THE AMERICAN ARCHITECT

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DETAIL, BEECH TREE TERRACE, BRONXVILLE, N. Y.

HOUSING PROBLEMS IN SMALL SUBURBAN DEVELOPMENTS

By KENNETH G. HOW

Illustrated by the work of MESSRS. BATES & HOW, *Architects*

IN the gradual evolution that is taking place in our domestic lives, the trend, it would seem, is unmistakably toward a communal type of dwelling. Domestic virtues, long lauded as among the best traits of character, are now in a measure subordinated to what is sometimes called "the higher life," and the tendency is apparently toward the elimination of sordid duties and as far as possible of domestic cares. There is a reaching up for higher mental ideals, a scornful feeling for what is termed "the drudgery of housekeeping," and in order to make life easier and freer of care, the communal type of dwelling has become so popular as to merit careful consideration.

Apartment houses, first erected in cities, were an idealized form of the earlier "tenement house." They met with instant approval. These first seriously designed and planned forms of grouped

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dwellings, provided many conveniences and often luxuries of accommodation not possible at similar cost in an isolated dwelling. Ingenious developments in plan, the introduction of many utilities and often location in most desirable sections offered to dwellers in cities an ideal form of housekeeping establishment. That the apartment house was purely an urban institution was at that time generally believed. The man and woman who craved the joys of rural life and a home in the suburbs were supposed to also desire the isolation of location and the privacy that would be afforded by a detached house.

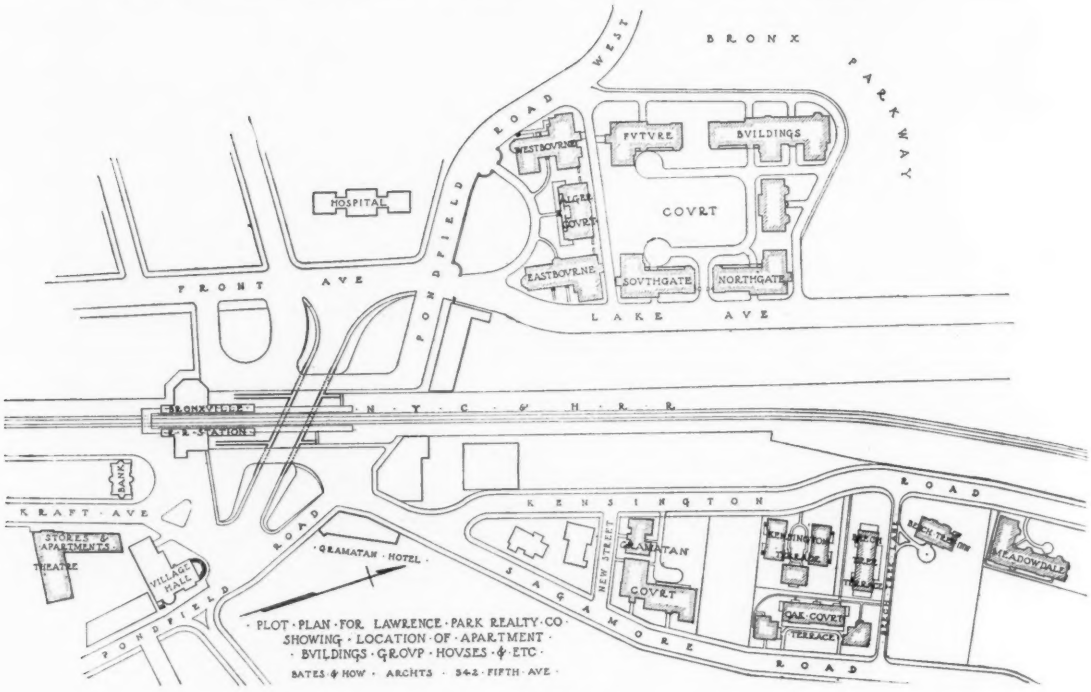
Few would have believed that a time would come, and soon, when those of rural tastes would be content to dwell in apartments or in semi-detached groups of two or more houses.

But the busy man, and to-day, as is often the case, the equally busy woman, had learned through life in city apartments to appreciate the many conveniences and easy methods of housekeeping of the apartment house *menage*, and it was, for these reasons, not difficult to induce owners of suburban properties to erect experimental groups.

Their success was instantaneous, and now these dwellings are in most instances rented as soon as the plans are drawn.

To many who hold fast to old customs and deplore the changes that are taking place, the communal form of dwelling marks the passing of domestic privacy.

There are enough opportunities for those who cling to such ideals to live their lives as they may elect.



PLOT PLAN

But, in any event, the type of suburban dwellings illustrated in this issue of THE AMERICAN ARCHITECT is of especial moment at this time, and its development of more than passing interest.

There are two distinct types of building to be covered by this article and shown in the accompanying drawings and photographs. They are the buildings containing moderate sized apartments of six and seven rooms and two baths and those of eight and nine rooms and three baths, and the group system of individual houses.

To those who desire responsibility at

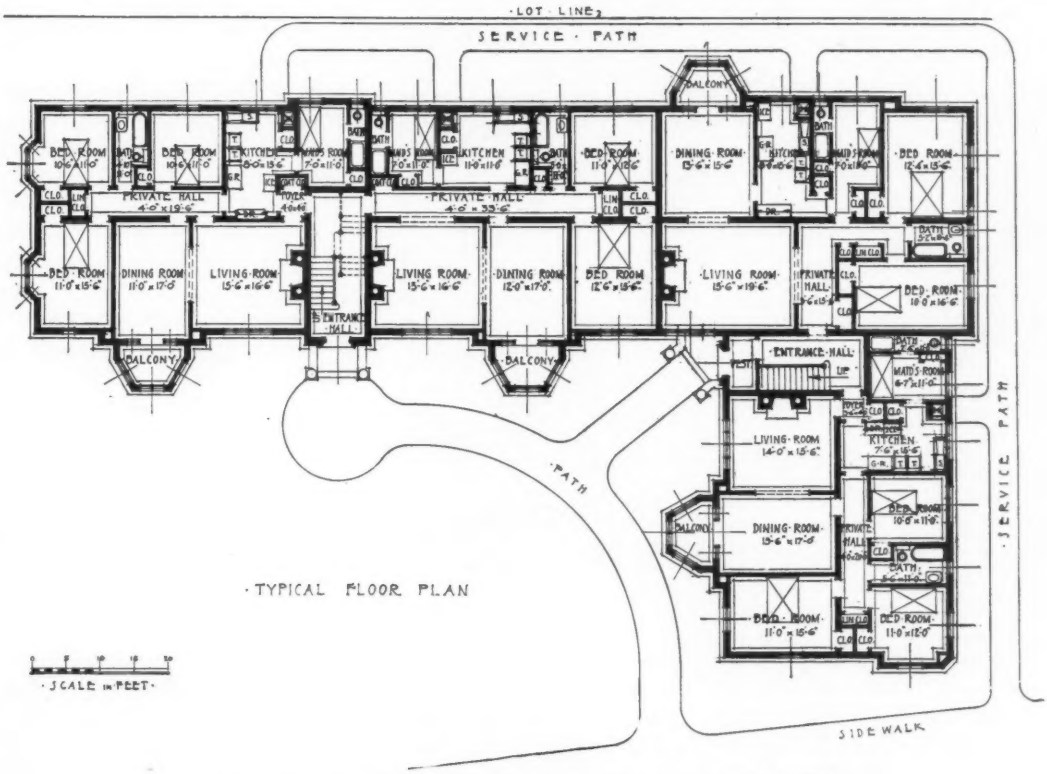
its minimum, the apartment is admirable, giving all the comforts and conveniences one finds in the city, added to those of an open balcony, delightful surroundings and views of a charming country, playgrounds and plenty of fine air besides convenient location. It would be a doubtful venture in a community, such as Bronxville, for example, to undertake anything of this kind any considerable distance from the village center. This objection will, however, probably be soon overcome, owing to the steady and increasingly rapid growth of this locality.

The location of the Meadowdale group is excellent, as it is placed on high, sloping ground facing Kensington Road and commanding a view of the Bronx River and Parkway and the hills beyond.

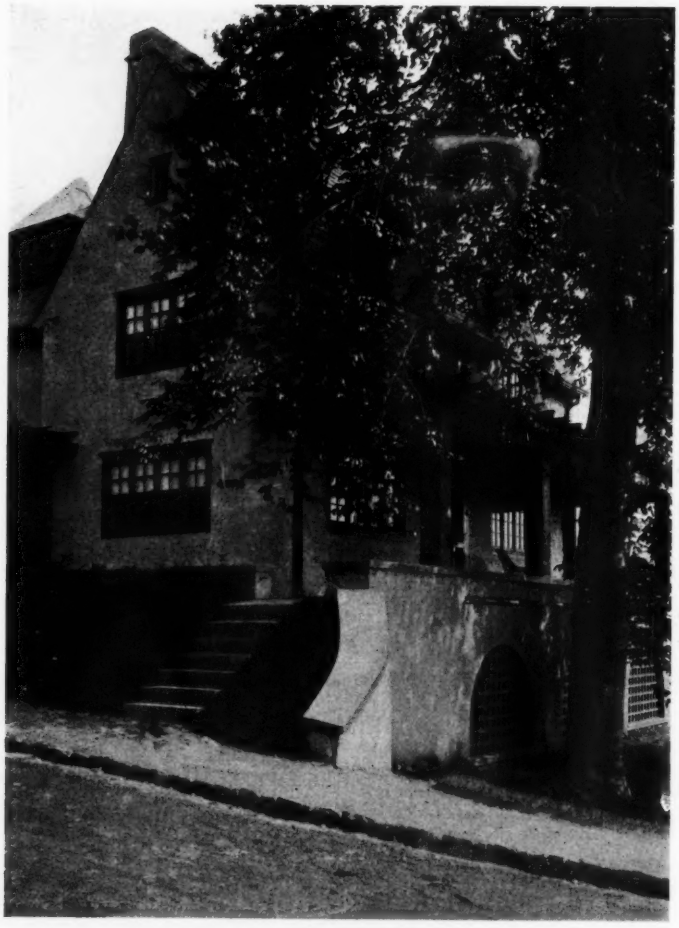
Owing to the topography, the group is divided into three different levels, lending a picturesque effect and well fitting the site. There are twelve apartments in all, containing six rooms each, with the exception of the part on the south end which has seven rooms.

Excepting the roof, the building is entirely fireproof, with hollow tile walls and reinforced concrete floors.

The aim has been in designing the exterior to retain as much as possible a cottage character, this being somewhat difficult of accomplishment in a building of this size, when three complete stories of apartments were necessary. The apartments have a compact arrangement of plan, and are treated in a simple, economical way, having been built for moderately priced rentals. As will be seen by reference to the block plan, the apartment block is so placed that it forms a part with the general group system of individual houses. The adjacent building to the south has been converted into an inn, making a valuable and convenient adjunct to the group.



TYPICAL FLOOR PLAN, MEADOWDALE APARTMENTS



DETAIL, BEECH TREE TERRACE

From the outset, apartments have proved most successful in this locality, the first having been built several years ago. The venture has, therefore, passed the experimental stage.

The second or largest group of apartment houses to be mentioned is Alger Court, which was the first of the apartment house groups built in Bronxville. Their beginning is interesting.

The first building of this group is the centre unit of the court formed by Eastbourne and Westbourne. It was originally an old stone farm house and, as the owners thought, hung heavily on their hands. They were loath to demolish it, so the thought suggested itself of converting it into apartments, the land being too valuable for any single dwelling.

No sooner had the work progressed when there immediately arose a demand which the owners could not by any means satisfy, and which demand demonstrated the great need of suburban apartments.

Eastbourne and Westbourne, built two years ago, were equally successful. They were commodious, of seven and eight rooms with balconies and baths.

The latest buildings, "Northgate" and "Southgate," as illustrated, are a further marked improvement and will have eight and nine rooms and three baths, all of fireproof construction.

The stone gateway between the two buildings is the main entrance to the large court which will eventually be formed by other apartment buildings completing the group. The whole situation is exceptional, not only by reason of its proximity to the village center, but also because it forms practically a part of the Bronx River Parkway, a park system extending from Bronx Park, in New York City, to White Plains. It is a most public spirited undertaking.

Kensington Terrace (see plot plan), erected a year ago, was the first group of the block system of individual houses built in Bronxville, and at once the demand for this type of house became so great that now there are seven buildings containing twenty-six houses. The first group consisted of two four-family houses and one two-family house built around a court. Each individual house contains six rooms and two baths. The treatment of the interior is extremely simple, in fact, simplicity is one of the most important elements of their success.

Beech Tree Terrace, the next group, facing Beech Tree Lane, consisted of a block of six houses with added features of a covered pergola on both ends and an

open pergola extending across the front. The plan is similar to the first group and, being situated on somewhat higher ground, commands higher rentals.

Oak Court Terrace, the last group, has only recently been completed and the problem presented was somewhat different. Owing to the great slope in the ground, it was advisable to have different floor levels, but preserving the idea of the court, and, of course, utilizing as much of the ground as possible, which is especially important in this class of work.

The group as a whole, embodies some improvements over the former ones. There seemed to be a demand for slightly larger kitchens and dining rooms, and an additional bed room, which has been inserted in the third story, giving two rooms and bath on both this and the second floors. Entrance and stair halls and butler's pantries were dispensed with and all available space given to the necessary rooms. Entrance vestibules, however, were provided where possible, as these, it is believed, add to the feeling of privacy necessary to a properly located living room. The stairway leads directly from this room to those above. Covered porches or open terraces are provided.

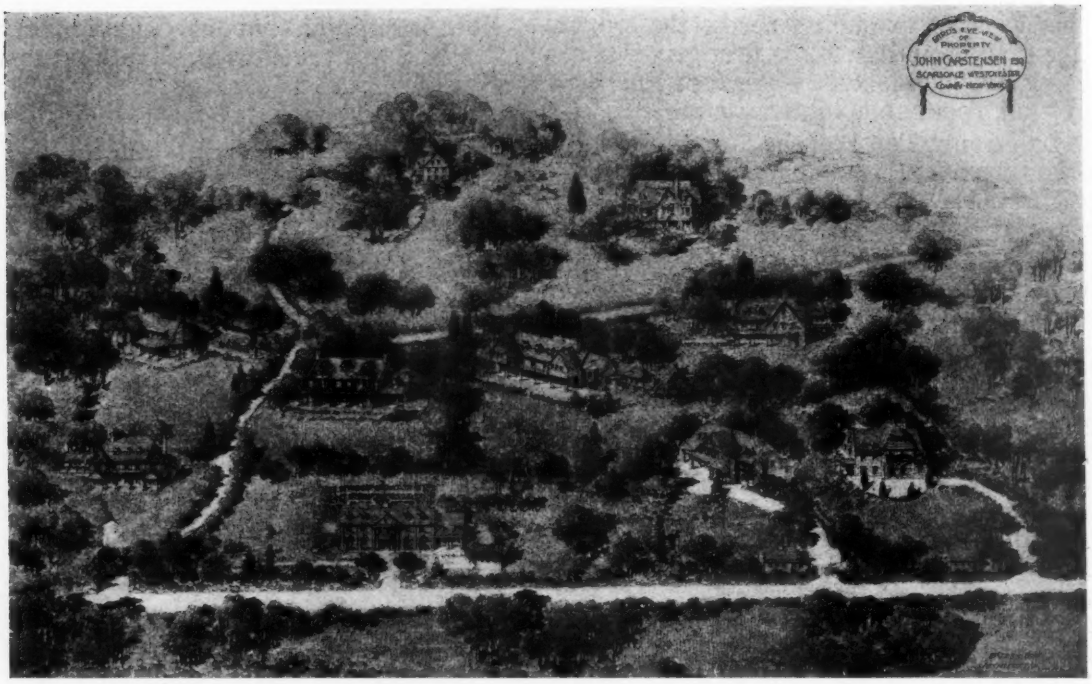
Each house is separated from the adjoining one by a fireproof wall extending through the roof, and all are so arranged that they may be sold individually should occasion arise.

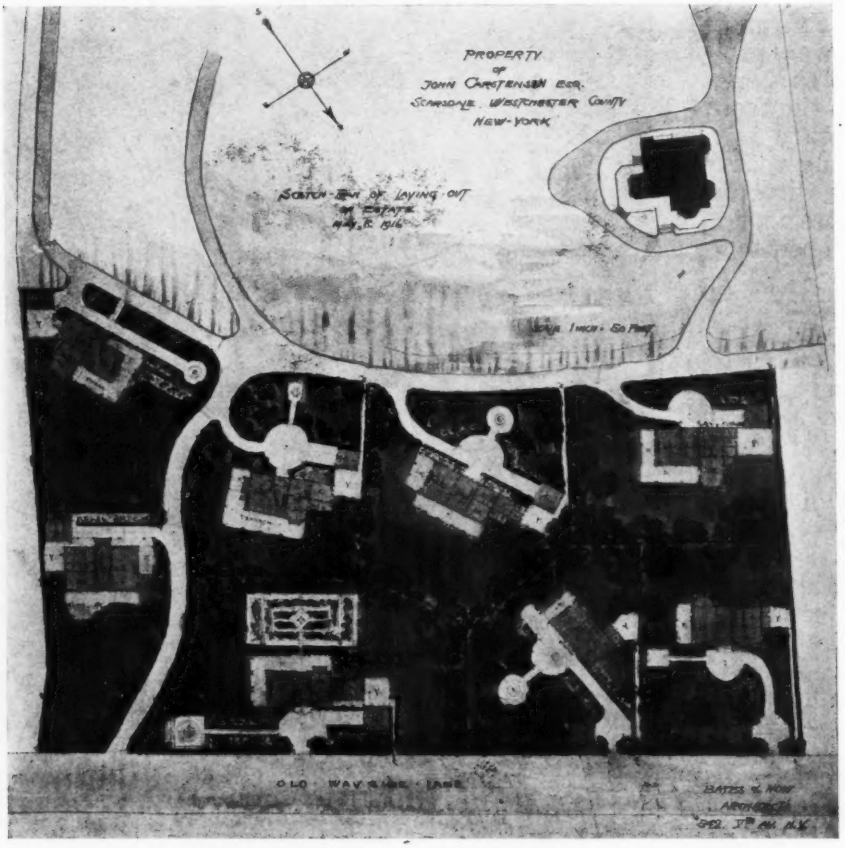
The heating and lighting are supplied from a central power plant, which also supplies the other apartment buildings and the Gramatan Hotel. The hot water is furnished from this same source, and as all cooking is done by gas, coal and ashes are eliminated and housekeeping cares are reduced to the smallest possible proportions.

It is the opinion that one's individuality is as easily retained in this block system as in the isolated dwelling, but with so many added advantages, both in decreased care and expense and from the resultant cheaper rentals, owing to the lower construction costs. This co-operative idea will probably be developed on a much more extensive scale than has heretofore been attempted in this country.

It has been found by experience that there should not be more than six houses in one block. It is difficult to treat without monotony a building of this type and length and to segregate the families, as the tendency of this housing scheme is too much in the other direction. The two and four-family houses are probably the

DETAIL, KENSINGTON TERRACE





BIRD'S-EYE VIEW AND PLAN OF PROPERTY OF MR. JOHN CARSTENSEN, SCARSDALE, N. Y.

MESSRS. BATES & HOW, *ARCHITECTS.*

better size, insuring privacy, light and ventilation. They also work out much better architecturally.

Another interesting development is that shown by the bird's eye view and plan on preceding page of the layout of estate of Mr. John Carstensen at Scarsdale, N. Y.

On the property at present is his own house and that of Mr. Shreve, with, of course, the necessary garage, greenhouses and outbuildings. The grounds are most beautifully developed and are ideal for an attractive grouping of high class houses.

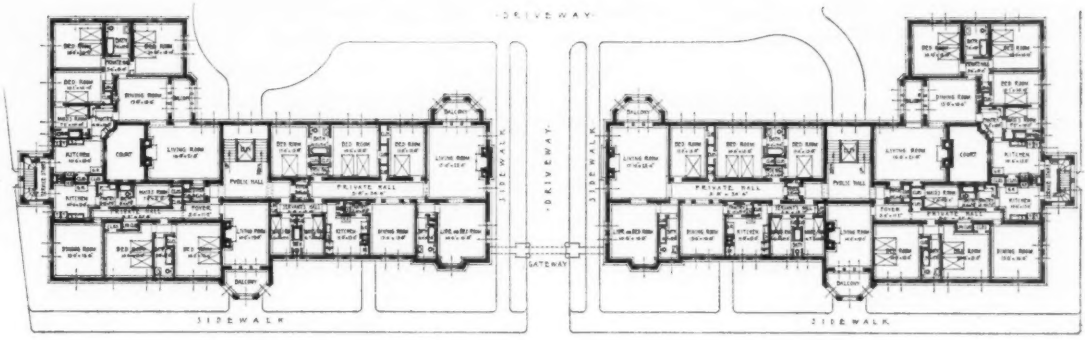
The owner's idea is that the property is altogether too large for his wants and would be greatly benefited by a development of this character.

All the houses will have good situations commanding fine views. The ground is generally rolling, so that a picturesque grouping of the different houses is most desirable with a variety in their architecture, and the landscape effects are so planned to insure privacy for each dwelling. Each house will have a garage, giving easy access to the driveways and ample grounds with gardens.

Numerous examples based on the idea as developed at Bronxville are to be found in England and on the Continent. Doubtless, one of the earliest and best known in England is that at Hempstead, Garden City suburb. Here it was originally intended to better the housing conditions of the poorer working class; but eventually the scheme attracted those in better circumstances and to-day it is one of the highest class developments of this type of dwelling. The regulations are such that only the best workmanship, materials and designs will be permitted.

One can only urge that these may be imitated universally in this country and the ideas made to apply to all buildings for whatever uses. The municipality is the logical head for the start of this movement. It is to be hoped that at some not far distant day our dreams may be realized and that the esthetic side will be developed and all essentials of right living understood by the general public, as to demand that the haphazard way in which our rural communities have developed shall cease. Much has already been done in New York and other cities by commissions of experts in studying proper districting and segregation.

It is believed that the people themselves should undertake the development of these housing schemes through the municipality. This idea has probably reached its highest development in Germany, where great encouragement, financial and moral, is extended.



NORTHGATE SOUTHGATE

TYPICAL FLOOR PLANS OF A SECTION OF THE ALGER COURT GROUP

Tijou, a Master Craftsman in Wrought Iron

THE development of craftsmanship in England was at its zenith during the close of the seventeenth and the early part of the eighteenth century. It would seem that Christopher Wren, in addition to his great ability as an architect, was able to gather about him men who were the highest exponents of craftsmanship and by example and encouragement develop latent genius.

The Adam brothers, creators of decorative motives and designers of furniture, Grinling Gibbons, whose fame as a woodcarver is world wide, and Tijou, probably the most skillful worker in wrought iron of his time, all flourished during that period. Indeed, Tijou created a new school of wrought iron in England.

Some years ago, together with much other material of artistic interest, a number of wrought iron panels by this master, measuring about 18 in. square, were discovered in St. Paul's Cathedral. These have been placed in the backs of the stalls in the newly formed Chapel of St. Michael and St. George.

Referring to these panels and the characteristics that entered into Tijou's work, *The Architects and Builders' Journal of London* states:

"The novelty and distinctive character of Tijou's work" (to quote Mr. Starkie Gardner) "lies in the use of embossed acanthus leaves, rosettes, masks, garlands, crowns, and other insignia, which are sometimes in such profusion as almost to conceal the forgings. No such work had previously been seen in England, nor any such rich effects. The style he adopted was based on, but unlike, the French, and he is classed as an English *maître ornamentiste* by Guilmard. His book of designs makes it clear that he was not a practical smith, but he was certainly a very practical and most artistic embosser, giving this work expression and character never attained by any other ironworker."

Wanted: A Joint Committee on Nomenclature

THE making of a technical definition is notoriously difficult, says *Engineering News*. Local meanings are quite variable and the dictionaries are generally both inadequate and wrong. Consequently the individual or the small group that attempts to set down in precise terms just what some well-known technical word is meant to convey is generally subjected to most critical comment, for it is strange but true that almost any engineer can on a moment's notice build up an opposition definition which he is prepared to defend against all comers.

And yet the fact is obvious that some standard definitions are most woefully needed. Take, for instance, concrete. It is safe to say that to nine engineers out of ten the word concrete—just plain unqualified concrete—means the hard stone-like substance resulting from the setting of a mixture of a hydraulic cement with some inert, inorganic aggregate. Yet the dictionary does not justify that definition, nor would the road men who talk of asphaltic concrete accept it. The narrow definition has been proposed by the Nomenclature committee of the American Concrete Institute. In contrast thereto, the Gypsum committee of the American Society for Testing Materials proposes a definition which would label as concrete a mixture of glue and sawdust.

This confusion is multiplied by the number of terms needing definition, particularly when such terms are jointly used in different industries. No small group can settle the difficulty. What is necessary is a joint committee of unquestioned standing and the widest of fields.

What society will be the first to propose such an organization? It is no mean job that it would have before it; the French Academy in many decades is only through the first dozen letters in its formulation of a dictionary of the French language. In its more restricted field a Joint Committee on Nomenclature would have just as hard and as useful a job.

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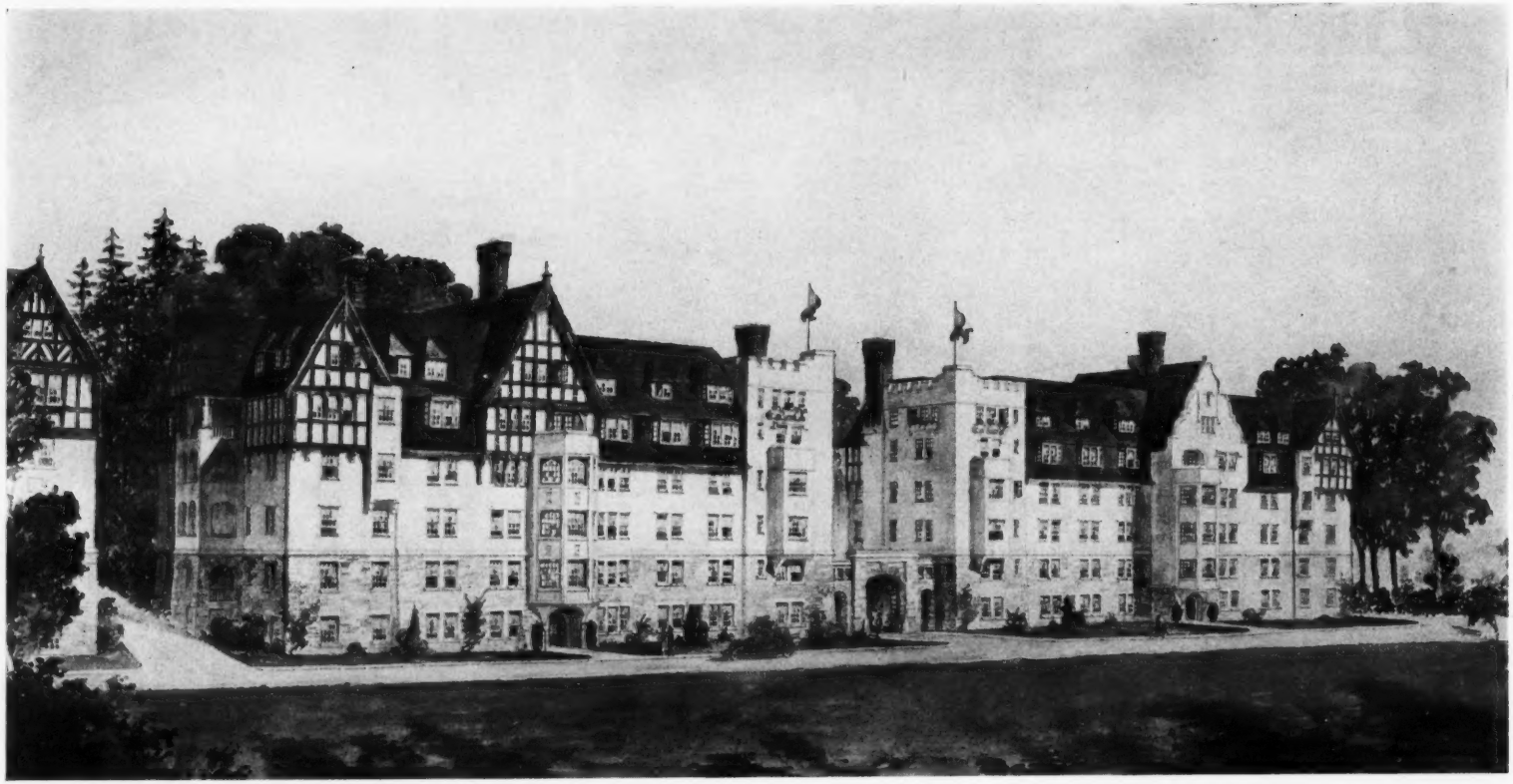

ALGER COURT APARTMENTS, BRONXVILLE, N. Y.

(Northgate and Southgate)

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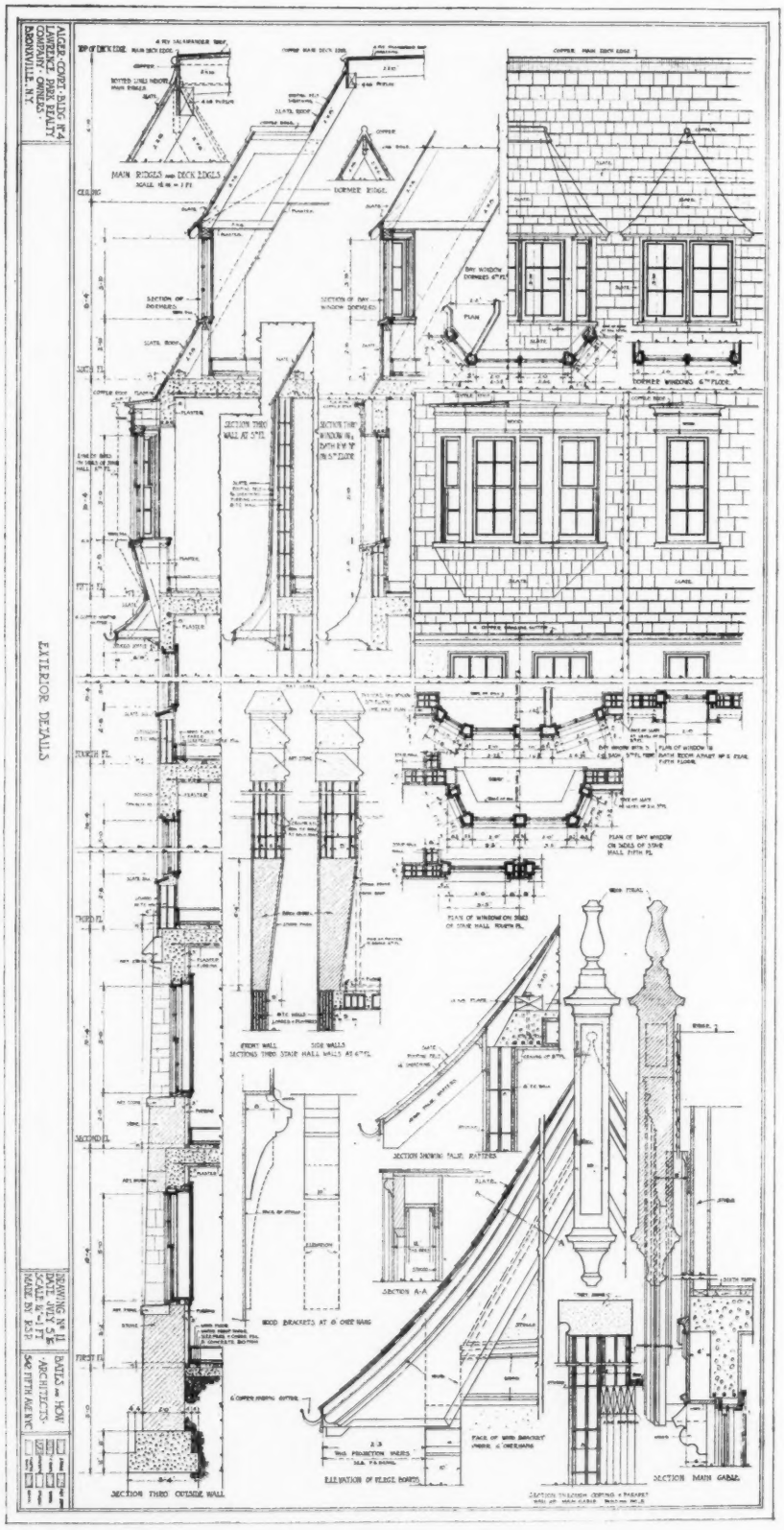
(For typical floor plan see page 97)



EXTERIOR DETAILS, ALGER COURT, BRONXVILLE, N. Y.

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MEADOWDALE APARTMENTS, BRONXVILLE, N. Y.

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(*For typical floor plan see page* 93)

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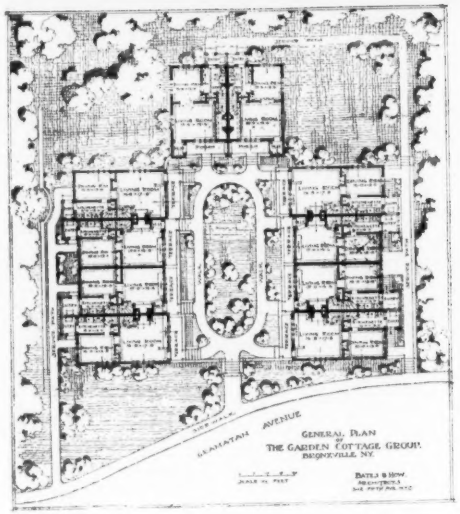

KENSINGTON TERRACE, BRONXVILLE, N. Y.

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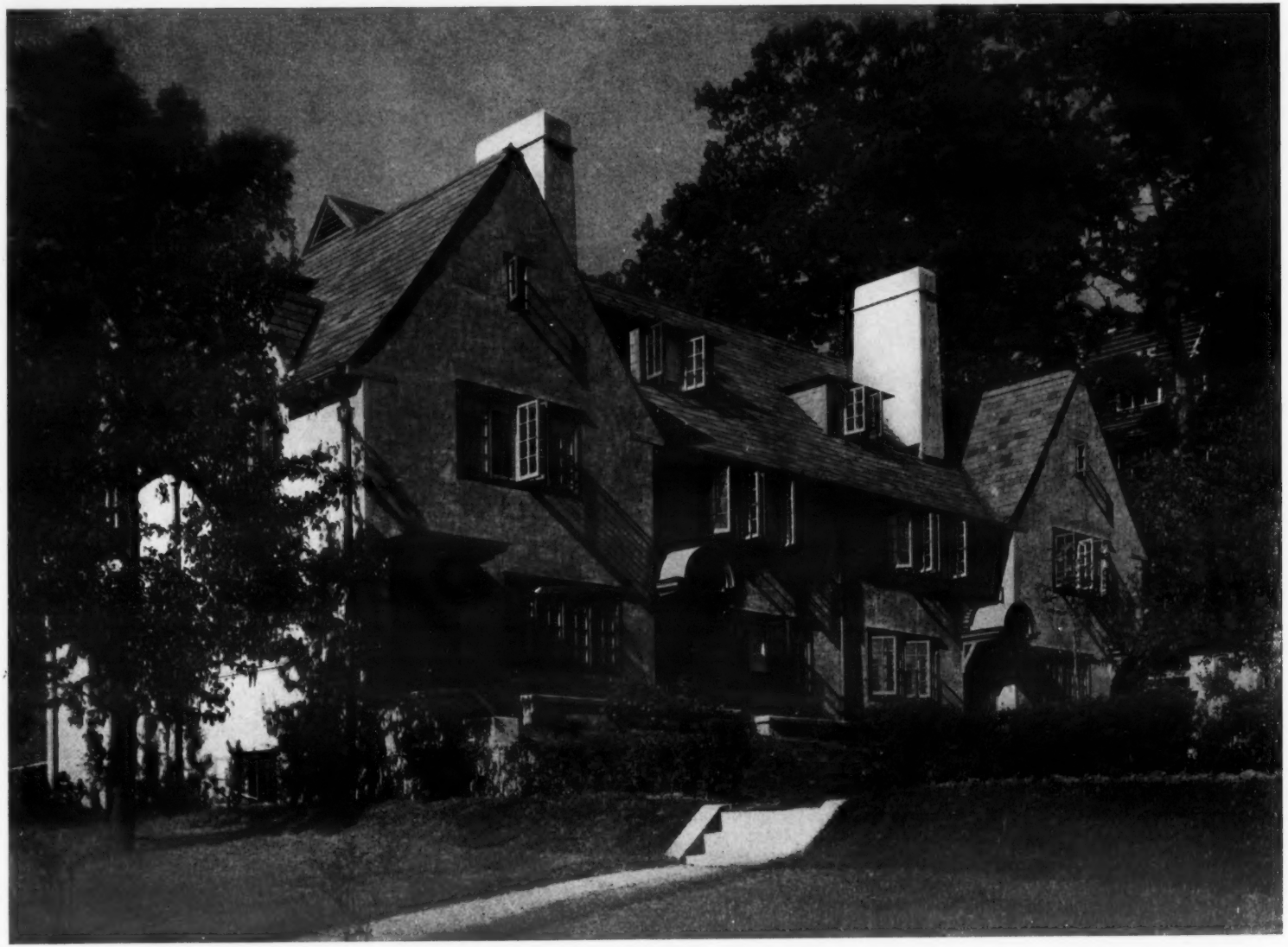

NORTH SIDE, KENSINGTON TERRACE, BRONXVILLE, N. Y.

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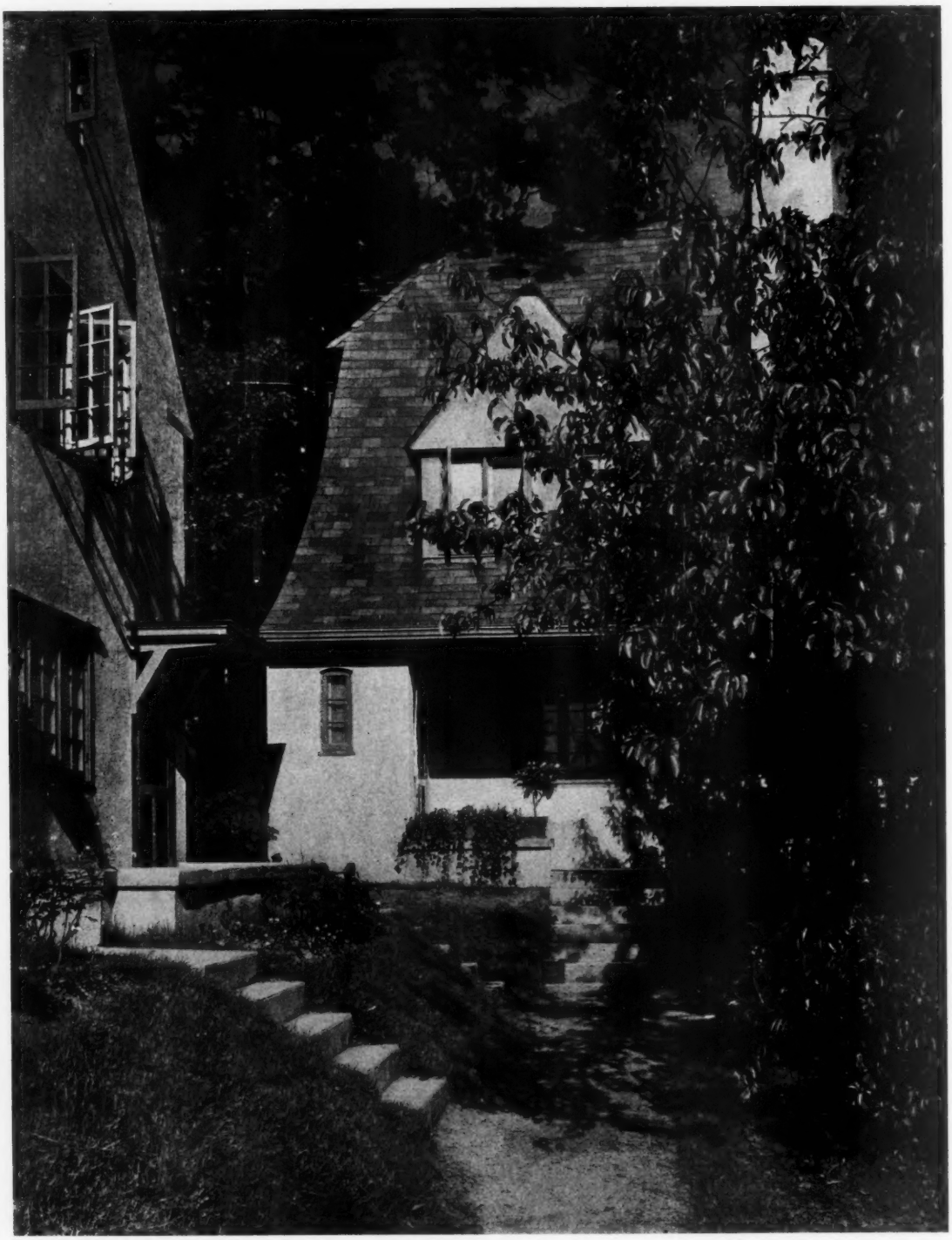

DETAIL OF KENSINGTON TERRACE, BRONXVILLE, N. Y.

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DETAIL OF BEECH TREE TERRACE, BRONXVILLE, N. Y.

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BEECH TREE TERRACE FROM THE SOUTH WEST, BRONXVILLE, N. Y.

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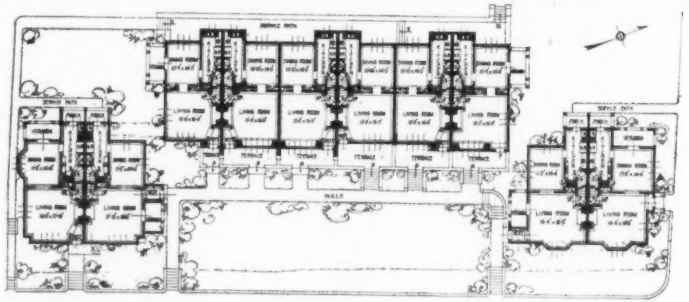

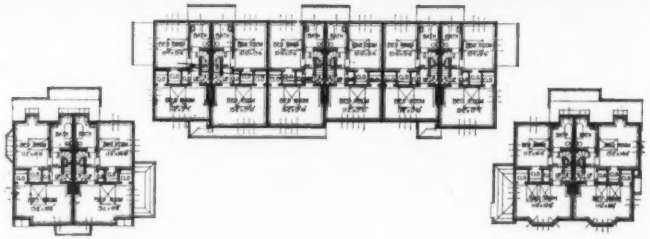

OAK COURT TERRACE, BRONXVILLE, N. Y.

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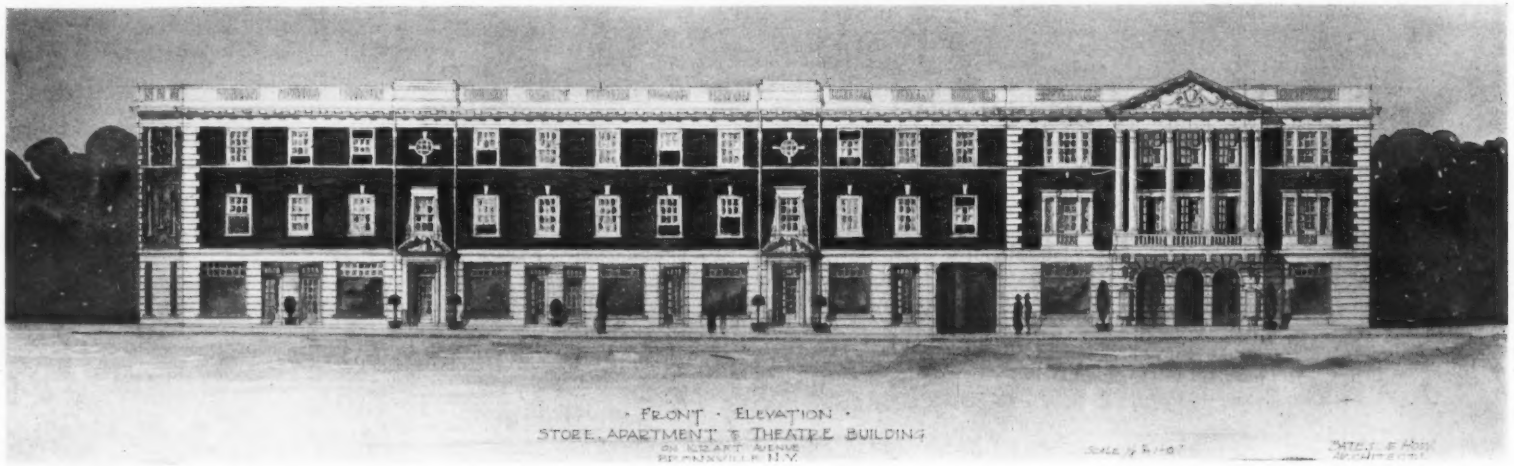

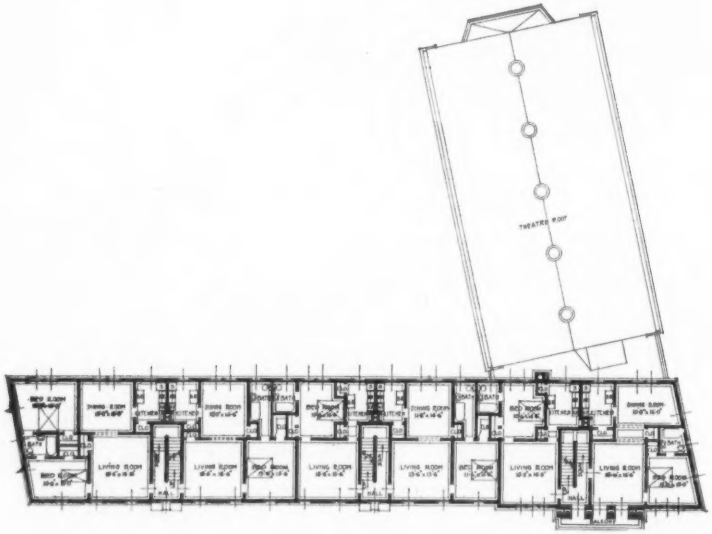

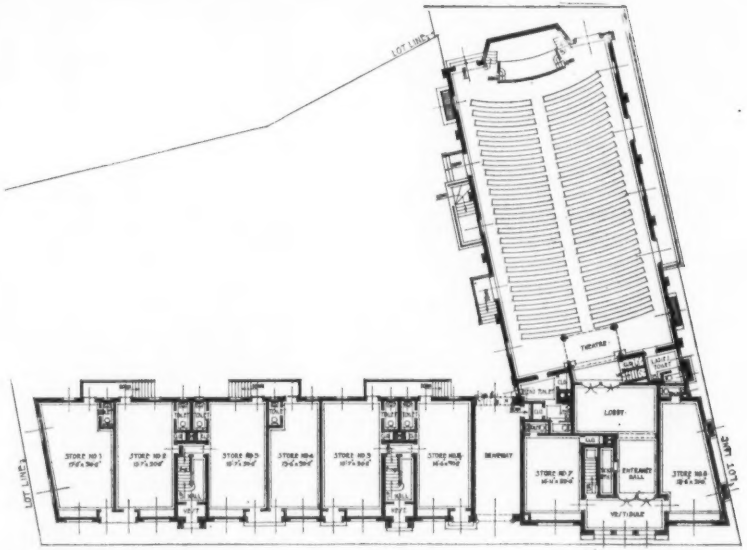

STORE, APARTMENT AND THEATRE BUILDING, BRONXVILLE, N. Y.

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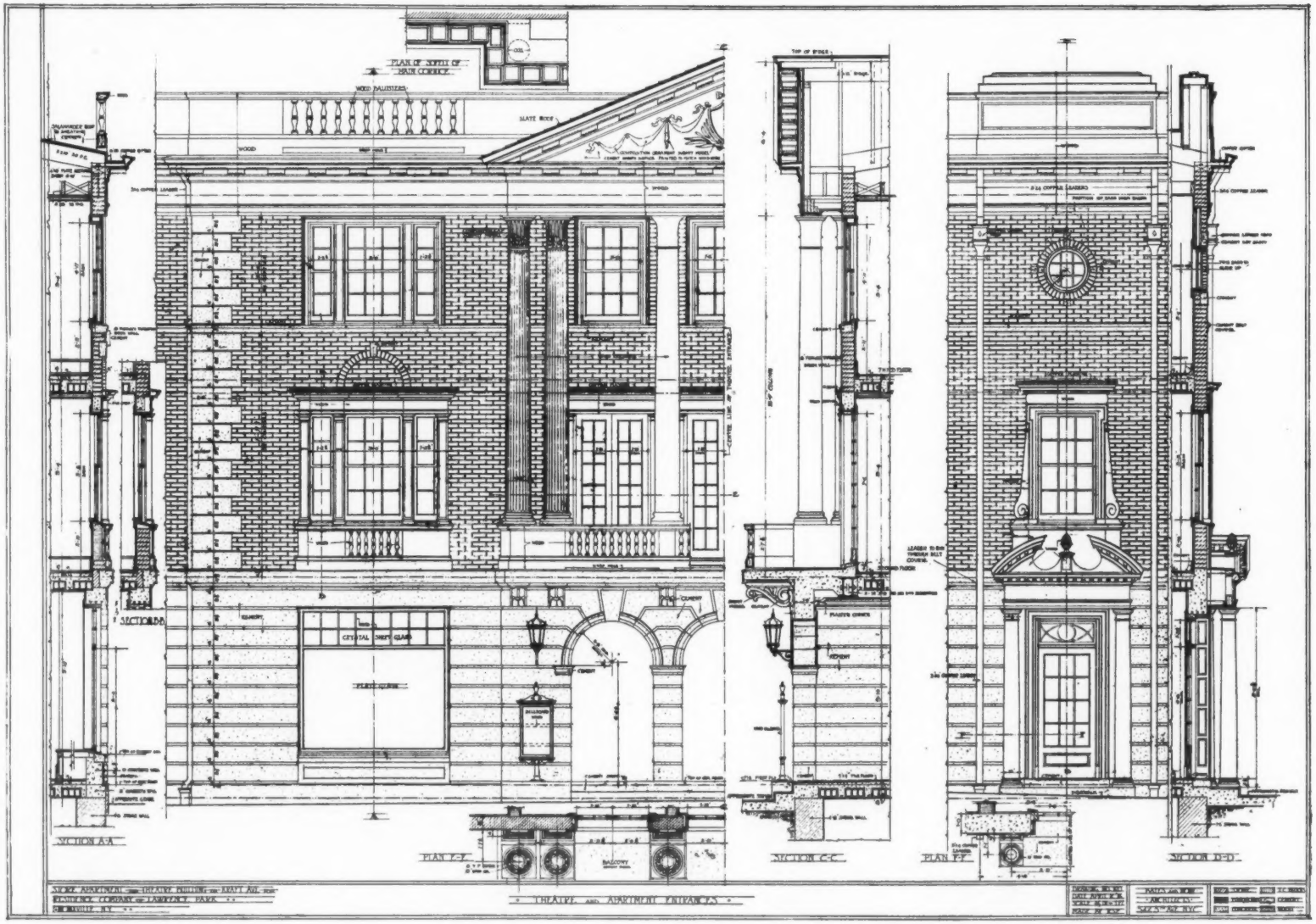

DETAILS OF STORE, APARTMENT AND THEATRE BUILDING, BRONXVILLE, N. Y.

MESSRS. BATES & HOW, *ARCHITECTS.*

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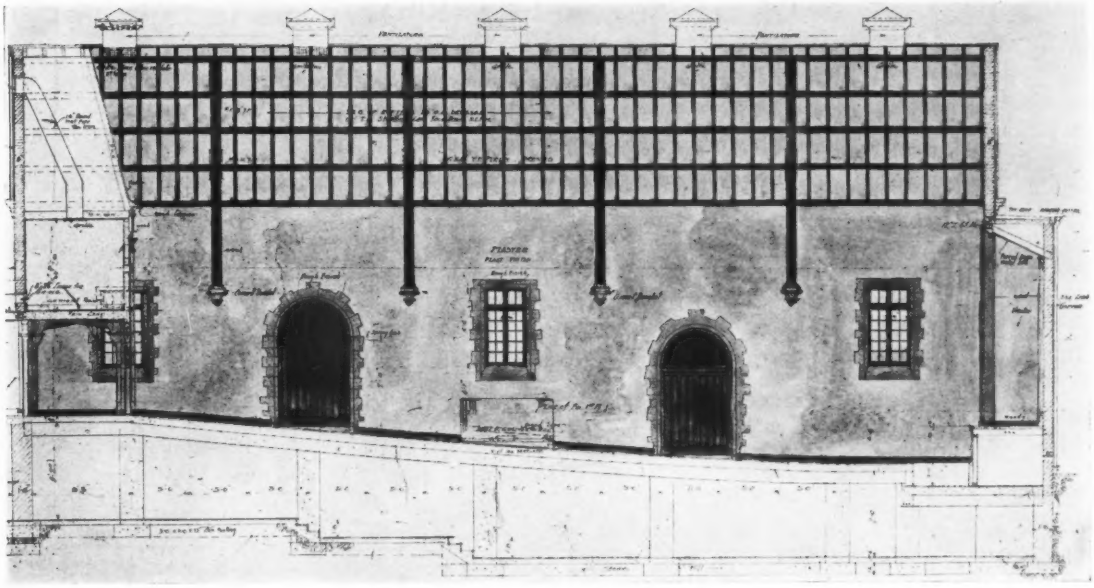

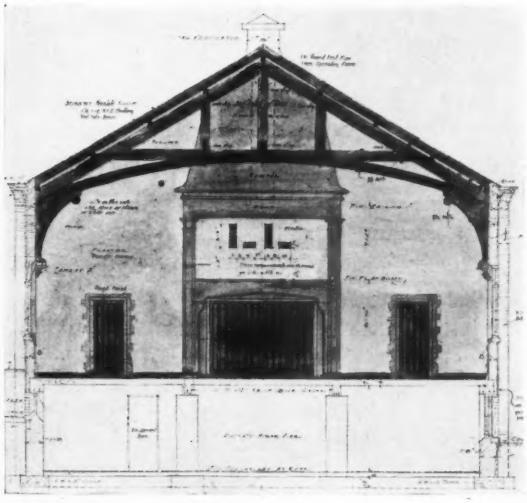

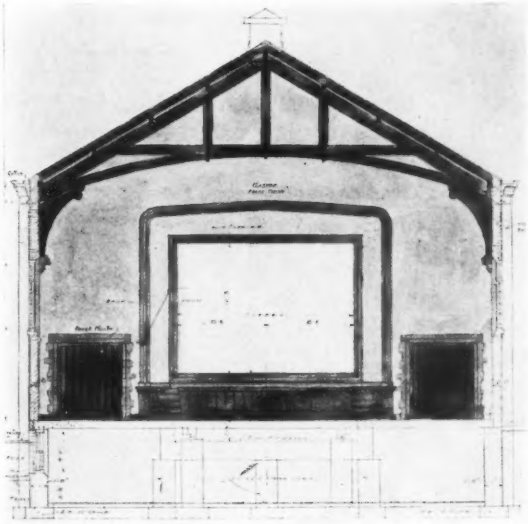

INTERIOR DETAILS OF THEATRE OF STORE, APARTMENT AND THEATRE BUILDING, BRONXVILLE, N. Y.

MESSRS. BATES & HOW, *ARCHITECTS.*

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FAILURE TO MAKE PRACTICAL USE OF SCIENTIFIC KNOWLEDGE

AN editorial printed in a recent issue of *Engineering News* directs attention to the frequent failure of men of scientific knowledge and attainments to apply that knowledge to the solution of problems presented by unusual requirements or by conditions not encountered in their everyday work or practice. As an instance illustrating the point, a feature of the ceremonies incident to the recent dedication of a group of buildings erected for an institution devoted principally to technical research and instruction is cited. It appears that, in general, no pains or expense were spared to make the dedication ceremonies memorable. In connection with the out-of-door exercises, addresses were to be delivered by noted educators, and accommodations had been provided for 7,000 spectators. The speakers' platform was placed in front of the central portico, and in front of it were arranged the chairs for the alumni and invited guests. In reporting the effect of this arrangement, it is stated that although the various men who addressed the audience were experienced public speakers familiar with all the arts that assist in making the spoken word audible to an audience, it is believed that two-thirds of those present failed to hear enough of the addresses to follow the lines of thought or arguments presented.

It is obvious that an application of but the most elementary knowledge of acoustics would have rendered the speakers' voices audible to the greater part, if not all, of the audience, and made this part of the ceremonies contribute to the success that was intended. Failure to consider the acoustic properties of the improvised theater can only be attributed to oversight or neglect, and yet conditions in every way similar prevailed at the ceremonies held by another famous educational institution a year ago, with almost identical results.

A third and equally inexplicable instance of failure to recognize natural laws by those whose vocation it is to explain and utilize them is cited, in which all the engineering and scientific organizations of a western city are said to have participated. A dinner was held in the roof garden of one of the principal hotels, an area decorated with pergolas, with a part of it roofed over and a part open to the sky. The speakers' table, it appears, was placed directly under one of these open spaces with the result that the after-dinner speeches (which are believed to have floated harmlessly up to the blue vault of Heaven) were inaudible to those seated twenty-five or thirty feet away.

Perhaps the most serious feature of instances such as those enumerated above are the harmful effects produced by them on the public mind. The natural impression gained by the layman would be that architects and engineers are still unable to control acoustic properties sufficiently so that an out-of-door audience can surely hear a speaker. Occasional successes in the face of these conspicuous failures are attributed to chance. That such a view is untenable is demonstrated by the existence of a number of open-air theaters, where satisfactory results are invariably obtained. Of course, the conditions prevailing in these permanent structures are

not susceptible of reproduction in an auditorium for temporary use, but results could unquestionably be made more satisfactory if the subject of acoustics were given even a small measure of attention by those familiar with the requirements. Such persons are always available to a committee in charge of arrangements.

In the opinion of *Engineering News*, and probably of the majority of those technically educated, the failure unquestionably lies in not applying principles, which are generally known and accepted, in a practical way, and it questions whether the situation, of which the cases noted are typical, does not show a defect in our modern educational system. It is pointed out that the knowledge which a man possesses in an abstract way is not of value to him or anyone else. It is only that which he can apply and by applying can perform his part in the world's work that is worth acquiring. It is suggested that possibly in the competition to excel in abstract research the fact has been lost sight of that the business of a school laboratory is first of all to enable the student to become practically familiar with elementary principles of science. The theory of acoustics is now tolerably well understood by reason of the research and experiments of a number of scientists, chief among whom is Professor Wallace C. Sabine. Unfortunately, however, as the instances here related indicate, architects and engineers have not yet fully realized the practical value of the results which have been so laboriously obtained, or the necessity for applying this information to the everyday problems encountered in practice. One lesson which it would seem should by this time be well learned is that wherever an audience is assembled for purposes of instruction or entertainment (unless it be provided solely by cinematograph projections) the question of acoustics is a serious one. Failure to recognize this fact and adopt adequate means to meet the conditions imposed only invites humiliating experiences such as those referred to, if the speaking is done out-of-doors, or expense added to failure if a permanent structure is involved.

THE TREND OF PRICES OF BUILDING MATERIALS

AMONG architects and others interested in the cost of building, the actual situation in the construction field is not always entirely understood, and at the present time particularly the percentages of increase in prices of materials that have taken place since the effect of the war in Europe has been felt in this country, are being quoted by architects to their clients in the most general terms, due apparently to a lack of definite and specific information. With a view to supplying this lack, in at least a part, the following data has been collected from sources believed to be authentic.

It is of interest to note that in spite of the fact that during the past year and a half, prices of building material have been steadily increasing, the plans filed for building operations indicate that in general a greater volume of work has been going on during that period than when prices were normal. Of course, consideration should be given to the fact that a large percentage of the permits granted never proceed further, or are delayed by a variety of causes, so proper allowances must be made when estimating the amount of building that will be done within the current year. At the present time, there is far from unanimity of opinion among manufacturers and dealers in building materials regarding the price situation in the building field: some claim that when the war ceases prices will drop because in their opinion the principal stimulus to our present expansion has been due to this cause, while others declare that as long as the cost of labor remains high the market will hold firm and little can be expected in the nature of a decline.

Before reviewing the market on building materials, it may be of interest to glance at the figures for operations during the past few months. Permits for May covering 77 of the principal cities show the largest amount of proposed work for any single month during the history of the country, the total aggregating $106,433,902. The closest approach to this record was in April of 1912 when the amount nearly touched the million dollar mark. From figures compiled for the month of June covering 64 of the cities, the total reaches $76,739,283, which compares most favorably with the previous month's report when the fact is considered that reports from 13 cities were omitted.

Without doubt the most noticeable advances in price have been made on various steel products. Such suddenly increased demands were brought about by the European war that prices rapidly rose, and in comparison with a year ago in most instances have about doubled. For structural material in July of 1915 the Pittsburgh mill quotations ranged from $1.25 to $1.30 per 100 pounds, while from warehouse in New York prevailing prices were $1.95 to $2.00. To-day from mill Pittsburgh, $2.50 to $2.75 is asked for ordinary shapes while plates bring from $3.00 to $3.25. In New York prices on structurals are firm, at $3.25 to $3.30, while $4.00 is asked for plates. From warehouses in St. Louis the price is $3.43, Chicago, $3.10, and San Francisco, $4.25. The change in quotations on this material has added millions of dollars to construction work in New York, the City of New York itself having several million dollars added to its bill for the construction of subways.

The industrial expansion in this country, due largely to war business, brought with it the requirement of more buildings and steel was in such a demand that it was oftentimes sold at a good premium. Conditions are now more favorable for furnishing the increasing supply. The capacity of mills having been increased, manufacturers are now in a better position to cope with the demands and within the past month prices on some shapes have eased off. In many quarters it is believed that the crest of the market has been touched and a recession must follow.

On concrete reinforcing bars the same

condition applies. From mill shipments for ¾-in. sizes, $2.50 per 100 pounds is asked and from New York warehouse the price is $3.10. In St. Louis $3.24 is quoted, Chicago, $3.10, San Francisco, $4.00. A year ago this time ¾-in. size from mill were $1.25 per 100 pounds and from warehouses New York $2.05 was quoted.

With the large demand for structural steel it naturally follows that an advance on rivets would take place as both are used for one purpose. At present per 100 pounds f.o.b. Pittsburgh ¾-in. structural steel rivets sell at $4.00 per keg. In New York they are $5.25, Chicago, $3.50, St. Louis, $3.55, San Francisco, $5.40.

Plain wire nails per keg in carload lots are $2.50 to $2.60, f.o.b. Pittsburgh; for galvanized 1-in. and longer $4.50 to $4.60 is asked and shorter galvanized $5.00 to $5.10. In New York wire and cut nails sell at $3.15, in Cleveland at $3.05, and Chicago, $2.85.

Steel sheet piling from mill Pittsburgh sells at $2.50 per 100 pounds while one year ago it could be had at $1.60.

Portland cement per bbl. in cotton bags for carload lots sells at $1.72 in New York when a year ago $1.33 was the prevailing price. In Boston it is $1.92 as compared with $1.56 a year ago, Chicago $1.81 against $1.51 of last year. The demand for this material has also been excessive, not alone for building construction but for engineering projects in general.

For gravel the quotations current at this time are as follows: 1½ in. in New York sells at $0.90 per cu. yd. for carload lots and $1.00 for ¾ in. In Chicago the price is $0.85 for both the former and the latter and in St. Louis $0.70. In San Francisco it is sold at $0.75 per ton.

For sand at the banks the quotations are as follows: New York $0.50 per cu. yd., Chicago $0.85, St. Louis $0.60, while in San Francisco it is $0.75 per ton. These prices are for cargo lots. In the past year an advance has been made of about $0.10, which was brought about principally by labor difficulties and scarcity of carriers.

For crushed stone in New York 1½ in. sells at $0.85 to $0.90, ¾ in. at $1.00. In Chicago at $1.10 and St. Louis $1.00.

These prices are per cu. yd. for carload or cargo lots. In San Francisco it is $1.75 per ton. Dealers and supply men in this line have also had considerable difficulty owing to freight congestion, shortage of barges and boats, and labor troubles. This condition aided in maintaining the firm price.

On common red brick current prices for carload or cargo lots are as follows: Common in New York sells at $8.00, Chicago at $6.25, St. Louis $6.00 and San Francisco $10.00. The selling price a year ago in New York was in the neighborhood of $6.00. The better grades of face brick bring from $18.50 up.

Architectural Terra Cotta is generally quoted from specifications and has advanced in sympathy with other types of exterior building materials.

Ornamental work in iron, stone, etc., has increased in cost because of rising costs in labor and manufacture. Prices have been advanced but are holding steady.

The lumber market has been in such an unsettled condition, representatives in New York in most instances refuse to furnish prices unless specifications are submitted. The demand has been exceptional despite the conditions.

For hollow tile the prices have remained rather stationary, although in the past few months some advances were absolutely necessary due to labor conditions. At present in New York 4x12x12 in. sells at $0.065 per block, in St. Louis at $0.054, Chicago at $0.064 and San Francisco $0.08. For fireproof partition blocks are quoted as follows: 2x12x12 in. at $0.046 in New York, $0.024 in St. Louis, Chicago $0.041, and San Francisco $0.055. For larger sizes about the usual variations would occur.

Clay drain tile per 1,000 ft. sells as follows: In New York 3 in. sells at $22.50, 4 in. at $32.50, 5 in. $47.50, 6 in. $57.50, 7 in. $97.50. In Chicago 3 in. sells at $15.00, 4 in. at $18.00, 5 in. at $23.00, etc.

From the foregoing it is evident that

the prices on building materials to-day are as high as they ever have been. The steel market has never been more active. Some subsidiary companies of the corporation report that if no orders were forthcoming they would be kept busy six months into the year 1917. The one serious situation that confronts manufacturers and supplymen is the shortage of labor. Skilled and common labor is almost unobtainable, both classes being well occupied. Immigrants arriving in this country are of a poorer grade than formerly, the better men being forced to remain on the other side for possible use in the army. Wages have advanced in all cases and even at the advance it is hard to hold good men for any length of time. Strikes have been prevalent in all lines of work, the result of which has been that employers have been generally forced to increase their labor costs.

ALERSE, AN IMPORTANT CHILIAN TIMBER

TRAVELERS who visit South America are usually impressed with the immense quantities of pine, spruce and fir lumber imported annually from the United States for building purposes. Forests of soft-wooded trees, such as are found in the United States, do not exist anywhere in South America. In fact the pines, spruces and firs do not grow at all in South America. While there are vast stretches of forested areas capable of producing unlimited supplies of hardwood lumber, coniferous woods so useful in the construction of houses, are comparatively rare, except in parts of Chili where extensive tracts of alerse forests occur. The alerse is a soft-wooded species botanically known as *Fitzroya patagonica*, which is a tree closely related to our northern white cedar (*Thuya occidentalis*), from which it differs chiefly in the color and density of the wood. It is a native principally to the rocky hillsides of the western slopes of the Andes from latitude 40 degrees southward to the Straits of Magellan. It is said to be most abundant in the mountains surrounding the Bay of Valdivia.

The alerse is one of the most valuable trees in the country. It is a large tree, often attaining a height of over 150 feet and a diameter of six feet or more. It develops a massive trunk that is usually cylindrical and clear of branches for the first 60 or 70 feet, supporting a large conical-shaped crown. The largest alerse trees that have been reported measure 30 feet in girth at 5 feet from the ground and more than 76 feet to the first branches. The two largest specimens observed by Douglas, the noted botanist, measured respectively 24 and 22 feet in circumference at 5 feet from the ground. Others have reported, however, that in the Cordilleras, out of reach of the woodsman, there are enormous alerse trees measuring from 30 to 40 feet in circumference and 80 to 90 feet to the first branches, above which the crowns of these giants are said to rise from 40 to 60 feet.

The wood of this important tree when first cut is of a reddish color which turns darker upon exposure to light and air. The sapwood is usually nearly white and very narrow. It is relatively hard, moderately light in weight (about 40 pounds per cubic foot), strong, rather brittle, works and splits well and is susceptible of a good polish. The extraordinary straightness of the grain of alerse enables one to split it so as to make it appear as if it had been dressed with an axe or even with a plane. Advantage is taken of this quality by the natives, who prepare boards and planks for market with no other instrument except an axe. The planks are from 7 to 8 feet long, 2 inches thick and 9 or 10 inches wide. The wood also comes in the local markets in half that size, the latter being the chief article of commerce. The tree is felled and squared and then hewn with the axe into as many logs of 7 or 8 feet long as it will afford, and these, with the assistance of iron wedges, are

split into planks and boards. The wood is noted for its great durability when in contact with the ground. It lasts well under alternating wet and dry conditions.

Alerse has a good many uses both locally and in the foreign markets. The tree yields long, clear and cylindrical trunks that are highly valued for masts and for timbers to be used under water. This excellent timber is employed principally for making shingles, though immense quantities are used for flooring, partitions, weather boarding of houses, naval construction and for all kinds of carpentry work. It is peculiarly superior and durable for shingles; after exposure to the weather the shingles turn blue and look like slate. The wood does not shrink or warp and is employed locally for making staves for casks. It is unique insofar that it is the only coniferous wood that has been used successfully in making furniture. It affords an excellent wood for interior trim of houses. The bark of the tree is very fibrous and serves to caulk the seams of vessels.

Annual Meeting, South Carolina Chapter, A. I. A.

The joint annual meeting of the South Carolina Chapter of the American Institute of Architects and the South Carolina Association of Architects was held in Greenville, S. C., on July 12th and 13th in the rooms of the Chamber of Commerce.

The attendance was not large, but those present showed interest in the proceedings and much good was accomplished.

It was decided at this meeting that all members of the Association desiring to become members of the South Carolina Chapter of the American Institute of Architects should make their application at once. Every member present signified his intention to join just as soon as the proper application blanks could be furnished him.

The work of making this meeting a success has been, since the last semi-annual meeting, in the hands of a committee consisting of Prof. R. E. Lee of Clemson College and Mr. J. E. Summer, Secretary, of Greenwood, and Mr. H. Olin Jones, of Greenville, whose efforts brought great measures of success.

An exhibition of the work of the Architectural Schools of Cornell, Harvard, Columbia University, University of Pennsylvania, Massachusetts Institute of Technology and Clemson was held. The exhibition was the largest in point of space required, and the most varied as to subject, ever attempted in the State.

The principal address, to which the public was invited, was delivered by Mr. George L. Pfeiffer, of Lemon City, Fla., on "The Relation of the Architect to the Public." It was a practical discourse. Other talks delivered by Mr. Pfeiffer to architects only on ethics and proper standards of the profession made a profound impression on those present.

By invitation of the Chapter, an address was made by Doctor Wynne, Assistant Surgeon, United States Public Health Service, on the general subjects of proper sanitation and water supply for farm homes, and on typhoid fever and hook worm, their causes and prevention. Bulletins were distributed covering these important matters. These discussions made a deep impression and broadened the views of the public present as to the comprehensiveness of proper architectural service.

Whitney Warren's Work in France

The Architects and Builders' Journal of London, commenting on the recently published article by Mr. Whitney Warren in an American magazine, states in part:

Between the American and French peoples a mutual esteem has long existed. "Good Americans, when they die, go to Paris"; and American architects in particular have evinced a strong affection for French art and that Ecole on which they have founded their own system of architectural education. The American in France has been a very welcome visitor, as much for the generous manner of his spending as for the equally generous manner of his appreciation of the French

genius. It is, therefore, not at all surprising to find a distinguished American architect, Mr. Whitney Warren, given facilities for surveying the havoc wrought on French soil, and invited by the authorities to secure a photographic record of the ruins of fine buildings.

The Nelson Form for Choosing Bidders and Awarding Contracts

Mr. Herman W. Nelson, Moline, Ill., is author of a form proposed by him for the consideration of the layman, his architect or engineer, contractors, manufacturers and all others interested in either the awarding or procuring of contracts for furnishing material or service under competitive bidding.

It is noted that estimating cost and establishing prices is an overhead expense involved in any merchandising, but the cost of doing this work is generally nominal. The cost of figuring or estimating work to be performed in accordance with building specifications, however, differs materially, and this form is therefore suggested to meet these special conditions and to more justly distribute the cost of competition and estimating, by making each project bear its own proportion.

The form proposed by Mr. Nelson appears to be an attempt to meet a condition which is generally realized in the building field. Other remedies have been proposed, such as "Quantity Surveying," intended to meet the obvious injustice of requiring a contractor to spend sums ranging from a few dollars to several hundred in preparing estimates, many of which are merely secured out of curiosity, or with the thought that possibly a building operation might some time be undertaken even though funds were at the time not available.

It can safely be said that the time is not far distant when one plan or another will be adopted to correct the estimating abuse. Whether the form suggested by Mr. Nelson meets the requirements better than any other plan advanced is a question about which there is doubtless some difference of opinion, but certainly it merits consideration.

INDUSTRIAL INFORMATION

A Correction

In our issue of July 26, a notice of the Hyde-Murphy Company's product contained the following statement: "This company is the sole manufacturer of the 'No-Warp' Sanitary Flush Doors and Sectionfold Partitions." Concerning the Sectionfold Partitions, we are advised that the above statement is in error at the present time, as for more than a year past the Folding Partition Company, 200 Broadway, New York City, has been manufacturing these partitions.

Ideal Mortar for Brick Masonry

The Hydrated Lime Bureau of the National Lime Manufacturers Association, Arrott Building, Pittsburgh, Pennsylvania, has issued Bulletin J, describing what is termed "The Ideal Mortar for Brick Masonry."

It is stated that maximum strength at minimum expense in laying brick masonry can be obtained with a mortar mixture composed of ½ cu. ft. of Portland cement, ½ cu. ft. of hydrated lime and 3 cu. ft. of sand; or proportions of 1:1:6.

Describing the properties of hydrated lime, it is said that when brought to a putty by the addition of water, it is the most plastic of any building material. It possesses a remarkable water-absorbing and carrying capacity, requiring practically its own weight of water to reduce it to a plastic state.

For years it has been known that the addition of a small amount of hydrated lime to cement mortar in brick work results in a more plastic, freer spreading material under the trowel. The mortar being worked more easily under the trowel permits mechanics to more firmly embed the bricks, and with less physical effort. Bricks will slide freely and the mortar will be forced into the crevices,

which insures a bearing surface for each brick. The practical effect, however, of such mixtures of cement and hydrated lime has always been a matter of debate until, according to this bulletin, Prof. James S. MacGregor of Columbia University established the actual facts beyond question. The experiments as conducted are given in detail in this bulletin, and the results obtained are discussed at length. It appears that mixtures of various proportions were used varying from 1 cu. ft. of Portland cement to 3 cu. ft. of sand, to 1 cu. ft. of hydrated lime to 3 cu. ft. of sand. Between these limits the proportions of hydrated lime and Portland cement were varied as much as possible and as a result it is found that the proportion first given, that of equal parts of Portland cement and hydrated lime, designated Mortar No. 5, give the greater strength at less expense than the other mixtures. The reasons are set forth in Professor MacGregor's report, which is printed in full in this bulletin. Copy may be had upon application.

Merritt Spot Ground

The United Spot Ground Corporation, Omaha, Nebraska, has issued a catalogue of thirty-odd pages describing and illustrating Merritt Spot Ground for both floors and walls.

The placing of efficient grounds, carpet strips, floor screeds, and strips for wall furring in modern fireproof buildings has, it is stated, long been a perplexing problem. The Merritt Spot Ground was devised expressly to overcome the various objections found with the old methods of continuous strip, wooden plugs, and other means which have been used to provide a satisfactory foundation to which trim, floors, etc., can be nailed.

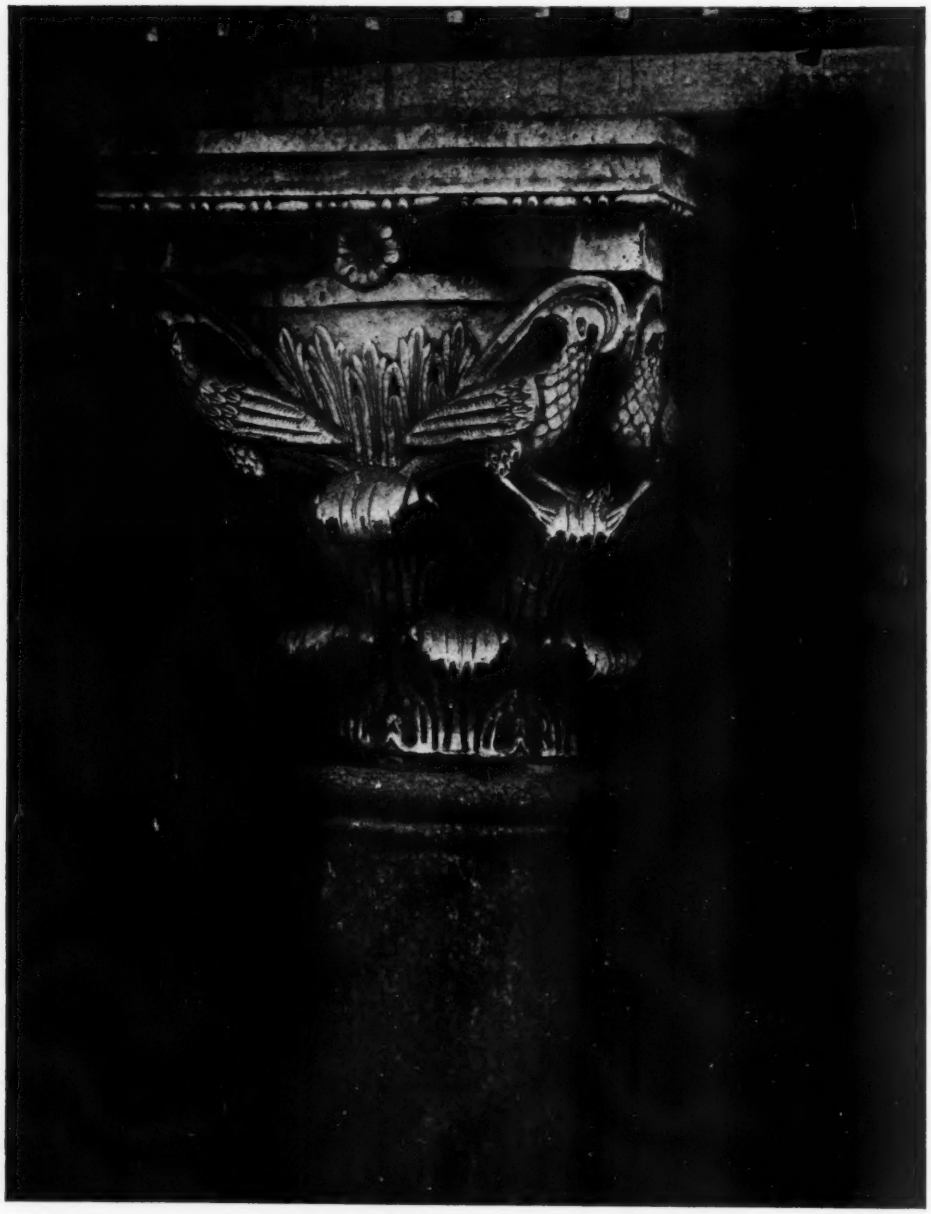
The Ground consists essentially of a metal plate, 3½ in. square, perforated around the edges with ⅜ in. holes. This plate holds a wooden nailing block by means of two flanges, formed in stamping. For use on walls the nailing block is ½ in. thick by 2⅛ in. square, beveled on all sides. For use on floors, the nailing block is 13/16 in. thick by 2⅛ in. wide by 3 in. long. These grounds are attached by applying molding plaster to the back of the Ground. No plugging is required, hence they can be placed at any point desired, not depending on the joints in masonry. As they are simply attached by means of the molding plaster these grounds, it appears, can be applied to concrete, brick, tile, gypsum block, plaster-board, metal lath or, in fact, to almost any surface encountered in building work. By using them, casings and jambs can even be placed about an opening where no bucks have been provided.

Various tests indicating the holding capacity of these grounds are illustrated in the catalog, and a number of buildings in which they have been used are shown. Samples of the grounds will be sent to architects upon request, as will also copy of catalog or any information desired.

Structural Timber

The Engineering Bureau of the National Lumber Manufacturers Association, Chicago, Ill., has recently issued Engineering Bulletin No. 2, on "Structural Timber." This special edition was prepared for members of the National Fire Protection Association, but unquestionably it contains information and data of general interest. It sets forth what mill construction is, where mill construction should be used, how mill construction buildings should be built, comparative costs of industrial buildings, discusses mill construction from an insurance point of view, and furnishes much data of value in connection with the design of mill construction buildings. It would seem in fact that this bulletin supplies exactly the information which is desired by every architect and engineer engaged in the designing of industrial buildings. Further than that the information is in a form to make it most readily available for use. Those desiring to receive a copy should communicate with the Engineering Bureau of the Association, where architects and engineers are, moreover, invited to submit their problems in the use of wood.

XUM



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CAPITAL OF THE LARGER PULPIT
THE CATHEDRAL, SALERNO, ITALY. (A.D. 1175)