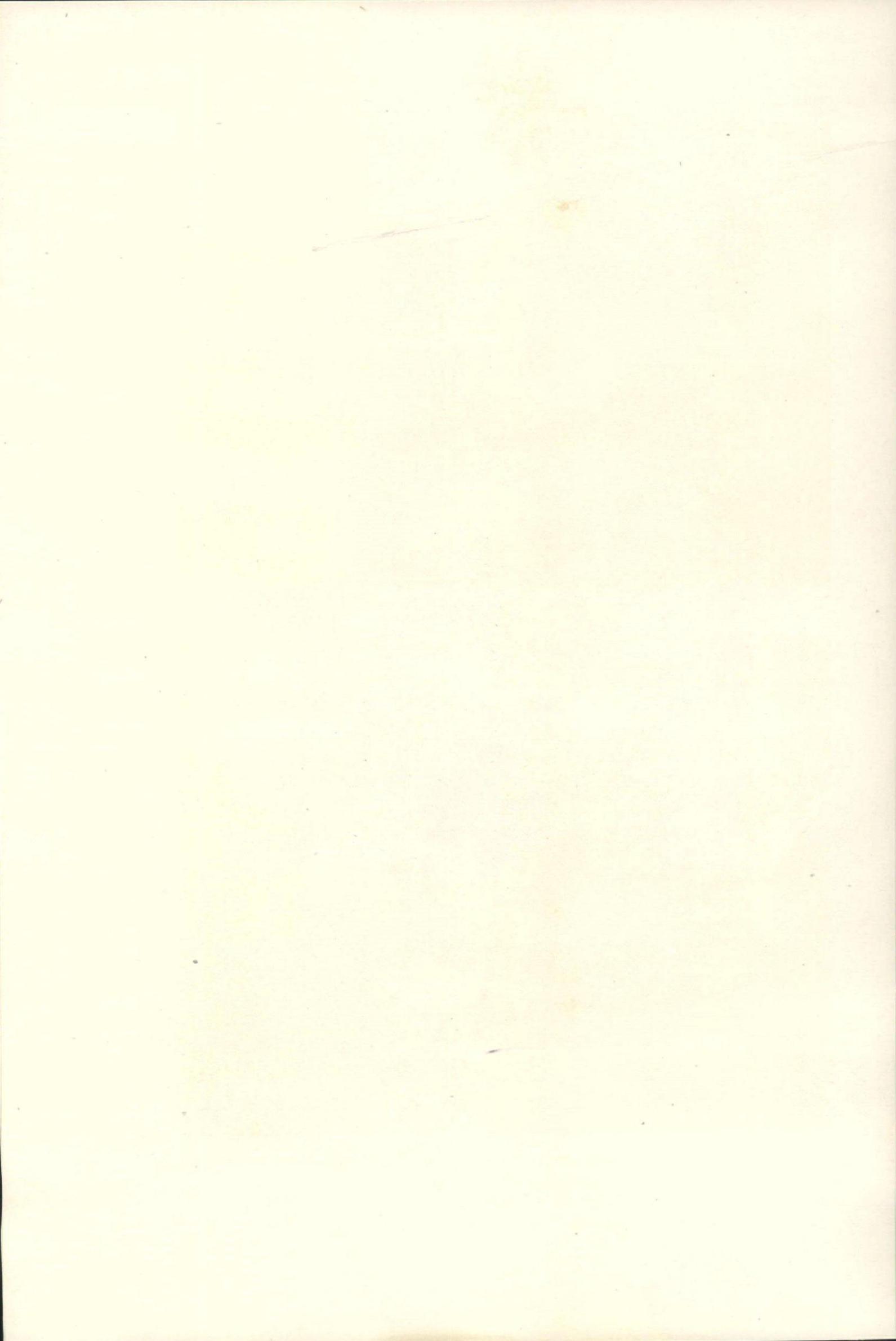


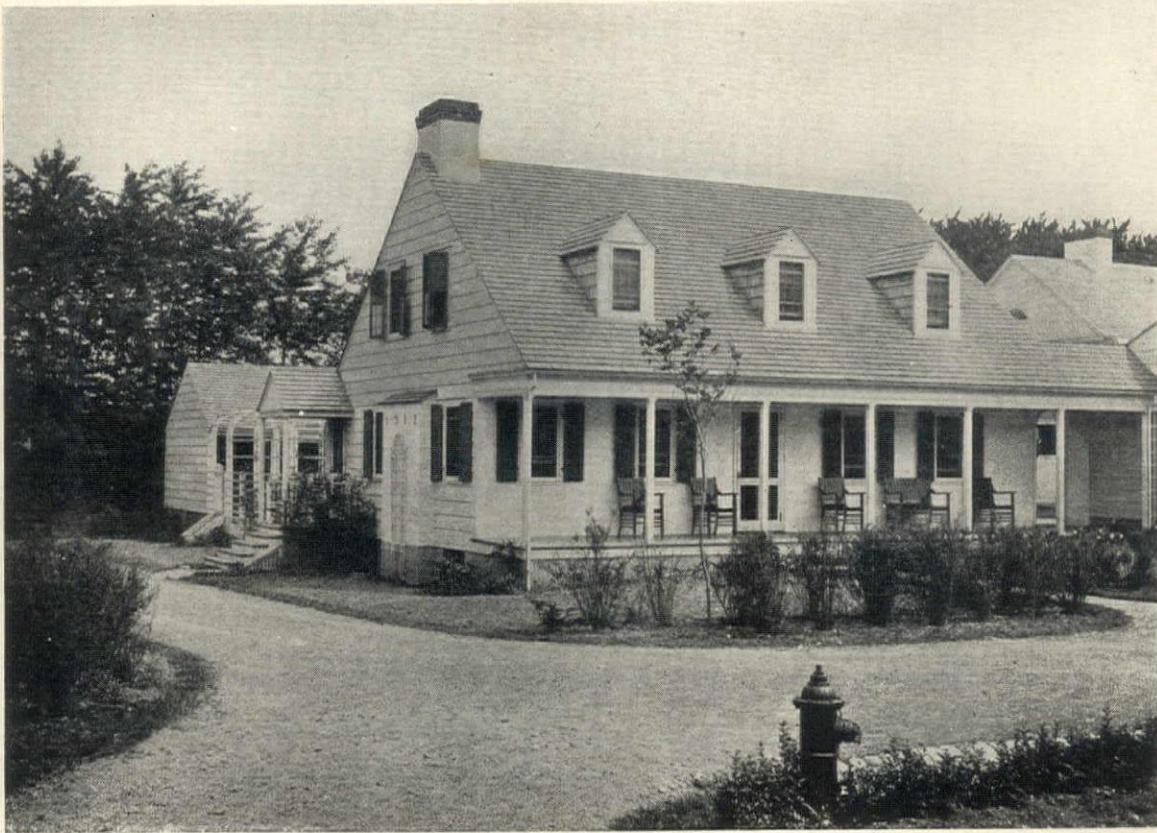


PLATE 143

DETAILS OF FARM BUILDING GROUPS ON LONG ISLAND

ALFRED HOPKINS, ARCHITECT





BROOKVILLE, L. I., N. Y.

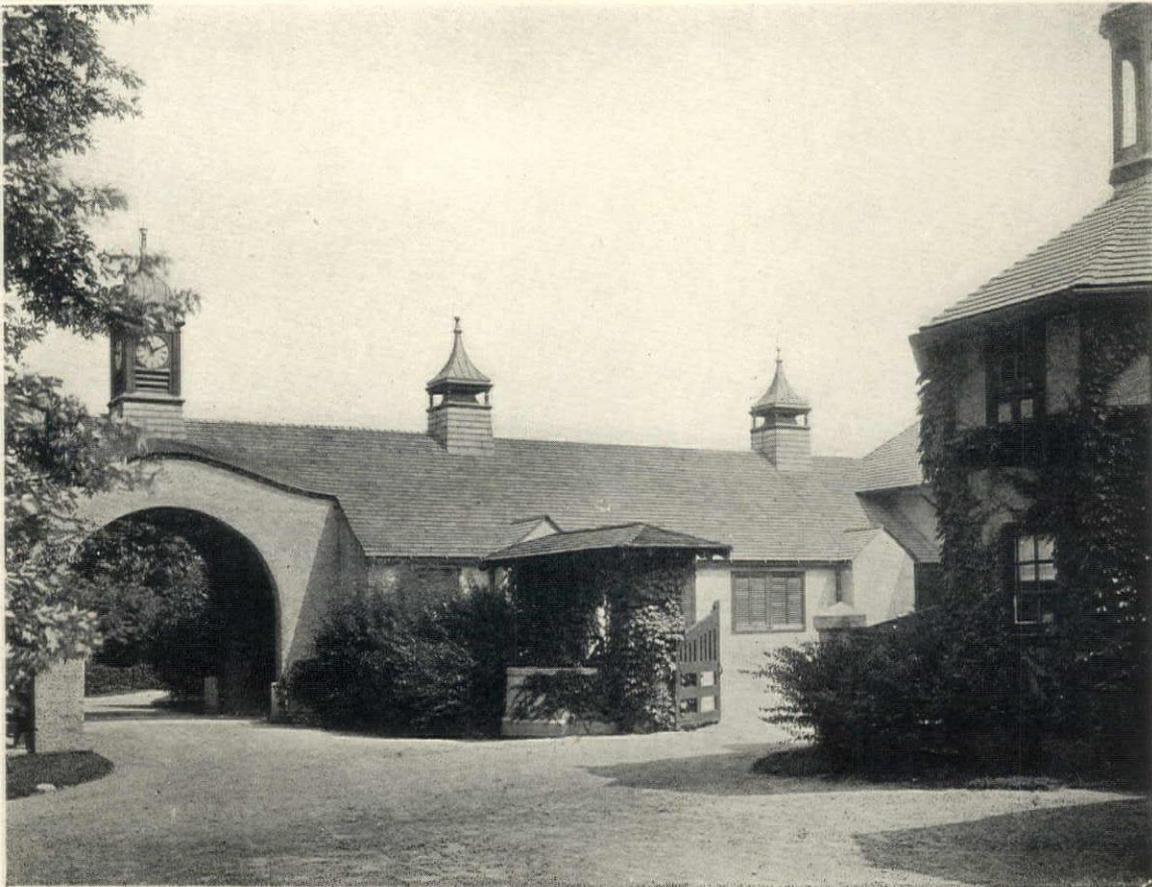
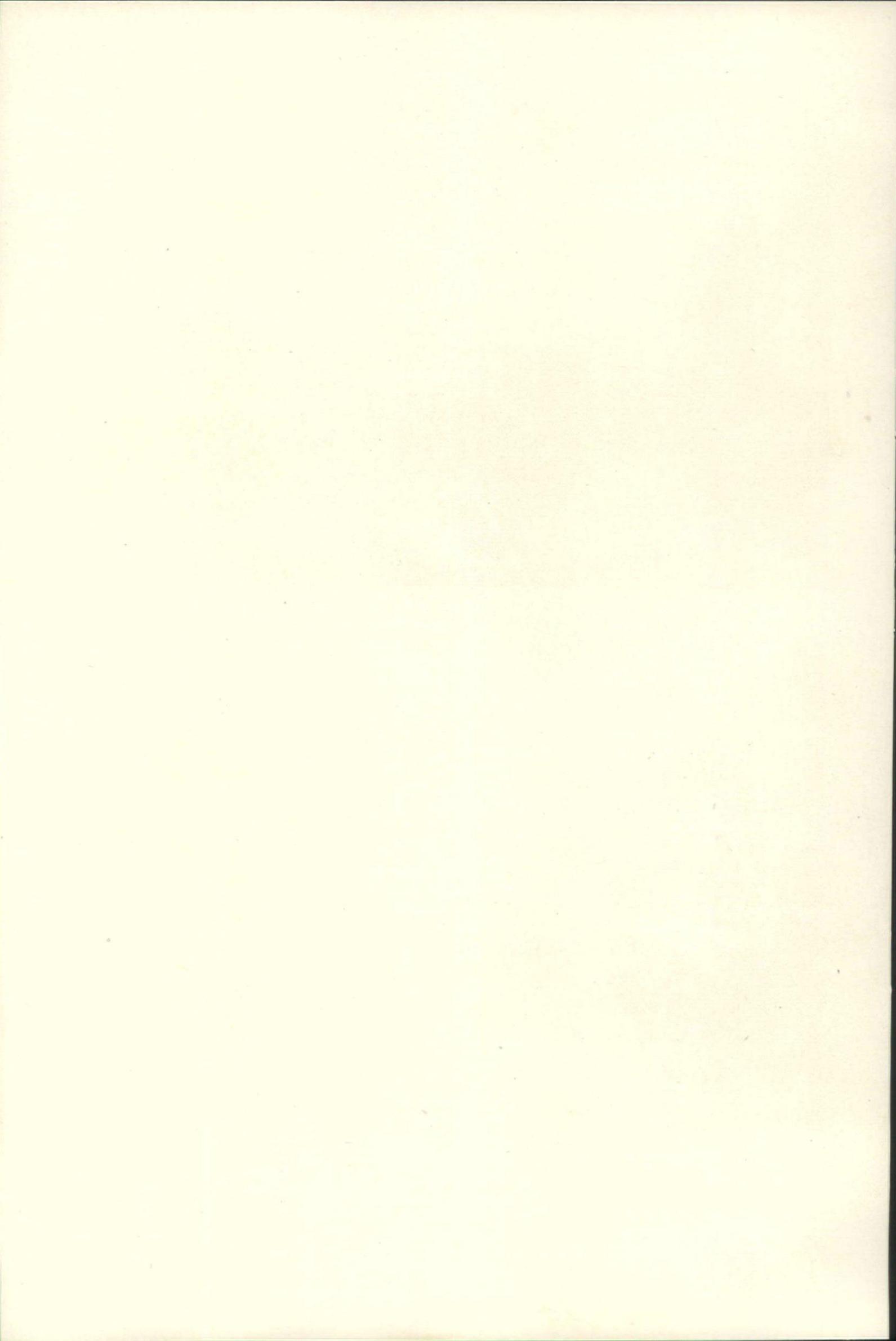


PLATE 144

FARM BUILDINGS, OYSTER BAY, L. I. N. Y.

ALFRED HOPKINS, ARCHITECT



Architects Will Boycott

The Architectural League of New York City called a meeting of its members, other allied societies and American makers of artists' materials which was held October 31 in the League rooms at 215 West Fifty-seventh Street, New York City. The object of the meeting was to discuss a national effort to exclude all German-made materials from the studio and drafting room, and to assure American and Allied manufacturers that the market for this material is theirs providing they can meet the requirements.

In opening the proceedings, the president, H. Van Buren Magonigle, stated the purpose of the meeting and read a letter which the League had sent to the Society of Illustrators, which was assembling the same evening at the Salmagundi Club. From this letter we quote: "We should no more use the materials that the bloody hands of the Teutonic peoples have touched than we should permit their bloodstained toys in the hands of our children." The president announced later that word had been received from Charles Dana Gibson, president of the Society of Illustrators, that they had unanimously endorsed the purposes of the Architectural League meeting. L. V. Solon of the Anti-Vandal League made the principal address and explained the necessity of united support in order to enable the American manufacturer to supply these materials. He presented a resolution reading: "This meeting of the Architectural League calls upon its members and all the members of other loyal art associations of the United States to pledge themselves to refuse to use materials made in Germany and Austria and to support the manufacturers of America and the Allied nations." The resolution was unanimously adopted.

The Executive Committee of the League was authorized to request all societies of architects, artists and engineers throughout the United States to co-operate with them in his purpose. A discussion by manufacturers and dealers in various kinds of artists' materials and instruments followed, during which the methods used by foreign manufacturers to secure the American markets and the difficulties that the American manufacturer was laboring under, were fully presented. Many of these difficulties arise from inability to procure material owing to governmental restrictions.

A well-known member called attention to the fact that many kinds of Teutonic materials were used in building construction in this country, and as an instance, cited some kinds of waterproofing preparations. On his suggestion, the League included in their boycott all building materials made in enemy

countries. This broadened the scope of the boycott beyond that originally contemplated, and is particularly germane as the members of the Architectural League can accomplish this in their professional capacity as architects.

A member stated that too much consideration was given to the quality of the materials and implements used, and except in certain specific cases, the high quality of material which had been heretofore demanded, was unnecessary. This created quite a discussion, and one temperamental architect declared that "grit in a lead pencil was as fatal as a blood clot on the brain." If this is true, art has fallen into a sad state, because it is believable that the master builder who created the Cathedral at Rheims accomplished this great work without the use of perfect lead pencils or a delightfully perfect sheet of tracing paper.

A Word From the Master Builders' Association of Boston

The following very good counsel, sent out by the board of directors of the Master Builders' Association of Boston, applies equally well to the present conditions in architectural practice. We read:

The various processes occasioned by the national war activities have resulted in very material cessation of demand for the services of contractors in the building trades. Many concerns failing, for obvious reasons, to secure any portion of the enormous amount of building work done by the United States Government, and feeling discouraged by the diminishing volume of civil business, question whether they should shut down their business or continue to run with prospect of seriously reduced income and perhaps a net loss.

To those of our membership who naturally feel disturbed and uncertain we have a word of counsel to offer:

Do not give way to discouragement to the extent of shutting up shop.

Keep your organizations together as far as possible. Those who succeed in doing this will be in the best position to take their part in the work that is sure to offer "when the clouds roll by," as they certainly will.

Absolute idleness breeds incapacity.

Better keep in reasonable readiness for business rather than strip yourselves of power to move when a call comes.

Many an apparent defeat is turned to victory by refusal to accept reverses as final.

This association would fail in its manifest duty to its members if it omitted to voice encouragement

in times of trouble like these we are all now experiencing.

Such Government work as will be offering from now on will not be of the character or extent that during the past year has called for the intensive and extensive service which largely equipped concerns were best in shape to render. These opportunities, together with those which will come in civil work when the large requirements of the Government diminish, enabling it to ease up on the restrictions it has been compelled to set up, will gradually broaden the chances for contractors in the building trades.

Approximately normal conditions will be reached sooner than the present depressing atmosphere would seem to promise.

It will be well for all of us to possess our business souls in patience, knowing, as we must from all human experience, that "time and the hour run through the roughest day."

Building Material Supply and Prices

As a result of a questionnaire sent out from New York to building material manufacturers in this vicinity, it is learned that they are wholly prepared to take care of at least 40 per cent of normal demand next year from stocks which they will carry over this winter.

Other information gleaned from this source is that the opinion shared by almost every builder addressed is that the time to commence building is at once upon removal of Government restrictions, as there will probably not be for some time any reduction in the present high scale of prices.

Recruits for the Construction Ranks

After the war, states *Engineering News-Record*, the ranks of the contractor will be materially strengthened by a group of returned soldiers who as young students are now being trained in the vocational schools of the Committee on Training and Instruction. Already Purdue University has turned out a contingent of 100, and the second unit started early in September. These men are getting in a short course such things as every concrete construction man must get in the school of hard knocks before he makes any material success. Perhaps the state institutions will find after the war that this is one of the things they must add to their list of short courses, of which those in the agricultural field have proved so popular. At any rate, this is one by-product of the war not to be belittled.

Museums to Encourage Craftsmanship

While it is agreed, says *Good Furniture*, that industrial workers must have proper nourishment for their bodies, few appreciate the importance of intellectual stimulation and nourishment for artists, artisans and craftsmen, who are laboring to advance our great national industries. More fully appreciating this great necessity in modern life, several European nations have based a large proportion of their educational and industrial efforts on great practical museums. Such museums serve as vast and indispensable libraries or storehouses, in which the workmen and designers nourish their inventive faculties and feed their enthusiasm for fine craftsmanship.

We, too, have museums rich in valuable materials, but unfortunately we spend too much money on marble halls, mosaic pavements, and general ostentation. The ordinary art museum in America often appears to be designed to gratify the pride of the director, and to flatter the vanity of the trustees, who enjoy seeing their names attached to important donations placed conspicuously before the public.

Early Morning Conferences

The publicity committee of the Advertising Club of Memphis, Tenn., has notified the members' wives that they are not to expect their husbands home to breakfast on Tuesday mornings, as on that day in each week it is planned to have breakfast meetings at a hotel.

The average conference is often a nerve-wrecking, time-wasting expenditure of well-meant effort. Interruptions by telephone or office calls all tend to distract the attention of those in conference, which cannot move toward the best results.

To the majority of men the first hours of the day are those in which they can best concentrate on important matters. A breakfast conference should be productive of results, and unless unduly prolonged would conserve the working hours.

Substitution and Conservation

The necessities for substitution of materials, and conservation of every field of industrial effort since we went into this war are teaching valuable lessons that will have a large influence on future production methods.

A large manufacturer, speaking of the many efforts to find war-time substitutes, is quoted as

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saying that the composition roofing trades had probably reached the highest stage of accomplishment in this regard. In the preparation of composition roofing, felt is a large factor. The rags used in the manufacture of felt are those that no other industry can use and are therefore 100 per cent waste unless used in the manufacture of roofing felt.

In the matter of the asphaltum used, the product is the residuum after all the other properties possible have been taken out of mineral oils. Practically every other building material trade has been addressing itself to this subject of utilizing waste material, even the common brick manufacturers up the Hudson having stripped the countryside for miles around gathering up the old wood for use as fuel during the coal shortage, so that, instead of there being a very serious under-supply of brick up the river, there is sufficient brick on hand to permit of taking care of at least 40 per cent of normal demand, and possibly a heavier requirement.

Iowa Chapter, A. I. A.

The annual convention of the Iowa Chapter of the Institute, which was scheduled to be held late in October, was, on account of the prevailing epidemic of Spanish influenza, indefinitely postponed.

It is proposed to hold this convention at a later date not yet determined, when the program originally planned will be carried out, together with other features.

Government Contract for Housing in Washington

The project of the United States Housing Corporation for a development at Twenty-third and B Streets, N. W., in Washington, has been let.

This development consists of 10 residence halls, 28 apartment buildings, 1 infirmary, and a combined administration, cafeteria, and power building.

All of the residence halls are three-story two-wing buildings built in U-shape, with the exception of the two on the extreme ends of the group. These are long buildings, twice as long and the same width as the wings of the other buildings. The several units are joined by porches. Besides the reception halls and various utility rooms there are 142 sleeping rooms in each unit. The majority are single rooms, 12 ft. 3 in. by 9 ft. 6 in., but as some of the larger rooms will very comfortably accommodate two persons, the capacity of each residence hall is 162 persons, making a total of 1620 for the 10

buildings. Each room has a clothes closet, and is equipped with running water, while each floor is amply provided with both shower and tub baths.

These residence halls are arranged in groups of five each, on either side of the combined administration building, cafeteria, and power house, which faces on B Street, midway between Twenty-first and Twenty-third Streets. The dining room is large and well ventilated, being 106 ft. by 102 ft. 2 in. in size, with ceiling 15 ft. high. There is also a refrigerating plant in this building.

The 28 apartment houses are arranged around the three sides of the residence hall group and face on Twenty-first, Twenty-third, and C Streets. Each of these buildings is three stories high and contains 12 very conveniently arranged three-room apartments. This makes a total of 336 apartments which will comfortably house 672 persons, even if such a low basis as two persons to each family is used. Thus the entire development will take care of 2292 war workers.

The infirmary will be built on the opposite side of C Street. There will be one ward, 20 ft. 1 in. by 30 ft., and four private rooms each 12 ft. by 9 ft. 6 in. There will also be a reception room, business office, head nurses' office, sterilization and bandage room, diet kitchen, bath rooms, and a porch measuring 23 ft. by 11 ft. 6 in.

A simple style of colonial architecture will be used throughout. The exterior walls are of airlock brick, with tapestry surface, and roofs are of slate. The cornices will be of wood with tin gutters. All buildings will be steam heated from the central heating plant in the administration building.

Waddy B. Wood, of Washington, D. C., is the architect for this project.

To Foster Arts and Industries

The Architectural League of New York recently called an interesting meeting at Cooper Union Museum to discuss "The Urgent Need for Preparedness in Our Arts and Industries." The meeting sprang from the growing realization that if the United States is to prosper in the industrial world after the war she must begin her preparations immediately. In Germany, united and collective action in all educational activities connected with the welfare of important industries has always been assured through autocratic governmental order, but in America the training and education of artisans and craftsmen always has been left to voluntary effort.

Men closely associated with furniture making, textile weaving and all the home furnishing trades

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allied to architecture are well aware, the League maintains that the largest and most vital industries in this country are even to-day dependent for their prosperity on craftsmen, designers, and experts of many kinds, educated and trained in the industrial schools of the Central Powers. Many of these experts are still ardent German sympathizers and are being organized by the enemy to help Germany as an industrial power. Recognizing this state of affairs, the League believes that until American experts can be produced through education and training to direct the industrial and artistic activities of the United States, the industrial prosperity of this country must still be in jeopardy.

Co-operative effort on the part of artists, architects, decorators and educators to remedy this condition is expected to be the result of the meeting.

A New Use for Hollow Tile

Mr. William C. Perkins in a paper read before the recent meeting of the American Society for Municipal Improvements at Buffalo, N. Y., suggested that in order to eliminate longitudinal and other surface cracks in pavements, produced by frost heaving, hollow tile be used.

A tile bottom course was proposed as affording sufficient insulation between sub-grade and the atmosphere to prevent serious freezing and the consequent heaving.

The Need for Accident Prevention

While the trained factory worker will unconsciously, as the result of long experience, avoid the possibility of accidental injury, there is a large body of unskilled and transient workers, and perhaps an even larger number of female employees, during these war days, who will need safeguarding from their own carelessness or ignorance of dangers.

The Wood Worker, in an editorial discussion of the necessity for safeguarding the industrial worker from accident, states:

It is well to take this fact into serious consideration, and plan guards and safety devices accordingly. In case of doubt it is usually better under the circumstances to go a little to the extreme, rather than let things go lax and trust to the judgment of the employees to keep themselves out of dangerous places. Exposed moving parts within reach of a workman are always a source of danger, and they should be housed up or guarded in some way that will insure safety under all conditions, if possible. Cog wheels, feed rolls, chains and sprocket wheels, revolving shafts and pulleys, cutters, saws or belts

in motion, conveyors, elevators, holes in the floor, etc., are especially dangerous if not guarded.

A fatal accident is always a terrible thing, but under present conditions it is even a greater loss, for does it not remove a cog from the industrial machinery of a nation at war—a nation that for the time being has use for every ounce of energy that can be delivered for victory?

A Fire-resisting Roofing for Philippines

The problem of a fire-resisting roofing material for the Philippines, to which a commerce report has drawn attention, is a rather unusual one. The material is needed to take the place of the very inflammable nipa and grass thatch, but it must be adapted for a house that is completed at a cost of \$250 or less, must be suitable for support on a framework of hollow bamboo poles held together by pegs and thongs of hejucu or rattan, must endure well the rot-promoting long rainy seasons, and must be secure against high winds. The bureau of science is experimenting with a light roofing tile made from local clay.

Personal

William H. Sayler, architect, 541 Ridge Bldg., Kansas City, Mo., has closed his office for the duration of the war.

Lieutenant Harold R. Duffie, architect, formerly of Roslindale, Mass., now in France, has recently been appointed to the Colonel's staff.

Carl M. Almquist, architect, 35 S. Dearborn Street, Chicago, Ill., has moved his office to 4730 N. St. Louis Avenue, Chicago, Illinois.

The Unkelbach & Perry Co., architects and engineers, has recently dissolved. It will continue under the name of Max J. Unkelbach, 162 Main Street, New Britain, Conn.

Messrs. Fugard and Knapp, architects, announce the removal of their offices from the McKimmie Building, to Room 1205, Rector Building, 79 West Monroe Street, Chicago.

Mr. Robert L. Fuller of the Fuller & Delano Co., architects, Worcester, Mass., is now corporation representative for the U. S. Housing Corporation at the Quincy, Mass., project.

Department of Architectural Engineering

Standardized School House Design

Part I

A STANDARD comprehends essential elements, each element measured in amounts of minimum requirements. Standards are assembled into standard units, which in turn are combined into a complete standard product.

Standardization is justified on the ground of economy of production and the inclusion of the essential factors. An absolute compliance with standards is essential in certain mechanical products such as the threading of bolts and screws, structural shapes and a multitude of other things. In buildings used for a specific purpose, certain standards are necessary. These necessary standards are those pertaining to the unit and its component parts rather than to a completed structure. It is readily seen that a servile following of standards in the planning and construction of buildings erected for any standard occupancy would be disastrous from an architectural viewpoint. This would follow, as such procedure would eliminate the initiative, hard work and individual effort that can be the only basis of correct architectural designing. A careful study and thorough understanding of standards will not in any way hamper the efforts of architects, but will rather broaden the scope of the knowledge possessed and insure the inclusion of those essentials necessary to the satisfactory use of the building. A certain degree of standardization is necessary for any class of buildings which house a predetermined occupancy, such as the various lines of manufacturing, theaters, churches, libraries and schools.

Architecture is essentially a specific expression which satisfies each individual or local need. Successful architecture obtains when these things are accomplished by building the structure about the requirements of the occupancy and rendering complete service. Complete service must include that given to the occupant, a regard for neighboring property and the public. Adjoining property has

certain recognized rights as to maintenance of values and peaceable use, the public has the moral, but not the legal, right to be satisfied with the appearance of the building. Architecture is essentially a profession of service to others and not a field for the selfish exploitation of individual vagaries.

The standardized school house will, on first thought, be decried by many architects. A prominent architect has said that it is possible to standardize freight cars, but that it is as impossible to standardize school buildings as it is to standardize individuals. As to freight cars, they are standardized as to carrying capacity, essentials of the trucks, journals and couplers. The coupler, by law, is made automatic in operation and a large number of such devices are used which have only one thing in common and that is the contour of contact surfaces. They are all standard, serve the same purpose, but are different in appearance and operating mechanism. Only through such standardization is made possible the economical transportation of freight by railroads.

The education of children in the public schools is quite generally standardized and a pupil in a certain grade of the elementary schools on the Atlantic Coast will find practically the same educative methods in the same grade in Pacific Coast schools. This is due largely to the work of the National Education Association, which is one of the few national associations that is constructive enough in its work to approve and adopt standards. As the teaching of pupils in a certain grade is practically uniform throughout this country, it follows that certain physical surroundings and accessories should be uniform. The building has a very important influence on the occupant and to produce a satisfactory public school pupil, the teaching process must include the standard educative essentials and the process be carried on in a building containing certain physical characteristics

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and equipment which is complementary to the mental processes, hence the development of standard school building requirements.

The production of school buildings is accomplished by the co-operation of a board of directors or trustees, the superintendent of schools and the architect. The members of these boards are either elected or appointed. While, in the main, the members are earnest, conscientious persons, they are not specially trained for the responsibilities of the work. Boards are apt to contain one or more members whose scope is limited to minor details, personal fads or private interest. Such members often handicap the superintendent and architect by imposing improper conditions. In turn, the superintendent of schools may not be qualified to decide questions pertaining to the planning and construction of buildings, although he may be a very talented and successful educator. The architect may have had no particular experience in the design of these special purpose structures, and at the same time be a very successful designer of buildings devoted to other uses. The publication and discussion of school house standards may serve a two-fold purpose to the architect. If the architect has had the experience and acquired the knowledge necessary to enable him to design a satisfactory building, the possession of certain successful standards may fortify him in combatting the possible ill-conceived ideas and demands of untrained school board members. If he has not had this experience and its attendant judgment, it will increase his knowledge and aid him in the solution of the problem.

It is the purpose of these articles to illustrate and discuss the standards of design adopted by the Building Bureau of the Department of Education of the City of New York. There is a pronounced shortage of school buildings in that city which necessitates the production of plans with the least consumption of time. To accomplish this and to obviate the discussion and changes that usually attend the design of a building of this kind, certain fundamental factors were adopted as standard. These were produced through the joint labors of C. B. J. Snyder, Architect and Superintendent of School Buildings, and C. E. Dobbin, Deputy Superintendent of School Buildings, in charge of Drafting Division, co-operating with the Board of Superintendents. Their report to the Board of Education was adopted by that body early in 1918.

As the purpose of a school building is to house an educative process, the nucleus about which the whole structure must be planned is the classroom. Before the classroom unit can be intelligently designed its requirements as to equipment, light, heat

and ventilation must be fixed and all based on the number of occupants. The standard follows:

CLASSROOMS

1. *Size.*
24 x 28 ft., including wardrobe space.
(These dimensions are considered best as a result of experience and scientific consideration. The width of the room is $1\frac{1}{2}$ times the distance from the top of the window frames to the floor.)
2. *Capacity—Sittings.*
 - (a) Grades 1 to 4 inclusive—48 desks and seats. Desks 17 in. high.
 - (b) Grades 5 to 6 inclusive—46 desks and seats. Desks 20 in. high.
 - (c) Grades 7 to 8 inclusive—42 desks and seats. Desks 20 in. high.
3. *Aisles*—Minimum width 18 in. between rows of seats.
4. *Space*—Between rear seat and rear wall 24 in.
5. *Storage of Clothing.*
 - 1 pupils' wardrobe.
 - 1 teacher's locker.
6. *General.*
 - (a) That the cardinal points of the compass be plainly painted either on the floor or the ceiling.
 - (b) That a small bulletin board be affixed to the wall in each classroom near the entrance door.
 - (c) That a small mirror be securely attached to outside of the door of a teacher's locker.
 - (d) Dimensions illustrating linear scales should be provided in each classroom.
 - (e) Library bookcase in each classroom.

This space 24 x 28 ft. in size is the unit which serves all of the educative activities in the building. Larger or smaller units are proportional parts of this unit and the adaptation of this unit size to the various kinds of work will be illustrated.

In Fig. 1 is illustrated the classroom unit with two arrangements, one with the wardrobe at the rear and one with the wardrobe at the side. In these two arrangements it will be noted that the shape of the seating space is changed, retaining practically the same area. The extension of the window recess for a distance of 12 in. beyond the brick opening of the window is made to accommodate the steam supply and return pipes, thus keeping them without the main area of the room. This recess at *B* is clearly shown in the larger scale detail. No floor or lintel beam shall encroach on this recess as it is reserved for steam risers and returns. Partitions along the corridors have partition sash about 3 ft. high, the sill of which is about 7

ft. 6 in. above the floor. This will be shown in detail in another illustration. The fixtures are 7 ft. 4 1/4 in. high over all and of which *LB* indicates the library bookcase, *BC* indicates the book cabinet, *TL*

24 ordinary desks and seats for commercial studies. (Type of 48 seats to be determined later—to be of varying heights.)
24 typewriting machines.

4. Storage of Clothing.

1 pupils' wardrobe.
1 teacher's locker.

Room divided by sliding partition, thus enabling one-half of the pupils to use typewriters and one-half to study some other commercial branch.

Room to be securely locked when not in use. This department, illustrated in Fig. 2, has an area of 1 1/2 units divided into two parts with a glazed folding partition as shown in Fig. 2. This partition has a fixed section at one end in which is a register connected with the ventilating apparatus.

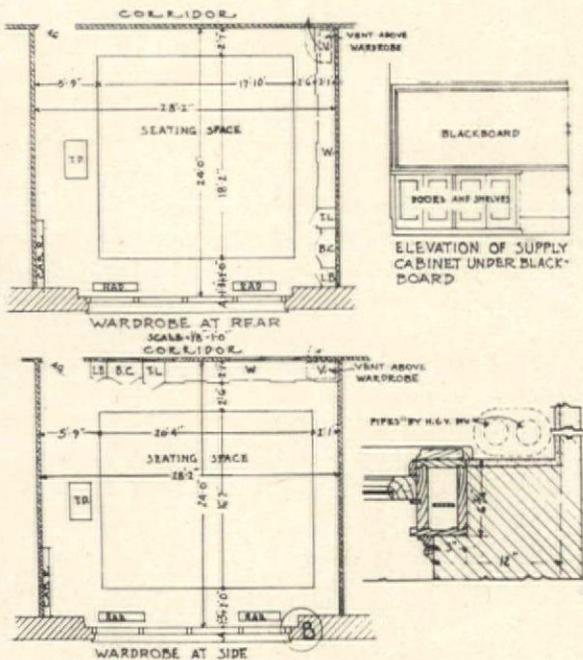


FIG. 1. CLASSROOM DIMENSIONS IN ELEMENTARY SCHOOLS

The following dimensions are to be used for all classrooms in Elementary Schools unless instructions to the contrary are given: The overall dimensions are given to the rough brick walls and partition blocks. The dimension "A" for the thickness of window back will vary somewhat according to the design used. This must be determined in each case in order to fix the outside dimension of the building. At all windows where radiators are to be placed a 12-in. recess shall be provided in the wall at each side of the window, as shown at "B." No floor nor lintel beams shall encroach on this recess, as it is reserved for steam risers returns. Each classroom is to have a supply closet 6 ft. 0 in. long under blackboard at the window side of room.

indicates the teacher's locker and *W* the wardrobe. *TD* indicates the teacher's desk and *Cab. R* is the supply cabinet placed under the blackboard at the window side of the room. This cabinet is 6 ft. long and shown in larger scale in Fig. 1. The construction of the vent will be shown in another illustration. All stories are 15 ft. from floor to floor, with a clear story height of 14 ft. 3 1/2 in. The corridors are 10 ft. 6 in. in height, having a suspended ceiling above which is placed certain utilities later described. The exterior windows have a vertical opening height of 10 ft. 4 1/4 in., with the sill 2 ft. 11 in. above the floor.

COMMERCIAL ROOM

1. Size. 1 1/2 classroom units.
2. Capacity. 48 pupils.
3. Equipment.
 - 6 typewriter tables accommodating 4 pupils each.

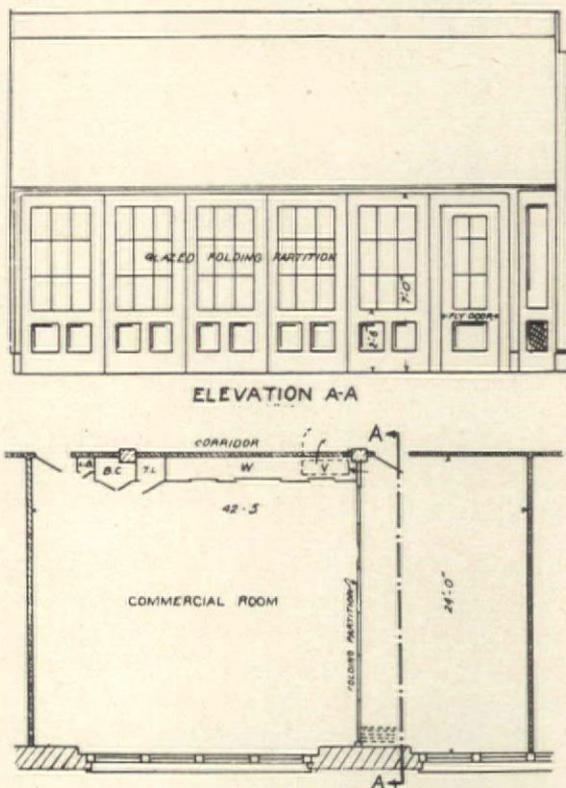


FIG. 2. COMMERCIAL ROOM IN ELEMENTARY SCHOOLS

Showing Standard Equipment.

The wardrobe, teacher's locker, book cabinet and library bookcase will be provided in general construction contract. Other equipment in furniture contract. The end of wardrobe at folding partition will be paneled and provided with additional vent register. Provision for this additional vent must be made in outlet at top of wardrobe. When column occurs back of book cabinet, such cabinet should be brought out flush with front of wardrobe.

The smaller compartment is used for teaching typewriting and the glazed partition confines the noise of the machines and permits the instructor to watch the pupils through the glazed portion of the folding partition. The larger general room contains a

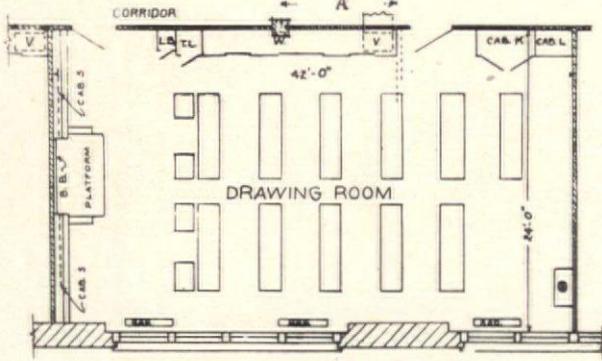


FIG. 4. DRAWING ROOM IN ELEMENTARY SCHOOLS

Showing Standard Equipment.

Platform and cabinet "S," containing blackboards, display boards and drawers at front of the room, cabinet "K" (model case), cabinet "L" (drawing board rack), wardrobe, teachers' locker and library bookcase will be provided in general construction contract.

Sink will be in plumbing contract. Other equipment in furniture contract. If column occurs back of cabinet "K," cabinet "L" or library book case, such cases shall be brought out flush on front with wardrobe.

Dimension "A" from nearest column to partition line of standard classroom unit shall be marked on plan in feet and inches so that wardrobe will be in the proper location in case the partition is installed later.

ELECTRIC WIRING SHOP

1. *Size.* 1 classroom unit.
2. *Capacity.* 20 pupils.
3. *Equipment.*
 - 3 frame booths for practice wiring.
 - 2 workbenches.
 - 1 switchboard.
4. *Storage of Clothing.*
 - 1 wardrobe with maximum capacity for 25 pupils.
 - 1 teacher's locker.

GYMNASIUM

1. *Size.*
 - (a) 1 of 2 classroom units in building of 20 to 48 classroom units.
 - (b) 2 of 2 classroom units each in buildings of more than 48 classroom units.

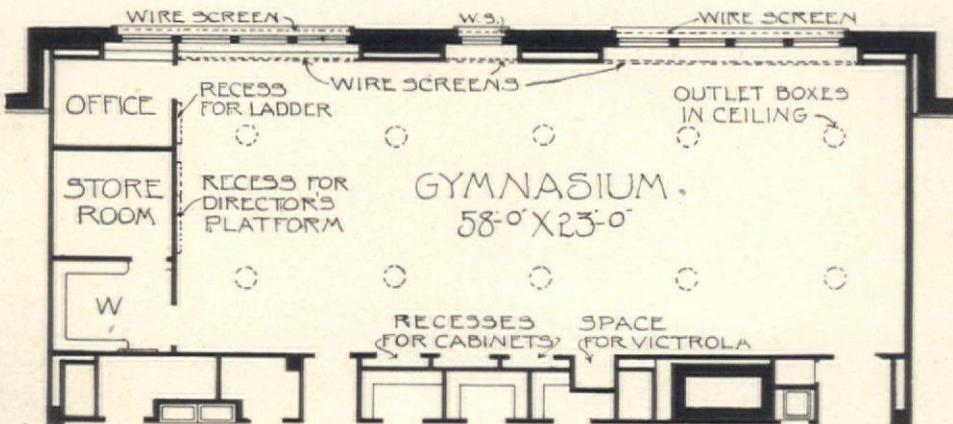


FIG. 5. GYMNASIUM IN ELEMENTARY SCHOOLS

(c) Part of playground in buildings of less than 20 classroom units.

2. *Capacity.* A maximum of 46 pupils in a 2-unit gymnasium.
3. *Location.* Second or fourth stories.
4. *Wardrobe and Storage Room Space.* In gymnasium or separate room contiguous thereto.
5. *Windows.*
 - (a) Pivoted on top to swing-out.
 - (b) Where possible in partition walls between gymnasium and hall for observation.
6. *Ventilation.* By windows.
7. *Cabinets for Apparatus.* Recessed in walls where possible.
8. *Walls.* Free from obstruction.
9. *Outdoor Gymnasium and Playground.* Roof to be used.

In Fig. 5 is illustrated a gymnasium with an area of two classroom units. The main feature in constructing the gymnasium is to secure walls and ceiling free from obstruction. This is accomplished by using flush doors to all openings and covering the windows with heavy wire screens flush with the wall surface. The ceiling is suspended at the level of the beam soffits and above this suspended ceiling there are installed the lighting fixtures in conical shaped reflectors, below which are wire mesh guards in the plane of the ceiling. Recesses with flush doors are provided for equipment cabinets and the victrola. The instructor's office, wardrobe and storeroom adjoin the gymnasium. The heat and vent outlets and inlets are provided but are closed. No heat is provided for this room and ventilation is secured by means of the windows. When the gymnasium is located on the third floor and over a portion of the auditorium, the roof of the auditorium is used as a playground and wire screens are also installed on the outside of the windows as shown in the plan. This is to avoid breakage from

the playground activities. This arrangement will be shown in the general plan.

KINDERGARTEN

1. *Location.* Second floor in easterly or southeasterly corner of the building if possible.
2. *Toilets.* Separate near kindergarten.
3. *Drinking Fountain.* In or near kindergarten.

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4. *Playspace.* Roof of auditorium for kindergarten and first-year children.
5. *Seats.* 50 maximum number.
6. *Folding Doors.* Between kindergarten and adjacent primary room.
7. *Storage of Clothing.*
 - 1 pupils' wardrobe.
 - 1 teacher's locker.

In Fig. 6 is shown the arrangement of the kindergarten. This room is preferably lighted on two sides with a south and eastern exposure. The equipment consists of the wardrobe, teacher's locker, seat and supply cabinets "S," "T" and "V."

LIBRARY

1. *Size.* 1 classroom unit.
2. *Capacity.* 40 pupils.
3. *Equipment.*
 - 10 narrow tables, all facing one way and to accommodate four pupils each, style of seats to be determined later.

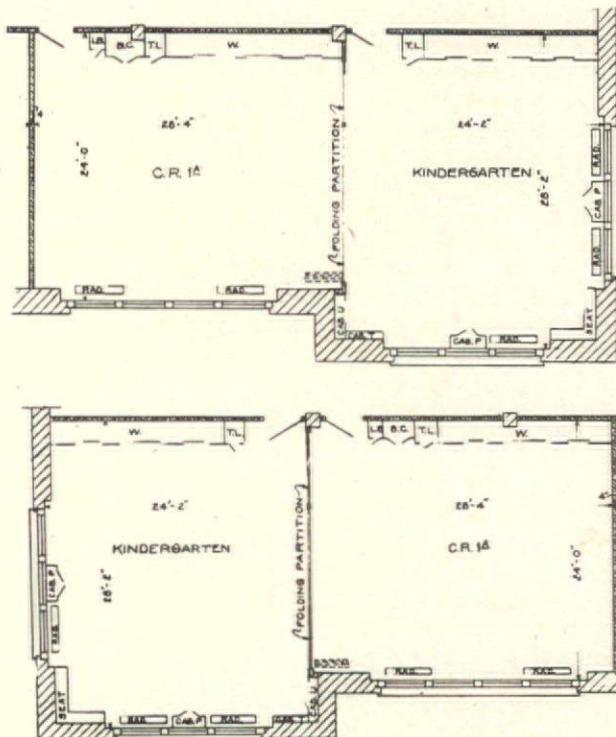


FIG. 6. KINDERGARTEN IN ELEMENTARY SCHOOLS

Showing Standard Equipment.

The wardrobe, teacher's locker, seat, cabinet "P," cabinet "T" and cabinet "U" will be provided in general contract. Other equipment in furniture contract.

Wooden bookstacks on available wall space.

4. *General.*
 - Sliding doors between library and adjacent classroom, so that they may be used together.

The library, see Fig. 7, is equipped with a book cabinet, teacher's locker and wardrobe. On the available wall space is placed a wooden bookstack.

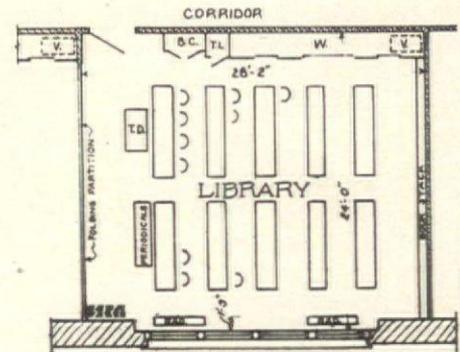


FIG. 7. LIBRARY IN ELEMENTARY SCHOOLS

Showing Standard Equipment.

The wardrobe, book cabinet, teacher's locker and book stacks will be provided in general construction contract. Other equipment in furniture contract. If columns occur back of book cabinet, such cabinet should be brought out flush on front with wardrobe.

Ten tables with forty seats, a periodical rack and teacher's desk are also provided.

(To be continued)

Safe Construction of Scaffolds and Falsework*

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

PAINTERS' SCAFFOLDS

The painters' scaffold is quite familiar to all. It consists of a ladder-like platform having parallel sides, but somewhat wider than an ordinary ladder, each end of which is suspended by a triangular stirrup. This stirrup is usually made of 3/4-inch wrought iron or steel, and at the upper or apex corner the metal is in the form of a smooth loop for the reception of the hook of the lower hoisting rope block. The upper block of the hoisting rope is held by a large wrought iron or steel hook, about 7/8-inch diameter in cross section, which is hooked over the cornice of the building in a substantial manner. The stirrups should have appropriate brackets for the installation of guard rails as well as toeboards. It is noted with a great deal of satisfaction that this type of scaffold is being provided with these rails more generally now than several years ago. The scaffold is raised or lowered by the men on the platform and the free end of the rope is deftly looped under the rounded apex of the stirrup and over the hook in such manner that the platform is held in position without any further securing of the rope.

The loose ends of the rope below the fastening should be protected from injury or tampering by unauthor-

*The preceding portion of this article appeared in our issue of October 30, 1918.

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ized persons on the ground, and it is a good plan to coil this free portion of the rope upon the platform. Projections in front of the platform, with rollers on their ends, bear against the side of the building and determine the distance that the platform shall have therefrom. Where the distance from the platform to the point of support overhead is great, the scaffold should be lashed to the building in a substantial manner in order that it will not swing away from the building and thus present a considerable hazard to the workmen. When the men leave the scaffold for any length of time they should either lower it to the ground, or at least lash it securely to the building in such a manner that it will not be blown about by the wind. Buckets and other tools should not be left on the scaffold, as they may fall to the ground below with possible injury to persons. No more than two men should regularly work on one painters' scaffold, and no more than three men should ever be on the scaffold at any one time. Several painters' scaffolds should not be combined by bridging the spaces between them with planks, in order to cover a greater amount of the building with a small number of scaffolds.

NEEDLE-BEAM SCAFFOLDS

Needle-beam scaffolds are used largely for riveting steel work on buildings and for working under roofs. It consists of a plank platform resting upon two beams which are suspended at each end by means of ropes. Where beams span from 10 to 12 feet they should have a cross section of at least 4 by 6 inches; for larger spans, larger beams accordingly should be used. Great care should be used in the placing of the platform planks. The beams should be parallel and, in case local conditions require that one beam be lower than the other, the platform planks should be provided with bolts in each end to prevent them sliding over the beams. It is best practice, in any event, to have the platform planks always fitted with these bolts placed about 6 inches from each end. In some cases guard rails on this type of scaffold may be a hazard instead of a help. Where the work consists of swinging a maul or a sledge, the guard rail may promote an accident instead of preventing it.

PLASTERERS' AND DECORATORS' SCAFFOLDS

Plasterers and decorators, working on large interiors, usually operate from scaffolds designed somewhat similar to independent pole scaffolds. These cover the entire floor, in order that access to the ceiling may be had as well as to all the walls. For very large areas, scaffolds are usually constructed around the four walls of the room, and suspended or needle-beam scaffolds are suspended from the ceiling construction. In erecting the side scaffolds the same precautions should be taken as with the construction of independent pole scaffolds. The parts should be well braced and the same care should be taken as to the installation of guard rails and toeboards. There is a difference of opinion as to how the platform planks should be laid overhead. Many authorities believe that it is satisfactory to permit a space of 6 inches to a foot between the various planks, assuming that the men will

not fall down through such a space. This, however, does not prevent tools or material from falling to the floor below and possibly upon persons, and it is more desirable that the platforms be built solid, particularly at the points where the men do their work. For lower-ceiling heights, horse scaffolds and ladder scaffolds may be used.

HORSE SCAFFOLDS

Horse scaffolds consist of strongly made trestles, over which platform planks are placed. They are used largely by stone masons for both inside and outside work. The work is first carried up about 5 feet from the base, after which a platform is erected with horses about 4 feet high, together with the usual platform planks. When the work is again carried beyond reach of the men, another horse scaffold may be erected upon the first, care being taken to see that the horses are placed directly one above the other. It will not be necessary to leave all of the platform planks upon the first scaffold. The outside planks, or those upon which the legs of the horses rest, should remain in position, and the others may be removed for use above. If the work is being done inside, it is possible that the men may reach the ceiling without erecting any more tiers, and the work may then be carried on from the floor above, provided the building is of steel construction and the floor beams have been constructed before the side walls. There are cases where builders erect horse scaffolds in six or even eight tiers high, but we do not consider it advisable to go beyond three or four tiers. It is not an uncommon sight to see bricks or other material under trestle legs, and in such a case there is needed only a slight jar to upset the whole scaffold. It is advisable that, where these scaffolds are erected in tiers, the trestles legs be nailed to the planks upon which they stand. This will give increased strength to the scaffold and help to prevent its collapse, due to vibration caused in any manner. A scaffold of several tiers should also be braced against the side of the building, or by diagonal braces from the floor.

GENERAL REQUIREMENTS

There are many other kinds of scaffolds used for special purposes, these being usually small and portable, such as paper hangers' scaffolds, boatswain's chairs, pipe repair scaffolds, etc. Time will not permit any further description of these types.

The lumber used in scaffolds should be either spruce or long-leaf yellow pine; hemlock should not be used as it is too brittle. All parts should be free from defects, such as injurious ring shakes and cross-grain or unsound knots. Nails should be of the best quality and they should be driven full length, the bending over of partially driven nails being poor practice. Cables used with suspended scaffolds should be not less than $\frac{1}{2}$ -inch in diameter; they should be plow steel, 6 strands, 19 wires, and have a factor of safety of at least 5. They should be galvanized to order. Steel ribbon should not be used for suspended scaffolds, as it is liable to break and is easily kinked. Where rope is used it should be of the best manila grade, and,

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where it passes over sharp corners, should be protected from abrasion by padding or other suitable means.

Where scaffold uprights are spliced, they should be butted together and at least two boards, about 4 feet long, should be nailed on two adjacent sides. The splices on adjacent uprights should not be at the same level but should be staggered. Where fixed ladders are constructed on scaffolds, they should extend about 45 inches above the platform, in order to facilitate the landing of the workmen. Single-pole ladders should not be used. Where the scaffolds are to be used a long time it is preferable to construct stairways having full treads and substantial railings. Runways to platform should not have a greater rise than 1 foot in each 5 feet of length. Where the rise is greater than 1 foot in 5 feet of length the runway should have cleats nailed thereon about 8 inches apart to prevent slipping. The center portions of the cleats may be omitted in order to provide a wheelbarrow track.

Where necessary, overhead protection should be provided for persons or workmen about scaffolds, in order to catch falling objects. Where a sidewalk under a scaffold is kept in service, it should, of course, be entirely bridged over with substantial material. All doors being used on ground floors of buildings should have ample protection over their entrances. Suspended scaffolds should also be equipped with either heavy canvas or heavy wire netting covers, where used with tall buildings, in order to protect the workmen on the scaffolds.

Consideration should be given to the use of life lines and safety belts for men working on thrust-outs and high elevations. These, however, should be used with caution, as they may, in certain cases, hamper the workmen and possibly promote accidents. In large auditoriums having high ceilings, and also for structural iron workers operating at great heights, safety nets are often used advantageously to catch workmen should they fall. These nets should be constructed of at least $\frac{1}{2}$ -inch manila rope, having meshes no larger than 4 inches square and borders of at least $\frac{3}{4}$ -inch rope.

FALSEWORK

A great deal of the foregoing material applies to the construction of falsework. This class of construction cannot be standardized to the same extent as scaffold work, hence it will be impracticable to give, in detail, specifications for safe construction. Whether the falsework is erected to support a stone or brick

arch, or partakes of the elaborate work used in the building of some of our modern masonry and concrete bridges and similar structures, it should in every case be given careful treatment, and be designed according to the stresses to be met. In most cases it will be necessary to make drawings, giving as much detail as if the structure were a permanent one.

Only the most experienced men should be entrusted to the construction of this class of work, and propositions of large dimensions should be handled as faithfully as though the structure were going to be a permanent one. In the design and construction of all falsework, great consideration should be given to the method of its removal after it has served its purpose. False centers should be so designed that, by collapsible keys or other means, they may be removed without straining or damaging the permanent structure. It is needless to say that all cement and mortar should be thoroughly set before the supports are removed.

CONCLUSION

All scaffolds and falsework should, while in use, be given periodic inspections to determine the appearance of any weak parts or any unauthorized changes. Wrestling and "horse-play" by the workmen upon scaffolds should not be tolerated. Workmen, subject to dizziness or fainting spells should not be permitted on scaffolds or falsework, nor should any man under the influence of liquor. Projecting nails, either on the platforms or other parts with which men may come in contact, should be carefully removed. Uprights, at their bases, should be protected from displacement by the backing up of wagons or trucks at points where this is liable to occur. Projecting parts, in the vicinity of hoisting apparatus, should be removed to prevent their being fouled and causing injury to the structure.

Fifteen years ago the suggestions given in this paper would probably have caused the average builder to throw up his hands in disgust. In fact, he would have been outbid by his competitor, if he had endeavored to comply with these requirements. However, we are gradually getting away from those conditions, but there is yet much to be done in the way of safe construction. The fact that the scaffold or falsework does not appear in the completed structure, hampers greatly any rapid progress along the lines of safety. If hospital and coroner's records could be blazoned forth upon the finished structure, in such manner as are its architectural features, then we would surely achieve safety in the construction of scaffolds and falsework.

Industrial Information

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

City Comforts for Farm Homes

That the health of the farmer has a very direct and important bearing upon the health of the nation is axiomatic. Conditions which endanger the life of the farmer, endanger also the life of his crops and his cattle, and through them, the vitality of the country at large. For purely selfish reasons at least, they should be bettered.

One of the features of the farmhouse of the past has been the outhouse with its absence of plumbing. This characterized the pioneer buildings of our Pilgrim fathers three hundred years ago. But in these days of sanitary engineering, such things have completely worn out all justification for existence and have exactly nothing to commend them.

The Sewer Pipe Manufacturers' Association, Second National Building, Akron, Ohio, states in a pamphlet that the wide distribution of Vitrified Clay Pipe, and the ease with which it is installed, makes its application economical and well within the ingenuity of the average farmer to accomplish. It then further describes and illustrates the way to obtain the most favorable conditions, and explains the strength and value of their product, vitrified clay pipe, for the purposes referred to.

This company also has a system for "pouring" the joints of these pipes instead of troweling them. It is stated that the permanence of vitrified clay pipe, due to its resistance to chemical and electrolytic attack, coupled with its high tensile strength, has caused a large amount of search for joining methods that would be worthy of it. Poured joints are claimed to be the answer, and details of this method are also interestingly described.

A feature of this pamphlet is a sectional drawing of a proposed septic tank of vitrified pipe, simple in construction and, it would appear, with long possibilities of service.

When the intimate relation between the farmer and the strength of the nation is considered, it should not be necessary for us to wait until his environment becomes intolerable; that any element in his surroundings should admit of less than the best result for the best effort is a situation which cannot too soon be amended, and the first step should be an investigation of proper methods of sanitation. Why not write for these pamphlets?

Helping Hoover on the Farm

Here nothing need be said to emphasize the tremendous importance of eliminating food waste. It is appreciated that food conservation is to-day a vital need. But it is the method that will further this end which should interest us, and attention is therefore called to the monolithic concrete silo for the farm.

In a booklet issued by the North Western Expanded Metal Co., 37 West Van Buren Street, Chicago, it is stated that monolithic concrete silos mean larger herds, less work and more profits. Their advantages are enumerated as follows: Vermin proof, permanent, fire-resisting, impervious to the effects of surrounding air or moisture. The structure may be erected of local materials and with local labor, so that most of the purchase price remains in the community. It is finally asserted that the first cost is the last cost.

Metal lath plays an important part in the building of monolithic concrete silos, and the booklet under discussion describes the importance of this element and gives considerable miscellaneous information on the use and efficiency of expanded metal lath in various kinds of structures.

The Farmer and Beaver Board

The Beaver Board Co., with headquarters in Buffalo, N. Y., and offices in the larger cities of this country, Canada and England, has prepared a folder analyzing in a valuable way the availability of its product about the farm.

While it is a practical wall and ceiling material for the new farmhouse, there are other uses which do not have further building as a prerequisite. A farmhouse built many years ago when large rooms were the custom, can, it is claimed, be made more available and comfortable by remodeling with Beaver Board. Old, cracked and falling walls may be made completely up-to-date and fresh, and attractive paneling can give each room a cozy aspect not possessed before. A Beaver Board ceiling in the cellar is said to make all the upper rooms warmer and dryer.

The manufacturers describe it as made from spruce logs, shredded into fibrous form, com-

THE AMERICAN ARCHITECT

pressed under high pressure, and built up in plies into staunch panels, light but strong, without knot or blemish. It is alleged to be strictly sanitary and very durable, and the simplicity of application particularly commends it to the farmer.

Further details will be sent by request.

Page Chain Link Fabric

When you have constructed a plant as nearly fireproof as modern skill can make it, why build inside partitions and outside fences that are spark catchers? This question is asked by the Page Steel & Wire Co., Adrian, Mich., manufacturer of Page Chain Link Protection Fabrics in that city and Monessen, Pa., and the answer suggested is the use of their product as one which cannot burn.

Its fire resistance is not the only feature which commends it for consideration. It is so constructed that it will permit of erection on posts without braces so as to be self-supporting, thus eliminating the cost of bracing and superfluous columns, and the sacrifice of valuable floor space.

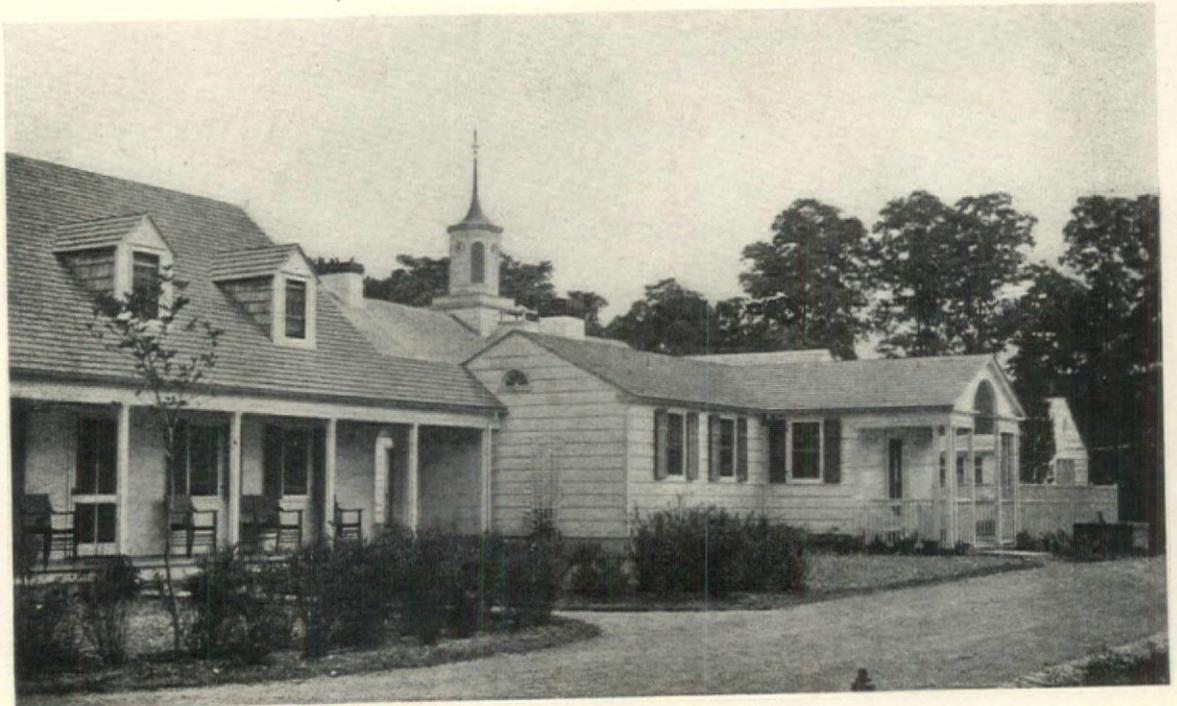
The utmost cleanliness is claimed for Page Chain Link Partitions. When your partitions are simply wire with a two or three inch clearance at the floor, cleaning is an easy task. Vermin cannot lodge in the cracks when there are no cracks. Full and free circulation of air is at all times possible.

The partitions may be enameled a clear white, particularly spotless and sanitary where foodstuffs or other articles requiring easily demonstrable cleanliness, are made. It is maintained that these wire products will resist rust and the action of fumes, with all the attendant unsightliness and danger. The makers state that the use of the Page partitions will neither cut off light nor produce annoying shadows.

Another feature claimed is a springlike element in the construction of the wire fabric tending to make it impervious to the heavy shocks which would injure rigid materials.

Real protection against intruders is almost unavoidable, according to the makers, when their product is used to enclose a plant. The meshes in this type of fence are so small that no toe-hold is possible for a would-be climber, neither is a hand-hold possible on account of the barbed top on each link. Even if a man should succeed in getting over the top and attempt to get out with a bag or bundle, he would be completely thwarted by the overhanging barbed wires supported on the iron extension arm in one of the styles made for this purpose.

A wide range of uses, both indoor and out, is described in the illustrated booklet obtainable from the manufacturer. The company also maintains an engineering department which is prepared to furnish special designs, estimates and erecting service in any part of the country.



FARM BUILDING GROUP.

ALFRED HOPKINS, ARCHITECT



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they have a richness and beauty of tone that no other finish can equal, and the creosote thoroughly preserves the wood. Use them also on siding, boards, sheds and fences. Anyone can apply them, with best results, at least expense.

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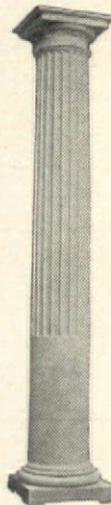
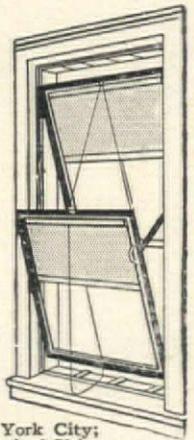
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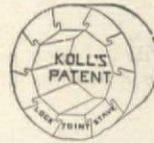
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BUILDING NEWS

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

NEW BUILDINGS AUTHORIZED BY THE WAR DEPARTMENT

Authorization to proceed with the following buildings has been given to the Construction Division of the Army:

The construction of a phosphorus plant at or near Fairmont, W. Va. The estimated cost is \$500,000.

The construction of a tetryl plant at Senter, Mich. The estimated cost is \$250,000. The foregoing amount is divided into the cost of the construction of the necessary buildings and equipment, included in which will be the boiler and power houses, facilities, packing houses, magazines, tramways and, in fact, everything to make a complete plant.

The construction of a proving ground at Elizabethport, N. J. The site selected, which is within a mile of the Singer Mfg. Co.'s plant, is a tract of land about 43 acres. The Government is not to buy the land, but it is to be leased for the period of the war and one year after. Barracks and quarters for officers and men, magazines, laboratory, storehouse and other necessary buildings will be erected, in addition to the building of roads, paths and 2400 ft. of railroad track. The estimated cost is \$110,000.

Additions to the Rock Island (Ill.) Arsenal, which consist of the addition of three stories to the warehouse and the construction of an addition to the artillery-vehicle plant. The facilities for fire protection will be increased by the installation of turbine pumps and an extensive system of water mains and hydrants. A large garage for motor trucks will also be erected. The estimated cost for this project is \$833,500.

The construction of shops, warehouses, barracks and office building for the Utilities Detachment at Camp Upton, N. Y., has been authorized. There will be five barracks for enlisted men and one for officers. The estimated cost is \$128,650.

Additions and extensions to the Frankford (Pa.) Arsenal have been begun under the direction of the Construction Division. It is estimated that these will cost \$1,000,000. The work consists of the extension of the loading room, annealing rooms, action press shop, barrack buildings, additional storehouses, stable, carpenter shop, a forging plant with equipment, a sea wall along Frankford Creek, and other work to facilitate the production program at this point.

Buildings for motor school at Camp Taylor, the estimated cost of which is \$182,233. The buildings will include quarters and barracks, administration office, classrooms and a motor school.

A Liberty theater for Camp Kearney, Cal., which will cost \$21,000.

Six two-story ward-barrack buildings will be added to General Hospital No. 14.

ALABAMA

CLANTON, ALA.—F. M. Dobson was awarded contract for constructing new courthouse building for Chilton County at \$30,424.

TROY, ALA.—Standard Chemical & Oil Co. will rebuild 180 x 400 ft. mill construction fertilizer and acid phosphate plant. \$200,000.

ARIZONA

WHIPPEL BARRACKS, ARIZ.—E. Morgan, 209 N. Kansas Street, El Paso, Tex., was awarded contract for constructing hospital here at approximately \$1,000,000.

ARKANSAS

LITTLE ROCK, ARK.—C. E. Penzel Wholesale Grocery Co., 600 East Markham Street, plans to rebuild warehouse and office damaged by fire, entailing loss of \$225,000.

CALIFORNIA

ANAHEIM, CAL.—The Anaheim Truck & Transfer Co. was awarded contract for excavating the basement for the \$35,000 packing house to be constructed by the Ana-

heim Citrus Fruit Association. The building will be 85 x 185 ft.

OAKLAND, CAL.—Boiler Makers' and Iron Shipbuilders' Union contemplates construction of a class "A" four-story building on Franklin Street, near Fourteenth, at a cost of \$300,000.

OAKLAND, CAL.—American Manganese Steel Co. plans to build plant for making steel castings on Oakland waterfront, costing \$500,000. J. W. Plant, 433 California Street, San Francisco, interested.

SAN JOSE, CAL.—Figprune Cereal Co. soon lets contract for building one story, reinforced concrete factory on Fourth and Lewis Streets. \$60,000.

SANTA BARBARA, CAL.—Edwards & Wildey Co., Black Building, Los Angeles, Cal., was awarded contract for constructing nurses' home at the county hospital to cost \$15,046.

WEIMAR, CAL.—Mathews Construction Co. has contract for constructing tuberculosis hospital at or near here at a cost of \$122,922.

COLORADO

GOLDEN, COL.—Board of Trustees of Colorado School of Mines proposes the construction of a mess hall.

CONNECTICUT

BRIDGEPORT, CONN.—Holy Trinity Church is having plans prepared by R. A. Schuman, Architect, 932 Lambert Street, Trenton, N. J., for one story, 50 x 150 ft., brick and steel church, at 5058 Bostwick Avenue. \$80,000.

GROTON, CONN.—H. P. Cummings Construction Co., Ware, Mass., was awarded contract for construction of sixty-four buildings at New London and sixteen buildings at Groton.

NEW BRITAIN, CONN.—Stanley Rule & Level Works, 111 Elm Street, soon receives bids for building one story, 60 x 140 ft., reinforced concrete machine shop, reinforced concrete flooring, concrete foundation. \$25,000.

NEW HAVEN, CONN.—Sperry Engineering Co., New Haven, was awarded contract for constructing hydroplane station at Fisher's Island.

NEW LONDON, CONN.—J. Niles & Son Co., 393 Main Street, Worcester, Mass., received contract from Bureau of Yards and Docks, Navy Department, Washington, D. C., for constructing two sub-charging stations at \$16,837.

THOMPSONVILLE, CONN.—Town Council contemplates construction of a school building in Thompsonville to cost \$65,000.

WATERBURY, CONN.—G. S. Chatfield Co., 73 Canal Street, has contract for constructing three-story factory building for the Waterbury Buckle Co. at \$35,000.

WATERBURY, CONN.—Tracy Bros. Co., 52 Benedict Street, got contract from United States Housing Corp., Washington, D. C., for constructing 148 two-and-a-half-story houses for war workers.

DELAWARE

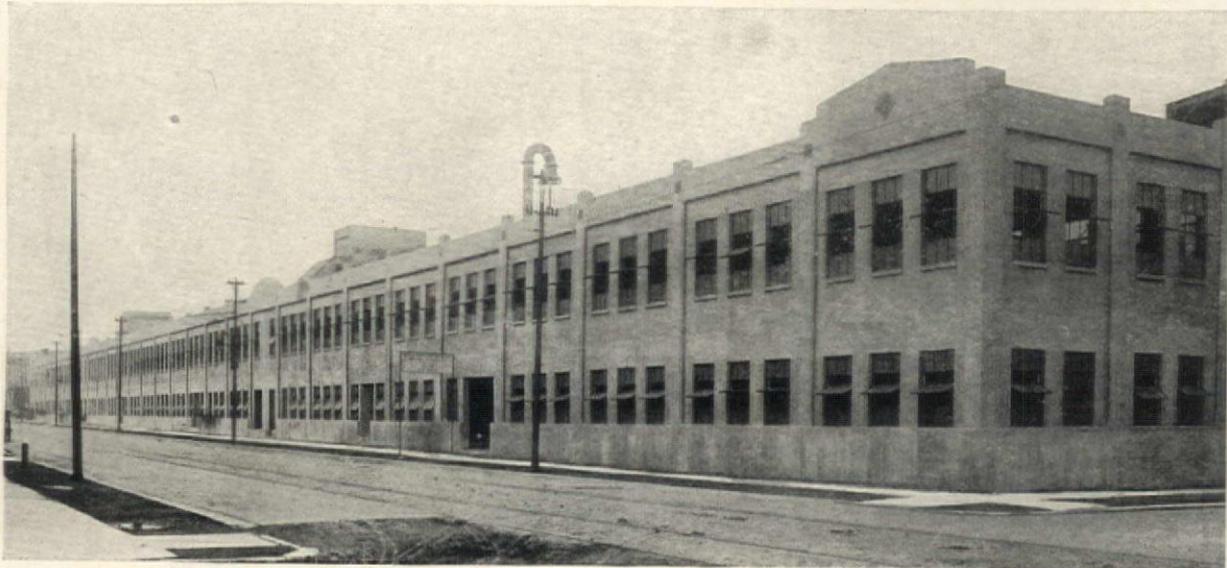
WILMINGTON, DEL.—E. I. du Pont de Nemours Co., Dupont Building, proposes building two story, 45 x 50 ft., addition to experimental plant. Realty Constr. Co., Eleventh St., was awarded the contract at \$25,000.

DISTRICT OF COLUMBIA

WASHINGTON, D. C.—Lincoln National Bank of Washington contemplates erecting additions to bank and office building at 318 Seventh Street. Cost, \$500,000.

WASHINGTON, D. C.—Weller Construction Co., 816 Fourteenth Street, has received contract for constructing barracks at Potomac Park for the War Department at about \$400,000.

WASHINGTON, D. C.—Pennsylvania Railroad, Broad Street Station, Philadelphia, Pa., let contract for building one story, 32 x 400 ft., freight house, to Turner



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<p>4 PANES HIGH Y Height 6'2" Z Height 6'10"</p> <p>34 34161</p>	<p>44 44181</p>	<p>54 54161</p>
<p>5 PANES HIGH Y Height 7'6" Z Height 8'6"</p> <p>35 35161</p>	<p>45 45181</p>	<p>55 55161</p>
<p>6 PANES HIGH Y Height 9'3 1/4" Z Height 10'3 1/4"</p> <p>36 36161</p>	<p>46 46181</p>	<p>56 56161</p>
<p>3 PANES WIDE Y Width 3'2" Z Width 3'8"</p>	<p>4 PANES WIDE Y Width 4'2" Z Width 4'10"</p>	<p>5 PANES WIDE Y Width 5'2" Z Width 6'0"</p>
<p>Y=12"x18" Glass. Combine Y Widths with Y Heights Z=14"x20" Glass. Combine Z Widths with Z Heights</p>		

Fenestra

SOLID STEEL WINDOWS

Concrete Steel Co., 1713 Sansom Street, Philadelphia, Pa. \$60,000.

WASHINGTON, D. C.—Construction Division, War Department, let contract for building dormitories, houses, etc., on Twenty-third and B Streets, to include 336 apartments and 10 houses in units, for district war workers, to Moss, Taylor & Crawford, Fifty-eighth and Girard Streets, Philadelphia, Pa. Cost will run into millions.

FLORIDA

JACKSONVILLE, FLA.—City Council contemplates construction of a detention home in Jacksonville.

PALMETTO, FLA.—The Tampa Southern Ry. contemplates construction of a passenger station to cost about \$30,000.

GEORGIA

BRUNSWICK, GA.—The War Department, Washington, D. C., will construct a number of storage warehouses on Turtle River frontage at Crispin Island in connection with the picric acid plant under construction.

BRUNSWICK, GA.—Bureau of Yards and Docks, Navy Department, Washington, D. C., contemplates construction of barracks here to accommodate 600 airmen at naval air station.

PORT WENTWORTH, GA.—E. Morgan, Savannah, Ga., has contract for constructing barracks, mess hall, officers' quarters for soldiers guarding shipyard for United States Shipping Board, Emergency Fleet Corp.

ILLINOIS

CHICAGO, ILL.—The Field Museum of Natural History in Grant Park, nearing completion, has been turned over to the Government for use as a hospital. The interior of the building will be rearranged so that 4300 patients can be accommodated, and a number of small buildings will be constructed around the main structure for the accommodation of 1000 nurses.

CICERO, ILL.—Ashby & Schulse, Architects, 178 West Jackson Boulevard, Chicago, will design three story, 40 x 169 ft., school for Board of Education, 5144 West Twenty-fourth Place. J. F. Slapak, president.

DUQUOIN, ILL.—A sum of \$200,000 has been given to the city by Mrs. L. F. Browning for the construction of a hospital, to be called the Marshall Browning Hospital.

FORT SHERIDAN, ILL.—Construction Division, War Department, Washington, D. C., let contract for a hospital building to Summer Sclitt Co. Structure is expected to cost about \$2,000,000.

GRANITE CITY, ILL.—Unit Construction Co., Title & Guarantee Building, St. Louis, received contract for constructing two-story reinforced concrete plant for the National Enameling & Stamping Co. at \$75,000.

GREAT LAKES, ILL.—Bureau of Yards and Docks, Navy Department, Washington, D. C., awarded contract for dispensary building to H. Schrisk & Co., 3722 West Chicago Avenue, Chicago. \$16,741.

GREAT LAKES, ILL.—Bureau of Yards and Docks, Navy Department, Washington, D. C., proposes building three drill halls and two power houses at Naval Training Station in Great Lakes, Ill.

INDIANA

INDIANAPOLIS, IND.—A Community House will be constructed on Mars Hill by the United States Housing Corp. and work will be started as soon as possible.

INDIANAPOLIS, IND.—The War Department will receive bids shortly for the construction of new barracks at Fort Benjamin Harrison, and the cost of the new buildings is estimated at \$2,500,000.

SHELBYVILLE, IND.—Shelby County contemplates rebuilding two story infirmary at a cost of \$50,000. F. W. Fagel, auditor.

IOWA

HURON, IOWA.—Eckland, Fugard & Knapp, Architects, McKinnie Building, Moline, Ill., have plans to erect a three story, 69 x 79 ft. grade and high school for Board of Education costing \$50,000.

SIoux CITY, IOWA.—Midland Packing Co., 33 South La Salle Street, Chicago, Ill., propose building packing plant. Reiche & Sandborn, Sioux City, will have the work in charge. Cost about \$1,000,000.

WATERLOO, IOWA.—Waterloo Laundry Co., Jefferson and West Fifth Streets, let contract for building two

story, 75 x 140 ft., laundry, to Blackhawk Constr. Co., 313 Lafayette Building, at \$25,000.

KANSAS

BELOIT, KAN.—Board of Education plans election soon to vote on \$150,000 bonds to rebuild school recently destroyed by fire. B. Baker, clerk.

HUTCHINSON, KAN.—Four story hospital to cost \$110,000 was designed by Architects Barnett, Haynes & Barnett, Century Building, St. Louis, Mo. Owners, Sisters of Mercy, Ft. Scott, Kan. General contract let to Stamey & Mackey Constr. Co., Hutchinson.

LEAVENWORTH, KANS.—The War Department contemplates construction of additional barracks at Fort Leavenworth to accommodate 11,000 more men.

KENTUCKY

ASHLAND, KY.—J. H. McCleary contemplates construction of a two-story garage building, 50 x 100 ft., to cost about \$10,000.

BENHAM, KY.—Wisconsin Steel Co., 179 Sixteenth Avenue, Davenport, Iowa, let contract for building thirty one-story and sixty two-story houses at plant here to Gordon-Van Tine Co., 179 Sixteenth Avenue, Davenport, Iowa. \$300,000.

LOUISIANA

ALGIERS (STATION A, NEW ORLEANS), LA.—The Bureau of Industrial Housing, Department of Labor, Washington, D. C., will construct 150 homes for employees of the naval station.

EDGEMO, LA.—St. John the Baptist Catholic Church proposes erection of building 55 x 135 ft.; brick and concrete. Cost, \$60,000. Favrot & Livaudais, Architects, Title Guarantee Building, New Orleans. J. B. Garvey, chairman of committee.

HARVEY, LA.—Swift & Co. contemplates construction of an addition to fertilizer plant here to cost about \$70,000.

MAINE

BAR HARBOR, ME.—E. K. Whitaker, 122 Cottage Street, this city, has contract for constructing housing facilities for Bureau of Yards and Docks, Navy Department, Washington, at \$78,252.

MARYLAND

ABERDEEN, MD.—Sutton & Carson, Ocean City, N. J., received contract from Bureau of Industrial Housing, Department of Labor, Washington, for constructing seventy six-room detached cottages at \$3,200 each. Sill, Buckler & Fenhagen, Architects, 11 E. Pleasant Street, Baltimore, and Norton, Bird & Whitman, engineers, Munsey Building, Baltimore.

BALTIMORE, MD.—Hutzler Bros. contemplate the tearing down of building which adjoins their property at 212 N. Howard Street and will construct a modern five-story fireproof building.

BALTIMORE, MD.—Griffith & Turner, 205 N. Paca Street, contemplate construction of a two-story garage and showroom, 25 x 130 ft., to cost about \$10,000.

BALTIMORE, MD.—Westinghouse Church, Kerr Co., 37 Wall Street, New York City, received contract for constructing three-story steel frame, brick and concrete building for the General Chemical Co., Race and Windsor Streets, Baltimore, at about \$155,000.

FAIRFIELD, MD.—Union Shipbuilding Co. let contracts for building various additions to plant to H. Foulkrod Co., 1201 Chestnut St., Philadelphia, Pa.; reinforced concrete and steel. \$150,000.

HIGHLANDTOWN, MD.—West Construction Co., American Building, Baltimore, has contract from Crown Cork & Seal Co. for constructing mess hall building, 60 x 200 ft., at \$29,000. Otto G. Simonson, Architect, Maryland Casualty Tower Building, Baltimore.

INDIAN HEAD, MD.—Bureau of Yards and Docks, Navy Department, Washington, D. C., will build laboratory. Spec. 3208. \$20,000.

INDIAN HEAD, MD.—Bureau of Yards and Docks, Navy Department, Washington, D. C., contemplates construction of improvements to powder factory here at a cost of approximately \$45,000. Specification 3547.

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NEW YORK
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MARKLETON, MD.—The War Department contemplates enlargement of Markleton Sanitarium and at least three new buildings will be constructed.

SALISBURY, MD.—T. H. Mitchell is considering plans for reconstruction of woodworking plant here recently destroyed by fire with loss of about \$25,000.

MASSACHUSETTS

BOSTON, MASS.—The Bureau of Yards and Docks, Navy Department, Washington, D. C., contemplates installation of mechanical equipment and piping at Navy Yard here, to cost approximately \$200,000.

BROCKTON, MASS.—The Walkover Shoe Co. contemplates construction of a concrete power plant to cost about \$56,000. Jenks & Ballou, Grosvenor Building, Providence, R. I., engineers.

MICHIGAN

BAY CITY, MICH.—Bay City Industrial Works will erect one story, 117 x 260 ft., steel and mill construction car shop. Austin Co., 1420 Penobscot Building, Detroit, have the contract.

DETROIT, MICH.—City let contract for completing four-story hospital on Hamilton Boulevard and Blaine Avenue to Culbertson & Kelly, 809 Ford Building. \$80,000.

GRAND RAPIDS, MICH.—Grand Rapids Brass Co., 90 Scribner Avenue, N. W., is having plans prepared by Osgood & Osgood, New Herald Building, Architects, for building three-story factory.

MINNESOTA

ANAKA, MINN.—Minnesota Dry Milk Co., 400 Plymouth Building, Minneapolis, awarded contract for building one story, 46 x 120 ft. creamery, to J. L. Robinson Co., 511 South Seventh Street, Minneapolis. \$30,000.

FERGUS FALLS, MINN.—Oines Esswein Co., 101 N. Sixth Street, Minneapolis, has contract for constructing refrigerating plant for the State Board of Control, Minnesota.

MINNEAPOLIS, MINN.—Pillsbury Flour Mills Co., Metropolitan Life Building, let contract to Siems, Helmers & Schaffner, St. Paul, for building three story, reinforced concrete brick and steel power plant, rock excav., concrete foundation.

ST. PAUL, MINN.—Minneapolis Business Men, care of E. Pennigton, Soo Building, plan to build coliseum at U. S. Army Air Service Mechanics' Training School. \$60,000.

ST. PAUL, MINN.—Northern Pacific Mutual Benefit Association, 203 Railroad Building, receives bids in February for three-story brick hospital, costing \$300,000. Lambert Bassindale, 321 Capital Bank Building, Architect.

ST. PAUL, MINN.—Toltz Engineering Co., 1419 Pioneer Building, this city, has prepared plans for Griggs, Cooper & Co. for the construction of a two-story reinforced concrete and brick plant, 200 x 250 ft., at University and Fairview Avenues, to cost approximately \$350,000.

MISSOURI

KANSAS CITY, MO.—Citizens have voted on a bond issue of \$400,000 for construction of ice plant.

KANSAS, MO.—R. E. Kidder Flour Mills, State Line and Southwest Boulevard, plans to rebuild plant recently destroyed by fire. Loss about \$150,000.

KANSAS CITY, MO.—Morris & Co., Third and Pacific Streets, contemplate building three-story, 50 x 150 ft., brick office. \$75,000.

ST. JOSEPH, MO.—Vaughn Construction Co., Omaha, Neb., was awarded contract for constructing three-story and basement store building for Townsend & Ueberheim at about \$100,000. Eckel & Aldrich, Corly-Forse Building, St. Joseph, Architects.

ST. JOSEPH, MO.—Methodist Episcopal Hospital had plans prepared by Eckel & Aldrich, Architects, Corly-Forse Building, for building four-story, 120 x 160 ft., reinforced concrete hospital. \$300,000.

ST. LOUIS, MO.—The Francis Wyland Building Co. will construct two four story stores and tenements at 3675 Olive Street, to cost about \$122,000.

ST. LOUIS, MO.—An appropriation of \$62,000 has

been made for the construction of a hospital for negroes at Garrison & Lawton Avenues.

ST. LOUIS, MO.—Amber & Zimmerman, 1228 Pine Street, received contract for constructing two-story factory building for the Oliver Electric Mfg. Co. at \$45,000.

NEBRASKA

CLARKSON, NEB.—Henningson Engineering Co., 1122 Farnam Street, Omaha, is preparing plans for the City Council for the construction of a power plant to cost about \$25,000.

OMAHA, NEB.—J. P. Jerpe Commission Co., 1108 Howard Street, plans to build two story, 110 x 132 ft. warehouse, costing \$55,000. H. Lawrie, 627 Paxton Building, Architect.

NEW JERSEY

FORT HANCOCK, N. J.—Amsterdam Building Co., New York, N. Y., has contract for constructing hydro-plane station here for the War Department.

JERSEY CITY, N. J.—Continental Can Co., Chicago, Ill., contemplates construction of three and four story brick and concrete plant in Jersey City. Estimated cost, \$500,000.

NEWPORT, N. J.—Plans have been prepared for the Staden-Cosier Co. for construction of packing house and storage building, at an estimated cost of \$150,000.

PATERSON, N. J.—T. A. Kelly, 173 Marshall Street, is having plans prepared for two one and two story, 80 x 100 ft., brick warehouses, to be erected at 188-94 Clay Street.

PATERSON, N. J.—Empire Piece Dyeing & Finishing Co., 106-114 Madison Avenue, awarded contract for building three-story, 60 x 125 ft., brick addition to plant to A. Gleek, 65 Garfield Street. \$49,500.

VERONA, N. J.—A bond issue of \$119,000 has been approved for the construction of a tuberculosis hospital at the Essex Mt. Sanitarium, and work will be started at once.

NEW YORK

BALDWIN, N. Y.—The Austin Co., Cleveland, Ohio, was awarded contract for constructing four one-story buildings for the Ordnance Division, War Department, at \$70,000.

BROOKLYN, N. Y.—A. C. Hecht, Architect, 154 W. Randolph Street, Chicago, has prepared plans for the H. W. Cotton Co., Inc., for construction of a large reinforced concrete factory building.

BROOKLYN, N. Y.—W. Kennedy Construction Co., 215 Montgomery Street, has contract for constructing three-story, 50 x 130 ft., brick, steel and concrete factory building for the Soss Mfg. Co. \$75,000.

FIRE ISLAND, N. Y.—F. J. Richards, 160 Jamaica Avenue, Brooklyn, N. Y., will construct radio compass building for the Bureau of Yards and Docks, Navy Department.

NEW YORK, N. Y.—C. Lane, 5 Beekman Street, had plans prepared for one story, 50 x 200 ft., brick import and export station at 387-389 West Broadway.

NEW YORK, N. Y.—Trestbadon Construction Co., 103 Park Avenue, has received contract from Bureau of Yards and Docks, Navy Department, Washington, D. C., for constructing extensions to locker and wash rooms at Navy Yard at \$10,785.

NEW YORK, N. Y.—J. M. Horton Ice Cream Co., 225 East Twenty-fourth Street, has awarded contract for building two story, 50 x 90 ft., brick refrigerating plant at 116 East 131st Street, to Fountain & Choate, 110 East Twenty-third Street. About \$30,000.

NEW YORK, N. Y.—Scott & Prescott, Architects, 1 Madison Avenue, have designed a base hospital consisting of five three story units on Tremont Avenue, between Andrews and Montgomery Streets, for New York Catholic War Fund, 334 Fifth Avenue. \$250,000.

ROCHESTER, N. Y.—Crowell, Lyndoff, Little Co., Liberty Building, this city, was awarded contract by Bridgeford Machine Tool Co. to construct one and two-story reinforced concrete factory building at \$100,000.

ROCHESTER, N. Y.—W. Kenney, 86 Frost Avenue, this city, has contract for constructing one-story brick addition to the factory of the Rochester Can Co. \$40,000.



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SPRINKLERS

ROCHESTER, N. Y.—Seitz & Laging, Arlington Building, Rochester, were awarded contract for constructing one-story brick planing mill for Rochester Box & Lumber Co. at \$30,000.

ROCHESTER, N. Y.—Rochester Can Co., 109 Hague Street, will erect one story, 180 x 200 ft., brick addition to factory. W. Kenney, 86 Frost Avenue, has received the contract. \$40,000.

STATEN ISLAND, N. Y.—N. W. King, 81 E. 125th Street, New York, received contract from Bureau of Yards and Docks, Navy Department, for constructing radio compass building.

WATERTOWN, N. Y.—Jefferson County National Bank let contract for building six story, 36 x 56 ft. brick and steel bank and office at 216 Washington Street, to H. T. Wright, 128 Sterling Street. \$55,000.

NORTH CAROLINA

CHARLOTTE, N. C.—J. A. Jones, Realty Building, got the contract for constructing four-story reinforced concrete and brick factory for Swift & Co. at \$75,000.

RALEIGH, N. C.—Holliday-Crouse Co., Greensboro, N. C., has contract for constructing cantonment for tank corps for the War Department.

SPENCER, N. C.—Young Men's Christian Association, B. F. Stevenson, secretary, is considering erecting dormitory adjoining present building; cost, \$40,000.

WILMINGTON, N. C.—The U. S. Shipping Board, Emergency Fleet Corporation, 140 Broad Street, Philadelphia, will construct 150 homes for workers in Wilmington shipyard.

NORTH DAKOTA

HAVELOCK, N. D.—Board of Education proposes building two-story grade school. Van Horn & Loven, Bismarck, Architects.

OHIO

ALLIANCE, OHIO.—E. B. Silver, 2526 S. Cherry Street was awarded contract for remodeling hall for the Mt. Union College at \$50,000.

ASHTABULA, OHIO.—Contagious hospital to cost \$30,000 was designed by Architect C. V. Martin, Haskell Building. Owner, City of Ashtabula. A. T. Faulkner, clerk, City Hall, Ashtabula.

BARBERTON, OHIO.—Babcock & Wilcox will build one-story, 100 x 216 ft., brick, concrete and steel machine shop. \$75,000.

CINCINNATI, OHIO.—Peters Cartridge Co., First National Bank Building, let contract for remodeling group of buildings to Ferro-Concrete Construction Co., Richmond and Harriet Streets. \$200,000.

CINCINNATI, OHIO.—The Ferro-Concrete Construction Co. has contract for constructing garage and storage building for the Western Electric Co.

CINCINNATI, OHIO.—Fairmount Grain Elevator Co., Gwynne Building, awarded contract for remodeling grain elevator and adding dry house, to Burrell Eng. & Constr. Co., Webster Building, Chicago, Ill. \$50,000.

CLEVELAND, OHIO.—Cleveland Brass & Copper Mills Co., 322 Guardian Building, let contract for one-story, 77 x 130 ft., brick, steel and reinforced concrete factory on Babbitt Road to Craig Curtiss Co., Guardian Building. \$50,000.

CLEVELAND, OHIO.—Western Reserve University, Adelbert Road, let contract to building three-story, 85 x 120 ft., reinforced concrete brick and steel armory to Crowell, Lundo & Little Co., 5217 Euclid Avenue. \$200,000.

CLEVELAND, OHIO.—Champion Forge & Machine Co., 3695 East Seventy-eighth Street, contemplates building one-story, 54 x 200 ft., steel forge shop. \$75,000.

CLEVELAND, OHIO.—Steel Products Co., 217 East Sixty-fifth Street, will build one-story, 90 x 130 ft., reinforced concrete, brick and steel machine shop. Burchard, Robert & Wales Co., 622 Swetland Building. Architect.

CLEVELAND, OHIO.—Swift & Co., 3240 West Sixty-fifth Street, propose building two-story, 50 x 122 ft., brick and reinforced concrete garage. \$50,000.

CLEVELAND, OHIO.—The Cleveland Fireproof Construction Co. was awarded contract for brick and concrete work, roofing and sheet metal work, etc., for Division of Light and Heat, at \$119,985.

CLEVELAND, OHIO.—Uhl-Jaster Co., this city, was

awarded contract for constructing addition to the Y. W. C. A. building at about \$12,000.

CLEVELAND, OHIO.—Western Reserve University, Euclid Avenue, contemplates constructing two-story, 100 x 200 ft., dormitory to cost \$150,000.

CLEVELAND, OHIO.—Reaugh & Scn. contractors, will construct storage building, 34 x 110 ft., and a factory addition, 60 x 108 ft., for Draper Mfg. Co.

DAYTON, OHIO.—Duriron Castings Co., 115 Bayard Street, awarded contract to build one story, 100 x 500 ft., reinforced concrete foundry on Findlay Street, to F. Hill Smith, Inc., 1035 Reibold Building. \$150,000.

PARMA (CLEVELAND P. O.), OHIO.—Swift & Co., 3240 West Sixty-fifth Street, Cleveland, will build two-story, 50 x 75 ft., brick, steel and reinforced concrete fertilizer factory here. \$25,000.

TOLEDO, OHIO.—Toledo Shipbuilding Co., Front Street, is having plans prepared by A. Kahn and E. Wilby, Architects, Marquette Building, Detroit, Mich., for one-story, 50 x 100 ft., addition to foundry of machine shop.

OKLAHOMA

OKLAHOMA CITY, OKLA.—Layton & Smith, Architects, 701 Majestic Building, have designed Wilson School, two stories and basement, to cost \$55,000. Owner, Board of Education, H. M. Fairey, secretary. Brick and stone trim, reinforced concrete.

OKLAHOMA CITY, OKLA.—Eugene Field School (add.) \$23,000, two stories and basement, has been planned by Layton & Smith, Architects, 701 Majestic Building. Owner, Board of Education, H. M. Fairey, secretary. Brick and stone, reinforced concrete.

OKLAHOMA CITY, OKLA.—Culbertson Heights School (add.), \$25,000, two stories and basement, has been designed by Layton & Smith, Architects, 701 Majestic Building, Oklahoma City. Owner, Board of Education, H. M. Fairey, secretary. Brick and stone trim, reinforced concrete.

TULSA, OKLA.—O. K. Eysenbach, 202 Calumet Building, contemplates erection of store and hotel building, three stories, 150 x 140 ft.; reinforced concrete and brick; cost, \$80,000. Fleming & Fahry, Architects, Alexander Building, Tulsa.

PENNSYLVANIA

BUTLER, PA.—U. S. Housing Corporation, 613 G Street, N. W., Washington, D. C., soon lets contract for building fifty-four two story houses, grading, roadwork, etc., here. \$500,000. E. B. Lee, Chamber of Commerce Building, Pittsburgh, Architect.

CHESWICK, PA.—Duquesne Light Co., Chamber of Commerce Building, plans to build power house, costing \$15,000,000. Ford, Bowen & Davis, Chamber of Commerce Building, have prepared plans.

LEETSDALE, PA.—Riter-Conley Co., 1200 Oliver Building, Pittsburgh, awarded contract to build one-story rivet and bolt shop and office to Hughes-Foulkrod Co., Oliver Building, Pittsburgh. \$200,000.

MONESSEN, PA.—Valley Supply Co. will erect a one story, 44 x 102 ft., warehouse, at a cost of \$30,000. J. A. Lohman & Sons, Architects.

PHILADELPHIA, PA.—William Cramp & Sons Ship & Engine Building Co., Beach and Palmer Streets, plan to build two story, 306 x 400 ft., engine house. \$100,000.

PHILADELPHIA (TACONY), PA.—Tacony Ordnance Co. awarded contract for building one-story, 72 x 128 ft., machine shop to F. W. Mark Construction Co., 1426 South Penn Square. \$25,000.

PHILADELPHIA, PA.—Pennsylvania R. R., Broad Street Station, let contract to build one-story warehouse to W. Steele & Sons, 46 North Sixteenth Street. \$25,000.

PHILADELPHIA, PA.—American Insulation Co., 67 North Second Street, awarded contract for two-story, 83 x 141 ft., brick and concrete factory on Roberts Avenue, near Stokley Street, to W. Steele & Sons Co., 30 South Fifteenth Street. \$50,000.

PHILADELPHIA, PA.—McFarland-Meade Co., Forty-sixth Street and Woodland Avenue, had plans prepared for building one-story, 120 x 140 ft., addition to plant at Seventy-first Street and Kingsessing Avenue. \$35,000.

PHILADELPHIA, PA.—Pennsylvania R. R. acquired 100-acre site on Terminal Avenue, near League Island, and plans to build railroad yards. A. C. Shand, Broad Street Station, chief engineer.



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SANITAS

MODERN
WALL COVERING

PITTSBURGH, PA.—Pittsburgh Coal Co., Oliver Building, Pittsburgh, let contract for building machine shop, warehouse and office building to Hughes-Foulkrod Co., Oliver Building, Pittsburgh. \$50,000.

PITTSBURGH, PA.—Zantzinger, Borie & Medary, Architects, 112 S. Sixteenth Street, Philadelphia, are preparing plans for the Government for construction of homes for workmen on Neville's Island, near here. About 15,000 separate dwellings are to be constructed for a population of 50,000. This work is in connection with the Government ordnance plant to be constructed at a cost of about \$50,000,000.

PLATTSFORD, PA.—Construction Division, War Department, Washington, D. C., contemplates construction of a gas plant near here to cost about \$2,000,000.

THROOP, PA.—Price-Pancoast Coal Co., Board of Trade Building, Scranton, awarded contract for building one-story, 80 x 100 ft., electric plant here to S. Palumbo, Real Estate Exchange Building, Scranton. \$75,000.

YORK, PA.—York Safe & Lock Co., Loucks Mill Road and Pennsylvania R. R., will build two-story, 60 x 200 ft., foundry and one-story, 90 x 200 ft., pattern shop to cost \$90,000.

SOUTH CAROLINA.

CHARLESTON, S. C.—Central Labor Union contemplates erecting labor temple; cost, \$30,000 to \$50,000.

ROCK HILL, S. C.—Edwards & Sayward, Architects, Candler Building, Atlanta, Ga., have designed a three story dormitory, etc., for Winthrop College, to cost \$100,000. D. B. Johnson, president.

TENNESSEE

CHATTANOOGA, TENN.—Columbian Iron Works plan to rebuild shell plant here recently destroyed by fire with a loss of \$100,000.

TEXAS.

AUSTIN, TEX.—University of Texas took over Theological Seminary and will expend about \$100,000 to convert into military hospital.

VIRGINIA

CAMP LEE, VA.—The War Department, Washington, D. C., contemplates expenditure of \$500,000 for enlargement of base hospital, including seven barracks for enlisted men, building for nurses' quarters, etc.

HAMPTON ROADS, VA.—The Bureau of Industrial Housing, 613 G Street, N. W., Washington, D. C., will construct five to six hundred homes at Glenwood Park to accommodate Government employees.

NORFOLK, VA.—D. E. Washburn, Architect, has prepared plans for the Banks Bros. Packing Co. for reconstruction of meat packing plant recently burned. Estimated cost, \$200,000.

RICHMOND, VA.—Retreat for Sick, 319 North Twelfth Street, plans to build four story, 80 x 130 ft. hospital. Carneal & Johnson, Architects, Chamber of Commerce Building. \$150,000.

YORKTOWN, VA.—Bureau of Yards and Docks, Navy Department, Washington, D. C., proposes building five storage buildings in Yorktown, Va. Spec. 3543. \$750,000.

WASHINGTON

TACOMA, WASH.—The School Board contemplates building improvements to cost approximately \$81,500 for the coming year.

TACOMA, WASH.—The City Council contemplates increasing the hydroelectric plant at La Grande by developing a storage basin on Nisqually River. The project will cost \$500,000.

VANCOUVER, WASH.—Citizens voted a bond issue of \$35,000 which will be used for the construction of a new high school building.

WEST VIRGINIA

MOUNT HOPE, W. VA.—The New River Co. contemplates construction of warehouse and machine shops to cost about \$75,000.

SUTTON, W. VA.—The Sutton Chemical Co. will construct a retort house, one story, 53 x 157 ft., and one story, 48 x 145 ft., to cost about \$700,000.

WISCONSIN

EAU CLAIRE, WIS.—Holmes & Flynn, Architects, 8 S. Dearborn Street, Chicago, are preparing plans for building to be constructed for the First Congregational Church, 116 x 126 ft., to cost \$85,000.

JANESVILLE, WIS.—General Motors Co. plans to build plant here for manufacture of farm tractors and machinery costing \$1,000,000. J. A. Craig, Janesville, general manager.

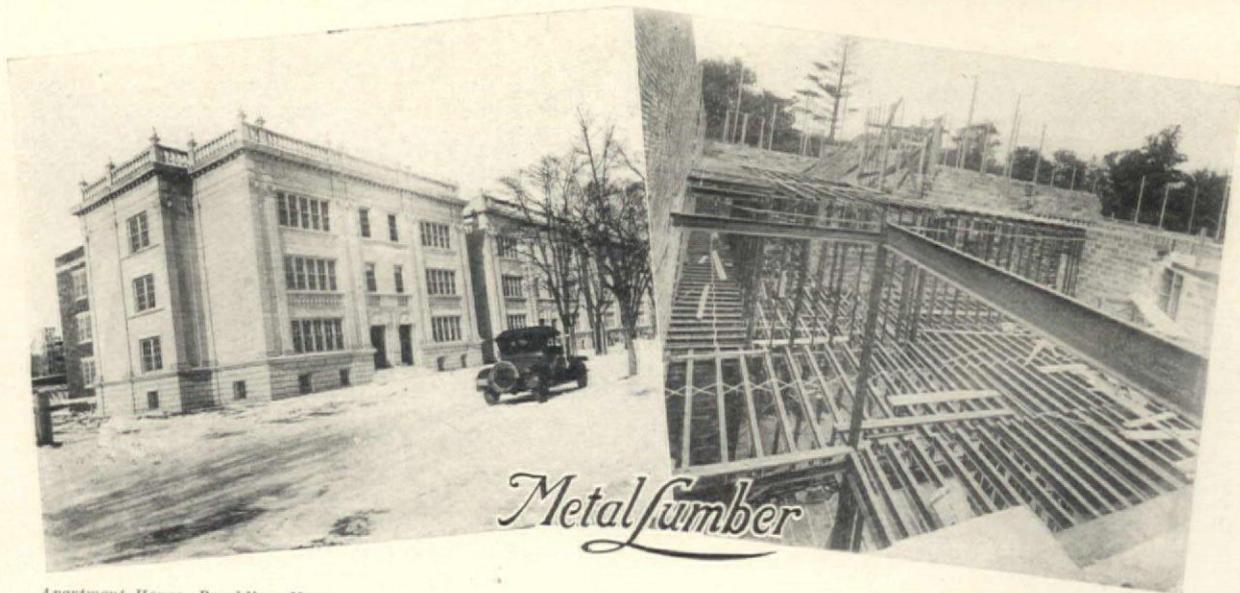
MANITOWOC, WIS.—The Manitowoc Foundry & Machine Co., George Smith, manager, will construct addition to its foundry at Franklin and Sixteenth Streets.

MILWAUKEE, WIS.—Universal Cement Mold Co., 707 Merrill Building, plans to build one-story factory. \$25,000.

MILWAUKEE, WIS.—The new barracks for the motor training school for enlisted men will cost \$100,000. The Association of Commerce is standing behind the Government in the matter of housing the motor squad.

POLLEY, WIS.—Sam Snyder, Chippewa Falls, Wis., Architect, is preparing plans for construction of an auditorium for the town of Ford, E. W. Polley, town clerk. Building to be 40 x 100 ft., one story and basement. Cost, \$10,000.

STEVENS POINT, WIS.—The Board of Education contemplates construction of an addition to high school building to cost about \$75,000. R. A. Messmer & Bros., Architects, 1004 Majestic Building, Milwaukee.



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At the Architect's Service

The Day of Small Things

A thing that is bound to make an impression upon the mind of one reading the advertising pages of "The American Architect" and of other architectural journals, is this:—the care and thought which has been given by manufacturers to even the most minor details of building equipment. In fact, it may be said that there are no minor details in a building to-day. The smallest item entering into construction or fitting-out has probably been made a specialty by some progressive manufacturer. And the architect who makes it a point to keep informed on these matters now finds it possible to secure high quality and superior design in articles of equipment which, a few years ago, were not considered worth a second thought. An examination of these pages will reveal many cases in point—advertisements of some product which, not so long ago, would not have seemed worth the expense of exploitation.

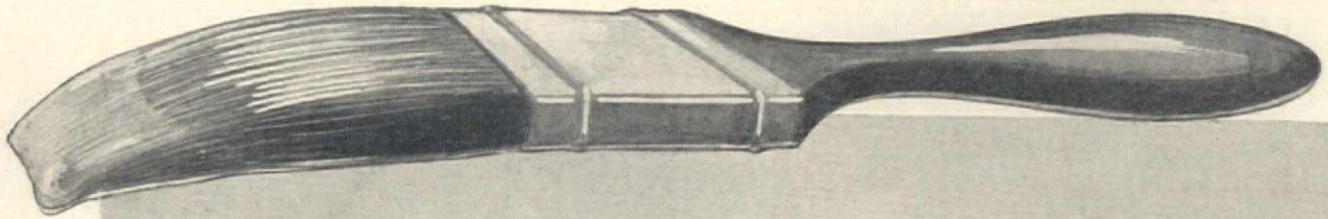
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Zouri Drawn Metals Co.	

Ads. marked E.O.W. appear every other week

Ads. marked E.F.W. appear every fourth week

Ads. marked O.A.M. appear once a month



AS suitable for big wall areas as for the upper-class residence. The sheen or lustre common to wall paints is so modified that the largest wall areas are soft and uniform in tone. Velumina is an *oil* paint—with all the durability of an oil paint.



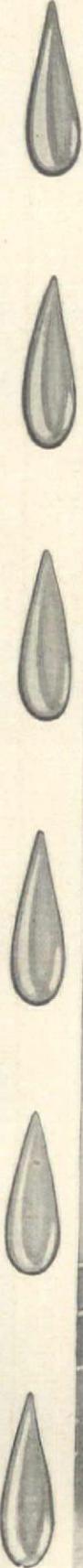
THOSE small defacements about light switches and washstands need not compel re-decorating—they may be removed by washing.

—and when re-decorating is necessary, the cost is materially reduced because this *oil* flat wall paint need not be removed. It is a splendid foundation for another coat.

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 Distributing Stocks in 34 Leading Cities
 EXPORT DEPARTMENT
 Woolworth Building, New York City

PATTON'S
Velumina 



DIGEST

Of Manufacturers' Data

ARCHITECTS' OFFICE EQUIPMENT

PENCILS:

American Lead Pencil Co., 220 Fifth Ave.,
New York City.
Dixon Crucible Co., Jos., Jersey City, N. J.

AUTOMATIC SPRINKLER SYSTEMS

Globe Automatic Sprinkler Co., The, 2051
Washington Ave., Philadelphia, Pa. Branch
offices in principal cities.

CASEMENT WINDOWS

METAL:

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

CEMENT AND PLASTER

CEMENT:

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

PLASTER:

National Kellastone Co., The, Chicago, Ill.

SPECIALTIES:

General Fireproofing Co., The, Youngstown,
Ohio. G-F Cold Rolled Channels, Corner
Bead, Wall Ties and Crimped Furring.
Truscon Steel Co., Dept. 68, Youngstown,
Ohio. Representatives in principal cities.
Corner bends, "Kahn" curb bars, "Trus-
Con" slotted inserts; "Kahn" adjustable
inserts; "Trus-Con" National socket inserts;
"Kahn" elastic filler and armor plates for
expansion joints.

STUCCO:

National Kellastone Co., The, Chicago, Ill.

COLUMNS

WOOD:

Hartmann-Sanders Co., Chicago, Ill.

CONCRETE REINFORCEMENT

ENGINEERING:

Corrugated Bar Co., Buffalo, N. Y.

REINFORCEMENT:

American Steel & Wire Co., Chicago-New York.
Berger, The, Mfg. Co., Canton, Ohio.
Corrugated Bar Co., 402 Mutual Life Bldg.,
Buffalo, N. Y. "Corrugated" Rounds and
Squares.
Truscon Steel Co., Dept. 68, Youngstown,
Ohio. Representatives in principal cities.
"Kahn" System reinforced concrete; "Kahn"
bars; "Rib" bars; "Rib" lath; "Floro-
tyles," "Florodome," etc.; flat and beamed
ceilings of all types.

SYSTEM:

Corrugated Bar Co., Buffalo, N. Y.

DAMP-PROOFING

(See Water and Damp-proofing)

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

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

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

DAYLIGHTING

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

DOORS AND TRIM

HOLLOW STEEL DOORS:

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

STEEL ROLLING DOORS:

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

DUMB WAITERS

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

ELECTRICAL EQUIPMENT AND SUPPLIES

CONDUITS AND FITTINGS:

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

OUTLET BOXES:

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

PANEL BOARDS:

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

RECEPTACLES:

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

SOCKETS:

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

SWITCHES:

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

ELEVATORS AND HOISTS

CONVEYORS:

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

ELEVATORS:

American Elevator & Machine Co., Louisville,
Ky.

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

ELEVATORS (Hand Power):

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

ELEVATOR CABLE:

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

HOISTS (Ash):

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

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

FIREPROOFING MATERIALS

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

METAL LATH:

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

Corrugated Bar Co., 402 Mutual Life Bldg.,
Buffalo, N. Y. "Corr-Mesh" for walls, par-
titions, floors, roofs, suspended ceilings.

General Fireproofing Co., The, Youngstown,
Ohio. Herringbone Rigid Metal Lath, Dia-
mond-Rib Expanded, Key Extended and
Genfire Sheet Steel.

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

FIRE PROTECTION

AUTOMATIC SPRINKLER SYSTEMS:

Globe Automatic Sprinkler Co., The, 2051
Washington Ave., Philadelphia, Pa. Branch
offices in principal cities.

FLOORS

COMPOSITION:

Johns-Manville, H. W., Co., N. Y. C.
Franklyn R. Muller & Co., Waukegan, Ill.
National Kellastone Co., The, Chicago, Ill.

FLOOR COATINGS:

General Fireproofing Co., The, Youngstown,
Ohio. G-F Concrete Hardener, Floor Primer
and Floor Coating.

FOUNDATIONS

PILES:

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

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

Standard Oil Cloth Co., Inc., The, 320 Broadway, New York. "Sanitas" Tinted, Decorative and Glazed. Fast colors, sanitary. For private homes, hotels, auditoriums, institutions, etc.

METAL:

Canton Art Metal Co., Canton, Ohio.

HARDWARE**BOLTS:**

Corbin, P. & F., New Britain, Conn.
Yale & Towne Mfg. Co., 9 E. 40th St., N. Y. C.

BUILDERS' HARDWARE:

Corbin, P. & F., New Britain, Conn.
Stanley Works, The, New Britain, Conn.
Yale & Towne Mfg. Co., 9 E. 40th St., N. Y. C.

BUTTS AND HINGES:

Corbin, P. & F., New Britain, Conn.
Stanley Works, The, New Britain, Conn. (Ball-Bearing)—steel, brass, bronze.
Yale & Towne Mfg. Co., 9 E. 40th St., N. Y. C.

CASEMENT:

Yale & Towne Mfg. Co., 9 E. 40th St., N. Y. C.

CHAIN HOISTS:

Yale & Towne Mfg. Co., 9 E. 40th St., N. Y. C.

DOOR CHECKS:

Corbin, P. & F., New Britain, Conn.
Yale & Towne Mfg. Co., 9 E. 40th St., N. Y. C.

FINISHING:

Yale & Towne Mfg. Co., 9 E. 40th St., N. Y. C.

GARAGE HARDWARE:

Stanley Works, The, New Britain, Conn. Garage door holders and garage door hinges.

LOCKS:

Yale & Towne Mfg. Co., 9 E. 40th St., N. Y. C.

HEATING, VENTILATION, PLUMBING**BLOWERS AND EXHAUSTERS:**

Buffalo Forge Co., Buffalo, N. Y.

DRINKING FOUNTAINS:

Cahill Iron Works, The, Chattanooga, Tenn.
Kohler Co., Kohler, Wis.

FLOOR DRAINS:

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

FURNACES:

Hawley Down Draft Furnace Co., Easton, Pa.

LAUNDRY TUBS:

Cahill Iron Works, The, Chattanooga, Tenn.

LAVATORIES:

Cahill Iron Works, The, Chattanooga, Tenn.
Kohler Co., Kohler, Wis.

PIPE, IRON:

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

PIPE, (Steel):

Youngstown Sheet & Tube Co., Youngstown, O.

REGISTERS:

Waterloo Register Co., Waterloo, Iowa.

SINKS:

Cahill Iron Works, The, Chattanooga, Tenn.
Kohler Co., Kohler, Wis.

SINKS (Slop):

Cahill Iron Works, The, Chattanooga, Tenn.
Kohler Co., Kohler, Wis.

HEATING, VENTILATION, PLUMBING—Continued**TANKS (Closet):**

Cahill Iron Works, The, Chattanooga, Tenn.
Kohler Co., Kohler, Wis.

TRAPS (Radiator):

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

TRAPS (Steam):

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

TUBS (Bath):

Cahill Iron Works, The, Chattanooga, Tenn.
Kohler Co., Kohler, Wis.

TUBS (Laundry)

Kohler Co., Kohler, Wis.

URINALS:

Cahill Iron Works, The, Chattanooga, Tenn.
Kohler Co., Kohler, Wis.

VALVES (Air):

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

VALVES (Steam):

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

VALVES (Water Line):

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

VAPOR HEATING SYSTEMS:

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

VENTILATORS:

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

HOISTS

(See Elevators and Hoists)

INSULATION (Sound and Heat)**BUILDING:**

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

LIGHTING FIXTURES**GLASSWARE:**

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

METAL:

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

MUSICAL INSTRUMENTS**ORGANS:**

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

ORNAMENTAL BRONZE AND IRON

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

PAINTS, VARNISHES, STAINS**ENAMEL:**

Pitcairn Varnish Co., Milwaukee, Wis. "Bon-zal" enamel.

PAINT (Steel Protective):

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

PAINT:

Patton Paint Co., Milwaukee, Wis., Newark, N. J. Patton's "Velumina" Oil Flat Wall Paint.

STAINS:

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

VARNISHES:

Pitcairn Varnish Co., Milwaukee, Wis.

PARTITIONS

Corrugated Bar Co., Buffalo, N. Y.

METAL:

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

PERGOLAS

Hartmann-Sanders Co., Chicago, Ill.

PLASTER

(See Cement and Plaster)

PLUMBING

(See Heating, Ventilation, Plumbing)

REFRIGERATION**REFRIGERATING APPARATUS:**

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

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Structural Slate Co., Pen Argyl, Pa.

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

SAFETY TREADS

Am. Mason Safety Tread Co., Lowell, Mass.

SASH

(See Windows)

ALPHABETICAL INDEX OF ADVERTISERS ON PAGE 22

SASH CORD

Samson Cordage Works, 88 Broad St., Boston.

SHEET METAL

American Sheet & Tin Plate Co., Frick Bldg., Pittsburgh, Pa.

FORMED PRODUCTS:

American Sheet & Tin Plate Co., Frick Bldg., Pittsburgh, Pa.

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

METAL CEILINGS:

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

STAINS

(See Paints, Varnishes and Stains)

STONE**GRANITE:**

National Building Granite Quarries Association, Inc., 31 State St., Boston, Mass.

STRUCTURAL STEEL**PRESSED STEEL CONSTRUCTION:**

Berger, The, Mfg. Co., Canton, Ohio. "Metal Lumber." Pressed Steel Joists and structural members.

Truscon Steel Co., Dept. 68, Youngstown, Ohio. Representatives in principal cities. "Kahn" pressed steel beams, joists, studs, plates, etc.

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STUCCO:

National Kellastone Co., The, Chicago, Ill.

TERRA COTTA**TERRA COTTA (Architectural):**

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TILE

(See Flooring and Roofing)

VARNISHES

(See Paints, Varnishes and Stains)

VENTILATION

(See Heating, Ventilation, Plumbing)

WALL BOARD

(See Stucco and Wall Board)

WATER AND DAMPPROOFING

Cabot, Samuel, Inc., 141 Milk St., Boston.
General Fireproofing Co., The, Youngstown, Ohio. Complete line of G-F Waterproofings, Dampproofings and Technical Paints.

WATER SUPPLY SYSTEMS

Carter, R. B., Co., 152 Chambers St., N. Y. C.

WINDOWS METAL

Detroit Steel Products Company, Department No. 9, Detroit, Mich. Fenestra Solid Steel Windows are made from Solid Rolled Steel Bars interlocked by patented Fenestra Joints. Ventilators are equipped with adjustable, removable butts. Fenestra Gravity Cam Latch automatically locks ventilators when closed. Patented Channel Section gives ventilators double weathering.

Lupton's, David, Sons Co., Philadelphia, Pa.
Pomeroy, S. H., Co., Inc., 30 E. 42d St., N. Y. Hollow metal fire retardant windows in 27 standard types.

Truscon Steel Co., Dept. 68, Youngstown, Ohio. Representatives in principal cities. "United" steel sash in all types; horizontally and vertically pivoted sash; counterbalanced and counterweighted sliding sash; center pivoted and top hung continuous sash; steel and glass partitions; sliding and swinging doors; casement sash of all designs.

CASEMENT:

(See Casement Windows)

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INTERIOR PLASTER
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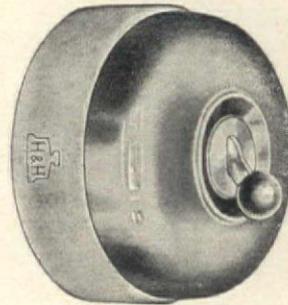
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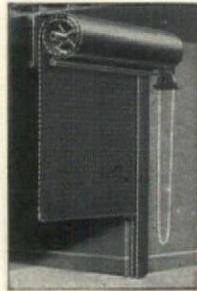
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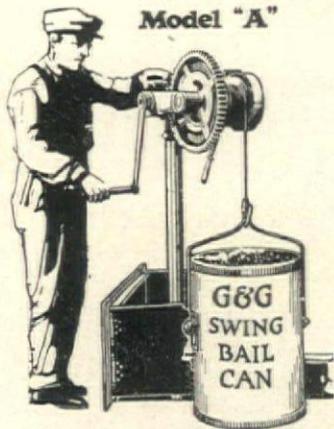


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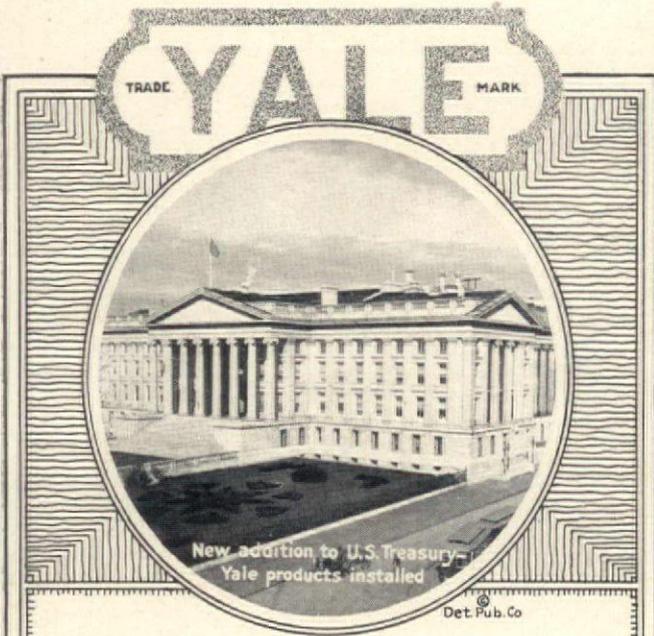
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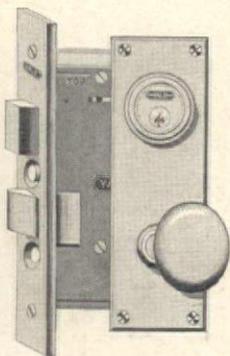
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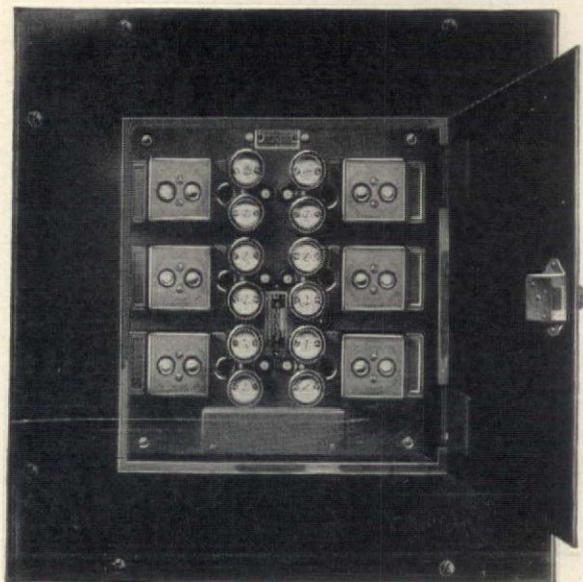
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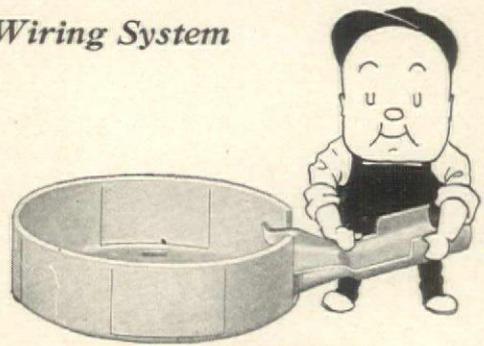
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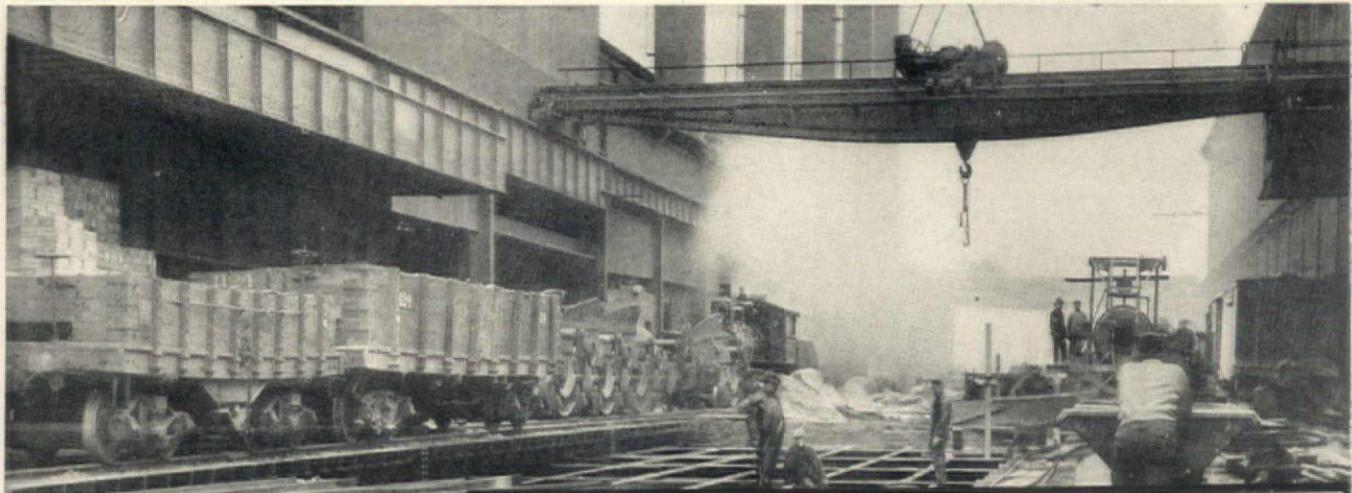
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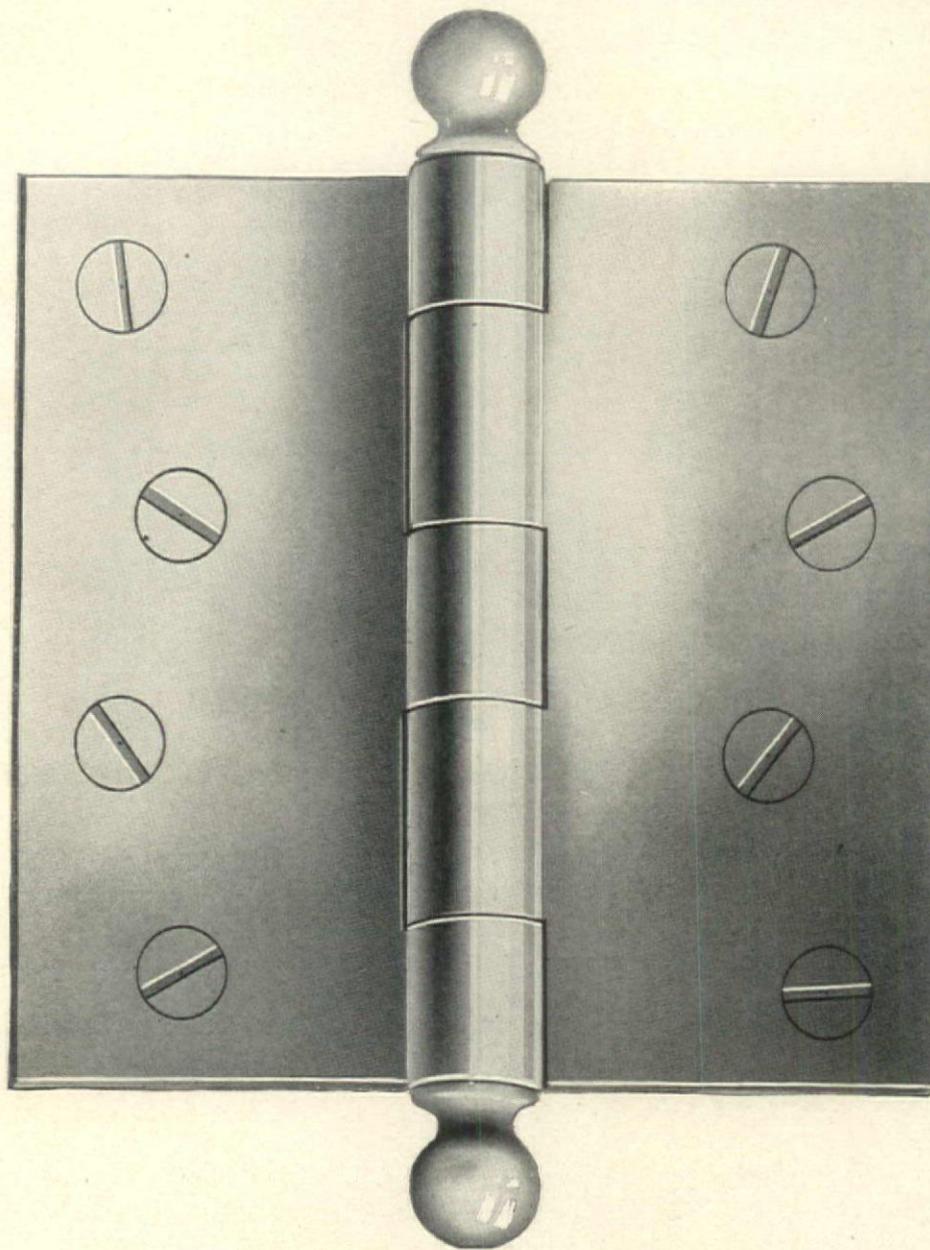
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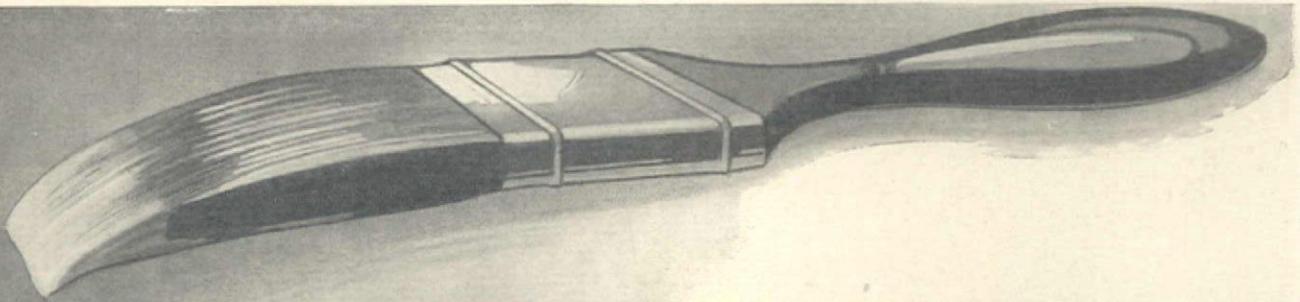
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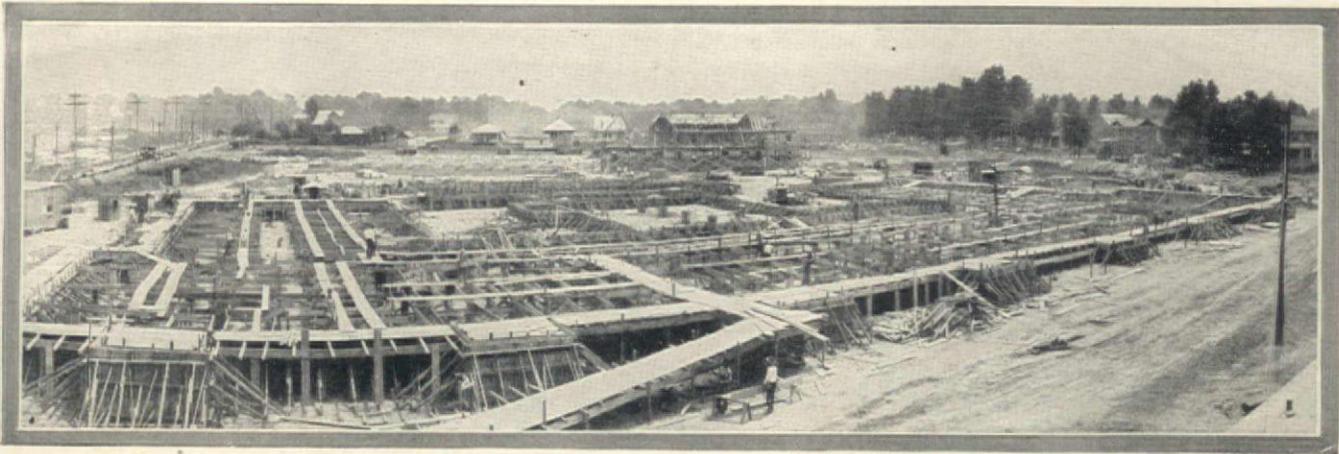
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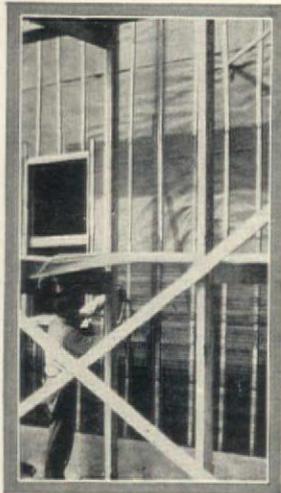
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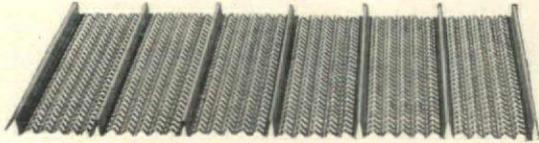
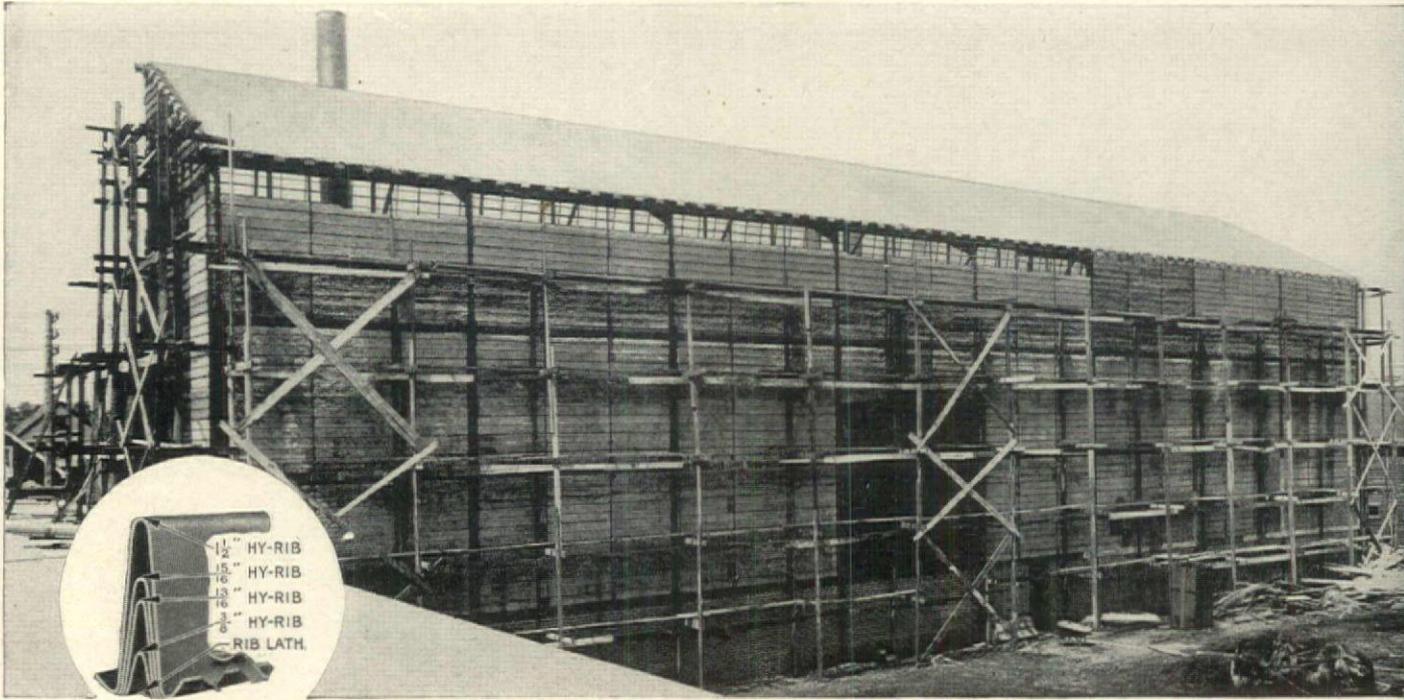


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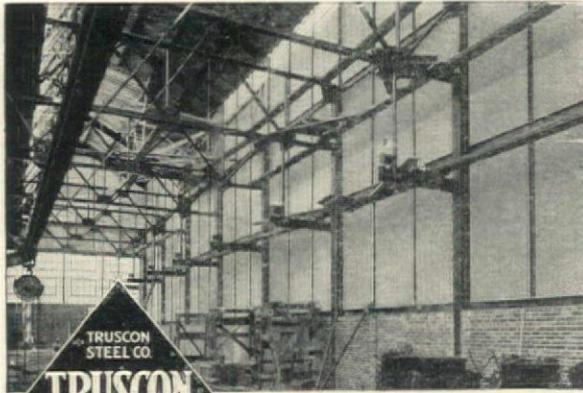
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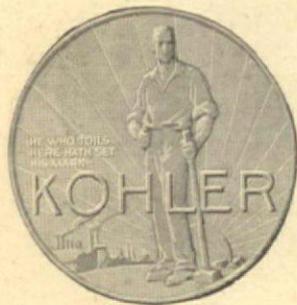
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