FIFTT CENTS THE NUMBER

FIVE DOLLARS THE YEAR

ARCHITECTVRE

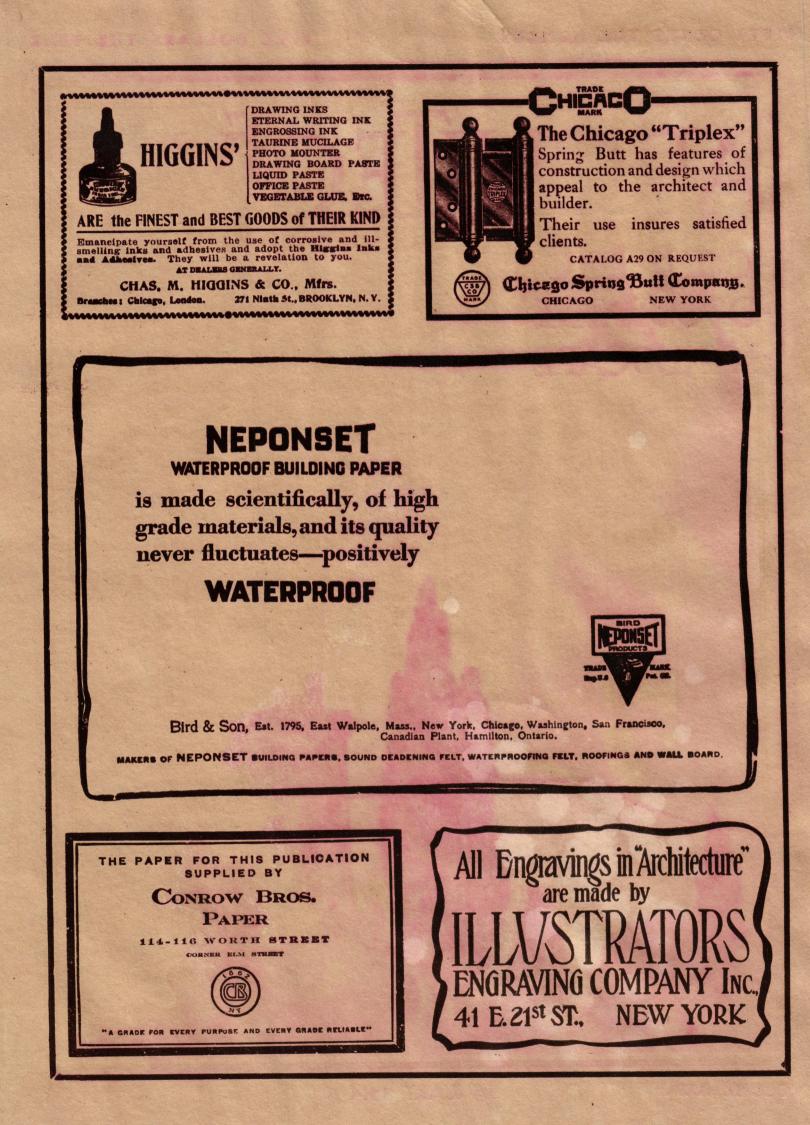
- CONSTRUCTIVE -- DECORATIVE -- LANDSCAPE -

VOLUME XXIX

JANUARY 1914

NUMBER I

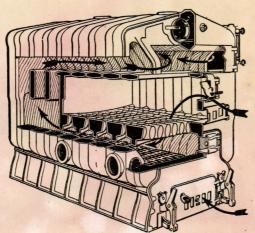
ЯXXR



Smokeless Boiler Savings

The great popularity of IDEAL Down-Draft Smokeless Boilers is due solely to the remarkable success of these Boilers in operation. These Boilers are really *smokeless*, even when the cheapest free-burning soft coals are used. IDEAL Down-Draft Boilers, do away with the smoke nuisance and make it easy to comply with municipal smoke ordinances; they actually effect a saving of from 10 per cent to 60 per cent in the fuel bills—an attractive investment which easily accounts for the constantly increasing demand for these Boilers.

Ideal Down-Draft Smokeless Boilers



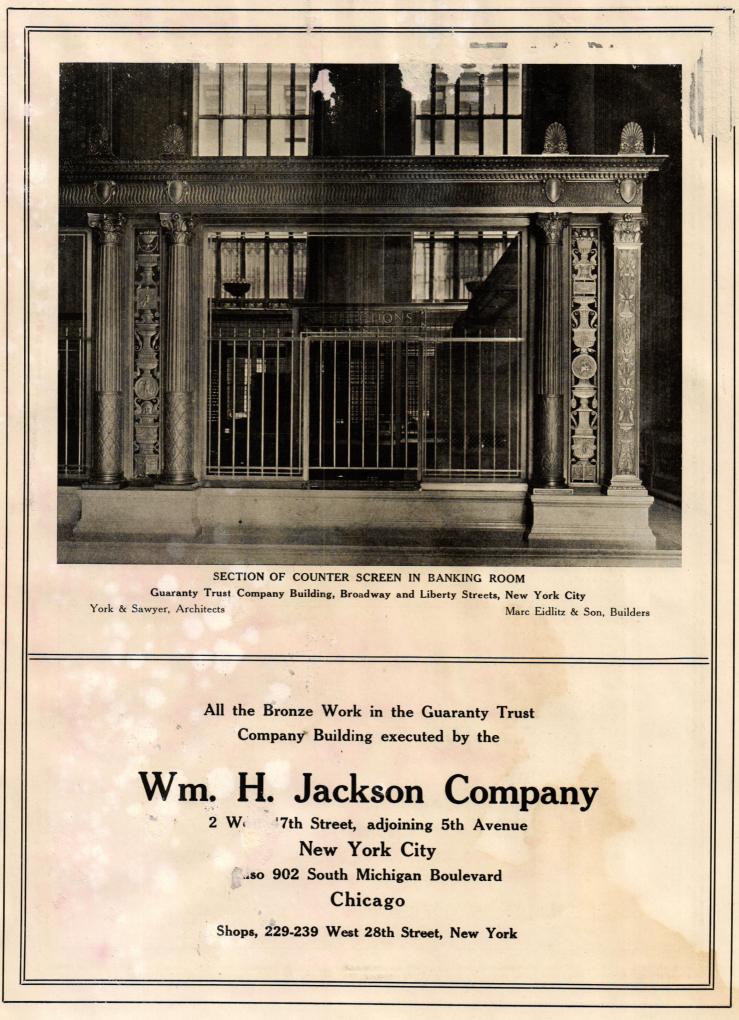
Side of IDEAL Boiler cut away to show by arrows how the air is made to pass down through the double grates to thoroughly mix with the flames and thus produce utmost heating results from cheapest soft coal, just as air is mixed in a modern gas mantle to give greatest light. are designed especially to burn low-cost freeburning soft coals. They have double grates and a double air inlet supply-down through the upper grates and up through the lower grates. This insures a proper mixing of the air and gases between the two fires where they are burned as fast as liberated, thus preventing their being wasted up the chimney in the form of smoke, and at the same time getting the highest possible percentage of heat-making value from the cheap fuel burned.

Ideal Down-Draft Boilers are used in all types of buildings from residences to factories. In many localities an examination into the local market price of the fuel and the volume and reliability of the supply, will be found to constitute one of the strongest arguments for the use of these Boilers. Ask for descriptive circular No. 1047.

AMERICAN RADIATOR COMPANY

Chicago, New York, Boston, Providence, Philadelphia, Baltimore, Buffalo, Washington, Pittsburgh, Cleveland, Cincinnati, Detroit, Atlanta, Birmingham, New Orleans, Indianapolis, Milwaukee, Omaha, Minneapolis, St. Paul, St. Louis, Kansas City, Denver, San Francisco, Portland, Seattle, Spokane, Brantford, (Ont.,) London, Brussels, Paris, Berlin, Cologne, Vienna, Milan

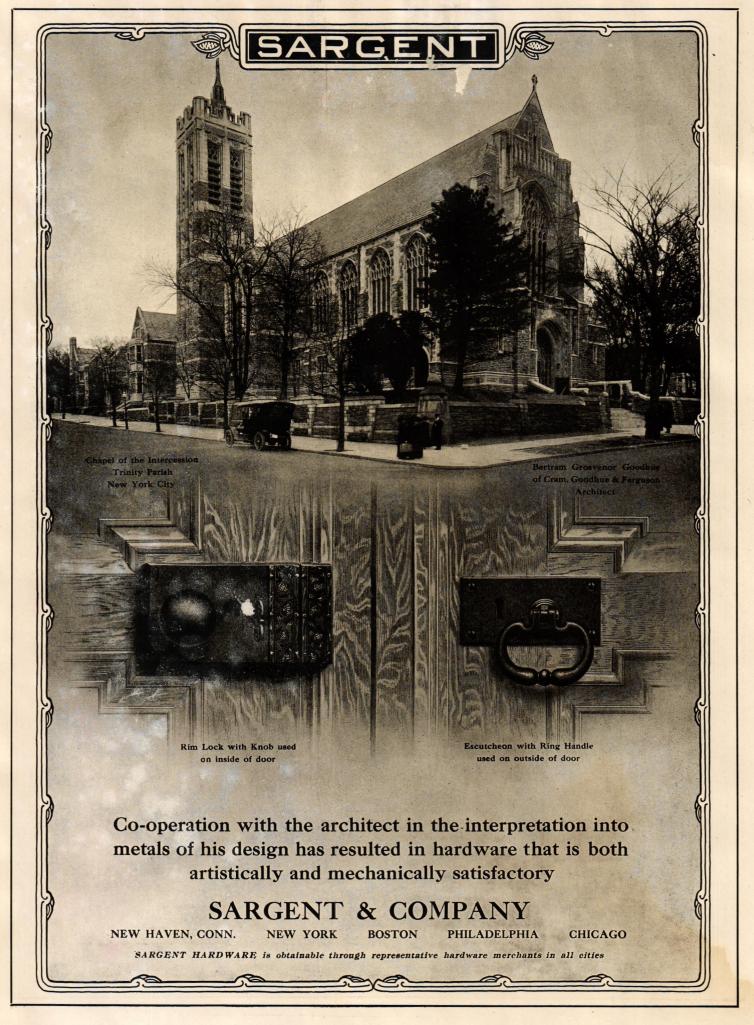


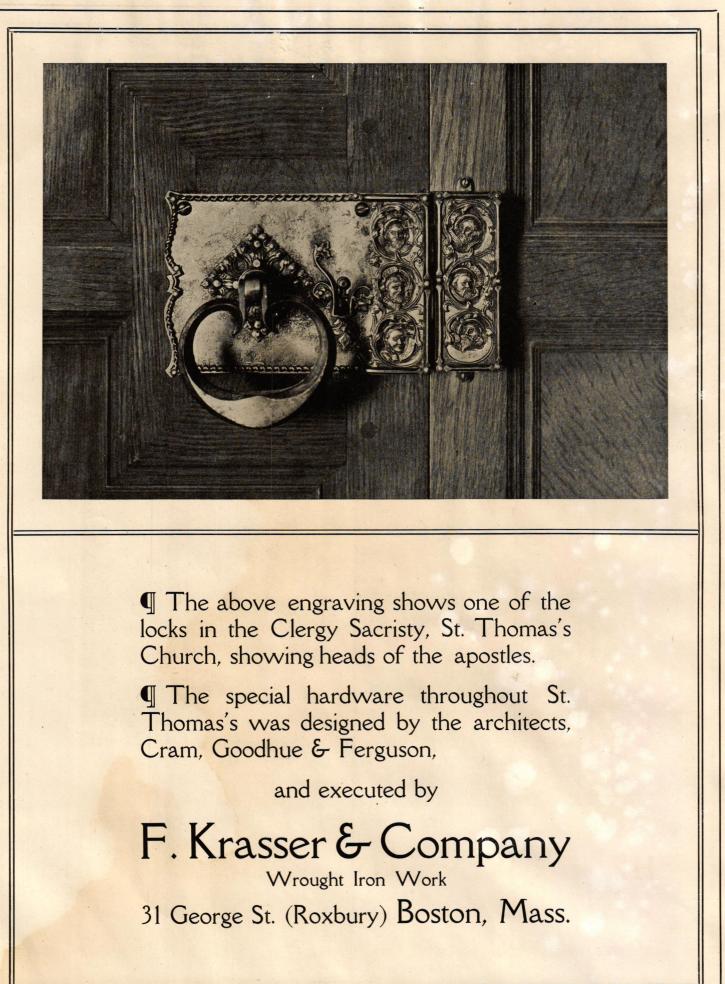


iii



V

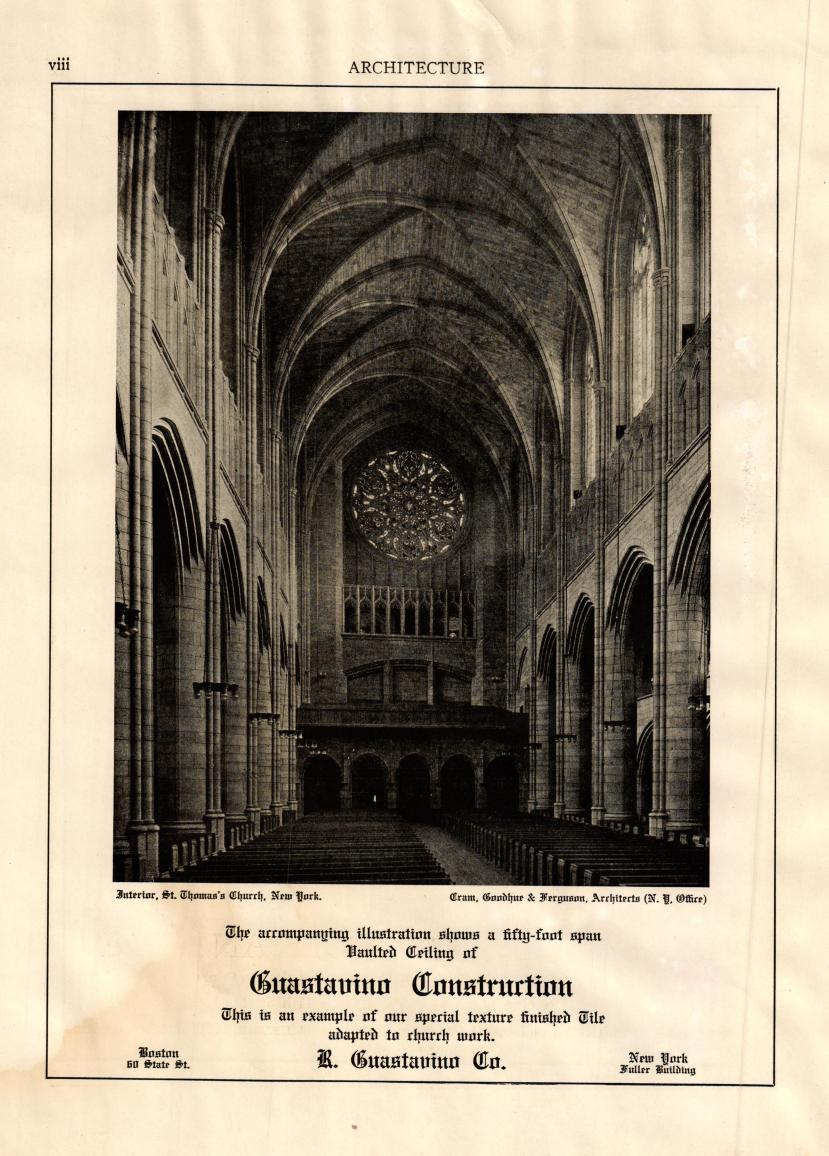


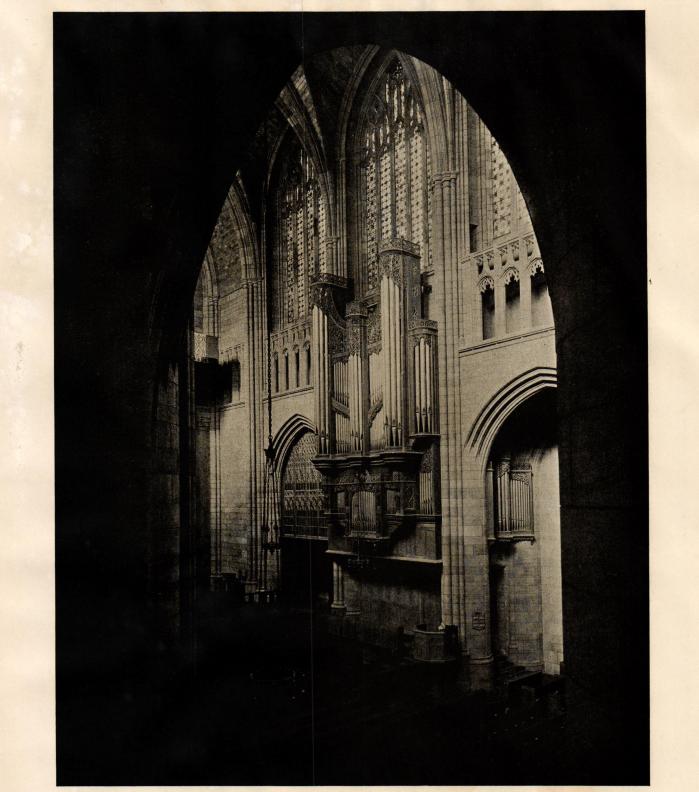


vi



vii





ORGAN CASE AND SCREENS, ST. THOMAS'S CHURCH, NEW YORK.

Cram, Goodhue & Ferguson, Architects (New York Office).

ix

All Special Woodwork including organ case, screens, pews, etc. made and erected by

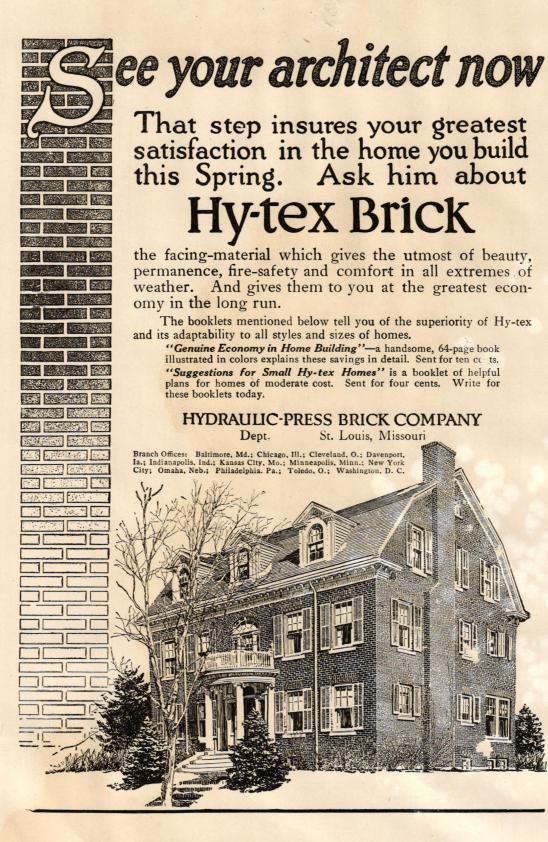
IRVING AND CASSON

Custom Furniture, Interior Finish, Wood Mantels, Decorations and Upholstery

150 Boylston St., Boston

576 Fifth Ave., New York

X



The above advertisement will appear in the leading weeklies, standard magazines and class magazines during January, 1914.

our and they had been been



xi



xii

Depecify the Equar Pot because I KNOW what t has done on hundreds of installations. Aquar Pat Cinstruction means more to me Ulan merely a nameit means satisfaction Why Not Investigate FURNACE CO. Chicago New York Jersey City

XV

"How shall we connect our closets to the soil pipe?"

was one of the important questions raised during the discussion of the plumbing in the Woolworth Building.

The use of the DONOVAN self-testing watersealed Flange on all the water closets was the answer.

The DONOVAN Flange is an economical method of

plumbing system.



The Donovan Flange

Where connection is direct to iron pipe it effects a saving in cost of materials. It saves time and labor

whether to iron or lead pipe.

perfecting the weakest point of the

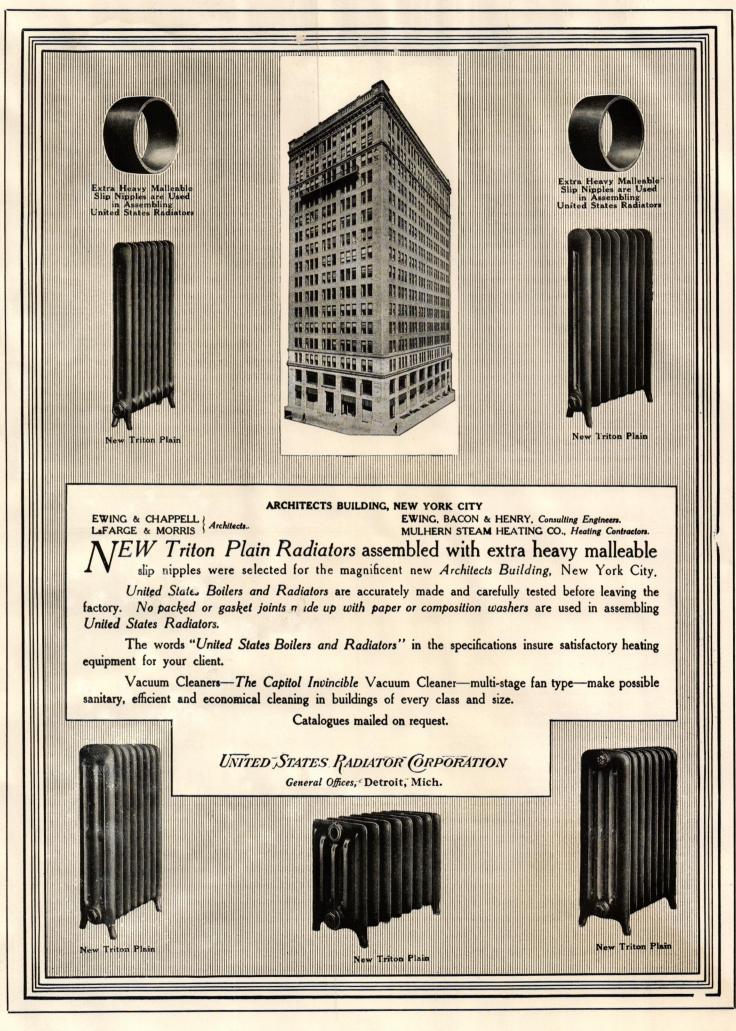
Most important—it insures a perfect joint and tells failure to secure same by leakage of water.

Miniature sample Flanges sent on request.

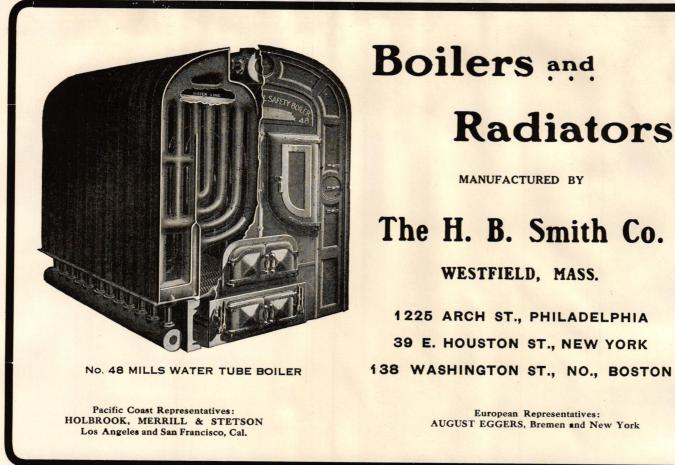


120-124 East Washington St. Indianapolis, Ind.

xvi



xvii







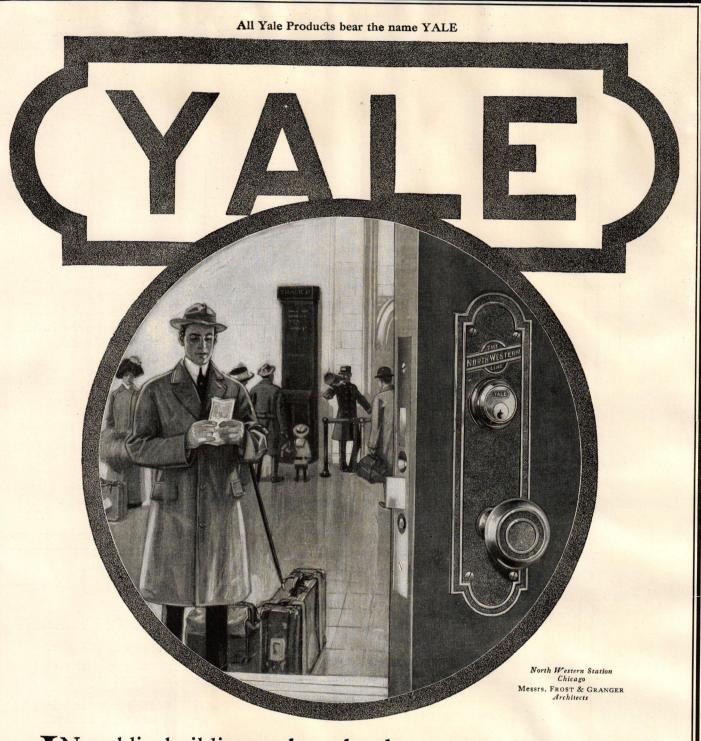
xviii



xix

XX

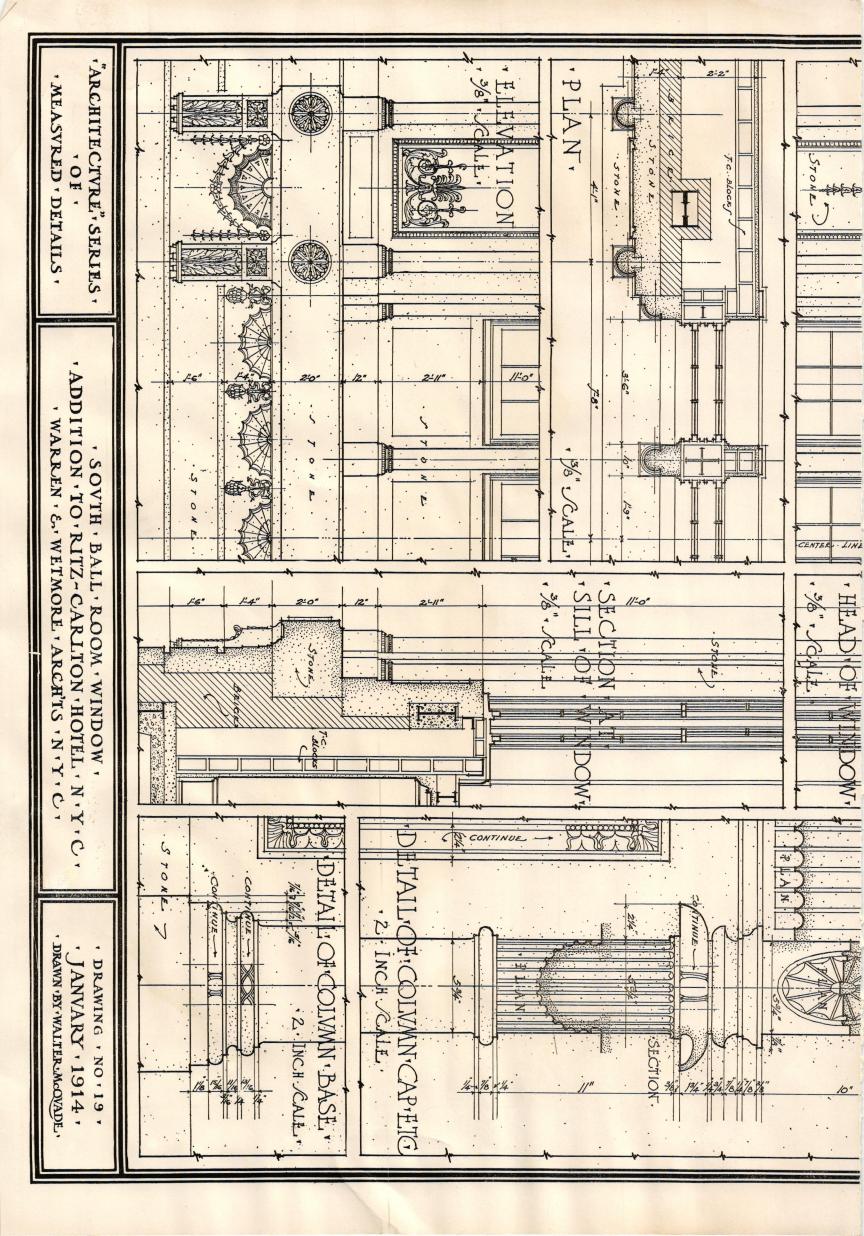
ARCHITECTURE

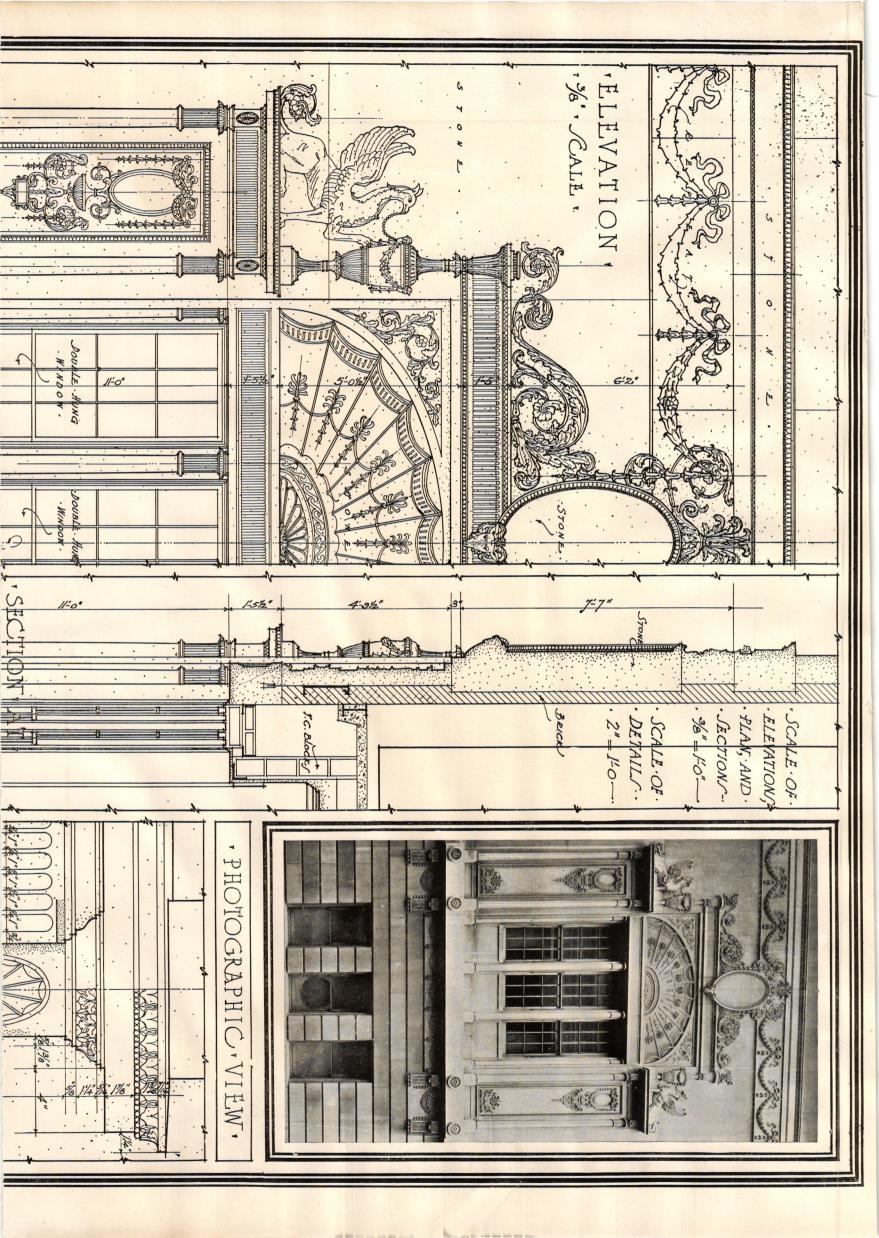


IN public buildings where hardware must have quality to endure, Yale Hardware is justifying the careful selection of material and the conscientious workmanship that is back of it.

The *design* may be a special one or a selection from the great number of artistic patterns that are available, but the *quality* can invariably be depended upon to meet the conditions imposed.

The Yale & Towne Manufacturing CompanyMakers of YALE Products: Locks, Padlocks, Builders' Hardware, Door Checks and Chain Hoists9 East 40th Street, New York CityCHICAGO : 74 East Randolph St.CANADIAN YALE & TOWNE LTD. : St. Catharines, Can.SAN FRANCISCO : 134 Rialto Bldg.





ARCHITECTVRE

THE PROFESSIONAL ARCHITECTURAL MONTHLY

VOL. XXIX

10

JANUARY, 1914

No. 1

Τ

ARCHITECTURE. Edited by a Board of Architects in the interests of the profession, is published the fifteenth of every month by FORBES & COMPANY, LTD., (A. Holland Forbes, Prest.), 527 Fifth Avenue, New York. PRICE, mailed flat to any address in the United States, Mexico or Cuba, \$5.00 per annum, in advance; to Canada, \$6.00 per annum; to any foreign address, \$7.00 per annum.

ADVERTISING RATES upon request. The writing and displaying of Advertisements is an art in itself, and the publishers will be pleased to give the Advertiser the benefit of an Expert's experience in this line at no additional expense ENTERED at the New York Post Office as second-class mail matter.

PLATES AND ILLUSTRATIONS

ST. THOMAS'S CHURCH, New York City		ACCEPTED COMPETITIVE DESIGN, Court House and Prison,
Exterior,	Plate I	Inferior Jurisdiction, New York.
Parish House,	Plate II	Exterior, 13
Fifty-third Street Chapel,	Plate III	Section, 14
Interior	Plate IV	Plans, 15-16-17
Interior	Plate V	Alfred Hopkins, Architect.
Organ Case Screens	Plate VI	HOUSES, Jamaica, Long Island.
Scale Details of Fifth Avenue Front,	- Triple Plate VII	Typical Doorways, 18-20
Great Entrance,		Plans, 19-21
Unfinished Porch, Fifty-third St Entrance,	Plate IX	Exteriors, 22-23
Detail. Interior	Plate X	Electus D. Litchfield, Architect.
Clergy Sacristy,	Plate XI	HOUSE, J. E. McElroy. So. Orange, N. J.
	Plate XII	Exterior, 24
		Entrance and Plans, 26
Sunday School Hall,	22	Davis, McGrath & Kiessling, Architects.
Plan,		
Cram, Goodhue & Ferguson, Architects (N.	Y. Office).	"ARCHITECTURE" SERIES OF MEASURED DETAILS, NO. 19.

Copyright, 1914, by FORBES & COMPANY, LTD., 527 Fifth Ave., New York

EDITORIAL

COMPETITIONS AND THE AMERICAN INSTITUTE OF ARCHITECTS—RACE INFLUENCE IN ARCHITECTURE— SMALL HOUSES AT JAMAICA, LONG ISLAND—COURT HOUSE AND PRISON, INFERIOR JURISDICTION, NEW YORK.

PERHAPS the most debated point in the whole field of architectural practice to-day is the question of competitions, principally because all competitions open to members of the Institute must be under a single code, and conditions in any two competitions are rarely the same. The thoughtful and well-considered report of the Committee on Competitions to the Forty-Seventh Annual Convention of the American Institute of Architects is the most notable contribution to the discussion of the subject which we have yet seen; it sums up the diversities of opinion which have arisen in regard to the whole subject of competitions, both as to their necessity, and as to their conduct under the code of the Institute, without recommending that any changes of importance be made, in spite of the fact that there is evidently at the present time wide spread dissatisfaction with the inflexibility of the present code.

Any discussion of competitions naturally falls under two heads, of which the first is the desirability of holding competitions at all, and second, their method of conduct. There can be no doubt at the present time that, whether they are desirable or not, they are a necessity, and there can likewise be no doubt, that since the formulation of the code of competitions by the Institute, the standard of American practice has been immensely benefited, both materially, and in honor and loyalty between members of the profession. The grave question which confronts us to-day is whether this code of competitions can be relaxed without reversion to the deplorable conditions which existed before its institution, or whether some modifications of the code may be introduced which may give it more elasticity without impairing its efficiency. The report declares without qualification against any so-called informal competition, and yet it seems to us that there are certain cases where the code is not only too cumbersome to be employed, but actually militates against the best interests of both the architect and the client. The code provides that where two architects simultaneously submit sketches for a building a competition is thereby automatically set up (and there can be no question that this is a fact), and that this competition must be conducted under the code.

The architects certainly have no desire to be unfair to their clients, and there are many cases where a competition conducted under the code of the Institute may not lead to as satisfactory a result as would the simple submission of sketches for the decision of the client himself: the competing architect should, of course, be safeguarded against possible loss by adequate remuneration for his services. This is especially the case in private work, by which is meant more particularly, residence work, and such private enterprises as hotels, stores and factories, in which it is almost safe to assume that the owner has a greater knowledge of his requirements than would a jury. The obvious reply is that these are cases where no competition is ever necessary, and yet it not infrequently happens that an owner does feel that his choice could be better guided by such a submission of sketches than by the selection of an architect without sketches.

The action of the Institute at its last convention in permitting the jury to be composed of three persons, one of whom is an architect, instead of compelling a jury of three architects, has been of assistance in simplifying this problem, but to the average individual who desires to build for himself a residence, a store, a factory or a hotel, the formal competition, the submission of the programme to a chapter of the Institute for approval, the selection of a jury, etc., seems an intrusion upon his business, at once unwarranted and long winded; and if any simpler method can be devised of equal fairness to the competitors it should be done. In other words, if competitions are to be had at all they should be fair, and no process which militates against fairness, or which allows an architect to waste his time or money for an owner's amusement or convenience, should be permitted. The present code is so elaborate as to discourage competitions, (this effect was frankly admitted by some of those who desire to retain it) and we think that too often the men who are scrupulous to uphold the code are handicapped by their inability to enter competitions which are both just and necessary and yet are not conducted under the code.

We understand and sympathize with the viewpoint of the Institute that competitions should be in general discouraged, but we are not quite confident that an elaborate process is the most expedient way to secure the result, nor can we admit that the competition is an unmixed evil; we believe that to the vast body of architects it has few advantages, the chief of these being that it is practically the only avenue to success open to the young man without influential connection, and there are many such in the profession. The report of the committee has one brief sentence which casts a different light upon this view: "The architect who believes that the competition is a fair field in which the inexperienced may be educated at the expense of his client . . . will . . . find fault with the circular." (Circular of Advice regarding Competitions.) In certain cases this viewpoint may be warranted, but we must all of us be educated through experience gained at the expense of our clients, unless we gain our experience in a large office, and it is the very men whose experience has been gained in other men's offices on large work who have the chance to successfully compete against their former employers, and while the closing of this avenue would affect but a very small proportion of the profession, this proportion would be found to contain the most brilliant minds of the coming generation, and would thereby work irreparable harm to the cause of architecture as a whole.

We do, however, thoroughly concur with the view of the committee that young men should be compelled to associate themselves with those of experience before entering such a competition, and we believe that thus the interest of the client, as well as of the individual practitioner, is amply safeguarded. Is there not some line which could be plausibly drawn between the competition conducted under the full code of the Institute, and the competition which could dispense with many of the formalities of this code? The mere giving of authority to the local committees on competitions to except from the requirements of the code such competitions as in their judgment were needlessly limited has been made that competitions conducted under the code by it would probably be safe and beneficial. The suggestion be confined to buildings wholly, or in part, supported by

the public, as opposed to private work, the theory being that the funds of an individual or a private corporation may be spent wisely or foolishly without the result becoming a public concern: but this line of demarcation, which is in the main very well placed, upon consideration will be found to exclude such buildings as banks, railroad stations, etc., which are after all quite as much matters of public concern as are churches and town halls. The fundamental difficulty in attempting any definite line of demancation lies in the fact that private work changes to public work, not instantly, but by minute gradations. We are, in America, altogether too much inclined to rely upon definite and fixed laws, rather than upon general principles, and while such definition may be necessary in the criminal courts, a certain latitude for individual judgment of standards of honor and decency may be allowed to the architectural profession. Nor can any laws be binding when a sufficiently large number of those beneath them do not believe in them, and we find member after member of the Institute, or its chapters, entering school competitions which are judged by a school board, and we find an increasing difficulty in convicting in the chapters members thus violating the code.

We naturally do not presume to advise the Institute in this very delicate and technical matter; but a sufficient number of men of excellent standing have brought this matter to our attention to warrant the brief presentation of the views outlined above, some of which, at least, are not brought out by the committee in their report, as printed in the Journal of the Institute, and we hope that in thus presenting our opinions on the matter to our readers they may be stimulated to express their views.

HE great development of architecture in America has been interesting to an extent beyond that of the European countries in one particular; here we can determine, to some extent at least, how much the architecture of the country is really expressive of the sentiment of its people. In other words, is the distinction between French and English architecture due to the difference in blood or did it bccur because their traditions were from the start dissimilar? Of course almost all the architects in France were French, and almost all the architects in England were English, but the architects of America are of all races or of all mixtures between these races, and the interesting question in this respect is as to whether this variation of racial type is responsible for the lack of uniformity in American architecture, or whether this may be laid at the door of variety of training, which we have received, and to the absence of a definite tradition. The work of certain men unquestionably seems to reflect their nationalities. Charles A. Platt, for example, could hardly have been anything but an Englishman, and the curious and involved forms which Henry Hornbostel delights in using, definitely suggest kinship with the Germans and Austrians; while the Jewish race has had for many centuries no distinctive architecture of its own, the work of our architects of Hebraic extraction seems to suggest that vague and indeterminate idea which we call their racial spirit; men of Scandinavian origin are few, but Lindeberg's work, especially that done in his younger days (in which natural expression was most likely), has about it a certain Scandinavian flavor, although the motives were obviously borrowed from other countries. Of the work of our greatest architect, Charles F. McKim, we can hardly say that his pure and infallible taste is of any country, but was, let us hope, the first to lighten the path of the pure bred Americans.

There was at the beginning of American architectural history a certain feeble tradition, or rather set of traditions, established by the earlier Colonists and mainly derived from English sources with occasional infusion of French, Spanish and Dutch blood. The beauty and delicacy of this old work has but recently been made manifest to the architects now practicing, and, while it may be that Roman architecture is the source to which we go for most of our inspiration, especially in public work, one finds that it is often tempered and brightened by evident study of the Colonial forms, and we also find that, in many cases, the racial instincts of the men who designed are manifested, not through their traditional architectures but through this Classic Colonial. To take two State Capitols, those of Rhode Island and Minnesota for examples, these are notably tinctured with a variation of Classic sentiment, whose origin can hardly be found elsewhere than in Colonial, and while we can probably never hope to return to the days of pure and unmixed tradition, it is not unlikely that race influence will be more and more expressed through the medium of the slight traditions of early American art.

HESE three groups of small houses at Jamaica, L. I., Electus D. Litchfield, architect (pages 18-23), are, perhaps, the most agreeable very small cottages which we have yet seen, and it is interesting to observe that real estate promoters have come to realize that there is no work too small to entrust to competent architects, and that good design has a marketable value. The two end groups are rather more interesting than the center one, and are marvels of compact planning, as well as of sterling architectural merit; the details of the door-ways, the dormers, cornice, etc., have been most interestingly studied, both with a view to the maximum of effect at a minimum of cost, and with a careful conservation of the Classic spirit. The brick porches, the blinds and the shutters all have their features of interest, and in plan, as well as in the exterior, these groups leave little to be desired for houses of their size. In the brick groups each house has a small entrance hall with a large door-way into the living room, a medium sized dining room, and what is practically a "kitchenette." They are evidently designed to be houses in which the wife of the owner can do all the work with the least effort. The pantry is nothing more in practice than a store-room, but is a desirable thing to include, because there should always be two doors between the kitchen and the dining room; at the same time, when one woman is to do all the work, there is no reason why half the dishes should be washed in the pantry and half in the kitchen. Back-stairs are, of course, superfluous in a house of this kind, and great economy of space in the second floor has been obtained through the position in which the stairs were placed. The bathrooms are also in the center of the house, so that four fair sized bed-rooms, or one very large room and two fair sized ones can be had on each floor, and a closet, which is ample, and while the space wasted in halls is the smallest possible, at the same time communication is so simple and direct to all the bed-rooms that one would not feel cramped in it. There are presumably small rooms in the third story, which might be used as extra family rooms, or maid's room, if a maid were employed. These houses were built to sell with the land for about \$7,000, a result which could only be obtained by very careful selection of material and simplicity of design, but the architect is the more to be commended because he has been able to do so much with such simple materials. He has demonstrated again that well placed and well shaped openings, a good mass, and a little interesting detail around a door-way is sufficient to produce an extremely interesting house without using a great deal of ornament and without spending a great deal of money.

TEN architects were invited to compete in the competition for the Court House to accommodate civil and criminal courts of inferior jurisdiction, Second Street and Second Avenue, New York, the city having appropriated \$350,000. They were A. L. Harmon, E. D. Litchfield, Hoppin & Koen, Beverly S. King, Alfred Hopkins, Donn Barber, William Emerson, Grosvenor Atterbury, William A. Boring and Griffin & Wynkoop.

The jury was composed of W. R. Mead, A. W. Lord and Paul Cret. They had seven sessions and finally made the award to Mr. Hopkins. (Designs and plans pages 13-17). As far as we can learn from the other drawings, Mr. Hopkins was the only one who had an interior court giving light and ventilation through the center of the building. It would seem as if this arrangement practically won him the competition. Leaving this light court out made too much dark floor space in the center of the building, which was clearly demonstrated by the other designs shown. While some of the elevators in the other drawings were more direct than in the one accepted, yet this scheme was entirely dependent upon the elevators as shown, and the slight inconvenience of elevators at a distance from main entrance did not overbalance the other advantages which this plan seems to have. Another point which we would like to bring out is the excellent light and ventilation of the Jail plan. This was very important, and was so stated in the programme.

Mr. Hopkins has had special training in the construction of modern and sanitary jails, and his experience seems to have stood him in good stead in this competition. His design was the only design submitted where all the loggias called for on the programme were located on the roof. These loggias were for the exercise of the prisoners, and Mr. Hopkins' contention was that no loggia incorporated in the building would be of sufficient area to be adequate for this purpose. We understand that the designs of Mr. Atterbury and Mr. Hopkins for the front were the only ones without an order. This was another point in favor of the winning design in that it could be carried out economically.

ENDING cardboard models of schoolhouses by parcel S post is the latest device of the United States Bureau of Education for arousing interest in attractive school buildings at low cost for rural communities. The models are made to fold flat and are shipped by mail to local authorities, normal schools, and other agencies, for use during a limited period. A number have already been sent to points in the west and south-west. Models for one, two, and fourroom schools are provided. The buildings are planned especially for rural communities, where low cost is the first essential. The buildings were designed by Dr. F. B. Dressler, of the Bureau of Education, and then worked over by two well-known firms of school architects, Cooper & Bailey, of Boston, and W. B. Ittner, of St. Louis. The models show all the details, within and without, and they are constructed to scale. It is believed that these models will be of great assistance to school authorities in small rural communities who cannot afford to engage a school architect, yet are ambitious to have their schoolhouse up to date in every particular.

ST. THOMAS'S CHURCH, NEW YORK

CRAM, GOODHUE & FERGUSON, ARCHITECTS (N. Y. OFFICE)

PLATES I-XIII

I^T is impossible that the story of the building of any church to-day should have the romance which attaches to that of the mediaeval cathedrals. For these churches, princes and peasants harnessed themselves to sledges to draw stone, and guilds of stone carvers gave their services without recompense. But even to-day, no church of the magnitude of St. Thomas's can be erected without its record of difficulties overcome being of interest.

St. Thomas's was founded in 1823. In 1867 the present site on Fifth Avenue was secured; and three years later the "old St. Thomas's" was dedicated. For years its beautiful tower was a noted landmark on Fifth Avenue; and the church was famous for its magnificent altar, with decorations by LaFarge, and for its organ, an instrument of particularly fine tone. The church was built by the great Upjohn.

This building was destroyed by fire August 8, 1905. The rector, Dr. Stires, came from his summer home in the mountains and arranged for work to be started on the temporary church building. In six weeks the building was finished so that in the fall, when the usual time came for the parishioners to return to the city, the temporary church was ready to receive them.

The trustees at once arranged to hold a competition for designs for what would be the finest parish church in America. Ten prominent architectural firms were invited to compete. The designs were extremely interesting in their variety, ranging from a miniature Notre Dame to a semi-circular auditorium clothed in Gothic detail, whose front was a miniature of Peterborough. The jury's vote was unanimously in favor of the design by Cram, Goodhue & Ferguson.

As soon as the actual working drawings were started, the difficulties caused by a limited site presented themselves. It was not a simple problem to build a monumental church, seating nearly 2,000, with a parish house that should be adequate for such a parish and without competing with the dignity of the church, on a lot one hundred by two hundred and thirty-five feet; especially on a lot which was sure to be surrounded by lofty buildings. Many larger sites were considered, in particular a very fine one opposite Central Park. But the Trustees had decided two things, first, that St. Thomas's should be rebuilt on its present site; and, second, that the work should be carried on so as to allow for the uninterrupted holding of services on this site during the building operations. This latter decision, however, called for great ingenuity on the part of the builders, for, with the exception of a few months while they were blasting for the foundation under the church-St. Thomas's is literally "founded upon a rock"-the temporary church has been in continuous use while the stone structure rose around and above it.

Perhaps no modern church has been so thoroughly and conscientiously studied as St. Thomas's.

Not only did the parish want a church as beautiful as possible in design, but they also demanded one where all the construction would be honest, where everything would be not only what it pretended to be, but would be the best of its kind; and this best their architects struggled to give them. No less than fifteen sets of plans were worked out before a final scheme was found that seemed to meet the requirements. Meanwhile the country was searched for a building stone that would show to the best advantage in the plain wall surfaces—as well as bring out the delicate Gothic carving. It was decided to use for the exterior the oolithic limestone of Bowling Green, Kentucky, which has the unique quality of becoming constantly whiter upon being exposed to the air. For the interior was chosen a beautiful soft yellow sandstone from South Carolton, Kentucky.

To diminish the thrust, mediaeval builders thinned their vaults until in the best examples, the web was only 5 inches thick. Beyond this, the most skillful mason could not go. But for a large church even this entailed enormous piers and buttresses, impossible on a building lot only one hundred feet wide. The tile vault is light and has an almost negligible thrust, and its permanency is unquestionable, all of which makes it ideal. Therefore it was decided to use Guastavino tile for the vault.

In no church having a nave forty-three feet wide and a vault rising ninety feet above the pavement have the acoustics been satisfactory. The principal complication comes from the vault surfaces. The architects, therefore, conceived the idea of having the first layer of tile made of such material as to give acoustically good surfaces, that is, something approaching the absorptive qualities of felt. To this end they persuaded Mr. Guastavino to call in the services of Professor Sabine of Harvard, perhaps the greatest expert on acoustics.

The story of these experiments is a long and interesting one. Briefly, a room was constructed under ground in order to be entirely isolated from all sound waves. This was lined with tile made according to Professor Sabine's suggestions, and experiments were then made to determine the index of absorption of these tiles. The tile lining was then removed and a second and third and many other linings of tile followed; the contents of each kiln differing slightly from the one before. The acoustics are pronounced eminently satisfactory.

Mr. Guastavino's interest did not end with the production of a tile with good acoustical properties. The question of the direction to be taken by the web joints was studied with infinite patience. Time and again whole areas were taken down and reset. Nor was this effect wasted. One immediately appreciates that the vault is of tile, but the eye demands that the lines of apparent thrust be carried down into the conoid where they belong, it must be satisfied that the work is structural. The importance of this is at once apparent to those familiar with one of our newest cathedrals whose roof, of brownish yellow tiles—the long joints running opposite in direction to those at St. Thomas's—give the effect of a great butterfly just rising in flight.

There are many things in the building of the old Gothic shrines that money alone cannot reproduce, among them craftsmanship. Here again has the church been fortunate. To the glass of the clerestory windows Mr. Heinigke has given a silvery softness that is very lovely, in perfect harmony with the stone work—really a part of the church. The glass of the rose is splendid in its richness.

The wood work, too, whether it be the fine paneling in the parish house, the pews in the church, or the carving

of the great organ case, is all fine hand work, out of the solid. It is pleasant to know that even high up on this organ case, where the eye can never see, the carving is still as fresh and crisp, with no trace of the mechanical, as it is in those parts near the eye.

The ceiling in the clergy sacristy is a fine example of modeled plaster work-such a ceiling as one finds in old Tudor Manor houses-which harmonizes so well with rooms of this character. It was made by Bankart of London, who successfully revived this art in England.

Then there are alms basins wrought in silver; and many other beautiful things. But probably the finest of all, from the point of view of craftsmanship, is the hardware. The heavy outer doors and the inner kalamein doors are studded with nails, their heads beautifully wrought. These heavy doors have massive hinges that seem to have held them for dozens of years, while in the clergy sacristy are hinges so finely wrought as to suggest jeweler's work. In Mr. Karolewsky, Mr. Krasser has an artist whose work in wrought and carved steel is as direct and naive as that of any mediaeval iron worker. The photograph of one lock, with the heads of the apostles, gives only a faint idea of the beautiful texture of his work.

To the masses who could not read, the old cathedrals were Bibles in stone. For us the greatest charm of many an old minster is its wealth of carved story and symbol. To describe completely the symbolism of St. Thomas's, when its niches are filled with statues and its windows with glass, would fill a volume. Of course much of it is ornament that will be added as memorials, but much is now in place. On the turret of the Parish House are symbolized the activities of such an institution,-visiting the sick, teaching the Bible, giving alms, etc. Here also are small figures carrying symbols of the arts connected with the church,-architecture, a bishop carrying his cathedral; sculpture, painting, metal working, organ building, etc. A single niche outside the Sunday School Hall is provided for St. Nicholas, patron saint of children and of the City of New York. Various groups on the exterior, as yet in block, will be symbols of the prophets,-the Old and the New Dispensations, etc., etc.

The south entrance on Fifth Avenue is the bride's door. Here will stand St. Joseph, patron of brides, while the bas reliefs will contain representations of the marriage of Isaac and Rebecca, and the marriage in Cana. The Gothic foliage is conventionalized orange blossoms.

But most interesting of all is the story of the great cen-tral door—"The Way." It is divided by a pier which will carry a statue of our Lord, and together with the tympanum above, symbolizes the two natures (human and divine) in the one person of Christ. The central shaft under the statue will contain three statuettes of angels each holding two symbols of attributes of the Diety:-Power, a tower; Majesty, a crown; Wisdom, a book; Love, a heart; Mercy, broken shackles; Justice, scales.

In the great niches on either side of the porch will stand the apostles, Peter, Andrew, James, Paul, Phillip and John. The central niche in the tympanum is for a statue of St. Thomas, the Apostle, Patron of the Church. The remaining niches will be filled with the other six apostles. The apostles will each hold a scroll inscribed with their traditional contribution to the Apostles' Creed.

In the gallery immediately over the door will be the missionary patrons of England, Scotland, Wales, and Ireland,-Saints Augustine, Columba, David and Patrick.

The thirty-three bosses in the moulding of the arch

will be carved in scenes taken from the entire history of the Church and representing progressive periods,-ending with incidents of interest to the parish.

Nativity.

- Crucifixion. Resurrection. 3.
- Pentecost.
- Our Lord's Commission to St. Peter.
- Our Lord's Commission to St. Peter. Our Lord's commission to St. Peter. The preaching of St. Paul. Martyrdom of Early Christians. The Church of the Catacombs. 6.
- 8
- Emancipation of the Church by the Emperor Constantine. 11. The Oecumenical Councils.
- Second part, Scenes from English Christianity:
- St. Joseph of Arimathaea-The Holy Thorn-Grail, etc.

13. St. Augustine and companions receiving the commis-sion from St. Gregory-the-Great to proceed to the conversion of England.

The Coronation of William of Normandy. The First Crusade. 14. 15.

- The Building of the Cathedrals. The Martyrdom of St. Thomas of Canterbury. 16. 17.
- Magna Charta.

19

Consecration of Archbishop Parker. Archbishop Laud Beheaded by Cromwell. 20.

21. John and Charles Wesley (representing the Evangelical School.) 22.

Newman, Pusey and Pugin (representing the Catholic Revival).

Third part, Scenes Representing American Church History:

23. Pioneer receiving Holy Communion at St. Etheldredas, London.

Ships containing early Anglican immigrators to America. 24. 25. Early American Church Service.

26. Preaching to the Indians.

27. Jamestown.
28. Election of Samuel Seabury, First American Bishop.
29. Samuel Provost, First Bishop of New York, receiving consecration at the hands of the Archbishop of Canterbury and York and Bishop of Peterborough. 30. The Revolution. 31. Old Trinity. 32. Burning of old St. Thomas's Church. 33. The Building of the new St. Thomas's Church.

In spite of the many statues and carvings still to be added, the exterior of the church now gives a very fair idea of the finished building. There is, however, one very serious temporary omission,-that of the south porch, on 53rd Street. Not only is this very beautiful in itself,-it rises a mass of delicate tracery and carving that almost suggests the late richness of the Louviers,-but more important still it will soften the present rather abrupt transition between the Fifth Avenue and 53rd Street elevations.

Of the church itself, Mr. George B. Ford's appreciation is most appropriate.

Four architects were riding together up Fifth Avenue the

Four architects were riding together up Fifth Avenue the other day. They had been talking of matters far removed from architecture when suddenly, with one accord, they burst out with the exclamation: "There is some real architecture for you." The "real architecture" was the church of St. Thomas on Fifth Avenue in New York. I have never before heard such spon-taneous and unqualified enthusiasm from a group of architects about any other building in America. One and all they declared that they had had the same thrill before only when suddenly coming upon some glorious Gothic cathedral in Europe. One is apt to think that such a building as the great cathedrals depends for a large measure of its charm upon its antiquity. The hand of time has mellowed the building and moulded it into a perfect unit. Yet, here is an edifice, new, clean, bright from the hand of the stone cutter, nevertheless it gives one that same thrill—the sense of a glorious wholeness and unity. It might seem impossible that any mere modern could expect to equal the glorious masterpieces of those mediaeval craftsmen. "Why—they were inspired!" we say. "Such archi-tecture could have sprung only from the great burst of religious enthusiasm which spread over the world in that exalted period of the middle ages. No one in the materialism of the present day, in the rush and efficiency of the modern architect's office, could be expected to hold his own with those wonderful crea-

tions." But in our opinion this has been done by the architects of St. Thomas's—Cram, Goodhue & Ferguson. What is the secret of it?

It is most difficult to analyze, but an attempt to do so is

most worth while. In the first place, it has solved its problem, viz.—to build city church which would not be smothered by its environment. The church had decided, after long debate, to remain down-town. Commercialism surrounds it. Hotels, shops and office buildings are all about it. Already several of them are over twenty stories in height. How could a church be built in such a place and hold its own, and still remain unmistakably a church? Yet St. Thomas's does do this and does it convincingly—a thing which few other churches in America have yet succeeded in doing. It soars aloft with an aspiration which speaks eloquently of that nobility and high idealism for which the Church stands. It fairly breathes. It is a very prayer in itself. How was it

It fairly breathes. It is a very prayer in itself. How was it done? Great masses of masonry, the buttresses of the corner tower, rise from the ground and mount aloft with all the majesty and sturdiness of the great cliff walls of the Palisades. A feeling of unlimited strength emanates from it. It stands for eternity itself. No matter how sordid or how high the buildings which hem it in, this church of God will always hold its own and still be standing triumphant when they have gone. It bespeaks in every line the permanency and might of the eternal Church. Iron may rust, wood may burn, but this creation of man will endure as the great cathedrals have remained, for there is no iron or wood in it. iron or wood in it.

It may seem, from this description, brutal, almost terrifying. And yet, nothing could be farther from the truth. For it is And yet, nothing could be farther from the truth. For it is relieved by the most delicate and subtle detail and this, too, is part of the secret of its thrall. Further, this detail, instead of being applied as it usually is so as to give an effect of cast iron is used here sparingly and only where it will count. It is the sort of placing and design which can come only through inspira-tion, the inspiration which few ever have. Exquisite in its drawing and carving, it fairly breathes, so living is the effect of the whole. The play of light and shade, the deep shadows, with the flickering points of the cresting, the contrast of bold, smooth masses with the playfulness of the perfectly "spotted" details, stir the senses in the same way that great music does. They fascinate. Walking past in the evening when the top is lost in shade, with the long black shadows thrown up across the facade against which the lace-likeness of the cresting over the main portal flickers with an exquisite playfulness, one is held rooted to the spot with awe and wonder. St. Thomas's is not a copy. The architect has not followed the mediaeval churches. He has expressed himself and the great ideal for which he was striving. He has been inspired by those buildings but he has wrung their secret from them, and

by those buildings but he has wrung their secret from them, and by those buildings but he has wrung then seered from them and then using it has told his story in his own way. He has not copied their *motifs*, he has not copied their details. But he has used the principles which underlie their greatness and applied them to the solving of his particular problem.

Nor does the wonder of it all stop with the exterior. Within, it preserves the same high standards. The same playfulness and imagination characterize every detail. Constant surprises greet one at every turn. The soaring lines of the pillars, the light-ness of the spring of the vault, the accents placed just where they will count the beauty of proportion the exquiring of the value. they will count, the beauty of proportion, the exquisiteness of the detail—all show the hand of the master. A new thrill waits around every corner and the same beauty, the same majesty, the same nobility, the same spirituality, is found throughout. The great nave with its vault lost in shadow meets one with a powerful appeal. It uplifts.

It is not cold as so many churches are. Rather it beckons with hospitality. It is warm and inviting. It is cheerful, even

gay, as the religion of our modern life should be. How often has the severity and asceticism of mediaeval churches repelled us when we tried to think of them as spiritual homes. Not so St. Thomas's. It has their spirituality, but it is warm and satisfy-ing as well." The article from which I have quoted at length was

written while St. Thomas's was yet unfinished. The exterior had only just been freed of its enveloping scaffolding and the temporary church still obscured all view of its interior.

This interior is simple as to its main lines and proportions, the architects have been wise enough to produce one great effect and have not frittered away their opportunities upon features which while common enough, unhappily, in American churches, great or small, belong properly only to greater and far longer buildings.

The interior of St. Thomas's is a simple rectangle, unbroken by transepts and untroubled by chapels; of which there is but one, terminating the 53rd Street aisle. Across this has been thrown a vaulted gallery, for the sake of seating capacity, a feature which also adds greatly to the mysterious interest of the interior.

The organ case and screens represent but the initial step in the making of what must prove quite the finest chancel so far dreamed of in America. The church suffers from the fact that apart from this organ case everything is temporary. Also, the vestibule screen and gallery parapet above will, when completed, be a very different matter from its present bare and temporary substitute. From the present stone corbelling will rise a half fan vault, with storied carving and paneling above, such as supported the best of the Devonshire lofts.

For the chancel, it was necessary to use the temporary furniture of the temporary church; refinishing this, however, to accord, as nearly as its yellow pine could accord, with the oak of the permanent organ cases.

The dorsal is frankly a temporary affair; indeed, everything at this point will be a makeshift until across the whole end of the church from side to side, and from floor to apex of the vault, will rise tier after tier of canopied saints standing each in august majesty, motionlessly guarding the Holy Table. Just what form this reredos will take no one now can tell, not even its designer, other than it will so fill the entire end of the church. Probably the most famous reredos in all the world is that of Winchester Cathedral. This one, however, will not begin to approach in size the one which St. Thomas's will soon have.

When one considers the fact that this church is built upon a restricted and confined city lot, whose dimensions are most moderate, one finds it difficult which to admire the most, Mr. Cram's masterly plan or Mr. Goodhue's masterly working out.

THE LAW OF ARCHITECT, OWNER AND CONTRACTOR (Concluded)

BY CLINTON H. BLAKE, JR., OF THE NEW YORK BAR

This completes the most interesting, instructive and valuable legal article ever published in the professional press.

LIQUIDATED DAMAGES.

Upon the question of liquidated damages it is very difficult, if not impossible, to state any definite, enforcible and yet comprehensive rule. The provision that, in the event of delay in the completion of the contract, a certain sum shall be paid by the owner, as damages for each day or similar period that the work shall remain unfinished, is usually and in itself unobjectionable (Kelly v. Fojervary, 78 Northwestern 828; Mills v. Paul, 30 Southwestern 558; Chapman Decora-

tive Co. v. Security etc. Co., 145 Fed. 434, aff'd 149 Fed. 189). In one of the cases above cited (Kelly v. Fojervary, 78 N. W. 828, supra) the clause in the contract provided that

"the contractor shall pay to the owner Ten (10) Dollars for every day thereafter that the said work shall remain unfinished as and for liquidated damages."

and in another case (Chapman Co. v. Security Co., supra) it was provided:

"It is mutually agreed and understood that in the event

of said interior finish herein contracted for not being entirely finished on or before the 15th day of March, 1905, that the actual damages sustained by the owner will be difficult of computation; therefore it has been agreed and hereby is agreed by and between the parties hereto that in the event of the failure of said contractor to have all of said interior finish of main entrance and eighth floor completed on or before the 15th day of March, 1905, there shall be due and payable and said contractor shall pay to the said owner the just and full sum of \$50.00 per day for each and every day after March 15th, 1905, that the same or any part thereof, remains unfinished and incomplete, and that said sum is hereby agreed upon as liquidated damages."

These provisions were held good and to be proper provisions, under the circumstances of the respective cases, for liquidated damages, as distinguished from penalties. It must not be considered, however, that it was due to any magic in the language used that the court sustained the provision, for it is a well-recognized rule that in construing provisions of this character the courts will look at the intention of the parties, the subject matter, and the nature of the agreement, and from this determine the meaning of the wording used (Ward v. Hudson etc., 125 N. Y. 230). The reason that such care is taken on this point is that under the law liquidated damages are recognized as valid, while in the case of conditions of such character as to constitute a penalty, the conditions will not be enforced and the courts will use their own judgment in awarding such damages as they deem reasonable. The question must always be determined, therefore, whether or not, in a given case, the words used, combined with the intention of the parties and all the attending circumstances, are to be construed as intending or providing proper liquidated damages, or to be construed, on the other hand, as a penalty, and therefore unenforcible. The wording, however, is not entirely negligible by any means, for where it is provided that the amount specified is to be considered as liquidated damages, the burden is upon the builder to show that in reality the provision constitutes a penalty (Mills v. Paul, 30 S. W. 558), while if the sum named is alluded to as a penalty, the burden is upon the owner to show by a proponderance of proof that it was intended to be and may properly be considered as liquidated damages (Small v. Burke, 92 A. D. (N. Y.) 338). It has been held that where the sum mentioned is disproportionate to the damage which will presumably or probably ensue, or to a degree of loss which is ascertainable, it will be construed as a penalty (Coen v. Birchard, 124 Iowa 394-holding a proviso for the payment of \$5 a day a penalty, where the rental value of the building was shown to be but \$25 per month; and see Ward v. Hudson River etc. Co., 125 N. Y. 230-but indicating would have been had damages if house had been for private use as a residence). Similarly, the United States and California courts have interpreted as a penalty an agreement to build in a specified time, and in a particular manner, and in the event of failure to meet these conditions, to pay a gross sum specified in the contract (Tayloe v. Sandiford, Wheat (U. S.) 13, opinion by Marshall, C. J.). The element most helpful in securing the interpretation of the contract as liquidated damages is the element of uncertainty in the ascertainment of the loss which will result from delay, and it may be stated, as a broad and general rule, that in those cases where it is impossible to ascertain, or where it is impossible to ascertain with any degree of exactness, the damage which will result from the delay, a situation will be presented where the sum named in the contract as damages will be so considered and will not be construed as in the nature of a penalty (McCullough v. Moore, 111 Illinois Appeals 545); even though the word penalty be used (McManus v. Rothschild, 25 Ontario L. R. 138). In the words of the New York Court of Appeals in one of the cases already cited (Ward v. Hudson etc. Co., 125 N. Y. 230):

"Whether the sum agreed between parties to be paid, in the event of a breach of some agreement is termed by them a "penalty," or "liquidated damages," is not controlling upon the question of construction. Their use of such words is not always conclusive as to their legal meaning. To get at that we must consider the subjectmatter and nature of the agreement and understand clearly the intention of the parties. If it shall then appear that the damage and loss, which may be presumed to result from non-performance, are uncertain and incapable of exact ascertainment, then the payment or liability fixed by them must be deemed to be liquidated damages and recoverable as such. Where, however, a sum has been stipulated as a payment by the defaulting party, which is disproportionate to the presumable or probable damage, or to a readily ascertainable loss, the courts will treat it as a penalty and will relieve; on the principle that the precise sum was not of the essence of the agreement, but was in the nature of a security for performance. This subject has been reviewed in very many opinions; to a few of the more interesting of which, in the English reports and in those of our state, I direct attention.

was in the nature of a security for performance. This subject has been reviewed in very many opinions; to a few of the more interesting of which, in the English reports and in those of our state, I direct attention. In Lowe v. Peers (4 Burr, 2228, 2229) Lord Mansfield, and in Kemble v. Farren (6 Bing. 141), Tindal, C. J., discuss the subject. In Dakin v. Williams (17 Wend. 447 and 22 id. 201), Nelson, Ch. J., in the first report, and Chancellor Walworth, in the second, review the question in the light of the English and New York cases. (See also Hosmer v. True, 19 Barb. 106; Lampman v. Cochran, 16 N. Y. 275; Clement v. Cash, 21 id. 253; Little v. Banks, 85 id. 258).

also riosince ... 16 N. Y. 275; Clement v. Cash, 21 in. 2007 85 id. 258). The result of an examination of cases is to confirm the idea that it is difficult, if it is even possible, to lay down a general rule applicable to all the cases which arise where parties have undertaken to provide against a loss consequent upon a breach of an agreement. We may, at most, say that where they have stipulated for a payment in liquidation of damages, which are in their nature uncertain and unascertainable with exactness, and may be dependent upon extrinsic considerations and circumstances, and the amount is not, on the face of the contract, out of all proportion to the probable loss, it will be treated as liquidated damages."

A provision for liquidated damages will not be affected or negatived by another clause in the contract, referring to arbitration the matter of any damage caused by delay in the performance of the work (Drumheller v. American Surety Co., 30 Wash. 530).

CONTRACT MUST NOT USURP JURISDICTION OF THE COURTS.

Finally, in regard to the provisions of the building contract it should be noted that the courts, while ready to give a broad construction to all proper provisions, for the purpose of recognizing and enforcing the intent of the parties, will not countenance provisions of such a character as will oust the courts of jurisdiction. The parties may enter into such proper arbitration covenants as they will, but care must be taken, if they are to be upheld and enforced, that they do not invade the province of the courts, or attempt to leave to arbitration questions which it is the natural duty and province of the courts to pass upon (National Contracting Co. v. Hudson etc. Power Co., 170 N. Y. 439, reversing 67 A. D. (N. Y.) 620).

In the case last cited the court, under the facts there present, decided that the clause in the contract to which objection was made was not such as to be held void as tending to oust the courts of jurisdiction and proceeded thus to state the distinction between provisions valid and invalid in this respect:

"The question presented by this demurrer is whether the clause in the contract above referred to, comes within the rule which nullifies contracts ousting the courts of their jurisdiction, or within another and equally wellestablished rule, that parties may covenant that no right of action shall accrue until a third person has performed

specific acts or determined certain differences between them. The line of demarcation between the two classes of cases is clear and distinct. The difficulty, if any, lies in the application of particular facts to a clearly defined rule. In Seward v. City of Rochester (109 N. Y. 168) this rule was stated in the following language: "The distinction between executory agreements of arbitration which oust a court of jurisdiction and, therefore, are rejected as a bar, and those which are sustained as the sole remedy between the parties, is carefully drawn and fully discussed in Delaware & Hudson Canal Co. v. Pa. Coal Co. (50 N. Y. 250).' In one class it is said 'the parties undertake by an independent covenant or agreement to provide for an adjustment or settlement of all disputes and differences by arbitration to the exclusion of courts; and in the other they merely, by the same agreement which creates the liability and gives the right, qualify the right, by providing that before a right of action shall accure certain facts shall be determined or amounts or values ascertained, and this is made a condition precedent either in terms or by necessary implication.' The reasons for the rule thus clearly stated are fully set forth in Delaware & Hudson Canal Co. v. Pa. Coal Co. (supra) and need not be further adverted to here."

THE ARCHITECT AND THE BUILDER.

The relations in general of the architect and the builder, and their mutual rights and liabilities, closely inter-related as they are with the other phases of the subject, have been already considered in some detail under the previous headings of "The Architect and the Owner" and "The Owner and the Builder." It may not be amiss to again note, however, that while the architect's primary duty is to the owner, his client, he must nevertheless, especially in his capacity as arbitrator, be careful that his decisions and the course pursued by him are consistent with fair dealing to the builder as well. In the matter of the issuance of certificates should he be especially careful, as in this detail the builder is peculiarly subject to the power of the architect, under the provisions of the ordinary building contract of to-day. For an improper refusal by the architect to issue a certificate, the issuance of which is essential to the proper protection and enforcement of the rights of the builder, the latter may, it has been indicated by the British courts, hold the architect liable for the damages sustained by reason of his refusal. (Ludbrook vs. Barrett, 46 L. J. C. P. 798).

THE DEATH OF THE ARCHITECT.

The contract between the owner and the architect, as in the case of any other contract or relationship of a professional character, is in its very nature personal, and it follows accordingly that where the architect dies before the work on which he is engaged has been completed, there does not survive to his executor the right to complete the work, and that on the other hand, the owner can not, under such circumtsances, impose upon the executor a liability to perform it. (Stubbs vs. Hollywell R. Co., L. R. 2 Exch. 311; and see Hall vs. Wright, 96 E. C. L. 746). This rule does not mean, however, that where under his contract with the owner the architect has, at the time of his death, already earned and become entitled to a part of his compensation, the executor can not protect the estate in this connection; and where one employed as a consulting engineer had partly completed, prior to his death, the work on which he was engaged and under his contract of employment, had earned certain of the instalments, in the form of which, quarterly, it was agreed that his compensation should be paid to him, his personal representative was allowed to recover from the employer the amount of the installment earned at the time of the death of the engineer. (Stubbs vs. Hollywell R Co. supra).

THE OWNERSHIP OF PLANS.

Whether the plans prepared by the architect are to be considered his property, or the property of his client, is a question of long standing between them. As a practical matter, the architects, by insisting on their claim that the plans are their property, seem to have induced the public generally to acquiecse in this point of view. As a matter of fact, however, unless there be a specific provision in the contract whereby it is agreed that the plans are to be and remain the property of the architect, they are to be legally considered, it seems, as the property of the employer, who has ordered, accepted and paid for them. (Moffatt v. Scott, 8 L. C. Jur. 310; Windrim v. Philadelphia, 9 Philadelphia, Pa. 550; Wright v. Isle, 86 A. D. 356). This being on the perfectly understandable theory that plans are an essential part of the building contract, and that while the architect under the rule that work embodied in some material form and resulting from an individual's mental conception and labor is to be considered the property of the one creating it, has property rights in such plans as he may devise, yet when these plans are provided for, pursuant to his employment, and the services expended in their production are paid for, the right of ownership passes from the architect to the employer. The New York court has stated the matter well in the case of Wright v. Isle, last cited, where Judge Woodward, citing and quoting from a decision (Palmer v. DeWitt, 47 N. Y. 532), to the effect that:

"Every new and innocent product of mental labor which has been embodied in writing or some other material form, being the exclusive property of its author, the law securing it to him and restraining any other person infringing his right,"

Goes on to say that, where, as in the Wright case, the architect prepares plans and specifications and files them with the Building Department and superintends the construction of the house and receives his compensation, he has, thereby,

"published his work to the world and can have no exclusive right in the design or in its reproduction. * * * "It seems to us that all of the property rights in these plans, if they had any value as property, after the publication, belonged to Litson (the client), rather than to the plaintiffs (the architect) in this action * * * ").

The builder is, of course, not in a position to make the claim of ownership which can be set up by the employer, but at the same time, it seems that there is recognized a right in the builder to use and hold the plans in his possession, during the erection of the building. The courts have gone so far in one jurisdiction at least, as to hold, under this doctrine, that the builder may maintain an action in trespass against the architect, where the latter has taken the plans from the possession of the builder, without his consent, and prior to the completion of the work, and that the taking of the plans by the architect under these circumstances, if done secretly and with felonious intent to convert them to the architect's own uses, and to deprive the builder of the use of them, is ground for a prosecution for larceny. (Lunsford v. Dietrich, 86 Ala. 250). It will be observed that in the case last cited, the decision on the point of larceny is predicated on the assumption that the plans are taken with felonious intent, which element being assumed or shown naturally leads to the conclusion reached, but the case is interesting nevertheless as illustrating the care which should be exercised in assuming too boldly an ownership or control in the plans under any and all circumstances.

SUMMARY SUGGESTIONS.

In closing, it may be well to draw attention by way of brief summary to some of the more important of the points which the present series of articles has covered, and especially to those points of most importance in the protection of the architect and the enforcement of his rights.

If the architect is to conduct his profession, and his dealings with his various employers, with a minimum of legal controversy or loss, he should, in the first place, see that his contract with his employer is as definite in all of its terms and provisions as possible. If his employment is merely for the purpose of preparing preliminary drawings, he should take care that nothing is said from which it can be assumed that he waives his right to payment for the work done; and if possible it should be expressly understood that payment is expected. On the point of agency and extras, especially, should the contract and understanding be full and unequivocal, and as to both of these points should the architect exercise the greatest care in the assumption of any authority not expressly and clearly provided for. He should remember that the building contract is, as to many of its provisions, drawn for the primary protection of his client and that, without the consent of the client, he may not safely undertake to waive, or allow the builder to believe that he can waive or dispense with, any of the stipulations which have been made, such as those requiring written authority for extra work, the proper completion of work before a certificate is issued therefor, or the presentation of the certificate as a condition precedent to the receipt of payment.

In this connection, too, a word of caution should be given in regard to the form of the contract between the employer and the architect. A little carelessness in seeing that this contract is properly executed, or that the parties executing it have proper authority, may well result in the loss to the architect of all the profits which would otherwise accrue to him thereunder. In dealing with corporations and with municipal corporations especially, should the architect take care to ascertain that all is proper and legal in these respects; that the control is executed by the proper officer and in proper form; that due authority has been granted by the directors, or the city departments or governing bodies, as the case may be, and that the instrument in all ways is such as to be properly enforcible in his behalf. The same care should be exercised in dealing with those acting in a representative rather than an individual capacity, and, in general, it will not be going too far to secure, if possible, certified copies of the by-laws, directors minutes, letters testamentary or similar documents whereby the authority, upon which the validity of the contract depends, may be unquestionably determined.

The architect must remember, too, that while the law requires nothing unusual in the way of skill and attention in the supervision of the work, on the other hand, it does require that there shall be present a reasonable degree of each; and, as to supervision, he should remember, that in order to lay a clear and proper basis for the protection of his rights under the Mechanic's lien statutes in the various jurisdictions, he should, if possible, see that the element of supervision of the work, even if to a very slight extent, is present, to comply with the rule pursuant to which so many of the statutes have granted and enforced a lien, where this element is found, while refusing relief where it is absent.

Finally, in the matter of plans, if it be desired that ownership remain in the architect, care should be taken to see that a specific stipulation to this effect is included in the contract or agreement with the client.

There will be very few situations where attention to most or all of the points noted cannot be given at the expense of a very reasonable degree of attention and time, and there can be no question that time and attention so expended will in the prevention of misunderstanding, legal difficulties, disputes with clients, builders and others, and the expense consequent upon all of these, repay the architect in ample measure, and assure to him a feeling and certainty of definiteness and safety in his professional dealings, which would otherwise be lacking in a marked degree.

THE RELATION OF ILLUMINATION TO ANCIENT AND MODERN ARCHITECTURE

BY HOWARD E. WATKINS

Should we study closely the work of the master decorators and designers of the different periods we would find that they had in view, at all times, the beauty of the lighting instrument and the decorative quality of the light.

T HE flickering light from a burning log sufficed for our earliest ancestors. Then came a torch of pine and later a rush dipped in tallow, the candle.

In Egypt the lamp was born, thence carried into Greece and to the Goddess of Learning Minerva was consecrated. Into Rome it soon found its way where vessels of bronze with richly adorned silver inlays served to illumine the dwellings. In religious worship, too, the lamp was a feature, while those known as "everlasting lights" guarded well the tombs of the ancient dead, the burning lamp signifying the immortality of the soul.

The candle! The lamp! Primitive? Perhaps! But while the age in which we live demands a more convenient mode of illumination they must ever represent to us the classic, the beautiful.

It is well known to us all that the ancients paid little attention to the artificial lighting of their buildings in reference to the effect of artificial light upon architectural motives. This lack of consideration for what now seems to us the all important question (the lighting of architectural detail) may have been due to their not having our appliances with which to produce such effects. Yet it is a question in my mind, judging from a close study of their lives and works, whether they would have thought it well to use these appliances had they possessed them, for the purpose of bringing into view at one glance all or any particular part of the detail of their wonderful structures, as their entire work always gave room for the imagination's full sway. The flickering lights from the torches or the soft flame of the lamp seemed to be a part of the picture and added much to the mystery of it all, which was its chief charm.

It was said in a lecture not long ago by one of our great men, that the day of the lamp and the candle was fast passing, in fact, he was almost sure their day was over. This might be true if in these modern times we lived in strictly modern buildings, but so long as we continue to borrow motives of

architecture and decoration from the shadows of the past for our present day needs, and so long as man has a heart and love for these beautiful examples of ancient times, we can no more tear away from him the *lamp* or *candle*, than we can his table, his rug, his chair or *his adored fireplace*. So under these conditions it seems to me that it becomes more a question of the effect of light upon the individuals who are to occupy these present day structures, whether they be homes or public buildings, than it is a matter of the *effect* of light upon architectural motives.

There has been so much written in the past few years in reference to this all absorbing subject that it seems now as though there is very little left to be said from any standpoint. However, there is almost daily some new improvement in lighting appliances or some new practical discovery placed in our hands for use in illumination; it is almost impossible, at times, in our impatience to use everything that is new, to keep the picture within the bounds of artistic success.

We can all trace the history of modern lighting from the beginning of direct reflection, through the craze of indirect reflection, whose masters grasped for the semiindirect, and so on through all its variations. We have also seen the effects of these various qualities of light on the details of architecture in all the periods. In many instances we have seen the ceilings of rooms and halls lifted from the side walls and pilastered by bands of light; in other cases, we have seen the ceiling pierced by various oblong, square and round holes with light (?) forced through panels of colored glass, and it has not been an unusual thing to see even the columns themselves made to flash and flare with light, every line of these columns seemed to cry out, "Come and look at me." However, everything is possible to the man who understands and knows, and I might bring to mind right here a majestic room so designed that the ceiling could be used for the purpose of modern illumination. The proportions of this room, however, were so vast that when one tired of looking at this wonderfully lighted ceiling and its tracing its many beautiful ornaments and various colored lights, he might sit at ease and read in the soft golden glow, forgetting the ceiling entirely. At the same time, we do not find many instances of this kind in the buildings of today, and hardly any place where effects of this kind can be successfully carried out, as this is many years ahead of our time, so for the present in our structures designed along the lines of the older order of work, we must take the picture as we find it, and so study the problem that the illumination of such buildings holds its place and does not step beyond the bounds of precedent.

A short time ago, in passing through the corridor of one of our most noted buildings of the colonial days, just being restored to its former grandeur, I noticed that the exquisitely cut rock crystal chandeliers had been hung within two or three feet of the ceiling. I stood and wondered, as the effect was most ludicrous, realizing that the lights used on these fixtures represented the old order of oil lamp. In order to light them one would have had to procure the tallest ladder, and, when lighted, they would most surely have affected the ceiling very seriously. I was most interested and inquired of those who were supposed to know the reason for the hanging of such fixtures in this manner, and I learned that a committee had ordered this done for the purpose of illuminating an exquisitely carved frieze as well as the carved ornaments over the entrances to the various rooms. It

appeared to me then, as it does now, that not one of our forefathers, who had these beautiful pieces made of cut crystal and used for the sole purpose of illuminating the hall, would have countenanced their being hung in such a manner, and I so expressed myself. I was intensely gratified, when visiting the same building a short time later, to find that all the fixtures had been dropped to their proper planes and the whole atmosphere was changed. I had stepped into a glow of the dear dead days of Poke bonnets and Greenaway gowns. In this instance we see that it was absolutely impossible to ignore precedent in the illuminating of this hall even for the purpose of bringing into view the exquisite carvings, and even though beautiful effect of light had been produced by the use of our most modern electric lamp.

One of our prominent writers in her description of a great cathedral says, "It has cost so much of faith and toil, in blood and folly, in saintly abnegation; it has sheltered such a long succession of lives, given collective voice to so many inarticulate and contradictory cravings, seen so much that was sublime and terrible, pitiful and grotesque, that it is like some mysteriously preserved ancestor of the human race grown sedentary and throned in stony contemplation before whom the fleeting generations come and go." Reverence is the most precious emotion that such a building inspires. Reverence for the accumulated experience of the past, readiness to puzzle out their meaning, unwillingness to disturb rashly results so powerfully willed, so laboriously arrived at, the desire, in short, to keep intact as many links as possible between yesterday and to-morrow, to lose in the act of new experiment the least that may be of the long rich heritage of human experience." This, at any rate, might be the cathedral's word to the country which has undertaken to get along without a past. We are all more or less susceptible to these influences, and many of us have more feeling for them at times than we are given credit for, or, at least, more feeling than we are willing to acknowledge, but there is one thing of which I am certain, that is, should we stop to think, we would hesitate to do anything in contradiction or introduce any chord or note that would destroy the harmony, or, in any way, the reverence that these old masterpieces have inspired.

The illuminating engineer of the past (if I can refer to him in this way) showed plainly his reverence for masterpieces of this order, and, in the use of artificial light, showed that it was not for the purpose of illuminating any special detail of architecture, but was used solely for the value of the light itself and in many cases, where we find pendant from the high arches on slender cords beautifully wrought lamps with branched arms and double tiers for candles, we see that he has studied the value of light almost entirely for its decorative quality, and the beauty of the lighting instrument. Should we study closely the work of the master decorators and designers of the different periods, we would find that they had in view, at all times, the beauty of the lighting instrument and the decorative quality of the light. Among those in France it is well to note the work of Jules Auriles, Messonier and Charles de la Fosse. Their exquisite feeling in the handling of the lighting instruments and their absolute knowledge of the placing of such instruments are beyond criticism. The candle became, in their hands, not only a light giving medium, but an object of great decorative value. Lights were placed here and there, singly and in great clusters, and the lighting instrument was at all times

so designed as to become a part of the entire scheme of decoration.

In England the brothers, Robert and James Adam, were not only famous as architects but as designers of interiors and house furnishings. We all know their inspiration was gained from ancient work, and, as Robert Adam said, "We have introduced a great diversity of ceilings, friezes and decorative pilasters, and have added grace and beauty to the whole by a mixture of grotesque stucco and painted ornaments, together with the flowing rainceau with its fanciful figures and winding foliage. If we have any claim to approbation we found it on this alone, that we flatter ourselves we have been able to seize with some degree of success the beautiful spirit of antiquity and to transfuse it with novelty and variety through all our numerous works." It was their ability to seize and transfuse the beautiful spirit of antiquity into their work that gave them the power to design the many beautiful lighting effects known until to-day under the name "Adam." Among those most noted we might mention the girandole of Lady Maria Ponsonby's, Stratford Place in London, and the girandole in the Etruscan room at the Countess of Derby's. The beautiful pendant sconces, with their oval and round glass mirrors known in this period of work, became famous for their beauty of design and as lighting instruments entirely for their decorative quality of light.

It might be possible to go on indefinitely in the study of the decorations of these periods and the artificial illumination in the hands of those who are responsible for these masterpieces of interior work, but there seemed to be but one opinion regarding illumination, and that opinion so deeply rooted that even the advent of the electric lamp with all its possibilities did not, in the least, change the methods so strictly adhered to-it being used then, as it is to-day, to produce, in imitation, the effects of lights that seemed so necessary-for instance, the imitation candle, the imitation oil burners and so on. As I have said before, the architect or decorator of that time did not neglect any influence, however small, that would help the making of the picture as he had conceived it. Interiors were planned for those who were to occupy them, even the details of their costumes were so carefully considered that, when the innumerable little candles were lighted, the picture presented was just as if some great master of the pallet had placed on canvas some beautifully imaginative scene with all its lights and shadows. A master painter once said that he loved nature to such an extent that in the painting of his landscapes he saw but one thing-the landscape majestic-and as for figures, he just threw them in. Another man of equal note very aptly said, "Thank God for the figures." It is not our privilege to-day to consider or not consider the figures in the planning of interiors as it was the privilege of the artist of the picture, for it is positive we have them to deal with, and the effect of light upon the human mind is a most serious consideration. We all love light in its many phases, and worship it in our own way to-day, even as the ancients worshipped the sun, and, at the lighting of the torch, the savage stood in awe.

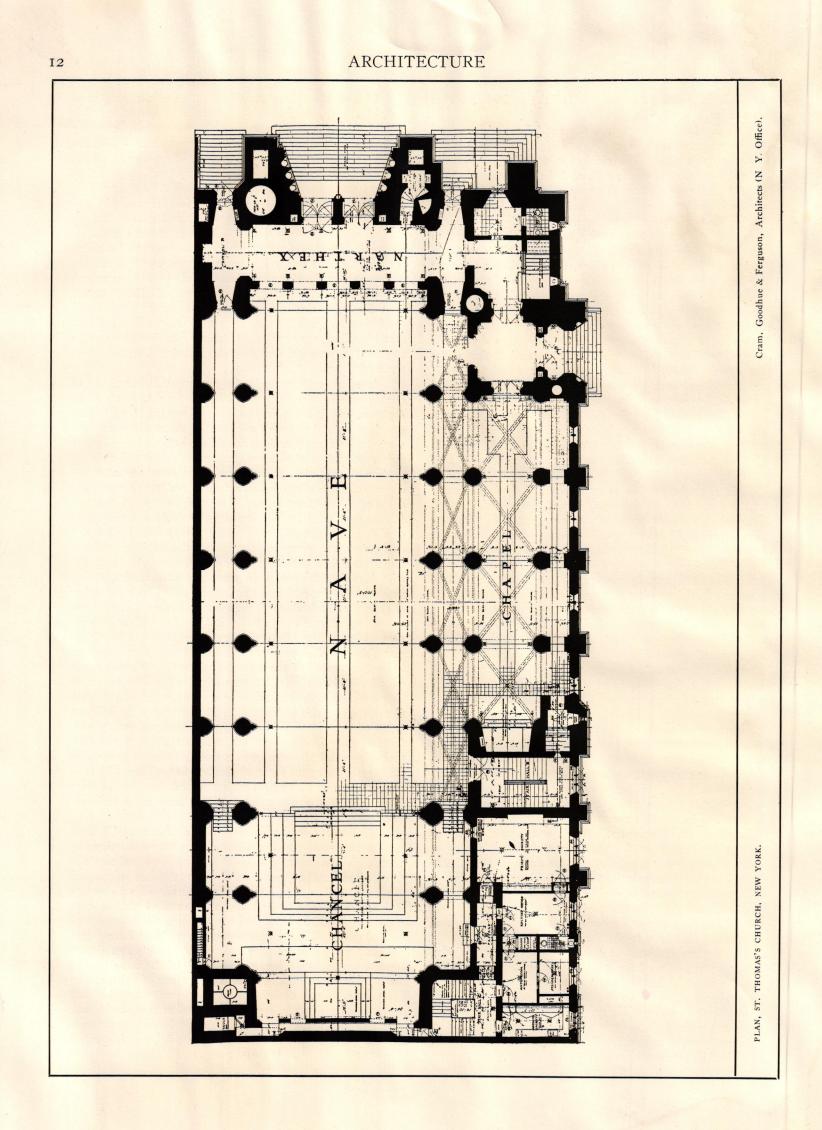
When we realize that certain kinds of light make us sad or merry, others bring to us memories of bygone days, and the camp-fire has had the power to produce many beautifully imaginative tales, we find it impossible, in the study of illumination, to lay aside this intensely human side of the question for demonstrating in our *modern* way the effect of light upon any detail of architecture, whether it be in the office building or mansion.

In discussing the question with one of the most commercial of men, and owner of one of the largest office buildings in the country, I went into the matter very carefully from every standpoint, elaborating on the two essential points-the efficiency of light and the consumption of the coal pile in the cellar. He listened very carefully and then said, "I understand you thoroughly, and all you have said seems essential, but to ----- with the coal pile and give me something so pleasing in design and quality of light that it will rent my offices." This was quite a problem, and with all he had demanded in that one sentence, I realized for the first time in my life just what was meant when one of the greatest of writers said, "In midway of this, our mortal life, I find me in a gloomy wood astray." I will just state here, however, that the problem, after much thought and consideration, was solved, and I am much gratified to know that his offices were rented and that in no instance was he requested to consign one of these lighting instruments to the scrap heap.

In another instance, in the process of lighting one of our famous hotels, the owner, who was somewhat of an engineer, said, "Now, if you will follow me, I will show you how to light these bed-rooms." After three or four weeks of hard study and work with him the lighting fixture was produced, claiming, as he stated every principle of modern illumination, indirect reflection from the ceilingdirect reflection from prismatic glass and transfusion and diffusion of light from an opal globe which covered the source. It was wonderful in its effect, for one could see every part of the ceiling, the side walls were evenly illuminated, one could sit in any corner of the room and read in as brilliant a light as if he had sat directly under the fixture. I agreed with him that this would be wonderfully successful, and it would have been, perhaps, if he had not called upon a number of experts and friends to give him their opinion. The fixture was discussed from every standpoint, when one of the laymen, a man who had lived in hotels the most of his life, said, "Now that this has all been accomplished, what is the use of it? Who wants to sit in the corners and read? Who wants to see all the sidewalls in one tone of light? Who wishes to have a ceiling stare at him? For my part, when I have come to a room like this for rest, after having passed the brilliant lights of the Great White Way-I would ask you, please, for the softer light, where the walls and ceilings can take their places in the room, where one can feel at home and read, perhaps, by the light of the best lamp known." It is needless to say that this lighting instrument was at least modified and the expressions of this man most seriously considered.

Then again in the lighting of one of our well known modern homes the problem of the dining-room was being discussed. The architect and decorator had combined to make this the most æsthetic room in the home and had so planned the lighting that their many special details of architecture and decoration should be brought forward (I believe even the china closet had its lamps of light). This was well studied and would have been successful, could we have placed a plate of glass over the door and viewed it solely as a picture from their standpoint, but when the lady of the home learned for the first time in her life that, by the effect of light, all the little wrinkles, and their incidental deep shadows, in her face could be intensified to such an extent that she would look fifteen years older, or, at will, they could be done away with and she would look fifteen years younger, it is needless to say (Continued page 25)

II



JANUARY, 1914.

ARCHITECTURE

PLATE II.



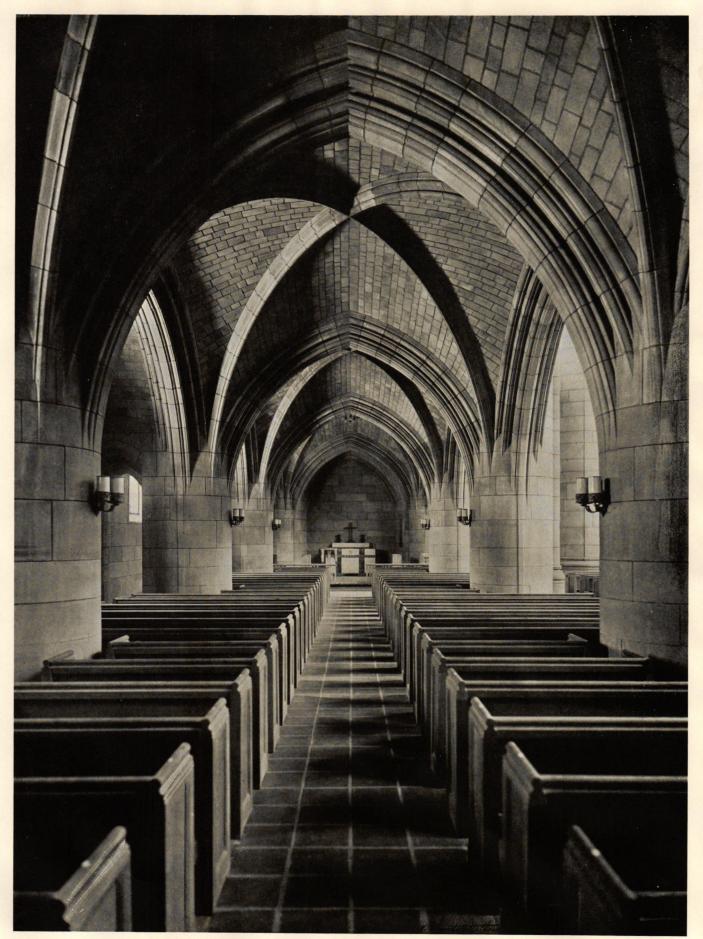
PARISH HOUSE, ST. THOMAS'S CHURCH, NEW YORK.

CRAM, GOODHUE & FERGUSON, ARCHITECTS (N. Y, OFFICE).

JANUARY, 1914.

ARCHITECTURE

PLATE III



FIFTY-THIRD STREET CHAPEL, ST. THOMAS'S CHURCH, NEW YORK. CRAM, GOODHUE & FERGUSON, ARCHITECTS (N. Y. OFFICE).

JANUARY, 1914.

ARCHITECTURE

PLATE V.



INTERIOR, ST. THOMAS'S CHURCH, NEW YORK.

CRAM, GOODHUE & FERGUSON, ARCHITECTS (N. Y. OFFICE)

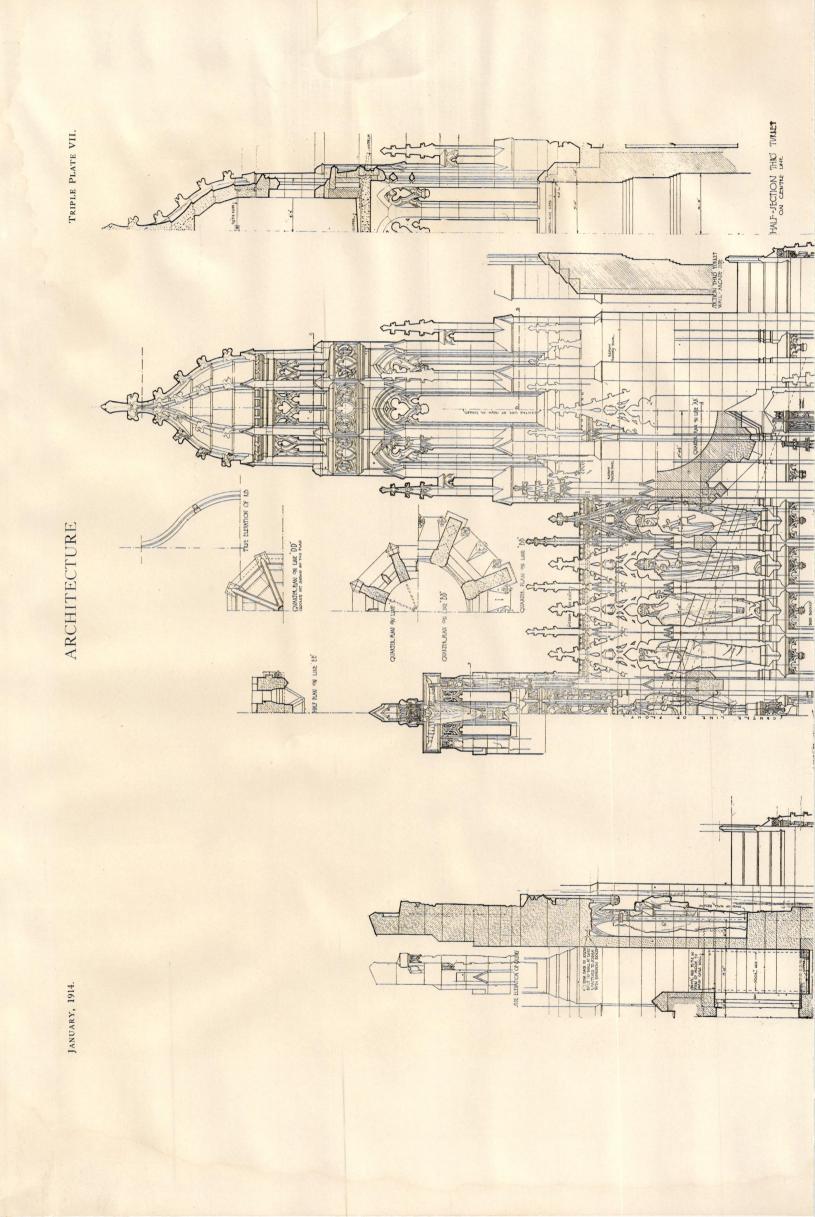
JANUARY, 1914

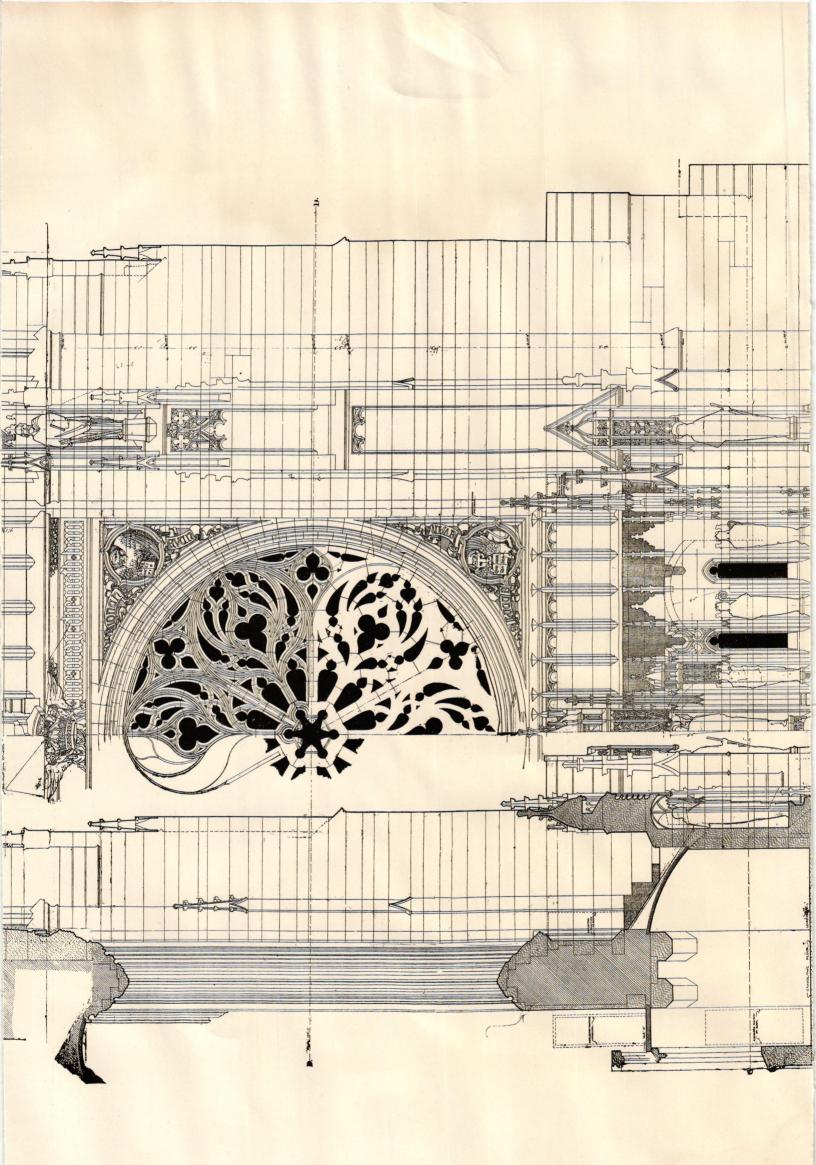
ARCHITECTURE

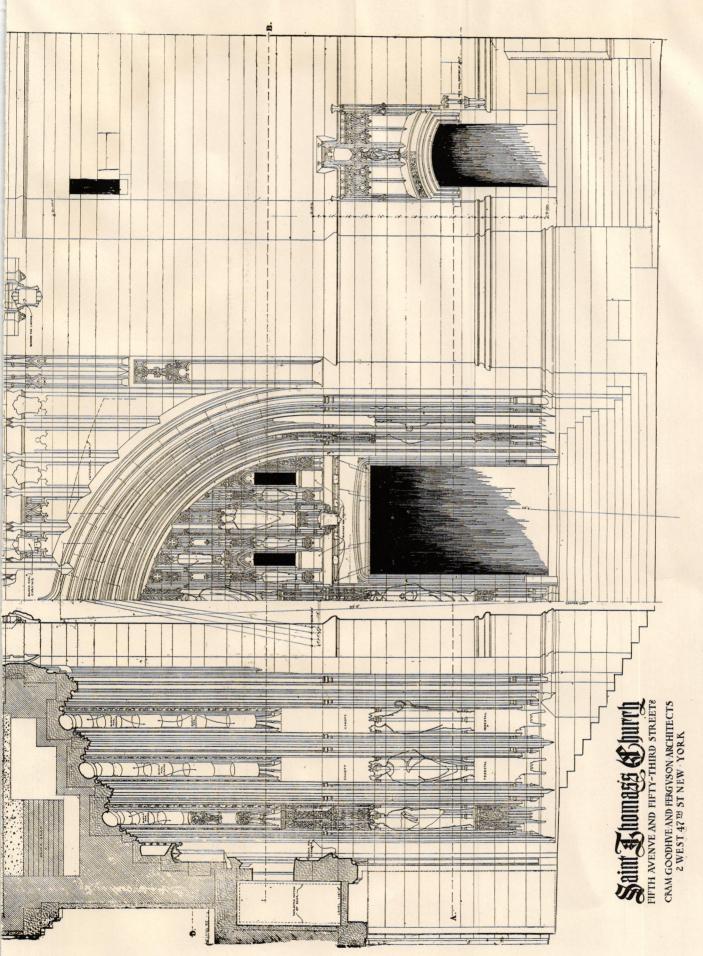
PLATE VI.



ORGAN CASE SCREENS, ST. THOMAS'S CHURCH, NEW YORK. CRAM, GOODHUE & FERGUSON, ARCHITECTS (N. Y. OFFICE).







SCALE DETAIL OF FIFTH AVENUE FRONT, ST. THOMAS'S CHURCH, NEW YORK.

CRAM, GOODHUE & FERGUSON, ARCHITECTS (N. Y. OFFICE).

JANUARY, 1914.

ARCHITECTURE

PLATE VIII.

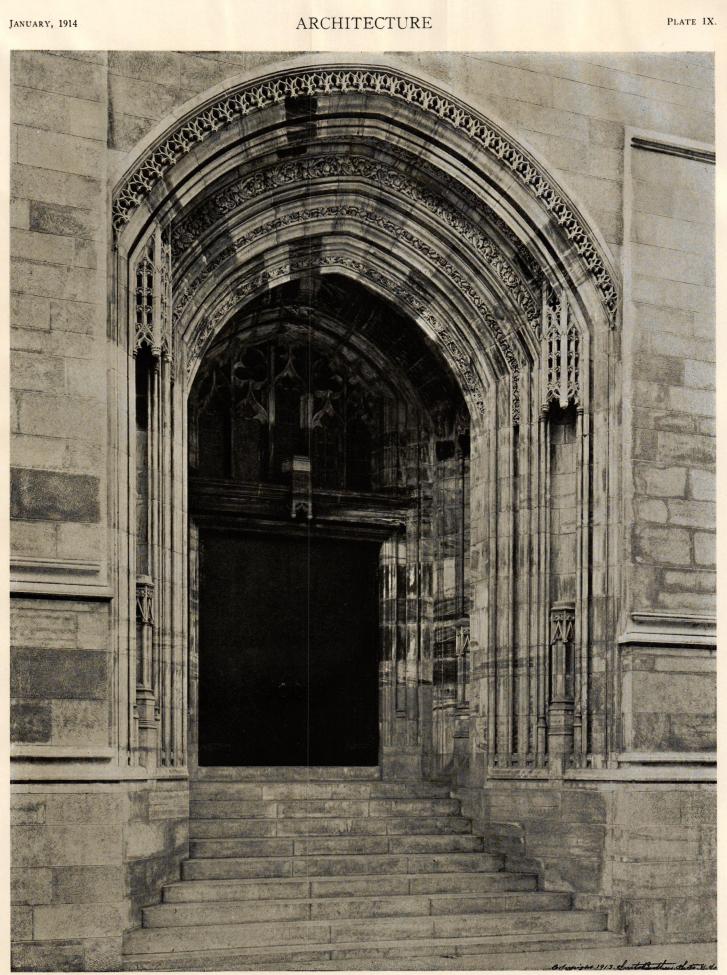


GREAT ENTRANCE, ST. THOMAS'S CHURCH, NEW YORK.

CRAM, GOODHUE & FERGUSON, ARCHITECTS (N. Y. OFFICE)

JANUARY, 1914

PLATE IX.



UNFINISHED PORCH, FIFTY-THIRD STREET ENTRANCE, ST. THOMAS'S CHURCH, NEW YORK. CRAM, GOODHUE & FERGUSON, ARCHITECTS (N. Y. OFFICE).

JANUARY, 1914.

ARCHITECTURE

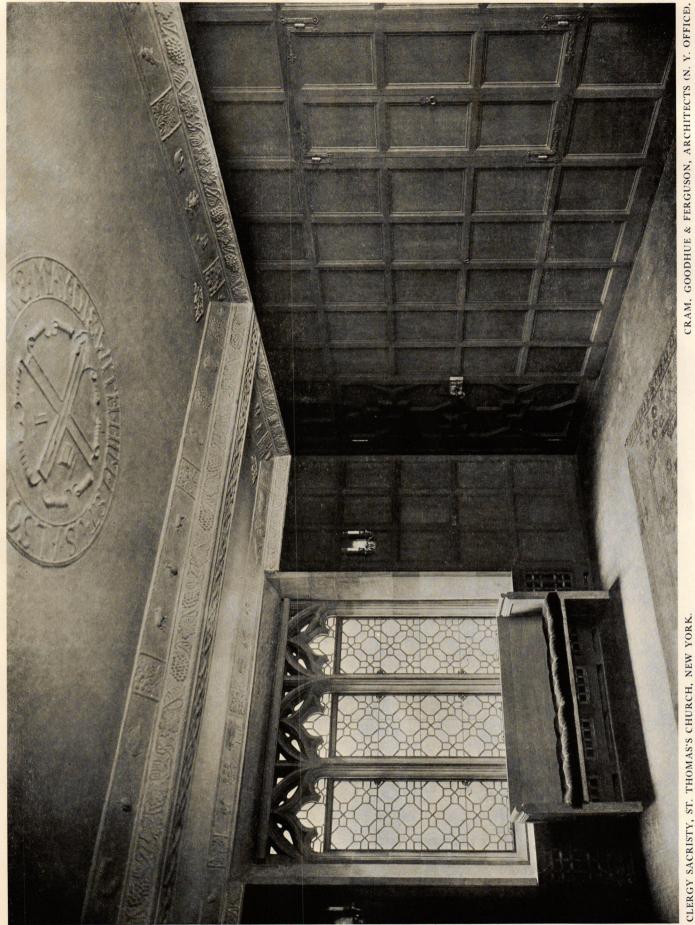
PLATE X.



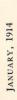
DETAIL, INTERIOR, ST. THOMAS'S CHURCH, NEW YORK.

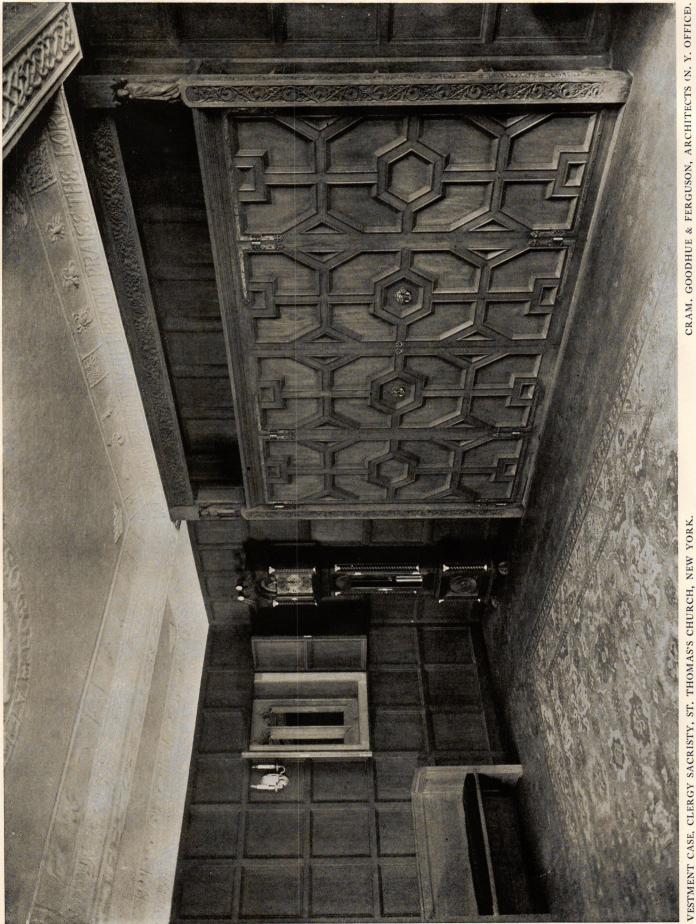
CRAM, GOODHUE & FERGUSON, ARCHITECTS (N. Y. OFFICE).





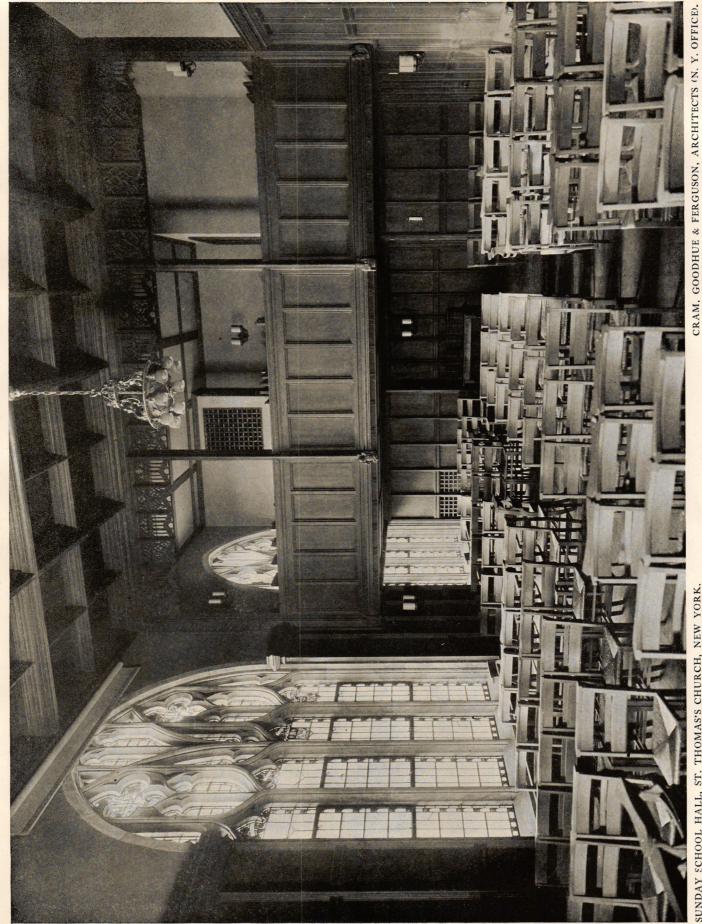
CLERGY SACRISTY, ST. THOMAS'S CHURCH, NEW YORK.



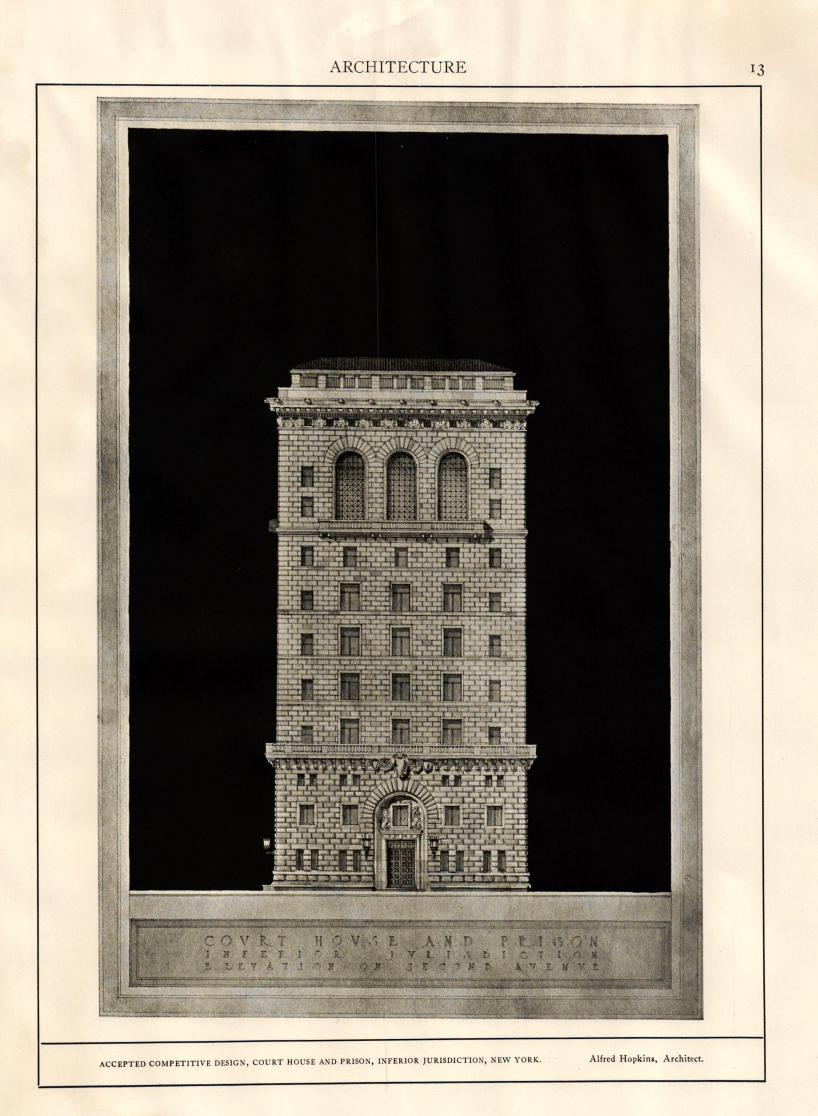


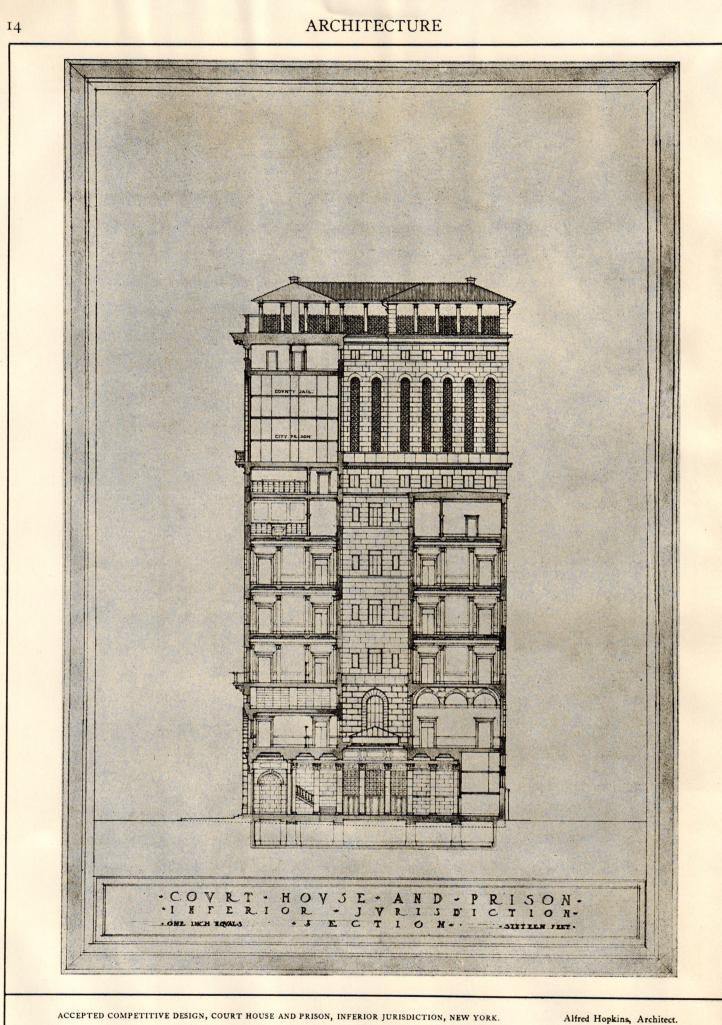
VESTMENT CASE, CLERGY SACRISTY, ST. THOMAS'S CHURCH, NEW YORK.



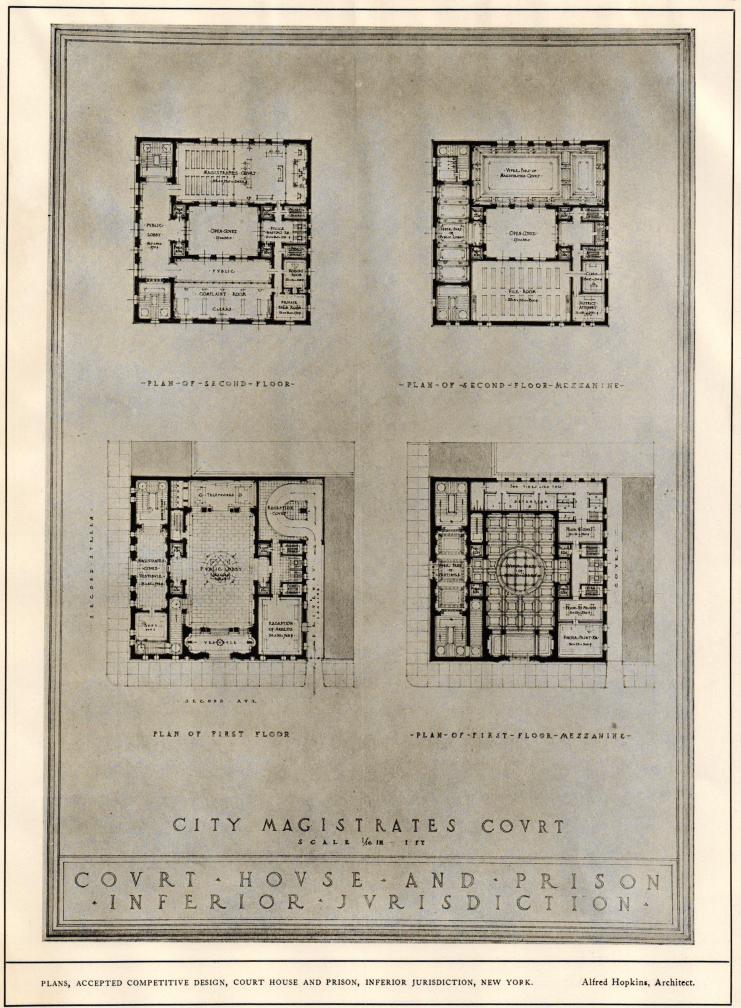


SUNDAY SCHOOL HALL, ST. THOMAS'S CHURCH, NEW YORK.

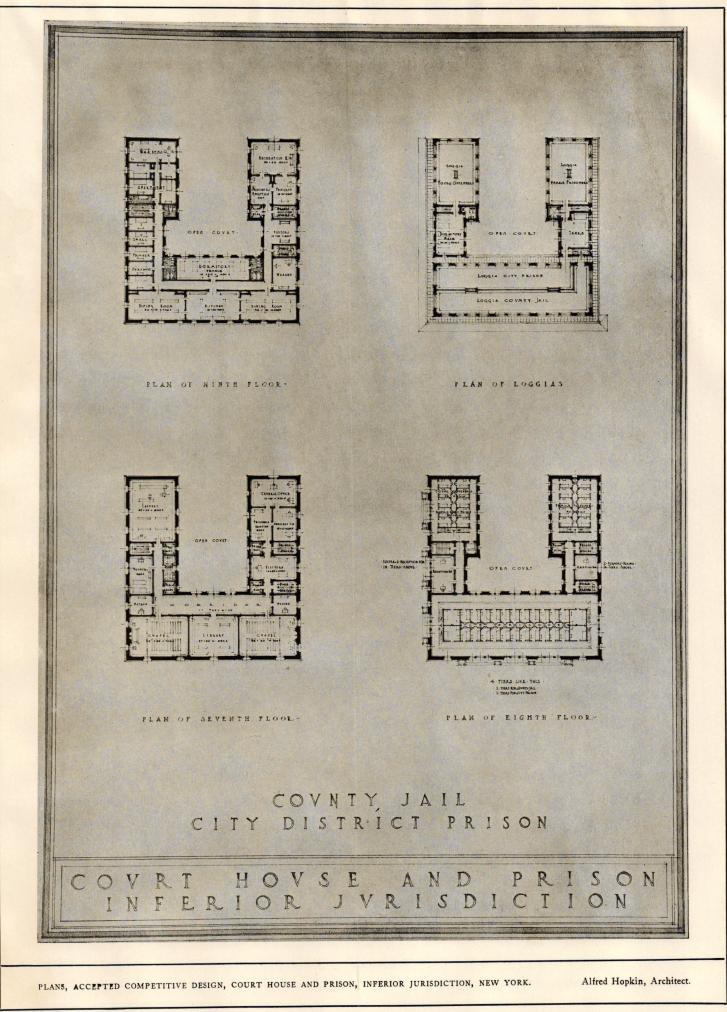


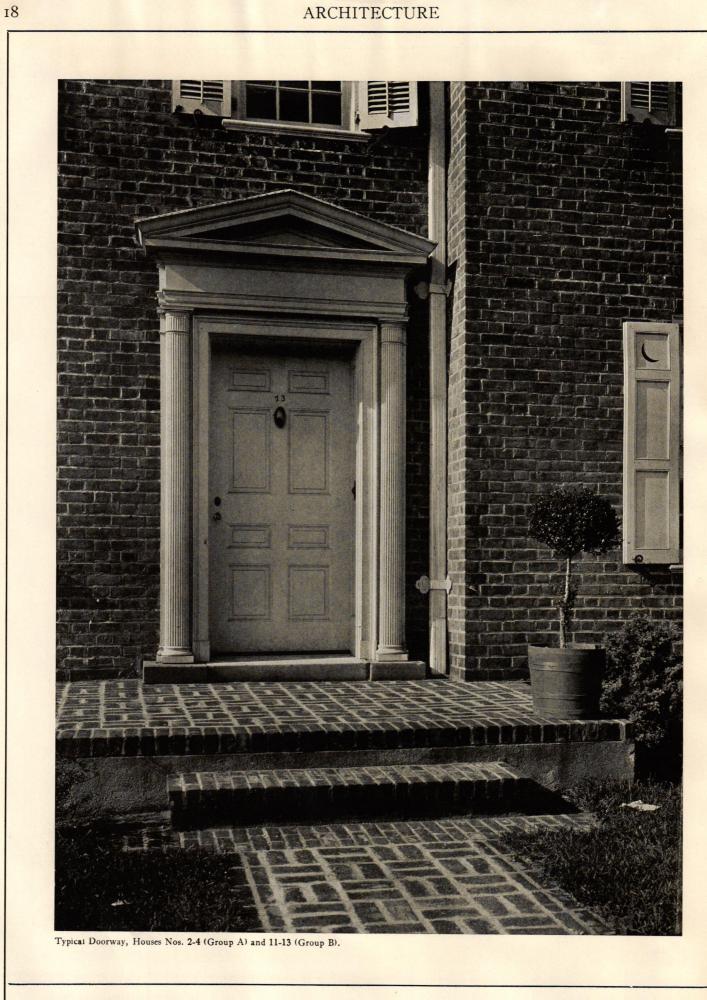


Alfred Hopkins, Architect.



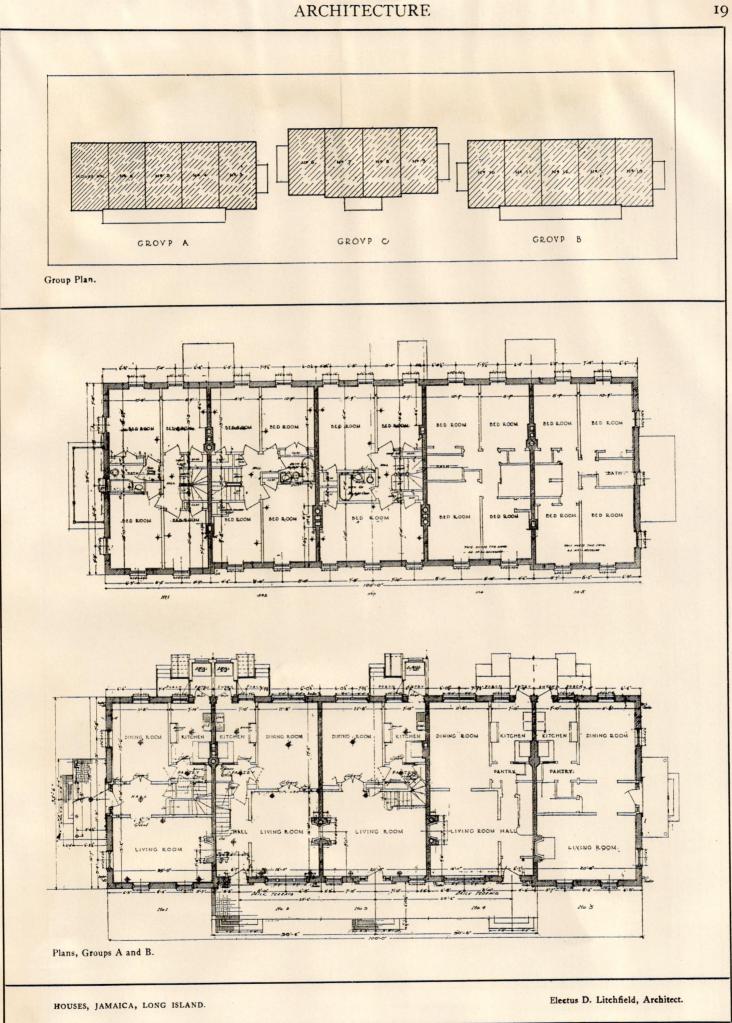
ARCHITECTURE 16 PLAN OF FOURTH AND FIFTH FLOORS-PLAN OF SIXTH FLOOR PLAN OF THIRD FLOOR PLAN OF THIRD FLOOR MEZZANINE MVNICIPAL COVRTS COVRT HOVSE AND PRISON INFERIOR JVRISDICTION PLANS, ACCEPTED COMPETITIVE DESIGN, COURT HOUSE AND PRISON, INFERIOR JURISDICTION, NEW YORK. Alfred Hopkins, Architect.

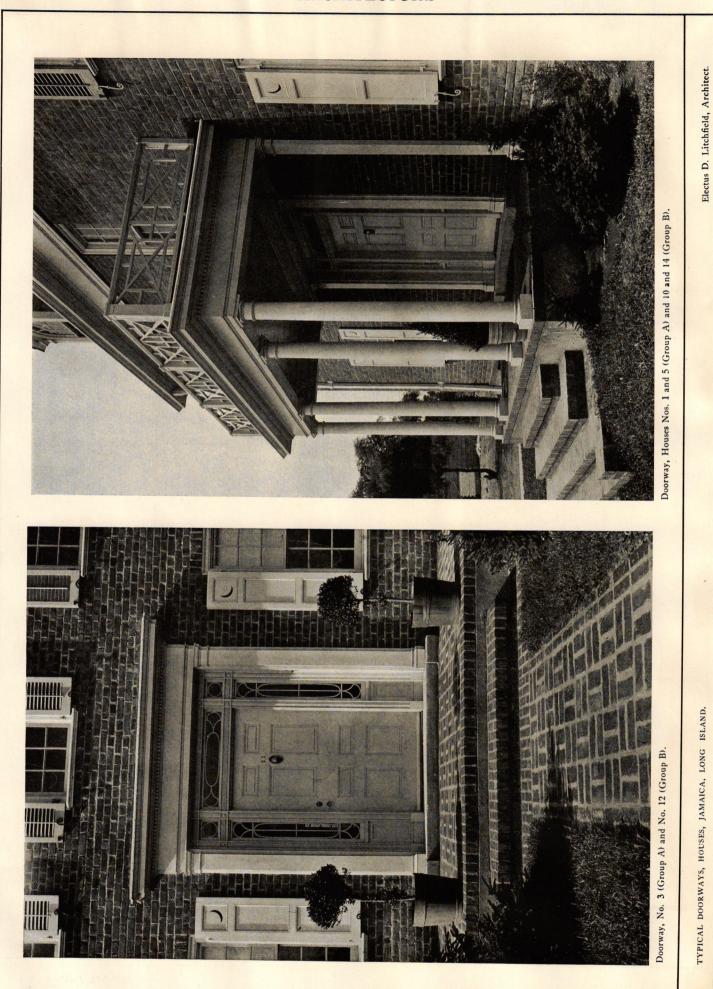




HOUSES, JAMAICA, LONG ISLAND.

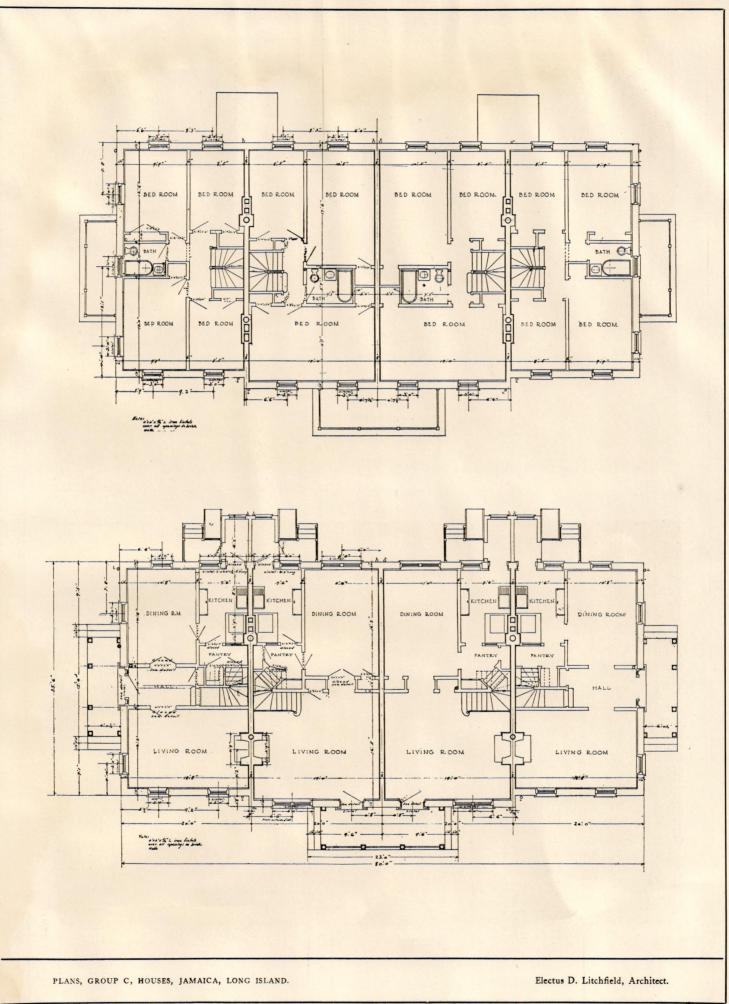
Electus D. Litchfield, Architect.

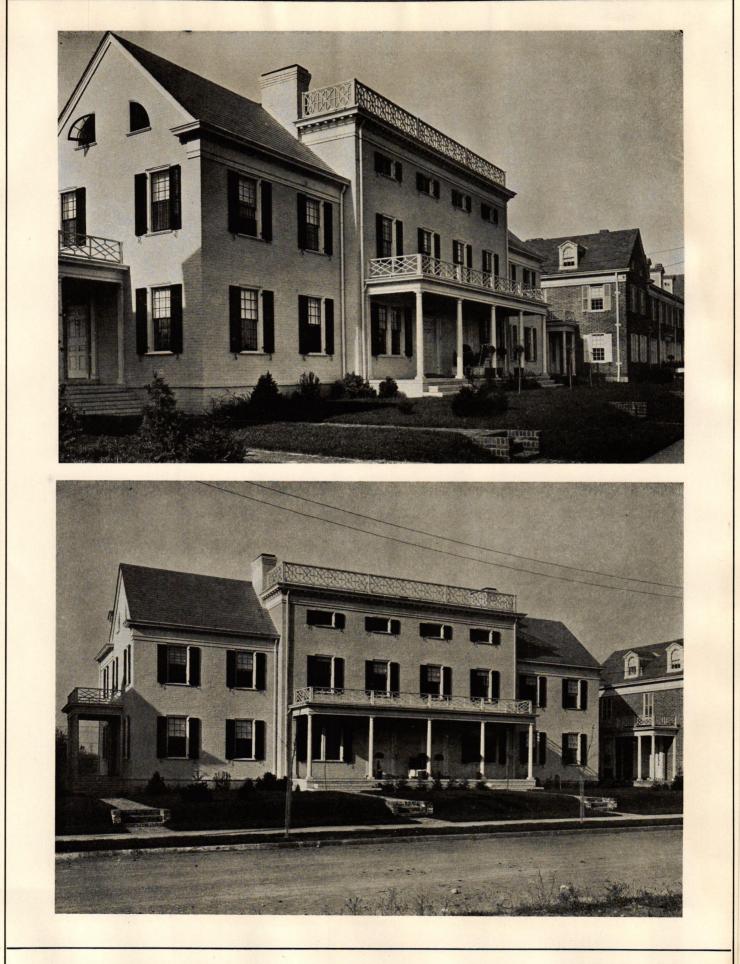




20

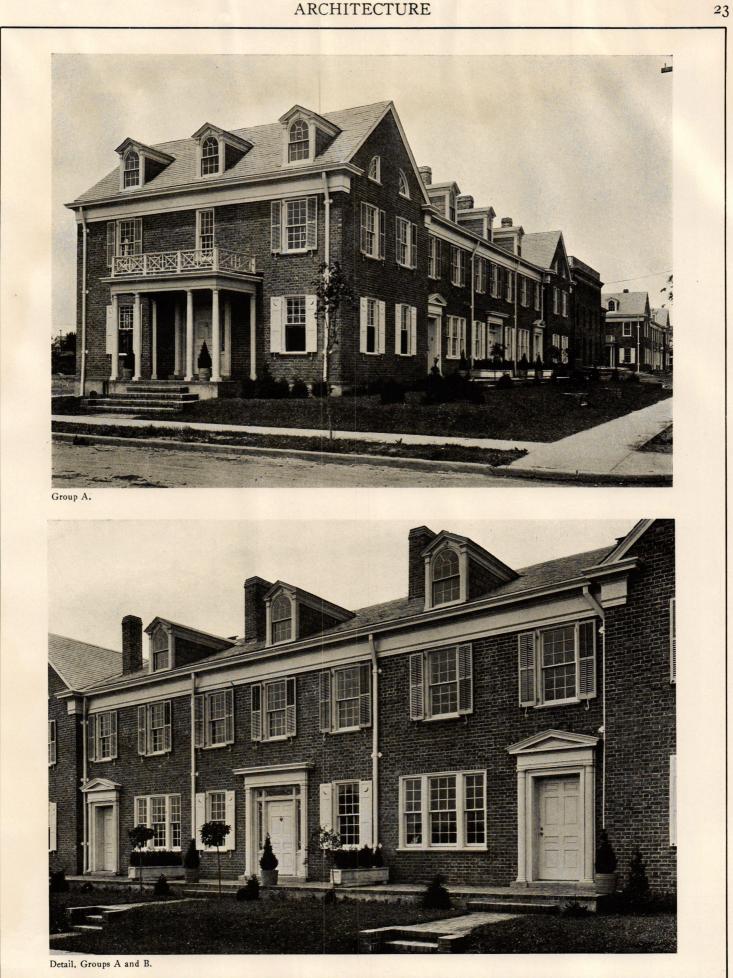
ARCHITECTURE





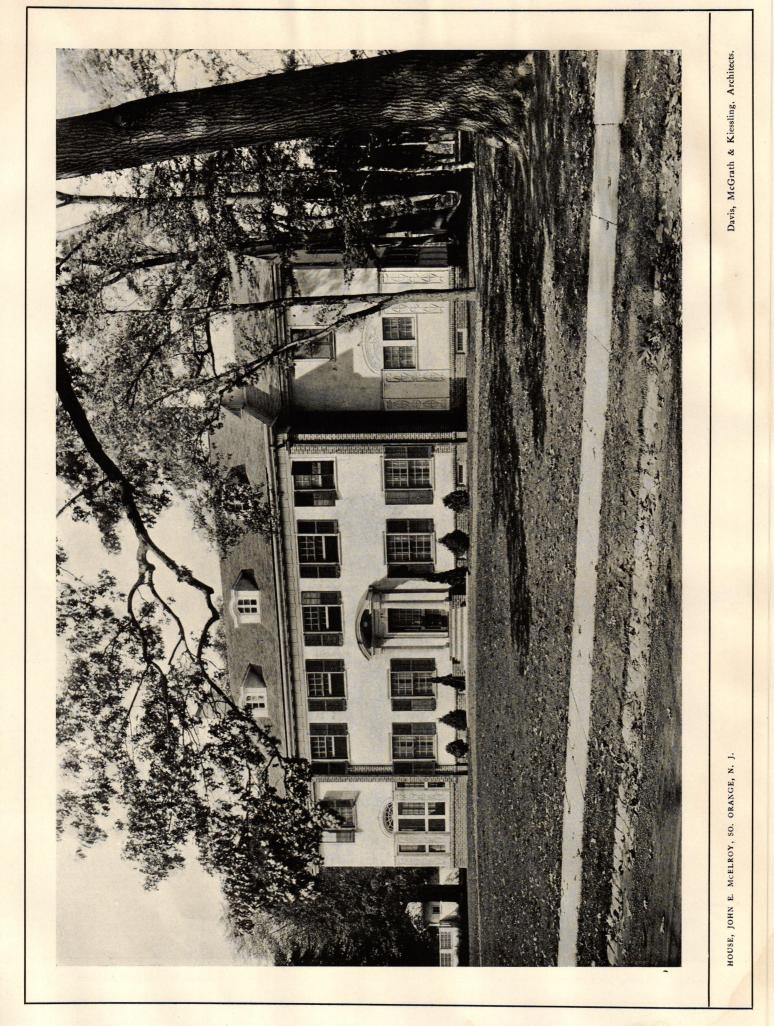
GROUP C, HOUSES, JAMAICA, LONG ISLAND.

Electus D. Litchfield, Architect.

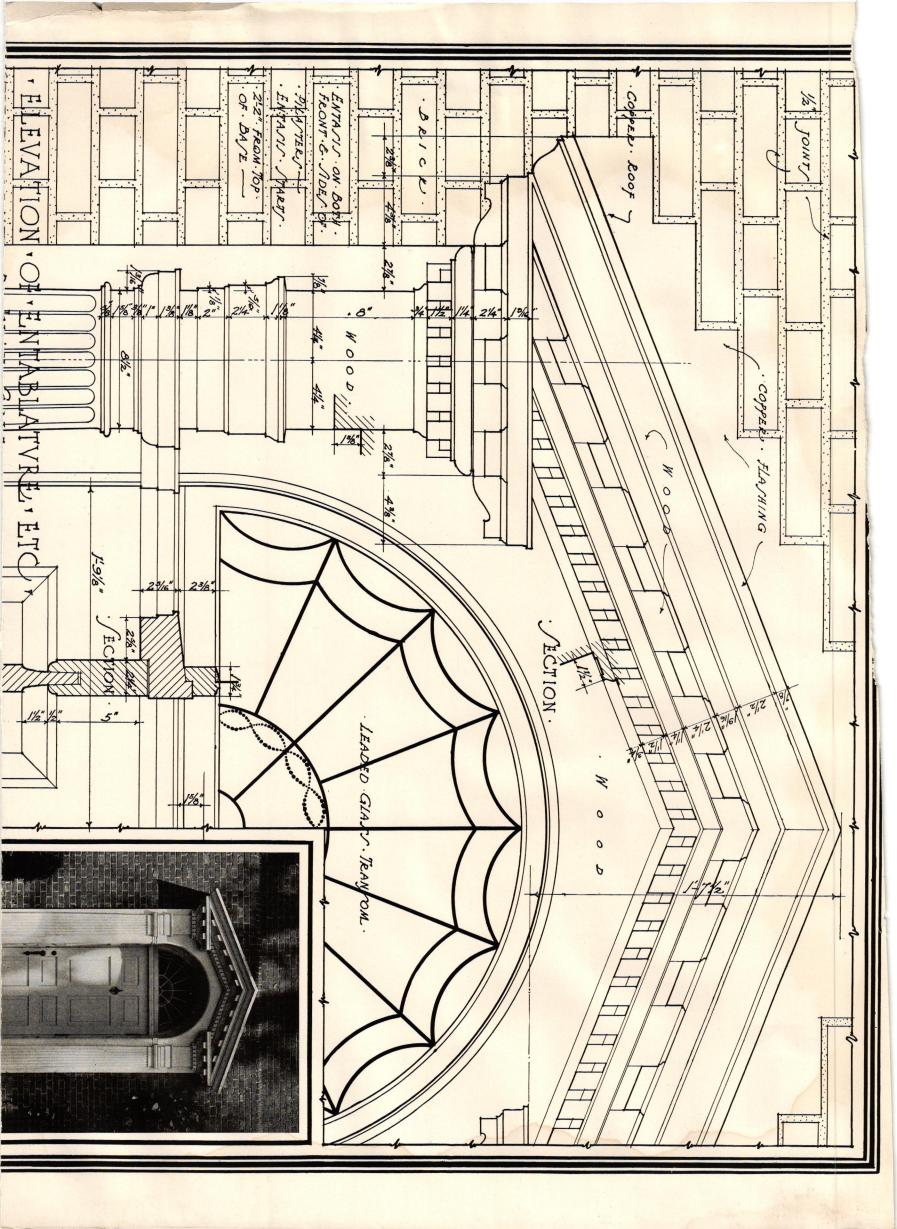


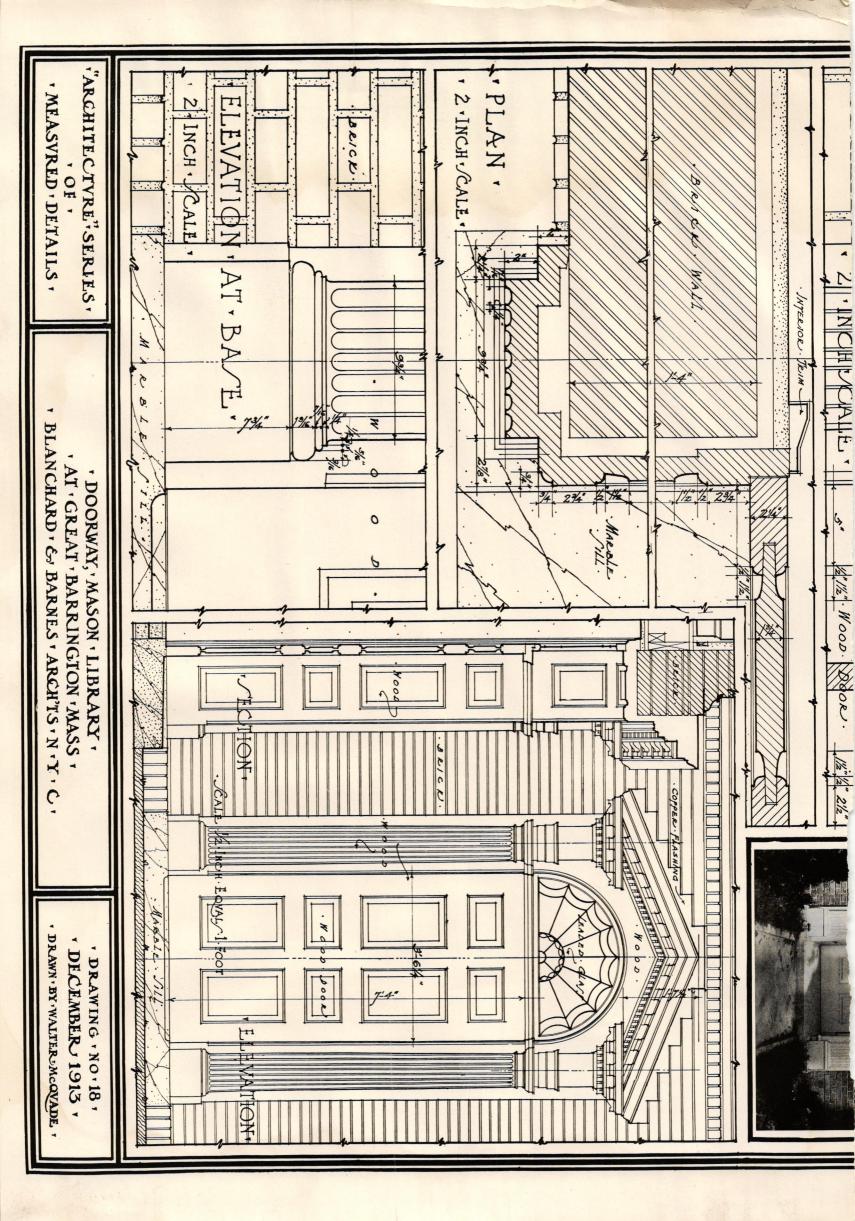
HOUSES, JAMAICA, LONG ISLAND.

Electus D. Litchfield, Architect.









(Continued from page 11)

that the effect of light in the room had to be changed so that the picture would have for its central point of interest the dining table, with its flowers, glass, silver and its merry guests, and I believe both architect and decorator were happy, even though their much prized pieces of beautifully carved detail and color had taken their places as part of the background and formed only such a part of the picture as was intended.

We have so much at hand in the form of modern illuminating glass, silks, marbles and other translucent materials with which to accomplish our dreams that it is possible for the man who *understands* and *knows* to produce any required effect of light,, each problem becoming in itself, as it does, *a matter of individual solution*. I would like to make the prophecy that each expert in the handling of artificial light may become as well known from his individual touch as any artist of the past, and it might be well to give a description here of a few modern installations which may be considered steps at least in this direction.

In the lighting of the Scribner Building on Fifth Avenue there has been accomplished by the use of modern diffusive glass and reflected light, an instrument of lighting hung on a slender cord from the high arched ceiling, which claims not only the power of giving a diffused light below for the selection of books, pleasing to both layman and connoisseur, but the value of the detailed carvings high above the columns is most prominently brought to view and even the wise old owl, enthroned in his wreath of laurels at the top of the arches, seems to close his eyes in silent approval of the light that is given.

In the Palace Theatre, on Broadway, the light through the entire building has been accomplished by the hanging of delicately carved pieces of translucent marble on slender cords, each piece in itself becoming individual by its coloring and markings, diffusing a soft golden light, and, at the same time, bringing into view what has been classed as a well detailed Louis XV ceiling.

Again the picture changes. In the Booth Theatre the problem becomes more difficult, for here we have high walls of carved woodwork and tiers of boxes with beautifully carved details. The keynote of illumination is the sott glow from candle and lamp—in no way can it be separated from the picture, but the light of the candle or lamp has not been sufficient for the large interior and so a corresponding soft glow has been retained by the aid of reflection and diffusion of light in the lighting fixtures, so that one is enabled to read with comfort, thinking, perhaps, that only the candle and lamp have accomplished this effect.

In the Miners Savings Bank Building and the Lehigh Valley Coal Building of Wilkesbarre, also in the Stamford Trust Co. of Stamford, Ct., the illumination has been accomplished with the aid of the most modern diffusive glass in the form of classic lamps hung from the ceiling by chains. Here it has been possible to retain all the beauty of the ancient lamp, holding closely to precedent and the detail of classic ornament that these buildings possess.

In the little library at Great Barrington, where everything has been done to place before us again the architecture of olden times, we found it impossible to deal with anything modern in the form of lighting, but have held closely to the double tier Colonial chandelier, not forgetting the sufficient amount of light for the room.

In the Women's University Club of New York, in

process of construction, we have found it possible to deal with the problem of illumination from a strictly modern standpoint, special glass having been designed and moulds made for its production. And the lines have been carefully studied to produce the proper reflection of light. Here the electric lamp is not in evidence, but by the power of reflection and diffusion the light quality of olden times has been retained and the glass made to glow with contrasts of light and shadow that bring plainly before us many of the delicate details of the Adam period.

In direct contrast I can call to mind one of the most beautifully detailed Gothic rooms that I believe has ever been constructed in this country. Here it was my good fortune to spend many hours with both architect and owner in the discussion of just the quality of light that would help to complete the picture the architect so skilfully planned. The hall was vast in proportion with a great fireplace mantel and wonderful organ, and had been designed for use as both living room and library. Large lanterns were hung pendant from the arches, their flickering lights casting long deep shadows to the ceiling. The table lamps were so placed that no light was perceptible, save for reading, and, as I think of this room now, I realize and know that it would have been impossible to introduce any touch or suggestion of modern times.

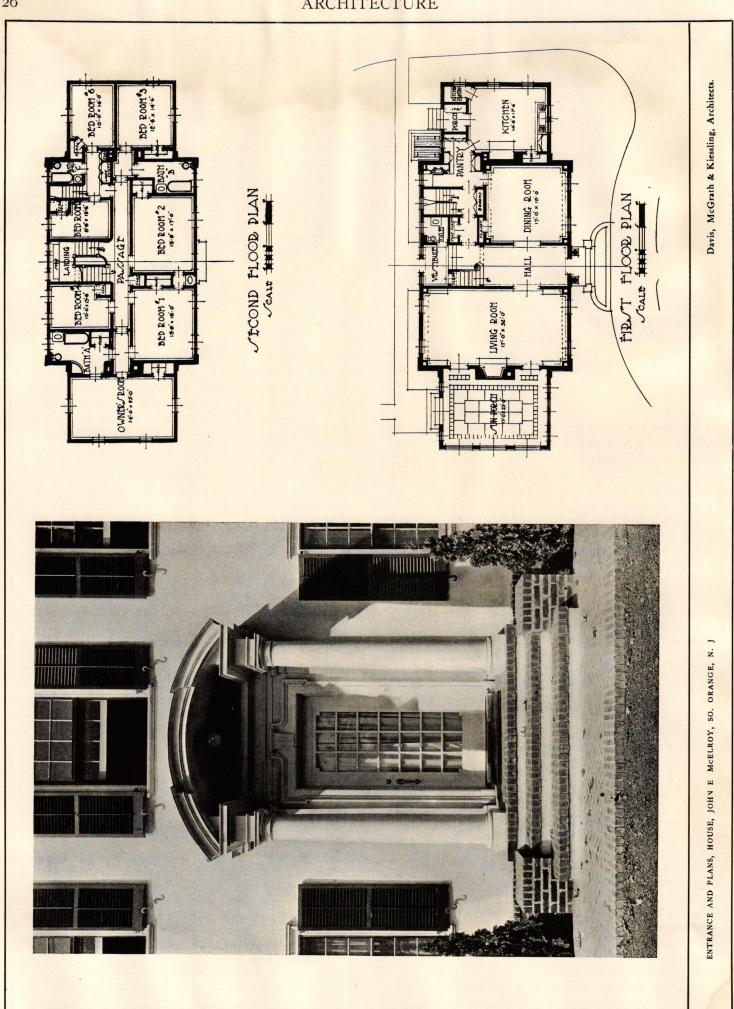
It has been my desire, in giving these examples of recent installations, to show in as broad a way as possible the greatest contrasts in the field of lighting. Also to bring to mind the fact, if possible, more prominently, that, even though difficult, certain qualities of light are absolutely necessary to preserve the picture of many beautiful interiors controlled by precedent. But, at the same time, it should not be as difficult a task as one would suppose, for an *expert student* of artificial lighting to accomplish all the *necessary qualities* of light with the numberless electric appliances and inventions we have at hand.

We may not realize it, but I believe that we are living to-day in one of the greatest transitions the lighting world has ever known, as the problem seems to deal almost entirely with the effect and quality of light, the study of which is only just begun. Scientifically, we have learned many things in the combination of different qualities of light, the mixing and diffusing of colored lights for certain effects, in the handling of rays of light by reflection and so on, but let us tread cautiously lest in our eagerness to use the latest material in invention, we destroy all that we have inherited from a rich and glorious past.

A COMPETITION.

A CTING under authority granted by the Common Council of the City of Detroit, Michigan, by resolutions of November 25, 1913, the Detroit City Plan and Improvement Commission announces that it will institute a competition for the selection of an architect to design and supervise the construction of a fountain to be erected in Belle Isle Park, City of Detroit, to be known as The James Scott Fountain. The sum available for the work amounts to \$350,000. The Commission invites architects who desire to compete to send their names, addresses and qualifications as to experience and training to Professor E. J. A. Duquesne, Robinson Hall, Harvard University, Cambridge, Mass. before noon, February 1st, 1914.

DETROIT CITY PLAN AND IMPROVEMENT COMMISSION, T. Glenn Phillips, Secretary. Charles Moore, President.



26

ARCHITECTURE

FORTY-SEVENTH ANNUAL CONVENTION OF THE AMERICAN INSTITUTE OF ARCHITECTS IN NEW ORLEANS.

Address of the President, Mr. Walter Cook.

THE forty-seventh annual convention of the American Institute of Architects met December 2nd in New Orleans, La., the first Southern city to be so honored by the organization. One hundred and thirty delegates attended the opening meeting.

In accordance with custom, the president, Mr. Walter Cook, of New York, on declaring the convention in session, delivered an address as follows:

"Gentlemen and Fellow Members:

"Every third year, as you know, it is the custom of the Institute to forsake the familiar scenes of Washington and to meet in some other city of the Union. And this year we have chosen the city of New Orleans, which to many of us is an unknown country, and one filled with romantic associations, when we think of its early history, of Manon Lescaut and the Chevalier des Grieux, of the battle which bears its name, and of all that has happened here since that glorious victory. It is the first time in our history that a city of the South has been the scene of our deliberations; and this fact bears witness of our appreciation of the steadily growing interest in our aims and aspirations taken by our Southern brethren.

"It is announced in the programme which is before you that the principal topic of discussion in this forty-seventh convention will be the status of Government Fine Arts. It is not my purpose in these few words to anticipate in any way that discussion. Doubtless many solutions of the problem will be suggested to you. We must hope that some one of these will meet your approval and that of the governmental bodies; the present condition of affairs seem not only to us but to all those who are familiar with the subject an impossible one; and eventually some change must take place. It is our duty to consider what particular measure will be for the best advantage of the country, and will most tend to place us in this respect among the civilized nations of the earth.

"But in addition to this burning question, other matters of the greatest interest and the gravest importance will be presented to you in the course of the next few days. Ever since that day in 1857, when the little group of architectsthe last of whom, Professor Babcock, has been taken from us but a few months ago-met in New York and founded the Institute, its growth has been a steady and most encouraging one, up to the present time. We have now a national body, with about forty chapters, and a membership embracing the great majority of those who have made a name for themselves from one end to the other of the United States. We have an influence, and we believe a well-deserved influence on all that relates to our profession. And we owe that influence to the fact that we are truly a national body, and not simply a federation of separate societies. But we pay the penalty of our greatness. When various questions arise, many of which demand immediate attention and action, we cannot call all our members together. We cannot even consult with them; and the officers of the Institute, the Board of Directors and the Executive Committee have of necessity a great responsibility forced upon them.

"I think I speak for all of them when I tell you how

seriously that responsibility is felt. I can assure you that we try very earnestly not to act as a Council of Ten—a small and irresponsible body which does what it pleases, without any careful consideration of the wishes and views of the great body of our membership; and I am led to make this statement, because I find that in some of our communities that idea has been expressed. What we desire and strive for is to represent the whole membership of the Institute, North, East, South and West; and in order that we may do this intelligently, we must first of all be in a position to understand what our members wish; and if there are divergences of opinion in different communities on any of the questions of the day, we should, if possible, be advised of them.

"You will have presented to you various amendments to the Constitution and By-Laws, of a very far-reaching importance, and which must be very carefully considered. The Competition Code will doubtless be discussed and debated upon; for, like the poor, it is always with us. In these questions and whatever else may come before you, I have one very earnest desire, and that is, that the wishes of the Convention, which represents the Institute, may be made plain to us.

"Our activities in many directions are constantly increasing. You have only to look at your programme to see how many Committees have reports to make to you; and nearly all of these reports mean that meetings have been held, that members have traveled from various points to take part in these meetings and given up their time to them. Whenever any question involving architecture arises in any part of the country, the first thing done is to call upon the Institute for its aid and counsel. And to these calls our members have almost uniformly responded with great good-will and selfabnegation.

"It is good, perhaps, because our efforts in what we have undertaken have been often so fruitful of results, that I hear from many sides suggestions as to still further activities on our part. Sometimes these suggestions take almost the tone of complaints—'Why does not the Institute do this or that?'

"Now, whatever these activities may be, I feel sure that our members will be ready to take part in them. But there is another side to the question, and that is the eternal one of revenue. We are already living well up to and perhaps beyond our income; so that a plea for greater economy is also heard from time to time. I speak of these things because it is well for you to understand plainly one of the issues with which you are confronted; on the one hand, more money and greater service to the public and to ourselves; and on the other a distinct inability to enlarge our field of action, and perhaps the necessity of restricting it. I am not aware that anyone has as yet suggested an Income Tax as the solution of the problem.

"But whatever may be done by you, my experience of the last two years leaves me most optimistic. I have to thank all of those with whom I have come in contact during the period of my presidency for the earnest and sincere interest that they have shown in the various questions which have arisen, and for the very real services they have rendered to the Institute. And I know that this interest and zeal will continue in the future as they have done in the past."

LE BRUN TRAVELING SCHOLARSHIP PRELIMINARY NOTICE.

THE second bi-annual competition for the Le Brun Traveling Scholarship, founded by Pierre L. Le Brun, will be held in the early spring of 1914. It is open to any architect, a citizen or resident of the United States, between twenty-three and thirty years of age and who is not, nor has been, the beneficiary of any other traveling scholarship, and who has had at least three years' experience as draughtsman or practicing architect. The amount is \$1,000, the period of the scholarship not less than six months.

Each competitor must be nominated by a member of the New York Chapter, A. I. A., who shall certify in writing that the above conditions are fulfilled by the nominee and that, in his opinion, the nominee is deserving of the scholarship.

All persons who are eligible and desire to compete are requested to send their application to the undersigned before January fifteenth, 1914. Applications must be accompanied by a statement of residence, citizenship, age, experience and general qualifications and by the necessary nomination and certification from a member of the New York Chapter, A. I. A. Those not having the acquaintance of a member of the Chapter may avail themselves of the services of any well-known architect who can vouch for them to a member of the New York Chapter, with whom he is acquainted.

H. Van Buren Magonigle, 101 Park Avenue, New York City, Chairman Committee on Le Brun Traveling Scholarship.



Wilson's Rolling Partitions

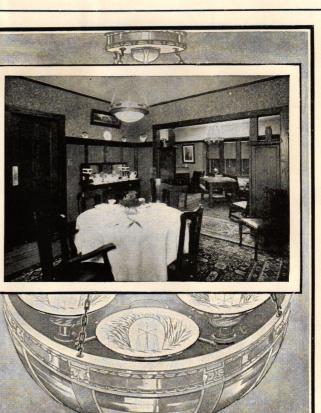
MADE TO ROLL OVERHEAD OR FROM SIDE

A MARVELOUS convenience and the most effective method for dividing large rooms in Churches and School Buildings into small rooms, and vice versa; made from various kinds of wood; sound proof and air tight; easily operated and lasting. Made also with Blackboard surface. Fitted to new and old buildings. Used in over 25,000 Churches and Public Buildings.

JAS. G. WILSON MFG. CO.

3 West 29th St., New York

Also Manufacturers of Rolling Steel Shutters and Venetian Blinds



You can please the owner

by incorporating Eye Comfort Lighting in the plans of the house or other building you draw up for him.

Your work stands out better when the room is flooded with this clear, mellow, glareless light which beautifully illuminates the whole room and brings out every detail of your design.

Eye Comfort Lighting

is soft, free from glare, restful to the eyes—the only true system of indirect illumination. It is being installed in the most beautiful and modern homes, office buildings, hospitals, railway stations, and the luxurious passenger trains of the leading railway systems.

Wherever good light is essential it can be obtained best by Eye Comfort Lighting—the greatest efficiency—no harsh glare—no shadows.

The lights are not exposed, but are concealed in *opaque* X-Ray Eye Comfort Reflectors which are contained in an opaque bowl.

Consult Our Engineers

Without obligation on your part our corps of expert lighting engineers will help you plan the lighting system for any building you are interested in.

Send to-day for complete information on Eye Comfort Lighting and our free engineering services.

National X-Ray Reflector Company General Offices: 245 W. Jackson Boulevard, Chicago New York Offices: 22 W. 33rd Street

"Target-and-Arrow" Roofing Tin



NEW TERMINAL STATION, SAN LUIS POTOSI, MEXICO NATIONAL RAILWAYS OF MEXICO

Roofed with 28,875 square feet of "Target-and-Arrow" Roofing Tin

Architect : E. P. De Wolf, Chief Engineer of Construction National Railways of Mexico Roofers : Empresa de Fierro Galvanizado Mexico City

FOLLOWING the example set by many leading American railroads, our neighbors across the border selected this old-time product for the roof of this terminal building.

Notice the neat, clean-cut appearance of the tin roofing, laid with standing seams.

Long service, with complete protection from the weather and from fire, and freedom from roof troubles, are ensured by using this time-tried roofing material. It costs a little more than other roofing tin, so you are not likely to get Taylor quality if you write a specification that permits substitution.

A postal card request will bring a standard tin roofing specification form for architects' use and some instructive literature telling about this old product.

N. & G. TAYLOR CO., Philadelphia

Headquarters for good Roofing Tin since 1810

xxi

THE CUTLER MAIL CHUTE

equipment in the Bronx Court House consists of two Model F Cutler Mail Chutes,



of the building, and two cast statuary bronze Mail Boxes herein illustrated. This Court House is typical of a class of buildings which, while not

high, are properly provided with a duplication of the mailing system in order that it may not be necessary to walk too far in any story to reach a point of mailing.

BRONX COURT HOUSE M. J. GARVIN ARCHITECT, NEW YORK CITY.

Address for circulars and full information, and any service which thirty years' experience in this special line enables us to furnish.

CUTLER MAIL CHUTE CO., CUTLER BUILDING, ROCHESTER, N. Y.

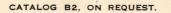


DUMBWAITERS MANUFACTURED BY US ALWAYS CARRY OUR NAMEPLATE. OUR NAME IS BACKED BY 40 YEARS' EXPERI-ENCE, AND WE GUARANTEE ALL OUR MACHINES TO BE -EFFICIENT-

DURABLE AND RELIABLE

PROGRESS!

AN IMPROVED MACHINE OF HAND POWER TRACTION TYPE, IRON WHEELS AND IRON FRAMES FOR FIRST CLASS RESIDENTIAL WORK.



CHELSEA ELEVATOR CO. 332 W. 26TH ST., NEW YORK



One to One Traction Dumbwaiter

FOR SALE A modern plant situated in New York City, less than 8 months in operation, consisting of 4 polishing machines, 1 carborundum machine with table 10x6 ft., 1-12 ft. rub-bing bed, 1 drill press, 1 carborundum grinder, 1 air com-pressor, 40 h.p. Foos gas engine and 75 h.p. Wagner electric alternating current motor; plant piped for air and gas, sewer and water. Consists of 1-story brick building 50x100 ft., with concrete floor, factory office, draughting room and all facilities for handling and manufacturing marble for interior purposes. Plant in actual running opera-tion at present time. Will sell machinery and equipment exclusive of building or both. tion at present time. Will se exclusive of building or both.

For additional information address Room 903, Beaver Building, New York.

CRESCENT CORK FLOORS SANITARY, NOISELESS, EVERLASTING

THE best floor for Churches, Banks, Court Houses, Hospitals, Libraries, etc.

Can be laid on wood or cement foundations. **GUARANTEED WATERPROOF**

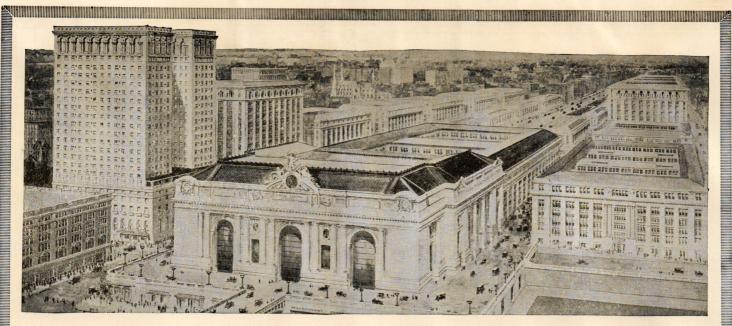
There is no better Cork Floor in the world than the CRESCENT. We can prove it. Give us the opportunity.

Send for Sample and Prices.

We are experts in Floor Construction of every kind and our advice and experience are at your disposal.

HASBROUCK FLOORING CO. 501-9 EAST 70TH STREET NEW YORK CITY

xxii



Grand Central Terminal, N. Y. C. R.R., New York City

N. Y. Central and Pennsylvania Terminals What Keeps Them Dry?

THE famous New York Central and Pennsylvania Terminals in New York City cover vast areas of subterranean construction.

These terminals are probably the two mightiest in the world.

To protect these great underground structures from dampness and water, the engineers in both cases used coal tar pitch in staggering quantities—many millions of pounds. The basement walls and huge floors are lined with a continuous and unbroken seal of coal tar pitch, as are also the tunnel walls.

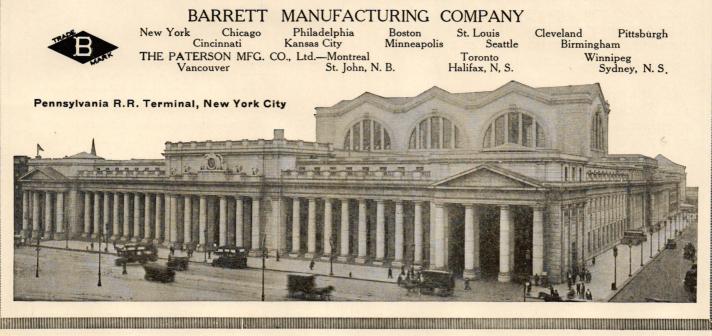
Practically every great structure is waterproofed with this material because such waterproofing is standard, and if the work is properly done by reliable contractors, it will remain as long as the building stands.

Coal tar pitch undergoes no physical or chemical change in damp or wet soil, and never loses its waterproofing qualities.

Protection against water is vital in these terminals and the engineers would willingly have paid any price to get the best. The selection of this material, therefore, emphasizes the fact that the greatest railroad engineers of the country are satisfied that coal tar pitch waterproofing is unsurpassed.

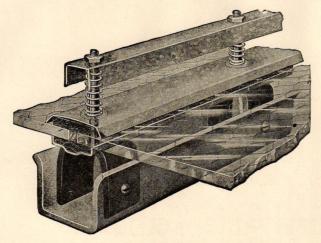
It is also significant that a very large part of the purchases was Barrett's Specification Pitch and Barrett's Specification Tarred Felt, the best grades of pitch and felt made.

To anybody interested in waterproofing, we should be very glad indeed to supply further information on request.



xxiii





Described and illustrated in our 72-page catalogue just issued

The modern building demands economical light and ventilation, now more than ever, under advanced hygiene.

We are specializing in this field; increasing efficiency, life of materials, cost in relation to quality, keeping the latter in mind particularly with both skylights and sash operators.

Our designs at present represent the latest improvements and the most economical construction for the price-the nearideal. We stand on a quality competition basis only, and serve you and your client. The character and kind of installations we have made, the world over, establish our claims for your attention.

You must specify Anti-Pluvius Skylights and Straight Push Sash Operators to get them, and when you have once tried them you will always use them.

> We can convince you of the merit of our product.

The G. Drouve Company Bridgeport, Conn.

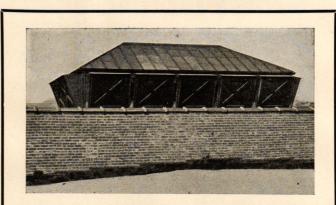
180 N. Dearborn St., Chicago, Ill.



HOLLIS SCHOOL, BRAINTREE, MASS Cooper & Bailey, Architects, Boston, Mass.

LIGNI-SALVOR, Best Wood Preserver, (Registered) is an antiseptic compound, and is used in two capacities, for "INSIDE WOOD-WORK" and for "OUTSIDE WOOD WORK." "INSIDE WOODWORK." "INSIDE WOODWORK."
It creates a beautiful, natural, oil finish, either in a "FLAT EFFECT." (brown), or a wax-like "DULL GLOS," by simply applying one, or three coats, respectively. It takes the place of wax or varnish. It is unsurpassed for ceilings, beams, trusses, braces, panels, doors, wainscoting, pews, choir stalls, seatings, and all other interior trim. For "FLOORS" it is elegant. It is not affected by water, and will not show heel marks.
"OUTSIDE WOODWORKE."
It is easily applied. It requires no skilled labor, no expensive plant, no lengthy preparations; ONLY A BRUSH. "SHINGLES" are dipped, and when laid, given a heavy brush coat." SLEPFERS AND TIES" are given a bath. It is oaks readily into the wood, Unlike paint, it leaves the pores open; prevents rot or decay, and combines serviceability and beauty if applied thoroughly. It weathers prettiv. Is largely specified for dwellings, churches, hospitals, railroad depots, sheds, stables, boathouses, and other wooden structures exposed to climatic changes. Nothing like it for impregnating SLEPFERS to be imbedded in cement. Comes in one color (brown) only, and one gallon cover about 300 square feet of dressed lumber. It sharpes applied to forwn) and, and angulon cover about 300 square feet of dressed lumber. It sharpes applicat to all builders. It saves expense. Three coats are required. Send for articulars and full directions.

WM. MENZEL & SON, Sole Agents 68 Broad Street, New York

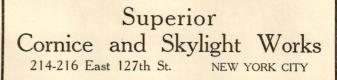


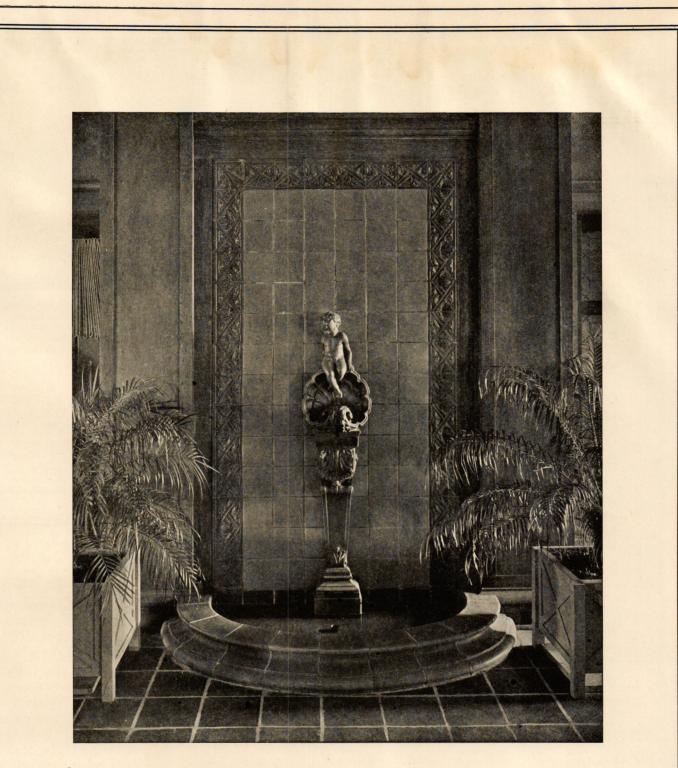
Superior Automatic Skylight VENTILATORS

This Ventilator is the best ever designed for use in Theatres and elevator shafts.

All the prominent theatres have adopted the Superior Ventilator.

Write for detail drawings and specifications



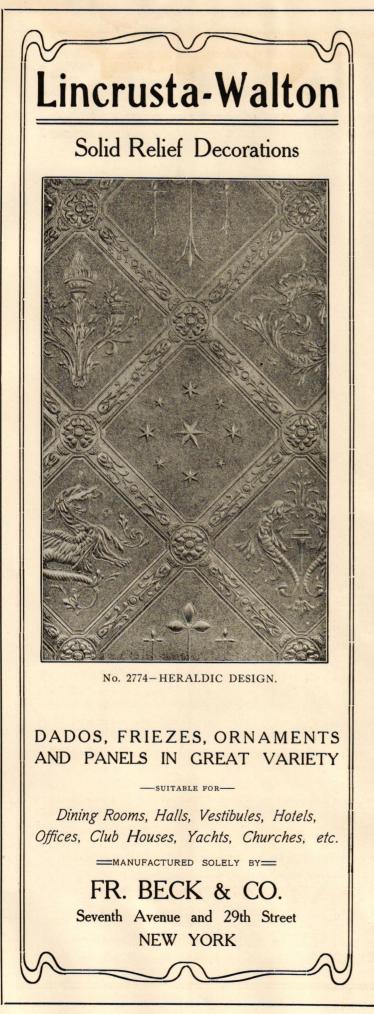


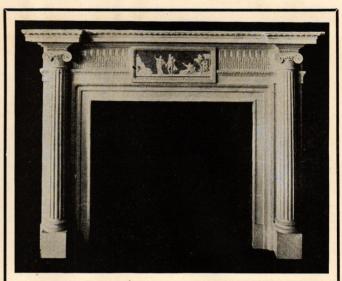
The Wall Fountain in the Gedney Farm Hotel (illustrated above), made in Faience by the American Encaustic Tiling Company, is a correct interpretation of my design and beautifully executed.—Kenneth M. Murchison, Architect.

FO

For the convenience of Architects and their clients we have fitted up a series of rooms of different character wherein our complete line of **FAIENCE TILES** are displayed in their many varieties and uses.

AMERICAN ENCAUSTIC TILING COMPANY (Limited) Offices and Showrooms, - 16 East 40th Street, New York XXV





A FAMOUS ARCHITEGT once said: "I have no patience with the man who can see in the freplace only a place to extract warmth from; who fails to realize that the chimneypiece is the central decorative feature of a room, from which all inspiration for further decorative elaborations must radiate. He has no soul and I would rather not draw his plans."

Jacobson Chimneypieces

are made of cement in imitation of various stones, and this material adapts itself to reproduction of the most ornate and delicate work at a comparatively low price. The illustration shows one of our stock designs. *Catalogues on application.*

JACOBSON AND COMPANY 241 East 44th Street, NEW YORK CITY, U. S. A. C. J. Benson & Co., Baltimore. AGENTS J. E. Hunnicutt & Co., Atlanta, Ga. Detroit Mantel and Tile Co., Detroit.



Bayley & Sons "Equalite" Glass

"Equalite" is a direct system of lighting that absorbs and deflects enough light to equalize the *direct* light with the *indirect* reflection from the ceiling, thereby gaining the good effects of both. The result is a soft, diffusive glow, restful to the eye, and without shadow.

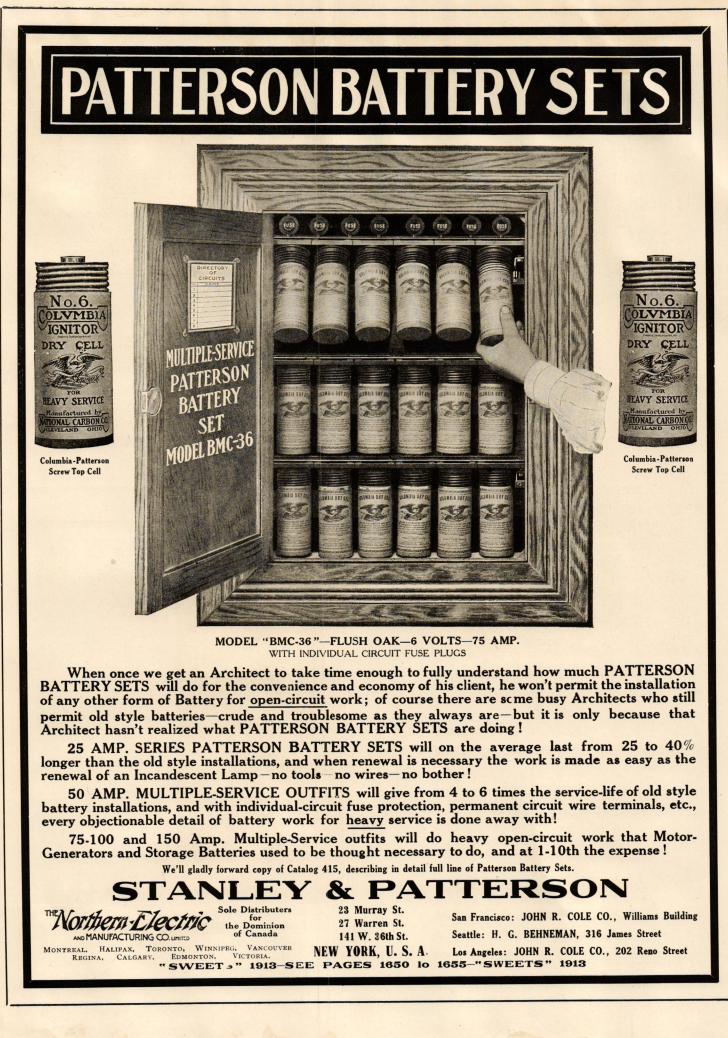
In light efficiency, eye comfort and beauty of design,

"Equalite" glass is the nearest to perfection so far obtained in equal lighting effects. Special attention to special designs. We design and make the entire fixture.

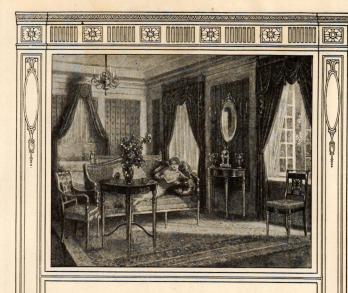
BAYLEY & SONS 105-109 Vanderveer St., BROOKLYN, N. Y. Architects' Building, 101 Park Ave., New York McKENNEY & WATERBURY, Boston Representatives

xxvi

xxvii



xxviii



A Boudoir In Adam Style

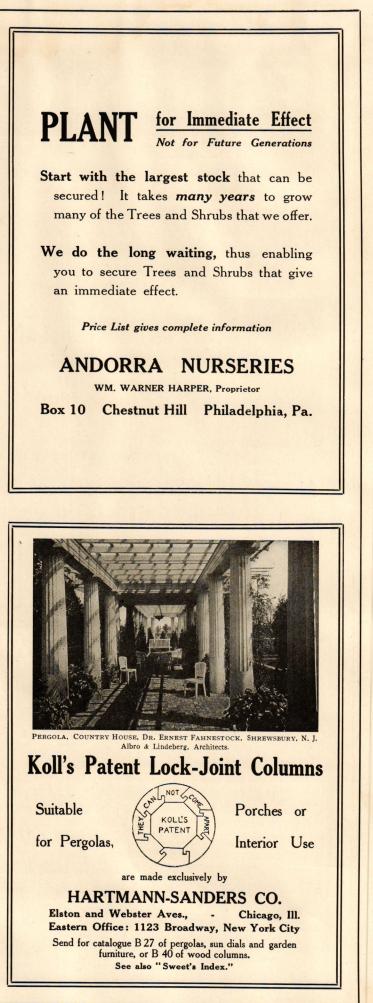
THIS dainty room shows the correctness and utility of Cheney satin damask and velours applied to the style of the brothers Adam. For period decoration these fabrics are in perfect keeping with the motifs expressed in the furniture and the craftsmanship of the wood-worker.



are perfect in the reproduction of fine old designs; and they can be relied upon for authenticity, quality and skillful execution.

Our customers may purchase to aid them in securing business 1¹/₂-yard samples of these materials with smaller samples attached to show the color line. We carry a large stock from which orders booked from these samples can be filled.

CHENEY BROTHERS Silk Manufacturers 4th Avenue and 18th Street, New York



xxix

Impartial and Invaluable Assistance always at the command of Specification Writers—

There is no ironclad rule governing elevator specifications.

Each building demands special study if the elevators are to supply the service they should.

Don't trouble yourself with these elevator problems.

Put that burden on our shoulders.

We are always willing to help, without charge.

We can help. We haven't been in the elevator industry for over fifty-seven years without meeting all sorts of conditions and learning how to determine always the right kind of elevator to install.

And our branches in all cities bring the assistance of our experience to your door.

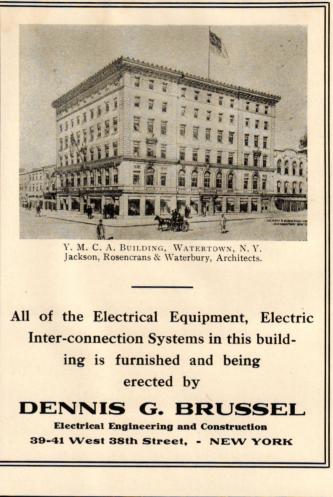
> When writing elevator specifications, remember the OTIS ELEVATOR OFFICE in Your City.

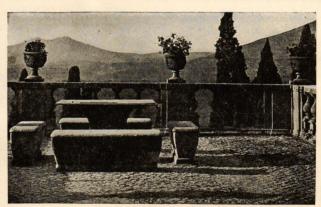
Otis Elevator Company

Eleventh Avenue and Twenty-Sixth Street NEW YORK

Offices in all Principal Cities of the Worla







VILLA D'ESTE, TIVOLI, ITALY

This splendid garden of the Old World shows admirably what delightful effects can be secured by a proper selection and arrangement of garden ornament. You, too, can enjoy the exquisite pleasure of just such a garden furnished with exact reproductions of masterpieces of sculpture or original designs in Pompeian Stone.

Our Collection of over 1500 models of vases. fountains, sundials. statuary, benches and other garden furniture, presents unlimited possibilities in the decoration of your estate.

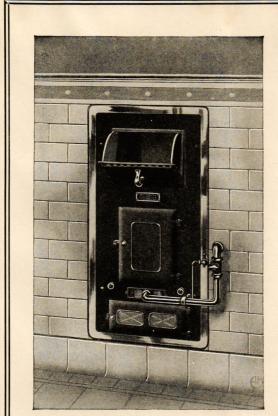
Mantels and Hall Ornaments for interior use.

Our handsome illustrated catalogue is sent free to architects on request.

THE ERKINS STUDIOS

The Largest Manufacturers of Ornamental Stone Factory, Astoria, L. I. 225 Lexington Avenue, New York

XXX



PYROFUSE Type G

THE saving of space and the element of beauty are two important requisites in kitchen equipment. You secure both when you specify a wall type.

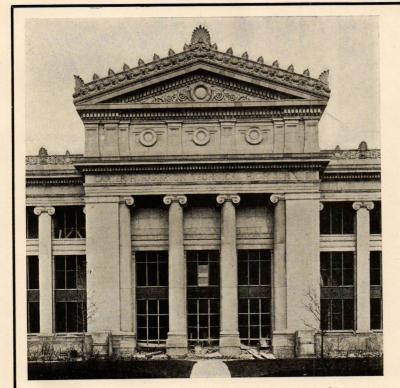


Garbage Destroyer

It is a simple matter to install a wall type, and we will send to the architect and contractor blue prints of styles C, G and L on request.

This style is furnished with $\frac{1}{2}$ bushel, 1 bushel and 2 bushel capacity.

The Prescott Selling Company Arena Building 38 West 32nd St., New York City Main Office and Factory, - - Webster, Mass.



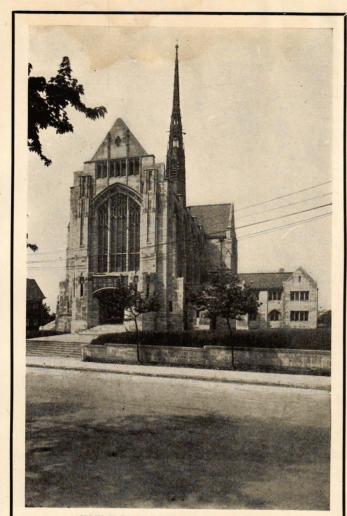
The Carter H. Harrison Technical High School, Chicago. A. F. Hussander, Architect. All trimmings and cornices above the third story executed in Standard Grey Terra Cotta.

The Northwestern Terra Cotta Company

MANUFACTURERS OF THE FINEST STANDARD AND ENAMELED TERRA COTTA IN THE WORLD

2525 CLYBOURN AVE., CHICAGO, ILL.

xxxi



FIRST BAPTIST CHURCH, PITTSBURGH, PA. Cram, Goodhue & Ferguson, Architects.

E. J. Johnson's Old European Method Graduated lengths-random widths.

THAT our "Out-of-the-Ordinary" Roof Slate measures up to the high standard of excellence demanded by discriminating architects, is evidenced by the building operations we continue to illustrate month by month. Highly specialized study of slate problems, combined with facilities for quarrying practically every quality of slate in their wide variety of colorings, enables us to offer to architect or owner roofing results of distinction and character.

E. J. JOHNSON Quarrier "Out-of-the-Ordinary" ROOF SLATE 38 Park Row - New York Structural Slate Slate Blackboards

Austin Organs

The Austin firm has built several hundred organs and over fifty monumental instruments, either four manual or very large three manual, which have not only roused enthusiasm from the first, but have, in their revealments of tonal and mechanical reliability, been educators of taste in tone colors. They have no superiors in the world.

Many of these contracts have come to us unsolicited, suggesting the reputation we have achieved. Others have come after patient examination and testing by committees of experts. Such tests we gladly welcome.

Austin Organs are world standards and have been proved both by theory and by experience.

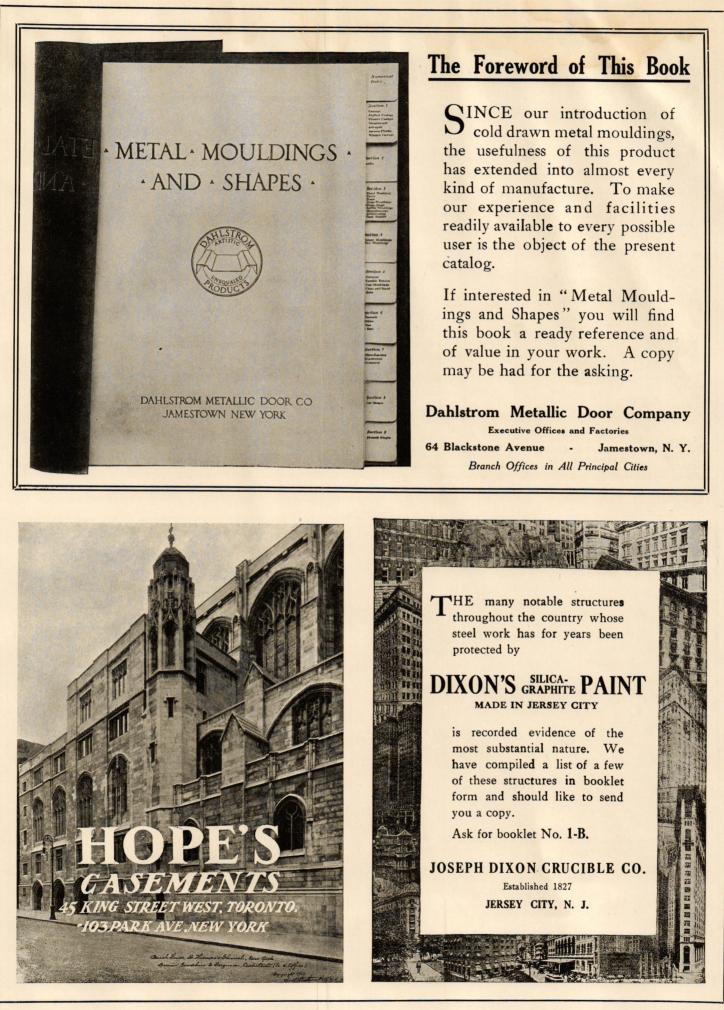
New illustrated catalog on application.

Austin Organ Company Woodland Street Hartford, Conn.



xxxii

xxxiii



xxxiv

ARCHITECTURE





EAGLE BUILDING, 265 FOURTH AVENUE, NEW YORK. Warren & Wetmore, Architects. Hedden Const. Co., Builders. Wa

> All Ornamental Iron and Bronze Work made by the

HARRIS H. URIS ORNAMENTAL IRON WORKS Office and Works 525-535 West 26th St., NEW YORK



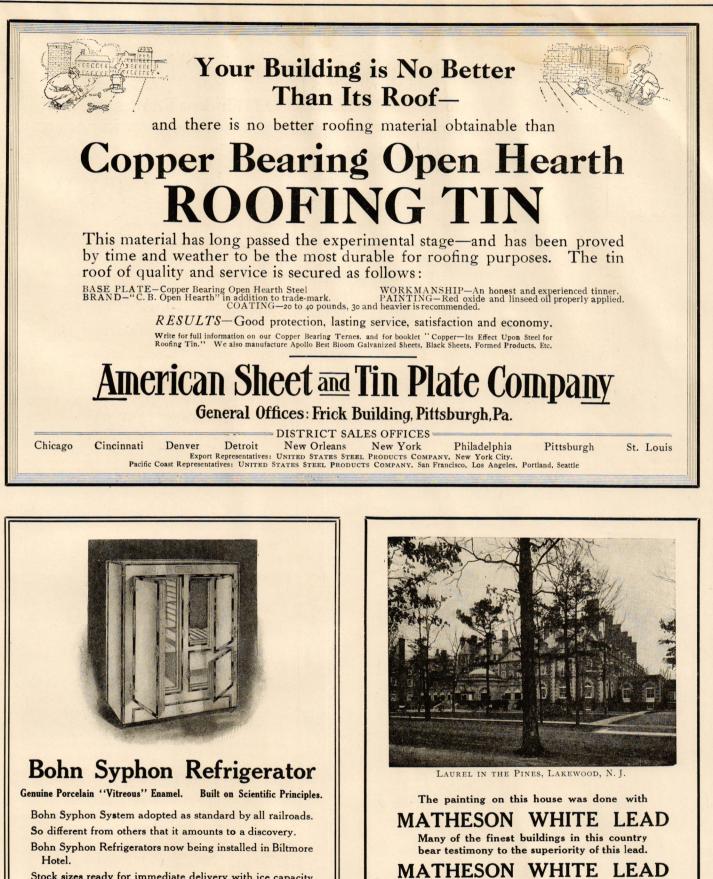
great buildings throughout the country. In New York City there are numerous prominent examples, among them being Liberty Tower, McAlpin Hotel and the new Grand Central Station.

"Cleveland" has the endorsement of nationally renowned architectural firms, because of its reliability and wide adaptability.

Let us send you sam-ples and literature.

Office, Warehouse & Showrooms 521-523 West 23rd Street New York City USA

XXXV



Stock sizes ready for immediate delivery with ice capacity of 50 to 2,000 lbs.

Special sizes built to meet any requirements.

Made and sold by

White Enamel Refrigerator Company 59 West 42nd Street - New York Will make a white mark on any other lead, and will cover more surface and cover it better. IT IS STRICTLY PURE

MATHESON LEAD COMPANY Corroders New York

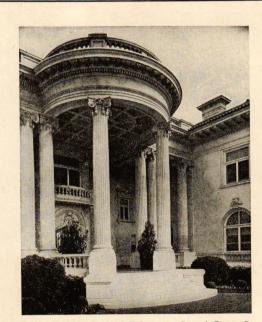


our vast experience in the industry, enables us to successfully execute contracts, of any size, at a satisfactory price, and guarantee deliveries.

We should be pleased to submit to anyone interested convincing evidence of such ability.

UNITED STATES METAL PRODUCTS COMPANY

Sales Office: - Woolworth Building, New York General Offices and Factory: College Point, N. Y.



WOOLWORTH BUILDING

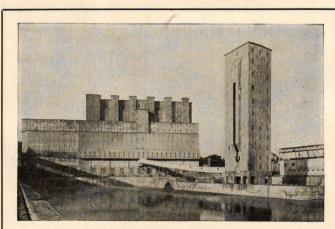
Cass Gilbert, Architect

PORTICO, COUNTRY HOUSE, E. T. BEDFORD, GREEN'S FARMS, CT M. W. MORRIS, ARCHITECT.

Plain and Ornamental Stucco Work Executed by

H. W. MILLER, Inc. Plain and Decorative Plastering and

Cement Stucco Contractors. 501 EAST 22d STREET, - NEW YORK CITY



Harbour Commissioner's Elevator No. 2 and Marine Tower. Montreal, Quebec. J. S. Metcalf Co., Construction Engineers.

MEDUSA WATERPROOFING TO THE EXTENT OF 30,000 LBS. USED TO MAKE IT IMPERVIOUS TO WATER. LARGEST CONCRETE GRAIN ELEVATOR IN THE WORLD, HAVING A TOTAL CAPACITY OF 2,600,000 BUSHELS.

Write for free illustrated booklets and samples of MEDUSA GRAY PORTLAND CEMENT MEDUSA WHITE PORTLAND CEMENT MEDUSA WATERPROOFING MEDUSA WATERPROOFED CEMENT (GRAY AND WHITE)

Sandusky Portland Cement Co. SANDUSKY, OHIO

xxxvi

Full



Residence of Ralph Peters, Esq., President L. I. R. R. Co. Aymar Embury II, Archt., New York Shingles stained with Cabot's Creosote Stains; Cement stuccostained with Cabot's Waterproof Cement Stains. Walls lined with Cabot's Quilt for warmth. **CABOT'S CREOSOTE SHINGLE STAINS**

Soft, rich, and transparent coloring effects, guaranteed wearing qualities, thorough preservation of the wood. The thoroughly reliable stain, proved by twenty-five years' use under all conditions. **CABOT'S SHEATHING AND DEAFENING "QUILT"** Warmer, more permanent, and cheaper than back-plaster. Ten times as warm as the best papers. The most scientific, sanitary, and perfect heat insulator and sound-deadener ever made.

CABOT'S WATERPROOF CEMENT STAINS

For staining and rain-proofing cement buildings. Rich colorings, without gloss or shine, and with no coating to chalk or peel. CABOT'S WATERPROOF BRICK STAINS

even brick, and colorless, for waterproofing only. PLASTERBOND DAMP-PROOFING

ng on brick and cor **CONSERVO WOOD PRESERVATIVE** For preserving posts, sills, pla

SAMUEL CABOT, Inc., Manfg. Chemists information BOSTON, MASSACHUSETTS sent on request

1133 Broadway, New York

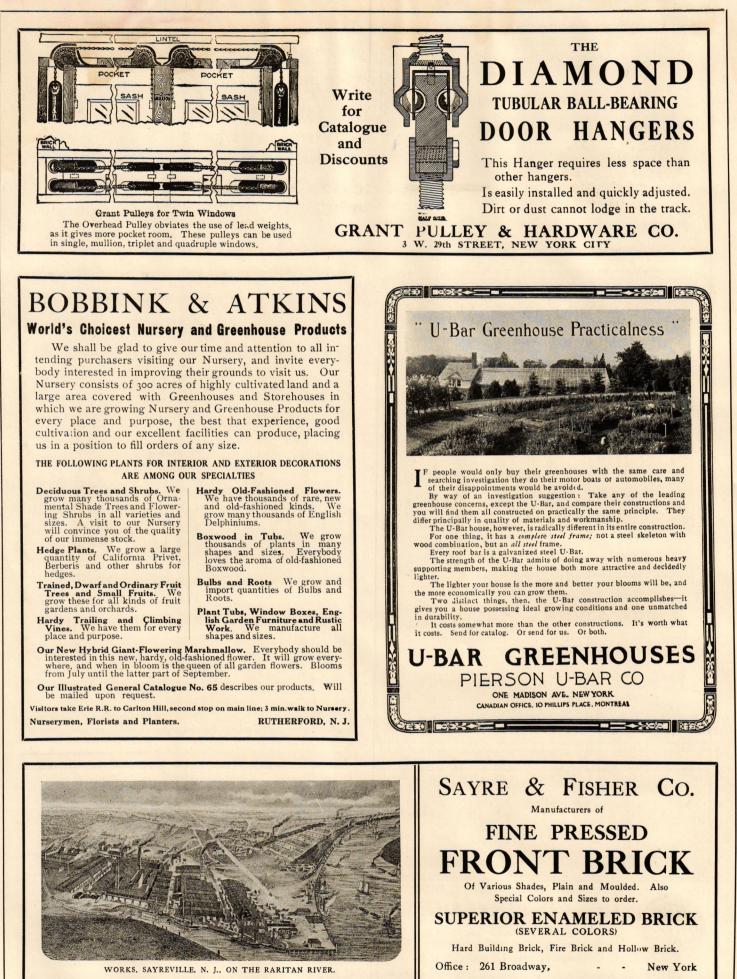
24 West Kinzie St., Chicago



xxxvii

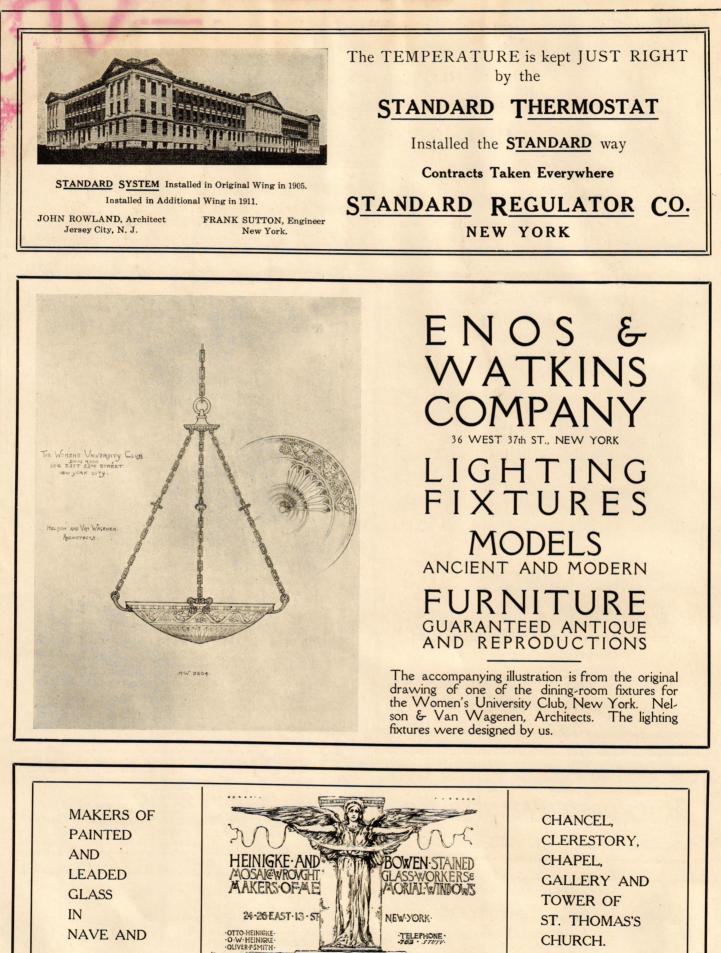
xxxviii

ARCHITECTURE



xxxix





the states

-2

xl