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THE BRICKBUILDER.

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THE BRICKBVILDER

VOL. 12 No. 1 DEVOTED · TO · THE · INTERESTS · OF ARCHITECTVRE · IN · MATERIALS · OF · CLAY JAN. 1903

THE BRICKBUILDER.

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ARCHITECTURE AND BUSINESS.

THE last twenty-five years has witnessed so complete and fundamental a transformation in the practice of architecture that we sometimes fail to fully realize the changed conditions and we very much doubt whether the younger men who are coming into the profession every year in such numbers altogether grasp the significance of the tasks which are to be imposed upon them. The architect of the past generation was a man of relatively limited opportunities and the demands upon him were far less than what is now expected of an ordinarily good draughtsman. It is very easy to misunderstand the architect's work of to-day and to misinterpret the popular demand, but if there is any one quality which seems to be imperatively required of a successful architect with even ordinary practice, it is business ability. Of course business ability by itself does not mean success any more than does constructive or designing ability, but an architect must be a ruler of men. He, in the very nature of his calling, is obliged to decide quickly and promptly questions involving not merely large amounts of money, but principles of justice and equity, and frequently matters which involve very fine law points as well. He must be the business manager for his client, and the thousands of dollars which are disbursed through him must be expended economically, and yet with no false economy, and every cent must be rigidly accounted for. We know of one architect who for a number of years has had an average business of nearly one hundred thousand dollars per day. That amount of money he has to disburse. He must see that a dollar's worth of work is returned for a dollar's worth of money, that the accounts are kept straight, and that the work itself is carried forward in a prompt and businesslike manner. Of course an amount of business of this kind is extraordinary, but there are a great many architects whose business has run up to five thousand dollars a day, and to properly care for a business of this sort requires more than ordinary business ability. This is the very point upon which our present systems of architectural education are weak. Our students are most thoroughly drilled in design, and often in the exacting requirements of science. Then their practical experience is usually limited to toiling over a drawing-board in an architect's office, where, to be sure, they see tangible results but almost nothing of the business machinery which is so important a factor in the production of these results. Consequently, when the young man starts in business the chances are ten to one that his business training will be wholly inadequate to large and sudden responsibilities. When the emergency arises he will often be found wanting, and it is this fact more than any other single feature which causes real estate men, builders and property owners to be distrustful of architects' figures and methods. There are many exceptions to this list and there are architects who are the keenest and shrewdest of business men, but the fact that they are exceptions shows that the rest are far below them, though it also shows what an architect might be.

So far as we know there has never been any attempt made in the schools to teach the business of architecture. We are not saying that it would be altogether practicable, but that it is desirable cannot be questioned for a moment. We cannot go backward. The scope of the profession has enlarged and the individuals must enlarge with it or take a back seat. In business habits the builders as a class are far more fitted for their work than the architects. We do not believe this state will continue; methods will crystallize, will become better known, and the architects of future generations will profit by our own failures and our own shortcomings, but in the meantime the architect is at a constant disadvantage. The dreamy idealist who cannot bring his mind to practical dollars and cents is just as far astray as the shrewd, smart, hustling business architect who despises art. Neither is the right sort, but a combination of the two interests is not only imperatively necessary, but it is bound to come about in the course of a very few years. There are too many intelligent men in the profession to-day studying and working hard and thinking of how they can best, most successfully and most economically carry out their business, to let the problem stay long unsolved by the great majority; and just as the few are now so well equipped from a business standpoint, so will, in a few years, the profession as a whole rise to the imperative demands for shrewd, hard common sense allied to the creative ability and the constructive, scientific execution.

The lack of good business ability is, to our mind, the most serious shortcoming of the profession to-day and one of which the continuance will entail the gravest dangers. It is perfectly possible to imagine a combination of keen, sensitive, well-balanced artistic ability with shrewd, practical, common-sense business methods. Such a combination is extremely rare, but it is the rare combinations which succeed in this world, and the architect who ignores the fact that his art is also a most exacting business is pretty likely one of these days to find himself in with the majority of the unemployed.

LONDON OFFICE BUILDINGS.

THE account of the attempt to promote an American office building in London is very interesting reading. Englishmen do not like it when Americans suggest that the old-world methods can be improved upon, but some of the difficulties encountered in London by the parties who recently attempted to put up a modern commercial building show that we at least do some things better here. A person taking a lease of an office in London apparently is supplied with nothing but the bare room. He puts in his own gas and electric wires. He keeps his coal in the cellar and pays the janitor for bringing it up. He has no hot water and no towels. In addition to his rental the tenant has to pay a proportion of the cost of maintenance of the building, and every time the windows are washed he gets a bill from the janitor. The elevator service, when any exists at all, is poor and irregular. In fact people do not hire offices in London, but rent chambers, and the office such as is understood in the best of the New York buildings does not exist at all on the other side of the ocean. And yet the rent for these chambers is not materially lower than the prices which obtain in New York and Boston. Then the absurd restrictions in regard to light and air embodied in the so-called laws of Ancient Lights, make it almost impossible to put up a new building without treading on some one's toes. Vested interests are about the most sacred thing in London, and the fact that a man has looked out of his window at the setting sun for a certain number of years gives him a proprietary right to all the atmosphere between him and the departing orb. At least that is what the doctrine amounts to in practice. There is one case on record where parties proposing a new building had to pay a sum of twenty thousand pounds before they could be allowed to obstruct their neighbor's light, though that obstruction was entirely limited to their own premises and their right to make such obstruction would not have been questioned anywhere except in London.

NEW BOOKS.

LETTERS AND LETTERING: A Treatise with Two Hundred Examples. By Frank Chouteau Brown. Boston: Bates & Guild Company, 1902. 8vo, $2.

That lettering, mere lettering, forms the basis of one of the most thoughtful of arts as well as of one of the most elaborate and exact of sciences, we are apt to forget until brought face to face with such a volume as this of Mr. Brown's.

It is most compact, the only other treatise at all comparable with it in this respect being that by Edward F. Strange. Its author deals with letters, first as individuals, then as members of a family, *i. e.* the alphabet, and at the most, in their relation to the outside world of other letters, showing the etiquette, so to speak, that ought to obtain amongst the romans when approached by such distant connection as the italic or script, or such foreigners as black-letter forms. Only once in a while does a picture intrude itself, and even then such will always be found to appositely point a moral rather than to adorn a tale.

Such an attitude of stern repression toward all external things is a difficult one to maintain. In the short introductory note there occurs a pathetic paragraph which states that "in view of the practical aim of this treatise it has been deemed advisable to include a larger number of illustrative examples, rather than to devote space to the historical evolution of the letter forms."

Another noticeable feature is the absence of the old familiar, almost "stock" examples. Serlio we find, and Dürer, Tagliente, Lucas, and Foresti's beautiful, if hackneyed, black-letter title, but such a volume must needs include such examples, and for the rest there is an amazing amount of new material. Not only does Mr. Brown give us the latest thing in *bizarrerie* and *art nouveau*, by Olbrich and Eckmann, but he has also shown wonderful industry and enterprise in his own rubbings, reproducing these directly whenever possible, or carefully redrawing them when necessary; all this in addition to the mass of original work which falls of necessity to his pen. Yet the author seems to have relied but little on himself to illustrate certain tendencies, and so we have a large number of absolutely new illustrations from all over the world. A delightful page by George Auriol, done with the brush apparently; a few well-nigh perfect lines based on the Venetian type of Nicolas Jenson, by Claude Fayette Bragdon; a page of script by Bruce Rogers, which possesses all the suave flow of the best old French copperplate work; a reconstruction of Serlio's famous capitals by Albert R. Ross, which well justifies the tremendous labor it must have involved; two pages, by Maxfield Parrish, of that lettering which many of us consider the most subtly individual of its kind in modern use, as well as many other almost equally excellent and wholly new designs.

The author's criticisms and comments are invariably kindly and illuminating, though the final chapter, "To the Beginner," reads rather perfunctorily. If a reviewer must find fault, this is almost the only thing upon which to lay rude hands.

The Planning of Apartment Houses. II.

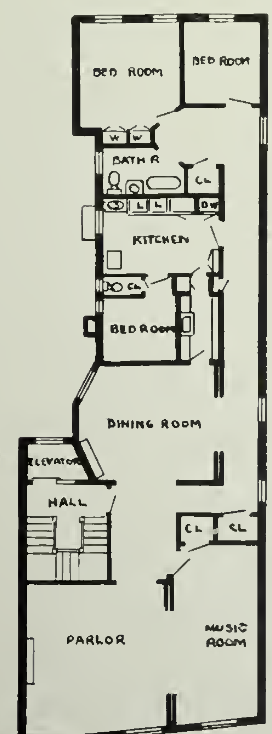
BY WALTER H. KILHAM.

HOUSEKEEPING APARTMENTS.

TURNING now to the question of apartments arranged for complete housekeeping, we find their satisfactory arrangement to be a much more difficult matter. Proper provision has to be made for kitchen, pantries and dining-rooms and for the convenient and sanitary housing of servants, while the facilities for the reception of supplies and disposal of ashes and garbage add another element of complication, and the requirements as to air and sunshine are just as exacting as in the case of non-housekeeping apartments.

In general, not over two apartments can be entered from the same stair landing without injuring the sense of privacy which is the aim of every flat dweller. All families and their domestic life should be kept apart just as much as possible. The tendency of the ordinances in Boston and its vicinity is to restrict each bank of apartments to their own staircases with a solid party wall between each set of suites, but in New York this does not seem to be regarded as important. The entrance from the staircase hall to the apartment should be near the rooms which may properly be used for the reception of guests. Nothing is more disagreeable than to be conducted by one's host down a long narrow corridor, passing doors to dining-room, bedrooms and even kitchens, to a final destination in the parlor. This again does not seem to be regarded as any objection in New York, but Boston tenants would be pretty sure to rebel if their main door did not lead quite directly to the living rooms. When possible a sort of reception hall, or "foyer," should be arranged from which the other principal rooms may be entered. The "foyer" need not necessarily have outside light, but may profitably be paneled and have a fireplace or wall seat so as to present a cosey appearance, especially in the evening.

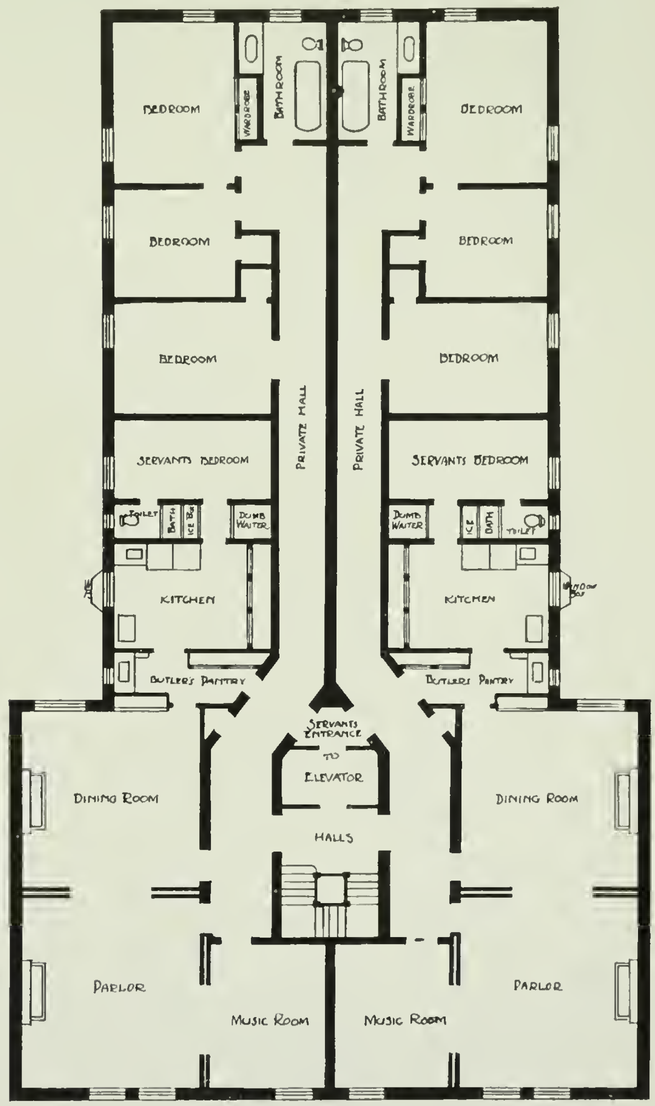
Having placed the parlor and library alcove at the front where they will command a view of the street and given them at least one fireplace suitable for burning wood, the location of the dining-room next commands our attention. The original Boston idea was to place this, together with the kitchen, at the rear, so as to get good outside light. This involved traversing a long, dark passage past the various chambers and offices, and was held by many to be a poor arrangement. At present the preferred plan is to place the dining-room near the front, opening by means of double doors from the parlor or "foyer," while the kitchens are just behind. The chambers being now placed at the rear, obtain more air and greatly increased privacy.



TYPICAL PLAN.
FIG. I. "THE KENDRICK."

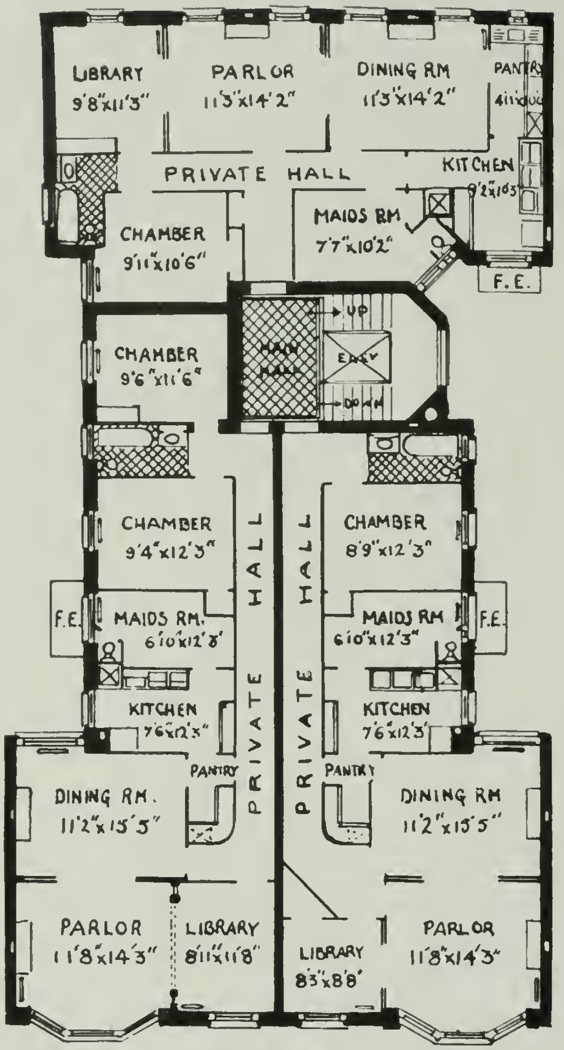
It is always well to have the bath rooms open from small lobbies between two chambers rather than from the main corridor, and considerable importance should be attached to their windows opening directly out of doors rather than into small wells which serve as flues to convey sounds and odors from one suite to another.

The service portion demands most careful consideration. The Boston law which requires two means of egress from each suite settles the question of the service staircase once for all; but many large New York houses are without this feature. In Boston this staircase is commonly enclosed in brick walls and the dumb waiter or service elevator runs in the well space. It should of course be located near the kitchen and preferably on the same side of the corridors.



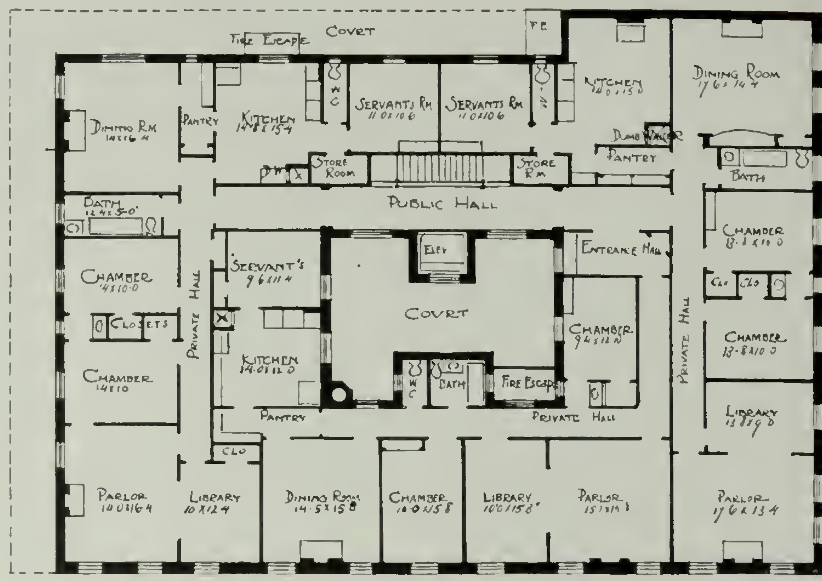
TYPICAL PLAN.
FIG. 2. "THE BEN HUR."

Formerly the servants' chambers were placed in the basement, along with the storerooms and fuel bins.



TYPICAL PLAN.

FIG. 3. "THE STERLING."

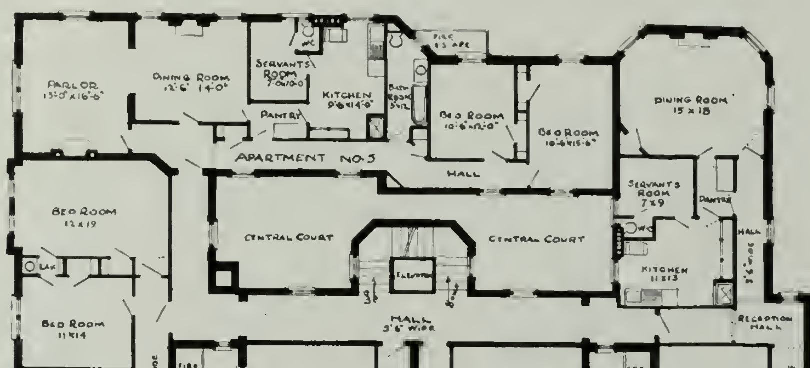


TYPICAL PLAN.

FIG. 4. "THE CASCADE."

They were damp, cold and sunless in summer and, being often traversed by steam-heating mains, heated to suffocation in winter, and were sometimes even without windows. In some instances the floor space of these dens was further reduced by soil pipes running near the floor. Owing more to the attitude taken by the serving people themselves than to any humanitarian impulse on the part of the builders, servants' chambers are now generally placed on the same floor with the rest of the rooms. The advantages of this arrangement to the employer are many. The movements of the servants are under better control, they are never out of reach and their incentives to neatness are greater. The difficulty is to provide servants' bath rooms for the medium-priced suites which can be shared by the servants of several families. A makeshift, not entirely satisfactory, is to place a bath room in the basement. In some houses the servants are collected in the roof story, which is a long step in advance from their basement quarters, but not equal in convenience to the same-floor arrangement, and in this case bathing facilities are easily supplied. The present New York practice in suites renting up to $1,200 per year seems to be to provide a single water-closet opening from the servants' room, and in some praiseworthy instances a little more room is taken and a small bath tub installed as a sort of compromise. A common practice appears to be to open the servants' room direct from the kitchen, but the writer would prefer to have it entered from the corridor or a lobby.

A place for the refrigerator must be found near the service entrance, and the dumb waiter must have a place when not enclosed in the rear stairs. The practice of having it open directly in the kitchens themselves is highly objectionable, bringing, as it does,



TYPICAL PLAN.

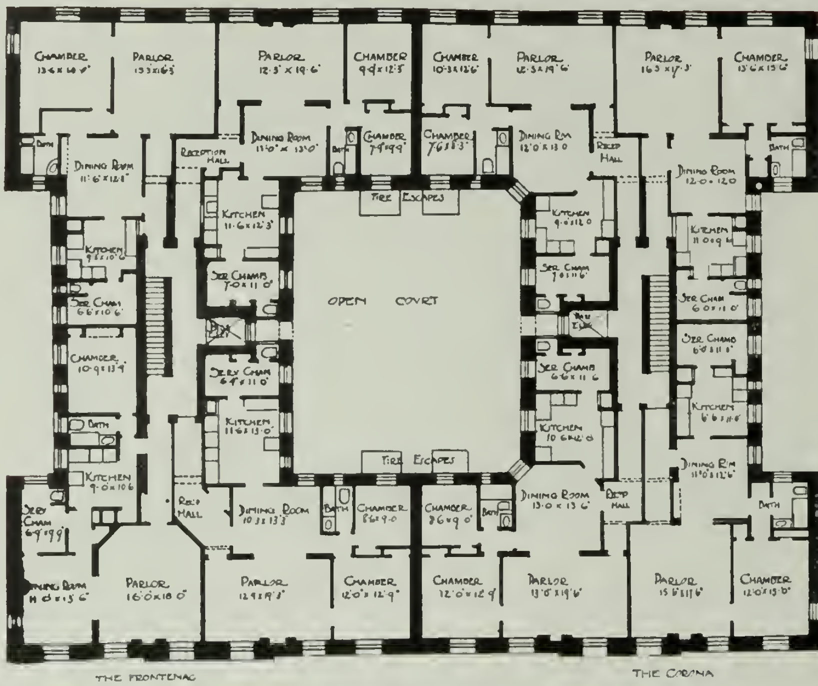
FIG. 5. "THE ST. GERMAINE."

INTERIOR COURT, GRAHAM COURT APARTMENTS, NEW YORK CITY. Clinton & Russell, Architects.

the mingled doors of cooking from all the other apartments.

Figure 1 is an example of the treatment on a narrow lot. As in many other New York houses there is no rear staircase. The suite is entered near the front and a rudimentary foyer exists. The service portion is good with the exception of the dumb waiter, which would be better if approached from the corridor.

Figure 2 shows a treatment on a double New York lot and is an unusually good arrangement in every way, worthy of careful study.



TYPICAL PLAN.

FIG. 6. "THE FRONTENAC" AND "THE CORONA."

ground and are interesting studies in apartment house planning. Figure 6 in particular is recommended by a prominent real estate agent as being a popular type of suite which could be rented as fast as built, for rentals of from $480 to $720. These houses provide elevator service, porcelain sinks, tubs, etc., basement laundries with steam-drying apparatus, telephones, birch and oak trim, tiled bath rooms with showers, and various other very modern conveniences.

Figures 7 and 8

FIRST FLOOR PLAN. TYPICAL FLOOR PLAN.

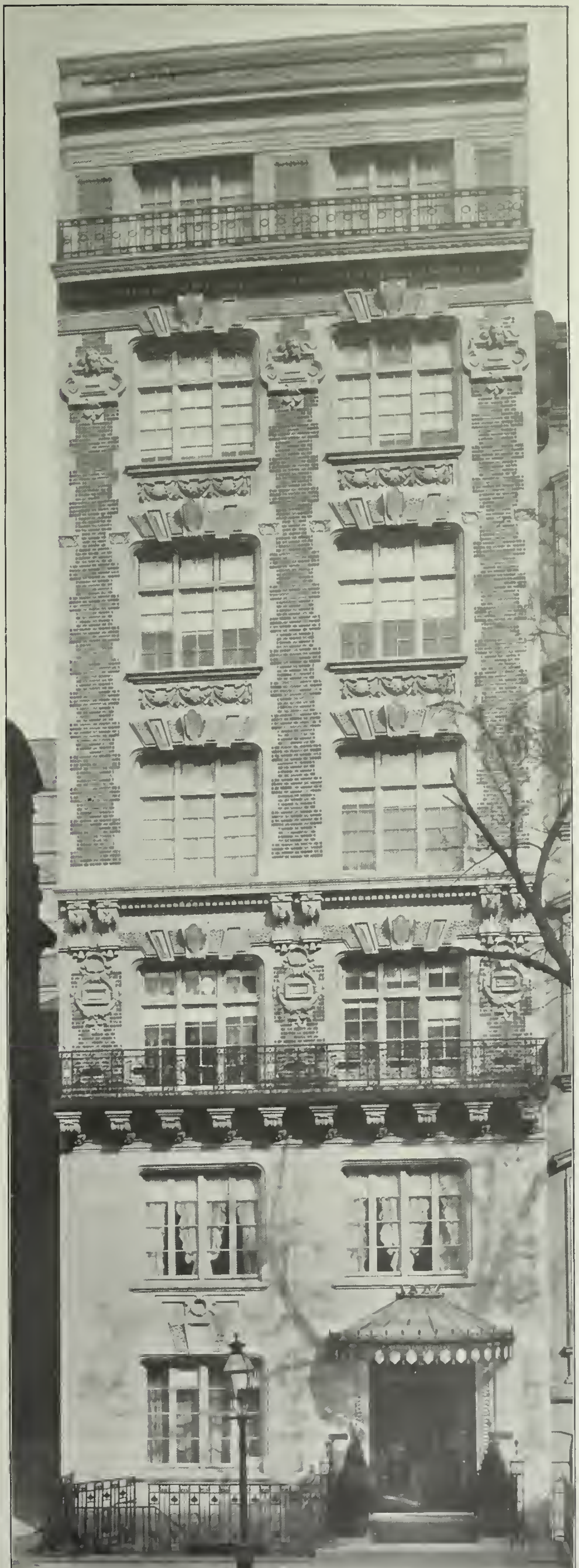
FIGS. 7 AND 8. "THE DORILTON."

Figure 3 is an arrangement for providing three suites on each floor on a double lot.

Figures 4, 5 and 6 are treatments on large plots of ground and are interesting studies in apartment house planning.

are plans of the well-known "Dorilton," whose remarkable façades are such conspicuous features of upper Broadway.

(To be continued.)



BACHELOR APARTMENTS, 7 EAST 32ND STREET, NEW YORK.
Israels & Harder, Architects.

Architectural and Building Practice in Great Britain.

BY OUR SPECIAL REPRESENTATIVE.

IT is an axiom nowadays that nothing public shall be done without discussion, and as each side tries to make the other appear as foolish or as wrong or as villainous as may be, it is extremely difficult for an impartial observer to determine exactly who is right and who is wrong. This is a peculiarly argumentative age, and one in which the small man is vastly conscious of his own ability, his own discretion and, above all, his own common sense, though the less said about that the better. If earlier England witnessed the rise of "the third estate," and later England a fourth, we are surely in the splendor of the fifth, a splendor which sees prosperous butchers metamorphosed into city magnates and the large draper so zealous in his new learning that he may rise from his municipal seat and tell the surveyor or architect how to be about his business. It would be wrong to brand all councilors as being men of that breed, but, on the other hand, it is impossible to forget that such men exist in thousands. It is they who are so largely responsible for all the vandalisms and desecrations that are done in our midst, for their "taste" is of the fresh-as-paint order and they would doubtless like every bit of old architecture in the kingdom cleaned up spick and span and everything else done which "common sense" might approve of. Their influence on architecture is not at first apparent, but you may trace it from those "thin, tottering, foundationless shells of splintered wood and imitated stone, those gloomy rows of formalized minuteness, alike without difference and without fellowship," to the miles of respectable villadom spread around every large town and city.

Thus we find that the London County Council, when the proposal to build a great home for itself at last takes definite shape, can have nowhere else to go for a site than the Adelphi. Site after site was considered by the committee — Christ's Hospital, Millbank Prison, the Foundling Hospital, the Hotel Cecil, the Aquarium — until they finally chose the Adelphi, estimated to cost four and a half million dollars. But two facts need to be stated. First, the Adelphi site embraces the finest work of the Brothers Adam in London — the Terrace facing the Thames, the famous home of the Society of Arts, with its wall paintings by Barry (not commendable to modern eyes but historically interesting), and the many houses with their fine ceilings, chimney-pieces and other relics of great talent; all of which the council talked of demolishing as if it were a collection of warehouses or slums. The councilors could speak of nothing but the cost of the site; its architectural value was not mentioned; and all the while the best site in London was allowed to be lost. I mean the crescent end of the new street now being formed from Holborn to the Strand. In previous letters I have referred to this great thoroughfare, which promises to be the finest in London, and I need only now explain that between the crescent at its lower end and the Strand there will be an "island." At one end of this "island" the new Gaiety Theatre and restaurant is rapidly rising (a brick core faced outside with Portland stone enriched by bands of marble); at the other end it was proposed to build an opera house, leaving a splendid site in the center. Here was a chance in a thousand, here the council should have built their hôtel de ville; indeed when the Holborn-Strand competition was held such a building was suggested and most of the designs showed it, but the council, to facilitate the passing of their scheme through Parliament, agreed to reinstate the Gaiety Theatre and two other buildings on the "island," and had represented that though the improvement was estimated to cost £4,500,000 they would get a recoupment of £4,000,000, a recoupment which would have been seriously diminished had the county hall been placed on the site. The chance was lost and it now seems likely that instead of a fine civic building we shall have a collection of shops and offices and hotel

CHRIST CHURCH, LONDON.
Professor Beresford Pite, Architect.

premises, with all their limitations and disadvantages. Having lost the chance, the council could do nothing better than propose to spend nearly a million of money on the Adelphi.

As I mentioned at the beginning of this letter, nothing is done now without discussion; and so far as architectural matters go perhaps the Liverpool Cathedral competition has been the subject of more debate than anything else of late. It will be remembered that after being harried right and left the executive committee consented not to restrict the designs to Gothic; and they subsequently appointed Mr. G. F. Bodley, R. A., and Mr. Norman Shaw, R. A., to act as assessors. These two architects have issued their report, which contains one or two observations of interest; they have also made public some facts of extreme suggestiveness. The majority of the one hundred and three designs were Gothic (the few Renaissance or classic designs were neither commendable nor remarkable); most of them had plans more or less like mediæval cathedrals, with too many chapels around

INTERIOR, CHRIST CHURCH, LONDON.

the east end of the choir; there were clever drawings of poor conceptions by which one might be tricked; thirty-three of the designs were expressly prepared for the competition, twenty-three consisted mostly of competitive designs submitted for large churches in different parts of the world, and the remainder were a miscellaneous col-

CHRIST CHURCH, LONDON.

lection of photographs, drawings and sketches, many of them just gathered together as they lay handy and tied up in portfolios. The assessors selected the following architects to send in designs for the final competition, each to receive three hundred guineas (the assessors receive five hundred guineas each): Austin & Paley, C. A.

Nicholson, G. Gilbert Scott, Malcolm Stark and W. J. Tapper. In addition they honorably mentioned the following: Sir Thomas Drew, J. Oldrid Scott, A. H. Skipworth, H. C. Corlette, C. A. Nicholson, F. Walley, James H. Cook and Reilly & Peach. Up to the present about £155,000 has been collected by the committee for the cathedral.

It is interesting to note that one competitor submitted a plan suggestive of the Royal Albert Hall, London, the entire area being closely seated; the author remarked that he was unable to prepare a design because he had been ill. Another competitor submitted a large chalk drawing of a figure; a third, two photographs of a brass lectern, and so on. The assessors would not for a moment suggest that a man who could draw the figure could not design a cathedral, but when the two photographs of the lectern were placed side by side with thirteen large and carefully matured drawings of a cathedral, showing fine architectural skill and great knowledge in every line, they felt that these threw far more light on the question to be decided.

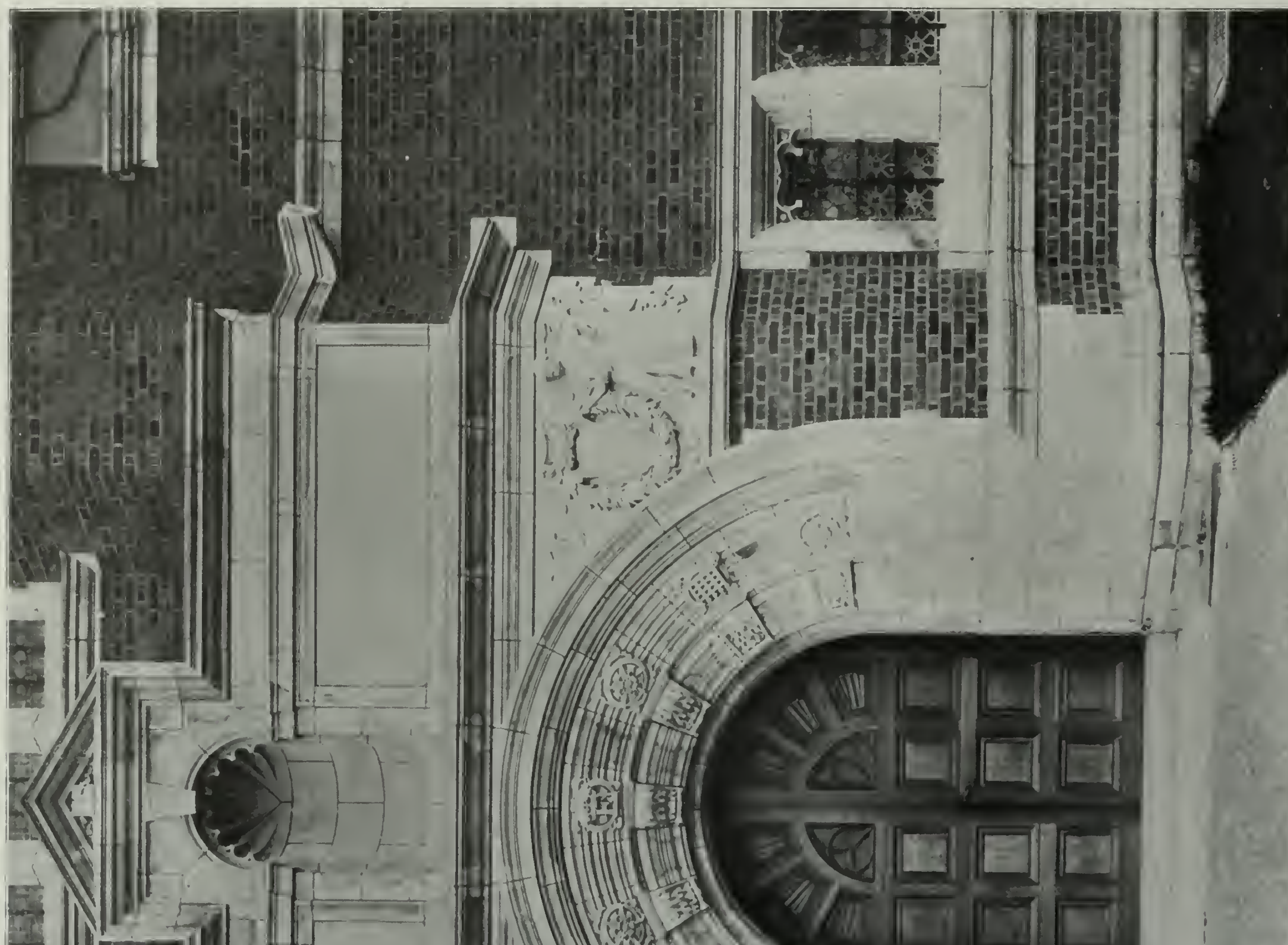
We must now wait for the final competition; the designs are to be sent in by April 30 next.

In London two famous buildings are being swept away, namely, Christ's Hospital (the famous Blue Coat School) and Newgate Prison. As regards the former, the governors found the school inadequate for their needs and were compelled to move to Horsham in Surrey, where fine new buildings have been erected from designs by Messrs. Aston Webb and E. Ingress Bell. The famous old hospital with its great hall is now half pulled down, and the site is to be covered with business premises. This is much to be regretted, but the governors say they were not rich enough to avoid doing so. The school of course takes its name from the dress worn by the boys (a long blue coat, yellow breeches and stockings, a red leather girdle, a clergyman's band around the neck, and sometimes a flat black cap about the size of a saucer. Blue was originally confined to servant-men, and not till its recognition as part of the uniform of the British navy was it looked upon as a color to be worn by gentlemen).

Similarly, not many yards away, Newgate, "perhaps

CHRIST'S HOSPITAL, HORSHAM. Aston Webb and E. Ingress Bell, Architects.
General View of Quadrangle, showing Chapel and School Halls.

DINING HALL, CHRIST'S HOSPITAL, HORSHAM.



ENTRANCE TO SCHOOL HALL, CHRIST'S HOSPITAL, HORSHAM.

the finest abstract expression of wall surface to be found in western architecture," is in the hands of the housebreakers, though of a different kind from those who were formerly its inmates. Its demolition will be extremely difficult, for Newgate was built as a fortress and the walls are more than 3 feet thick, composed of Portland stone slabs 4 feet and 5 feet long. The outer walls are cased with huge slabs of stone clamped to inner blocks, the cavity between being filled with concrete. But somehow or other, all this massive work must come down and the new Sessions House be erected on the site from designs by Mr. E. W. Mountford. The cyclopean nature of Newgate has preserved it in good condition; there are no delicate moldings and carvings to become coated with soot and eaten away, for that is the chief cause of the decay of London buildings. If the soot, instead of

INTERIOR, DINING HALL, CHRIST'S HOSPITAL, HORSHAM.

being allowed to settle year after year, were periodically swept away, not scraped, the buildings would last very much longer. Brickwork does not suffer like stone in this respect.

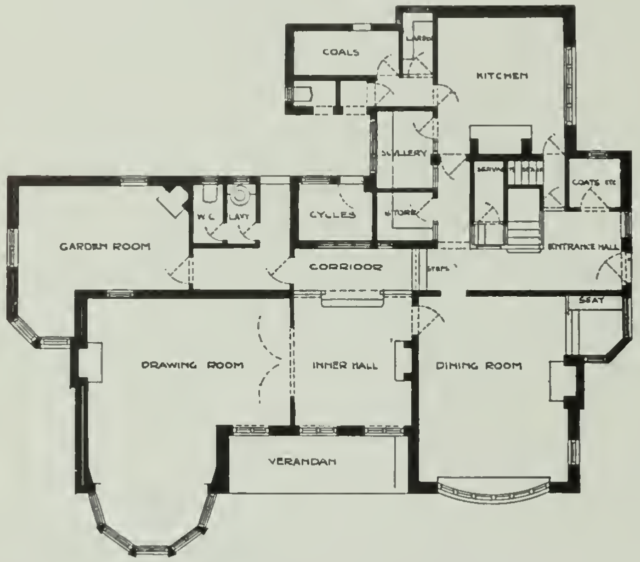
The question of fire protection is receiving increased attention from all city architects, and the terrible fire which occurred last June in Queen Victoria Street, London, has directed special attention to the subject; in fact, the various municipal and government officials have been in communication, with the result that a bill is proposed to be introduced into Parliament next session for the amendment of the London Building Act in regard to fire prevention. At present the act is not retrospective and it is not therefore possible to insist on fire-proof staircases and other requirements in certain old buildings; but this will be altogether changed by the proposed amendment. Whilst referring to this matter I may mention that next year a great international fire exhibition is to be held at Earl's Court under the auspices of the British Fire Prevention Committee. An eminently influential advisory council has been constituted and the support of all the leading continental representatives has been secured.

The committee recently undertook a test between a slated roof and ceiling and a flat roof covered with vulcanite roofing and ceiling. The test lasted one hour, the temperature reaching 1,700 degrees Fahrenheit, followed by the application of water for three minutes. Each floor measured 100 feet superficial, and four weeks were allowed for construction and drying. The slates were "American green," 20 inches by 10 inches by $\frac{3}{16}$ inch thick, with a $2\frac{1}{2}$-inch lap, and the ridge covered with blue Staffordshire ridging. The laths were of sawn spruce $1\frac{1}{4}$ inches by $\frac{1}{4}$ inch. Gutters lined with No. 14 gauge (Vieille Montagne) zinc. The vulcanite roofing was covered with $2\frac{1}{2}$ inches of gravel and sand. In fifteen minutes the plaster to the ceiling of the slated roof began to fall and in forty-seven minutes the whole of this roof collapsed; while in fifty-four minutes the underside of the vulcanite flat was a sheet of flame, though after sixty minutes the fire had not passed through it, and it was sound enough to be walked upon. Many other matters of interest to architects have taken place recently, but I can only briefly refer to one or two of them.

A proposal has been made to reform the architectural room at the Royal Academy exhibition so as to get rid of "tricky" perspectives and admit photographs, which are not allowed now on any account; but there is little hope of such reform at present.

The rebuilding of St. Mark's campanile, Venice, has been widely discussed, the general opinion being in favor of a reconstruction, and the Academy opened a fund for that purpose.

An improved process for making stock bricks is being experimented with by Messrs. Eastwood & Co., Ltd., who have laid down a large plant at Sittingbourne. The same material as before is used, earth mixed with ashes,— but instead of hand molding a machine is used that will turn out 40,000 bricks a day as compared with



PLAN OF GROUND FLOOR

HOUSE AT GUILFORD.

7,000 or 8,000 by hand. The bricks are carried on trucks to a drying chamber 180 feet long, heated up to 200 degrees Fahrenheit by exhaust-steam pipes, the moistened air being drawn off by fans. After twenty-four hours the bricks are hard and practically dry; they are then put into a kiln 180 feet long, where the maximum heat is 900 degrees Fahrenheit. Here they remain for three days. To allow for shrinkage, they are molded $9\frac{7}{8}$ inches by 3 inches by $4\frac{3}{4}$ inches; when dried they measure $9\frac{1}{4}$ inches by $2\frac{7}{8}$ inches by $4\frac{1}{2}$ inches; and after being burnt they come down to the standard size, $8\frac{3}{4}$ inches by $2\frac{3}{4}$ inches by $4\frac{1}{4}$ inches. The plant is a German patent and it is claimed for it that there is no waste and that the process can be carried on during the whole of the year instead of for about six months, as at present.

In conclusion I may refer to the accompanying illustrations. Mr. Belcher has designed a great many houses for the nobility, and the one here illustrated is a good example of his work. The house is built of purple bricks with red quoins, the exterior woodwork being painted white.

Professor Beresford Pite's church in the Brixton Road, London, exhibits quite new methods of treatment. Note the girder under the gallery, which is left exposed (it is painted an ocher color). The woodwork inside the church is stained a dark green, and the roof is very pleasingly lined with alternately light and dark narrow strips of wood diminishing towards the crown.

HOUSE AT GUILFORD.
John Belcher, Architect.

The new schools for the Blue Coat boys at Horsham, by Messrs. Aston Webb, A. R. A., and E. Ingress Bell, are most extensive and comprise many more buildings than those shown by the accompanying illustrations. Mr. Webb is the president this year of the Royal Institute of British Architects and has many important schemes in hand, including the Queen Victoria Memorial and the extension of South Kensington Museum.

NUMBER 5 NEWGATE STREET, LONDON.
C. Stanley Peach, Architect.

The premises in Newgate Street, London, by Mr. C. Stanley Peach, F. R. I. B. A., are very cleverly treated in terra-cotta and brick. There are many refinements in the design, such as the little figures above the first-floor windows.

The Town Hall Series. IV.

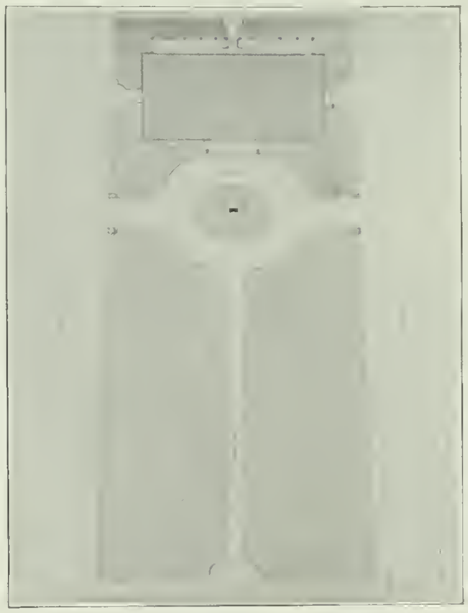
A TOWN HALL IN MASSACHUSETTS.

BY HENRY FORBES BIGELOW.

IN early New England days we find in the old towns settled by the Puritans an open space in the center of the hamlet around which the houses were grouped and where in many cases the meeting-house and later the municipal buildings faced. It was a very common arrangement to have the floor of the meeting-house raised a story, and the basement used as a town hall and entered often at the side. The New England town meeting originated in a house such as this, which served as a place of assemblage only, as the offices of the town clerk and selectmen were at their homes or places of business, and only the legal notices were tacked beside the door.

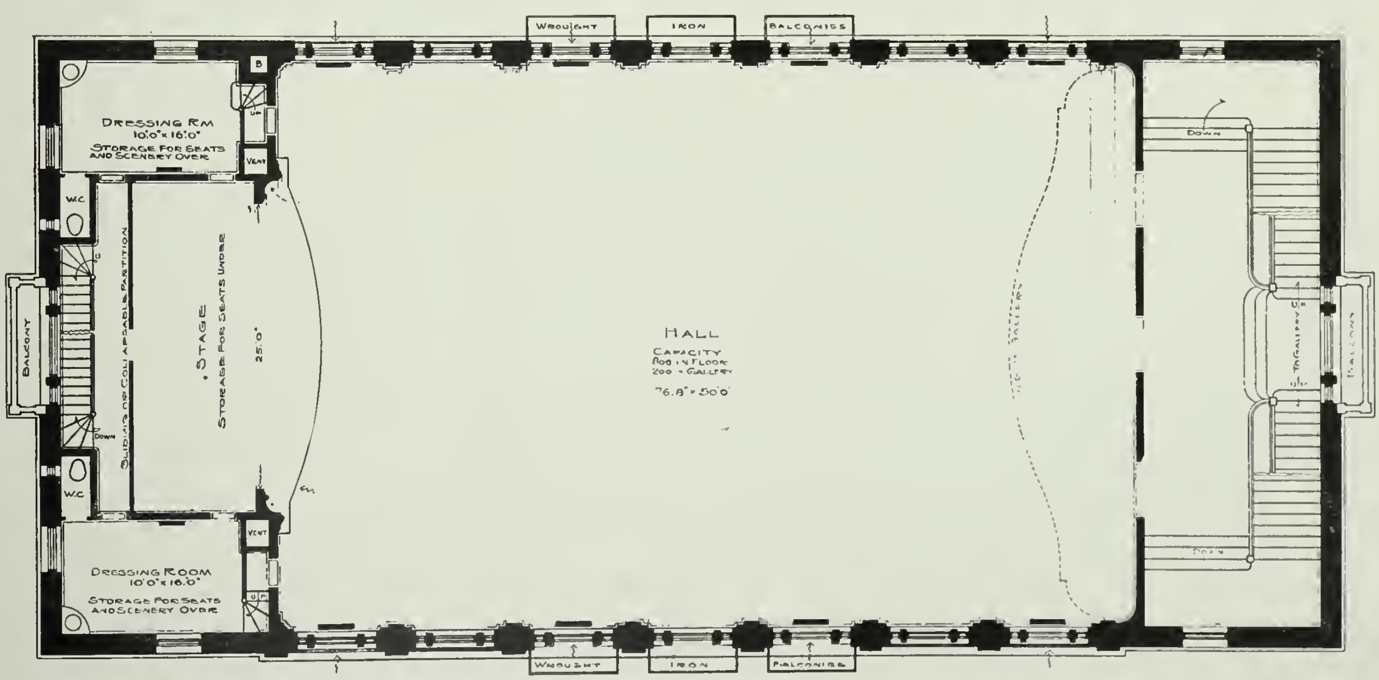
In many places a separate town hall is a luxury only attained in recent years, and one for five thousand inhabitants or over needs first an auditorium capable of accommodating all the legal voters at once, and second, accommodations for the offices of the town clerk, school committee, town treasurer, assessors and other officials, as well as often accommodations for a public library and in some instances the fire department, though this for obvious reasons is unusual. The hall should be bright and cheerful, for it is probably the largest hall in the village, and for that reason will be often used for fairs and entertainments. It should be well ventilated, for even in Massachusetts the atmosphere of a thousand closely packed average voters requires frequent renewal and vent flues of ample area and vigorous draught, and it should have good acoustic properties.

The site chosen for this town hall is on the small common of a village of five thousand to six thousand inhabitants such as one finds in most New England towns. The village churches are found about this common, and the main street runs on one side of it. A simple type of colonial architecture somewhat modified has been chosen as best suiting the traditions of the place and lending itself easily to the requirements. The exterior is intended to be built of red brick laid Flemish bond, with trimmings of white semi-glazed terra-cotta, and the roof of tile. The interior is simple in treatment, the corridors having floors of Moravian tile in simple pattern and the ceilings of glazed Guastavino tile. This latter construction is to be used in all the rooms of the first floor and basement. If the money permits, it would be desirable to use glazed white brick for all the walls throughout the basement, and particularly desirable in the lock-up room in order that it may be frequently washed with a hose.

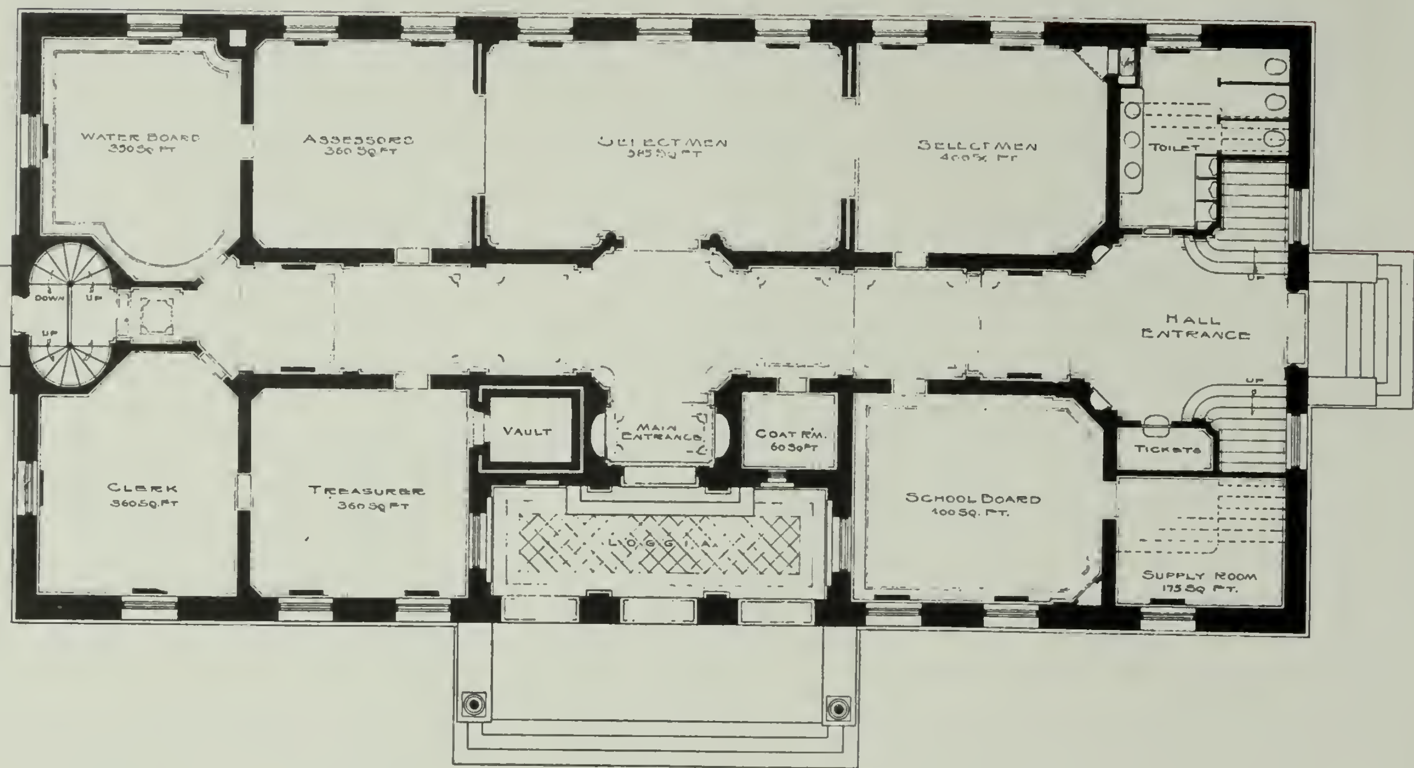


BLOCK PLAN.

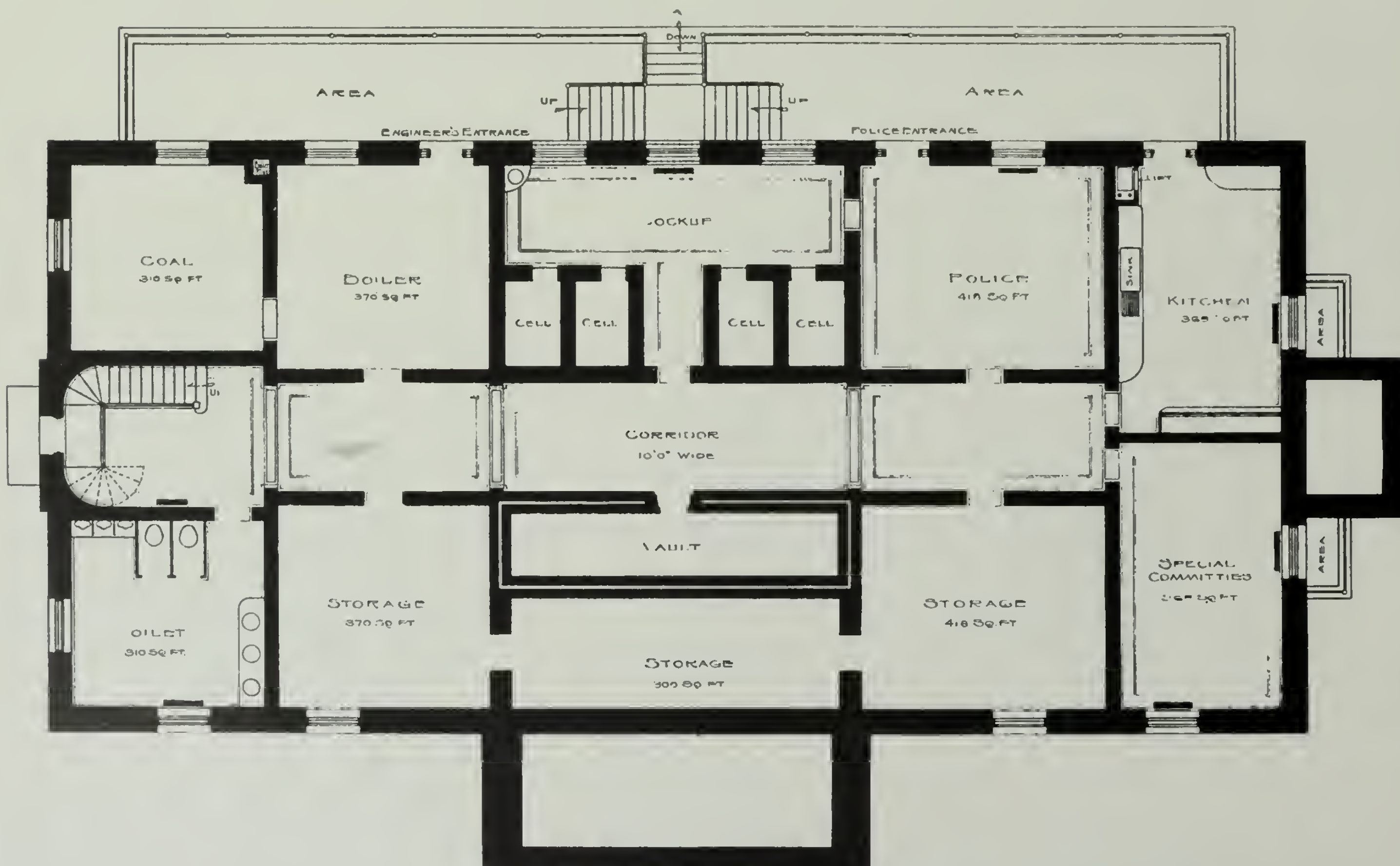
The plans and elevations explain the scheme as fully as a longer description, and are intended to be carried out in as nearly fire-proof construction as possible. It may be of interest to add that the drawings proved successful in a competition for a Massachusetts town, and the building is being built on very much the lines indicated.



SECOND FLOOR PLAN.

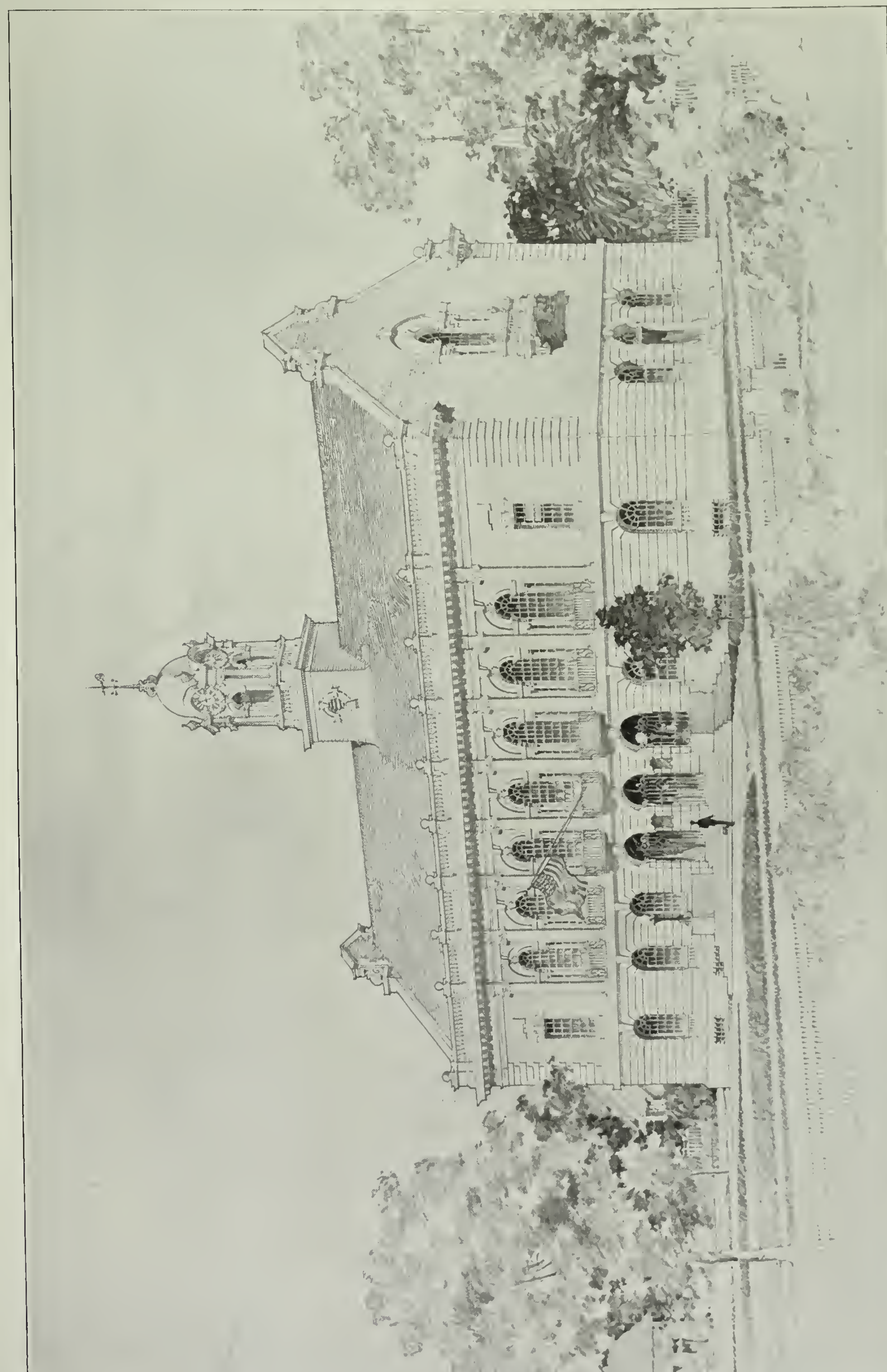


FIRST FLOOR PLAN.



BASEMENT PLAN.

PLANS, A TOWN HALL IN MASSACHUSETTS. Henry Forbes Bigelow, Architect.



DESIGN FOR A TOWN HALL IN MASSACHUSETTS.
Henry Forbes Bigelow, Architect.

Fire-proofing.

The Evil of Composite Construction of Wood and Iron.

IN the construction of buildings in which ironwork is the supporting material the building regulations of cities should prohibit the use of wood for any structural purpose. Iron as a material to resist fire has its limits. At about 400 degrees Fahrenheit it has its maximum strength, and for every increase of 100 degrees it loses approximately 10,000 pounds per square inch. Bearing these facts in mind, it is not hard to understand why wood and iron as structural members should not be used in the same building.

A not uncommon method of constructing warehouses, factories and other commercial buildings where the floor spans or loads to be carried by the girders are too great to conveniently permit the use of wood, is to make the columns and girders of iron and the beams and floors of wood, and in this style of construction little if any attention is given to protecting the ironwork from the weakening and injurious effects of heat.

The reasons which usually govern the selection of iron for the framework of such buildings are: First, the rapidity of erection; second, the difficulty of obtaining wood members of sufficient size and strength for girders (which difficulty is becoming greater each year as the forests are denuded of their larger trees); third, structural objections arising from the inability to design sufficiently strong wood connections where great strength is required at the joints, as in the case of high and narrow buildings or buildings subjected to shocks or vibrations which cannot be taken up by the thickness of the masonry walls; fourth, the necessary thickness of walls in the all-masonry type in lower stories necessary to support the masonry walls above.

It may be said that all these reasons may also be applied in favor of the fire-proof building and this is true. The fact is, the skeleton form of building presents many advantages from a standpoint of construction. It is so simple, so direct and can be designed so efficiently that these strong points have all been borrowed from this form of construction, while its vulnerable points have not been protected, consequently we have in such high buildings a type possessing some of the advantages of the skeleton type, but none of the advantages of the fire-proof type, coupled with the greatest vulnerability to possible total destruction by fire.

From an insurance standpoint the all wood, slow burning construction type, particularly if it is supplied with sprinklers, is much better than the composite type. Buildings of the composite type are not likely to have their outside columns protected, except by the outer brick walls, and if the columns are thicker than the walls the inner sides of the columns are usually uncovered or at best covered with a thin layer of tile or metal lath and plaster; and as the building is not treated as a fire-proof structure, the inside iron framework usually has no protection whatever. Should the composite type of building be menaced by fire from the outside or inside, serious damage is likely to result not only to the structure but also to adjoining buildings and to the firemen.

FIG. 1.

One reason, perhaps, that this matter has not received proper consideration from the designers of buildings and the municipal authorities is probably because it is not often that when a fire occurs in such a building a good illustration of it can be secured or that the contributing causes to its destruction can be clearly seen. Usually the "remains" are bent and distorted by falling walls or the causes which led to the damage are so complicated that any conclusions drawn from it are open to question.

Several years ago a fire originated in the Detroit Opera House by the explosion of a calcium light tank. The explosion set fire to the Opera House, and from the Opera House the fire was carried across a small street thirty feet to a ten-story steel-frame building with a composite wood and iron floor system. The fire entered the steel-frame building at several unprotected openings, and was rapidly communicated to all the floors through an open elevator shaft and stairway. The inflammable character of the stock, which was furniture, added additional combustible material to the wood beams and floors.

Figures 1 and 2 show the evil effects of the composite construction, by comparative photographs taken "before and after." They illustrate the argument so clearly and such illustrations are so rare that no other excuse is needed for using them. In this case the primary causes of the destruction came from the outside, and it might be said, attacked the building from its least vulnerable side.

The walls of the mercantile building were 16 inches thick in the first story and 12 inches above this up to and including the tenth story. One of the side walls was built of tile in several of the upper stories. The floors were of plank about 3 inches in thickness and the girders were protected by tile of 1 inch in thickness; the columns were also covered with tile 1 inch in thickness. The wall columns were partly built into and partly protected by the outside walls, and where exposed on the inside were covered with tile 1 inch in thickness. An examination of the illustration taken after the fire will show what very serious damage a fire in such a building can do. The steel frame has seriously suffered from the heat, many of the curtain girders are much twisted and bent, and quite a number of the girders in the interior of the building are also bent and out of line. In this building, also, the brick curtain wall is seen to be missing. The front walls of the building did not suffer so much

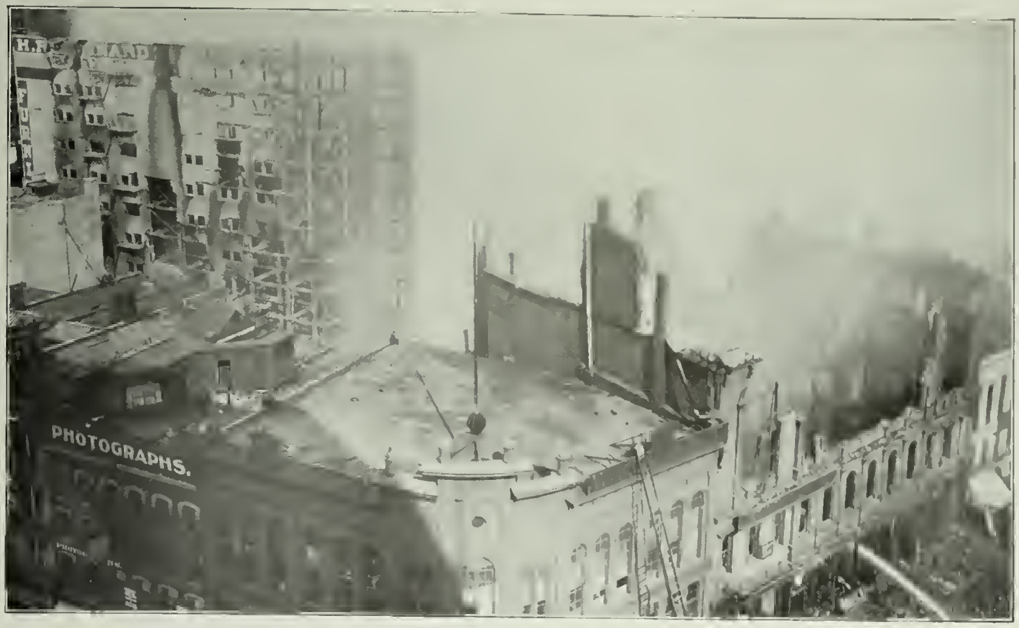


FIG. 2.

because they had only to contend with the fire inside and not with an additional fire outside, as did the rear walls. The walls of the building proved to be a menace to the firemen, although no fatalities resulted. The wonder is that the skeleton remained in position at all, and the fact that a considerable part of the framework was used again in the restored building was due probably to the efficient use of water before the point of yielding of the iron had been reached.

Had this building been of the true fire-proof type, as it might have been with a little more expense, and had its openings been properly protected by metal frames and sash with wire-glass lights from adjacent exposure, there is little doubt that it could have successfully passed through the fire with but little injury, but with thin walls and a mere imitation of fire-proof covering in connection with wood beams and floors, hardly as good a showing could have been expected.

Buildings of the composite type should not be encouraged either by the building laws or by the insurance companies, for while some buildings of this type may make a better showing than could be expected in case of fire, owing to the timely arrival of the fire department, yet they present so many objections from the standpoint of safety to the adjoining buildings, the occupants, the public and the fire department, that they should be prohibited by proper laws or at least regulated to such a modest height that in event of failure no great harm can result. It must be borne in mind, however, that such prohibition or regulation will be needed, for after a designer has once become familiar with the sureness and certainty of iron construction, as well as its very many other advantages from a constructional point of view, he will naturally turn to this class of construction when it can satisfactorily solve his difficulties, without thinking of the possible after effects such construction may have upon the neighborhood in event of fire.

In the building illustrated this composite type of construction is carried to the very great height of ten stories, and the folly of the laxity of building laws which permitted this is evident. Providence is said sometimes to take particular care of the foolish, but it is not safe to count forever on this immunity from harm.

What is said here of composite construction can also be said of the growing and indefensible custom of building party or division walls upon an iron framework — for the proper fire-proofing of the ironwork of such walls is rarely considered, and the difficulties in the way of properly applying the fire-proofing are so many that the convenience of a wall without offsets is usually considered more important than proper thickness of covering for the ironwork.

The use of iron skeleton work or iron girder construction in the street fronts of buildings which have joists of wooden construction is not good practice under ordinary circumstances, for in this class of buildings the fire-proofing is usually omitted and exposure to fire may cause the collapse of the front with possible fatalities to the firemen and destruction to neighboring buildings. Ironwork, if used in combustible buildings, requires even more care to protect it from exposure, perhaps, than if used in non-combustible or fire-proof construction, and in any case requires more covering than is usually applied.

The facility with which alterations can be made to old or existing properties by removing the fronts of the lower stories and replacing the masonry with ironwork, calls for special attention from the building inspectors and insurance companies. As these alterations are usually made in the cheapest manner, no consideration is given to the question of the effects which fire may bring about. With this class of buildings, if a fire occurs in the lower stories, the heat may be sufficient to so weaken the ironwork that the whole front may come tumbling down to the danger of the firemen and the people upon the street.

The use of ironwork in buildings has brought with it so many advantages that its disadvantages, or rather its weaknesses, in the form of lack of fire resistance and liability to rust have sometimes been overlooked, or rather failure has resulted from a neglect to recognize the necessity of properly shielding these weak but readily protected characteristics of a building material possessing so many useful, admirable and almost indispensable qualities, and the additional cost of effectively fire-proofing ironwork is such a small percentage of the total cost that it is in fact shortsighted to neglect it, and it is further the duty of the building departments of the cities and of the inspection departments of the insurance companies to see that the use of ironwork in connection with woodwork without proper protection is prohibited.

When a practice is wrong it should be discontinued, and nothing is to be gained by temporizing. Building laws should recognize the evil of this form of construction and make it impossible.

Selected Miscellany.

NOTES FROM NEW YORK.

THE general condition of real estate and building operations in this city continues to be prosperous. Even though this is usually a dull season with architects, many of them are now at work upon preliminary sketches for buildings which will be started in the spring. The prosperity of any community can be closely gauged by the poverty which is prevalent and by the number of the unemployed. The movement is of course in adverse directions, — when the one goes up the other goes down. The smaller the poverty the greater the prosperity, and *vice versa*. By poverty or prosperity is not meant the standing in wealth of a community as a whole, but the actual poverty and prosperity that exist in it and are the factors by which a general conclusion is drawn.

Statistics show that those who are idle this winter are idle from preference, as there is work enough for every one. We do not assume that this state of affairs is peculiar to New York. In fact reports from all parts of the country suggest a similar condition of affairs, so altogether it may be taken for granted that there is no abatement of the prosperity that has blessed this country for the last six years. Some fatalists are predicting hard times for the near future, and base their predictions upon the over-production of the present year. Facts, however, seem to indicate that there is no over-production, and very recently a well-known student of these conditions said to me, "Do you know that if this city were absolutely blockaded against outside communication without warning for a week there would be a universal famine imminent?" Although it does not seem possible that the immense carloads and boatloads of provisions entering this city are quickly consumed, it is a fact, and comparatively little is stored up. The same conditions seem to prevail in the building world. New apartments and office buildings seem to spring up in a night and are filled up as soon as completed, and strange to say the population of the old buildings seems to remain the same.

"THE TROCADERO," OMAHA, NEB. Walker & Kimball, Architects.
Terra-Cotta made by Northwestern Terra-Cotta Company.

DETAILS BY JOHN H. DUNCAN, ARCHITECT.
New York Architectural Terra-Cotta Company, Makers.

Of course there are no men more benefited by prosperous times than those workmen and mechanics who are employed directly or indirectly upon building operations, and if they desire a continuance of prosperity a word of warning is in order. We believe heartily in the organization of labor for the betterment of their condition, and we also believe that their pay should be better when times are prosperous and that they with their employer should reap some additional harvest, but we also believe that the arrogance and unreasonableness which seem to be fast becoming popular among labor unions will do more than anything else to put a sudden stop to prosperity and to cause building operations to cease for an indefinite period. If this comes to pass it will throw into idleness a vast army of workingmen, not only of those actually engaged in building operations but in manufactures dependent on them. I know of one large estate, with large property and real estate interests, who have stopped all building operations until the time comes when they can build without the constant annoyances to which they have been recently subjected. Most people sympathize blindly with the workingman, which is only natural, but it would be well if they knew more of the facts. Probably every architect and builder in the country could relate anecdotes corroborating these statements, and they would prove intensely interesting.

THE BABIES' HOSPITAL OF THE CITY OF NEW YORK, LEXINGTON AVENUE AND 50TH STREET.
York & Sawyer, Architects.
(SEE PLATE NO. 1 FOR FLOOR PLANS.)

The enormous and popular Waldorf-Astoria is soon to have a rival in a mammoth new hotel to be erected on the site of the old Hotel Brunswick. This has been rumored at many times, but this time it seems to be a fact. Mr. Charles T. Barney is at the head of a syndicate which will build and run the hotel. It is estimated that $4,750,000 will be spent on the building.

CONCRETE MILE POSTS.

CONCRETE mile posts have been adopted by the Chicago & Eastern Illinois Railroad. These posts are 8 inches by 8 inches, 8 feet long, with 4 feet 6 inches showing above ground. The posts are cast in a mold, and in the form are laid raised characters used to designate the miles and the divisions. The first layer of concrete put in is blackened by coloring matter, and in the finished post the numbers appear recessed in white or

MEDALLIONS DESIGNED BY VICTOR HUGO KOEHLER. New Jersey Terra-Cotta Company, Makers.

light gray on a black ground. These posts are manufactured at a cost of eighty-two cents each.

THE JOHN STEWARDSON MEMORIAL SCHOLARSHIP IN ARCHITECTURE. SEVENTH COMPETITION. 1903.

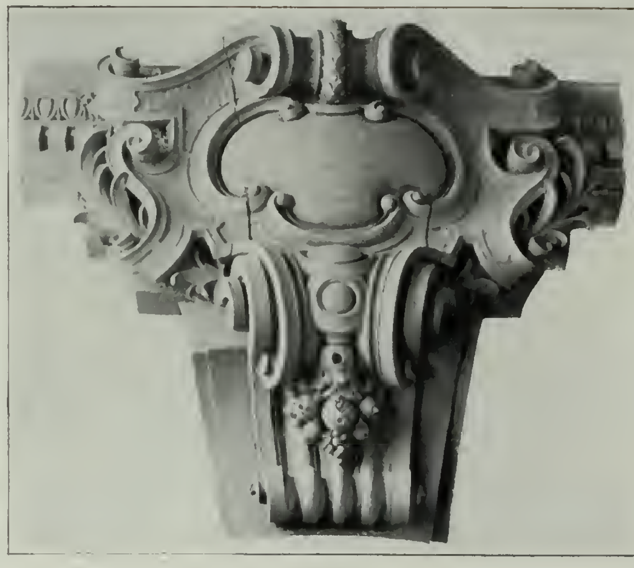
The managing committee of the John Stewardson Memorial Scholarship in Architecture announces by authority of the trustees of the University of Pennsylvania, who act as trustees of the memorial fund, a competition for a scholarship of the value of one thousand dollars, the holder of which is to spend one year in travel and in the study of architecture in Europe under the direction of the committee.

DAYTON BUILDING, MINNEAPOLIS, MINN.
C. S. Sedgwick, Architect
Built of Columbus Brick and Terra-Cotta Company's Brick.

Candidates must be under thirty years of age and must have studied or practiced architecture in the state of Pennsylvania for the period of at least one year immediately preceding the twenty-third day of May, 1903.

Inquiries may be addressed to Professor Warren P. Laird, School of Architecture, University of Pennsylvania, Philadelphia.

HOUSE AT ATLANTA, GA.
Roofed with American S Tile.



DETAIL BY J. M. McCOLLUM, ARCHITECT.
Conkling-Armstrong Terra-Cotta Company, Makers.

SEVENTEENTH ANNUAL CONVENTION OF N. B. M. A.

THE seventeenth annual convention of the National Brick Manufacturers' Association will be held in Boston February 4, 5 and 6, headquarters at the Hotel Brunswick, corner of Boylston and Clarendon streets. The indications are that a large number of manufacturers from different parts of the country will be in attendance, and a programme of unusual interest has been arranged for. The banquet of the association will be held at the Hotel Brunswick at 6.30 o'clock Wednesday evening, February 4.

ENTRANCE, CARLETON BUILDING, ST. LOUIS, MO.
Theo C. Link, Architect.
Terra-Cotta executed by Winkle Terra-Cotta Company.

SADDLE AND CYCLE CLUB HOUSE, CHICAGO, ILL.
Jarvis Hunt, Architect.
Roofed with Ludowici Tile.

THE OLD BRICKWORK OF HOLLAND AND BELGIUM.

IN an extra edition to THE BRICKBUILDER for this month there are illustrated fifty selected examples of the charming old brickwork of the Dutch countries. This special number will be ready for mailing about February 1.

THE AMERICAN SCHOOL OF CORRESPONDENCE.

WE have received the catalogue of the American School of Correspondence at the Armour Institute of Technology at Chicago, also the instruction paper on Perspective Drawing of the same, prepared by Professor W. H. Lawrence, Associate Professor, Department of Architecture of Masachusetts Institute of Technology. The subject-matter is very thoroughly treated in all its aspects and the illustrations are clear and concise, affording great aid to the student. The Correspondence School is doing a good work for the thousands of young men all over the country who are denied the privileges of regular university education and yet who have the ambition to study and improve their condition. The affiliation of the Correspondence School with the Armour Institute is greatly to the credit of both institutions and is in a sense a guarantee of the high standard which the American School has set before itself and to which it has tried so hard to raise the average of its pupils.

PANEL, EXECUTED IN RED, GREEN, BLUE, GRAY AND GOLD GLAZES BY PERTH AMBOY TERRA-COTTA COMPANY.
Alfred Hopkins, Architect.

During the year 1902, as compared with the year 1901, the amount of building shows a loss in New York, Philadelphia and St. Louis of from 3 to 18 per cent. San Francisco shows a gain of 92 per cent, and Chicago, Buffalo, Cincinnati and Washington show gains of from 20 to 36 per cent.

DETAIL BY LORD & HEWLETT, ARCHITECTS.
Atlantic Terra-Cotta Company, Makers.

STATUE (10 FEET HIGH).
Excelsior Terra-Cotta Company, Makers.

IN GENERAL.

Louis Mullgardt, architect, St. Louis, has been commissioned to design the woodwork and mural decorations for the new mammoth hotel which is to be erected at Manchester, England, by the Midland Railway

STORE FRONT, PHILADELPHIA, PA.
C. L. Gardner, Architect.
Built of "Ironclay" Brick. O. W. Ketcham, Philadelphia Agent.

HOUSE AT CRESCENTVILLE, OHIO.
Jacob J. Rueckert, Architect.
Brick furnished by Ohio Mining and Manufacturing Company.

Company at a cost of $5,000,000. Mr. Mullgardt, accompanied by his family, sailed for England December 31.

E. O. Kuenzli, for a number of years head draughtsman with Charlton, Gilbert & Demar, architects, Milwaukee, Wis., has been admitted to the firm, succeeding Mr. Demar.

Knight Brothers have opened an office at Crown Point, Ind., for the practice of architecture and engineering, and would be glad to receive manufacturers' catalogues and samples.

DETAIL BY FISHER & LAWRIE, ARCHITECTS.
St. Louis Terra-Cotta Company, Makers.

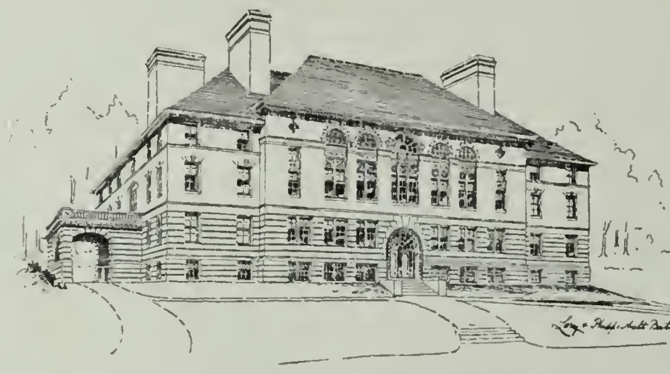
W. W. de Veaux, formerly of New York City, has opened an office for the practice of architecture at 104 Union Street, Seattle, Wash., and would be glad to receive manufacturers' catalogues and samples.

Brick, one of the leading clay-working journals of the country, gives five pages of its January number to a description, with illustrations, of the plant of the Blue Ridge Enameled Brick Company, located at Saylorsburg, Pa. This is one of the best equipped enameled brick making plants in this country, we may say in the world, it being modern and in every respect up to date. The compliment which *Brick* pays this company is certainly deserved.

As previously announced in THE BRICKBUILDER for November, the business heretofore conducted by The Columbus Face Brick Company will be continued in a more extensive way by The Ironclay Brick Company, a new corporation having a capital of three hundred thousand dollars, with facilities for the annual production of upwards of twelve millions of the "Ironclay" brick in all sizes and shapes. New and larger kilns have been built. New presses of greater capacity are now in operation. Larger storage sheds have been provided, and everything that experience has shown to be necessary or desirable has been done to bring the enlarged and perfected plant fully up to the requirements of the trade. There will be no change in the personnel of the company, David C. Meehan continuing as president and treasurer, and John M. Adams, secretary.

The Winkle Terra-Cotta Company, St. Louis, has issued a very attractive calendar for the new year.

The Pope Cement and Brick Company, Pittsburg, Pa., are sending to their friends a vest-pocket diary which should prove to be very acceptable.



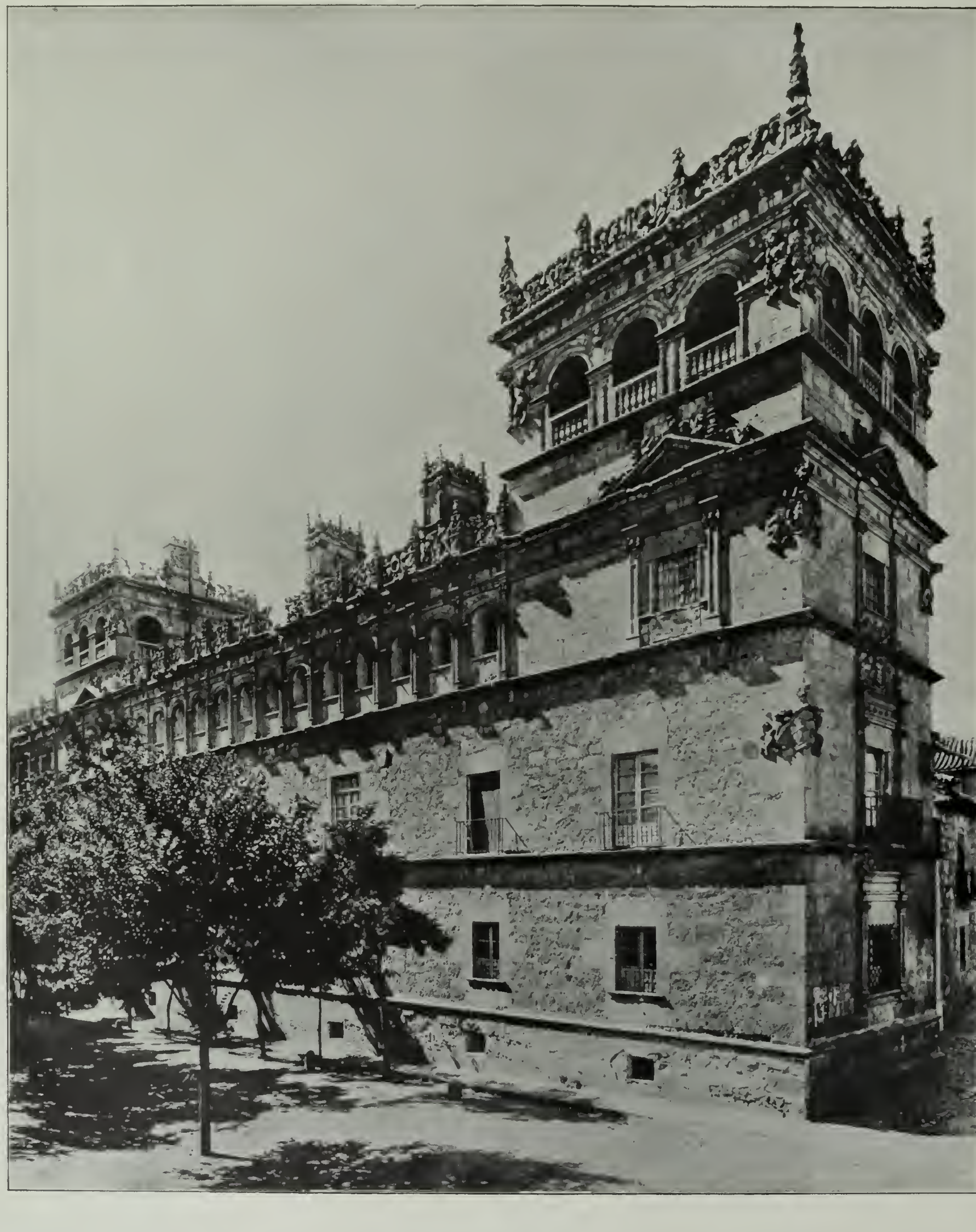
NEW HIGH SCHOOL BUILDING, HYDE PARK, MASS.
Loring & Phipps, Architects.

The new high school building at Hyde Park, Mass., Loring & Phipps, architects, will have the Folsom Snow Guard on its roof. This same statement might in truth be applied to most of the new schoolhouses in New England having pitched roofs.

THE BRICKBUILDER.

FEBRUARY,

1903.



PALACIO DEL MONTEREY, SALAMANCA, SPAIN.

THE BRICKBVILDER

VOL. 12 No. 2 DEVOTED · TO · THE · INTERESTS · OF ARCHITECTVRE · IN · MATERIALS · OF · CLAY FEB. 1903

THE BRICKBUILDER.

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ADVERTISING.

Advertisers are classified and arranged in the following order:—

Advertisements will be printed on cover pages only.

APARTMENT HOUSE SERIES.

OWING to the illness of Mr. Kilham the presentation of the third article in the series on The Planning of Apartment Houses will be postponed until the March or possibly the April issue of THE BRICKBUILDER.

A CONTROVERSY has been aired in the newspapers, apparently started by Colonel Bingham, who feels called upon to criticise the nature of the White House alterations and incidentally to cast a species of aspersion upon the architect and his charges which would be altogether absurd as applied to any first-class architect and is especially so in the case of Mr. McKim. Surely if any architect ever gives full worth for his money it is the firm of which Mr. McKim is an honored member, and to assume that since the architect receives ten per cent on the decorations and five per cent on the general construction he would necessarily run up the bills of the former to merely increase his commission is a suggestion worthy of the political mind which would conceive it and simply shows how dense is the ignorance of the average public man to the point of view of the trained architect. The commission system of payment has its faults. It, however, more often inadequately compensates an architect's expenditure of thought than it overpays, and if the prices paid for the high order of architectural service which has been expended on the White House had been twice the actual percentage the total would not have been too much for the personal attention and trained skill which have so successfully transformed our executive mansion from a very commonplace, if not vulgar, interior to one that is in every respect fitting for the official residence of our chief magistrate. And in the mean time Mr. McKim can well afford to let the politicians rave.

WE notice in a contemporary magazine, which claims to be architectural at least in its character, a statement to the effect that the American Institute of Architects had elected, among others, Emil Nauchamer of Paris an honorary member. Such is the bubble reputation. Emile Vaudremer is a name so familiar to every architect who has followed the development of his art during the past thirty years that to have that honored name so horribly mutilated in print shows how easy it is for even the greatest to be ignored. For that matter, when M. Vaudremer's name was presented at the convention he was referred to by one architect as Mr. Vaudream-er, with the accent on the dream.

THE Chicago Post Office, which is nearing completion under the direction of Mr. Henry Ives Cobb, is proving to be one of the most economically built structures of its kind. The New York Post Office, which was built during the reign of Mullett, is said to have cost one dollar per cubic foot. The cost of the St. Louis Federal Building is said to be ninety-six cents, and of Omaha seventy-one cents, Philadelphia sixty-five cents, Cincinnati sixty-four cents, and the Pittsburg Federal Building forty-nine cents. All of these buildings were built some years since when prices were considerably lower than they are now. The Chicago building is an expensive one to build in some ways, having a great deal of outside wall for its area, and the contracts were let at times when the prevailing prices were higher than they have been for many years, yet the total cost per cubic foot, including finish of a very high order, it is said, will be only forty-one cents per cubic foot. An ordinary commercial building can be built for thirty-five cents per cubic foot as a minimum. Many of them cost as high as sixty. The Chicago Post Office is a notable exception to the general rule for government work.

The American Hotel. I.

BY C. H. BLACKALL.

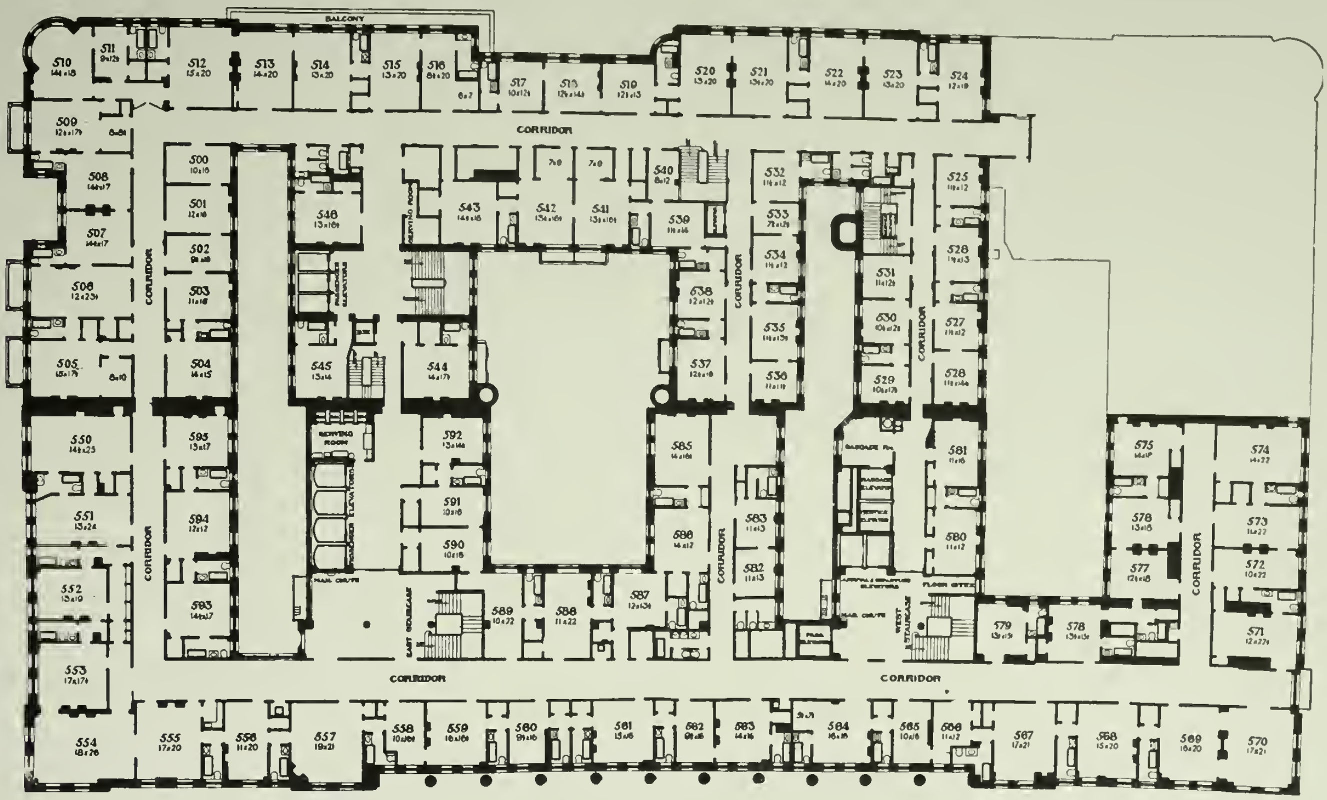
THE extraordinary growth in material wealth of this country during the past generation has made possible the development of the construction and the operation of the large city hotel to an extent which renders the problem one of the most interesting which confronts the architect. Fortune has been prodigal in her blessings to this people, and apparently we are no less prodigal in improving our communities. The hotel life of to-day in a large city implies necessarily the possession of and the willingness to spend a good deal of money. Few even of those who are fairly familiar with the problem realize how tremendously prices have advanced even in the last ten years. It was not very long ago that five dollars a day was considered a very high price for accommodations at the best hotels in New York City, including both meals and room. To-day it is not easy to obtain a room in a thoroughly first-class hotel under three dollars a day, and this hires a very humble apartment usually on an inner court, the best rooms commanding prices as high as ten or fifteen dollars per day for room and bath alone. Up to the time that the Waldorf was built there was not in New York City any hotel which would to-day answer to the designation of first class. The Waldorf was looked upon as a freak of an extremely wealthy family which could afford to indulge such hobbies, and the prediction was freely made that Mr. Boldt, the manager of the hotel, was courting failure by assuming the enormous expense incidental to a hotel of that sort. When a few years later the Astoria was added to the Waldorf on a degree of even greater magnificence the public began to appreciate that there were a good many thousand people in the world who not only wanted but were willing to pay for the highest class of accommodations. At present there are a number of hotels on the scale of the Waldorf-Astoria in New York, and they all seem to be prosperous in every sense of the word. Nor is this prosperity confined to New York alone. Prices have advanced enormously in Chicago, St. Louis, Washington and Boston. The fact that all these large, magnificent hotels pay good returns on their money and a handsome profit to the manager who understands his business is abundant evidence that the country needs just such structures.

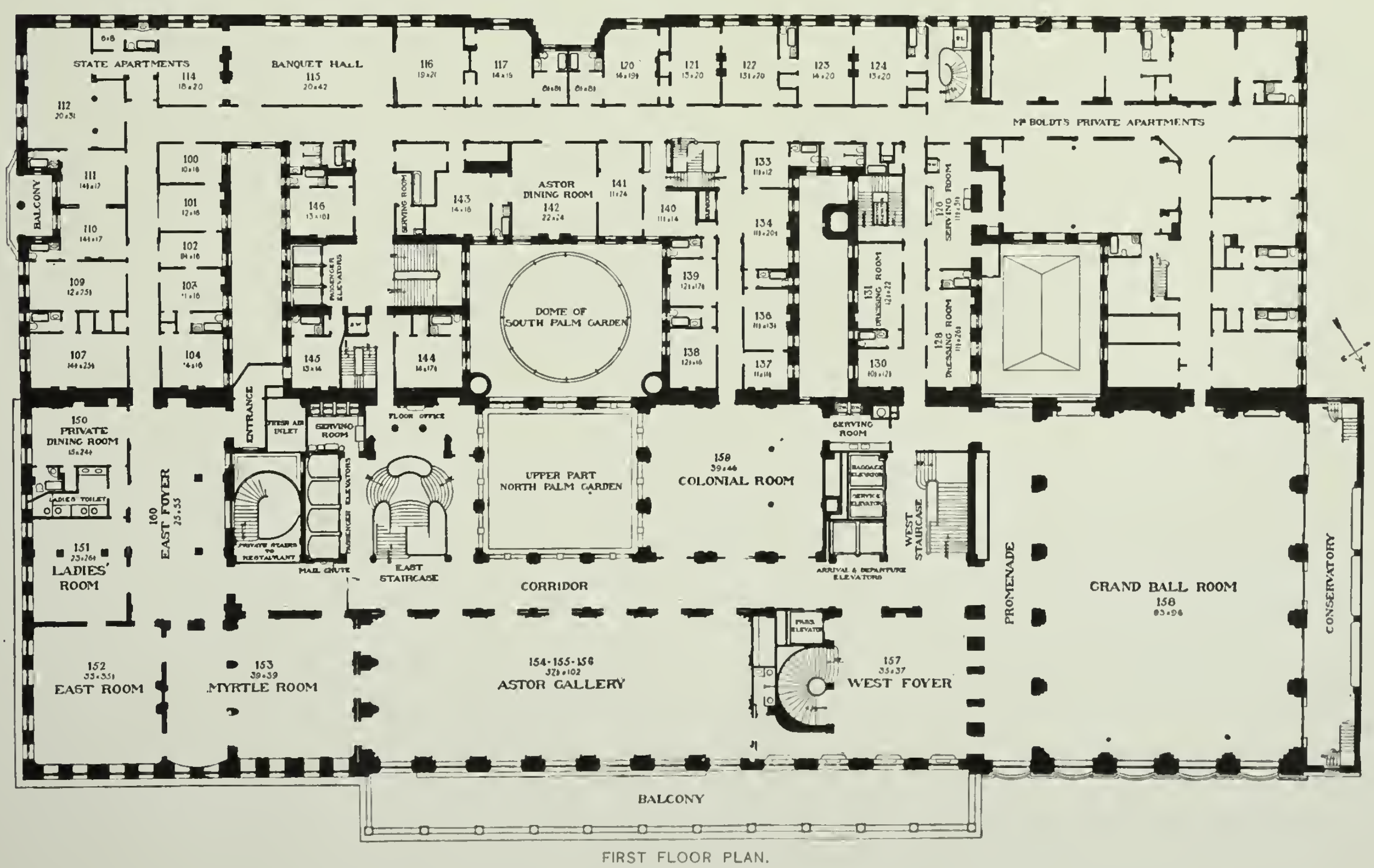
FIRST FLOOR PLAN.

TYPICAL FLOOR PLAN.

HOTEL MANHATTAN, NEW YORK. H. J. Hardenbergh, Architect.

The change from the American to the European plan, so called, of operating a hotel has necessitated and brought about many changes in the planning. In the older type





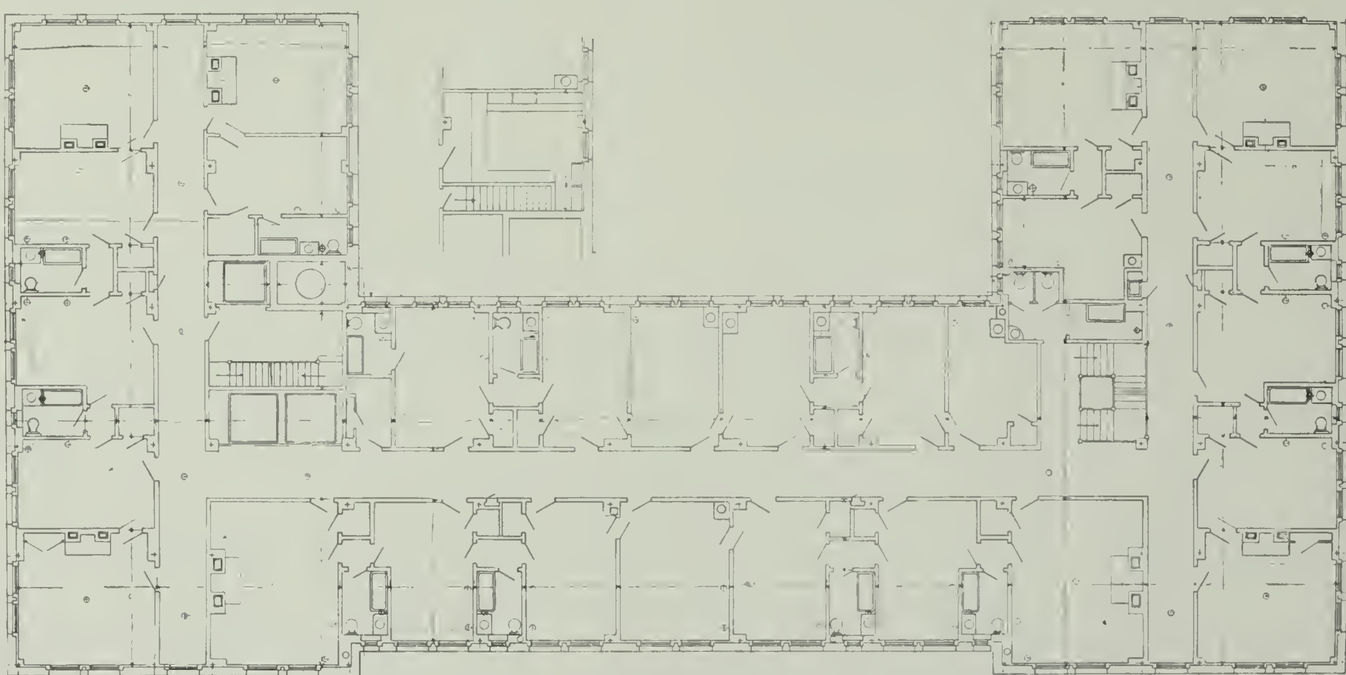
THE WALDORF-ASTORIA, NEW YORK. H. J. Hardenbergh, Architect.

of hotel the dining room was the principal apartment and was usually a single, large, more or less dreary hall where all met in common. This room and the bar were all that was offered to the patrons for eating and drinking. The bar, however, soon expanded into a café, and the café in turn has developed into what bears still the same name, but is virtually the men's dining room and usually the most profitable source of income about the building, while the dining room proper is by common custom in the large cities reserved for ladies alone or with escorts. The American plan hotel still survives in most of the small cities. In the larger cities some of the cheap hotels are run on the American plan, but almost without exception the first-class hotels are to-day on the European plan and the cheaper ones are rapidly falling into line.

In studying this problem it is the intention to draw for illustrations from only the best of the large city hotels. If an architect twenty-five years ago could have clearly foreseen just what the hotels of the twentieth century would be, the best hotels of his time would all have been poor models to study for what we have to-day. It is fair to assume therefore that the future will see quite as large developments as have marked the past, and the best of to-day will surely be none too good to study for the creation of what will be the average of excellence of a few years hence. Furthermore, there is no problem involved in the construction of a small hotel that is not equally prominent in a large one and which is not usually therein solved in a better and more logical manner. There are few Waldorf-Astorias in the country and only one Ponce de Leon, but it is by studylng these best examples that the architect who has a more modest problem confronting him can find the exact solution which he seeks.

In the planning of a large hotel the first study is given to the arrangement of the sleeping accommodations. The disposition of the upper stories can be established practically without much reference to everything below, for with our modern methods and the possibilities which steel puts within our reach the lower stories can be arranged and divided almost without reference to the structural lines of support from above. This may be questionable architecture perhaps, but it certainly seems to be custom. In the Waldorf-Astoria the ballroom, one hundred feet in diameter, is spanned by huge girders which support some fifteen stories or more of sleeping rooms. In nearly all the hotels, in fact, the large rooms are arranged with little reference to the upper portion of the building. So the first consideration of plan is for the sleeper; the next is for the business floor, so to speak, including the dining room, offices, etc.; and the last to be considered includes the kitchens and service quarters generally. These can be tucked away to an apparently unlimited extent in the bowels of the earth. The hotel which is now being constructed at the corner of 42nd Street and Park Avenue, New York, is carried down story after story until it stretches far below the bottom of the subway. Indeed the subway is carried through one corner of the hotel so as to be entirely enclosed by the service portions. The three factors, the sleeping apartments, the first floor and the service, are almost independent of each other and will be studied separately in this article.

There are three troublesome features to be considered in planning the sleeping apartments of a hotel, namely, bath rooms, fireplaces and closets. These are termed troublesome for the reason that invariably the client will take the total area of the lot, divide it by the approximate area of a single sleeping room, multiply this by the number of stories, and demand that in some way the architect shall plan a hotel with that number of sleeping rooms. That was approximately possible before the days of modern plumbing, and there are still many hotels built with

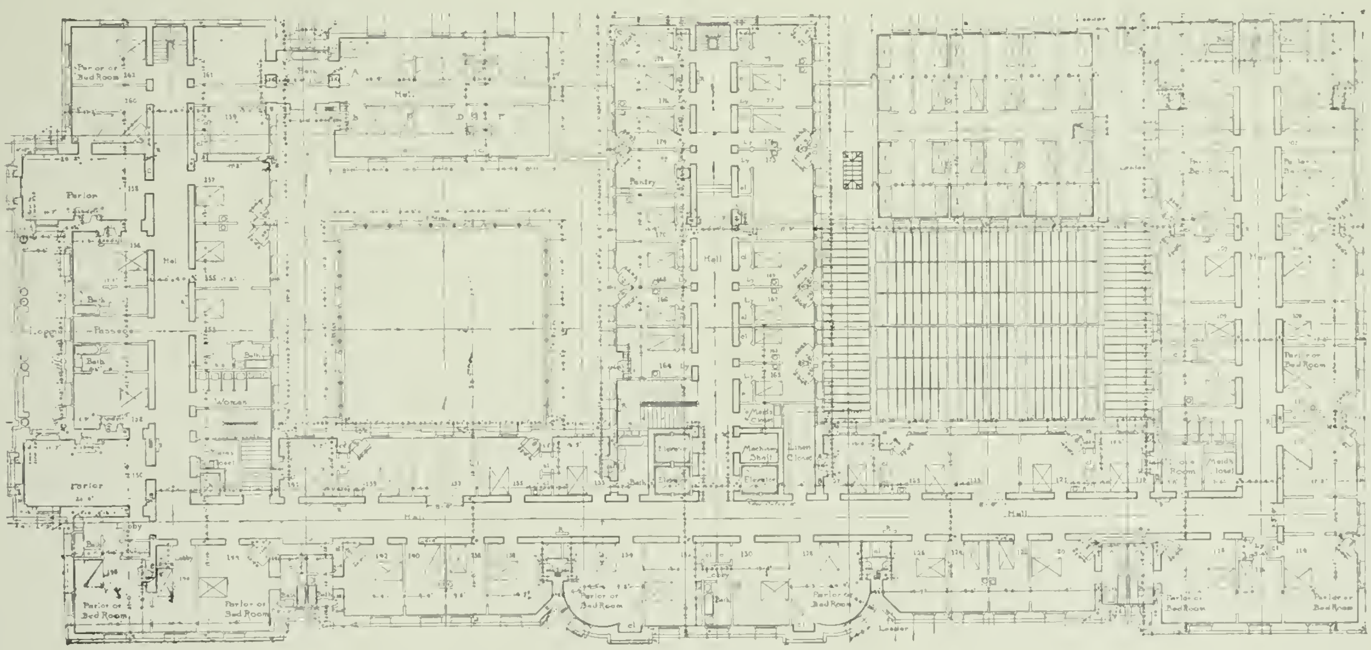


TYPICAL FLOOR PLAN.

HOTEL SCHENLEY, PITTSBURGH. Rutan & Russell, Architects.

relatively few bath rooms, but it is becoming more and more nearly the rule in every first-class hotel to provide each room with a bath room, or to at least arrange the rooms with one bath room adjoining two sleeping rooms. And in regard to the disposition of the bath rooms themselves there are two distinct views. Some hold that so long as the bath rooms are well ventilated, outside light and air are in no sense necessities, and that only on rear passages or courtyards is it advisable to give up space on an outside wall for direct light into a bath room. Consequently, following this supposition, the bath rooms are placed inside and receive a certain amount of air and rarely a little light from shafts which are often reduced to an extreme minimum. In the second floor bath rooms of the Holland House, New York, one light well serving two bath rooms measures only about 18 x 52 inches. Likewise in the Auditorium Annex Hotel in Chicago, which is considered one of the best in the country, the bath rooms in the older portions of the hotel are entirely lighted from interior wells and in the portion recently completed from the plans of Holabird & Roche only a very few of the bath rooms receive direct outside light. The wells in this instance, however, are relatively quite generous, being about 16 square feet in area each. On the other hand, by reference to the fifth floor plan of the Waldorf-Astoria it will be seen that in every case the bath rooms are lighted from the street. In the Hotel Manhattan, New York, the only bath rooms not lighted from the outside are either entered directly from the corridor and are for public use or are connected to some of the inner corner rooms of the light courts. But on the plan of the fourth to the ninth floors inclusive there are only five inside bath rooms as against twenty-three outside bath rooms on each floor. In this hotel every room not provided with a bath room has a set bowl and closet. The New Willard follows the same principle, putting bath rooms entirely outside. In a general way the plan of lighting the bath rooms from an inside well seems to meet with more favor in the West than it does in the East. Whichever way is adopted permits, if properly installed, of perfectly clean, wholesome bath rooms, but it seems to sound more attractive to the public to say that every bath room has outside air and light, and though the value of this light and air may be exaggerated, the more recent hotels, certainly in the East, seem to have adhered to this arrangement. As to the question of whether bath rooms pay there is little doubt. The interest on the extra cost of the plumbing fittings is not sufficient to be seriously considered in the matter. A bath room at the most takes up 40 per cent as much room as a single sleeping room, but on the other hand a room with a bath usually rents for about 50 per cent more than a room without a bath, and, furthermore, it rents much quicker, so that from a purely financial point of view it would seem to be desirable that every room in a large hotel should have its independent bath room.

The typical floor plan of the Hotel Schenley at Pittsburgh shows in the front rooms an arrangement of baths and closets which can almost be taken as a typical one, when it is not considered absolutely essential that every room should have a bath. It will be seen that the outside bath room is reached by a short passage between two adjacent rooms, the bath room and the passage taking all but about three feet of the depth of the room, the remaining space in the rear of the passage being divided into two closets for the respective rooms. By this arrangement the bath room can be used for either chamber and on a long spacing across a continuous front the group of two rooms and a common bath room would be repeated indefinitely. This arrangement also permits rooms to be rented en suite, which is frequently desirable. In fact it may generally be stated that in the modern hotel all the rooms are connecting. The fifth floor of the New Willard at Washington affords in the rooms on the court towards the rear a very good arrangement where every room is to have its independent bath. Here



PLAN OF FIRST BEDROOM FLOOR.

THE JEFFERSON HOTEL, RICHMOND. Carrère & Hastings, Architects.

TYPICAL UPPER FLOOR PLAN.
NEW PLANTERS HOTEL, ST. LOUIS.
Isaac Taylor, Architect.

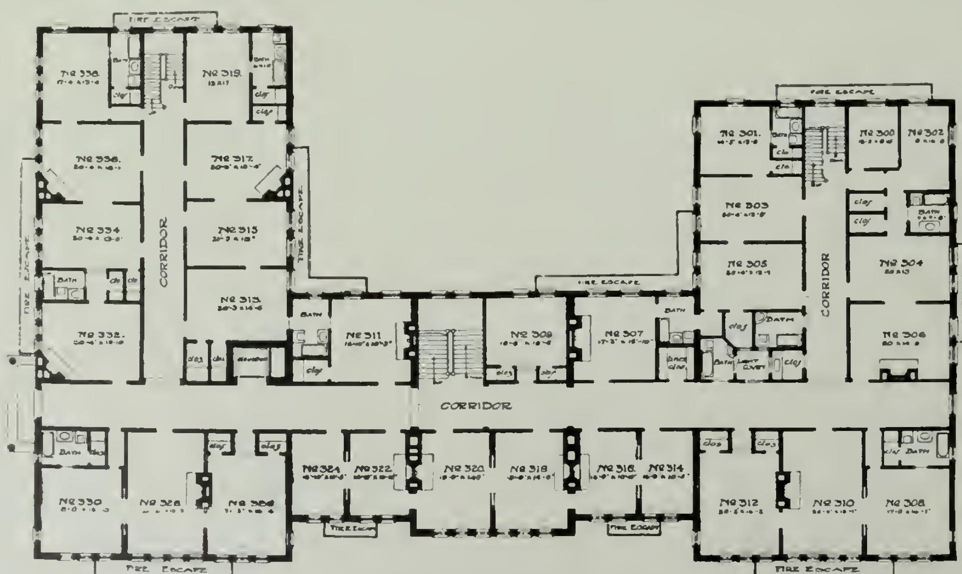
the rooms, however, are not connecting. On the other hand, along the two street fronts every other room is arranged with a bath, with a bowl in the passage connecting the two rooms, thus allowing the rooms to be let in pairs.

When the bath rooms are placed against the outside wall the problem of closets becomes a very simple one, as the total depth of the bath room is not sufficient to take up the average depth of the chambers and the remaining space works in very nicely for closet room. Few hotels now are built without a separate closet for each room. The old days of wardrobes have long gone by. This seems somewhat like an anomaly, for probably ninety per cent of the people who patronize a city hotel rarely unpack their trunks and still more seldom do they hang up their clothes in the closet, but if the hotel were built without the closet it would run a chance of getting a bad name, which is far worse than to be actually bad, and consequently the room must be given up to this purpose.

The upper floor plans of the Hotel Jefferson, which was built by Carrère & Hastings, at Richmond and destroyed a short time since by fire, offer very good illustrations of both outside bath rooms and fireplaces. Nearly all the rooms are provided with fireplaces and they certainly add a great deal to the attractiveness of the room. Practically a fireplace is a mere ornament in a hotel, for it never could be depended upon for either heating or ventilation, and the complication in a tall building arising from the numerous flues is something which interferes very seriously with the proper arrangement of the upper stories, but when it can be worked in it is always desirable and at least helps to make the rooms attractive and to rent them easily.

The size of bedrooms in a hotel is something which has diminished a great deal within the last few years. It was not very long ago that the ideal bedroom in a first-class hotel was a very large high studded apartment with ponderous mahogany furniture and heavy draperies at the windows. The bedrooms now are often less than 300 square feet in area, and in some rooms they are even as small as 9 x 12, though this is an inadvisable minimum. The furniture is light and graceful, the bedstead is of brass, and lace curtains are hung at the windows, while the height of story is no more than would be expected in a first-class residence. A comparison of the sizes of sleeping rooms is of interest. In the first bedroom story of the Jefferson the outside rooms range from a minimum of 9 x 16 up to 17 feet square, while the rooms around the court run from about 9 x 13 up to a little over 14 x 17. In the Niagara Hotel at Buffalo, by Green & Wicks, the bedrooms range from 175 to 375 square feet in area. In the Manhattan, New York, the outside rooms are about 12 x 19 and the rooms on the court vary from 9 x 12 to 14 x 17. Unless considerations of expense are to be considered paramount, it may be said in a general way that no hotel bedroom ought to be less than 150 square feet in area. We are speaking now of the first-class hotel, of course.

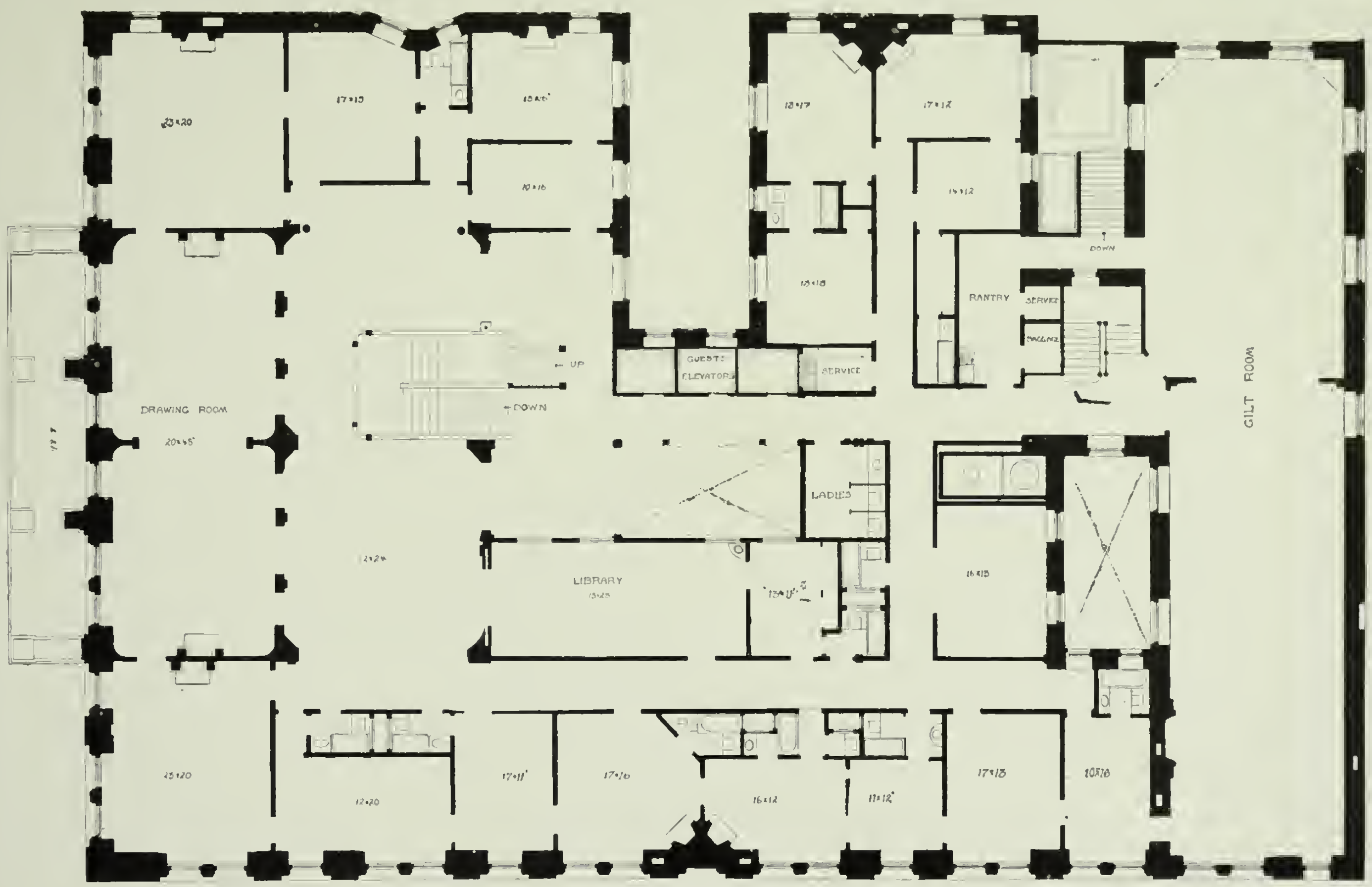
There are several features which enter into the equipment of each sleeping room. The heating is by a steam coil concealed in the window seat, drawing air from out of doors and controlled by something analogous to the Johnson system, so that all the guest has to do is to turn a pointer on the wall beside his bed to the degree of heat which he desires, this pointer actuating an electric or pneumatic device which opens or closes the steam valves. The door to the corridor is usually provided with a transom, but it is customary to cover the glass with a muslin screen so that reflections cannot be seen from outside. Each room is, furthermore, equipped with a telephone communicating to a central station in the hotel by which the wants of the tenant can be made known. There is a very ingenious device known as the Teleseme which is familiar to all hotel dwellers and permits the guest by a peculiar arrangement of pointers to ring for almost any imagineable service. The room is lighted by a central chandelier controlled by a switch near the door, besides which there are bracket lights each side



THIRD FLOOR PLAN.
NIAGARA HOTEL, NIAGARA FALLS. Green & Wicks, Architects.

of the dressing table. The latest idea as to construction of the floor provides for a concrete surface into which is built, around the edge of the room, a wooden strip to which the carpet is nailed.

The ideal hotel would be one in which every room was provided with a bath, ample closets, a fireplace and a bay window. The hotel which comes apparently nearest answering all these requirements is the Auditorium Annex in Chicago. Every outside room has a bay window and many of them have fireplaces, but it is seldom possible to have bays to this extent on account of restrictions of building laws and the necessity of utilizing as much of the lot area as possible. Neither the Waldorf-Astoria, the Manhattan nor the New Willard are provided with bays. The New Planters, in St. Louis, has only a very few recessed bays which do not project very materially beyond the building line. Only rarely are bay windows possible, but they certainly add a great deal to the hotel, and when circumstances permit should be put in by all means.

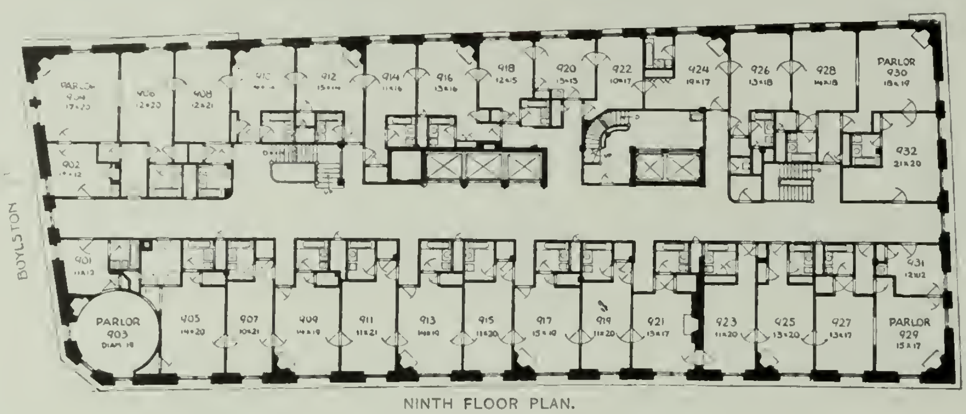


SECOND FLOOR PLAN.

HOLLAND HOUSE, NEW YORK. Harding & Gooch, Architects.

A notable feature of all first-class hotels to-day is the attention given to special suites. For years every hotel had its bridal apartments, which are still continued in a way, but the large hotels now go even further and have what are termed the state apartments. The first-floor plan of the Waldorf-Astoria shows three sets of such apartments, the inner suite including the Astor dining room facing towards the court over the palm garden, the state apartments at the corner of 33d Street and Fifth Avenue, so called, and the private apartments of Mr. Boldt, the manager, towards the rear on 33d Street. The plan of the first floor of the Hotel Manhattan likewise shows state apartments occupying the greater portion of the 42d Street front. These are, however, far less magnificent than those in the Waldorf-Astoria. It may be said in passing that the first floor in a modern hotel usually designates the first floor of sleeping apartments and the rooms of course are numbered with the initial of the first figure corresponding to the index of the floor. Then besides these extremely elaborate apartments there are usually a number of rooms arranged in groups so that they can be rented in suites, such as the front apartments of the Hotel Touraine or the rows of rooms facing Michigan Avenue in the more recently completely portion of the Auditorium Annex. There are also several very ingeniously planned suites in the Jefferson. In a sense these suites are mere flourishes. The steady income of the hotel comes from the regular patron who asks only for a comfortable room and bath and runs up the greater portion of his bill in the café and dining room.

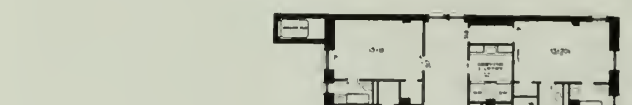
A modern hotel has very little in the upper stories except the sleeping rooms. It seems to be the custom to provide only a slight accommodation for linen and storage on each story, rather massing accommodations for such purposes in one place. Each story, however, is provided with a maid's closet, a men's and a women's toilet room, and very often a single public bath room; and then of course there are the service stairs, and there is usually on each floor a serving room connected by a dumb waiter to the stories below, from which meals can be served to rooms. The upper floor plans of the New Willard show all these features in a very practical arrangement. These take in the aggregate but a very slight proportion of the whole floor space, and they are usually tucked away in the inner corners of the light areas or in space that could be used for nothing else.



NINTH FLOOR PLAN.

HOTEL TOURAINE, BOSTON. Winslow & Wetherell, Architects.

It is very hard to find precise data as to servants' apartments in a modern hotel. The tendency is growing every year to eliminate residential servants as far as possible and to oblige all who are connected with a hotel, with the exception of the housekeeper and the manager, to live outside. As a matter of fact it is a pretty expensive luxury to house the servants under any conditions in a first-class hotel. In the Touraine, in Boston, a separate building was erected on an adjoining lot for this purpose, the lower stories being utilized for storage, etc. But generally speaking, a hotel is from its very nature built on extremely high-priced land, and it is far more economical to pay the servants more and have them live out than to try and house them within the hotel. Furthermore, the difficulties of controlling servants in the house make it often extremely desirable to get rid of them entirely. Of course the bulk of servants in any hotel are employed about the ground floor and the basement, and these almost invariably live out. In a rough way the number of servants required for the care of the sleeping rooms may be taken as one woman for every ten bedrooms, plus one man for each floor, besides which fifty per cent should be added for night force. When these are accommodated in the house their rooms are either disposed around inner wells, or what is a better way, the entire upper story is given to their accommodation.



FIFTH FLOOR PLAN.

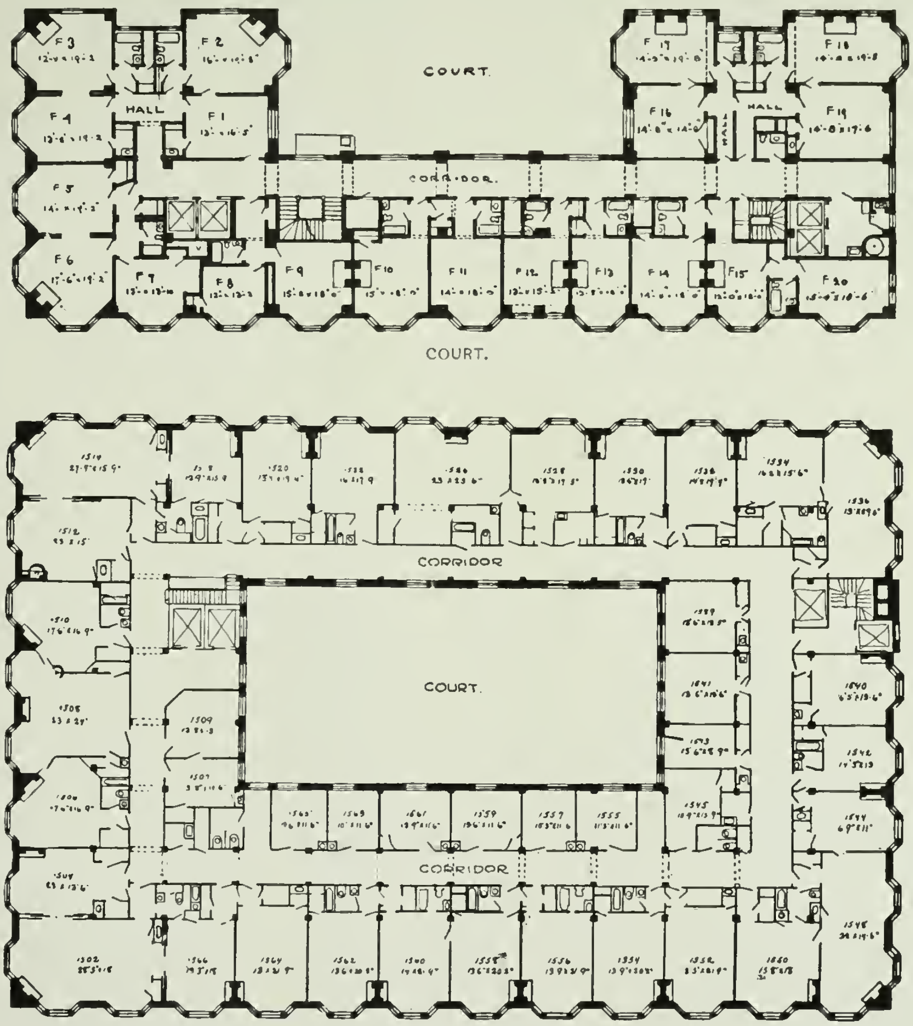
NEW WILLARD HOTEL, WASHINGTON.
H. J. Hardenbergh, Architect.

The width of the corridors in the upper stories of a hotel is governed to a considerable extent by the circumstances of the lot, but in a general way the tendency on the part of hotel constructors appears to be to strive for what a few years ago would have been called wide corridors. In the Schenley the corridors are six feet wide. In the Manhattan and the Jefferson they are nearer eight. In the Niagara and the New Willard they are nine, in the Waldorf-Astoria ten, and in the Touraine something over eleven. Many hotel men regard nine as the extreme minimum to which the height can be reduced except as the result of necessity.

The elevator service for even the highest hotels is a relatively slight consideration as compared with the demands in an office building, for instance. The elevators should, however, at least be in pairs, but the service need not be specially rapid, and it has been found generally best to concentrate the elevators at one point rather than to spread them in different parts of the building. The Waldorf-Astoria, with nearly ninety rooms on a floor, has eight elevators, but this hotel was built in two distinct sections. The Auditorium Annex in the older portion, with forty-one rooms, actually uses only two elevators, while the more recent portion of the Annex, with only twenty rooms, has also only two elevators. The principal thing is to start the elevators at a point on the ground floor convenient to the ladies' room, let that come where it may in the upper story.

Some hotels make a special provision for a service elevator with a baggage room on each floor. The necessity for this depends a good deal upon the nature of the patronage. Another feature which has been introduced into only a few of the more recent hotels is a system of despatch tubes with a receiving station on each story in charge of an attendant to whom can be sent messages or cards for guests. This has been worked very successfully in the Waldorf-Astoria and is a highly desirable feature.

LAST week there was held in Boston the Twelfth Annual Convention of the Society of Master Painters and Decorators of Massachusetts, in the course of which there was presented a paper entitled "Should We Not Endeavor to Establish a School of Decorative Art in Boston?" The writer of the paper, who is a Boston man, surely cannot be ignorant of the excellent work which is being carried on along the lines of decorative design by the art school connected with the Boston Museum of Fine Arts, but his point of view was evidently taken looking toward the establishment of what would be more properly termed a trade school for decorative painters. Even in this respect, however, he fails to recognize the essential requisites. A knowledge of mere details of painting as a trade constitutes the least part of the equipment of a successful decorator. It may be said in truth that the decorators in the whole country, of marked ability, aside from the purely technical points of their business, can be numbered on the fingers of one hand. As a rule our public buildings are poorly decorated. There is enough money spent, but the supply of intelligently trained, thoroughly well equipped men is most disappointingly small when we consider the importance of decoration, and consider at the same time the number of schools which are really doing most excellent work in training young men and women. Decoration is the final touch to a building. It is the part of the fabric which appeals first and most strongly to the beholder, and yet it is the part which is most often slighted. No matter how well constructed our buildings may be, or how fair the architectural envelope may appear, the interior effect may be utterly ruined by careless or thoughtless application of the finishing coats of paint. We are gradually developing our national architecture in its exterior effects to a very high point. The development of decoration awaits us in the future, and there is hardly one of the arts allied to architecture which offers so promising a field to the young man as decoration. The quality of our decorative work, however, can be benefited far more by building up the schools which are already in existence than by starting new ones and thereby creating a diversion of interests. The fact that the master painters and decorators are thinking of these matters is a most encouraging sign, but it is to be hoped that they will see fit to lend their practical help to the existing schools rather than try to found new ones. There is no need for a new school of decorative art in Boston. There is abundant need for more support for those which are already established.



FIFTH FLOOR PLAN.
AUDITORIUM ANNEX HOTEL, CHICAGO.

THE directors of large enterprises seem to appreciate as never before the value of unity in the design of a group of buildings. A few years ago the tendency was in the opposite direction and if a dozen buildings were to be built it was quite likely a dozen architects would be selected for the task. But at present apparently a different view is taken. A short time ago Mr. Ernest Flagg received the entire commission for rebuilding the Annapolis Naval Academy. The reconstruction of West Point is to be intrusted to a single architect. It is announced that Carèrre & Hastings have been retained for the rebuilding of Cornell University, involving thirty-eight new buildings at a cost of some five million dollars. The Leland Stanford University buildings were designed altogether by Shepley, Rutan & Coolidge. The buildings for the University of California are being designed in a comprehensive manner by Mr. John Galen Howard. There are other instances which might be cited to show that the feeling is strongly in favor of preserving the unity of a large group of buildings by intrusting it all to one architect, rather than to divide the artistic and practical responsibilities.

Interesting Brick and Terra-Cotta Architecture in St. Louis.

DOMESTIC.

BY S. L. SHERER.

THE request of the publishers of THE BRICKBUILDER for a series of notes under the above caption renders a word of explanation necessary.

The term "interesting" serves to introduce those minor examples of architectural design which have some claim to distinction, and are notable because of the manner in which brickwork has been treated. Such a limitation precludes any reference to the more pretentious buildings of brick which are, in some instances, characterized by architectural design of a high order.

Situated in a locality underlaid with extensive bodies of limestone, and with an abundance of clay well adapted to the making of fine brick, tile and terra-cotta, the natural tendency in building has been, fortunately, to structures of masonry. This has given to St. Louis an appearance of stability and permanence not enjoyed by many cities less favored in the products of clay.

Although the life of the city extends backward a century, it was not until 1817 that brick was first used, in the house of Judge William Carr Lane at 400 South Main Street, and in the following year Colonel Thomas Riddick erected the second brick house at the head of Plum Street — both landmarks of great interest as showing the quality of the handmade brick of the period and the manner of laying them, which is in Flemish bond. Previous to this time the buildings had been constructed of wood, the log-cabin type predominating, with an occasional structure of native stone.

The ante-bellum houses are interesting from the standpoint of design rather than for the brickwork, which was usually laid as stretchers with a close ruled joint of painful precision. The weathering of years has imparted to the pressed brick a velvety texture of singular charm, but such monotonous uniformity applied to modern stock brick imparts a lifelessness to the wall that no merit in design can wholly overcome. As it is only the work of the last decade that shows a departure from such treatment of brick, the illustrations necessarily exclude older work.

In its class probably the most interesting example of this later period is the DeWolf house, one of a notable series of brick houses designed by Eames & Young in a style adapted from the type of *manoir* house prevailing in the north of France, but imbued with the strong individuality of the designers. Built of red brick laid without sorting for color and with deep concave joints, its walls have a life and quality wholly absent from the conventional brickwork of the period.

This desirable quality of wall texture is also present in the house of I. H. Lionberger, one of the three Richardson houses of which St. Louis can boast; the illustration representing it after the addition of the brick dormers and west wing by another architect.

The best designed brick houses of the period between 1888 and 1895 partake of the general style indicated by these examples, and by the Maverick house, one of the numerous buildings of Peabody & Stearns, who played no inconsiderable part in the architectural development of St. Louis.

KNIGHT HOUSE. E. A. Manny, Architect.

Of a later period the Bixby house by W. Albert Swasey is the most elaborate example of the French Renaissance style of the time of Francis the First; some of its features being traceable to chateaux of that magnificent period. It was one of the earliest houses wherein extensive use was made of terra-cotta for ornamental detail, and withal is the best and most interesting example of a style whose more frequent use might have been naturally suggested by the early French history and traditions of St. Louis.

In the Siegrist house the same architect has shown versatility in a wholly different style — more formal and restrained, as befits Colonial design, but less interesting except for the brickwork, which is cream white with a surface simulating tooth-chiseled work. It is this type of house, on a somewhat smaller scale, that has predominated in recent years, although the same general plan is frequently clothed with the forms of the Italian or French Renaissance.

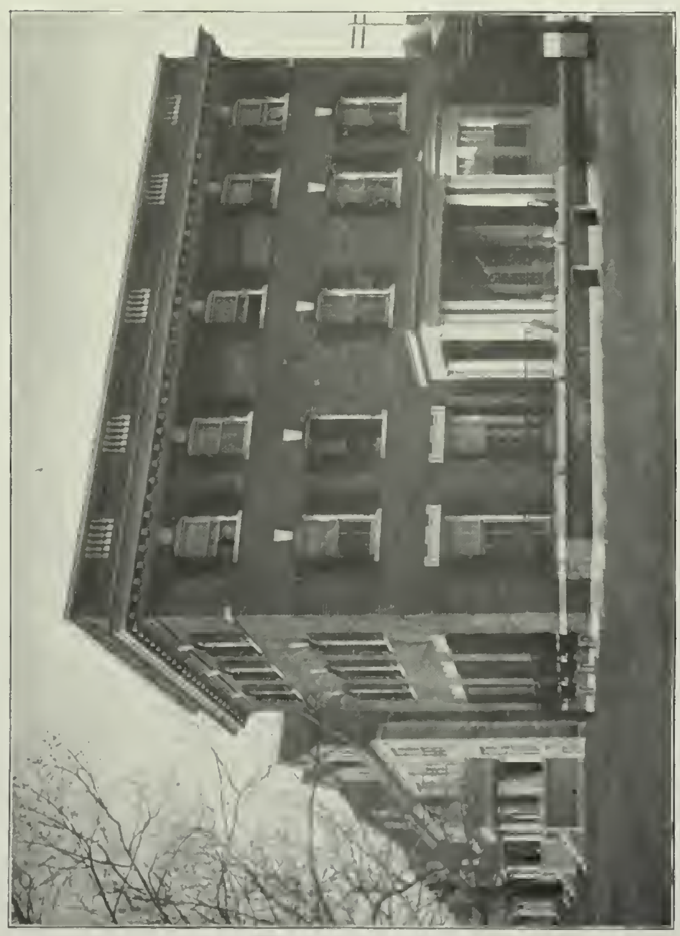
The Drummond house by Stewart, Mullgardt & McClure exhibits a marked departure in brickwork, which in this instance is somewhat rough and of a pinkish tone, with a diapered pattern in the frieze of the building. The design is as thoroughly good as the brickwork is pleasing in color and texture.

Evolution obtains in architecture as in other things, one type developing a slightly different type, but no one type has persisted for any great length of time in St. Louis. The numerous "Colonial" houses are anything but true Colonial in feeling, few of them being invested with the reposeful quality of the best prototypes; the Brookings and Graham houses, heretofore illustrated in this journal, being the best examples in this style, and all of them lack one of the chief characteristics of old Colonial brickwork, Flemish bond.

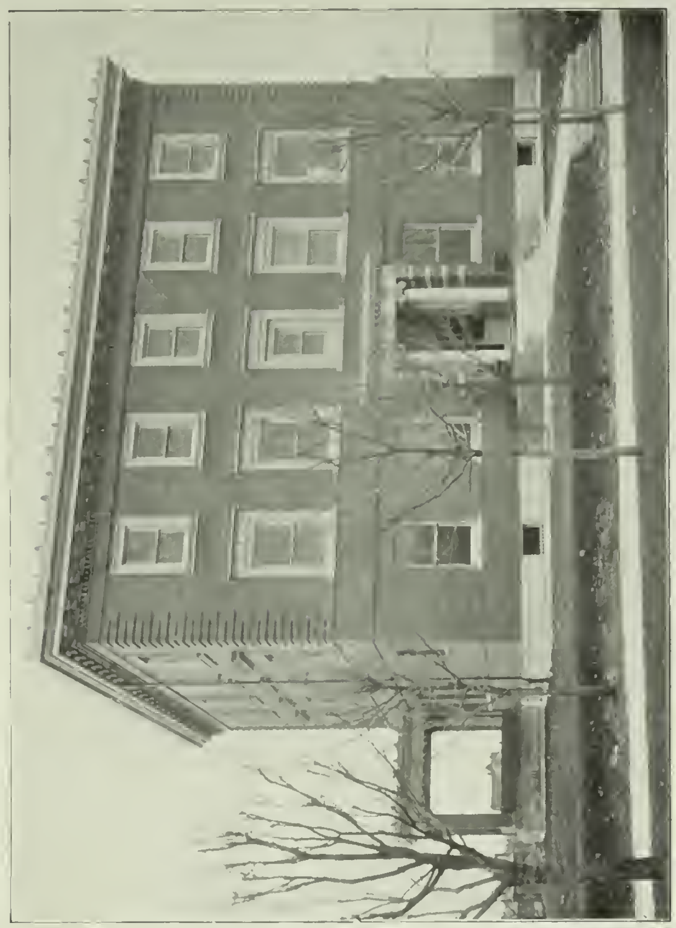
During late years the style appealing to many designers is the style — for want of a more descriptive term — denominated English Domestic. No better example exists in the city than the Schwab house by Mauran, Russell & Garden. It shows intelligent study of the style, which is well maintained in all parts of the design. The detail of the beautiful entrance porch and doorway conveys a better idea of the brickwork, which is a pink-

NORTHRUP HOUSE.
W. Albert Swasey, Architect.

STERLING HOUSE.
Eames & Young, Architects.



ACKERT HOUSE.
G. C. Mariner, Architect.



SCARRIT HOUSE.
E. A. Mannv, Architect.

BRICKWORK IN ST. LOUIS.

LIONBERGER HOUSE. H. H. Richardson, Architect

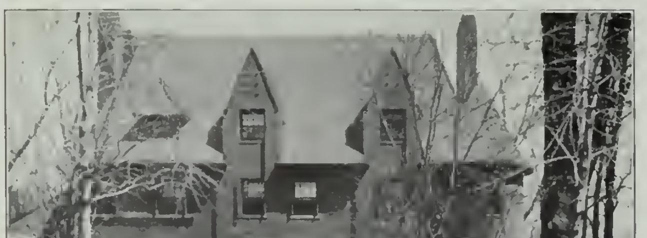
McKITTRICK HOUSE. Shepley, Rutan & Coolidge, Architects.

NIEDRINGHOUSE COTTAGE. T. C. Link, Architect.

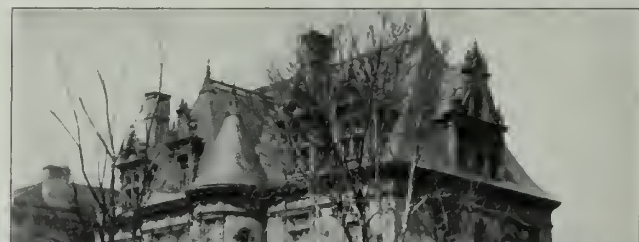
SCHWAB HOUSE. Mauran, Russell & Garden, Architects.

FINLEY HOUSE. E. A. Manny, Architect.

CASTLEMAN HOUSE. Renwick, Aspinwall & Owen, Architects



DEWOLF HOUSE. Eames & Young, Architects.



BIXBY HOUSE. W. A. Swasey, Architect.

BRICKWORK IN ST LOUIS.

DRUMMOND HOUSE.
Stewart, Mullgardt & McClure, Architects.

SCOTT HOUSE.
Shepley, Rutan & Coolidge, Architects.

HOUSE ON LINDELL AVENUE.
A. Blair Ridington, Architect.

HOUSE ON BERLIN AVENUE.
Weber & Groves, Architects.

DAVIS HOUSE.
Shepley, Rutan & Coolidge, Architects.

MAVERICK HOUSE.
Peabody & Stearns, Architects.

BRICKWORK IN ST. LOUIS.

ish sand mould brick with grayish headers laid in white mortar, the base below the water table being a red sand mould brick with black headers laid in black mortar.

The McKittrick and Scott houses by Shepley, Rutan & Coolidge and J. Lawrence Mauran are earlier examples in the same style; very good and interesting in a somewhat different way, but less pleasing in composition and brickwork than the Schwab house.

More individual than the last named houses, the Sterling house by Eames & Young was also the first St. Louis house in which half-timbered work was used. The design is pleasing in every way and is invested with a distinction that would make it notable anywhere, — a characteristic that would also apply to the stable. No attempt was seemingly made to adhere to the English feeling in all parts of the design, with the result that a more personal performance has resulted than by a closer adherence to conventional forms and mouldings. The wall surfaces have been enlivened by the random introduction of Roman brick of a darker color than the mottled yellow brick of which the house is built.

The Castleman house by Renwick, Aspinwall & Owen is a typical and well-sustained effort in the same style,

WAINWRIGHT HOUSE. C. K. Ramsey, Architect.

and while it exhibits many beautiful and picturesque features, it suffers from the somber color of the dark red brick and terra-cotta, which lessens the homelike character that should distinguish a dwelling place.

The revival of the use of Flemish bond with black headers has added greatly to the interest of the Mariner house, a very small but none the less pleasing example of a style destined to grow in favor for city and country houses.

The Scarrit house by E. A. Manny is a very dignified and formal composition, built of a speckled red brick laid in red mortar, with trimmings of cream-colored terra-cotta; more imposing but less interesting perhaps than his smaller Finley and Knight houses, which are good examples of his style, a style that possesses individuality and exhibits much study of the possibilities of brickwork, a quality not easily shown in the photographs.

In the Papin house M. P. McArdle has imparted a local flavor to a house that bears a strong resemblance to a type common in St. Louis before the war. It is well not to ignore such a characteristic when much can be said for the restraint and general good taste that marked the houses of that period. The unusual brickwork, however, is personal to the architect, and is laid in the most unorthodox manner, — every fourth course being laid on its face and in a way that does not admit of the joints being regularly broken. The brick is a speckled red laid in black mortar.

PAPIN HOUSE. M. P. McArdle, Architect.

The same general type of house finds exemplification in the Ackert house by G. C. Mariner, but with the Colonial idea well expressed instead of the "old St. Louis" of the Papin house. Here a reddish sand mould brick laid in white mortar accentuates the Colonial feeling and imparts interest to the brickwork for its own sake, and consequently to the attractiveness of the design.

The Northrup house by W. Albert Swasey is perhaps more interesting for its departure from the conventional house than for its being a very successful example of Venetian Gothic — a style that seems foreign to American life and one that demands the setting we naturally associate with the style. The brickwork is cream in color, with trimmings of glazed white terra-cotta.

Of houses that are somewhat difficult of classification the small Wainwright house by Charles K. Ramsey shows a clever adaptation of Sullivan's intricate detail in terra-cotta. The Niedringhouse cottage by Theodore C. Link is unconventional enough to please the most extreme advocate of rough brickwork, for here vitrified paving brick have been laid in all sorts of ways; nevertheless it is a most picturesque house and admirably placed for such a design.

While this list might be extended indefinitely, — for notwithstanding the mass of mediocre work, St. Louis possesses a large number of meritorious houses, — consideration of other classes of buildings demands the space at disposal.

The Business Side of an Architect's Office. V.

BY D. EVERETT WAID.

"WHEN New York architects can charge *more* than five per cent, then we smaller fellows can hope to make our clients pay us five."

Such a remark at the recent convention of the Institute in Washington led the writer to believe that if a more definite knowledge could be had of the actual fees charged for architects' services, it might be of value to the profession at large. Every architect is keenly alive to the fact that the traditional five per cent is small enough compensation for his services. When clients come to know the amount of work and responsibility involved they are quick to admit that an architect is not highly paid and are doubtless just as ready to lose respect for a member of the profession who cuts his price. Architects have only themselves to blame if they do not receive their full fees.

Competition is the life of architecture as truly as it is of trade, but who can regret it deeply enough when competition among professional men and artists becomes a matter of price! Let a client select an architect because of his reputation, because of the merit of his design, because of his engineering ability, because of his talking ability, or, if you will, by reason of his "pull," but save us from the decision which sometimes is made because he cuts his fee! The last named kind of competition may be done away with if architects will have backbone and consideration for each other when the question of fee arises. Hundreds of young architects are realizing that clients respect them for standing on their dignity in the matter of fees, and that their business is increasing accordingly.

It is true that there are scores, yes, hundreds, of apartments, hotels and even residences going up at this moment in New York City on which two per cent and even less has been paid for architects' services. But these are the work of plan factories for speculative builders; both the plan factories and the builders are making money but are not making good buildings. Artistically their products are commonplace when not worse; structurally they are as bad as the law will allow and investors can be deceived into buying or securing by foreclosure. Fortunately the influence of the real architect is increasing even with the speculative builder; and other scores and hundreds of buildings have five per cent for architects' fees set down as a part of the cost which will bring back interest on the investment. Architects whose names are known to the profession charge five per cent and in their practice it is a matter of course that five per cent will be the minimum fee even when the cost runs into millions.

Special inquiry shows that a similar statement can be made not only of New York and other large cities of the East, but of cities in the West and of smaller towns. Information obtained at various times during a series of years convinces the writer that a large majority of the young men of the profession stand to the dignity of their calling in the matter of their charges and in refusing to receive commissions from material men and contractors. The standard is not so high in the ethics of securing business, but one is pleased to find how many architects are ready to state in the most unequivocal way that they never submit sketches without compensation and that they never enter competitions in which either no fee is paid to the various competitors invited or no prizes are offered aside from the commission.

As to the scale of charges the traditional five per cent ought to be fought for more generally as a minimum, not a maximum fee. Five per cent is so popularly regarded as the acceptable charge that it is no doubt a frequent thing for architects to agree to four per cent on factories which clients can see must be less costly than residence designing. Many, however, like J. C. Llewellyn of Chicago, charge five per cent for factory work. Nimmons & Fellows of the same city say that their charge is invariably five per cent for factories. Since many people who have had little to do with building have the impression that five per cent is a high price to pay even for residence work, it might be of practical value to the younger men to know that a large number of the profession either decline that class of work at that rate or increase the rate on residences costing less than a certain sum.

Normand Patton of Patton & Miller, Chicago, writes: "Our charges are five per cent for the general run of work, without regard to the amount of cost; seven and a half per cent for residence work without reference to the cost; ten per cent for alterations and additions to residence work; seven and a half per cent for alterations and additions to the ordinary run of work. We have recently planned a manufacturing building for which we charged five per cent. We have made alterations on another factory for which we charged seven and a half per cent. We have just completed alterations on a residence amounting to $40,000, for which we got ten per cent."

According to the schedule given at the end of this article twenty per cent would be the charge for alterations of residences if the work amounts to less than $5,000. Under some circumstances that might not be too much, but in general Mr. Patton's rate would be more practicable.

If residence work in general is costly to an architect, suburban work in New York is decidedly expensive. Consequently one cannot come out whole if he does not nearly double his fee by charging for time for supervision. Following is a copy of an actual bill for services on a house which shows how monthly bills are rendered during the progress of a building:

November 1, 1902.

A. B. BLANK, 1 Wall Street, New York,

To C. D. TEESQUARE, Dr.

Account rendered October 1, 1902		$292.37
Estimated cost of plumbing for entire house	$6,800.00	
Architect's full commission 5 per cent, 2½ per cent charged for plans, specifications, etc.		170.00
Contract electric work	$698.00	
Architect's full commission 5 per cent, 2½ per cent charged on account		17.45
Certificate Issued.		
October 15, Several Works Contract, first payment	$5,000.00	
Architect's full commission 5 per cent, 2½ per cent paid on account, 2½ per cent due		125.00
Half-day visits during October, five one-half at $10.00		55.00
Traveling expenses during October		5.00
		$664.82

NOTE.—In this instance the owner paid sanitary and electrical engineers on architect's certificate, and the architect's charge of 5 per cent covers his own fee only.

Mr. Mead, of McKim, Mead & White, says that their schedule is not satisfactory. For some kinds of work they have to charge more than the schedule or refuse the work. Speaking specifically they decline commissions for residence work under $20,000 unless it is for a friend to whom they are ready to make a gift. Their schedule is similar to a form used by many, — five per cent in general, but ten per cent for "cabinet and all interior work of a decorative character, for furniture and fixtures, and for materials selected, for alterations, additions, etc., for monumental work, and for new work costing under $10,000." The following clauses are included in their schedule: "All commissions are exclusive of clerk of works, time lost in traveling, traveling expenses and disbursements, which will be charged to the client at cost; or if preferred, at an extra rate of three per cent." . . . "The minimum charge per day for personal service is $100." . . . "In preparing designs we agree, after consultation with the owner, to use our best judgment; we cannot, however, guarantee that the building when completed shall conform to his ideas of beauty or taste, or indeed those of any person or school. We can only agree to examine and consider the subject thoroughly and to do nothing which is inconsistent with our judgment." . . . "We insist upon the employment of the best men for heating, plumbing and electric works; and such work can be guaranteed only by the employment of experts by the client." McKim, Mead & White issue certificates to owners for payment of experts' fees.

Following is given the schedule of charges, printed copies of which are issued to their clients, by Carrère & Hastings:

SCHEDULE OF PROFESSIONAL PRACTICE AND CHARGES.

CITY PRACTICE.

(New York and other cities.)

General services and supervision for works costing over $50,000	5 per cent
General services and supervision for works costing less than $50,000	6 per cent
General services and supervision involving alterations	10 per cent
Special interior and cabinet work	10 per cent

COUNTRY PRACTICE.

General services and supervision for new work	7½ per cent
General services and supervision involving alterations	15 per cent
General services and supervision for landscape work	10 per cent

PUBLIC WORKS

(And buildings for public and semi-public use.)

Genersl services and supervision for new work	5 per cent
General services and supervision involving alterations	10 per cent
Special interior and cabinet work	10 per cent

DISBURSEMENTS.

All disbursement for traveling expenses, measurements, surveys, fees for expert advice when requested or sanctioned by the owner, and the cost of all prints, to be paid by the client.

PARTIAL SERVICES.

Payments are due as follows:

Preliminary studies, one-fifth of the total commission.

Preliminary studies, general drawings and specifications, one-half of the total commission.

Preliminary studies, general drawings, details and specifications, seven-tenths of the total commission.

GENERAL PRACTICE.

Charges are based upon the entire cost to the client of the work, when completed, including all the fixtures necessary to render it fit for occupancy.

Until an actual estimate is reached, the charges are based upon the proposed cost of the work.

All payments are received as installments of the entire fee. When the work is abandoned or suspended, the payments are due in accordance with the schedule of partial services.

Supervision means such inspection of the work by the architects or their deputy as is required in their judgment to ascertain that the work is being executed according to plans and specifications, and to determine when the payments are due.

Continuous personal superintendence can be secured by the employment of a clerk of the works, who will be employed by the architects at the client's expense.

Drawings, as instruments of service, are the property of the architects.

All dealings between client and contractors should be through the architects.

In all cases not covered by the foregoing schedule, the schedule of the American Institute of Architects shall govern.

Henry Rutgers Marshall, president of the New York Chapter A. I. A., has devised an interesting scale of charges. Below is an extract from his schedule. This table might be used as the sliding scale referred to in paragraph 1 of the succeeding schedule.

Cost of Work.	Buildings with Walls of Masonry.	Buildings with Stud Walls.
Above $30,000	5 per cent on cost	5 per cent on cost
$28,000 to $30,000	"	$1,500
26,000 to 28,000	"	1,425
24,000 to 26,000	"	1,350
22,000 to 24,000	"	1,275
20,000 to 22,000	"	1,200
18,000 to 20,000	$1,000	1,125
16,000 to 18,000	900	1,050
14,000 to 16,000	825	975
12,000 to 14,000	750	900
10,000 to 12,000	675	825
8,000 to 10,000	625	750
7,000 to 8,000	575	700
6,000 to 7,000	550	650
5,000 to 6,000	525	625
4,000 to 5,000	500	600

Alterations at some rates as stud wall buildings with addition to cover expense of making plans of the buildings as they exist.

For work costing less than $4,000 and for interior decorative work, mantels and furniture special rates are charged.

Plumbing charged apart from main fee at ten per cent on cost unless a special expert is employed; in the latter case plumbing cost will be included in cost of building in calculating fees.

Some two years ago, after careful consideration of the schedules used by several prominent architects including those named above, a pamphlet was prepared which with some slight modifications is reprinted below. It was designed to make clear to clients the view point of architects and at the same time to provide a definite basis for a contract between architect and client. The mailing of one of these pamphlets (printed of size to slip into a regular envelope) with an exchange of letters regarding fees for architects' services is less disagreeable than a formal contract, which is often quite out of the question.

PROFESSIONAL PRACTICE AND CHARGES.

1. *General Practice.* — The charge for general professional services on works costing over $20,000 is a commission of five per cent on the cost.

The charge for general professional services on works costing $5,000 or less is a commission of ten per cent on the cost.

The charge for general professional services on works costing between $5,000 and $20,000 is on a sliding scale between the rates quoted above.

2. *Alterations.* — For alterations or additions to existing buildings the fee is double the foregoing.

3. *Monumental and Decorative Work.* — For monumental work and for interior decoration, mantels and furniture special rates are charged according to the character of the problem.

4. *General Services.* — All of the following requirements are included in the commission for general professional services:

Preliminary studies.

Working drawings and specifications sufficient for estimate and carrying out of contracts.

Detail drawings and instructions for execution.

General supervision of works.

Examining and passing of accounts.

5. *Partial Services.* — For partial services the following division of the general commission is made:

For preliminary studies one-fifth of the general commission.

For preliminary studies, general drawings and specifications, one-half of the general commission.

For preliminary studies, general drawings, specifications and details, seven-tenths of the general commission.

For supervision, three-tenths of the general commission.

Payments are due as the work is completed in the order of the above classification.

6. *Traveling Expenses, Disbursemens, etc.* — For work situated outside of New York City a fee is charged to cover actual traveling expenses and time occupied in visiting the work either for conference or supervision. The fee for visits by the architect is at the rate of $30 per day; for visits by his superintendent at the rate of $15 per day.

All disbursements for measurements, surveys, etc., are to be paid by the client.

7. *Expert Service.* — A commission of five per cent in addition to the scale named above is charged on all heating and ventilating, sanitary, electrical and mechanical engineering work. Experts of the highest standing are retained by this office, and are in constant consultation during the design and execution of its work. The employment of experts for other special branches of work is a matter of arrangement between the client and the architect.

8. *Decoration and Furniture.* — In view of the fact that the artistic success of a building, and therefore the reputation of the architect, depends upon the decorative treatment of the interior, the execution of this part of the work as well as that of the exterior is understood to be under his direction and supervision. Furniture and furnishings come within the same category unless it be distinctly agreed to the contrary.

9. *Basis of Charges.* — All commissions are based upon the total cost of work completed ready for occupancy, and valued as if executed entirely of new materials and by labor at the market price. Until estimates are made or contracts entered into, charges are based upon the proposed cost.

10. *Alterations in Designs.* — An extra charge will be made if the client orders material alterations in working drawings after such drawings have been made in accordance with designs approved by him.

11. *Special Services.* — None of the charges above enumerated cover professional or legal services connected with negotiations for site, disputed party walls or right of light, or services incidental to arrangements consequent upon the failure of contractors during the performance of the work. When such services become necessary they will be charged for according to the time and trouble involved.

12. *Drawings and Specifications.* — All drawings and specifications, as instruments of service, are the sole property of the architect and may not be used in connection with any other building without his consent. One copy of each drawing and specification will be furnished and a charge at actual cost will be made for all prints needed in the execution of the work.

It is understood that each contractor shall be supplied with two copies of drawings and specifications, and that he shall be required to pay for any extra copies desired by him.

13. *Consultation.* — Consultation fees in cases where the work is not executed are based upon the importance of the services rendered.

14. *Supervision.* — The superintendence of the architect (as distinguished from the continuous personal supervision or superintendence which may be secured by the employment of a clerk of the works) means such inspection by the architect or his deputy of a building or other work in process of erection, completion or alteration, as in his judgment is necessary to ascertain whether it is being executed in conformity with his design and specifications or directions; and to enable him to decide when the successive installments or payments provided for in the contracts or agreements are due and payable.

The architect is to determine in constructive emergencies, to order necessary changes and to define the true intent and meaning of the drawings and specifications, and he has authority to stop the progress of the work and order its removal if he finds that it is not in accordance with them.

It is important that all dealings between client and contractor be transacted through the architect.

When he follows the client's positive instructions the architect is relieved from all responsibility whatsoever.

The architect agrees to use every endeavor to see that the contractors complete their work within the stipulated time, but in no case is it possible for him to guarantee that they will do so.

15. *Subcontracts.* — It is understood that the several works involved in the erection of a building shall be let in a general contract except plumbing, heating, etc. If the client desires to sublet the several works, such as mason work, carpenter work, plastering, etc., two and a half per cent will be charged in addition to the schedule rates hereinbefore named.

16. *Clerk of the Works.* — On buildings of importance, or in any case in which continuous personal superintendence is desired, the architect recommends the appointment of a clerk of the works, who will be employed by the architect at the client's expense, over and above any fees or commissions otherwise due the architect. The selection or dismissal of the clerk of the works is to be subject to the approval of the architect.

17. *Payments to Contractors.* — It is expressly understood that payments to contractors by the client shall be made only upon certificates issued by the architect.

Fireproofing.

COMBUSTIBLE ARCHITECTURE AND CONFLAGRATIONS.

UNDER the above title a paper was presented to the Memphis Engineering Society by Mr. James B. Cook, in which the subject was very thoroughly taken up and some interesting statistics given. Statistics, by the way, while always interesting, are not necessarily the surest guide to facts, for in them we consider simply an abstract statement without taking into account the conditions or other circumstances which might offset the seeming good or bad results from which such statistics were derived. For example, the statement is made that while in France the loss from fire in each one hundred dollars per year was about six cents, in New York the relative loss was fifty-eight cents, in Massachusetts sixty cents, in Texas one dollar ten cents, and Arkansas one dollar thirty-one cents. And yet the loss in the latter state may be confined to a class of buildings which might well be spared from the face of the earth and for whose loss we might feel really grateful to the insurance companies. At the same time these figures show how with all our attempts at fireproof construction, and we certainly have carried it further as a science than anywhere else in the world, we somehow or other still continue to pay tremendous annual bills for lack of proper preventive measures. We fight our fires admirably after they are started, but we should not let them start. Every year more attention is paid in the large cities to the so-called still alarms which the public never hears about, because a possible great conflagration is checked in its incipiency. And as the writer of the paper very truly points out, the strength of a fireproofing system is measured by its least resistance. There are very few of our fireproof buildings today which are not most thoroughly protected as far as relates to all the structural members, the floors and the walls, but the weak point is in the plan itself, which often permits of a ready transference of a slight fire from one portion of the building to another until the resulting conflagration is sufficient to cause very serious damage. Furthermore, as we have repeatedly insisted in these columns, the greatest source of danger is not from our well constructed buildings, but rather from our old inflammable structures which are allowed to remain in the heart of our large cities. Mr. Cook made a very admirable suggestion that instead of the sole reliance being placed upon portable fire pumps, the large cities be divided by a species of block system with a stationary fire engine in the centre of a square, with three or four firemen on duty, a hose attached and a large fire pump driven by an electric motor. By this method instantaneous service would be given at the first alarm. Attacking a fire at its incipiency is a most important thing, and such a system could very easily be connected to a chain of standpipes which would practically serve every portion of the area. Preventive devices of this sort are most needed now. We would not say that constructive methods could not be improved, for improvement is going on all the time, but the theory of fireproof construction at present is pretty well established and developments are in details of execution, ease of manipulation and reduction of cost rather than in the theory.

THE FAILURE OF A FIREPROOF FLOOR.

WE note by the papers a record of the collapse of a portion of the concrete roofing of a building under construction in Newcastle, Pa., which in falling carried down each of the six floors beneath it to the basement, killing one man and seriously injuring another. Accidents of this sort will occur with the utmost care, no matter what the particular form of construction may be, and with a monolithic construction such as concrete the carelessness of a single indifferent workman might very easily make the whole floor construction so poorly compounded that it would yield to a relatively slight shock. We are reminded of a somewhat similar accident that occurred during the building of Tremont Temple, when a mass of plaster in bags, the whole weighing several tons, fell through a distance of about sixty feet with sufficient force to bend two heavy I-beams out of position and shatter an irregular hole in the terra-cotta blockings, but the damage was confined to the few blocks which were broken, and the bay upon which the plaster fell was not otherwise injured.

THE INSURANCE COMPANIES.

WE are not accustomed to consider the insurance companies as members of a great trust, but in a certain sense that designation would exactly describe them. There is a sort of competition among the agents of the large fire insurance companies who underwrite risks, but competition is not one of rates. The rates are made in common, are discussed by an associated board and are practically identical over the whole country. We are not of those who believe that the fire insurance companies are accumulating great rewards in their work. Many of them pay and pay well, but the average margin of profit at the best is small, the risks are great and they are fulfilling a public function which in as far as relates to keeping their promises and insuring a man against his own folly is scrupulously adhered to. But in their capacity as public servants it has seemed to us that they fail utterly to realize their rights and their powers, and we sometimes seriously question whether, after all, the fire insurance companies care to have the fire risk reduced or the tremendous annual payment for fire losses made any less. We have yet to see any real evidence that the national boards of underwriters feel it incumbent upon them to foster the development of a proper fireproofing system of construction. That the insurance companies have it within their power to compel owners to properly construct their buildings goes without saying. There is no law that fixes their rates but their own judgment, and if they so chose they could to-morrow make the rates on a combustible building so excessive that the owner would not dare to carry insurance. We have in mind now a theater located in the heart of a large city, which is a veritable fire trap. The rate is seven and a half per cent per annum. But the building is old and worthless. It was equipped under conditions which would not be tolerated in a new structure, and consequently as the owners are doing a thriving business this structure remains as a menace to the whole community, and its existence in a sense is due largely to the attitude of the insurance companies. If they were to absolutely refuse to reinsure it, the building would disappear inside of a year, and a menace to the community would be gone forever. Furthermore, reversing the attitude of some of our railroad magnates, insurance rates are not made all that the traffic will bear, but are reduced to the lowest amount that they dare to make them. It is a question, therefore, whether the insurance companies want to encourage better construction, and we believe the evidence on this point is in the negative. If all our buildings were fireproof, the insurance companies would either grow fabulously rich or would do no business at all. And apparently they endeavor to so set their premiums that the insured can safely gamble on his chances without being obliged to pay prohibitory rates.

THE INTERNATIONAL FIRE PREVENTION CONGRESS.

THE excellent work which in past years has been accomplished by the British Fire Prevention Committtee is to be supplemented by an international congress to be held June 7 to 10 of this year at London. It is rarely that those concerned in the different interests relating to fire prevention have an opportunity to discuss collectively their views, and it is hoped that, by bringing together the various personal elements in fire prevention, collecting the best information, discussing the latest achievements, and recording the most practical technical results, some advance will be made, not only in checking fire wastage, but in reducing loss of life. We notice that among other points to be especially considered will be the best means of watching and inspecting buildings exposed to fire risk and of recording the causes and effects of fire. These are two features which are often neglected, but from which we can sometimes draw our most valuable lessons. Eternal vigilance is the price of safety. At no time can we afford to assume that because a building has been constructed rightly it will be taken care of properly, and we know from long experience that both tenants and those who have the care of the building are very apt at times to relax their vigilance and allow conditions to exist which would be fatal if accompanied by even a slight fire. It is to be regretted that there is not in this country such a body as the British Fire Prevention Committee. Attempts have been made in this direction, but our practical scientists are too busy and our theorists are too impractical to unite in the kind of work which such a committee would imply. We want the best and we generally mean to obtain it, but if there could be a greater opportunity for comparison of methods and results fireproofing as a practical science would certainly be greatly benefited thereby. We shall await with a great deal of interest the publication of papers which will be presented at this congress. We notice that the executive committee, of which Edwin O. Sachs is the chairman, includes six architects out of a total membership of eleven. The foreign correspondents from the United States are Mr. Edward Atkinson, of the Manufacturers' Mutual Fire Insurance Company, and N. P. Gerhard, consulting engineer, New York.

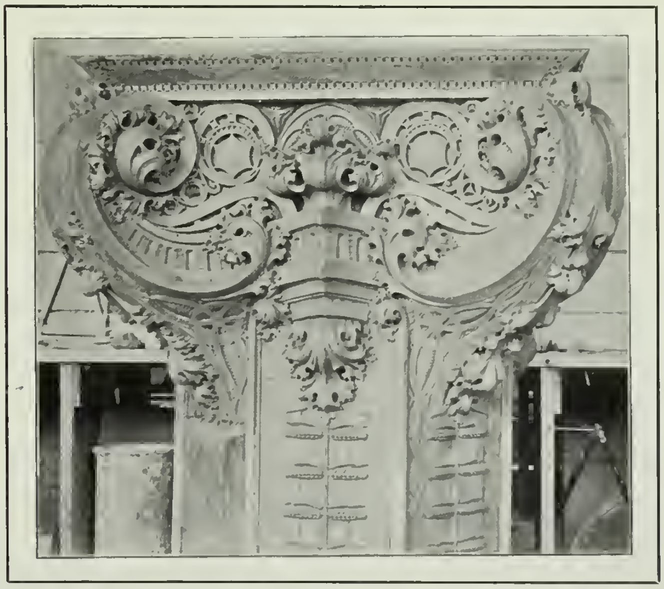
Selected Miscellany.

NEW YORK.

There seems to be no reason to expect a diminution of building activity during 1903. The number of office and business buildings erected will probably exceed that of the past year, the number of tenements and apartments will certainly do so, and the building of apartment hotels and dwellings will doubtless continue actively. The price of building materials is so high that any excessive building will be discouraged, but dealers and manufacturers of materials can count upon a demand at least equal to that of the past two years and probably superior to it, and this

DETAIL BY MARCUS T. REYNOLDS, ARCHITECT.
New York Architectural Terra-Cotta Co., Makers.

quite apart from the demand for structural steel and other materials, which will be occasioned by the important improvements in transit facilities which are now under way or contemplated. Moreover the building of the next few years will be more diversified than it has been during the past two years. The prospects for future work are bright and indefinitely large.



CAPITAL EXECUTED IN TERRA-COTTA BY AMERICAN TERRA-COTTA & CERAMIC CO.
Kees & Coburn, Architects.

In spite of the large amount of work accomplished during the past year the figures and statistics given by the *Record and Guide* show a peculiar state of affairs. In the number of new buildings projected and their estimated cost the year 1901 was decidedly ahead of the year just closed. There were plans filed in 1902 for 1,703

HOUSE AT CHICAGO.
Built of White Enameled Brick. Made by Tiffany Enameled Brick Company. F. W. Perkins, Architect.

buildings to be erected in Manhattan and the Bronx at an estimated cost of $88,044,400, against plans for 2,512 buildings to be erected at a cost of $118,897,820 during the previous year.

The exceptionally high figures for the past two years are due chiefly to the increased cost of the average dwelling and tenement house erected in Manhattan, but it is also partly due to the augmented proportion of large fireproof buildings which are being erected year by year.

CAPITAL, EXECUTED IN TERRA-COTTA BY PERTH-AMBOY TERRA-COTTA COMPANY.
McKim, Mead & White, Architects.

The increased cost of the average building is profoundly expressive of the radical changes which have been taking place in the manner of living and doing business in Manhattan and of the prodigious centralization of population and business.

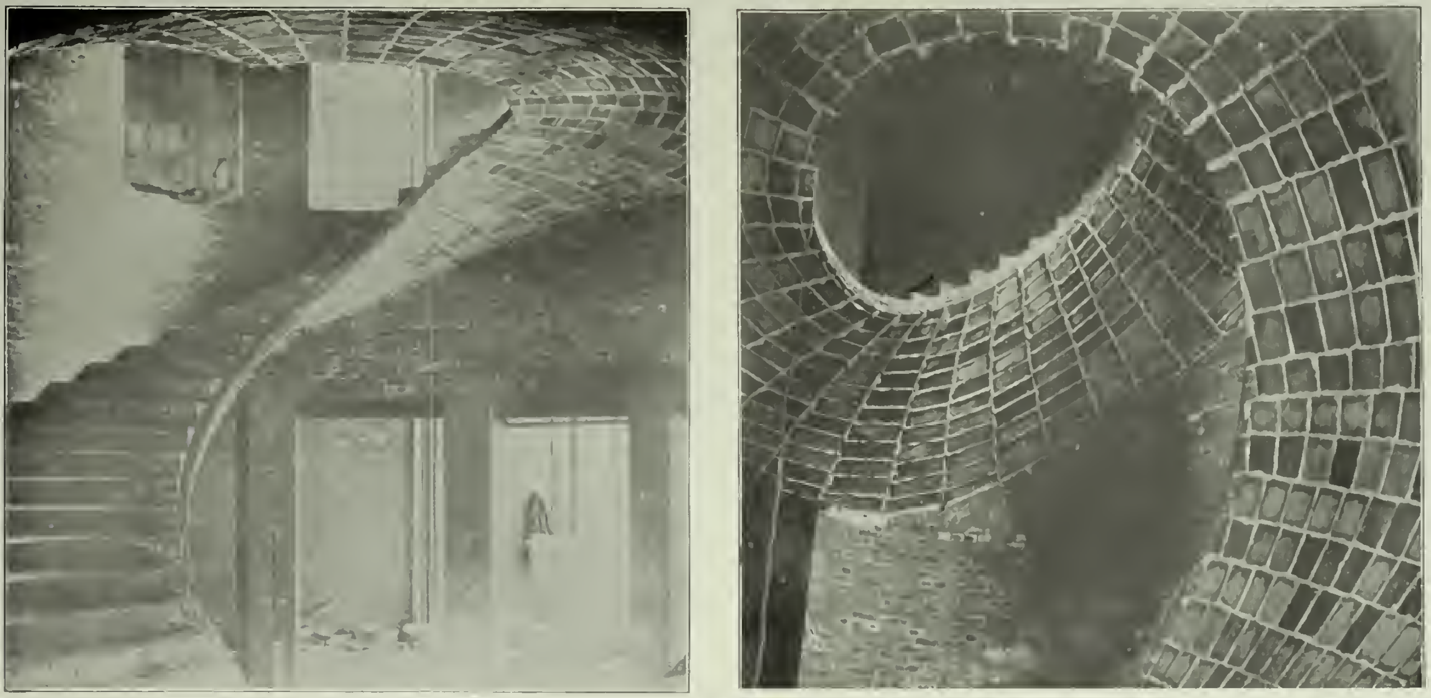
The Municipal Art Society's report to Mayor Low puts into a form tangible and complete a large number of ideas for embellishing the city, and itself constitutes a fundamental plan, preliminary though it may be, of systematic development for all time to come. It concentrates and embodies suggestions from various other societies of artists, architects, civil engineers, merchants and manufacturers, and on that account, as representing the best advice obtainable at the time, is entitled to the highest respect. It considers everything affecting the beauty of the city, taking up separately freight distribution, passenger traffic, parks, public buildings and their decoration, public monuments and general topics. The great trouble is that all projected developments are met with pleas of economy. New York's location is such that it must become a greater center than the world has ever seen, and although it may mean a great expense and somewhat of a burden to us to make it one of the most beautiful cities in the world, it is perfectly feasible, and as the people are gradually being educated up to it, it will probably eventually be accomplished.

DETAIL BY VICTOR HUGO KOEHLER, ARCHITECT.
New Jersey Terra-Cotta Co. Makers.

There is probably no influence greater than that of the Architectural League's exhibitions making towards

DETAIL EXECUTED IN TERRA-COTTA BY STANDARD TERRA-COTTA WORKS.
Clinton & Russell, Architects.

the æsthetic and artistic education of the public in architectural matters and matters of municipal pride. The exhibition, which is now open, shows the usual care in the selection and arrangement of subjects, and is of intense interest to all lovers of beautiful work.



GUASTAVINO SPIRAL STAIRCASE. CONSTRUCTION FOR MAIN STAIRS, UNION CLUB, NEW YORK CITY.
Cass Gilbert and John Du Fais, Associate Architects.

IN GENERAL.

E. L. Stewardson and James P. Jamieson, partners with the late Walter Cope in the firm of Cope & Stewardson, announce that they will continue the practice of architecture under the same firm name.

The sixteenth annual exhibition of the Chicago Architectural Club will be held in the galleries of the Art Institute from March 26 to April 13 inclusive. Exhibits will be received up to six P. M. March 10. Birch Burdette Long, chairman exhibition committee.

Gustavus A. Trost, architect, has opened an office at No. 9 Coles Building, El Paso, Texas, and desires manufacturers' catalogues and samples.

Frank M. Walker, 24 Park Place, New York City, has been appointed agent for the Hartford Faience Company of Hartford, Conn.

STABLE, 63RD STREET, NEW YORK CITY.
Ludlow & Valentine, Architects.
Face Brick made by Kreischer Brick Manufacturing Company.

SECTION OF COLUMN, ATLANTIC TERRA-COTTA CO., MAKERS.
Parks & Thomas, Architects.

The Star Brand of cement made by the Union Akron Cement Company of Buffalo will be used in the foundations of the new armory for the Sixty-fifth Regiment at Buffalo, also for the large new iron manufacturing plants at Hubbard, Ohio, Charlotte, N. Y., and South Buffalo, N. Y.

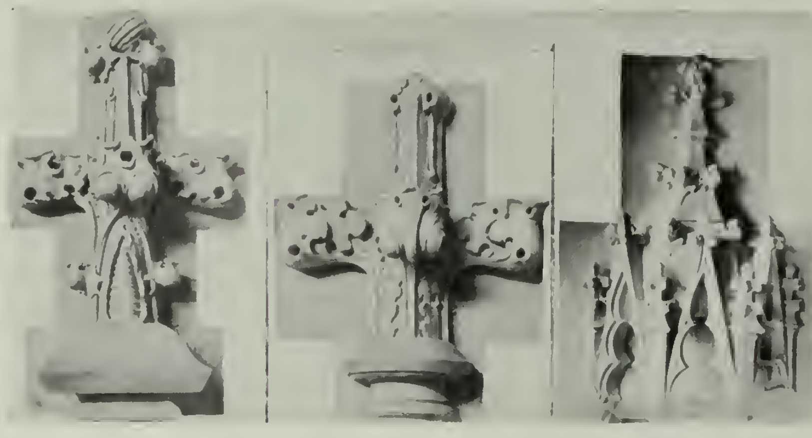
DETAIL EXECUTED IN TERRA-COTTA BY WHITE BRICK AND TERRA-COTTA CO.
Herts & Tallant, Architects.

The American Enameled Brick and Tile Company will supply their enameled brick on the following new contracts: The Maryland State House, Annapolis, Md., Baldwin & Pennington, architects; Baltimore Courthouse, Baltimore, Md., Hornblower & Marshall, architects; St. Francis Hospital, New York City, Shickel & Ditmar, architects. The aggregate of these orders will be about 300,000 enameled bricks.

SHOWING METHOD OF PUTTING ON GRADUATED AMERICAN "S" TILE ON CIRCLE ROOFS AND TOWERS. EACH TILE IN EACH COURSE IS GRADUATED FROM GUTTER TO APEX TO FORM A PERFECT RADIATION.

The American Enameled Brick and Tile Company report an increasing demand for their brick for use in butcher shops and the like in New York City.

The White Brick and Terra-Cotta Company has supplied their terra-cotta on the following new work: Office building, Liberty Street, New York, Butler & Rodman, architects; Borden Building, Hudson Street, New York, G. H. Chamberlin, architect; Church of the Good Shepherd, Shelton, Conn., Heins & LaFarge, architects; Randall & Green Building, New Milford, Conn., Wilson Potter, architect; high school, Oneida, N. Y., Wilson Potter, architect; high school, Watertown, N. Y., Wilson Potter, architect; apartment hotel, Forty-third Street, New York, Mulliken & Moeller, architects; mercantile building, Nineteenth Street, New York, Dewey & Dewey, architects; residence, Westbury, L. I., S. E. Gage, architect; apartments, One Hundred and Seventh Street, New York, W. C. Hazlett, architect; residence, Great Neck, L. I., Little & O'Connor, architects; amusement hall, Brooklyn, N. Y., Herts & Tallant, architects; residence, Altamont, N. Y., J. H. Hutaff, architect; apartment, Madison Avenue, New York, H. J. Hardenberg, architect.



DETAILS FOR A CHURCH EXECUTED IN TERRA-COTTA BY EXCELSIOR TERRA-COTTA CO.
George H. Streeton, Architect.

THE BRICKBUILDER.

MARCH,

1903.

LA LONJA (THE EXCHANGE), SARAGOSSA, SPAIN.

THE BRICKBVILDER

VOL. 12 No. 3 DEVOTED · TO · THE · INTERESTS · OF ARCHITECTVRE · IN · MATERIALS · OF · CLAY MARCH 1903

THE BRICKBUILDER.

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ADVERTISING.

Advertisers are classified and arranged in the following order: —

Advertisements will be printed on cover pages only.

TESTED FIREPROOF MATERIAL.

ARCHITECTS are as a class conservative. This is quite as it should be. The temptation to experiment at some one's else expense is always within the reach of the architect. But in most cases it is not a temptation which appeals to one very strongly, and it is one which surely, in the interests of the client as well as the architect's own reputation, should be sedulously avoided. There are in this country to-day before the public a surprising number of so-called systems of fireproofing. We venture the broad statement that there is only one which has stood all manner of tests and been successful through them all and that is that which is based upon the use of hollow terra-cotta blocks as a protection against the action of heat. We do not feel, however, that fireproofing need be treated like burnt pig, in Charles Lamb's famous essay. It is not necessary to burn the building down or even set it on fire in order to determine whether or not the system of fireproofing employed is a safe one, but more insistence can with advantage be placed upon the necessity of actual tests even on a small scale. Nor is it enough that such tests should receive the approval of a building department or of the engineer employed by the company, or of a few interested investigators. The great pity is that we have no authoritative board or body in this country to make such tests in an absolutely impartial manner, publishing fearlessly the results and showing no favors. But in the absence of such disinterested tests we feel it can be stated as a general rule that no material will resist fire unless in the process of its manufacture it has already passed through a temperature as high as any to which it might be exposed in a burning building, nor is any material to be considered as ranking among the best unless it is of such nature that the action of heat under 2,500 degrees will not change its molecular or chemical constitution. Nor is any material suitable which is in any way affected by the action of water. There is only one material, at present, before the public which will answer all three conditions and that is burnt clay, and we feel that architects are quite justified in being sceptical in regard to any system of fireproofing which uses any other material as a base. The fact that other systems may pass muster from inspectors or may stand most fires or may be almost as good as terra-cotta is a poor argument. The best is none too good, especially when the best generally costs but little, if any, more than those compositions which will stand most fires. Too great insistence cannot be placed upon the selection of material and upon the system of construction which is absolutely the best.

THE daily press has found a great deal to say of late anent the opening of a private museum in Boston, which is in some respects a most interesting sign of our national progress in art matters. There are rich men and women by the hundred who have accumulated works of art which are carefully hoarded in private collections to which the public has no access, but as far as we know Mrs. John L. Gardner is the first to appreciate that she is but a trustee and that her unquestioned taste and her ample bank account can best be used to place objects of fine art within the reach of educated, cultivated people. Her museum is unique in many ways. Every object it contains was selected because of its artistic worth. There is no padding, no gifts which cannot be questioned, and there is plenty of room for pictures and for art subjects so that they can be studied one by one without crowding and without haste. Two hundred people only are allowed to enter on certain days of the week by special admission tickets which must be purchased at one dollar each. We know of no place where conditions might be so ideal for studying and appreciating art, and it is to be hoped that examples of this kind, which are by no means uncommon abroad, may be imitated by men like Senator Clark, J. M. Hill or the Vanderbilts, whose priceless collections now are for the greater part hidden away from those to whom they would do the most good.

R. M. UPJOHN.

BY the death of R. M. Upjohn the architectural profession loses one of its oldest and most honored members. For more than half a century the Upjohns, father and son, have been prominent architects in New York, and they have been identified with every development of the profession. Mr. Upjohn was the first president of the American Institute of Architects, and up to the time of his death took an active interest in all professional matters. He was born in England in 1828, and came to this country while a mere child. The best known of his buildings is the State House at Hartford, which in many ways is one of the most successful structures of its kind in the country and offers one of the very few examples in the world of a Gothic dome.

FRANCIS CRANMER PENROSE.

SINCE our last issue we have to chronicle the death of Mr. Francis Cranmer Penrose. From 1852 to 1897 Mr. Penrose held the position of surveyor to St. Paul's Cathedral, London, having succeeded Professor Cockerell, and during that time, in addition to his care of the cathedral and a moderate architectural practice, he wrote a number of highly esteemed treatises on the refinements of Greek architecture and kindred topics. He received the Royal gold medal of the Institute of British Architects, and was a past president of that institution. His literary work was not confined entirely to architecture, as he found time to publish a work on "A Method of Predicting Occultations of Stars and Solar Eclipses by Graphical Construction," of which a new edition was issued last year, as well as a paper on certain astronomical facts connected with the orientation of Greek temples.

NEW BOOKS.

THE DESIGN OF SIMPLE ROOF-TRUSSES IN WOOD AND STEEL. By Malverd A. Howe, C. E. New York: John Wiley & Sons. Price, $2.

The stated object of the writer of this book has been to bring together in a small compass all of the essentials required in properly designing ordinary roof-trusses in wood and steel. The programme so laid out has been faithfully adhered to. There is hardly a line of superfluous matter in the book, the essentials are clearly and compactly stated, the theory of graphical statics is presented in a precise and comprehensive manner, and to give the work a practical value the author selected one typical truss in wood and a similar typical truss in steel and worked out in fullest detail all the strains and all the sizes and detail connections. For work of this kind a single truss so worked out is far better than an extended variety, for the engineer or architect who can master the processes of calculation involved in a single truss as herein shown would have no difficulty in applying the same principles to any structure however complicated. The book has been carefully edited and is quite free from slips or inaccuracies. Our only criticism would be that the tables, which occupy some thirty pages, are quite superfluous, as they are essentially nothing but transcripts from the steel handbooks. They, at least, however, do no further harm than to add to the bulk of the book.

A DISCUSSION OF COMPOSITION, Especially as Applied to Architecture. By John Vredenburgh Van Pelt. New York: The Macmillan Company.

This book is interesting reading. It is throughout evidently inspired by nothing more American than the acquired principles of the Ecole des Beaux Arts, and its practical applicability to American wants is questionable, but its abstract statements are such as are common to all manifestations of art, and they are well put and worthy of serious study. The value of the book ceases where the author gets beyond general statements, and especially in the so-called practical hints toward the close he is hopelessly at sea. Still the successful practitioner will doubtless derive an intellectual pleasure in being told exactly why he has done certain things which led to success, while with the beginner the impracticability of the impractical chapters will pass over his head without notice, and the really excellent discussions on the theory of art cannot fail to do him a great deal of good. For the best that is in it the work is strongly to be commended; the balance had far better have been omitted entirely.

THE AMERICAN VIGNOLA. PART I. THE FIVE ORDERS. By William R. Ware, Professor of Architecture in Columbia University. Boston: The American Architect and Building News Company.

It seems like a bit of ancient history for Professor Ware in the preface to refer to January, 1859, when he left Mr. Edward Cabot's office in Boston to study architecture under Mr. Richard Hunt. Since that time the country has passed through several varying phases of architectural manifestation, but the principles of the Orders and their use are not essentially different from what they were in the early days of this century when our excellent colonial work was produced. Professor Ware's book is admirably illustrated and gives in very complete detail all that can be said on the subject. The work is to be commended for its thorough, scholarly qualities.

A MANUAL OF DRAWING. By C. E. Coolidge, Assistant Professor of Machine Design, Sibley College, Cornell University. 8vo. 92 pages, 10 full-page plates. Paper, $1. New York: John Wiley & Sons.

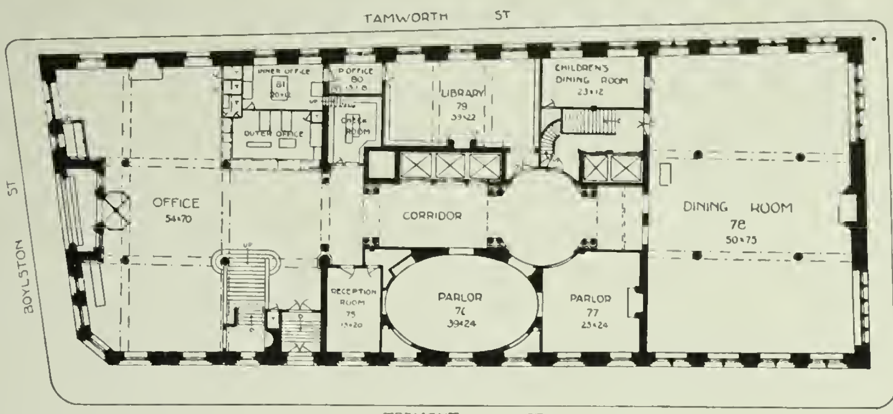
This book contains about all that can be said on the subject of drawing materials and how to use them. It also takes up in a general way the usual practice of draughting offices in regard to the preparation and manufacture of drawings. It is written especially for the use of machinists, but it is well worth the study of architectural draughtsmen as well, though the writer evidently has a fondness for mechanical work when he speaks of a soft pencil being HHH or HHHH, when the usual custom among architects is to consider HB rather hard. The drawings accompanying the work are unfortunately not as good as the text matter, but the chief trouble is in their reproduction rather than in the subject-matter.

The American Hotel. II.

BY C. H. BLACKALL.

THE MAIN FLOOR.

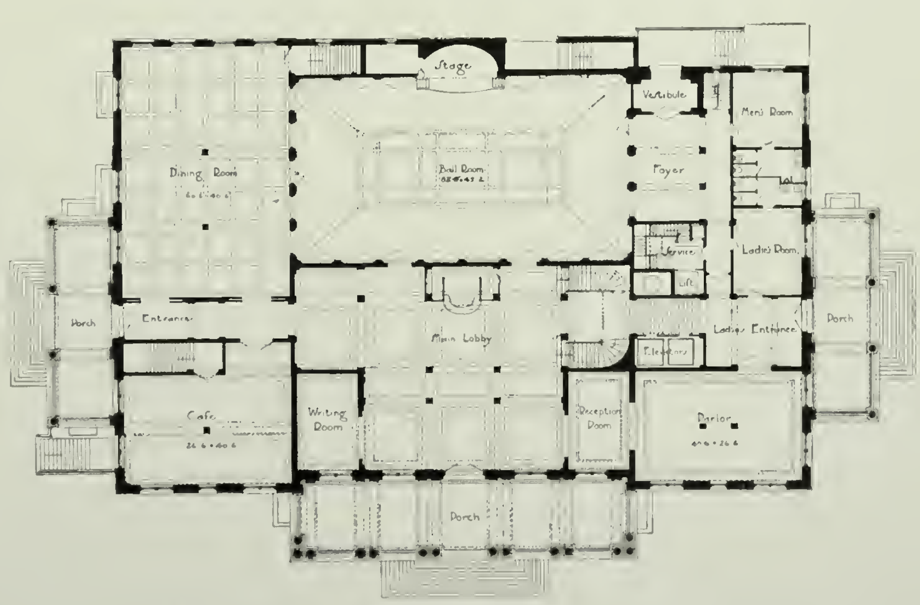
THE keynote of the arrangement of the principal floor of a modern first-class hotel is ample circulation and publicity. Everything is subserved to affording opportunity for the guests to see each other and themselves, and to have abundant space in which to promenade, to show themselves and to observe. It is assumed to be an attribute of well bred nonchalance to appear oblivious to



PLAN OF OFFICE FLOOR, HOTEL TOURAINE, BOSTON.
Winslow & Wetherell, Architects.

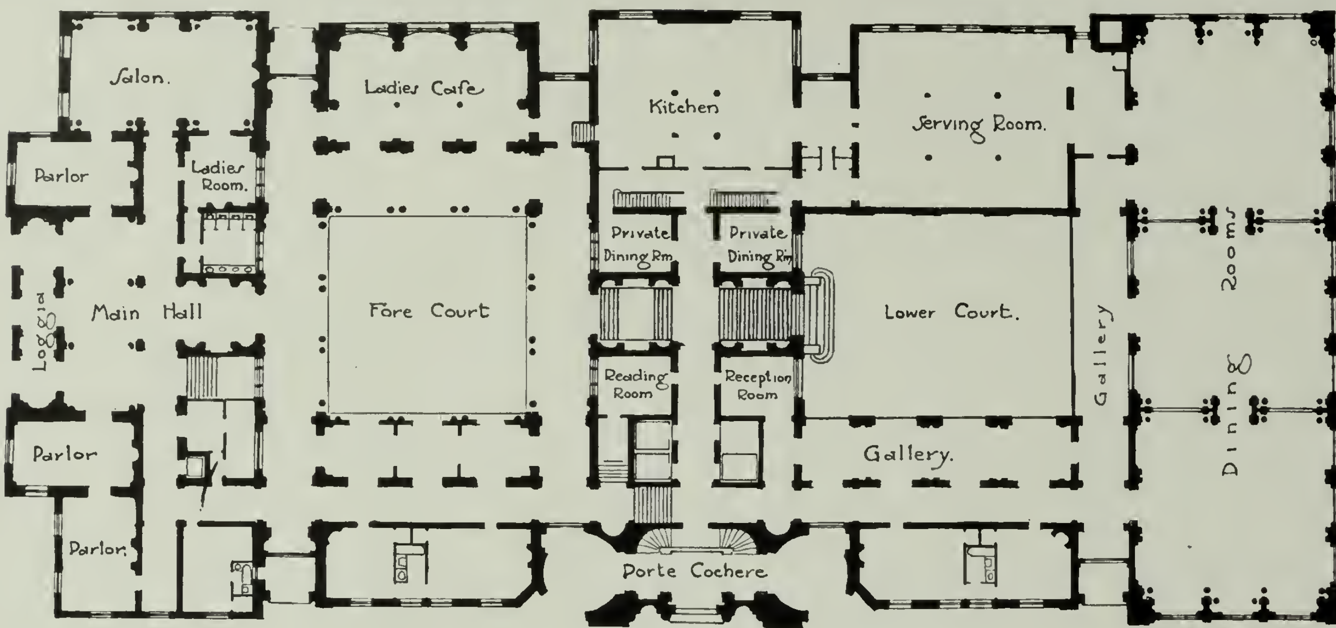
everything that goes on around one, but as a matter of fact there is no other place where individual curiosity is so tolerated, and so openly encouraged as in a modern hotel. Consequently a great deal of space is given up to mere circulation and lounging rooms. The main apartment, if it may be so called, is at once hall, rotunda, office, news room and reception room. The dining room must be close at hand, and, if possible, separated from the strictly so-called public space by either draped openings or large windows. The corridors are made of ample proportions, and as far as possible each corridor leads to some notable feature so as to tempt the visitor to investigate. Everything is for show and to carry out the appearance of well bred interested leisure, which is so prominent in our city hotels. There are a few features which are common to all and which are essential. The main entrance is directly into the lobby. Most of our modern hotels are now equipped with the Van Kannel revolving doors, which obviate the necessity for any vestibules and at the same time increase the possibility of abundance of light for the large rooms which are necessitated by the program. Everybody can enter from the main entrance, but it is a feature of hotel etiquette that a lady shall enter by a separate entrance, if possible on one side, and that close by the ladies' entrance there shall be a small waiting room, called, by courtesy, the ladies' parlor, which is usually a convenient resting place on the way either to the elevators, which ought to be close at hand, or to the dining room, which should never be far distant. The floor plan of the New Willard, at Washington, shows these points admirably. The main lobby is a magnificent apartment finished in elaborate manner, with a high ceiling, and grouped either in it or about it are all of the working functions of the hotel life. The ladies' room is on the corner of the two streets with an entrance from Fourteenth Street, and the disposition of the elevators and the approach to the dining room in relation to the ladies' room and the ladies' entrance illustrate a very clever bit of planning on an irregular corner.

The Touraine offers a similar solution. The main entrance is from Boylston Street directly into a large apartment designated on the plan as office, which accommodates a number of various features, and directly opposite, on the axis, passing the side entrance, is the ample corridor leading directly by the elevators to the large dining room. In the case of the Manhattan, the ladies' entrance is into a sort of enlarged vestibule which answers the purpose also of ladies' room, and the main rotunda is the general waiting room, which is entered directly from the street through revolving doors which are not shown on the plan. The general scheme seems to be to oblige patrons to enter the hotel and come in a measure at least under the eye of the management before reaching the dining room. Only rarely can the dining room be entered without first passing close by the main desk. In the Auditorium Annex the restaurant is on the corner and immediately adjoining the main vestibule, so that outsiders need not pass into the main lobby. The same is true of the café in this hotel, which varies from the usual type in being on the ground floor. The local condition in Chicago apparently did not favor a basement



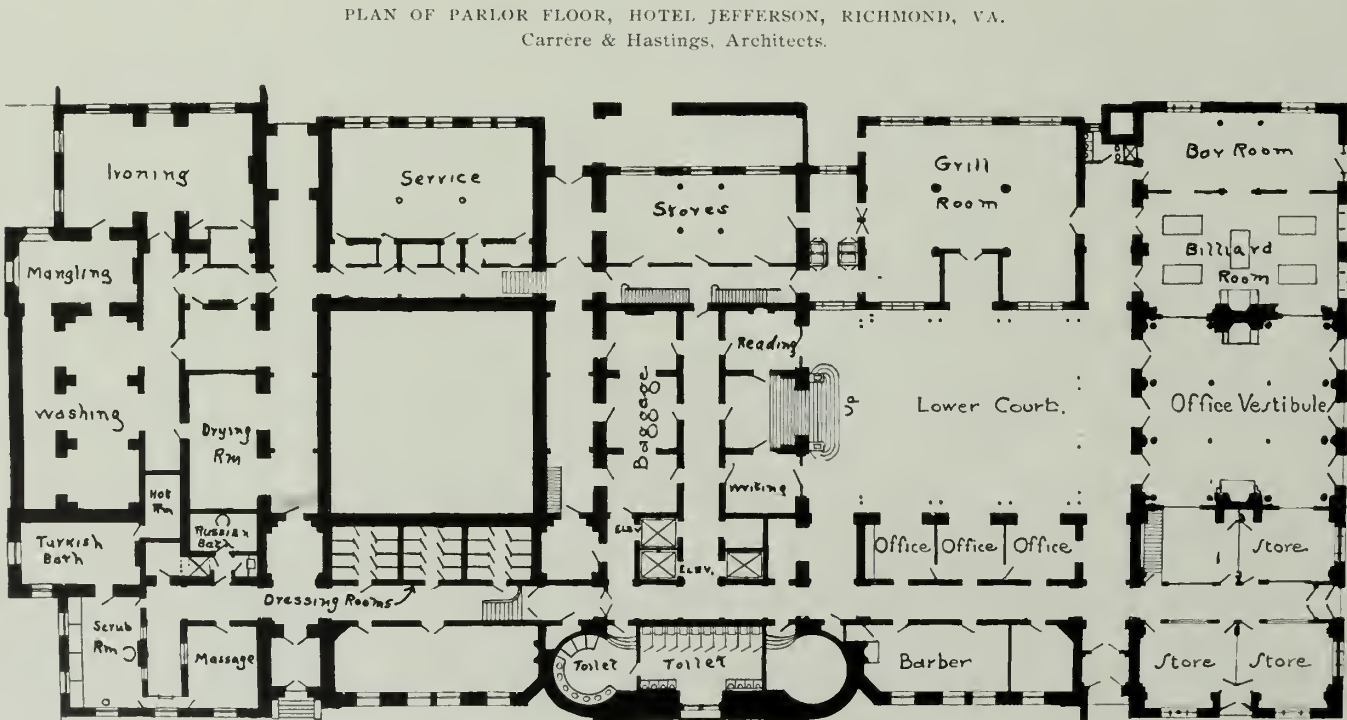
PLAN OF OFFICE FLOOR, HOTEL SCHENLEY, PITTSBURG, PA.
Rutan & Russell, Architects.

café. On a somewhat smaller scale the Hotel Schenley carries out the same principles in a very straightforward, logical manner. The lobby is the central feature and directly opposite the main entrance is the desk. The carriage entrance is at one side, with a passage and a parlor or ladies' room on opposite sides of this passage and an elevator just beyond, so that upon entering the hotel ladies can remain in the waiting room while the gentlemen register and the party can then take the elevator to the upper stories without the ladies being obliged to pass through the lobby at all. It seems to be unwritten custom that ladies shall keep out of the lobby. Smoking is generally permitted there, and ladies are supposed to only cross the lobby but not to linger therein. In the Waldorf-Astoria, however, the conditions are somewhat different. The main office is entered from Thirty-fourth Street. On this side of the building is also a driveway into the building, enclosed by a promenade, this promenade in turn being separated by a glazed partition from the apartments marked on plan as the main foyer, the main corridor, and the reception room, the office being just beyond the corridor on the right. As a matter of fact all of these apartments are thronged night and day with guests in constant circulation. This



SKETCH FROM ARCHITECTS' PLANS.

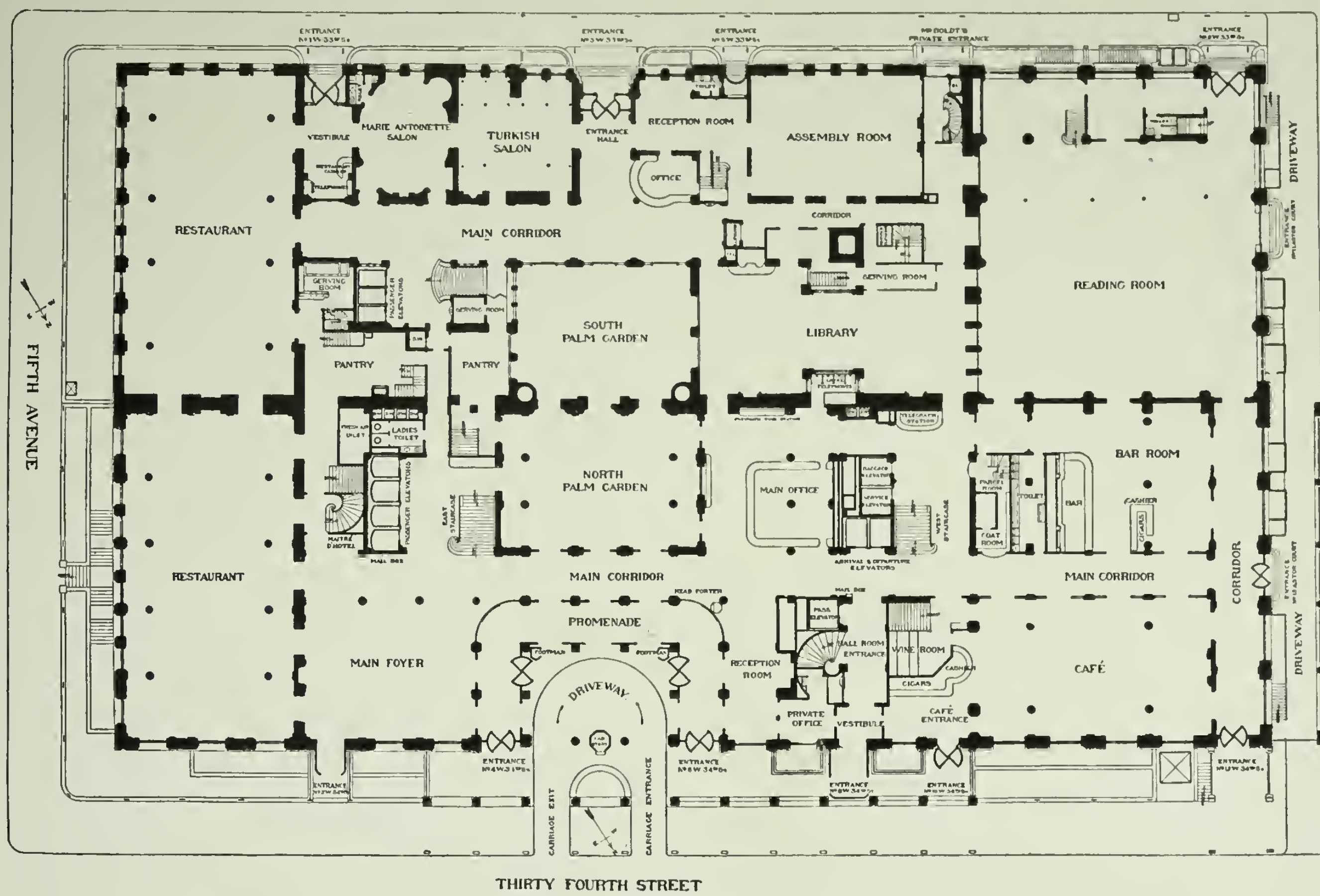
PLAN OF PARLOR FLOOR, HOTEL JEFFERSON, RICHMOND, VA.
Carrère & Hastings, Architects.



SKETCH FROM ARCHITECTS' PLANS

PLAN OF OFFICE FLOOR, JEFFERSON HOTEL, RICHMOND, VA.
Carrère & Hastings, Architects.

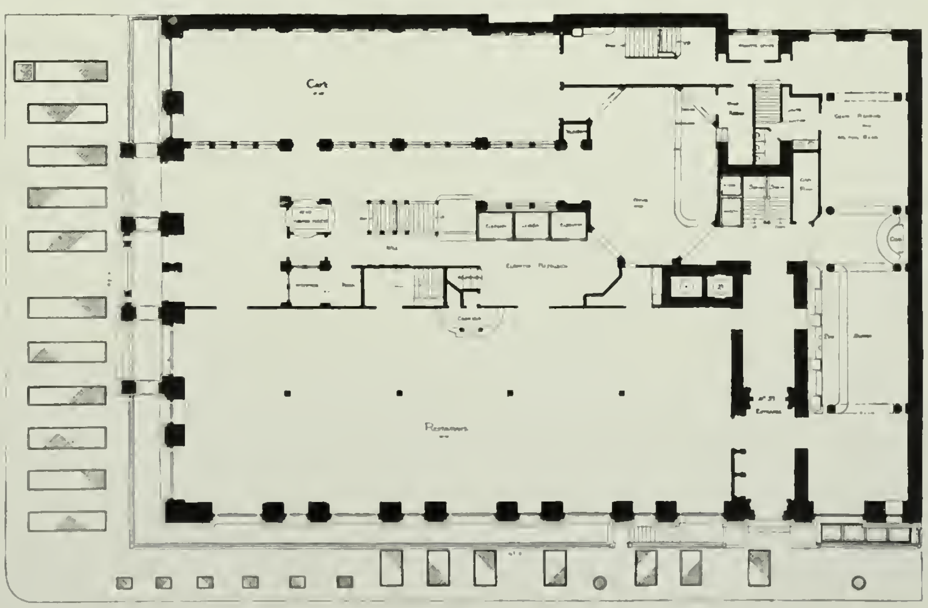
hotel having been built in two sections presents some duplication of parts which would not be expected in a structure designed as a unit, but the idea of affording ample room for circulation is manifest everywhere and can easily be traced out on the plan.



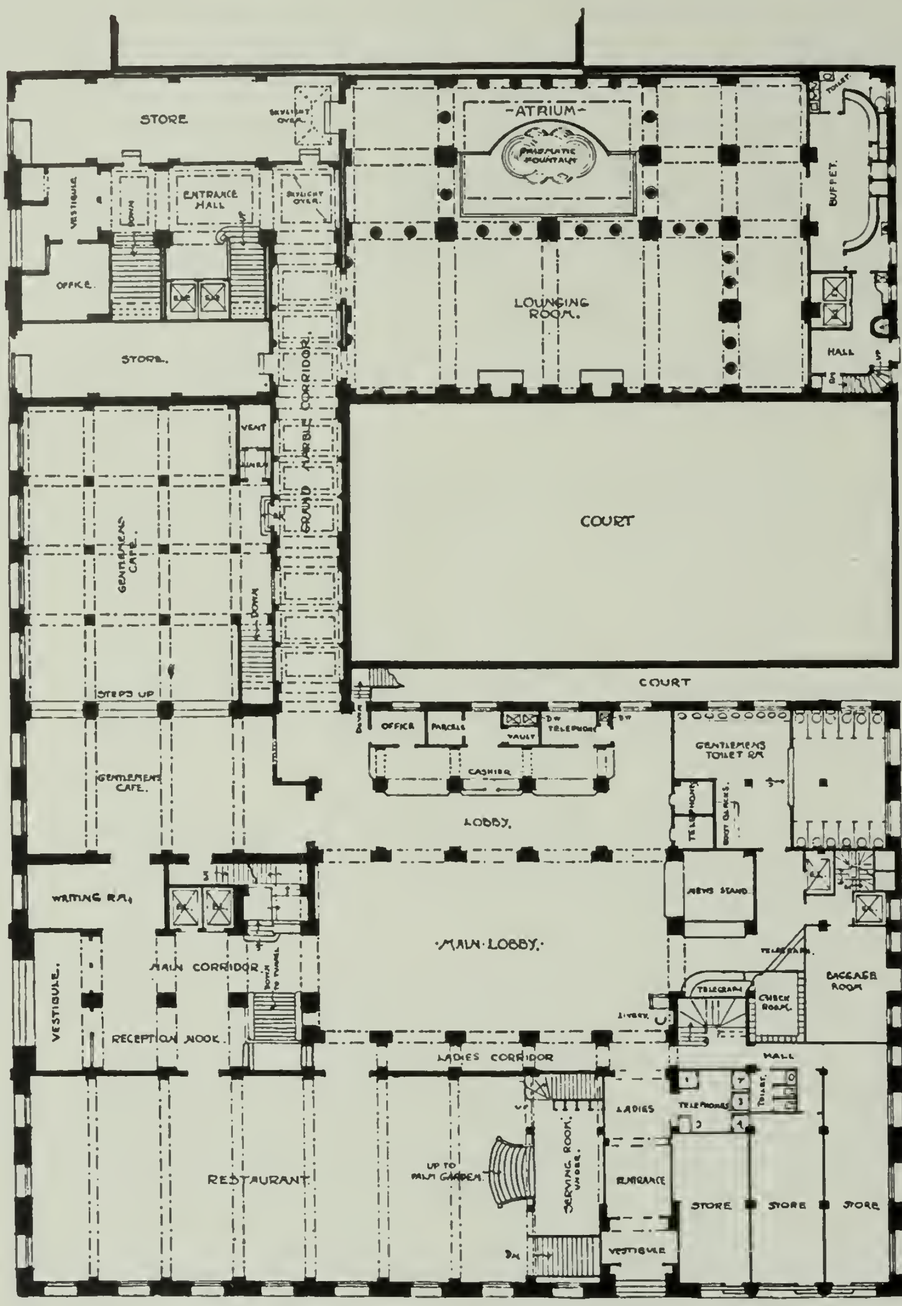
PLAN OF OFFICE FLOOR, WALDORF-ASTORIA HOTEL, NEW YORK CITY.
H. J. Hardenbergh, Architect.

In the New Planters Hotel, St. Louis, there is a departure from the usual arrangement, in that the main dining room, the reception room and the kitchen are on the second floor, the main entrance, the café, bar-room, barber shop, etc., being on the ground floor, and the office placed on the axis of the entrance. The ladies' entrance is from Pine Street. This plan has a further complication in that a part of the ground floor is given up to stores. Generally the requirements of hotel accommodation are such that every inch of room on the ground floor can be used by the lessee, and stores are impracticable.

All the plans previously referred to are of hotels upon a level site. The Hotel Jefferson, at Richmond, is an exceedingly interesting illustration of what can be done on a site which pitches very sharply towards the rear. The difficulties were overcome by Carrère & Hastings in a most logical manner, and the hotel as it is shown by the plans is one of the most interesting structures of its class in the country. Nominally the main entrance is on the upper level, or at the left of the plans as shown by the cut. A shallow vestibule gives access to a moderate sized lobby, on each side of which are parlors. On the axis a short vestibule leads to a charming open fore court surrounded



PLAN OF OFFICE FLOOR, HOLLAND HOUSE, NEW YORK CITY.
Harding & Gooch, Architects.



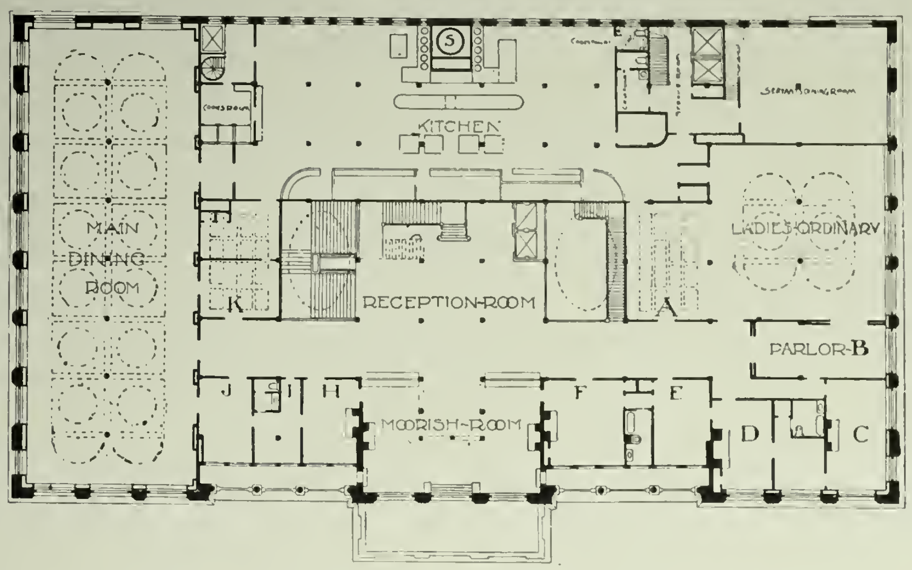
PLAN OF OFFICE FLOOR, AUDITORIUM ANNEX, CHICAGO.
Holabird & Roche and Clinton J. Warren, Associate Architects.

at a level ten steps below to give access to the dining room that faces the rear street and to the galleries opening into the upper portion of the lower court. This court on the lower level is actually the main entrance to the hotel, the omnibuses and carriages driving up the rear street. The clerk's desk, the grille room, the lavatories, etc., are all on the lower level and a side corridor carries one directly to the elevators. The effect on entering the hotel and looking up from the lower court along the axial stairway into the fore court with its mass of green foliage is extremely interesting and it would be hard to imagine a more successful treatment of so difficult a problem.

It is apparently not considered essential that the office or the main lobby or waiting rooms of a hotel shall be abundantly lighted from out of doors. In the Waldorf-Astoria all the interior rooms, including the office, are lighted continuously by electric light, and even in the dining rooms and cafés, which front on the street, the electric lights are burning a greater portion of the time. In the Manhattan the portion designated as rotunda receives excellent light from the street, but even here electric lights are burnt a great deal and in the office they are going continually. It adds to the appearance of the lobby and office surroundings if daylight can be introduced even in limited quantities, but it is seldom practicable to so arrange the first floor as to dispense entirely with artificial light, and it apparently is not an imperative need to do so.

by a colonnade and flanked on one side by parlors and on the other by a ladies' café. This fore court is, or was, beautifully planted with palms and flowering shrubs, with a statue of Thomas Jefferson and a fountain in the center. On the opposite side of the hill, still on the axis, is a flight of stairs leading down to a second courtyard at the lower level, this second courtyard extending through the height of the lower and the main story, and being covered with glass. From the fore court a transverse corridor leads to a corridor parallel to the side street, carried along partly on the upper level and partly

PLAN OF OFFICE FLOOR, NIAGARA HOTEL, NIAGARA FALLS, N. Y.
Green & Wicks, Architects.



SECOND FLOOR PLAN, THE PLANTERS HOTEL, ST. LOUIS.
Isaac S. Taylor, Architect.

hotels this portion of the service was carefully thought out and very conveniently arranged, so as to be readily accessible without detracting from the general arrangement, but it is usually the case that all the telephone facilities are neglected until the building is finished, and they do not always receive the attention they merit.

The coat or check room is another feature which receives far less attention than it should. A coat room is never too big, but it is often too small. It should be on the ground floor immediately opposite the main desk, and in a rough general way the number of square feet should approximately equal the number of rooms in a hotel. This of course is the crudest kind of approximation, but it appears to fit some of the more convenient coat rooms. Immediately adjacent to this and as close as practicable to the service elevators it is well to have a trunk room. Only a very few hotels, however, are so placed as to make it practicable to have a separate entrance through which baggage can be brought. When there is a separate entrance of course the baggage room should be immediately adjoining the same, but few city hotels can afford such a luxury.

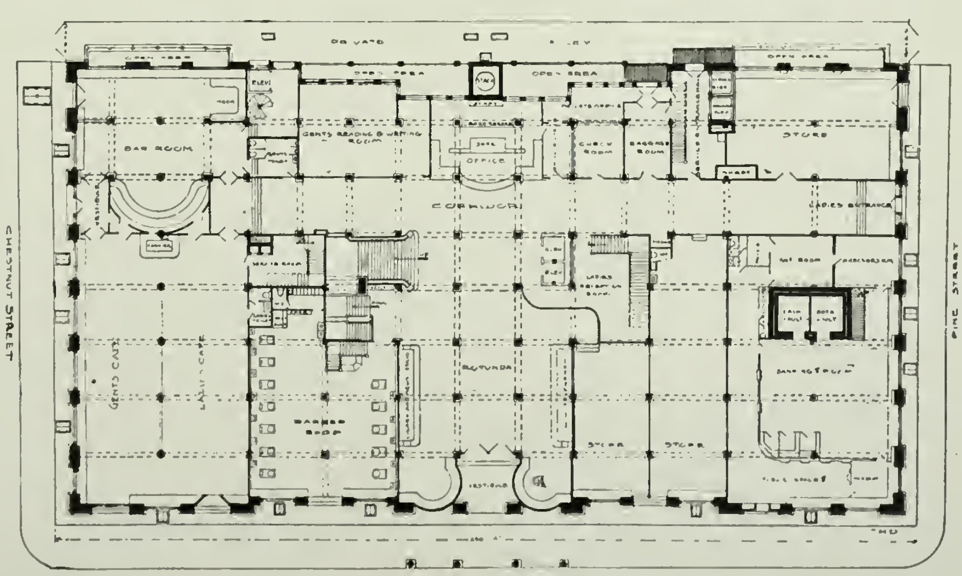
Space must also be provided for a telegraph office. If the hotel includes a ticker in its equipment this apparatus is usually placed in the café or in the barroom.

The news stand is usually very prominently placed in the main lobby. It is seldom specially arranged for and more often consists simply of a counter built out into the room from one wall. For an ordinary hotel a space 10 x 14 would be ample. The theater ticket office is usually run is connection with the news stand and needs no special provision.

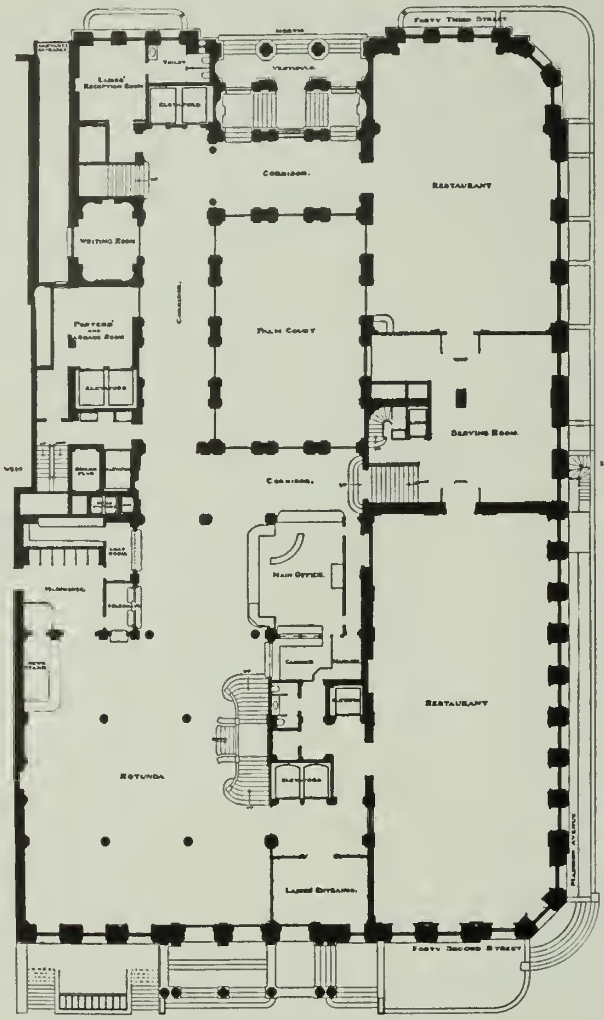
In some hotels, as in the New Willard and in the Waldorf-Astoria, the head porter has a desk, and to him is assigned the calling of carriages, engaging of railroad ac-

The location of the desk must be very carefully studied. The clerks are supposed to keep an eye on every one who enters and leaves the hotel, and the registry book should, if possible, be visible at a glance to guests entering the front door. In the New Planters, the Schenley and the Holland House the desk is directly opposite the main door. It is more commonly, however, on one side as in the Touraine, the Auditorium Annex, the New Willard or the Jefferson. In the Manhattan it is some distance back beyond the rotunda lobby and almost around the corner, while in the Waldorf-Astoria it is decidedly to one side of the axis and of the main entrance, though the disposition of rooms is such that it is very prominent. The office includes a main counter where the guests are received and registered and rooms assigned them. Usually there is a distinct portion set aside for the reception of the keys, letters, etc., and the cashier's desk is usually an extension of the main counter. In the Waldorf-Astoria there is a considerable space devoted simply to information, opposite which, against the wall, is the station for the despatch tubes leading to each story. Beyond the mere fact that the main desk or office shall be in full view of the main entrance, there seems to be really nothing that governs its position.

The arrangement of the various features which have to be accommodated on the ground floor calls for the exercise of a good deal of ingenuity. They must all be like the servant in the famous portrait, who was in the picture, but just out of sight around the corner. There must be space for a telephone operator's desk with at least two telephone booths immediately adjoining. The Manhattan has six telephone booths, and they are in constant demand. The New Willard has four telephone booths. In both of these



PLAN OF OFFICE FLOOR, THE PLANTERS HOTEL, ST. LOUIS.
Isaac S. Taylor, Architect.



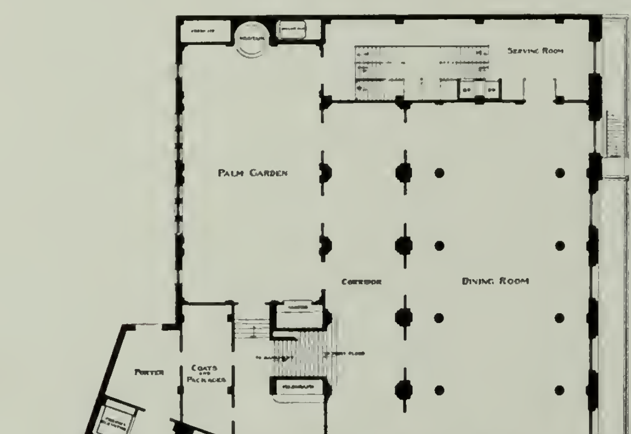
PLAN OF OFFICE FLOOR, HOTEL MANHATTAN, NEW YORK CITY.
H. J. Hardenbergh, Architect.

commodations, the delivery of letter paper and envelopes and stamps, and what is termed paging a guest, that is to say, sending a boy around through all the rooms to call out the name of some one who is wanted.

There should be a small ladies' waiting room reached by a separate entrance from out of doors, opposite the elevators if possible, and close by the main desk. This is used only slightly and for a very few moments at a time, and a very small apartment answers the purpose. Besides this there should be a ladies' parlor, a writing room and a library. These are purely show rooms. They are used so little that it is impossible to settle any data as to sizes, and their location depends entirely upon what is left in the lot after the main offices and dining rooms are set off.

It is usual in hotels of the present day to place the café and the barroom in the basement and reserve the restaurant on the ground floor for ladies alone or with escorts. The dining room in the majority of cases occupies the most prominent corner and is disposed so as to get all of the daylight possible. In the Touraine it is arranged very naturally at the rear on the axis, with light on three sides. In the New Willard it receives light only on one side and is disposed rather to the rear of the side street. But in all of the hotels illustrated it is the most commanding room on the floor and architecturally it receives the first consideration. Quite frequently the dining room is helped out by a so-called palm garden, in which the service is supposed to be perhaps a little less formal, though practically there is no difference. When the Waldorf was built the palm garden was placed directly opposite the entrance and formed so charming a feature that upon the erection of the Astoria the same treatment was carried out on the opposite side and the two thrown together. The palm garden in the Niagara is treated a good deal like a large conservatory, and being on the axis of the entrance forms a very charming feature. In the Manhattan the so-called palm court is not a dining room but a species of general waiting and reception room. The palm garden in the New Willard, on the other hand, seems to be used chiefly for theater parties and late suppers. The palm garden in the Auditorium is in a mezzanine story communicating directly with the main restaurant by a broad flight of steps. In the Jefferson the galleries around the lower court on the main dining room level are used as a species of palm garden, the tables being set in the open.

The size of dining room in its relation to the hotel is something governed entirely by local conditions. The number of guests which can be accommodated in a room varies from one for every twelve feet of area, which is rather crowded, to one for every twenty or twenty-five feet in area, which is probably as near an approximation of the average as could be made. There are few first-class hotels which depend entirely upon registered guests for patronage of the dining rooms, and the traffic from



PLAN OF OFFICE FLOOR, NEW WILLARD HOTEL, WASHINGTON, D. C.
H. J. Hardenbergh, Architect.

outsiders is the largest source of revenue. The most practical rule the writer has heard stated is to plan the lobbies, ladies' room, etc., as restricted as will give satisfaction, and throw all the rest of the room in the first story into the dining room. The approximate ratio between the number of rooms and the area of the dining room is 14 in the Touraine, 8.25 in the Auditorium Annex, 9.8 in the Waldorf-Astoria, 9.75 in the New Willard and 8.35 in the Manhattan.

It may be said that the opportunities for systematic planning, such as is shown in the Jefferson or the Schenley or the Niagara, are extremely few. Any attempt to plan academically, to balance the parts, to preserve or mark axes is generally wrecked by conditions of site, exposure or practical requirements. Apparently hotels which are most architectural in treatment are not necessarily the most popular or the best patronized, and the main essentials seem to be a large, monumental, lavishly decorated lobby entered directly from the street, a magnificent, richly appointed dining room, and especially, as was emphasized at the beginning of this article, ample circulation.

WHY NOT CLAY GUTTERS.

WE rarely see eave gutters made by the clayworker. The ironfounder or the "tin-plate" maker gets practically all the orders for that class of work, but we do not know why it should be. The gutters are not called upon to withstand heavy blows, so that because clay goods might be thought to be too brittle for the purpose does not enter into the question. Suitable joints can be as easily made in the clay goods as in the iron, and we venture to think that they would prove, on the whole, more satisfactory. One of the most frequent causes for complaint in the average modern eave gutter is that, after it has been up some time, it commences to leak. The continual oxidizing action of the air, especially "moist air," tends to corrode and eat away the iron in unprotected places, and the gutter after a while commences to drip at inconvenient points. No action of this kind can be set up where the gutter is of stoneware. Another factor in the case is in regard to æsthetic appearance. It is true that some people may prefer to see the gutters of their houses painted so as to give a "pretty effect." But we venture to believe that very many are not of that opinion, and would much rather that clay goods should be adopted to match materials employed in other parts of the building externally. The owners of house property, too, ought to recognize the value of stoneware gutters over iron ones. The latter, to keep them in order, must be painted, whilst the former require nothing of the kind and will always keep their color. Objection might be taken on the ground of the superior weight of the stoneware gutters, but that weight is little in excess of substantial iron ones, and we are not including jerry-built houses in these observations.

'Tis unlikely that clay gutters will ever be used to any extent on other than buildings which have been built entirely or nearly so of burnt clay. But there can be no logical reason why they should not be used on a building the front of which is either of brick or terra-cotta. — *British Brickbuilder.*

Brick Edifices in Toulouse.

BY JEAN SCHOPFER.

OF all French cities, Toulouse is assuredly the one possessing the largest number of brick monuments, varying in date from the Romanic period down to modern times. Whereas in nearly all the other parts of France, a few districts in Normandy excepted, good building stone is found, in the southwest there is none. Its place is taken by brick. A virtue is made of necessity: that is to say, some remarkable brick edifices are constructed. It is, therefore, to Toulouse that one must go to find the most typical examples of brick architecture of the different periods — Romanesque, Gothic, Renaissance and modern. It is true, as regards the Gothic period, that Toulouse cannot boast of such a fine church as

DUNGEON IN COURTYARD OF CAPITOL, TOULOUSE.

is the admirable cathedral at Albi, which we brought to the notice of THE BRICKBUILDER readers last year. Albi Cathedral remains the masterpiece, as far as brick is concerned, of religious architecture of the Middle Ages; but Toulouse has several Gothic monuments also, and can pride itself upon having erected the biggest French Romanesque church — and one of the most perfect — that of St. Sernin's.

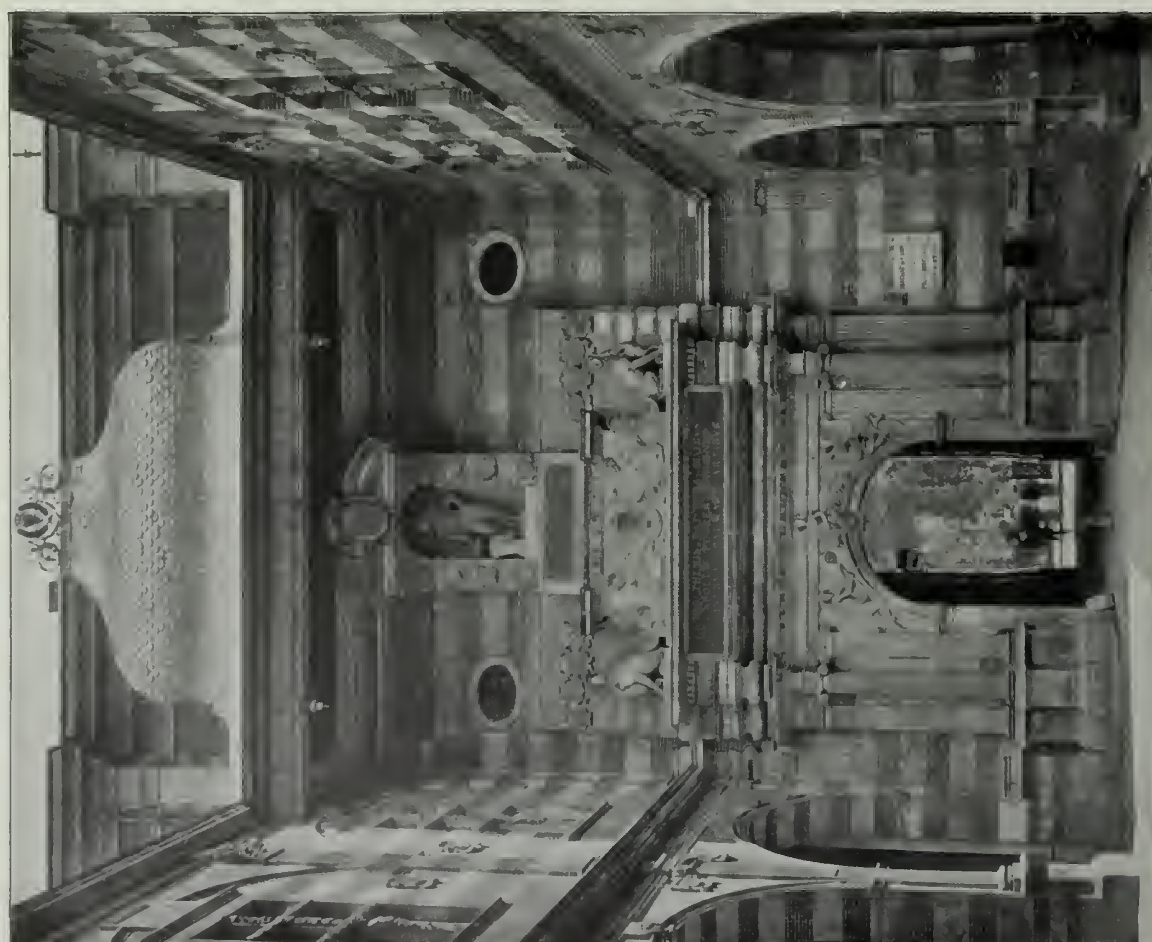
The Church of St. Sernin of Toulouse, of which we give several views, was begun in the eleventh century. It was intended to place therein the body of Saint-Saturnin, first bishop of Toulouse, and relics of six apostles. Saint-Saturnin was held in great veneration, and many were the offerings made for the erection of a church in his memory. Moreover, the county of Toulouse was at that time a very rich province, the Albigensian Crusade not having yet ruined it. Agriculture and the arts flour-

HOTEL RAYMOND, TOULOUSE.

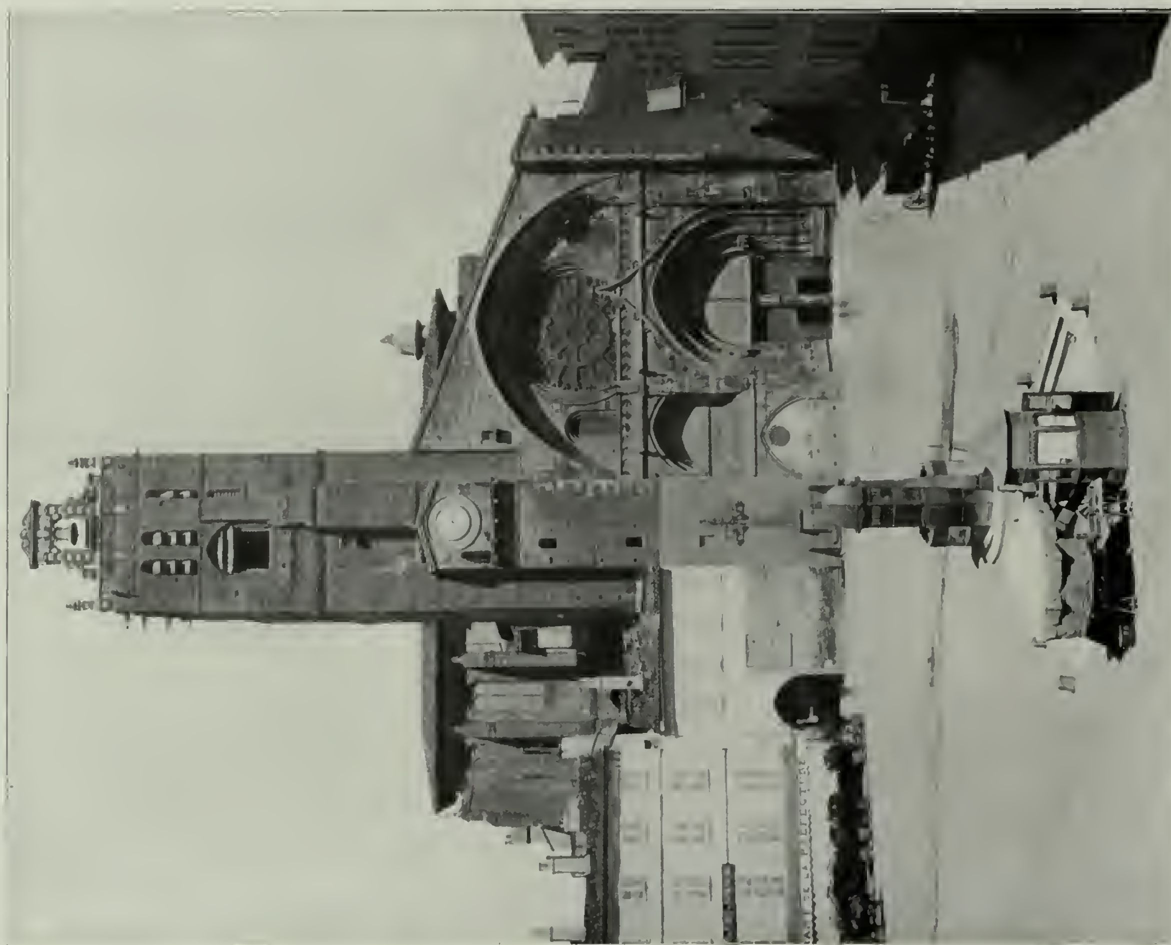
GENERAL VIEW, CHURCH OF ST. SERNIN, TOULOUSE.

THE PONT NEUF BRIDGE, TOULOUSE.

COURTYARD OF MUSEUM, TOULOUSE.



COURTYARD OF HENRY IV, IN THE CAPITOL, TOULOUSE.



ST. STEPHEN'S CATHEDRAL, TOULOUSE.

ished there, and it was one of the parts of France where civilization promised to reach a high state of perfection.

As we have said, the Church of St. Sernin's was commenced about the year 1080. A first consecration of it took place sixteen years later, that is, in 1096, at which Pope Urban II officiated. At that time there was only the crypt, which has remained celebrated to this day. The central tower was finished in 1130. It was much less high then than it is now, as can easily be seen by an examination of the illustration. The two upper stories and the spire are not Romanesque like the rest of the edifice, having been built a century later, that is to say, in the thirteenth century, when the Chapter of St. Sernin's decided to carry the steeple higher, in order that it might be visible from a greater distance to the pilgrims who came to Toulouse.

Toulouse was a halting place on the road of one of the principal pilgrimages of the Middle Ages. Pilgrims from France first went to the Abbey of Conques; they next visited St. Sernin of Toulouse, and arrived finally at St. Jacques de Compostelle in Spain. As may be imagined, they left offerings at each sanctuary: hence the wealth of these three churches.

The two parts of the tower, the Romanesque and the Gothic, are perfectly distinct.

St. Sernin's was entirely vaulted in the twelfth century, but, as happened to every large church, it was not entirely completed. Two centuries more of intermittent work was needed. Some additions were made in the fifteenth century, and in the nineteenth a thorough restoration of the church was undertaken by Viollet le Duc, who has been succeeded by M. de Baudot.

The church is a cruciform edifice with five naves, a chevet and five apses. It cannot be said that its style is peculiar to the Toulousian school.

We know that during the Romanesque period there were different solutions, according to the province, of the problem which exercised the minds of the architects of those days, — that of vaulting large spaces in the safest and at the same time most economical manner. This is how there came to be in the Romanesque style alone, the Norman, the Burgundian, the Provencial, the Poitou and the Auvergnian schools, each of which evolved a type markedly different from the others. And yet there is no Toulousian school. On the contrary, St. Sernin's is a thorough example of the Auvergnian school, of which it possesses all the characteristics. It has the double aisles with semi-barrel vaults which distinguish that school; the principal nave has no direct lights; the inner aisle has a gallery, a feature which is also found in the churches of Auvergne. Much discussion has taken place regarding these galleries. They are dark, cannot accommodate worshipers, and have no architectural *raison d'être*. Probably they served as storerooms for the articles of value which the crusaders left behind them when starting for the Holy Land. In any case it was during the time of the Crusades that they were built, and none were built afterwards. We know also that Mussulmans, when leaving for Mecca, deposit their valuables in the mosques.

The dimensions of St. Sernin's are considerable. Its total length is 380 feet. The transept measures 211 feet. The nave is no less than 108 feet wide. The outer aisle is 24 feet in height and the inner one 32 feet. The nave has a height of 73 feet, while the steeple rises to 212 feet from the ground. It is to be noted that the axis of the church is slightly inclined towards the north. This is one of those intentional deviations cleverly resorted to by architects of the Middle Ages for the purpose of extending the perspectives.

St. Sernin's, by its dimensions and by the beauty of its plan and construction, is one of the most remarkable of Romanesque churches. It bears the same relation to the other monuments of that time that Amiens Cathedral bears to the churches of the thirteenth century.

The various views we present speak for themselves, and little comment is necessary.

A general view is given showing the western front, which unfortunately is unfinished and lacks the richness of aspect offered by the aisles and the chevet. The sculptural decoration throughout the edifice is of the most sober kind.

With regard to the belfry it will be noticed that in the upper and Gothic portion brick is employed in a truly constructive manner, there being triangular tops to the window crownings, which is an economical imitation of the ogive for use in brick buildings.

The view of the aisles shows the rich decorative effect produced by the intelligent use of brick mixed with white stone. In the oculus above the doors we find those polychrome mosaics that were so much in favor with the Auvergnian school. The aisle door is a fine piece of Romanesque architecture. The outer door belongs to the Renaissance period, and is built of stone. In St. Sernin's we observe the constant employment of those small arcades which are such a typical ornament in good brick architecture, and whose origin must be traced back to the Byzantine edifices at Ravenna.

A general view of the chevet shows the nine small apses flanking the transept and the choir, and a detail of the same part of the church enables one to admire in all its beauty this masterpiece of Romanesque architecture in brick.

St. Stephen's Cathedral, begun in the thirteenth century, is another edifice of considerable size constructed in brick. But the fortunes of Toulouse underwent reverses, and the cathedral was never completed as it ought to have been. Its nave is ancient, and very interesting from the standpoint of brick construction. It has three bays, 50 feet in length and as much as 65 feet wide. The vault is the Roman groined vault with salient ribs. The front, which we reproduce, has never been finished. It dates from the sixteenth and seventeenth centuries, and has a big tower, the crowning of which is quite Renaissance. The illustration shows clearly the thick buttresses in brick.

Amongst monuments belonging to the period of transition from Gothic to Renaissance we will mention the dungeon in the courtyard of the Capitol — the Toulouse *Hôtel de Ville*. It is a small building flanked by four small towers intended for sheltering sentries. It has been restored within the last fifteen years.

Another fine specimen of brick construction of the same period is the old *Hôtel Raymond*. This is a house with battlements and a machicoulis; but it is only strong in appearance, and one sees by other details — the windows, for instance — that the builders never expected that the edifice would have to sustain a siege. The taste for making this parade of defensive works comes from those earlier times when Toulouse had to bear the brunt of political and religious strife.

Bachelier, who was not only an architect but a good decorator, commenced at Toulouse the erection of a bridge—the *Pont Neuf*—which was finished by his son. The work was begun in 1546 and only completed in 1626. It is a splendid brick bridge, crossing the Garonne on seven arches. Our illustration sufficiently indicates the care with which it was constructed. The materials used were of excellent quality, and the bridge, which is four centuries old, is as sound now as the first day, although it has had to withstand some terrible floods, as the Garonne, which rises in the adjacent Pyrences, is subject to sudden overflows of a dangerous character, Two suspension bridges were carried away by floods in the month of June, 1875. This bridge dates from the Renaissance.

Henry the Fourth's courtyard, in the Capitol at Toulouse, is somewhat late Renaissance. It is of elegant design, pleasing in color with its alternate layers of brick and stone, and decorated quite in accordance with the very ornate method peculiar to Toulouse. A statue of Henri IV stands over the doorway. It was in this pleasant courtyard that Duke Henry II of Montmorency was beheaded in 1632, by the king's order, for conspiring against the state.

Our final illustration shows the courtyard of the present Museum. It is an old convent of the Augustines, one of the chief brick edifices of mediæval Toulouse. This courtyard was a small cloister, dating from the Renaissance, as can easily be seen. It is a very ornate building, with bas-reliefs and statues. We call attention, from a *brick* point of view, to the really curious pilasters between the little arcades. It is an adaptation in brick of forms which originated in stone construction.

Such are the few Toulousian monuments which I desired to bring before the readers of THE BRICKBUILDER. It is certain that Toulouse has been, at all periods, a city where good architecture has been done, that she holds a worthy position in the history of French art, and that she has employed nothing but brick for her principal and most enduring edifices.

SIZE OF BRICKS.

The following bill was recently submitted to the legislature of Massachusetts :

SECTION 1. From the first day of July of the year nineteen hundred and three, all bricks manufactured or sold in this commonwealth shall be known as standard or seconds.

SECTION 2. The size of standard face bricks shall be eight and three-eighths by four and one-eighth by two and one-fourth inches, and the size of standard common bricks shall be eight and one-fourth by four by two and one-fourth inches.

SECTION 3. All bricks not of standard size shall be seconds.

The Oneida County Courthouse at Utica, N. Y.

DESCRIPTION OF PLANS BY OLIN W. CUTTER.

BRIEFLY stated, the principal points to which attention is asked are as follows, viz.:

The amount of floor space that will be finally allotted to the departments of the county clerk, surrogate and treasurer, which should be on the first floor, is what will determine the size of the proposed building.

The floor space given them in the accompanying drawings is practically about what is suggested in the "conditions," and the plans have been worked out on this basis, rather than upon that of the general dimensions suggested of a building 100 x 150 feet, more or less, in size.

The clerk of the courts has on the floor of first story	6,622 sq. ft.
The clerk of the courts has on the floor of the basement	480 sq. ft.
Total	7,102 sq. ft.
The surrogate has on the floor of the first story	2,806 sq. ft.
The surrogate has on the floor of the basement	1,176 sq. ft.
Total	3,982 sq. ft.

These figures do not include partitions, closets and galleries.

To obtain a satisfactory arrangement of the important rooms of the building the less important ones cannot in every instance conform to the dimensions suggested and are perhaps a little larger than desired in some places.

Planning is but compromising, giving and taking a little here and there until the end and aim sought for is attained.

If the plan submitted is satisfactory in arrangement and a reduction of square foot area of the various rooms is permissible, a blanket shrinkage of the whole plan could be made by changing the scale and reducing all parts uniformly.

The hall and corridors are ample for the purposes of the building. Where there is a possibility of congestion on account of crowds, lobbies have been added to provide for them.

The court rooms have been arranged so that the bench faces lengthwise the room and is connected directly with the retiring rooms.

The conditions governing light around and about the jury seats have been closely followed.

The entrances to surrogate's and clerk of court's departments are located in the center of them rather than at the main entrance of the building, for the convenience of those doing business in these departments, both as regard access to elevators and stairs and also for a more even division of the rooms.

These rooms are intended to open up into one another through arches and colonnades (except where doors are shown) for light and air.

To minimize the square foot area of the first floor and thereby keep down the size of the building to somewhere near the area suggested in the conditions it is essential that some one of the departments, for which a first-floor location is desired, be located elsewhere, and it seems proper that it should be the sheriff's rooms, as they require a larger area than can be conveniently provided for in basement.

The offices are on the corner of Elizabeth and Charlotte streets, they are above grade at this point and have a subcellar under same.

For accessibility there is no better location in the building.

Attention is called to the means of getting grand jury witnesses to the witness room by means of a private stairway from third floor to mezzanine floor, avoiding contact with members of grand jury or occupants of offices of district attorney; also to the passage from offices of district attorney to grand jury room and to witness room, avoiding contact with the public.

In other respects the plans are self-explanatory.

DESCRIPTION OF PLANS BY GREEN & WICKS.

The design shows a building 167 ft. 0 in. front on Elizabeth Street, by 98 ft. 0 in. front on Charlotte Street, containing an area of 16,366 square feet. The height of the building is as follows:

	ft.	in.
Basement	10	0
First story	16	0
Second story	18	0
Third story	18	0
Fourth story	16	0
Space taken for thickness of floors and roof	18	0
Making a total height of	96	0
taken from basement floor to top of cornice, containing	1,571,136 cu. ft.	

There is added on the east end of the building, in order to make county clerk's offices proper size (not needed in upper floors), a bay 15 ft. 0 in. wide by 48 ft. 0 in. long, containing an area of 720 square feet. The height of the bay is as follows:

	ft.	in.
Basement	10	0
First story	16	0
Space taken for thickness of floor and roof	6	0
Making a total height of	32	0
from basement floor to top of cornice, containing	23,040 cu. ft.	
Making a grand total for contents of building	1,594,176 cu ft.	

Round or octagonal rotundas and domes are avoided as not essential to the design, and making added expense.

The names and sizes given in the schedule for various rooms have been quite closely followed, but it seems that some few of them might be disposed of, and some made of greater or lesser area, the net reduction and omission making the building somewhat less in size.

ARRANGEMENT.

The steps placed inside of building to rise from grade to first floor, Elizabeth Street front, make the most of the central grouping of windows, and at the same time save largely the expense that would be incurred by a large porch and a flight of outside steps.

The main courts are placed on the north front of the building, so as to be free of morning and afternoon streaming sun. It enables the use of large windows as central features to that elevation of the building. This position of main court rooms and supervisors' rooms, one over the other, simplifies the construction and makes it readily possible to place a vent and heating flue shaft at each end of these larger rooms. Shafts may be increased or decreased, as may be required. In minor rooms it is not so important to have windows symmetrically spaced. If desired, the light which comes behind the jurors may be intercepted by screens or shades. It seems that jurors would be quite as well seated if placed in two rows of six each rather than three rows of four each. It would give more room for the witness and attorneys, and would not be so difficult to pass objects illustrating the case from one juror to the other. However, this is a detail that may be taken up later with the successful competitor. The grouping or placing of jury box, judge's bench, attorneys' tables, dock, stenographers, etc., has been roughly indicated as to size or position.

The basement contains a certain amount of surplus room, which is given to the sheriff's quarters and coroner's quarters and to storage. It is suggested that it might be advisable, as the basement is so well lighted and accessible, to place the sheriff's entire suite of rooms in that story.

The small lavatories about the building for the heads of the various departments (excepting those for judges) might be combined in one special lavatory, — such a lavatory is indicated in basement floor, — but if distributed about the building it is suggested that little slits of windows be placed in the piers; they may be treated in such a minor way as not to be noticed in the general design.

If from time to time storage other than is supplied in direct connection with the various departments is needed the old papers may be removed to rooms placed over many of the minor rooms of the building. These rooms may be reached from the halfway landings of main stairs to each story, or by small minor stairs.

Areas have been placed on the Mary Street side of the building, extending down the ends towards Elizabeth Street, in view of making the basement dry and well lighted (the area being drained at the bottom).

HEATING.

The building to be heated by low pressure, gravity return, steam apparatus ; boilers placed in basement, near Mary Street, where coal can be received and ashes removed with a minimum amount of labor ; radiators placed in all rooms.

VENTILATION.

Fresh air to be forced into such rooms as require positive circulation of air through them by steel-housed, electric-driven fans placed in basement, taking air supply from outside air and also provided with arrangements for taking air from corridor during the night if desired; the air to be warmed by steam coils before it is delivered into the rooms. The inlet into rooms will be placed high up on side walls, so that there will be no currents near the level of the occupants of the room.

There are also to be outlet air flues from the various rooms requiring ventilation, having one opening near the floor and one near the ceiling into each flue, for either lower or upper extraction of the air in room, these flues to be connected in attic to heated chambers, or to electric-driven fans for the removal of air from rooms.

Fireproofing.

ON the 26th of February, 1903, a fire occurred in the Roosevelt Building, corner of Broadway and Thirteenth Street, New York. This was a structure nominally of fireproof construction, but with ironwork only partially protected, and was occupied for mercantile and light manufacturing purposes, the eight stories all being filled with considerable stocks of clothing and similar goods. The building was of steel skeleton construction with cast iron interior columns, all of which were unprotected. The floors and the roof were constructed with terra-cotta hollow tile segmental arches, the flanges of the beams and also the girders being protected simply by plastering on expanded metal attached directly to the iron without an air space. The stairways were of iron and incombustible material; the freight elevator was enclosed in hollow tile partitions; two of the elevators were in a central stair and elevator well and enclosed only by an iron grille, though with an enclosure of hollow tile partition about the whole stair well.

The fire started at four o'clock in the morning in the rear of the sixth story, spread very rapidly and ascended the central stair and elevator shaft which was not cut off except by thin glass windows in wooden sashes, and entered each of the floors above. The sixth and seventh stories were partially subdivided by two-inch hollow tile partitions, and these succeeded admirably in confining most of the fire on these floors to the southern half. In the eighth floor the fire produced the greatest damage. Five of the cast iron columns supporting the roof broke off clean about two feet from the top (it could not be determined positively whether this was due to the heat alone or to water being played on them during the progress of the fire), and all of the remaining columns were badly warped and twisted; likewise part of the framework of the outer walls, where the protection had been pulled off by the falling of the roof beams. The giving way of the columns caused the entire roof, excepting about one-third of the area in one corner, to fall, and in doing so one section of it fell through the eighth floor, making a hole in the same about 12 feet by 15 feet, and landed on the seventh floor, which sagged considerably (where hit) from the increased load but remained intact. Part of the roof in falling landed on the stair landing in the central shaft referred to and fell straight down through the building, carrying each landing with it in succession. The ironwork in the sixth and seventh floors appears to be in good condition, and structurally the building does not appear to be seriously damaged below the eighth floor, with the exception of the two broken floors where the roof fell through. The exterior walls being chiefly of brick and terra-cotta, damage to the same was slight.

It is apparent from this fire that terra-cotta floor arches and partition work stood admirably and undoubtedly saved the building from total destruction, but the value of these materials was offset to a very large degree by the faulty arrangement in plan of the central stairway, which permitted the fire to spread unchecked up and down throughout the building. The fire also demonstrated, what is almost axiomatic in modern construction, that unprotected iron is not suitable for building construction. Indeed, from an insurance standpoint, a fireproof building with unprotected ironwork and floors not cut off, when filled with merchandise, is scarcely better than an ordinarily constructed building, and as far as the stocks in such buildings are concerned, they are hardly as desirable, if all on one floor, as when in an ordinary building of medium height. The floors of a fireproof building act as a reverberating furnace, and stocks contained therein are liable to be most effectually cremated, but if they be distributed over several floors properly cut off, only that portion on the floor where the fire originated should suffer.

Another point which this fire emphasizes is the construction of the stairs. The treads were of stone, with no iron web underneath, such as is now required by the building law. Had these iron webs been in place, even though unprotected, they would have undoubtedly prevented the falling débris from crushing the successive landings in the stair well.

REDUCTION OF FIRE HAZARDS IN BUILDING CONSRUCTION.

PEREZ M. STEWART, superintendent, and Rudolph P. Miller, chief engineer of the New York Bureau of Buildings, have recently published a very valuable paper which emphasizes in a most remarkable way the statement made some time since by Mr. Edward Atkinson that the only persons who can prevent loss by fire are the owners or occupants of the insured premises. The indifference of such people to their moral obligations is something that the architect has to continually combat. The disposition of most people to take chances, to gamble on the fire risk, is one of the discouraging factors of modern civilization, and no matter how thoroughly we may construct our fireproof buildings, when the real test comes the experience of men like Mr. Stewart shows that the failure is not due to any lack of knowledge on the part of the constructors, but is chiefly chargeable to the indifference and often criminal negligence of owners or occupants. It is stated that the carpets in the hall of the Park Avenue Hotel were undoubtedly the cause of the spread of the fire in the several stories. We have seen a fireproof building filled with wooden sheathing and wooden ceilings which were finished with a varnish so inflammable that a slight blaze would spread like a flash over the whole surface of the wood. We confess to very little confidence in the so-called fireproofed woods. The experiments which have been conducted at the Massachusetts Institute of Technology certainly do not show that we are yet able to very materially increase the ultimate resistance of any wood to the destructive effect of fire. There are companies in the field to-day who are supplying absolutely incombustible materials for finish, for floors, and for doors and windows. That these are not used more generally surely can not be charged to any lack of development of fireproofing as a science or to a lack of knowledge on the part of architects. Again, the fire laws of nearly all of our cities seem to be based on an assumption that height is a measure of fire risk, and that a low building can safely be constructed in almost any way. In New York the Building Code restricts all non-fireproof buildings to a height of seventy-five feet, and the result is that the great majority of structures which go up every year are under that height. This includes dwellings, convents, dormitories, clubhouses and other residence buildings, and also six-story tenement houses and apartments. The most helpless and least responsible inhabitants of the city pass most of their lives in such structures, and property owners are perfectly willing to take the risks and pay the insurance companies, while public sentiment allows such conditions to continue to the menace of the whole city. Again, as Mr. Stewart points out very truly, the law may require fireproof shutters and the owner may go so far as to put in metal sashes and even wire glass, but unless these are equipped with some form of automatic self-closing device, which is practically never the case in public buildings, a fire may start and be communicated through the openings of unclosed fireproof windows or doors with such speed as to endanger the whole structure before the fire department can arrive. The paper makes clear the statement which we have reiterated so frequently, that the real development for the future in the line of fireproof engineering must be in the more general education of property owners and tenants.

FIRE LOSS IN LIFE.

THE greatest danger to personal safety in a fire arises not so much from the fire itself or the immediate damage by the flames as to the building or to its contents, but rather from first smoke and next insufficient or inefficient means of egress. Only in extreme cases do we find human beings actually burned to death. Rarely does the flame even touch them. But the vast volume of smoke which even a slight blaze will cause, especially in the interior of a building, is what does most of the damage. It is therefore of the utmost importance that wood which ignites and smoulders very readily should form no part of either the construction or the finish of a building which is intended to afford protection against fire. In the Park Avenue Hotel fire in New York the actual damage by the flames was insignificant, but smoke killed a number of people. In the fire in the Hotel Lincoln, Chicago, last December, the volume of smoke was so great that escape by the narrow passages and areas was impossible and fourteen persons were killed. There probably is not a modern fireproof building constructed to-day that would be seriously damaged by any ordinary fire within its walls. On the other hand, it is perfectly conceivable that a fire which could be confined in its materially destructive effects to a few rooms might by reason of smoke imperil the lives of all the occupants of the upper floors of almost any of our large office buildings. So far as we know there is not in existence to-day a commercial structure in which the finish and the furnishings are non-inflammable. That such conditions will change at some time in the future there can be no question. The price we pay for our slow burning construction, our elaborate wood finish, and our carpets and draperies is too high, and the time is rapidly approaching when we will discover a better way, and avoiding then as we do now the danger to the structure we will be able to absolutely check the liability of death from smoke.

Selected Miscellany.

THE PARK STREET CHURCH.

FOR years Boston has been one of the most picturesque of our modern cities. The happy mingling of the old and the new, the delightful absence of exact mathematical lines in the business portion of the city, have

PARK STREET CHURCH, BOSTON.

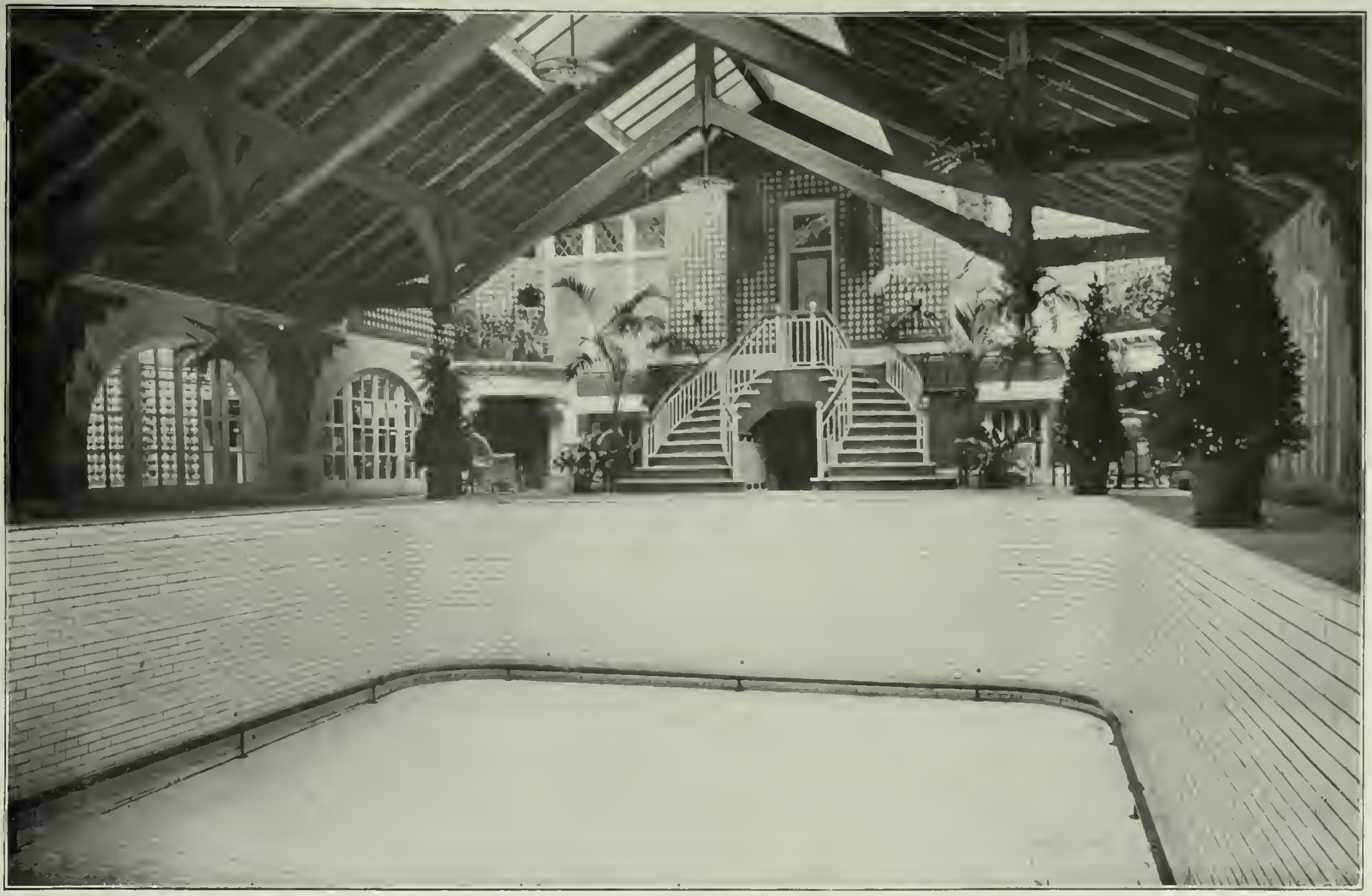
given its streets a rare distinction, and probably the most interesting feature of the whole city was the Park Street Church which now stands between the Common and the Granary Burying Ground, lifting its graceful spire above the mass of foliage on each side. The congregation which owns the property has changed in char-

PANEL, POWER HOUSE, STATE CAPITOL, ST. PAUL, MINN.
American Terra-Cotta and Ceramic Company, Makers.
Cass Gilbert, Architect.

HEBREW TEMPLE, ATLANTA, GA. W. F. DENNY, ARCHITECT.
Built of "Shawnee" Brick, made by Ohio Mining and Manufacturing Company.

acter. Many members have moved away to other portions of the city, and the value of the building as a down town place of worship has passed away. The property has just been sold to a syndicate, which, realizing the commercial value of the site, have paid something like one hundred and fifty dollars a square foot, equivalent to over fifteen thousand dollars a front foot for the land, upon which a commercial building will shortly be erected. Thus will pass one of the most distinctive landmarks of Boston, a church dating from the early part of the last century, very pure in detail, with a most admirably designed spire which in the course of years has seemed particularly to belong to that special location. This loss is distinctly to be regretted, and no structure which will take its place, however worthy in an architectural sense, will compensate for what the city will lose. Such changes, however, are inevitable. The church extends back only a short distance from Tremont Street along Park Street, and the remaining houses on Park Street facing the Common are sure in time to be occupied for commercial purposes, and if the church is going, it is better that it should go now while still in use and suitable for its purpose than to wait until it is hedged about and architecturally smothered by commercialism. The Boston Common will not seem right without this graceful spire closing the vista in the distance, and we even believe that the people of Boston themselves will insensibly feel the effect of the effacement of so distinctive a monument. Mr. James T. Kelly, a well-known Boston architect, has made the suggestion that the tower be preserved and moved to a point in the center of the Granary Burying Ground on the axis of Bromfield Street, but we can not feel much sympathy with this suggestion. The spire will seem out of place anywhere except just where it is now, and it would be scant pleasure to

PLAN, HEBREW TEMPLE, ATLANTA, GA.



SWIMMING TANK, WESTMORLEY COURT, DORMITORY, HARVARD UNIVERSITY.
Warren & Wetmore, Architects.
Showing use of radius enameled brick, made by American Enameled Brick and Tile Company.

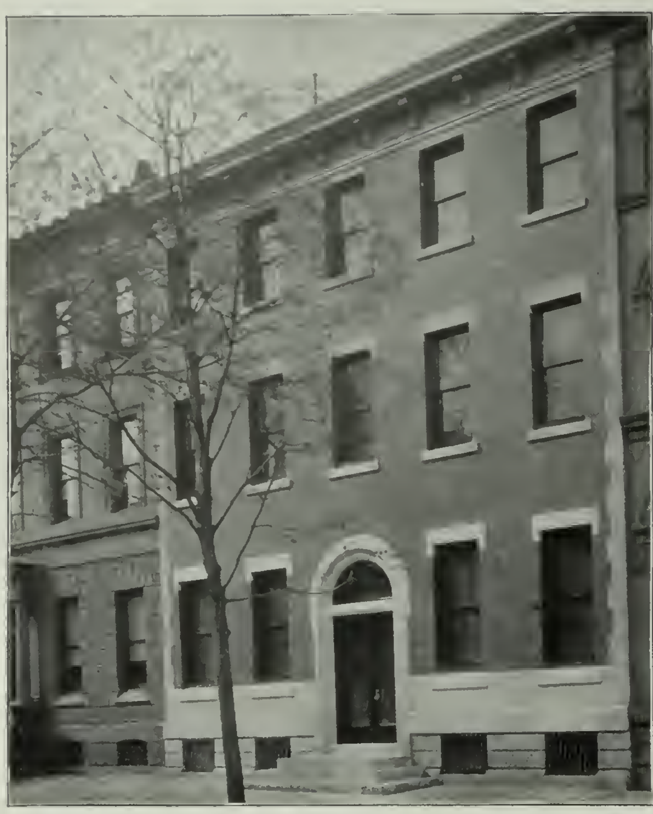
come upon this excellent bit of architecture in other surroundings, in a different location, and perhaps put to a different use. The past century's advance in architectural possibilities has not been accompanied by unmitigated gain. When all our colonial monuments shall disappear we must show something better than the last twenty years have produced if our descendants are to have the local pride in the Boston of those times that we have taken in the city of to-day.

DETAIL, UPPER PORTION OF EIGHTEEN STORY OFFICE BUILDING, BROADWAY AND MAIDEN LANE, NEW YORK CITY.
Terra-Cotta made by Excelsior Terra-Cotta Company.
Clinton & Russell, Architects.

WIND PRESSURE ON HIGH CHIMNEYS.

THE Prussian Minister of Public Works has acted on a recommendation of the Prussian Building Academy and has issued a set of regulations governing the design of high chimneys, which are essentially as follows: The regulations generally prescribe an assumed wind

HOME FOR AGED MEN, BROOKLYN, N. Y.
Roofed with Ludowici Tile.
Lord, Hewlett & Hull, Architects.

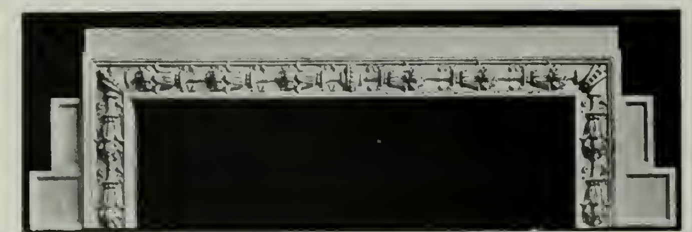


HOUSE, GREEN STREET, PHILADELPHIA, PA.
Front of "Ironclay" Fire Flashed Brick.
O. W. Ketcham, Philadelphia Agent.

pressure of about twenty-six pounds per square foot on a plane perpendicular to the direction of the wind. Any possible suction on the leeward side is assumed to be included in this pressure. The wind area of the chimney is taken to be its vertical section, and if the chimney is polygonal its greatest diametral section is to be used. The point of application of the resultant of the wind pressure is to be assumed to coincide with the center of gravity of the section, which is equivalent to assuming a uniform distribution of the wind pressure over the full height of the chimney. For circular chimneys the total wind pressure area is to be reduced to two-thirds, and for octagonal chimneys to .71 of the value for rectangular chimneys. To determine the greatest pressure at the edges the wind should be assumed to act in a diagonal direction. The specifications allow the theoretical opening of the joints to the center of gravity of the section, thus neglecting the tensile stresses. The compressive stresses should be determined for wind pressures of 26 and 31 pounds per square foot. The weight of the material per unit of volume should be that of the actual material used. The allowable unit stresses were fixed as follows: For common brickwork laid in lime mortar (1 : 3), 100 pounds per square inch; for hard burnt bricks, having a compressive strength of at least 3,160 pounds per square inch, laid in cement-lime mortar (1 cement, 2 lime, 6 to 8 sand), 171 to 214 pounds per square inch. For the stronger stones and mortar richer in cement, higher stresses are allowable, but a factor of safety of 10 must always be provided for, and in no case should the greatest pressure exceed 316 pounds per square inch for a wind pressure of 26 pounds per square foot. If higher unit stresses be deemed allowable they should be justified by tests on blocks of masonry. The allowable compressive stress on the foundation is, for unrammed concrete, 85 to 114, and for rammed concrete 142 to 214 pounds per square foot. The allowable bearing pressure on the soil for the assumption of 26 to 31 pounds per square foot wind pressure is, as a rule, 61 pounds, and exceptionally 82 pounds per square inch, equal respectively to very nearly $4\frac{1}{2}$ and 6 tons per square foot. — *British Brickbuilder.*

DRAWING TAUGHT BY CORRESPONDENCE.

It is not easy to teach the art of drawing by correspondence, but the task is greatly simplified by thorough analysis and presentation of the practical, mechanical features of draughting. This has been done most admirably by the American School of Correspondence in its series of instruction papers on the subject of mechanical drawing. The course in this subject as laid out is a very exacting one and demands a great deal of the student, but we imagine that the young men who follow the courses in this school are the kind who would welcome the thorough training which is placed within their reach and will be only too glad to profit by the excellent opportunities which the American School of Correspondence offers to the ambitious young man who desires to give himself an education without having the means or the opportunity for a regular college course.



DETAIL BY BERNSTEIN & BERNSTEIN, ARCHITECTS.
New Jersey Terra-Cotta Company, Makers.

IN GENERAL.

Carl E. Nystrom, architect, formerly of Laurium, Mich., has formed a copartnership with Frank L. Young, under the name of Young & Nystrom, for the practice of

DETAILS BY PAUL J. PELZ, ARCHITECT.
Conkling-Armstrong Terra-Cotta Company, Makers.

architecture. The new firm has taken offices in the Manhattan Building, Duluth, Minn.

Charles H. Hopson, architect, has opened an office in Selma, Ala., and would be glad to receive manufacturers' catalogues and samples.

Francis J. Plym, architect, has opened an office in the Kemper Building, Kansas City, Mo., and would be glad to receive manufacturers' catalogues and samples.

Sayre & Fisher Company bricks have been specified for the following new work: Compton Trust Building, Boston, Winslow & Bigelow, architects; Rockville Library, Rockville, Conn., Charles A. Platt, architect. Enameled brick for the Gurney Building, Hartwell, Richardson & Driver, architects. Semi-glazed brick for the interior of the Edison Building, Boston, Winslow & Bigelow, architects.

We seldom stop to think of the important part which

UNION PASSENGER STATION, GRAND RAPIDS, MICH.
D. H. Burnham & Co., Architects. Architectural Terra-Cottta made by Northwestern Terra-Cotta Company.

machinery plays in the modern methods of manufacturing burnt clay into its various forms. It has been said, and with much truth, that the methods of our forefathers in making brick have scarcely been improved upon by succeeding generations. This, however, applies only to the common rough brick. A modern, up-to-date clay-working plant, the product of which has reached the higher stages of perfection, is one in which machinery in various forms is the principal agent in production. The manipulation of clay from the pit to the wall requires the assistance of machinery almost as much as does any other line of manufacture. Both quality and cost are depend-

Samuel E. Edwards and J. C. Sunderland have formed a copartnership for the practice of architecture, under the firm name of Edwards & Sunderland. Offices, Sheidley Building, Kansas City, Mo.

Charles Bacon, Boston agent for the Celadon Roofing Tile Company, reports the following new contracts: Terminal Chambers for Metropolitan Water Board, Weston, Mass., Shepley, Rutan & Coolidge, architects; John Carter Brown Library, Shepley, Rutan & Coolidge, architects; house at Marion, Mass., Coolidge & Carlson, architects.

ent upon the ability of the machinery to properly perform its duties. In this connection we are glad to call attention to the new catalogue which has been issued by the American Clay Working Machinery Company, of Bucyrus, Ohio. It is one of those trade volumes which gives a clear insight into the inner workings of the business which it represents. After a perusal of its pages one can but feel that the company incorporates in all it does the whole spirit of its motto, "Built Right! Run Right!"

CARTOUCHE BY K. M. MURCHISON, ARCHITECT.
Perth Amboy Terra-Cotta Company, Makers.

STATICS BY ALGEBRAIC AND GRAPHIC METHODS. By Lewis J. Johnson, C. E., Assistant Professor of Civil Engineering in Harvard University. New York: John Wiley & Sons. Price, $2.

This volume has been written in the hope of helping students of engineering and architecture to acquire a knowledge of statics which will include the power to apply it correctly in professional work. To this end an attempt has been made to carry out several specific purposes, prominent among which may be mentioned the following:

1. To give much attention to the starting points of the science, and to make as clear as possible the course of deduction therefrom.

2. To point out the inherent mathematical limitations of pure statics, and to show how all its important problems are solved.

DETAIL BY A. H. BOWDITCH, ARCHITECT.
Atlantic Terra-Cotta Company, Makers.

3. To develop algebraic and graphic methods of solution, or, if one prefer the terms, analytical and graphical statics, side by side and with equal thoroughness.

4. To present a graded set of problems illustrating not only universal principles but also how statics is used in engineering practice.

5. Finally, to keep the book of a size commensurate with the small amount of new matter which the reader, versed in the simplest operations of elementary mathematics, need master to gain the desired end.

WALL PAPERS AND WALL COVERINGS. A practical Handbook for Decorators, Paper Hangers, Architects, Builders and House Owners, with many half-tone and other illustrations, showing the latest designs. By Arthur Seymour Jennings. One large 8vo vol., cloth. Price, $2. New York: William T. Comstock.

DETAIL BY H. B. MULLIKEN, ARCHITECT.
New York Architectural Terra-Cotta Company, Makers.

The book attempts to cover more completely the subject than in the previous work. It is very elaborately illustrated with half-tones of the latest designs of a large number of manufacturers in America, England and France, and special chapters are devoted to English, American and French papers.

The whole subject seems to have been carefully and systematically studied, and is presented in a well-arranged manner, making it a valuable handbook both for the mechanic and designer.

THE BRICKBUILDER.

APRIL,

1903.

CHURCH OF NUESTRA SEÑORA DEL PILAR, SARAGOSSA, SPAIN.

THE BRICKBVILDER

VOL. 12 No. 4 DEVOTED · TO · THE · INTERESTS · OF ARCHITECTVRE · IN · MATERIALS · OF · CLAY APRIL 1903

THE BRICKBUILDER.

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ADVERTISING.

Advertisers are classified and arranged in the following order:—

Advertisements will be printed on cover pages only.

COMPETITION: ANNOUNCEMENT.

IT was intended to give in THE BRICKBUILDER for this month the detailed programme of the competition, for which cash prizes amounting to $800 are to be offered, but owing to the fact that all the necessary details have not been completed, the announcement will be deferred until the May or June issue.

HOSPITAL SURROUNDINGS.

IN our endeavors to eliminate all lurking places for disease germs and to introduce to every corner floods of health-giving sunlight, it is to be questioned whether we have not ignored a very essential feature of hospital planning, namely, the element of beauty in setting, surrounding and finish. The ideal hospital is by some assumed to be absolutely plain, without adornment of any sort, and hopelessly bare and uninteresting except for a few very carefully framed pictures on the wall of the wards, and cut flowers, which fortunately are never quite banished. There seems, however, to be no good reason why a hospital should not be one of the most beautiful of buildings. If there is ever a time when a human being needs just the right kind of surroundings, it is when his nerves are unstrung and his system all awry. To cure a man it is not enough merely to give him good care and good medicine; the æsthetic element in many human beings is one which cannot safely be denied, and the dreary monotony of some of the hospitals, which pass as being among the best, is, we have no doubt, often responsible for slowness in recovery if not actual relapse. A building committee usually feels that it has accomplished its whole duty when it has built a hospital so severely plain that it makes one ache to look at it, but if we would design the structure so as to be at once absolutely sanitary in all details as well as truly beautiful, there is no question but that it would have far more beneficial effect on the residents than one which was merely hygienic.

This statement applies not merely to the architecture of the building and the adornment of the interior, but in an even larger degree to the exterior setting, the surroundings, the planting, in fact to the landscape work as a whole. Any one who has visited some of the charming old missions in Southern California need not be told what delightful places they are for sick people, embowered in roses, with a riot of nature all around, informal but thoroughly delightful. These old buildings may not be in accordance with the doctor's dictum, but they certainly will do what sometimes the doctor cannot accomplish, infuse in the sinking patient a love for life and for the beauties of nature which will arouse his powers and enable him to stem the ebbing tide. We can at this moment recall only a single hospital in this country in which landscape architecture is treated as an essential element of the exterior design, and yet the beneficial effect of a proper setting we are sure can hardly be overestimated. And it is hoped that as we have now pretty clearly found out how to cope with germs, how to avoid and destroy them, the energies of the hospital architects of the future may be allowed to expand in the direction of more appropriate setting, more beautiful adornment, and that the ideal hospital of the future may be a building the farthest removed from the stiff, formal and often repellent structure to which we are now obliged to consign the sick.

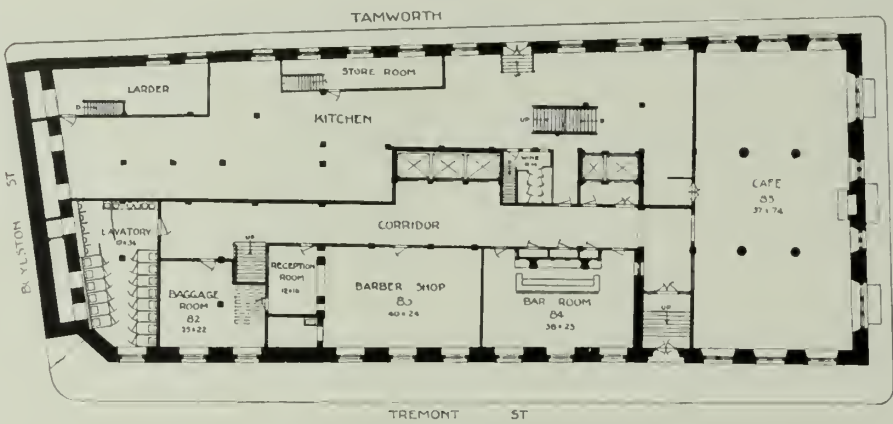
THE MACMILLAN COMPANY has published Vol. I, No. 2, of the Memoirs of Art and Archæology of the Brooklyn Institute Museum. This Memoir is by Mr. William H. Goodyear, Yale '67, Curator of Fine Arts, Brooklyn Museum, and relates to those architectural refinements of St. Mark's at Venice of which he has been the discoverer.

The American Hotel. III.

BY C. H. BLACKALL.

THE BASEMENT.

JUST as the key of the arrangement of the first floor of a hotel is liberal, easy circulation for the guests, so the key of the arrangement of the basement is liberal, direct and easy facilities for transportation of supplies, from their reception at the service entrance, through the storerooms, kitchens and serving rooms, to the door of the dining room. The ideal arrangement is one in



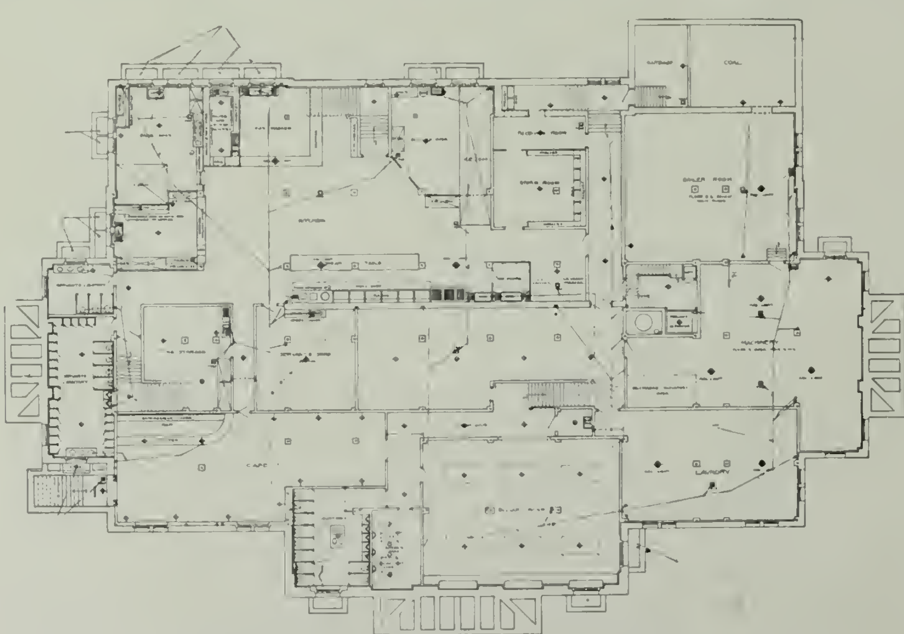
BASEMENT PLAN, HOTEL TOURAINE, BOSTON.
Winslow & Wetherell, Architects.

which all supplies are brought in at one point, where they are received and checked by a special clerk, assigned to storerooms which are near at hand, these storerooms being in turn close by the cooks' headquarters, while on the other side of the kitchen begin the service departments, so that there is no occasion for those employed in the preparation of food on the one side to mingle or interfere with the waiters who deliver the finished products. The part of the architect in planning this portion of the hotel is limited to the providing of sufficient area to approximately accommodate what is likely to be needed in connection with the kitchens and dependencies. The exact subdivision of the space, the placing of the different appliances, are usually intrusted to one of the firms of contractors who make a specialty of fitting hotels and who are far better able to judge of the needs and how to met them than is the case with an architect in ordinary practice. The architect should, however, be perfectly familiar with the problem in a general way so that he may intelligently plan and provide space for the work of the specialist.

It will be seen by an inspection of the plans accompanying this article that in most of the large hotels, with the exception of such relatively restricted areas as are devoted to cafés, billiard rooms or barber shops, the whole basement is given up to the kitchens, storerooms, etc. Very rarely is too much space allotted for such purposes. The writer has found only one hotel thus far in which the kitchens were considered too large. Very often they are too small.

As a rough approximate rule it may be said that the area of the kitchen and dependencies should be equal in square feet to ten times the number of sleeping rooms in the hotel. That is to say a three hundred room hotel would require a total area for kitchens, etc., of about three thousand feet. Like all rules of this kind, however, such approximation should be used with great care, as conditions often make it impossible to gauge the size of a kitchen by the number of rooms in a hotel. For example, the Adams House in Boston has a kitchen proportioned about in accordance with the foregoing rule, but the number of guests fed daily will vary sometimes over one hundred per cent, and the kitchen seems neither too large nor too small for any occasion. In some respects a better rule to follow is to make the arrangement of ranges, steam kettles and serving tables as compact as possible and then give the balance of all the room that can be spared to the storerooms, refrigerators, wine rooms, etc. By making the actual cooking space restricted, a considerable gain can be had in time of service, and anything which reduces the distance in feet from the cooks' table to the dining room means quicker and better service. The writer has been repeatedly told by hotel stewards that the lack of space was chiefly in storage. With more ample space for storage, supplies could be purchased in larger quantities and would be more readily available when wanted.

On a small scale the plan of the Saint Paul School

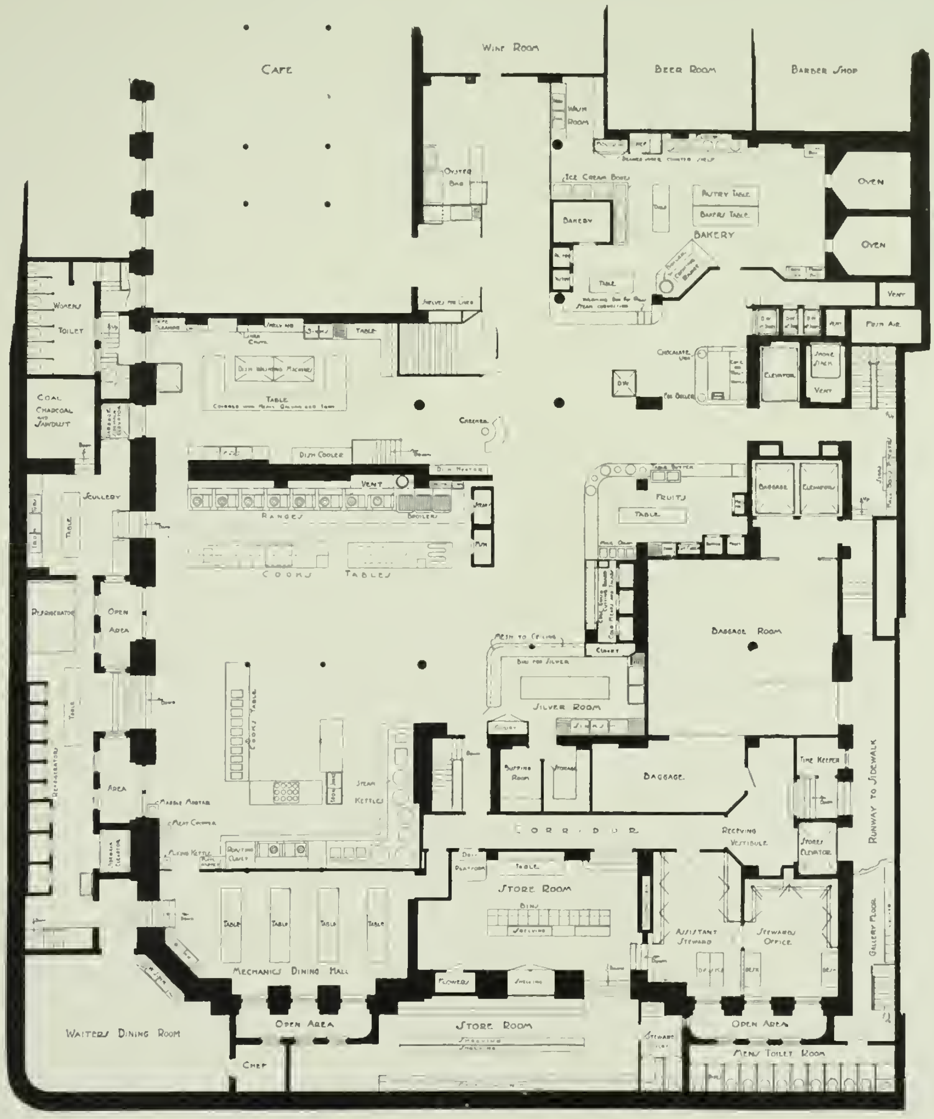


BASEMENT PLAN, HOTEL SCHENLEY, PITTSBURG, PA.
Rutan & Russell, Architects.

kitchens, for which the writer is indebted to Mr. E. L. Morandi, engineer with the Smith & Anthony Company, shows in very practical form the essentials which are common to all hotel kitchens. The produce is brought in through the entrance adjoining the refrigerators, perishable goods are put on ice at once, and others are sent down to the storage cellar. The refrigerators are immediately adjacent to the kitchen. The range, the broiler, the kettles and the steamers occupy the length of one wall. In front is arranged the cooks' table, which has at one end a compartment in which dishes can be kept in hot water, the rest of the table being kept warm and used for trimming, cutting, etc. This relative arrangement of ranges and cooks' table is one usually followed. The hot water bath goes specifically by the name of Bain Marie. The pastry room is distinct from the kitchen, and both communicate directly with the serving room. In the latter are arranged the steam coffee urns, the cases containing ice cream packed in freezers, and the dish-washing appliances, while in the center of the room is a steam table containing compartments for the roasts and vegetables.

The arrangement of the kitchen in the Hotel Schenley is very carefully studied. Supplies are brought into the compartment marked receiving room. Beyond is a storeroom for canned goods, etc., adjoining which is the butcher shop, with an ample ice chest. Directly opposite the entrance to the butcher shop are disposed the ranges and the cooks' table. The waiters ascend to the upper story by the stairway on the extreme left leading to an upper serving room. The spaces for chopped ice, tea and coffee, etc., are at the foot of the stairs, in the corner beyond is the bake shop, while the dish-washing and storage rooms are reached without passing by the front of the ranges. This is a very compact arrangement, which reduces the time of serving to a minimum.

The arrangement of the kitchens in the Hotel Touraine is such as cannot readily be shown by a single plan. The servants' quarters in this hotel are in a building across the passage in the rear, this building connecting underground through the basement and sub-basement. Supplies are received in the first story of this building and thence distributed to the storerooms in the basement and sub-basement. The ranges and the cooks' table are along the wall separating the kitchen from the corridor beyond the elevators. The bakery, pastry room and ice cream room are in the annex. With the exception of such portions as are used for machinery, the whole of the sub-basement appears to be devoted to wine room, storage and servants' dining room. The waiters serve the basement café directly from the kitchen and serve the first-story dining room up the flight of stairs.

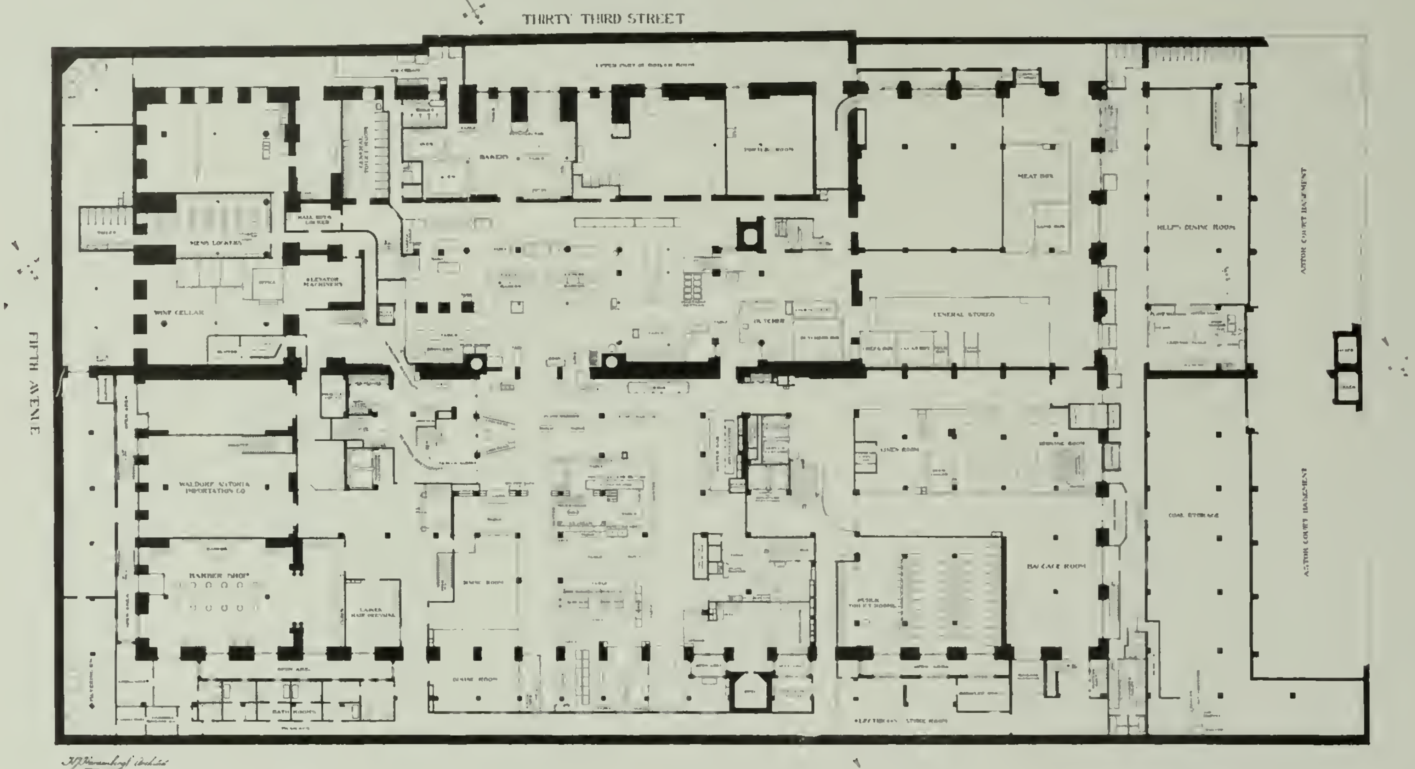


BASEMENT PLAN SHOWING KITCHEN ARRANGEMENT

HOTEL MANHATTAN, NEW YORK CITY.
H. J. Hardenbergh, Architect.

The kitchens of the Manhattan are located in the rear of the basement. The service is up and down by way of the stairs adjoining the café. At the small curved counter near the foot of the stairs the orders are checked. The three-sided table opposite the ranges is for vegetables and roasts. Opposite these, against the partition work, is the range for the roasts, and in the angle are the soup kettles, etc. The other details will be readily understood by an inspection of the plan.

The basement floor plan of the Waldorf-Astoria shows what is probably one of the largest kitchens in the country. There is so much to it that it requires considerable study to make the arrangement seem quite clear. The supplies are brought into the building through a passage from the rear opposite Fifth Avenue, storerooms being immediately adjacent to this portion. The cooking room is under the center of the Waldorf, with the bakery adjoining on the side towards Thirty-third Street, sufficient to give in a general way a third as many lockers as there are sleeping rooms in the hotel. Lavatories and conveniences of this sort of course have to be proportioned in size to the building. There should be a room

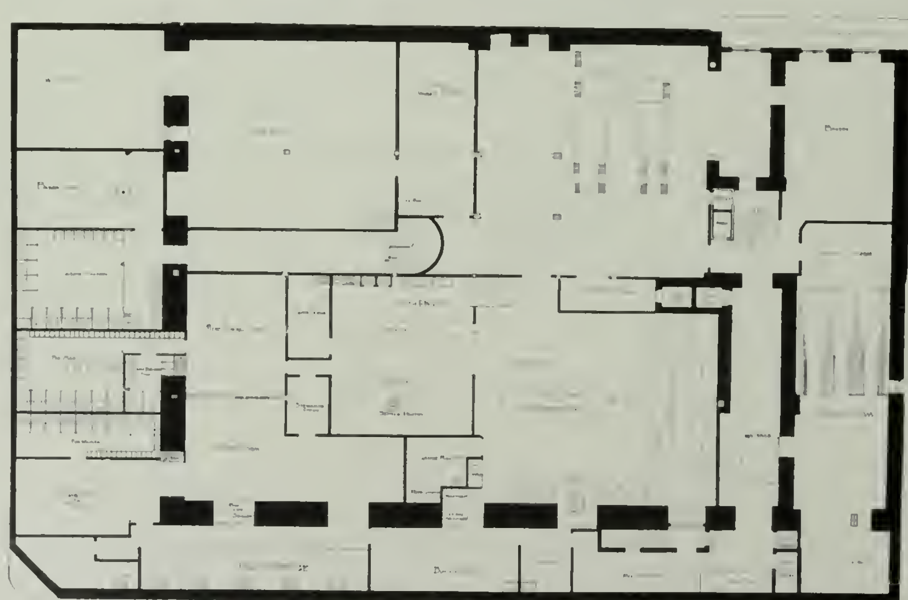


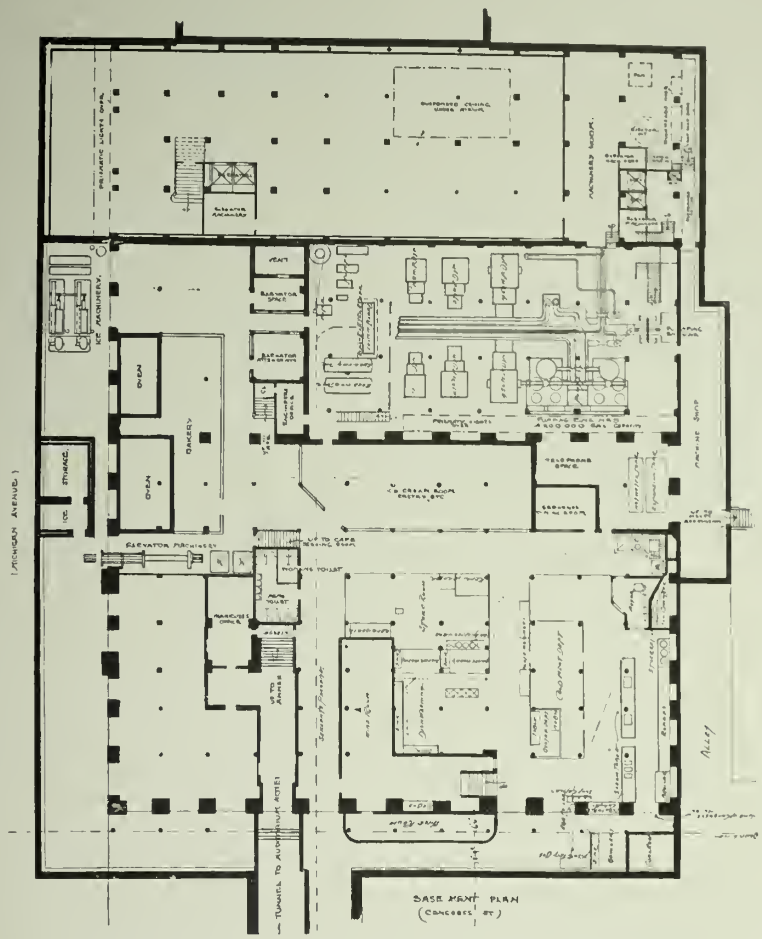
THE WALDORF-ASTORIA THIRTY FOURTH STREET BASEMENT PLAN

and the butcher shop towards the rear away from Fifth Avenue. The ranges are in the center of the kitchen, a disposition which is not often met with. The broilers are distinct from the ranges, being against the division wall between the Waldorf and the Astoria on the side towards Fifth Avenue, while the vegetable and the soup kettles are on the opposite side of the room against the same wall. Under the Astoria in the central space are arranged the ice creams, fruits and salads and butter and egg departments, beyond which, towards Thirty-fourth Street, is the dish-washing apparatus. All of the serving is through the sets of doors each side of the checking counters. Arrows on the plan indicate the direction the waiters follow in serving the different portions of the building.

The kitchen and immediate dependencies are of course the principal feature of the basement, but there is considerable other accommodation required in a large hotel. There should be a dining room for the help, and in some of the larger hotels separate dining rooms are arranged for the men and women. A dining room 20 x 30 would answer for help for anything except the very largest hotels, as the servants never all eat at once. Then there should be ample locker rooms for the help,

for the head steward, and in a large hotel it is customary to provide one for an assistant steward, in addition to which the chef requires a room for himself, each of these rooms being of about 150 square feet area. Space should also be provided for laundry and drying room, together occupying, for a three hundred room hotel, a space about 30 x 50. There are also a host of minor requirements for which no rules can be laid down, as they vary indefinitely according to the circumstances.





BASEMENT PLAN, AUDITORIUM ANNEX, CHICAGO.
Clinton J. Warren and Holabird & Roche, Associate Architects.

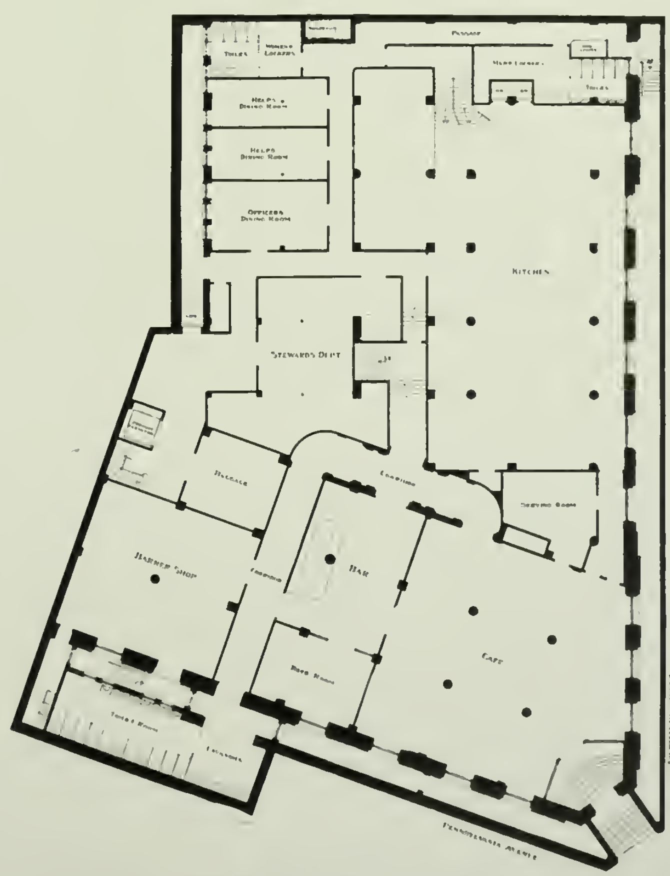
It is usual in a large hotel to provide in the basement for a billiard room with at least three tables, for a barber shop accommodating not less than four chairs, and in addition to the café, to plan for a barroom, which should be arranged so that one can enter at one end and leave at the other, the bar occupying the entire side of the room. An apartment 15 x 24 would be ample for the largest of barrooms. The men's public lavatories for the guests are also usually placed in the basement convenient to the billiard room, to the barroom and to the main stairs leading to first story. The boot-blacking stand with accommodation for not less than four chairs is best placed in an anteroom adjoining the lavatory. It goes without saying that all of these basement rooms should be kept bright and clean in appearance and arrangements made for the most ample and thorough ventilation.

The construction of the walls and partitions about the kitchen, storerooms, etc., is usually of such nature as to admit of being readily and thoroughly cleaned. There is no material which seems to answer so thoroughly for walls in this connection as enameled brick. Thin partitions, where practicable, are often made of heavy wire netting so as to allow of ample ventilation, and where wooden partitions are necessary they are best set up six inches above the floor so as to prevent accumulation of dirt. The kitchen of the Touraine is floored with twelve-inch quarry tiles laid in cement, the floor sloping towards a catch-basin in the center, and the whole kitchen is hosed out once or twice a day. None of the floors anywhere in the basement should be of wood, and where plaster is considered necessary it seems to be the practice to coat it with enamel paint.

There remains yet to be taken into account the steam and power plant and machinery. These constitute a very large item. In the Waldorf-Astoria the entire sub-basement is devoted to these purposes, and there is none too much room. The points to be considered in connection with the planning of boilers and machinery in a hotel are about the same as those which are involved in the construction of any large building, except, however, that in all first-class hotels an ice and refrigerating machine constitutes a very important factor. This, again, is a matter for expert advice, but in a general way it may be said that a hotel with three hundred rooms would require a maximum capacity of about thirty tons of refrigeration per day, which would consume in the vicinity of four hundred horse power hours in steam, and the entire ice plant would require a floor area of about one thousand square feet. If ice is to be made in any great quantities the available floor space should be increased twenty-five per cent.

In devising the electric generating plant for a hotel allowance must be made for a certain amount of power to be used in the kitchens, etc. There are a number of devices, such as ice cream freezers, egg beaters, knife cleaners and sharpeners, which are to advantage operated by small independent motors. For a three hundred room hotel it would be well to allow thirty-five horse power for fans, motors, etc., in connection with the kitchen, including the dumb-waiters.

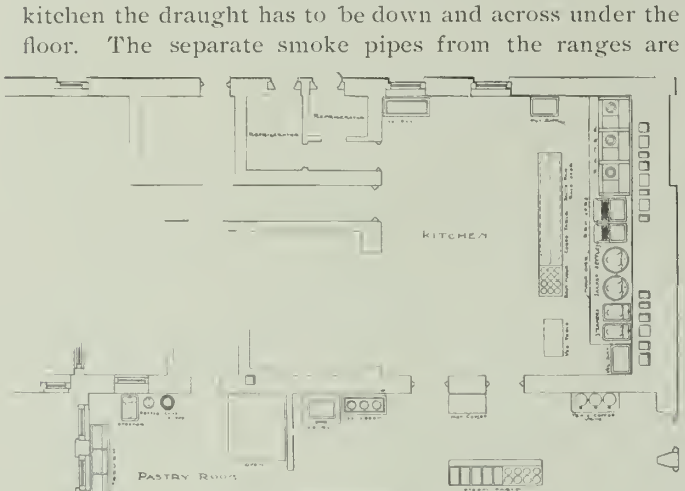
The stairs between the kitchens and the dining room are best arranged in pairs, so that the waiters can ascend on one side and descend on the other. When this is impracticable, single stairways should be not less than six feet wide,



BASEMENT PLAN, NEW WILLARD HOTEL, WASHINGTON.
H. J. Hardenbergh, Architect.

with a strong hand rail down the center. Dumb-waitesr are provided to run from the kitchen to the serving room in the floor above, and where practicable from the kitchen through the private serving rooms in each of the sleeping floors. An automatic electric dumb-waiter which can be set so as to stop at any given floor is best adapted for this purpose.

It is a good practice where possible to carry a separate smoke pipe from each range, so as to ensure thorough draught. Where ranges are set in the middle of the kitchen the draught has to be down and across under the floor. The separate smoke pipes from the ranges are



PLAN OF KITCHEN AND ADJOINING ROOMS, ST. PAUL'S SCHOOL, CONCORD, N. H.
Smith & Anthony, Contractors.

sometimes combined in a single vertical shaft, but it is better to carry the pipes up independently above the roof, enclosing them in a large shaft which serves as ventilation exhaust from the kitchen and connects directly to the metal hood enclosing the top of the ranges. For a three hundred room hotel the size of this exhaust duct would be about fifty square feet in area.

The quantity of water which is used so continuously around a hotel has made practicable the utilization of artesian wells sunk within the premises. Many of our largest hotels draw their supply for boilers and for washing from wells and occasionally the well furnishes water of sufficiently excellent quality to be used for drinking as well. This results not only in a great economy, but makes the control of the water system much easier. If an artesian well is to be provided for. the space for pumps would be about fifteen feet square.

In conclusion, it can be said that in a problem so complex as the modern hotel, it would be impossible to lay down any exact rules for planning or arrangement which could be applied indiscriminately. There is no structure with which the architect has to deal that calls for a larger amount of specialized technical knowledge, and the most that can be hoped for these articles is that they have presented the most prominent features of architectural practice as exemplified by the typical American hotels of to-day.

The writer wishes to acknowledge to courtesy of the architects who have given their aid in the loan of plans and the supplying of data regarding the various hotels which have been illustrated.

Interesting Brick and Terra-Cotta Architecture in St. Louis.

MISCELLANEOUS.

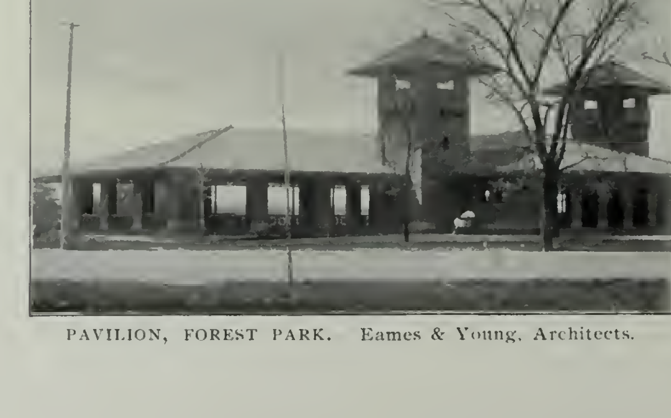
BY S. L. SHERER.

IN the previous article reference was made to some of the private houses of St. Louis, but in this continuation mention will be made of those buildings not entirely private and yet not wholly devoted to commercial or in-

ENTRANCE GATE, WASHINGTON TERRACE.
George R. Mann, Architect.

stitutional purposes. Some of these structures, wherein the uses of a doctor's office have been united to those of a private residence, form an interesting class and offer the architect a problem that lends itself to architectural treatment. Generally located on corners, they have the advantage of two street fronts with an entrance on each street.

Of this class of semi-private buildings Theo. C. Link's house for Dr. Moore is an original and interesting ex-



PAVILION, FOREST PARK. Eames & Young, Architects.


DOCTORS' OFFICES. E. A. Manny, Architect.


STORE BUILDING. Weber & Groves, Architects.


DR. COMSTOCK'S HOUSE AND OFFICE. W. A. Swasey, Architect.


DR. MOORE'S HOUSE AND OFFICE. T. C. Link, Architect.


OFFICE BUILDING FOR DOCTORS. Eames & Young, Architects.


OFFICE FOR DR. SPENCER. J. L. Wees, Architect.

BRICKWORK IN ST. LOUIS.

ample, marked by extensive use of diapered brickwork which has been made to play an important part in the design, although the dense foliage prevents this being shown in the photograph.

In Dr. Comstock's house W. Albert Swasey was charged with a similar problem, and while the front elevation presents an attractive appearance, the east side is less pleasing, and the whole rendered somewhat lifeless by the immaculate smoothness of the red brickwork.

The office of Dr. Spencer, by J. L. Wees, is entirely different from the preceding examples in that it is solely an office building adjoining the private residence. The design shows a clever adherence to those features which are making the modern French school of design such a power in the architectural work of the day. The effect is marred by the introduction of the marble panels in the upper story; nevertheless it is a very interesting design and one that evinces study and knowledge of the style.

LINDELL RAILWAY PAVILION, FOREST PARK. Eames & Young, Architects.

STABLE FOR SIMMONS HARDWARE CO. Weber & Groves, Architects.

The doctors' office building, by E. A. Manny, is a somewhat different development of the same purpose, and withal is a clever design with the terra-cotta ornament well placed.

A still larger and more individual performance is the office building for doctors by Eames & Young, one of

RATHSKELLER. Louis Mullgardt, Architect.

the best and most interesting examples of all brick design in the city. Built in 1887, it remains the best example of its kind, nor does it seem improbable that its indefinable charm will abide a century hence.

Louis Mullgardt's building for the Budweiser Rathskeller is highly individual, as is all of his work, whether it evokes one's admiration or not. For the first time a dark green enameled brick of varying shades has been used and with good effect, exhibiting the architect's love

APARTMENTS. John Stafford White, Architect

STABLE. Shepley, Rutan & Coolidge, Architects.

of coloring in building. Unfortunately the photograph does not show the interesting staircase hidden by the temporary entrance screen.

The Hotel Horn, by Weber & Groves, is an ambitious attempt in the modern French style that compels attention. It seems unfortunate in the crowding of the cornice over the windows, and the application of a balustrade in front of a blank wall. The walls are of red

APARTMENT. E. A. Manny, Architect.

stock brick laid with close joints of white mortar, the trimmings being of white terra-cotta.

More original and individual in design, the St. Nicholas Hotel possesses all the characteristics that have made the work of Louis H. Sullivan famous the world over. Certainly no more original work, unless we except his masterly Wainwright building, has emanated from his hand. Not the least interesting feature of the building is the band of ornament over the entrance, demonstrating that his detail looks as well in stone as in the more plastic terra-cotta, with which material we naturally associate his design.

The tendency towards life in apartment houses has been marked, but up to this time few of the buildings erected have been characterized by any notable architectural treatment, The desire for a private apartment devoted to a number of bachelors of kindred tastes has given Mr. Manny the opportunity—the first of its kind—to design the Pendennis. It is built of red brick with flashed headers every fourth course and with architraves of white terra-cotta. It is such a house as Major Pendennis himself would have enjoyed, and is a good example of refined and restrained use of the materials employed.

In the Stafford apartment John Stafford White has had recourse to the English Renaissance style for his clever design, which speaks for itself in the regardful manner in which the red brick and white terra-cotta have been combined in a very interesting composition.

The Olive Street store and apartment building, by Weber & Groves, is a well balanced design in a mottled yellow brick with terra-cotta trimmings white in color. It is regrettable that our streets do not show more buildings which evince the same intelligent study and grasp of opportunity.

The English Renaissance has afforded a model for the same architects in the corner store building; less interesting perhaps than their larger building, but a fairly successful attempt to impart some measure of fitness and interest to a problem which is seldom solved in a way that repays a second glance.

ST. NICHOLAS HOTEL. Adler, Sullivan & Ramsey, Architects.

A problem generally delegated to the utilitarian engineer has received fitting treatment at the hands of Eames & Young in the two pavilions erected in Forest Park for the street railways. The design of the structures bespeaks their purpose, and a class of building heretofore "viewed with alarm" has been developed in a manner that enhances rather than mars the beauty of the park. The towers and campanile are useful and picturesque features that add interest to the composition, which would naturally appear somewhat flat without them.

HORN'S HOTEL. Weber & Groves, Architect.

St. Louis is fortunate in possessing many private places wherein the better class of houses are concentrated. These places or parkways are adorned with entrance gates which are usually well designed and add to the attractiveness of the place. While the gateway to Washington Terrace by George R. Mann cannot lay claim to originality—being a copy to some extent of the well-known Tower of the Large Bell in Bordeaux—it possesses interest not only for its picturesque design, but for its brickwork as well.

That the humble purpose of a stable justifies the same thought as a house is evidenced by the Sproule stable designed by Shepley, Rutan & Coolidge, notable for its brickwork as well as for its design. Built of a reddish sand mold brick with horizontal joints of white and vertical joints of red mortar, it presents an appearance as unusual as it is delightful.

In the stable for Simmons Hardware Company, Weber & Groves have made the most of a larger opportunity and produced a building that not only expresses its function, but one that possesses interest for its clever design and for the character of the brickwork, which is mottled red in color and laid as stretchers with Flemish bond every seventh course.

Architectural and Building Practice in Great Britain.

BY R. RANDAL PHILLIPS.

A COUPLE of months ago, when the frost was keen and building operations were consequently much interfered with, some prominence was given to the idea of mixing sugar with the mortar to prevent it freezing. That is an ingenious, a plausible idea, but practically worthless. Building is stopped in winter because the water in the mortar freezes and disintegrates the crystalline structure essential to its binding. Some years ago experiments were made to ascertain the effect of sugar on Portland cement, and it was found that while a very small percentage retarded its setting, a slight excess utterly spoiled the cement. So that the addition of sugar in making mortar is a very doubtful advantage. The only effective way is to use unslaked lime, the heat generated by which will prevent the mortar freezing for some time.

In previous letters I referred to the bill which was to be introduced to amend the London Building Acts in regard to fire protection. That bill has latterly made its appearance — and also its exit! Highly desirable though it is to render buildings as fireproof as possible and to provide adequate means of escape from them, this bill was altogether too drastic — an impossible bill, prejudicial to the building trade and oppressive to property owners. It met with the entire opposition of the city and has now been withdrawn; but a new bill is to be introduced in the next session of Parliament. When it makes its appearance it will probably be so amended as to receive legal sanction. Two other bills before Parliament are the Plumbers' Registration Bill and the Architects' Registration Bill. The former has passed its first reading in the House of Commons. Though promoted for many years, it has never succeeded in becoming law; yet it is a bill worthy of support, for with proper sanitation, so vitally important to the health of all communities, nobody should be allowed to call himself and work as a plumber unless qualified. The bill aims at enforcing a statutory examination and registration. The Architects' Registration Bill has the same object in view. It also has been before Parliament for many years. The Society of Architects fathers the measure, and as a consequence it has not received the support of the Royal Institute of British Architects, without which it can never hope to be put on the statute book. Formerly the Institute members were utterly opposed to the idea of registration, but of late years they seem to have somewhat modified their views and it is my own belief that they will introduce a registration bill in the not very far distant future.


LANSDOWNE HOUSE. William Flockhart, Architect.

The Engineering Standards Committee has now practically finished its chief labors. Composed of more than two dozen committees, to whom the government contributed fourteen representatives, it has effected one of the most important reforms in the industries of this country by standardizing steel and iron sections; indeed in structural work alone it is estimated that a saving of £750,000 (about $3,700,000) a year will result. Builders and architects are chiefly interested in the H beam, of which thirty sizes are given, varying from 3 inches x 1½ inches to 24 inches x 7½ inches, and weighing respectively from forty to one hundred pounds per foot.

The Royal Academy — so eminently conservative a body — has decided on a much-needed reform. Since its inception, one hundred and fifty years ago, Academicians and Associates have been entitled to have eight pictures hung and outsiders to submit eight. After this year members will be limited to six and outsiders only allowed to submit two


CENTRAL SCHOOLS, OXFORD. Leonard Stokes, Architect.

pictures. At present about one in ten pictures gets hung: more than ten thousand are submitted and the work of selection is enormous; in fact it often amounts to little more than a scramble, in which those amateurs

PRUDENTIAL ASSURANCE COMPANY'S BUILDING.
Alfred Waterhouse, Architects.

who persist in sending their eight pictures every year cherish the hope of getting one squeezed in. So far as the architectural room is concerned, the new rule will not make much change. About two hundred and fifty designs out of probably a thousand are hung; but no photographs on any account, though this is pure folly, as photographs show buildings as they actually are, not as they might be with their worst features softened or hidden by the clever artist's perspective and their best features accentuated to a lying degree. There are not many architects who send in eight frames; but many submit four which have not the slightest chance of being accepted; and it is in regard to these that the new rule will apply most happily for the Hanging Committee and the reputation of English architecture.

HOTEL, SEACROFT GOLF LINKS. Brewill & Baily, Architects.

Several other matters of current interest have occurred which I may briefly mention.

An association has been formed to promote the adoption of the new model by-laws for rural districts, so urgently needed in place of those dead weights of by-laws which imposed the same fireproof construction on an isolated country house as on city buildings huddled together on every foot of space. Another association has been formed to watch the conditions of competitions and protest against such as they think unjust; while another association is being promoted to further the interests of quantity surveyors. The Architectural Vigilance Society has been formed with the object of influencing public opinion and, if necessary, protesting against public au-

ARCH AND COVERED WAY, PRUDENTIAL ASSURANCE COMPANY'S BUILDING.

thorities who refuse to consider "qualified advice on the æsthetic as well as sensible treatment of public works of art." The committee includes several well-known engineers, architects and artists. A form of contract will, it is anticipated, be agreed upon soon between the Royal Institute and the Institute of Builders, and action has been taken to abolish the objectionable practice on the part of some public bodies and architects who require priced bills of quantities with tenders.

The chosen recipient of the Royal Gold Medal (which is awarded annually to the architect who is considered to have produced the most distinguished work during the preceding year) is Mr. Charles F. McKim of New York. Mr. Richard M. Hunt is the only other American who has been so honored and that was in 1893.

A notable paper on Westminster Cathedral was read by Mr. Charles Hadfield before the Royal Institute of British Architects in March. Mr. Hadfield pointed out that Bentley's chief constructive idea was a great building of brickwork set in cement mortar, covered by homogeneous concrete domes, vaults and flats, with no steel or iron work about it and little wood. "I have disproved," wrote Bentley, "that terrible superstition, that the use of iron is necessary to long spans." It was found by experiment that the best core for the concrete of the domes and for general bearing purposes was clean, hard brick refuse from the brickyards broken to a walnut gauge. Old brickbats and coke-breeze were discarded because they tended to kill or starve the cement. The concrete for the foundations was composed of five parts of Thames ballast and one of sand to one of Portland cement. The brickwork of the footings was double the width of the walls above, the concrete below extending from one foot to two feet outside. More than two million bricks were used in the foundations. For the exterior of the cathedral Bracknell red facing bricks two inches thick were used, wire-cut bricks for the piers, and hard blue bricks for the outside facing of the underground vaults and sacristy, and for the damp-courses, set in nearly neat cement.

"SANDHOUSE." F. W. Troup, Architect.

"SANDHOUSE." F. W. Troup, Architect.

English bond was generally adopted, except for the outer facing, which was bonded to the backing with one course of binders to four of stretchers, without the use of quarter bats. Inside the building stock bricks were employed. The mortar was composed of Portland cement and clean sharp Thames sand, mixed in the proportion of one to three. The courses, averaging four to the foot, were well rubbed in and flushed up as work proceeded, with a good substantial mortar joint throughout. As the result of tests made it was found that the Fletton bricks stood a "slightly cracking stress" of 185.6 tons per square foot, while it is considered that ordinary London stocks would have cracked with one-third the load. The blue bricks resisted pressure up to seven hundred tons per square foot, and are impervious to moisture.

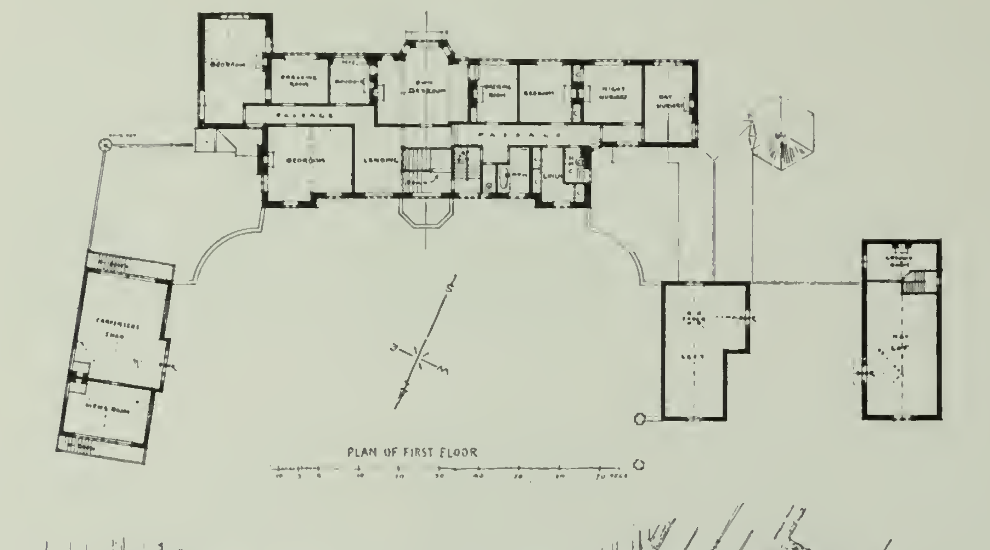
In conclusion I may refer to the accompanying illustrations. "Sandhouse," Witley, Surrey, is built of wood-burnt bricks, and thus most of the headers are vitreous flare-ends of a soft gray color, which have been worked into a diaper over the whole house. The other bricks are red. All the woodwork is in oak. The somewhat unusual south larder has double windows and triple walls, and is supplemented by good cellars and a detached dairy with covered approach, thatched. Mr. F. W. Troup of London is the architect.

The Prudential Assurance Company building forms an immense block. It is of red terra-cotta with a brown granite base. Inside all the walls are covered with glazed brick in light tints or with tiles of very charming pattern. There is a great inner courtyard that gives light and air to the buildings grouped around it. The roofs are covered with green slates. Mr. Alfred Waterhouse, R. A., is the architect.

The Seacroft Golf Links Hotel at Skegness is to be a red brick building up to the first-floor level, above which it will be rough cast, with a wood cornice painted white and the roof covered with handmade strawberry colored tiles. The accommodation provides not only for an ordinary hotel, but also a small golf club with the necessary dressing rooms, etc. Messrs. Brewill & Baily of Nottingham are the architects.

The Central Schools at Oxford have recently been completed from the designs of Mr. Leonard Stokes, F. R. I. B. A., and consist of three blocks irregularly disposed on a spacious site and enclosed by a well-designed iron railing. Each building is characterized by reposeful outline and quietness of detail, the architectural effect largely depending on the carefully considered coursing of the two varieties of brick (red and picked yellow stocks) and the carrying up of the angles of the building as flanking piers to the gables.

Lansdowne House, Notting Hill, London, is a block of flats and studios built of yellow stock bricks. Each two-floor suite has a studio the height of both, so that the monotonous repetition of small windows is avoided. The boldly corbeled balconies faced with slabs of Ham Hill stone set on edge and cramped together give a striking aspect to two of the elevations. The architect is Mr. William Flockhart, F. R. I. B. A.



PLANS, "SANDHOUSE." F. W. Troup, Architect.

Fireproofing.

The Economics of Construction.

BY JOHN LYMAN FAXON.

ECONOMY — it's a pretty large word, covering a wide field of knowledge; intelligent application; and of considerable import to the investor.

It is also a very much abused word, thousands of errors, both of omission and commission, being perpetrated under the guise of its alluring prospects and its misconceived interpretation.

There are two kinds of economy, so called: (1) in the perverted sense, *extravagance*, in the use of cheap materials and poor work, because of the delusion that money is saved thereby; (2) the exception which proves the rule, *scientific economy;* in the use of the least amount of best materials, and the employment of skilled workmen, to ensure the best results at lowest cost, without waste of materials or labor.

Our relations are with (2). As a simple, concrete example, we will assume a brick pier — load one hundred tons — of general run of stock brick laid in lime and cement mortar, which should have a factor of safety of eight square feet section area; but a pier, for same load, built of selected A 1 hard bricks laid in neat Portland cement, will give a requisite factor of safety with four square feet section area, at a saving of twenty-five per cent in cost.

This is a simple principle of means to ends, yet one which the average owner, also mason, does not seem to comprehend.

We know of a recent case in which an architect was damned in no measured terms as "extravagant and a robber," because of just such application of means to ends, because he specified "Portland cement instead of common cement, which was good enough."

Or take, for instance, a country house; an eight-inch wall of A 1 hard bricks, hards outside and hollow bricks for backing, laid in Portland cement, properly bonded, and the inside face painted with a first-class damp-proof paint, is equal in strength and durability to a twelve-inch wall as ordinarily built, and the cost of the eight-inch wall is about twelve and one-half per cent less than the twelve-inch wall. Economics of construction have to do with all classes of materials — coefficient of strength, availability for use, cost of stock and labor, *common sense* application; it begins on the draughting board and radiates through the structure, the bone and flesh, the nerves and fibers of a building, and ends with the net per cent income.

The main object of this series of papers is the furtherance of a departure from the present system of steel framing to the adoption of solid masonry construction, an enlarged field for burnt clay products, and we contend that solid masonry construction is not only vastly more sensible and enduring, that it is less costly, a more profitable investment; because of its enduring qualities, longer life. The present system of steel framing is a delusion and a snare, not permanent as to stability or life and extravagant as an investment: the "fad" is a good deal like champagne, mighty seductive, but an overdose of it is pretty sure to make one light headed — and even in moderate portions it lacks the flavor of fine red wine. Within reasonable limits, any kind of a building can be erected in solid masonry; by reasonable limits we mean, all public and semi-public buildings, town halls, schools, churches, libraries, hospitals, college buildings, city and county buildings, of whatever area or height, also office buildings, hotels and apartment houses, not exceeding twelve stories in height.

The time is fast approaching when the excessive sky-scraper (an out and out abortion) will be a thing of the past; a time when investors will come to realize that buildings not exceeding eight to ten stories are better dividend payers.

Architectural economics have to do with the art of *planning* as well as the science of construction, for upon the *plan* depends the economy of construction; the plan rules the construction, not the construction the plan, in nine cases out of ten; and to a more or less extent — generally more — the plan is ruled by the client rather than by the architect.

A well-known real estate man recently said, "I know more about the planning and requirements of an office building than any architect in my city." We have seen the plans of a large office building being erected for the said real estate man, and we know that if the plan had been based upon true economics of construction, on a system of *units*, and of solid masonry construction, that the building would cost at least ten per cent less, would last five times as many years, and be a much more profitable investment. We do not believe that the exigencies of modern business, now or in the future, demand excessive spans or unrestricted floor areas. We do believe that life and property should be protected, and that money invested should be wisely spent and lasting as an investment, and not put into a system of construction of exceedingly doubtful stability and durability. We also believe that more buildings, such as residences and public and semi-public structures, should be built *fireproof*, in respect to safety, durability and economy.

At the present time there are three systems of fireproof construction, so called, in general use.

(*a*) *The steel frame*, with burnt clay encasement, is a structural anomaly, fundamentally so; for in this, that element of structure — the frame — which should be the most enduring as to structure, and the most efficient in resistance to fire, is the least enduring as to structure and one of the weakest as to resistance to fire; and besides, *supports* the encasement *which is designed to protect it;* if human ingenuity had set itself the task to devise a system utterly illogical it could not have met with more unvarnished success.

In structural principles this system stands practically where it did at the start, the general elements being, as originally, I beams with flat or segment arches, supported by metal columns, and protected, to a more or less extent, by terra-cotta encasement. In so far as the system, as a system, is concerned, it has had a marvelous development, but along with this have come defects of structure which hardly compensate for other advantages.

In so far as the encasement, *per se*, is concerned, there is not much room for improvement, in that, as a part of this system, when properly provided for and placed; the prime defect, in the majority of cases, being, not in the clay product as a product and protection in itself, but in the *amount* employed, and the *careless* way in which most of it is put in place. This defect is not the fault of the makers of terra-cotta products, for, if architects do not specify an adequate amount of protection and contractors neglect to exercise due and proper care in the setting of the material, no one else is to blame.

It would be undoubtedly quite a step in advance, in so far as this system is concerned, if the makers of the encasement insisted upon setting the material in place; they at least would have concern in its proper installation.

It is the *steel* system, as a system, which does not meet with our approval; and the contention is that the same amount of brains and cost that is now put into steel and its encasement would produce in brick and terra-cotta alone, better results and a higher class of *fireproof* construction.

It cannot be successfully maintained that burnt clay products are less valuable than any other material, either as to structural application, resistance to fire or permeability. The evidence of centuries is unquestionably on the side of burnt clay, and if the producers of burnt clay products will bend their brains and energies to the development of the great possibilities of the raw material, to the re-establishment of older types of structure and their evolutions, and new and *sane* principles; they will produce buildings which will stand, long after the steel frame has gone to the junk heap, and which will be the wonder of ages yet unborn, because of their inherent scientific principles, permanency and adaptability to modern requirements. And herein it seems to us lies the success, profit and future of the burnt clay interests.

For instance, we have in mind a system of vault construction quite feasible to produce in terra-cotta, adaptable to single spans, varying from small to large areas, and for any class of building with a considerable reduction in stock, weight, labor and cost, and which would be quite an advance in *fireproof* construction.

(*b*) *The concrete systems*, good, bad and indifferent, the bad predominating to a large extent. Concrete is in some respects one of the best materials that man has produced, but it has its limitations, especially for large spans, and unless manipulated with the greatest care is untrustworthy, especially so when cost enters so much into competition as it does in the prevailing hustle "to get the job."

(*c*) *The Guastavino system*. In this the principles of structure are thoroughly logical, scientific, unlimited in scope, rightly economical in application of means to ends.

The economic science of *fireproof* building depends upon six elements of primal importance: (1) resistance to fire, (2) strength, (3) lightness, (4) cohesiveness, (5) adaptability, (6) low cost. If we have 2, 3, 4, 5, we will have 6.

Low cost is not confined to product solely, for it is so correlated to other and combined elements of structure that it has its effect on the cost of other structural elements from the roof down. For instance, a type of floor construction may be selected the cost of which per square foot is less than that of other types, yet the design and weight of it may require such increase in the carrying and supporting members of construction as to considerably more than offset the difference in cost of several other types of floors.

If we can gain ten per cent in coefficient of strength and ten per cent less in dead weight of material, we save something like twelve and one-half per cent in the cost of the material in place and a corresponding saving in other parts. This is quite an appreciable factor in net per cent income in these days of close figuring and conservative dividends, when an additional one-eighth of one per cent is not to be ignored.

In burnt clay products we have, unquestionably, fireproof materials, and with proper selections of raw material and scientific manipulation it is quite possible to produce finished products of ultimate strength and lightness; the gain in strength and weight is a gain in cost.

One of the most important essentials requisite in the general run of terra-cotta systems is the *cohesive* principle as a basic element of *homogeneity*, for in respect to floors especially the systems are, as now employed, limited to relatively short spans and dependent on I beam construction. This element of *cohesion* as a factor of strength, self-sustaining quality, and its bearing upon the cost of other elements of structure should be taken account of and allied with resistance to compression. With such an alliance we will gain in adaptability of material, in logical and intelligent design, larger functions and the elimination of other and needless materials and members inherent in present systems, which are the reverse of scientific, of questionable expediency and costly in production.

Aside from the question, as to whether or not a ten or twenty story building is the best dividend payer, according to its life, there is the more important question of permanency as to investment; the ultimate value of a fireproof building is, not only that it shall be *fireproof*, but that it shall be permanent as well. A building may stand for twenty-five years without damage by fire — there are many such — and while the fireproofing encasement, if rightly designed and properly installed, may prevent fire damage to a steel frame, such encasement will not prevent or eliminate the deterioration of the steel by rust.

The average steel-frame building, as erected nowadays, will pass the safety limit of stability inside of twenty-five years, in all probability eighteen to twenty years is the limit, unless considerably more costly and efficient means of protection are devised than those in practice at the present time.

If the life of a fireproof building can be increased to fifty or one hundred years by the adoption of more intelligent principles of construction, the investment will be more sure and profitable.

For instance, let us take the case of an office building costing $600,000. If the life of the steel frame building be twenty-five years, it will have cost at the end of twenty-five years (at four per cent compound interest) $1,599,000; and supposing that another building, to replace the first one, can be built for a like sum (*i. e.*,

$600,000), the investment for buildings, at the end of fifty years (at four per cent compound interest) will foot up to a total of $5,860,335. Now, supposing, instead of a steel frame structure, we erect the same office building in solid masonry construction, using and adjusting burnt clay products to their best advantage, which will last fifty years, and this is quite feasible, and supposing that at the end of twenty-five years the interior of the building is refinished and new mechanical plants installed (allowing forty per cent of cost for such refinishing and installation), we shall then have the building good for another twenty-five years of life; and at the end of fifty years the total investment foots up to (with four per cent compound interest) $4,900,935, or a saving of $959,400.

It certainly cannot be claimed that it is a wise expenditure of money to erect buildings the life of which cannot be depended upon in excess of from eighteen to twenty-five years. We maintain that so far as the construction and architectural design of such a building are concerned, that it can be designed so as to be just as available for business purposes at the end of fifty years as at the end of twenty-five years; the prolonged life of such a building depends upon the *construction;* consequently it is of imperative importance that more intelligent, progressive and scientific principles of construction should come to be adopted; and to this end the producers of burnt clay products should bend their energies to the broadening of their field and a very much larger output.

It is quite within practical limits for bricks to be made that will sustain loads of from sixty to one hundred per cent greater than allowed at present, and for terra-cotta arches to be designed and made which will be twenty to thirty per cent lighter in weight and carry more load than those in use to-day, with the resultant gain in elimination of useless and needless material, and a considerable gain in cost of individual buildings, which will be to the advantage of architects, producers and builders, in the more general erection of better buildings and more of them.

A FIREPROOF HOTEL.

AN interesting occurrence was related to us and vouched for as having happened in one of the largest of the Boston hotels. One morning some time since the chambermaid on one of the upper floors having occasion to enter a room which had been vacant for two days discovered, to her amazement, that the interior finish and the contents of the room had been entirely consumed by fire. The conflagration had started unknown to any one, had spread, slowly but surely, until everything combustible within reach was ablaze and had then quietly burned itself out without giving any indication to any one that there was any trouble. The room was so situated that the smoke found its way out through the window opening rather than through the doors, and when the room was entered by the maid the fire was not only dead out but the embers were cold. While this incident does not reflect very favorably upon the supervision maintained in this hotel, it certainly speaks volumes for the merit of the construction.

Selected Miscellany.

NEW YORK NOTES.

We regret to have to chronicle the death of Mr. Hugh Lamb. Mr. Lamb was for many years associated in partnership with Mr. Charles A. Rich in the firm of Lamb & Rich, which had a large and lucrative practice,

PANEL BY HERTS & TALLANT, ARCHITECTS.
Perth Amboy Terra-Cotta Company, Makers.

consisting mostly of residence work, both city and country, although they built some important large buildings, among them being the Barnard College buildings in this city.

DETAIL, EXECUTED BY ST. LOUIS TERRA-COTTA COMPANY.

The American News Company has purchased a large piece of property on Park Place, extending through to Murray Street, upon which they intend to erect a large

DETAIL BY VICTOR HUGO KOEHLER, ARCHITECT.
New Jersey Terra-Cotta Company, Makers

ENTRANCE TO DORMITORY FOR CINCINNATI COLLEGE OF MUSIC.
Gustave W. Drach, Architect.
Terra-Cotta furnished by Indianapolis Terra-Cotta Company.

business building, but no architect has been selected as yet. The price paid for the land was $600,000.

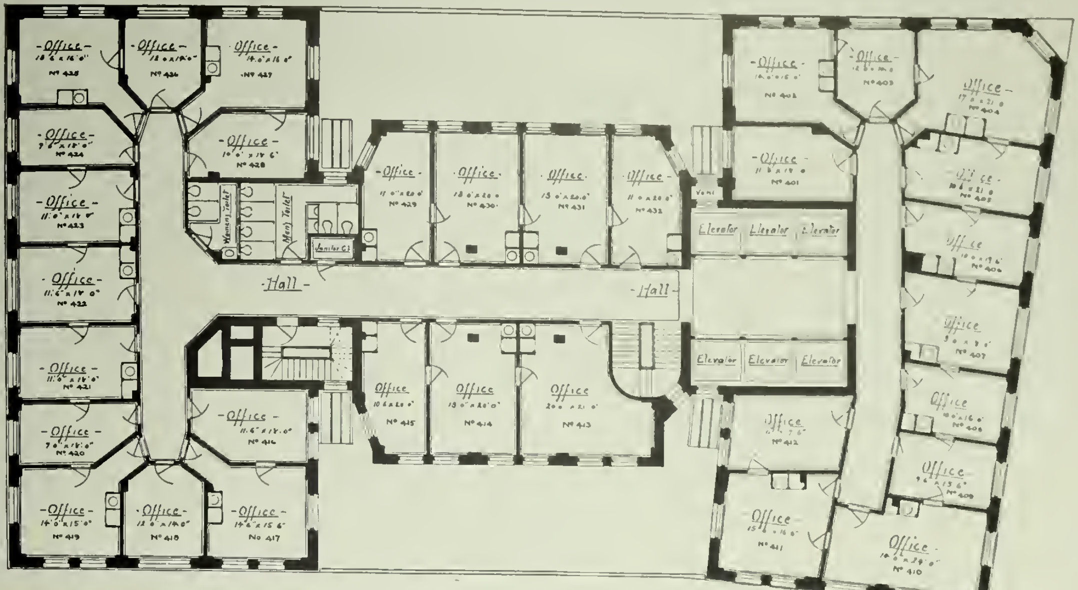
Mr. J. Pierpont Morgan has bought the Wm. E. Dodge residence adjoining his own on Madison Avenue. He now owns one-quarter of the block bounded by Madison and Park avenues, 36th and 37th streets.

A month ago plans for a $300,000 marble library building were drawn up for Mr. Morgan by McKim, Mead & White. This structure is to be T shaped; 115 feet on 36th Street and 73 feet deep. It is rumored that he will erect a handsome residence adjacent to and in harmony with this library.

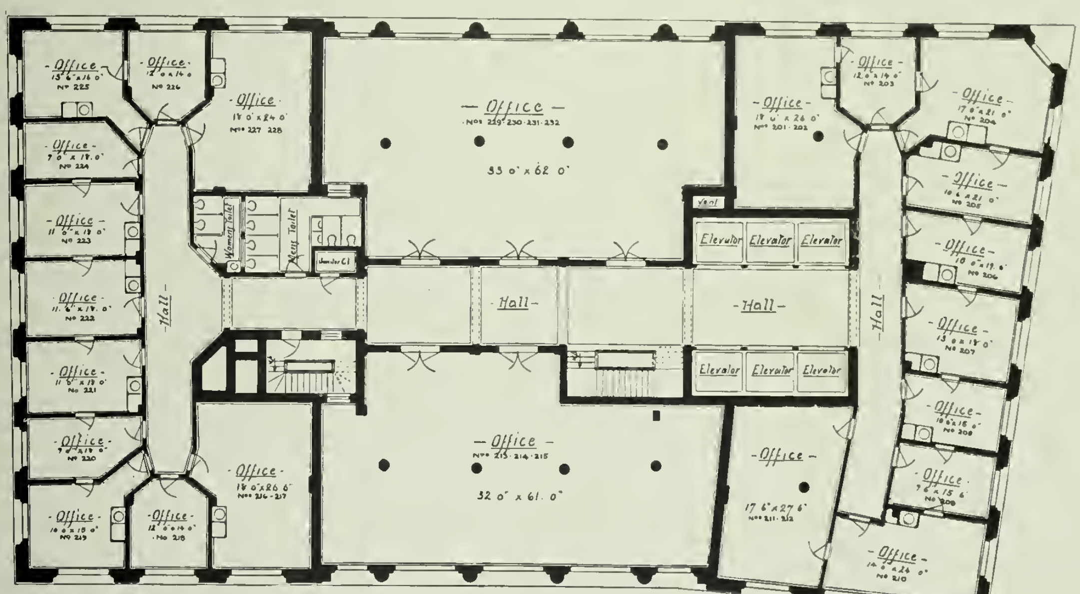
Columbia College is to have a new dormitory building to cost $250,000, which it is proposed to have ready for occupancy by October 1. The plans will be drawn by McKim, Mead & White, who planned all the other college buildings. There will be two hundred rooms. Some apartments will be in suites consisting of a bedroom and study, and in many instances of two and three rooms and a study. The name of the dormitory will be

MASONIC TEMPLE, NEW ROCHELLE, N. Y.
George K. Thompson, Architect.
Terra-Cotta furnished by New York Architectural Terra-Cotta Company.

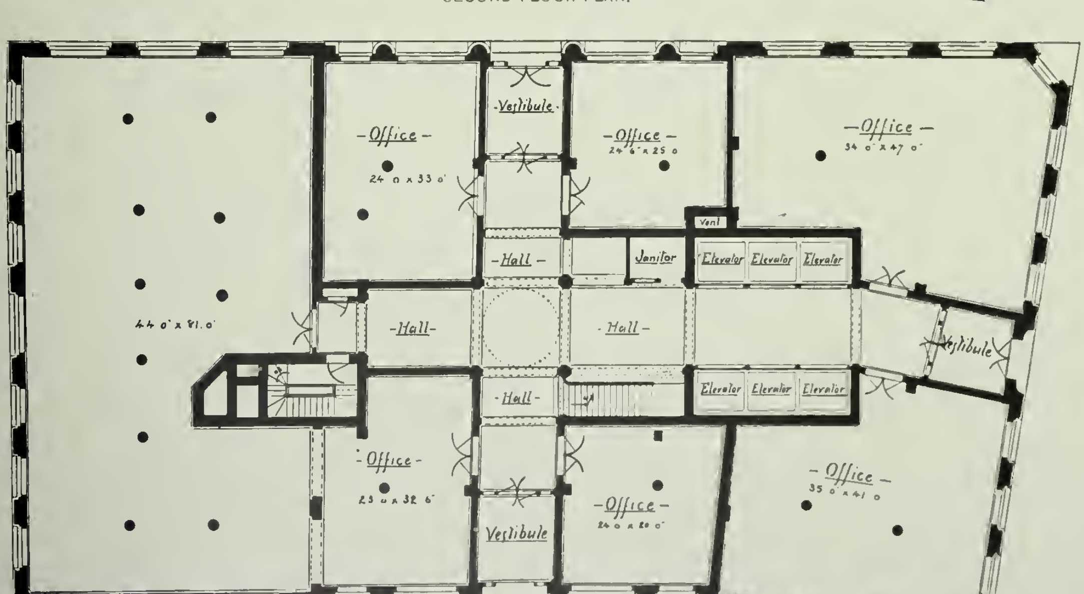
OFFICES FOR GLUECK BREWING COMPANY, MINNEAPOLIS, MINN.
Boehme & Cordella, Architects.
Entire front of Terra-Cotta. Winkle Terra-Cotta Company, Makers.



FOURTH (TYPICAL) FLOOR PLAN.



SECOND FLOOR PLAN.



FIRST FLOOR PLAN.

PLANS, BOARD OF TRADE BUILDING, BOSTON. Winslow & Bigelow, Architects.

Knowlton Hall, in memory of General Knowlton, an officer in the Continental army which engaged in the battle of Harlem Heights on the site of the proposed building.

Tiffany & Company, one of the largest jewelry establishments in the world, is soon to move from Union Square, where they have been for many years. They have bought a lot on 5th Avenue between 36th and 37th streets, 160 feet front and 150 feet deep. The price paid for the property was $2,000,000. They will build at once. The plans of the building have not been completed finally, but they provide for a structure which will be architecturally an ornament to this conspicuous site.

William B. Tubby & Brother are planning a fourteen story building to be erected for the "Town Topics" Company on 38th Street, near 8th Avenue.

PARK STREET CHURCH.

IN our last issue reference was made to the possible disappearance of Park Street Church. Since then it has transpired that the real estate operators, who were reported as having purchased the property, had acquired only an option, and the option having expired on the 1st of April, the whole deal was declared off and the present prospects are that the church will continue for an indefinite period to adorn the corner of Park and Tremont streets. Every one who has the beauty of the city at heart will rejoice that the church is to

BANK AND INSURANCE BUILDING, DUBUQUE, IOWA.
W. W. Boyington & Co., Architects.
Terra-Cotta by the Northwestern Terra-Cotta Company.

remain. There are so few monuments of that sort that we cannot afford to lose any of them. The church society is the gainer by a forfeit of twenty-five thousand dollars, but is also immeasurably more the gainer by reason of the spontaneous expression of public opinion which has called so loudly and unmistakably for the preservation of this monument, and it is hoped that not only may the church remain substantially in its present condition, but that the congregation, though widely dispersed as to residence, may continue to be identified with the edifice. In these days of rapid transit and numerous trolley lines, it really makes comparatively little difference how far one goes to church.

The cause publicly announced as having led to the failure of this real estate operation was the disturbed condition of the money market, which made investors very shy. During the past fifteen years buildings in Boston have been almost without exception erected and operated by syndicates or trusts, and even the large real estate holding estates have been disposed to prefer shares in a trust to entire ownership of one property. Consequently the promoters of this enterprise did not expect to furnish all the means themselves, but counted upon the support of the investing public. But in addition to the poor money market the public sentiment against the disappearance of the church was undoubtedly a deterrent factor, beside which a bill was pending in the legislature looking toward the appropriating of the property for public domain, and investors would naturally fear that a purchase of shares in such a trust might mean buying into a lawsuit; and though a considerable portion of the money needed was actually subscribed, the public as a whole failed to respond.

The failure of the Park Street Church syndicate raises the query as to the prospect of the future in real estate. This country has passed through several successive years of exceptionally high prices and easy markets. The prices of labor have been steadily increasing, and nearly all materials have advanced from ten to fifty or sixty per cent. It is inevitable that a reaction must ensue, and the indications point, in our judgment, to a beginning of hard times in the real estate market. This means fewer buildings, less work for contractors and less labor employed generally. There is no one industry which affects so large and varied a class of individuals as building. We do not believe the country will ever see hard times in the sense that such occurred years ago. The wealth acquired during the past generation is in so tangible a form, investments as a whole are on such solid bases, that it would be extremely difficult to materially upset the fabric of our real estate investment market. But the effect of slackness in the real estate market will be to greatly reduce the cost of building, which will be, in many respects, an advantage, and will tend to restrain excess in building operations, which restraint surely is not to be deplored.

ENTRANCE, ST. CHARLES BORROMEO CHURCH, NEW YORK CITY.
George H. Streeton, Architect.
Terra-Cotta executed by Excelsior Terra-Cotta Company.

DETAIL BY BENJAMIN FRENCH, ARCHITECT.
Standard Terra-Cotta Works, Makers.

IN GENERAL.

The school commissioners of Boston through their chairman, Mr. R. Clipston Sturgis, offer a prize to the members of the Boston Architectural Club, in competition for the best design for a door handle to be used in the public schools of Boston.

The design is to include the escutcheon plate and the knob; the knob to be about 2¼ inches diameter.

The competitor is free to choose at to style, finish or

HOUSE AT BUFFALO, MONOLITH CONSTRUCTION. BUILT IN 1870.
Akron Star Brand Cement used; after thirty-three years, shows no Check or Break.

material, the only suggestion offered being the possibility of utilizing some local insignia or letters as he may select.

A prize of $15.00 will be awarded the design placed first if of sufficient merit, and first and second mentions will be made for the two designs placed next in the award.

Mr. C. Howard Walker is to judge of the designs and award the prize and mentions.

The Rhode Island Chapter of the American Institute of Architects held an exhibition of architectural drawings at the Rhode Island School of Design, which closed March 28. In collecting these drawings an attempt was made to illustrate, as far as possible, the progress of a building through the architect's office, and in following out this idea many very effective series of drawings were presented. The exhibits, therefore, were not limited to perspective and show drawings, but included preliminary sketches, pencil drawings, water colors, pen and inks, working drawings, scale details, blue prints and photographs of finished work. The exhibition was further varied by a few academic drawings by members of the Chapter and an exhibit of photographs of the masterly rendered drawings by Brune and other French draughtsmen copied from the collection of the Massachusetts In-

ROOM IN STABLE OF CLARENCE MACKAY, ESQ., SHOWING GUASTAVINO SMOOTH BUFF TILE CEILING.

stitute of Technology. Nineteen Chapter members entered their drawings.

The work of the American School of Correspondence connected with the Armour Institute at Chicago, while starting with the fundamental studies of a general education, carry the student far along into the most exact scientific studies. The instruction papers on heating and ventilation are not only such as to present a comprehensive survey of the whole science to the student, but

AMERICAN EXPRESS COMPANY BUILDING, NEW YORK CITY, SHOWING USE OF KREISCHER BRICK.

they are also so essentially practical in their details and their presentation that they can be easily made of considerable value to the architect and the engineer for use in daily practice. This is only one of the many courses which this most excellent school places within the reach of young men with limited means and large ambitions.

Front bricks, manufactured by the Columbus Brick and Terra-Cotta Company, will be used in the following new buildings: The Powers Building, Chicago, light gray brick; the McKinley High School, Chicago, W. B. Mundie, architect, light and dark gray brick (this will be

DETAIL BY HEINS & LA FARGE, ARCHITECTS.
Atlantic Terra-Cotta Company, Makers.

one of the finest school buildings in the world); Frisco Building, St. Louis, Eames & Young, architects, gray speckled brick; Chapter House, Cornell University, George R. Dean, architect, light gray Roman brick laid with one-inch mortar joints; residence and stable for F. T. F. Lovejoy, Esq., Wilkinsburg, Pa., Alden & Harlow, architects, dark gray Norman brick (this is to be one of the finest residences of the middle west); Y. M. C. A. Building, Columbus, Ga., T. W. Smith & Co., architects, light gray brick; First National Bank Building, Birmingham, Ala., dark buff brick; large factory building for the

INTERIOR OF STABLE, SHOWING USE OF TIFFANY ENAMELED BRICK.
F. W. Perkins, Architect.

National Cash Register Company, Dayton, Ohio, Frank M. Andrews, architect, light buff brick; Engineering Building, Ohio State University, light gray brick.

At the annual meeting of the Celadon Roofing Tile Company, held April 7, the following officers were elected: William R. Clarke, New York, President; C. Layton Ford, Plainfield, N. J., First Vice-President; Henry S. Harris, Chicago, Second Vice-President; E. S.

DETAIL BY PAUL J. PELZ, ARCHITECT.
Conkling-Armstrong Terra-Cotta Company, Makers.

Marvin, New York, Treasurer; Eugenia L. Babcock, Plainfield, N. J., Secretary; Alvord B. Clarke, Ottawa, Ill., General Superintendent.

A. A. Crowell, architect, has opened an office at Enid, Okla., and would be glad to receive manufacturers' catalogues and samples.

JOHN MACKAY & CO'Y, OF THE CANADIAN BANK OF COMMERCE BUILDING, TORONTO, CANADA, WOULD LIKE TO BE PLACED IN COMMUNICATION WITH A FIRM OF ARCHITECTS OF THE HIGHEST PROFESSIONAL STANDING, AND OF SPECIAL EXPERIENCE IN THE ERECTION OF MODERN BAKERIES. COMMUNICATIONS WILL BE HELD IN THE STRICTEST CONFIDENCE.

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THE BRICKBUILDER.

MAY,

1903.

CASTLE OF COCA, NEAR SEGOVIA, SPAIN.

THE BRICKBVILDER

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ADVERTISING.

Advertisers are classified and arranged in the following order:—

Advertisements will be printed on cover pages only.

THE problem of providing schoolhouse accommodation for the children of a large city is a serious one, the best solution of which has received most careful consideration from different parts of the country. In Boston up to a short time since the schoolhouses were all designed by the city architect. During the period in which Mr. E. M. Wheelwright held this position, some most excellent results were accomplished, and the buildings which he designed were in many respects models of their kind. A political upheaval abolished the city architect's office, since which time there has been a great lack of uniformity in the schools of Boston, the various buildings being designed without much reference to each other or to carefully preconceived programs. In 1901, however, a radical change was made and the whole matter of schoolhouse construction, maintenance and repair was placed in the hands of a commission composed originally of three laymen, but modified at an early date by the resignation of one member and the appointment in his stead of Mr. R. Clipston Sturgis, who has acted as chairman of the commission and to whose incentive is due the excellent results which have been accomplished. The first report of the commission has just been made public. This report shows that the problems have been studied in a most careful, conscientious manner, and that out of the mass of data which the commission has collected, both in Boston and from personal investigations in all the principal cities of the country, a perfectly clear, comprehensive and well-studied general plan has been evolved, in accordance with which all of the more recent schoolhouses are being constructed. The report contains a mass of extremely valuable general information which serves as a basis for all the new schoolhouse work and which can be studied to great advantage by any one interested in such work. The report also contains illustrations of the principal buildings which have been planned by architects under the direction of the commission. The appointment of architects rests entirely in the hands of the commission, who have exercised their discretion entirely in the interests of the city, selecting in every case architects whose work has been a credit to the community and to themselves, and making such selection entirely on the merit of the individual and his record rather than upon the result of any more or less haphazard competition. The commission has, furthermore, employed experts to advise with them and take charge of all heating and ventilation and all electric work in both new and old work, thus insuring a high degree of efficiency in these most essential features of schoolhouse construction. The city is certainly to be congratulated upon having on the commission a thoroughly trained architect like Mr. Sturgis, who is willing to give so much time and serious thought to such problems, and the work of the commission certainly deserves the encouragement and support of every one who is interested, not merely in schoolhouse construction, but in good architecture as well.

ROTCH TRAVELING SCHOLARSHIP.

THE annual competition for the Rotch Traveling Scholarship has resulted in the choice of Mr. Edward T. Foulkes to hold the scholarship for the ensuing two years. Mr. Foulkes is a westerner by birth. He graduated with honor at the Institute of Technology in 1898, and has had a long and thorough training in the offices of C. H. Blackall, Boston, and Cass Gilbert and Carrère & Hastings, New York. He last year won the gold medal of the Beaux Arts Society, and his work in the competition is of a most satisfactory character. He will be the twentieth holder of this excellent scholarship. The second prize, offered by the Boston Society of Architects, goes this year to Mr. H. S. Pitts, from the office of Wheelwright & Haven.

The Planning of Hospitals.

BY ERNEST FLAGG.

BEFORE attempting to plan a hospital, the architect should, of course, make himself familiar with what are now thought to be the best conditions for the recovery of the sick and to work into his plan as many of these conditions as he can. At the outset he will find that one prime condition, viz., isolation from unfavorable surroundings, cannot be attained. The hospital system itself, or the bringing together of many sick people into a confined area, is not conducive to recovery, and is moreover fraught with many dangers. The whole theory of hospital construction, planning and management, so far as the sanitation is concerned, is based on the knowledge of this fact. Hospitals are planned, built and operated with a view to overcoming, as far as may be, the evils inherent in the system. These evils can only be overcome, if at all, by the most painstaking care in the construction and arrangement of the hospital, and by eternal vigilance in its management. The architect's part in the war which must constantly be waged against contamination and infection is most important. Upon the judicious distribution of the plan, the proper arrangement of the ventilating system, the skillful selection and use of antiseptic substances for the interior, and the avoidance of all places where dust and dirt can lodge, must depend to

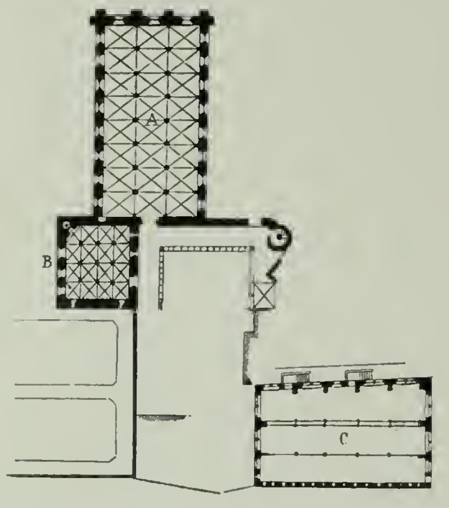


FIG. 1. PLAN OF HOSPITAL AT ANGERS.

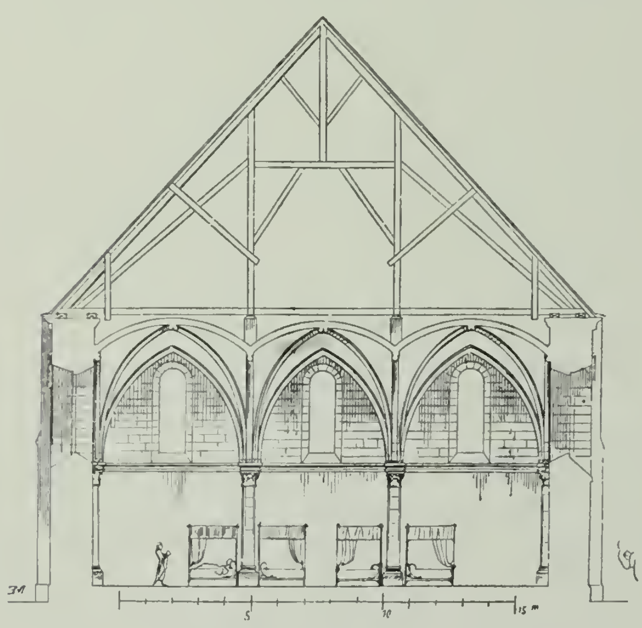


FIG. 2. SECTION OF HOSPITAL AT ANGERS.

a great extent the healthfulness of the institution. It is therefore absolutely necessary that the planner should understand the dangers which he is to help combat, and how they can best be overcome.

Modern discoveries in bacteriology have shed a great light on this subject. We now know that most diseases are transmitted by living germs, which can be destroyed by aseptic treatment, or rendered less harmful by dissemination, as when they are scattered or carried off by a large volume of pure air. These germs are transmitted from one person or thing to another by means of air, water and insects, as well as by direct contact with contaminated instruments, clothing, or other substances. The dangers which lurk in the hospital system are admirably set forth by Parkes in his work on Practical Hygiene as follows: "Although the establishment of hospitals is a necessity, and marks the era of an advanced civilization, it must always be remembered that if the crowding of healthy men has its danger, the bringing together of many sick persons within a confined area is far more perilous. The risks of contamination of the air, and of impregnation of the materials of the building with morbid substances, are so greatly increased, that the greatest care is necessary that hospitals shall not become pesthouses, and do more harm than good. We must always remember, indeed, that a number of sick persons are merely brought together in order that medical attendance and nursing may be more easily and perfectly performed. The risks of aggregation are encountered for this reason; otherwise it would be far better that sick persons should be separately treated, and that there should be no chance that the rapidly changing, and in many instances putrefying substances of one sick body should pass into the bodies of the neighboring patients. There is, indeed, a continual sacrifice of life from diseases caught in or aggravated by hospitals. The many advantages of hospitals more than counterbalance this sacrifice, but it should be the first object to lessen the chance of injury to the utmost. The risk of transference or aggravation of disease is least in the best ventilated hospitals. A

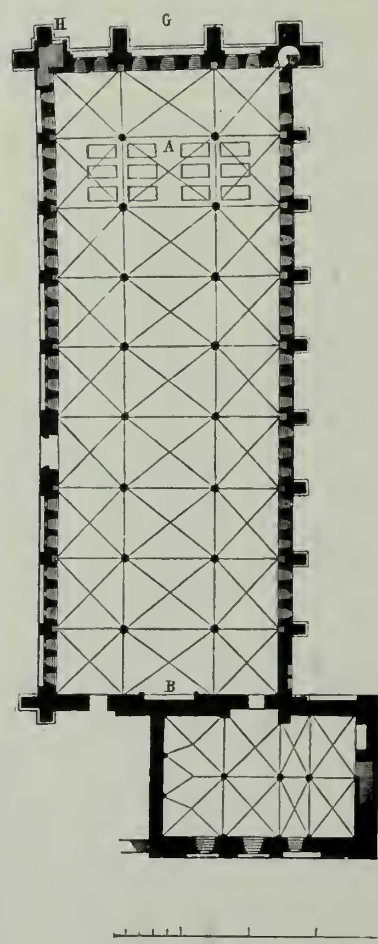


FIG. 3. PLAN OF HOSPITAL AT OURSCAMP.

great supply of air, by immediately diluting and rapidly carrying away the morbid substances evolved in such quantities from the bodies and excretions of the sick, reduces the risk to its minimum, and perhaps removes it altogether."

Formerly it was the custom to build hospitals in single blocks, often of great size, where vitiated air from one part could circulate into and contaminate the air of other

FIG. 4. SECTION OF HOSPITAL AT OURSCAMP.

parts, and where, from the very nature of things, there could not be that abundance of air and sunlight which it is now thought so necessary to have. At present the approved plan is to scatter the sick over as great an area as possible, by separating the institution into a number of small detached or semi-detached pavilions, arranged to permit of the freest play of air and sunlight on all sides of and around them, and so contrived that any part or number of parts may be readily cut off and isolated from the rest in case of the outbreak of contagious diseases. The modern hospital is therefore a very complicated affair, calling for much ingenuity and judgment in its arrangement. For the planner, while complying with all the sanitary requirements, must also have due regard to economy of construction, of management and in the use of the land. He must reduce the distances to a minimum, he must arrange the various parts conveniently with respect to one another, so that the institution may be operated smoothly and economically, and at the same time he should pay due attention to the design. It is the habit of many to pass lightly over the latter consideration, holding that the other requisites are of such paramount importance that the æsthstic side may, and perhaps ought to be, disregarded. But this most certainly should not be the attitude of the architect. The love of and care for the beautiful need never be abandoned or neglected for any other consideration; it is compatible with all and need conflict with none. In no place is beauty of design and cheerfulness of aspect more desirable than in a hospital. The properly planned hospital is one that is satisfactory to every one of the interests enumerated, that is to say, wholesome, economical and beautiful.

The ward system is by no means a pleasant one to contemplate. The placing of a number of sick people in a single room is not the happiest arrangement that can be imagined. There is a lack of privacy revolting to the sensitive mind, and no little discomfort for all concerned. The system can only be defended on the ground of necessity, for as compared with separate treatment the suffering is increased, and recovery is often retarded, even if new disease is not contracted. There is, indeed, nothing to recommend it but economy. In this connection it is rather disconcerting to observe the arrangement of the wards of many hospitals of the Middle Ages; the study of some of these might well force upon one the conviction that the progress of the last few centuries in this branch, at least, has been in a retrograde direction. The ample proportions, the excellent lighting and the

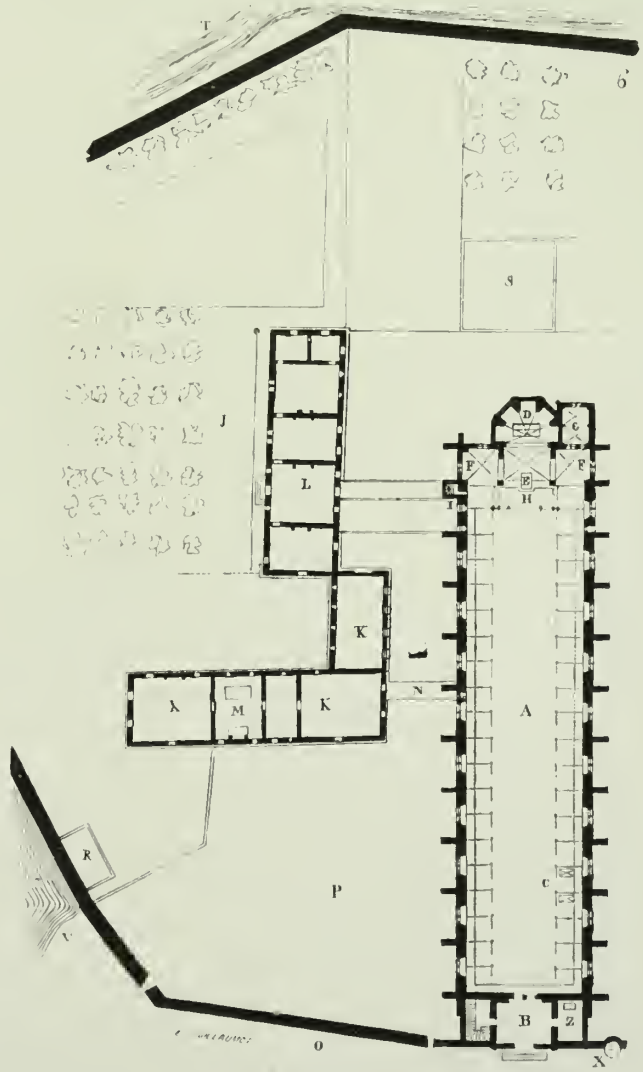


FIG. 5. PLAN OF HOSPITAL AT TONNERRE.

arrangements for the privacy and for the comfort of the patients in these beautiful halls, when compared with even the best of our modern hospitals, are so striking in their perfection that one is forced to ask himself, where is the boasted progress of these later days? France still possesses several fine examples of her mediæval hos- u(), iptals. Those of Chartres, Angersrscamp, Soissons, Beaune and Tonnerre are alike remarkable for the beauty of their architecture and the sanitary excellence of their plans. Figures 1 and 2 represent respectively the plan and section of the hospital at Angers; Figures 3 and 4, the plan and section of the one at Ourscamp; Figures 5 and 6, the plan and section of the hospital at Tonnerre, all from Viollet le Duc.

The hospital at Tonnerre deserves especial attention. The great hall, or ward, is about 60 feet wide by 270 feet long, exclusive of the sanctuary. It is intended for only forty beds. Each patient has his own private compartment, as shown in the perspective view (Figure 7). A balcony running along the wall at the level of the sills of the great windows serves as a gallery of observation, from which the patients in the compartments can be seen without disturbing them, and also as a screen to intercept the light and to keep the glare from their eyes. The enormous cube of 16,000 cubic feet is supplied for each patient. Moreover, the space between the inner and outer covering of the roof is pierced by numerous apertures to facilitate ventilation.

Many different types of ward have been suggested and are in general use in modern hospitals. The most common of these is the oblong rectangular room with two rows of beds. It is from twenty-five to thirty feet wide and has windows along both sides and sometimes at one end. The beds are at right angles to the longitudinal walls and are placed either singly or in pairs between the windows; their heads are from eighteen inches to two feet from the walls. The ward dependencies, consisting of the necessary toilet rooms and latrines, the nurses' room and the doctor's room are either at one end near the entrance or else distributed so that the rooms containing the plumbing fixtures are at the far end. The nurses' room is sometimes fitted up as a diet kitchen, and the doctor's room may contain a bed for any patient which by his condition might disturb the others if left in the ward. Sometimes the dependencies are more numerous, and besides the rooms mentioned the ward may have attached to it a ward dining room, a day room, a room for two beds for special cases, a serving room, etc. Figures 8, 9 and 10 show types of plan for wards of this kind.

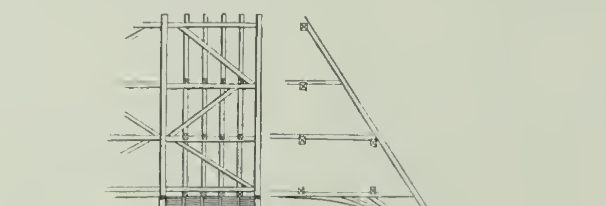


FIG. 6. SECTION OF HOSPITAL AT TONNERRE.

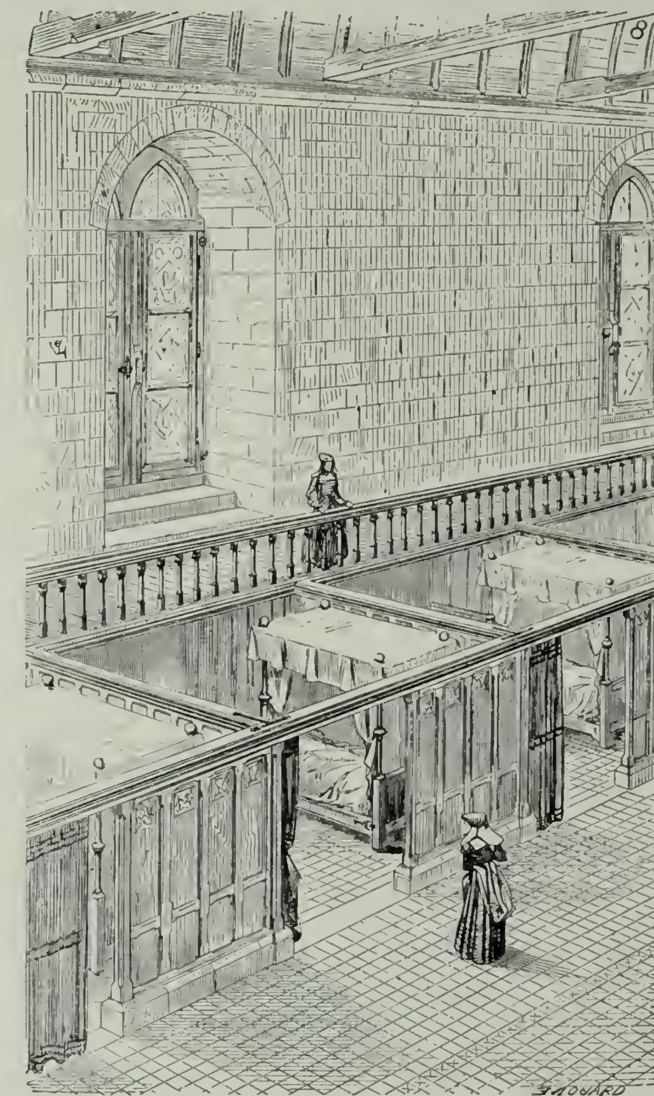


FIG. 7. WARD, HOSPITAL AT TONNERRE.

Some writers recommend round or octagonal wards, but they are not much used; such wards can only hold a limited number of beds, as their area increases in a much greater ratio than their perimeter when the circle is enlarged, and circular buildings are expensive to build. No matter what the form or arrangement of the ward may be, all authorities seem to agree on two points: first, that there should be the greatest practicable area for each patient; and second, that the head of his bed should be close to a window. The minimum area generally prescribed is 100 square feet, or 1,200 cubic feet, but many think it should be much more. One of the best French authorities prescribes 45 cubic meters for each ordinary patient and 67 cubic meters for each surgical or fever patient. In hot climates the cube should be greater. In

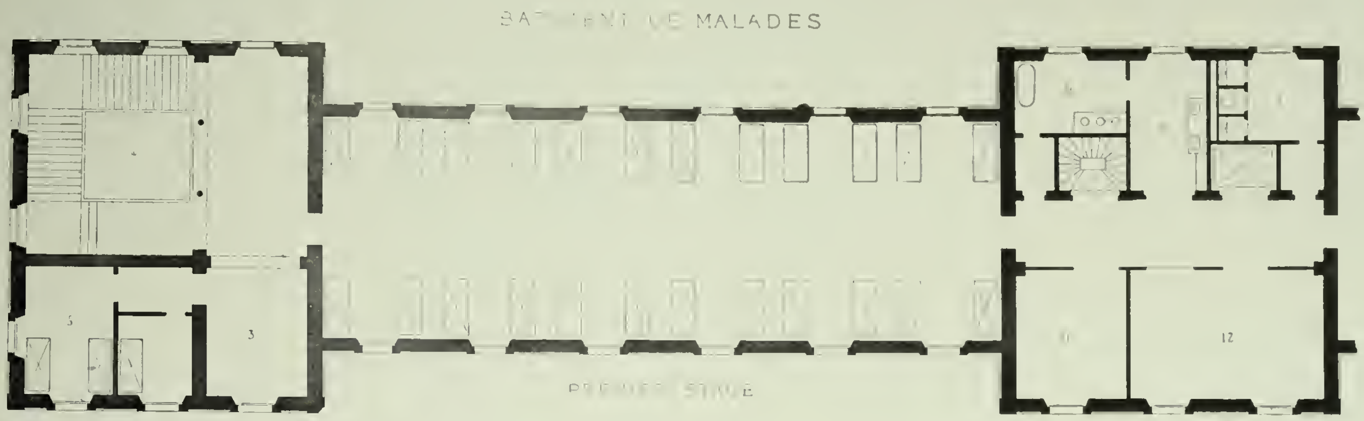


FIG. 8.

Italy they give ordinarily 75 cubic meters per bed and sometimes as much as 100 cubic meters. Some authorities maintain that the cubic space allowed for each patient should be more in wards containing a large number of beds than in those having a less number. Thus, if 45 cubic meters per patient are allowed in a ward of ten beds, 55 cubic meters per patient should be allowed in a ward containing twenty beds, and so on. The argument is logical, for the greater the number of patients the greater the risk of contamination. It is undoubtedly true that there cannot be too great an allowance of air space, but just why the beds should be arranged as they are in wards the world over it is not so easy to see. Whatever virtue there may be in placing the heads of the beds of a ward close to and between windows, where the patient is exposed to every current of air and where the glare from the opposite windows of the ward is directly in his eyes, it is certain that the same reasons do not hold good in the estimation of physicians for the sick in their own homes or even for patients in the private rooms of a hospital.

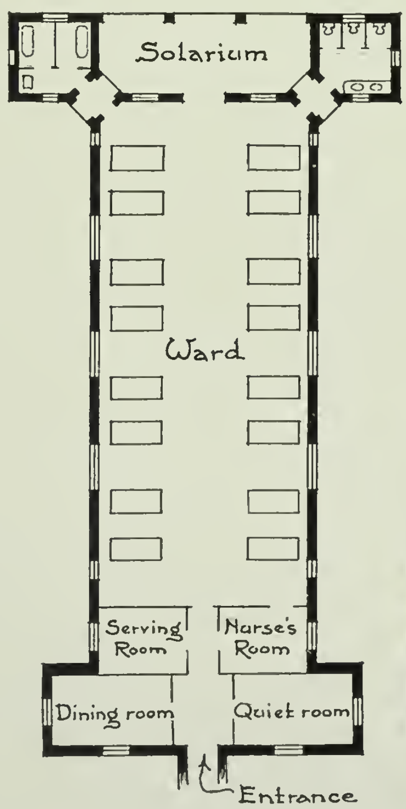


FIG. 9.

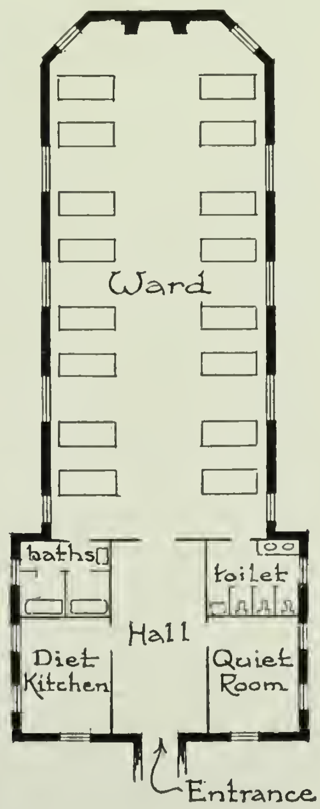


FIG. 10.

Here again it seems to the writer that the mediæval arrangement of the ward as shown in Figures 2 and 3 is better both for the patient's health and comfort and also more economical as regards construction and administration. If the beds are placed in four rows, the ward need be only one-half as long for a given number of patients as if there are but two rows, and it will therefore cost a good deal less to build. The distances will be only one-half as great for the nurses and attendants, and there will be a further economy in its care, as the cost of both cleaning and heating will be reduced by almost a third. Being wider, the patients will not be so much annoyed by the light from the windows on the opposite side of the ward, and at least one-half of them will be so placed as to be less exposed to danger from draughts about the windows. If there are serious objections to this kind of ward, the writer has been unable to learn what they are. Many physicians with whom the matter has been discussed have agreed in thinking the arrangement better than the one in common use, both as regards the patient's health and comfort. There is a ward pavilion of the sort attached to the Naval Hospital at Brooklyn, N. Y., which gives excellent satisfaction, and it is the intention of the Department to build more like it. When such wide wards are used, their ceilings may be somewhat higher than those of wards for only two rows of beds. The latter are usually 12 feet high; wards for four rows of beds might, with advantage, be 16 to 18 feet high. The cubic space above the tops of the windows is not usually thought to be of much value, therefore the windows are generally carried very near the ceilings. In nar-

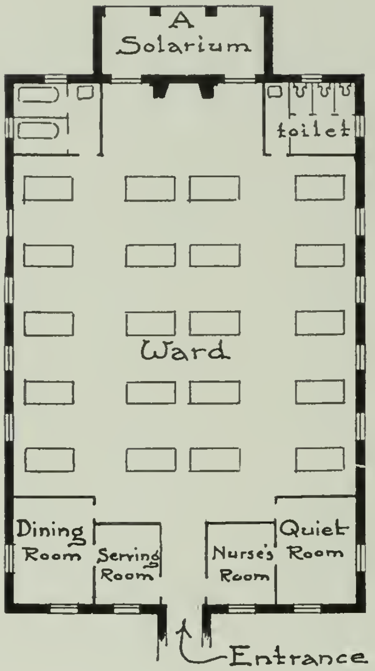


FIG. 11.

row wards the higher the windows the more the light from them annoys the patients, because it brings it more directly within the range of vision of one lying in a bed at the opposite side of the room, but in wide wards the windows may be higher without this inconvenience. The extra cubic space obtained by raising the ceiling would cost comparatively little and might be used to increase the cubic space allowed for each patient, or to expect an economy by slightly reducing the floor area per bed, while retaining the desired cubic area.

Beside these advantages of utility and economy the wide ward lends itself better to a successful architectural treatment, for with such wards the dependencies need not be wider than the ward, and project in the awkward way they do in most wards of two rows of beds. Figure 11 represents a ward of this sort for twenty beds, and Figure 12 a ward of the ordinary kind for the same number of beds in two rows. In both these wards the floor area is the same per bed. The dependencies are of equal size in both plans, yet the number of running feet of exterior wall required by the plan Figure 11 is twenty-five per cent less than the other plan calls for.

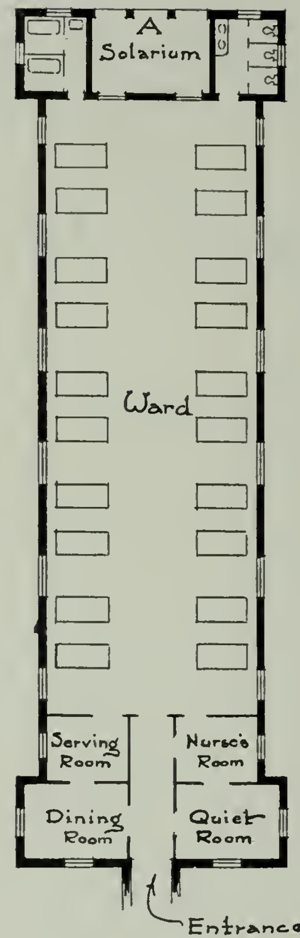


FIG. 12.

A very desirable adjunct of all wards is the sheltered loggia or piazza marked "A" in both of these plans. If the ends of the wards have an exposure to the south, southeast or southwest, so that the place can be warmed by the sun, and protected on three sides against northerly winds, it is sure to be a great boon to the patients, who naturally seek every opportunity, when able to do so, to escape from the depressing atmosphere of the ward.

There is no doubt that where the conditions will permit, the ward pavilion should not be more than a single story high. If the wards are placed over each other, there is danger that vitiated air from a lower ward will find entrance into one above. If by no other means, the staircase will serve as a duct, but few buildings are built which will not permit of the circulation of air through the floor. Though wards of one story are more costly for the accommodation provided than those of two stories, there are several compensating advantages besides that of their superior healthfulness. The abolition of the staircase and elevator is an economy both on account of their cost and the space they occupy. And the saving in labor and consequent cost of administration is considerable if all the parts are on the same level, and if food and the patients can be wheeled directly from one part to

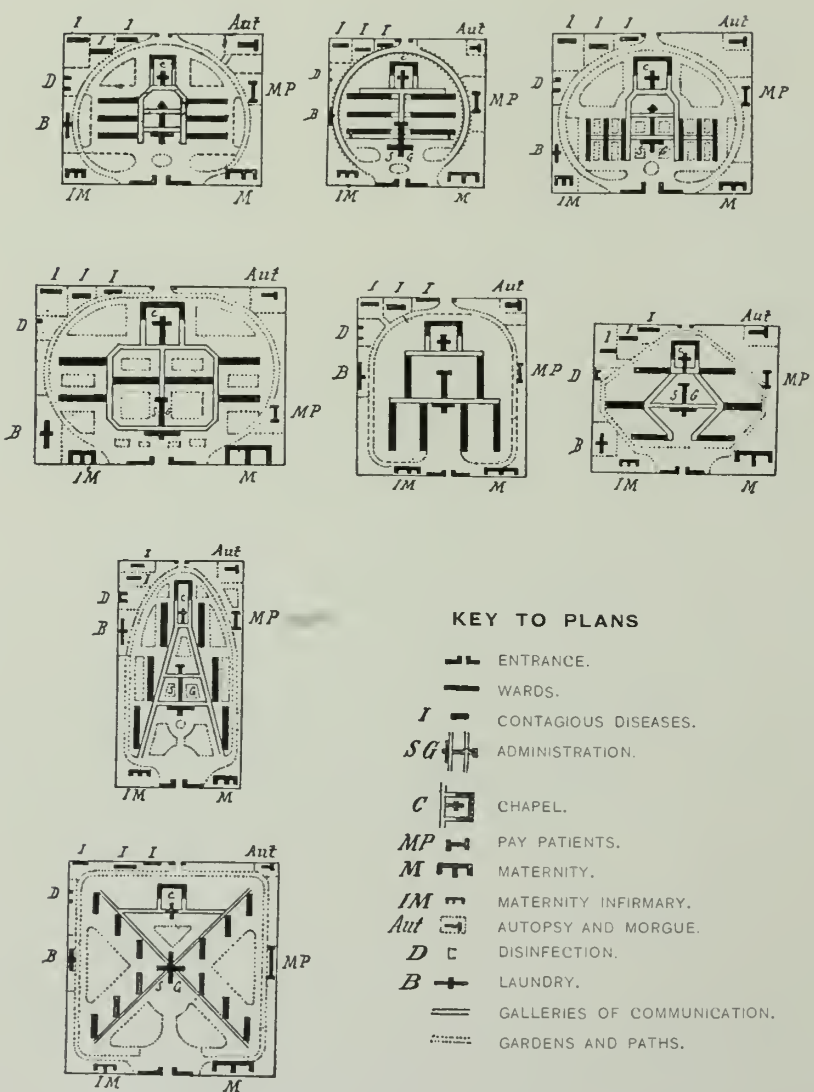


FIG. 13.

another without change of grade. These advantages probably fully offset the saving in foundation and roof which is effected by placing one ward over another.

To obtain an abundance of cheap land, hospitals should, when practicable, be located in the suburbs of

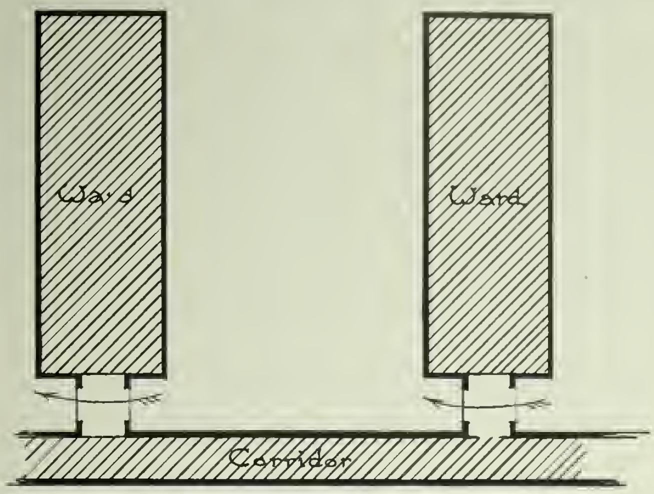


FIG. 14.

cities, where the wards can not only be spread over a sufficient area, but where there may be fairly extensive grounds about the buildings for the use of the patients. In such places the architect has only to choose a happy mean between too great separation and too great concentration of the parts, that is, a separation sufficient to meet the hygienic requirements for air and sunlight without overstepping the bounds of economy in administration by too great a lengthening of distances. If the distances are too great, there will be a loss of labor and consequent increase of expense. Many different methods of arrangement for the pavilions have been tried and suggested. Figure 13 shows some ingenious ones by M. Tollet, a French writer on the subject.

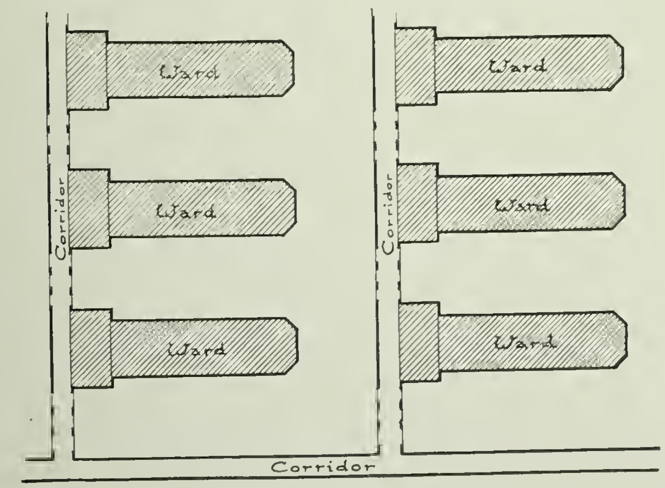


FIG. 15.

The ward pavilions are separated to accomplish two distinct objects: first, to secure light and air around them; second, to prevent the mixing of the air of one ward with that of another. In order to accomplish the latter object, means must be taken to prevent the passageways from acting as circulating ducts through which the air can pass from one part to another. There are three ways to do this: first, to break the corridor at intervals with what may be called "fresh air cut-offs," or places open on at least one side to the outer air; second, to leave the corridors themselves open on one or both sides, which is impracticable in a cold climate; third, to separate the buildings from the corridor by open vestibules, as shown in Figure 14. These vestibules can be arranged so that the window on the leeward side remains open automatically. Some time ago the writer visited a hospital celebrated for the supposed excellence of its hygienic arrangement. The various pavilions were not really separated from each other at all. To be sure there were long enclosed ways, but the asmosphere was the same throughout; the passages served no other purpose than a means of communication, for the circulation of air was nowhere interrupted. They had cost a great deal to build, and must have been expen-

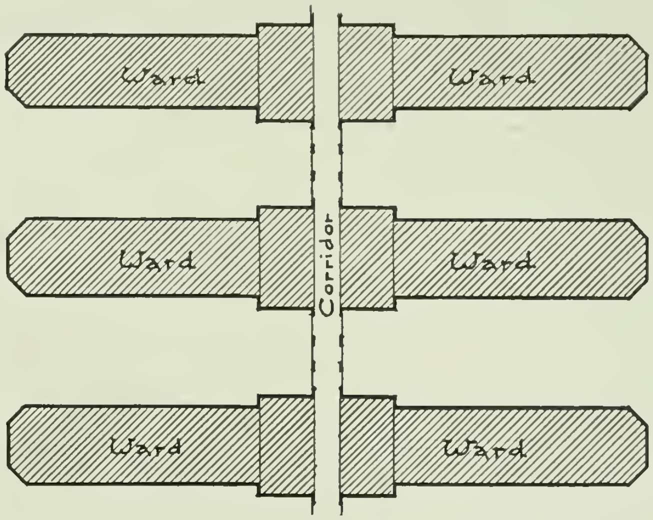


FIG. 16.

sive to heat. The ventilating system was also costly and inefficient, for everywhere there was the same unpleasant hospital odor. At only one place was there relief, — one building had not yet been connected up to the general system of communication, and it was necessary to step out of doors to reach it. The distance was only three or four feet. I shall never forget that one breath of fresh air. It occurred to me then, how much better and more effective was a break of this kind for the purpose of separation than any length of enclosed corridor.

One often sees an almost brutal disregard of beauty and symmetry in the plans of hospitals. Wards are frequently arranged as shown in Figure 15. This kind of plan is apt to appeal strongly to the board of managers or the building committee. They see that the arrangement is ugly. Evidently the architect has not let his æsthetic tendencies lead him astray; he has sacrificed symmetry and order to more solid considerations of a practical kind, for the wards are apparently arranged solely to procure for them the best exposure. If a plan is ugly, however, it is pretty sure to have other defects which a little study will disclose. If these same wards were arranged, for instance, as shown in Figure 16, they would continue to have every advantage which could be claimed for the other arrangement, for the sides of those on the left of the axis would have precisely the same exposure as those on the right of it, and the length of the corridors would be reduced by one-half.

(To be continued.)

Interesting Brick and Terra-Cotta Architecture in St. Louis. III.

COMMERCIAL, INSTITUTIONAL, ETC.

BY S. L. SHERER.

IT is only in the past ten years that the use of brick, other than red, has become a factor in building in St. Louis; and while its riotous use by speculative builders has been distressing, the more intelligent use of it by architects has added variety of color to design and has served to preserve the streets from the monotonous appearance that unintelligent use of red brick alone gives.

The Judge & Dolph building, by R. M. Milligan, is a pleasing example of the use of a mottled Roman brick and terra-cotta of the same color. The central grouping of the windows is a clever feature and affords a maximum

BUILDING FOR ST. LOUIS DAIRY CO.
W. A. Swasey, Architect.

amount of light without robbing the end piers of sufficient width to give that air of stability which every building should possess.

The use of terra-cotta for entire façades has not been extensive in St. Louis, but in the Lindell Real Estate building, Mauran, Russell & Garden have used a semi-glazed terra-cotta of a grayish color. St. Louis is fortunate in possessing many commercial warehouses that will rank with the best work of the kind elsewhere, but none of them excel this building in fitness and beauty of design. Where ample light is a desideratum, piers must necessarily be reduced to a minimum, generally to the detriment of architectural appearance. Here this objectionable feature has been minimized by the deep reveal of the terra-cotta architraves, which gives the building an appearance of stability, instead of the veneered look that usually accompanies a less intelligent use of that material.

In this age of commercial dominance it is seldom that

STUDIO BUILDING.
Eames & Young, Architects.

an architect is permitted to design a store building in which commercial necessities do not override architectural beauty. That the beauty and the necessities can be happily combined is demonstrated in the Knox building, by Mauran, Russell & Garden. Here a picturesqueness, in a well-controlled way, has resulted from the use of gables, seldom met with in modern commercial structures, and a building has been created which is a welcome departure from the usual type. The brick is dark mottled, a color that weathers best in the St. Louis atmosphere.

No mention has been made of the Cupples system of brick warehouses by Eames & Young, as they have been fully described in a previous number of this journal, but the Cupples office building, that seems lost between its

MISSOURI MEDICAL COLLEGE AND COLLEGE OF DENTISTRY.
Eames & Young, Architects.

KINLOCH TELEPHONE BUILDING
Isaac S. Taylor, Architect.

BELL TELEPHONE BRANCH BUILDING.
Eames & Young, Architects.

BRANCH BUILDING, METROPOLITAN LIFE INSURANCE CO.
N. LeBrun & Sons, Architects.

ARMORY.
W. M. and L. C. Buckley, Architects.

CHRISTIAN SCIENCE CHURCH.
T. C. Link, Architect.

ST. LOUIS CLUB (OLD BUILDING).
Peabody & Stearns, Architects.

BRICKWORK IN ST. LOUIS, MO.

huge neighbors, deserves illustration because of its architectural beauty. The façade is encased in dark brown terra-cotta and possesses a refinement that is in interesting contrast to its surroundings.

By the same architects the Chapman building, lately converted to the uses of the *Post-Dispatch*, is one of the most successful buildings of its class, and exhibits individuality in design and a refined use of buff terra-cotta of attractive detail, in the upper story and frieze. The deep reveals enhance the appearance of strength and add immeasurably to the character of the design.

Although Washington Avenue is lined with structures of the same general type and devoted to like purposes, mention can be made of a few of the buildings that are making it one of the monumental streets of the country.

The Boyle building, by Shepley, Rutan & Coolidge and J. Lawrence Mauran, exhibits extensive use of terra-cotta for the embellishment of the façade. The red brick in combination with the buff terra-cotta affords a pleasing contrast of color.

The most pretentious of recent examples is the Ferguson-McKinney building, by Eames & Young. The design is a variation of the usual treatment in the increased number of stringcourses and the somewhat unusual

DODDS SANITARIUM.
M. P. McArdle, Architect.

LINDELL REAL ESTATE COMPANY BUILDING.
Mauran, Russell & Garden, Architects.

handling of the large consols supporting the cornice. The admirable treatment of the corners gives an appearance of support to the superstructure, and coherence to the design of the first story. The brick is brown with terra-cotta trimmings of a much darker shade, — a color that weathers well in our smoky atmosphere, but one that does not lend itself so well to the best expression of detail.

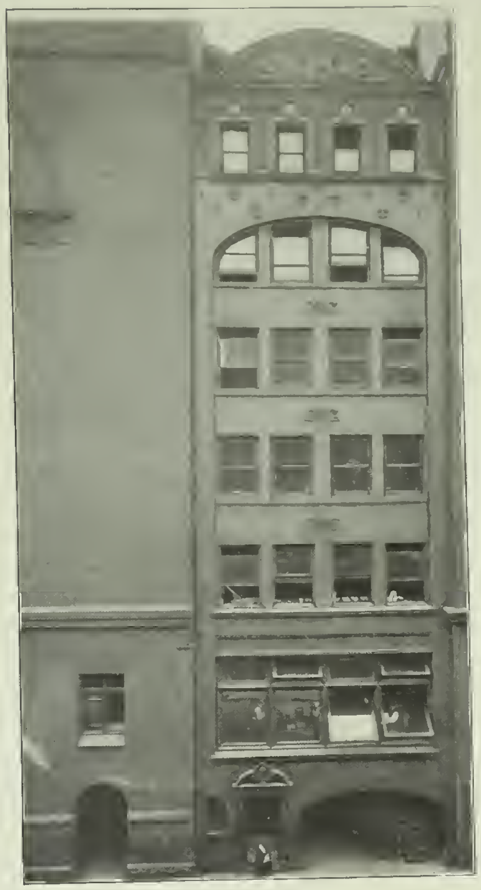
Weber & Groves building, for the Norvell-Shapleigh Hardware Company, differs from the usual warehouse type in that the light area does not seem to have dominated the design above the first story, with the result that a more massive appearance fittingly characterizes the structure. The white terra-cotta sill courses accentuate the horizontal instead of the vertical treatment used in the other buildings.

The Newcomb building, by Shepley, Rutan & Coolidge, recalls the influence of the great Richardson, and although erected many years ago it retains its interest as one of the best examples of all brick design in the city; brick being used for ornamentation in a way that tests but does not exceed the limitations of the material.

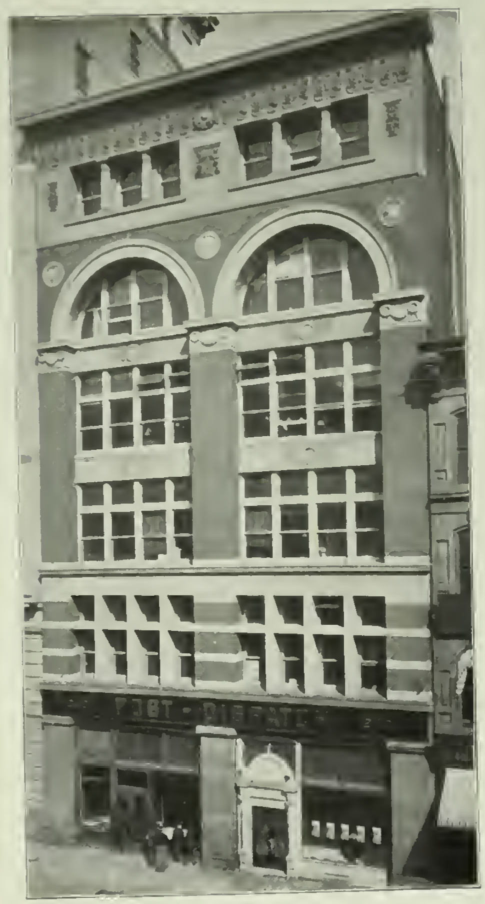
It augurs well for architecture when buildings are erected by business firms who recognize the importance of associating their name with buildings of individual character. Special purposes impart an individuality to a building which is necessarily absent when it is planned to meet any one of a dozen requirements.

This result has been realized by the St. Louis Dairy Company, for whom W. Albert Swasey has designed a picturesque building whose style recalls the half-timbered buildings in the South of France. The openings have been accentuated by the use of a Roman brick of a much darker color than the wall, but springing the entrance arches directly from the pavement line mars what is otherwise an exceedingly interesting design. The brown tile roof, long and low, with gables and dormers well sub-

BOYLE BUILDING.
Shepley, Rutan & Coolidge, Architects.



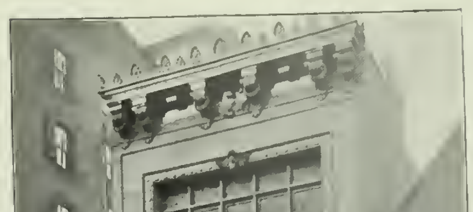
CUPPLES OFFICE BUILDING.
Eames & Young, Architects.



POST-DISPATCH BUILDING.
Eames & Young, Architects.

TURNER BUILDING.
Peabody & Stearns, Architects.

SCHUYLER MEMORIAL HOUSE.
Shepley, Rutan & Coolidge, Architects.



JUDGE & DOLPH BUILDING.
R. M. Milligan, Architect.

BRICKWORK IN ST LOUIS, MO

FERGUSON-MCKINNEY BUILDING.
Eames & Young, Architects

ordinated, adds a picturesque note seldom seen in commercial buildings.

A like result was attained by the owners in the erection of the Studio building by Eames & Young. The upper floors are devoted to studios for artists, and this purpose is fittingly suggested by the design of the detail of the terra-cotta panels and architraves that frame the windows. If such beautiful buildings were more numerous the streets would have the same interest as art galleries, for they not only make for education, but for a well-ordered city as well.

The value of this idea has also received recognition in the building of the Metropolitan Life Insurance Company, by N. LeBrun & Sons of New York, which exhibits their interpretation of the Colonial style, and employed by them in the numerous buildings erected in various cities for the same company.

It is fitting that this article should make some mention of the Turner building, erected many years ago by Peabody & Stearns. The first of our modern fireproof office buildings, its beauty has not saved it from falling a victim to the inexorable demand for light. It is unfortunate that so beautiful and interesting a structure should disappear from view, for the educational influence of such a monument is beyond computation in money.

NEWCOMB BUILDING.
Shepley, Rutan & Coolidge, Architects.

While St. Louis possesses numerous institutions de-

NORVEL-SHAPLEIGH BUILDING.
Weber & Groves, Architects.

voted to all the uses of civilization, it is unfortunate that they are rarely of architectural merit. The churches are generally of stone construction, which precludes their illustration in this article. Several of them are of distinct merit, especially Christ Church Cathedral, designed by Leopold Eidlitz in 1859. The Schuyler Memorial House, which adjoins it, is the work of Shepley, Rutan & Coolidge, and while it is of brick and terra-cotta, it is in harmonious keeping with the early English Gothic design of the stone church. Like many commercial buildings its architectue does not extend beyond the façade; nevertheless it possesses an architectural treatment which bespeaks its purpose — that of a mission house to the cathedral.

The Dodds Sanitarium, by M. P. McArdle, is an attempt to depart from precedent, and as such merits the respect which should be accorded earnest study and honest endeavor. Illustration in black and white fails to convey an adequate idea of the color scheme, without which a correct idea of any building cannot be had, since color plays no unimportant part in every architectural composition.

The Christian Science Church, by Theodore C. Link, is a well managed design of unusual interest. While it does not convey the idea of a church, it clearly expresses the purpose of a mission house or place of assemblage for a religious society.

The old St. Louis Club, by Peabody & Stearns, has been abandoned for a more pretentious structure. It is a very dignified and successful building, and although in a style whose vogue has passed, it is charged with that indefinable quality called style which will cause it to retain its charm as an architectural composition as long as it stands.

The attached buildings of the St. Louis Medical College and the Missouri Dental College are worthy of remark for their well-controlled design. They exhibit a discriminating use of buff terra-cotta for ornamental purposes, a color that harmonizes well with the mottled brick of the walls and one that shows the refined detail to the best advantage.

Armories of atrocious design have been the common infliction of all cities large enough to justify their existence, but St. Louis has been more fortunate in her armory than many cities. Why they should be so unsightly is beyond comprehension, for they offer a fine opportunity for architectural treatment. The one illustrated is unobjectionable save for the weak label mold over the windows and portal — a piece of detail out of keeping with the feudal style and character of the building.

New purposes call into existence new kinds of buildings which express these requirements and in time become fixed types. In the Bell Telephone branch by Eames & Young, and the Kinloch Telephone Building by Isaac S. Taylor, may be seen practically the same problem interpreted by different architects. The former building has received formal and dignified treatment in a vitreous looking brick of varying shades of red with trimmings of white terra-cotta, while the designer of the latter building has had recourse to the freer English style for a model. The brickwork of both buildings invites attention because of unconventional treatment.

Until recent years our public schools were badly planned, badly designed and badly built, "as bad as bad can be," but with the advent of Commissioner Ittner we have fallen upon happier lines. In the Field, Wyman and Emerson schools we have buildings that show a marked advance upon previous work and bear favorable comparison with similar work elsewhere. The same careful study that entered into the plan and design is also manifested in the handling of the brick, with the result that they are among the most interesting examples of brickwork in the city. As they constitute a class in themselves they will be described in a future number of The Brickbuilder.

In passing it may be said that the invasion of outside architects has been, on the whole, of advantage to the city, as it has infused new ideas which have added to its architectural interest. It cannot be noted, however, that it has had any appreciable effect upon the style of local designers.

The New Schlesinger and Mayer Building, Chicago.

SUBSTRUCTURE, STRUCTURE, DESIGN AND FIREPROOFING MAKING AN ARCHITECTURAL UNIT.

BY a rare combination of artistic design, constructive skill and ingenuity, Louis H. Sullivan has just completed at Chicago the second section of the Schlesinger and Mayer department store building. He alone has not only designed it, but has devised all the mechanical expedients necessary to accomplish its completion within a given time. He has made his own time table and has lived up to it, as the truthful photographs will show. But this, however, has not been possible without the executive collaboration of the contractors. His experience is the latest illustration of a new method of time saving (which means money saving) when applied to the construction of large commercial buildings. It is no less than commencing the foundations for a new building ninety feet below the surface of the ground while the old one is in use, and completing them before it is torn down. The saving in rental value has been many times greater than the extra cost of doing the work under such disadvantages. This process is only possible when the new method of erecting high buildings on "concrete wells," now almost universal at Chicago, is employed.

Mr. Sullivan is, above all things, an opportunist. He accepts every exigency prescribed by modern commercialism. He solves every problem from the economic's standpoint. He adopts the best materials for his purpose before designing, and then bends them to his will. He conceives the building as a whole and the way in which it should be built as essential features to control his final design. He accepts the modern machine, and demonstrates its capacity to assist him in evolving a work of art. He does not despise the task of designing a commercial building, but rejoices in it. Neither does he neglect to use hand work, but encourages it where practicable. He is an artist himself and has a following of skilled artists whom he uses in their proper vocation. In these respects he lives in the twentieth century.

The Schlesinger and Mayer building, a plan of the old and new foundations of which is given (Fig. 1), was three years ago a conglomeration of old retail stores covering an area of 182 by 140 feet on the most valuable corner in the city of Chicago. These buildings had to be increased from four and five stories in height to seven stories, and had, by removing most of the party walls, been thrown into one building. It was a very dangerous fire risk and not altogether a very safe building in other respects. Three years ago Section 1 was rebuilt nine stories in height, being a thoroughly fireproof structure on a foundation of fifty-foot piles, except on the party lines, where the foundations were concrete wells four feet in diameter, designed to carry a nine-story building. When ready to proceed with Section 2, which has just been completed, it was decided to build the whole twelve stories high. The general plans were made when Section 1 was built, and when the owners concluded last summer to begin Section 2 there was still plenty of time to prepare the plans and get out the materials. But it was

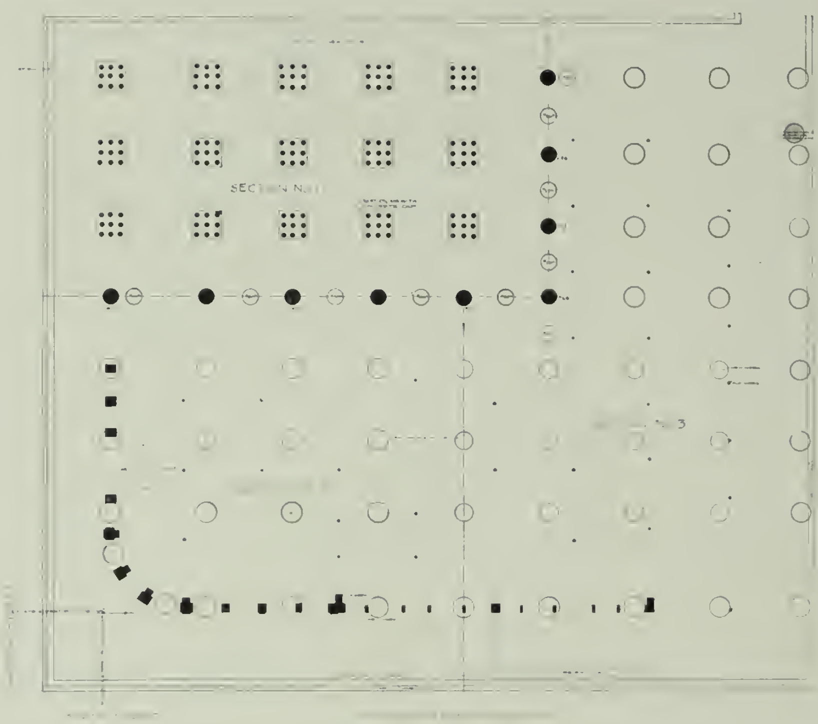


FIG. 1.

only. The latter are numbered 25A, 26A, 27A, 28A, 29A, 37A, 44A, 53A, 60A and 71A, and became necessary by reason of the fact that the original wells on these lines, put in to carry a nine-story building, were not deemed strong enough to carry twelve stories. The weight of these columns is transferred to all the wells by a system of steel cantilevers and lintels, which will not be here described in detail, but those interested will find a description prepared by Mr. Sullivan in the *Engineering Record* of February 21, 1903, giving full statistics.

It will be seen that a great number of the new piers fortunately came between the old columns and even between the piers of the exterior walls. But some of them had to be in the same place, making it necessary to place a considerable part of the old seven-story building on shores and screws. This was complicated by the necessity for keeping the whole building from the first story up supplied with water, drainage, heat and electric lights, as well as operating many elevators. Mr. Sullivan says; "The underlying soil was filled with a motley assortment of discarded foundations, discarded sewers and water pipes, and operating sewers, water pipes, underground sprinkler system pipes, etc." All the work was done through two towers built on the sidewalk on the State Street side, furnished with elevators. All the surplus earth and materials were taken out and all the new materials were taken in through these, and nothing was ever laid down in the street. The new cellar is deeper than the old one, and that was the cause of another complication to be overcome. A very large part of the old material to be removed was crushed in the cellar and used in the concrete of the piers, and all new concrete was made with pebble gravel instead of crushed stone. The apparent secrecy with which the foundation work was done was another peculiar feature of the oper-

greatly to the interest of their business to continue to use the corner section until Christmas of 1902. Then it was that Mr. Sullivan conceived the idea of building the foundations, not only of Section 2, but also of Section 3, before the first floor of the store should be vacated. He knew that it would take longer to dig the wells and put in the concrete under such disadvantages than if the work should be done on cleared ground, and also that it would cost more to do it, but nothing like the value of the use of the old building during the time required for this part of the work.

In the middle of August, 1902, the architect received definite orders to proceed with the work. He was obliged to change the construction of a nine-story building, already planned, to twelve stories, both as regards Section 1, which had been erected three years ago, and Sections 2 and 3. Section 2 was required for use May 1, 1903, and Section 3 on October 1, 1903, without serious interruption of the business carried on in the building. On October 6, 1902, he was ready to commence work. Accordingly the basement of Section 2 was cleared of stock and fixtures, and as soon as the basement of Section 3 was required by the builders, that also was cleared. On the basement plan (Fig. 1) the piles and concrete wells that had been used for the foundations of Section 1 are shown in full black; the piers and columns forming the support of the old buildings covering Sections 2 and 3, which were to be removed, are also shown in full black. The new permanent concrete wells on which the whole of the new sections are to be supported, including the new concrete wells required to reinforce those under the boundary line of Section 1, are all shown in outline

FIG. 2. PHOTO TAKEN JANUARY 15, 1900.

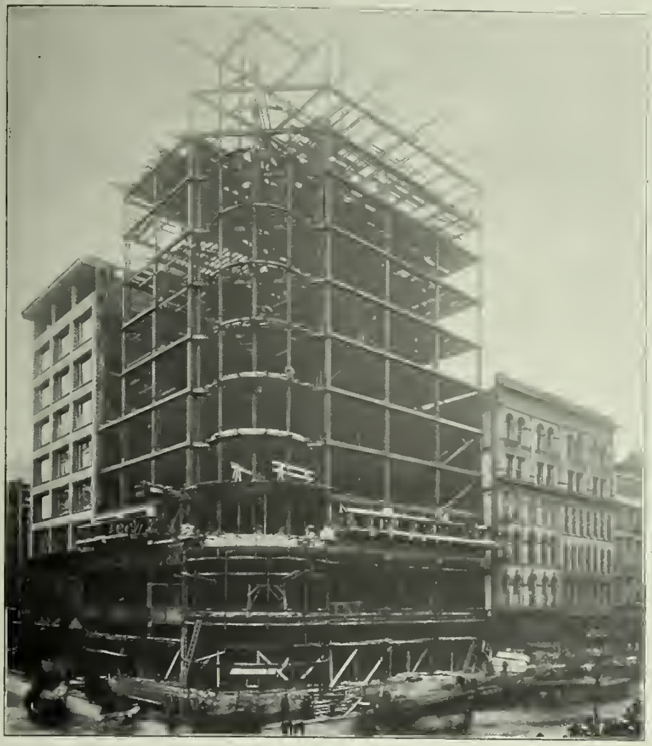


FIG. 3. PHOTO TAKEN MARCH 23, 1903.

ation. The object was to avoid any interference with the business being carried on above the work, of which the show windows for holiday displays were an important feature.

Mr. Sullivan says: "It was not considered expedient to sink more than five or six wells at one time, as the operation of a greater number would require a larger gang of men than could have been used effectively. Work on both shoring and wells was pushed night and day with

FIG. 4. PHOTO TAKEN MARCH 31, 1903.

three eight-hour shifts, and was suspended only between the hours of midnight Saturday and midnight Sunday. The work was kept steadily under way until January 1, 1903, at which date fifty-three out of the fifty-nine foundation piers, built in wells, were in place. After due consideration it was determined to postpone the sinking of the six remaining wells, which would come under operating passenger elevators, freight elevators, package conveyor and smokestack, until the time should come for the demolition of Section 3. It was found that well sinking progressed at an average of about one well per day, or in other words it required about six days to sink and fill one well. Wherever possible the piers and columns of the old buildings were reset upon the new concrete piers. The south line wall of the adjoining building was put on drums, a small section at a time, and the new foundation inserted at a lower level; after allowing proper time for the setting of the cement the wall was again underpinned and allowed to rest upon the new

FIG. 5. PHOTO TAKEN APRIL 13, 1903.

foundation. The south wall of the new building is to be built within the lot lines of the property. The south row of new steel columns will therefore be cantilevered according to the method that now prevails."

On January 6, 1903, the wrecking of the corner building occupying the site of Section 2 was commenced and was completed in nine days of sixteen working hours each, operations at night being conducted by the aid of electric lights. The illustration (Fig. 2) is from a photograph taken January 15. On the left is seen the completed Section 1, and on the right the old building on Section 3, still in use, and connected internally with Section 1. The fireproof columns seen are of the "Gray" pattern. These, having been designed for a nine-story building, have since been removed, and cast iron columns substituted. In figuring out a time schedule in August, 1902, it was found that while steel girders and floor beams could be obtained by January 1, 1903, it would be impossible to procure steel columns in that time. Consequently cast iron columns are used in Section 2, and Z bar columns will be used as originally contemplated in Section 3, which is not yet commenced. These are now ready to be used as soon as Section 3 is torn down.

The illustration (Fig. 3) shows the condition of the work on Section 2 on March 23. This also shows the Section 1, nine stories high, completed in 1900, and Section 3 not yet demolished. Seven days after this, on March 31, the photograph shown in Fig. 4 was taken, showing how much work was done in one week. In that time the steel work had reached the roof and five stories of the white enameled terra-cotta front had been set, and nearly all of the elaborate ironwork of the store fronts on the first and second stories. On April 6 all the terra-cotta except the main cornice had been set and the first story iron front had been completed, all the fireproof floors had been completed, and five stories had been plastered on the suspended iron ceiling. Fig. 5 is from a photograph taken April 13, showing the exterior completed and most of the glass set. Section 2 was completed and opened for business on the 11th of the present month, and the same day the destruction of Section 3 was commenced. After this Section 1 will be carried up to twelve stories without disturbing the business carried on beneath, and the whole store will be completed in time for the fall business. It is well to note here that Section 2, a complete store in itself, has been built in four months from the time that the tearing down of the old building was commenced.

It only remains to refer to the fireproof work, all of which is carried out in porons terra-cotta. Fig. 6 fully illustrates this. Segment floor arches are used throughout with very few exceptions, the girders and beams being entirely encased. In all of the stories used for selling purposes suspended flat ceilings are constructed on a steel framework concealing all the girders and making the ceilings continuous throughout the building. These will be plastered on metal lath and are for uniform appearance only. They are incombustible but not depended upon for fireproofing the structural steel, all of which is done with porous terra-cotta. The illustration taken from the working detail drawing shows the disposition of other features of the fireproofing.

As has been said above, the concrete piers under Section 3 have already been built in wells, though the old building above was used up to May 9. Their tops are sufficiently below the basement floor to allow for setting the spreaders on which the steel columns will stand, and they are five feet in diameter. Since putting them in it has been decided to excavate a sub-basement 50 by 140 feet in dimensions below the basements of Section 3 for a boiler and power plant, and to give it a clear height of twenty feet. This involves a new constructive problem that has not yet been solved. It will be necessary to build a concrete retaining wall around the excavation to resist the pressure of the soft wet clay subsoil, which has heretofore been done in only one other building in Chicago. It was successfully done in this case, though at great expense. The excavation will leave the concrete piers that were built in the wells exposed to view in the sub-basement. They will be only four diameters in height above the floor. It has not yet been decided whether to leave them standing as columns supporting the steel posts running up through the thirteen stories, to cut them off and substitute steel columns in the sub-basement, or to reinforce them with steel around the outside. One method or the other will have to be followed, and probably the first; while concrete beams will probably be built below the sub-basement floor connecting all the exposed piers to brace them laterally at that level.

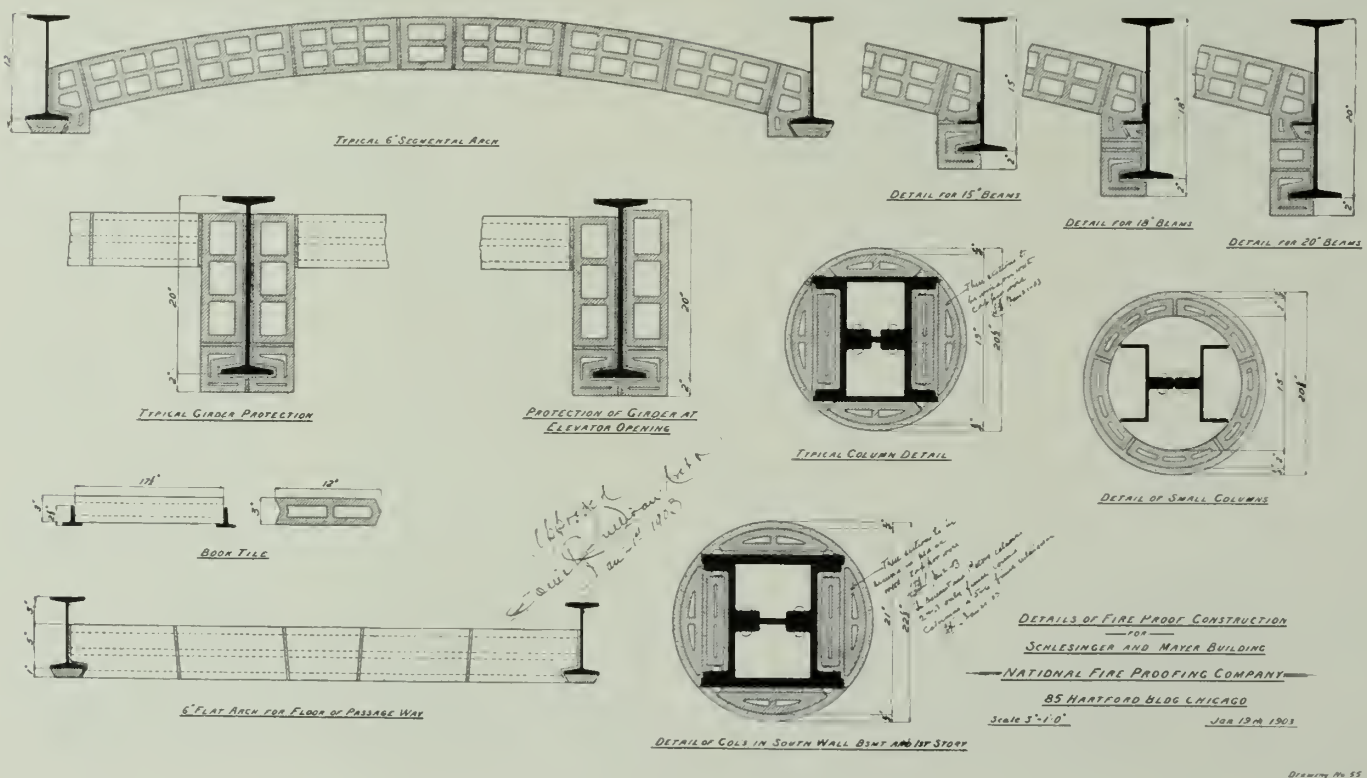


FIG. 6.

Selected Miscellany.

SLOW BURNING CONSTRUCTION.

SOME one has made the bright remark that the lightning calculator is not quick enough to keep up with the losses on slow (?) burning mill construction. We heard one explanation of the difference between the ordinary construction and the slow burning, that in the former the floor construction was of soft pine, while in the latter it was entirely of hard wood. The efforts which some parties have made to reduce the fire risk on mills have undoubtedly met with great success. Slow burning construction is far better than the old system of air channels, lack of fire stops and general combustive condition, but the principle is wrong. If we are to be literally exact, such a thing as a fireproof building is impossible, for, given the proper conditions, there is nothing which will ultimately resist fire; but according to the accepted meaning of the term, it is so perfectly possible to construct a fireproof building with a proper steel frame, protected by at least one inch of terra-cotta, that it is hard to have full sympathy with those who would advocate the use of the so-called slow burning construction. The Pittsburg Plate Glass Company had one of its large mills recently destroyed by fire, entailing a loss of several hundred thousand dollars. The new structure which is to take its place apparently follows exactly the lines that failed before. The advocates of slow burning construction cite the fact that a wooden post will stand fire without failure longer than an iron one; that since an amount of heat far below the melting point of iron will so weaken the material that it will deflect and fail, therefore a wooden post which does not deflect until it is almost entirely consumed is to be preferred. This argument is entirely wrong. If we can prevent the start of a fire it is of far more importance than to have a structure which will burn but continue to stand up. We maintain that experience shows even unprotected ironwork to be safer construction than the so-called slow burning, and if with such unprotected ironwork there is coupled a reasonable care in the reduction of fire risk of the contents the iron construction, insufficient as it may be, is far preferable to any wooden construction which would be sure to materially aid in the spread of the fire.

SOUTH BAY MISSION HOUSE, BOSTON.
R. C. Sturgis, Architect.

FIRE LIMITS.

A CLAUSE in the Boston building law provides that in any structure intended to be used for commercial purposes the area in each story must be so divided into compartments by brick walls that no undivided floor space shall exceed 8,000 square feet if the building is of ordinary construction, or 10,000 square feet if it is fireproofed. A bill has been introduced into the legislature to repeal this provision. The opposition to this clause in the building law comes chiefly from real estate operators

DETAIL BY W. S. STODDART, ARCHITECT.
Northwestern Terra-Cotta Company, Makers.

DETAIL BY A. F. ROSENHEIM, ARCHITECT.
Winkle Terra-Cotta Company, Makers.

DETAIL BY VICTOR HUGO KOEHLER, ARCHITECT.
New Jersey Terra-Cotta Company, Makers.

and commercial men, who vehemently claim the right to construct a department store with any floor area desired. We believe Boston is one of the very few cities in which such restriction is made, but practically it is inoperative for the reason that since it became law no department store of any size has been erected. The Jordan, Marsh Company, which has perhaps the largest department store, has a floor area of something like 60,000 square feet, which is practically undivided, and there are several others nearly as large. The repeal of this portion of the law is being strongly opposed by the Boston Society of Architects, the Master Builders Association, and the underwriters, and we have yet to hear of any valid reason why floor area should not be restricted except the one that the shopkeepers want no partitions of any sort. We fail to see why as much business would not be done and done as well in eight compartments of 8,000 square feet each as in one of 64,000 square feet, and we can hardly believe that the amendment will prevail.

DETAIL BY ST. LOUIS TERRA-COTTA COMPANY.

WESTMINSTER CHAMBERS, BOSTON.

THE Massachusetts legislature has just refused to modify the laws relative to the region about Copley Square, Boston, and under the provisions of the existing law the owners of the Westminster Chambers, a hotel immediately adjoining Trinity Church, will undoubtedly be at once called upon to either remove entirely the present upper story or to so reduce the height thereof that it will have little commercial value. The damages in this case, which will undoubtedly be very high, fall by decision of the Supreme Court upon the city of Boston. In some respects the Boston building law is one of the best in the country, but in its application, unfortunately, discriminations have been made regarding the height of buildngs in certain portions of the city, so that about Copley Square, for example, the buildings on the site of the Westminster cannot be carried as high by ten feet as buildings directly across the square, and the limitation is even more severe on Commonwealth Avenue and the parkways, though, by a curious reversion of the intent of the law, a building on a corner of Commonwealth Ave. nue which has its nominal front on a side street can

DETAIL BY G. W. & W. D. HEWITT, ARCHITECTS.
Conkling-Armstrong Terra-Cotta Company, Makers.

DETAIL BY HERTS & TALLANT, ARCHITECTS.
Perth Amboy Terra-Cotta Company, Makers.

DETAIL BY BUCHMAN & FOX, ARCHITECTS.
Atlantic Terra-Cotta Company, Makers.

be carried to a height of one hundred and twenty-five feet by the simple process of setting it back a short distance from the avenue building line, while its neighbor immediately adjoining can go only seventy feet. It is a great pity that the clauses in the building law which relate to the height of buildings cannot be fundamentally modified. The city has just passed through quite a boom in the erection of office buildings. Unfortunately the greater portion of these have been financed by promoters whose chief interest was to crowd the greatest amount of rental space on to the lot, and as the height in each case is restricted to one hundred and twenty-five feet, the more recent buildings have all been made eleven stories, reducing the clear height of the offices in some cases to less than eight feet and a half. The experience in every other city in the country has shown that ten feet is none too much, and any

GYMNASIUM AND AUDITORIUM FOR UNIVERSITY OF CHICAGO SETTLEMENT, CHICAGO.
Dwight H. Perkins, Architect.

BOYS' CLUB, PAWTUCKET, R. I.
Stone, Carpenter & Willson, Architects.

DETAIL BY WINSLOW & BIGELOW, ARCHITECTS.
Excelsior Terra-Cotta Company, Makers.

one who has had the pleasure of working for years in offices with a height of eleven or twelve feet can readily appreciate how disagreeably oppressive is the effect of the modern low studding. It would be an excellent move if the statutory limitation could be made either one hundred and twenty feet, which would effectually prevent anything more than ten stories, or else one hundred and thirty feet, which would permit of eleven stories far better than are at present possible.

As regards the height of buildings, we share the conviction of many architects, real estate owners and builders that the limitation should be a relative rather than absolute one. The best solution of the problem we have seen is that offered by Mr. Carrère to the New York legislature some years since, proposing that the height of a building should be restricted so as not to extend at any point in the lot above a line drawn from the property line on the opposite side of the street, making an angle of sixty degrees with the horizontal. This would permit of structures being carried to any desired height, provided only that as the height was increased the building or portions of it at least be correspondingly set back from the line. Such a provision would have two beneficial effects: it would absolutely prevent the stifling, cañon-like treatment which is becoming so marked in cities like New York and Chicago, and it would tend to encourage consolidations of interest and building of a few large structures rather than several very small ones.

NEW YORK BUILDING DEPARTMENT.

MR. PEREZ M. STEWART, who for several years has acted as a most efficient head of the building department of New York City, has been summarily removed by Cantor, the president of the borough of Manhattan.

DETAIL BY WILLIAM W. ROSE, ARCHITECT.
American Terra-Cotta and Ceramic Company, Makers.

REPRESENTATIVE TYPE OF NEW YORK SCHOOL BUILDING.
C. B. J. Snyder, Architect.
Terra-Cotta furnished for about twenty such buildings during past two years by New York Architectural Terra-Cotta Company.

One of the New York papers, commenting on this action, has very fittingly described the New York building law as one of the most efficient vehicles for municipal corruption that has ever been devised. According to the law there is not a building regulation which cannot be temporarily or locally waived at the discretion of the inspector, and he also has the right of passing upon materials, refusing to accept or giving a preference for whatever he sees fit. The large contractors and building companies which have been formed during the past few years have often been charged with a perfect readiness to contribute liberally to the municipal authorities, provided such contribution will expedite building operations or make the task of building an easier one. And there is no doubt

THE IROQUOIS APARTMENTS, PITTSBURG.
F. J. Osterling, Architect.
Faced with "Ironclay" Brick, made by Ironclay Brick Company, Columbus, Ohio.

that such contributions have been made on a large scale to many who have been in the past connected with the building department. It is greatly to Mr. Stewart's credit, however, that no such charges have been brought against him and that he leaves his office with a clean reputation. His removal seems to be due chiefly to politics.

NEW YORK.

There probably never was a time in our history when the architects and builders of New York have been so busy as they are now. There is work for every one, and even the "journeyman draughtsman" is happy as he flits from one office to another, holding his position for a month at a time, never longer, but always employed.

DEAN BUILDING, BOSTON.
Built of Kittanning Buff Brick. Fiske & Co., Boston Agents.

The *Architectural Record* in commenting on the latest "aberration" makes an appropriate simile which is worth quoting. After commenting on the modern tendency to design a beautiful façade for a building and to leave the sides and rear bare and uninteresting, it says: "So would the fabled ostrich behave, if the ostrich were an architect, excepting that the ostrich tries to conceal as much as possible of his front elevation, forgetting that his rear elevation is still visible and conspicuous, while the architect makes his front elevation as conspicuous as may be, trusting that nobody will observe the rest of his awkward anatomy."

Two great modern fireproof hotels for Broadway, an eleven-story office and loft building for Twenty-third Street, a twelve-story apartment hotel for the Boulevard, and last, but not least, a twenty-story office building on the site of the old Trinity Building, 111 Broadway, are enterprises which are to begin at once under the auspices of the United States Realty and Construction Company.

The combined engineering societies of New York are to have a new home to cost about $600,000. This is made possible by the generosity of Andrew Carnegie, who has offered to pay for a building to cost $1,000,000 if necessary.

It is about time that this city had a city hall or municipal building large enough to contain all the city departments, which are now scattered in rented offices all over the city. There have been many schemes suggested, but it seems to be the universal sentiment that the present city hall, which is a beautiful specimen of architecture, should remain as it is, and that a new building should be built up around it.

There has been one really fine scheme presented for the solution of the problem in this way in the plans made by the late Charles B. Atwood some ten or twelve years ago. Nothing which has since been proposed can equal this in any way. A wild and absurd design appeared in one of our monthly magazines recently, in an article by Mr. Cantor, the president of the borough. The architect's name was not signed to the sketch, and wisely.

HOUSE AT CINCINNATI, OHIO. Elzner & Anderson, Architects.
Roofed with American S Tile.

HOUSE, NEW YORK CITY. Grosvenor Atterbury, Architect.
Built of Ridgway "Dutch" Brick. Robert C. Martin & Son, New York Agents.

Petit & Green have formed a partnership with Henry P. Kirby, one of the best and most celebrated draughtsmen of the day. The firm has on the boards plans for a twenty-four story office building for the New York *Journal*, and also a large hotel to be built in Brooklyn.

Clinton & Russell seem to be very busy. They are drawing plans for an eleven-story store and loft building to be erected on the southwest corner of Twenty-third Street and Fourth Avenue, the site of the old Young Men's Christian Association headquarters. The Association has vacated the building and will soon occupy their new home on Twenty-third Street, planned by Parish & Schroeder. Clinton & Russell are also preparing plans for a twelve-story hotel to be erected on the southeast corner of Broadway and Twenty-ninth Street, the site of the old Sturtevant House. The new building will be in the style of the French Renaissance, and will resemble the new Hotel Astor on Longacre Square. The same architects are working on plans for a twelve-story apartment house to be erected at the corner of Broadway and Sixty-ninth Street.

IN GENERAL.

Ward & Turner, architects, are associated with Olin W. Cutter in the building of the new courthouse at Utica, N. Y., illustrations of which were given in THE BRICKBUILDER for March.

Cass Gilbert announces the removal of his New York office from 111 Fifth Avenue to 79 Wall Street.

W. S. Ackerman and W. T. Partridge have formed a copartnership for the practice of architecture under the firm name of Ackerman & Partridge. Offices, 156 Fifth Avenue, New York.

Louis R. Christie, architect, Steubenville, Ohio, has succeeded to the business of Christie & Webster, retaining the old firm's offices in the Gill Building.

Monson & Schaub, architects, Logan, Utah, would like to receive manufacturers' catalogues and samples.

Uhling & Linde, architects, Milwaukee, Wis., have taken offices in the Wells Building and are desirous of receiving manufacturers' catalogues and samples.

The Society of Beaux-Arts Architects has established a course of study for architectural draughtsmen, modeled on the sytsem adopted by the Ecole des Beaux-Arts, with the intention of cultivating among them the principles of their art which the members of the society have learned in Paris. Any group of students may choose a master under whom they wish to study, and under the auspices of the society they may exhibit their work done in competition with other groups of students studying under other masters. A jury drawn from members of the society will judge their work and give awards to the drawings which merit them. It is not the object of the society at present to provide a complete course in architecture, as this is done by several universities throughout the country, but so to prepare draughtsmen in offices that they shall be familiar with the general principles of architectural composition in plan and in decoration, and a sufficient knowledge of archæology, or the study of styles, to enable them to discriminate between the different epochs of design.

HOUSE, DETROIT, MICH.
Mason & Rice, Architects.
Roofed with Ludowici Roofing Tile.

The course is divided into two classes:

Class B, into which any one of either sex may enter without any preliminary examination.

Class A, which the student reaches after having received certain awards in Class B.

On completing the course, the society awards a certificate of proficiency. The course is not limited by time, the student being allowed to pursue his study at his own will or whenever he has the opportunity to do the work.

GARDEN VASE.
White-Brick and Terra-Cotta Company, Makers.

The competitions of the society are arranged just as at the Ecole des Beaux-Arts. The students all present themselves at one time and place with T square, triangle and drawing board, and to every one is given the program of the current problem. From midday till nine o'clock they are at liberty to study its conditions, and at that time they must hand in to the person in charge a small sketch of their solution, taking away a copy of their sketch with them. They then have two months to work up their sketch, and at the expiration of that time it must be delivered for exhibition and judgment. The drawings are shown for a week and the jury criticises and makes its awards.

During the year there are given out five problems in plan, three in *esquisse-esquisses* or nine-hour competitions rendered *en loge* and two in archæology; there is also a class in modeling, a class in drawing from the cast, an examination in general history, and a competition for two prizes in planning. — Lloyd Warren, Chairman Committee on Education, 3 East 33d Street, New York.

THE SOCIETY OF BEAUX ARTS ARCHITECTS

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THE BRICKBUILDER.

JUNE,

1903.

DETAIL OF MAIN FAÇADE OF TOWN HALL, SEVILLE, SPAIN.

THE BRICKBVILDER

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ADVERTISING.

Advertisers are classified and arranged in the following order:—

Advertisements will be printed on cover pages only.

STRIKE LOSSES.

THE loss of money during the past year on account of strikes is something appalling. There seems to be some perverse tendency in trade unions which will not allow them to keep quiet while times are good and the workmen have an opportunity to earn money and which compels them to order a strike or somehow or other insist upon a snarl with employers just about the time when for every economic reason the workmen should be busily employed and laying up a store for the dull time which is sure to come in the future. The strikes which are now under way in New York City, it is estimated, have in thirty-two days tied up capital amounting to over two hundred million and involved a loss in wages to the workmen of something over thirteen million dollars, simply because of the persistence of the Board of Building Trades in supporting the unreasonable demands of a small union of unskilled men, the Building Material Drivers' Union. As to the right or wrong of these demands we would not undertake to say, but it would be useless to deny that mechanics about a building are to-day paid such wages that there ought to be no question of strike on that score. Bricklayers who, only a few years since, considered themselves well paid at thirty-five cents an hour are now receiving sixty-five and threaten to strike unless they get seventy. Plasterers are receiving five dollars a day, and the helpers, who can hardly rank as more than common laborers, three dollars and a half. Carpenters, plumbers and ironworkers receive four dollars and a half a day. What all these strikes will ultimately lead to is a question no one can determine, but the action of the General Contractors' Association in New York, in combining to protect themselves against the bad faith and extortion as practised by the workmen and by the unions, shows that there is a limit which might easily be reached, and that if wages advance very much more the inevitable result will be a general shutdown of all the building trades.

HOSPITAL PLANNING.

THE series of articles which Mr. Flagg has written for THE BRICKBUILDER, which are now appearing in serial form, relating to the planning of hospitals, emphasizes one point which is too frequently overlooked in the design of our modern structures of this sort, namely, the fact that at the best a hospital is a compromise, and that if the conditions could be ideal sick people instead of being brought together would be isolated entirely. The common ward in which from twenty to forty or fifty people are aggregated has absolutely nothing to recommend it except economy. Mr. Flagg calls attention to the mediæval hospital at Tonnerre, which in every respect of privacy is certainly far better than the most modern of our hospitals. In our endeavors to make our wards what we term germ-proof and to eliminate any fancied lurking places for noxious germs we do not always succeed in making the rooms attractive or of a nature which will help the patient to help himself by setting his mind at rest in peaceful, congenial surroundings.

THE UNIVERSITY OF PENNSYLVANIA.

THE University of Pennsylvania announces that M. Paul P. Cret will become assistant professor of design in the School of Architecture upon the opening of the next session. M. Cret is a native of Lyons, a prize graduate from the Lyons Fine Art School, and entered the Ecole des Beaux Arts at Paris in 1897, ranking number one among the candidates admitted. He received the Grande Medaille d'Emulation for 1900 and 1901, and is Architecte Diplomé par le Gouvernement Français. He comes to his new field of work with the highest recommendations of his professional associates, both compatriot and American. M. Pascal, his patron, gives him his distinguished and unqualified indorsement.

BRUCE PRICE.

BY the death of Mr. Bruce Price, which occurred a few days since in Paris, the profession loses a very illustrious member. Mr. Price was essentially a self-educated man, and one of the most instructive addresses we ever heard was a talk he made to the Boston Architectural Club a number of years since, in the course of which he described his early struggles to obtain an architectural education, and pictured his own lack of the helps which are now so readily within the reach of every student. He was born in Cumberland, Md., in 1845, and began his professional work in the office of Mr. Niernsée. He was in the late seventies recognized as a brilliant architect with great possibilities for original work. It was not, however, until some fifteen or twenty years later that his work found its best expression. About 1890 he made plans for a building for the New York *Sun*, in which he carried out in the most clever manner an adaptation of the spirit of the Campanile of St. Mark's. The design attracted a great deal of attention and really marked a distinct change in the manner of designing excessively tall buildings, the structure being treated as a tower with distinct base, shaft and crowning capital. Later on a modification of the same idea was developed into the design for the building of the American Surety Company, which can fairly take rank as in many respects the most consistent and certainly the most interesting tall building in this country. His name is also associated with the remarkable group of buildings which he designed near Lakewood for Mr. George Gould. The St. James Building in New York, Osborn Hall at Yale University, the station of the Canadian Pacific Railroad in Montreal, and the extremely successful and picturesque hotel in Quebec known as the Château Frontenac, are only a few of the many important structures which he was called upon to construct. Mr. Price's work was always characterized by great purity and refinement in all the details, and though during the later years of his life his business increased to a remarkable extent, he always put his personal imprint upon everything which left his office, so that there is a consistency throughout in his buildings. With the exception of a short partnership with Mr. Freeman and an earlier partnership with Mr. Baldwin, he was alone in business until about a year ago, when Mr. J. H. de Sibour was admitted to the firm. Mr. Price has been president of the New York Architectural League, and was identified with everything which stood for progress in the arts. Notwithstanding his large business he was always ready to speak a kind word to a young man, and many will remember him with feelings of gratitude for the help he has given to beginners.

BRUCE PRICE

PROFESSOR WILLIAM R. WARE.

PROFESSOR WILLIAM R. WARE has retired from the directorship of the Architectural Department of Columbia University, of which he has been the head for twenty-two years. The position Professor Ware has occupied has been unique. It is safe to say that nearly every prominent architect in this country over thirty-five years of age, and a vast number who are under that age, owe the greater part of their architectural education either directly or indirectly to him. He created the Architectural Department of the Massachusetts Institute of Technology in 1867, and guided its growth for sixteen years. During that period there was no other architectural school in the country which could at all compare with it, and the list of the names of those who have gone out from its ranks, coupled with those who have studied under and learned from Professor Ware's students, makes a roll of honor of which the profession may be proud and in which Professor Ware can feel a strong creative interest. Probably no one man is so well and so favorably known to the profession. While in partnership with Mr. Henry Van Brunt the firm did the largest and most successful business in Boston, including such structures as the Memorial Hall at Harvard, which in its way is one of the best of the nniversity buildings. During the later years he has been tacitly acknowledged as a sort of general referee for all matters architectural, and has assisted in a great number of competitions both as adviser and judge, invariably winning the esteem of all npon whose work he has been called to pass.

The Planning of Hospitals.

(Concluded.)

BY ERNEST FLAGG.

IN the plans of French hospitals one will generally find beauty of arrangement combined with practical common sense and convenience. The logical bent of the French mind, with the artistic training which every French architect receives, is well calculated to produce good results. Figures 17 and 18 are typical French plans, admirable alike from the hygienic and artistic standpoints.

When hospitals are built in the midst of cities where land is expensive and where the area available is restricted and the wants are large, as is usually the case, the problem of hospital planning becomes more difficult, and the planner will have need of an uncommon endowment of intelligence and ingenuity to comply even imperfectly with the hygienic requirements without making what is thought to be too great a sacrifice of space, and in the number of beds. Under such circumstances it is too often the custom here to revert to the old block plan and to rely upon aseptic solutions and artificial ventilation to offset its bad qualities.

Figure 19 represents a type of plan used by the writer on very expensive land. The central block represents the Administration Building and the others the outlying pavilions, wards, etc. The buildings are all several stories high; the only staircases are in the Administration Building; these occupy the two lateral semicircular projections, and are within easy reach of the other pavilions. As there are no stairs or elevator shafts in the ward pavilions, and as great care was taken to make the floors air-tight, there is little chance of the air from one of the lower wards finding its way into one above. The connection between the Administration Building and the outlying pavilions is made at each floor level by diagonal passages open on both sides so that the air can circulate freely through them and around each pavilion, thus forming complete fresh air cut-offs, permitting the isolation of any ward or group of wards at pleasure. For the protection of the inmates in inclement weather each of these passages is furnished with a low covered way not high enough to interfere too much with the cross circulation of the air. This covered way is roofed and glazed and fitted with a contrivance which automatically opens a sash on its leeward side. Figure 20 represents a transverse section through one of these passages on one of the stories; "a" is the passage, "b" is the movable sash on the windward side, and "c" the corresponding sash on the leeward side. This sash remains open in the manner indicated, held there by the pressure of the wind on sash "b"; "d" is the floor above, and "e" the floor below, the full story height being indicated by "f." Figure 21 is an elevation of the same passage, the semicircular part of the opening being unobstructed for free passage of air as indicated by the arrows of Figure 20.

On expensive land the four-row arrangement of beds for wards will be found to have peculiar advantages. For instance, let us suppose a given plot of restricted dimensions, upon which it is desired to obtain as large a number of wards as possible. Let Figure 22 represent such a plot. Suppose we place upon it four wards of the ordinary kind for twenty beds each, as shown in Figure 23. Now suppose we place upon it the same number of wards of the other kind also for twenty beds each, as shown in Figure 24. Any one can see at a glance what an immense saving is effected in construction and how much more serviceable the two large shallow courts "a" of Figure 24 are for the proper lighting of the wards than are the three narrow courts "a" of Figure 23. It might even be possible to place six wards of this sort on the plot, as shown in Figure 25, and still have them better lighted than those of Figure 23, because although the courts are of the same width on both plans, those of Figure 25 are shallower and there is more chance for the light to enter the windows of the wards. This would seem to indicate an economy of fifty per cent in favor of the wide wards over those of the ordinary kind, as regards land occupied, and there would probably be a corresponding saving in the cost of construction.

Having determined the general arrangement of the plan, the architect's next care should be to decide upon the system of ventilation. The artificial ventilating system is a matter second only in importance to the general arrangement, and should receive attention and be incorporated into the plan at the very outset. It is too often a matter with which the architect does not much concern himself, and which is turned over to the ventilating expert after the preliminary plans are finished, to be installed by him as best he can. No place has been set aside or provided for the necessary ducts, and the expert is free to avail himself of any odd corners he can find or to make chases in the external walls where that can be done without too greatly weakening the piers. Sometimes the ducts have to be exposed, which is always unsightly and sometimes unsanitary, as the spaces between them and the walls and ceilings afford lodging places for dust and dirt. Under these conditions the ventilating engineer must necessarily work at a disadvantage, which is doubtless the cause of the unsatisfactory, complicated and unsanitary ventilating systems found in some of our most expensive hospitals. If the ventilating system is to be successful it should above all things be simple, which most of them are not. Vertical discharge flues of ample proportions should be provided, easy to clean and not in the exterior walls, where they are liable to be chilled and to work backwards upon any stoppage of the fans. Horizontal ducts should be avoided wherever possible, and when they are used care should be taken to arrange them so that they can be cleaned. Floor registers should not be used, nor should any system which works in a direction contrary to nature. Some hospitals have ventilating systems which draw the air down into the basement before it is discharged. Any such system must call for a large amount of horizontal ducts difficult to clean. It stands to reason that such ducts will soon accumulate quantities of hospital dust; then if anything happens to the machinery or if the fans are stopped for any cause the natural tendency of the system is to work backwards, and air enters the hospital after having passed through ducts coated perhaps with disease germs.

It is amazing to see to what an extent theory takes

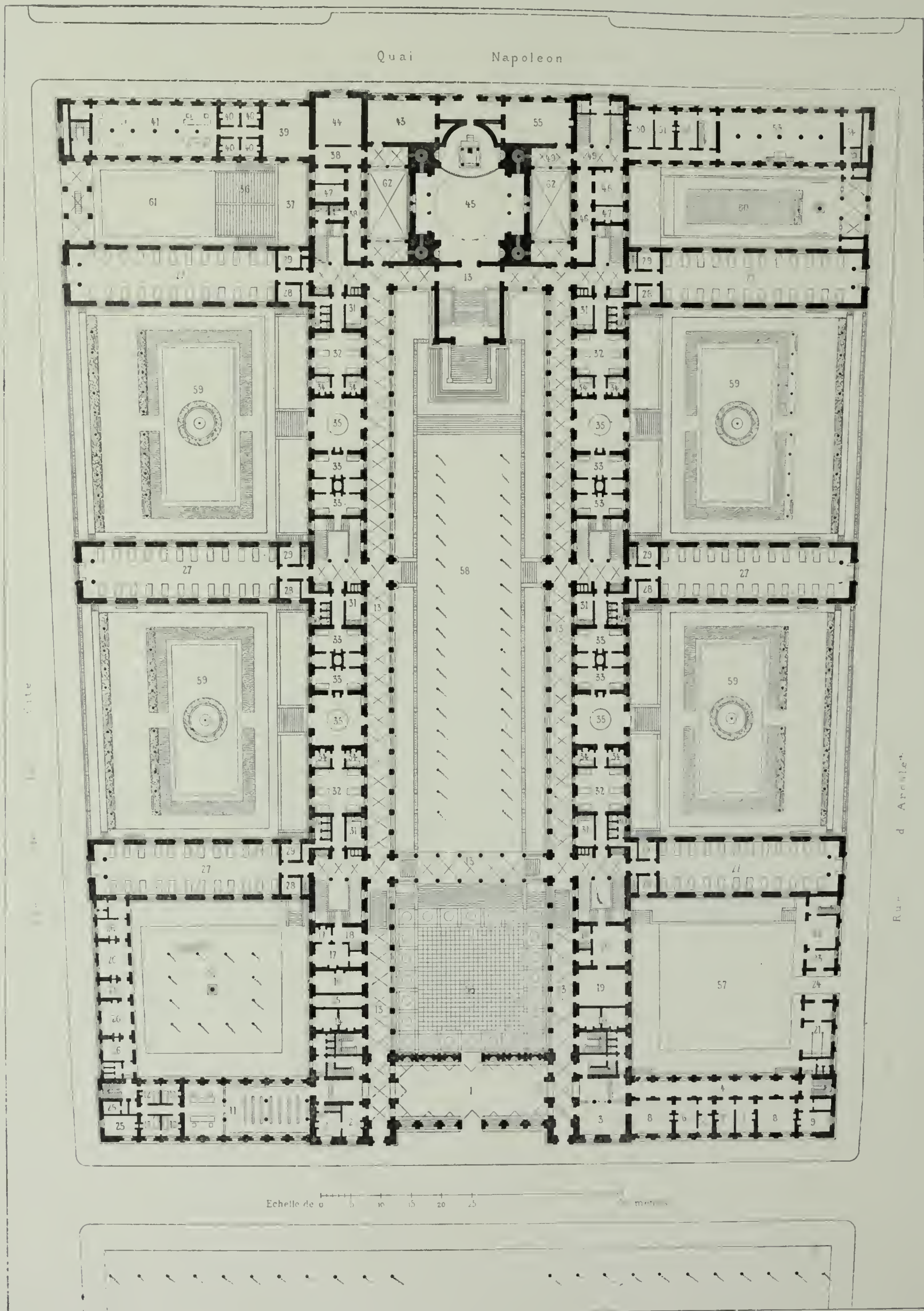


FIG. 17. PLAN OF HOTEL DIEU, PARIS.

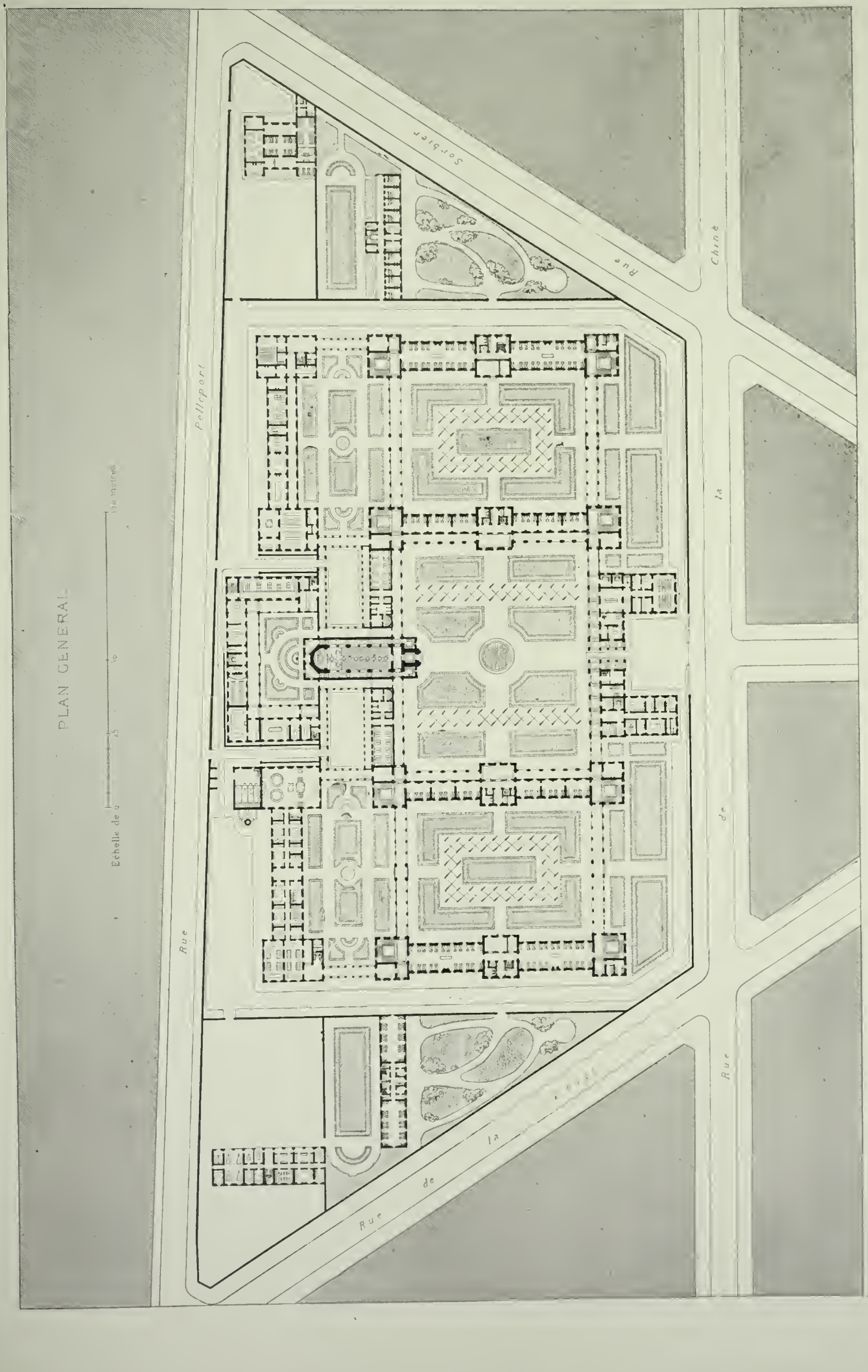


FIG. 18. PLAN HOSPITAL MENILMONTANT, PARIS.

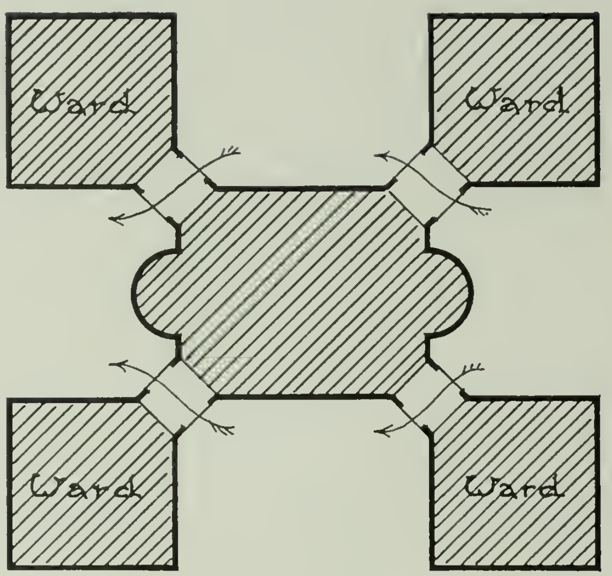


FIG. 19.

precedence of practical common sense in the arrangement of ventilating systems for hospitals. Very respectable authorities gravely argue that the exhaust ventilating ducts should be located in the floor under each patient's bed, on the theory that the air he exhales may be thus drawn down and discharged without passing over the bed of any other patient, and such systems are often put in at great expense. One would think that any one could see that no power short of a small whirlwind would accomplish the desired result, but if he were in doubt, a little smoke of the same temperature as the breath discharged from the place where the patient's head is to lie would afford a sufficiently convincing demonstration of the utter fallacy of the theory. Systems of this kind are apt to become a menace to the health of the institution; dust and dirt readily find entrance through the floor registers, and if great care is not taken the ducts will soon be very foul.

One often wonders why the open fireplace is so little used in hospital wards. It is the most simple and best of all ventilating agents. It cheers the ward, benefits the patients, and purifies all foul atoms which are drawn into it. With a properly constructed chimney, an open fireplace may be made to do an immense amount of ventilating, besides discharging the air which is drawn into it over the fire. The writer has an arrangement in his own house whereby every open fireplace, when lighted, is made to ventilate several rooms besides the one in which the fire is burning. The contrivance is simple and inexpensive, and might easily be applied to hospital wards, especially to those of small hospitals in country places where an electric current to operate the ventilating fans either cannot be had or is too expensive. Figure 26 represents a section through one of the chimneys spoken of. Figure 27 is a plan at the level "a," and Figure 28 a plan at the level "b"; "e" is the fireplace. For about two-thirds of the way up, the chimney is divided into a number of flues, some serving for fireplaces and some for ventilation; the upper third is in one large flue, into which all the other flues discharge. When a fire is lighted in the fireplace "e," all the ventilating flues begin to operate, and the suction is soon so great that if a pocket handkerchief were spread out on one of the exhaust registers it will be held in place.

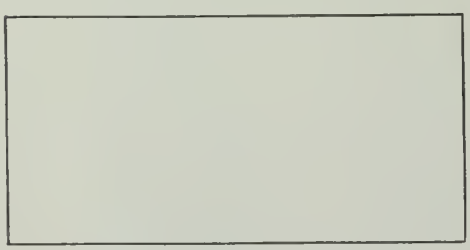


FIG. 22.

The method of taking in fresh air is not so important as that of exhaust, for there is not the same danger of contamination by foul ducts; but if the fresh air is taken in below and heated before entering the rooms, care should be taken not to draw it from directly off the ground, as is often done. It should be taken from a height of at least six or eight feet above the ground, and the higher the better, as the air will be purer and more free from dust and other impurities than if taken from near the ground. For this reason, and also as a matter of economy, there is much to recommend what is called the "direct-indirect" system, or the taking in of the air by openings at each floor level and passing it through box-base ventilating radiators, or by some other method heating it as it enters. But where this system is used there must be efficient valves for regulating the intake, and there is danger that nurses will use them to close the supply altogether. It is surprising to see how little many nurses and physicians under-

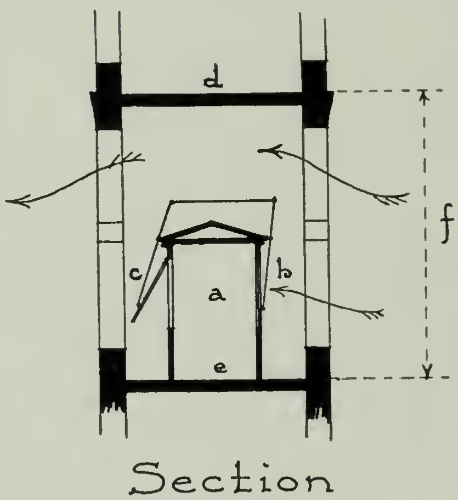
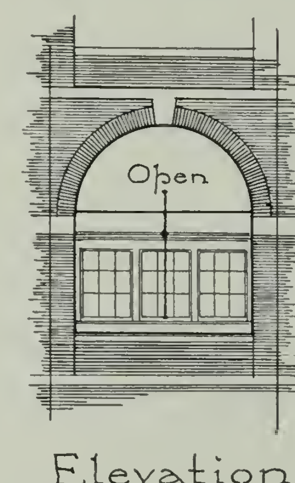


FIG. 20.



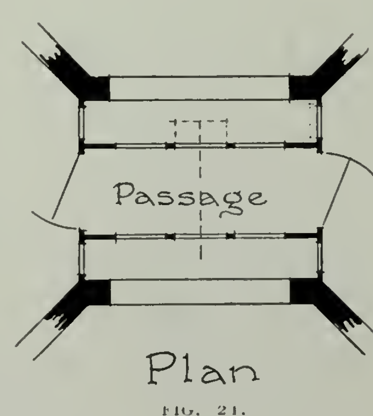


FIG. 21.

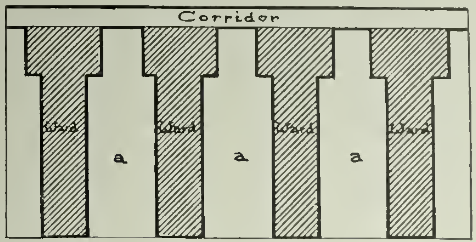


FIG. 23.

stand or care for ventilation. Any one who has had much to do with hospitals will recall numerous instances of costly and efficient ventilating systems which are either habitually out of use or altogether abandoned and standing idle, but of course this is not the architect's fault. If possible, both the ventilating and heating systems ought to be under thermostatic control. A plant of this kind installed at St. Luke's Hospital, New York, works so well that one of the nurses complained to the superintendent about the thermometers of the wards; she said she was sure they were out of order, for she had been watching them for weeks and they never moved at all.

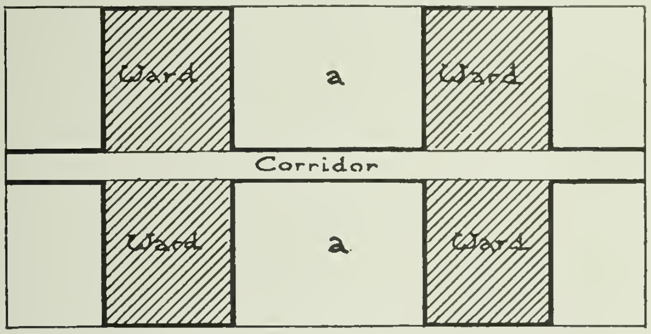


FIG. 24.

Some writers argue that the cross sections of wards should be in the form of a pointed arch, as shown in Figure 29. They argue that the air from the patients' lungs, being warmer than the surrounding air, has a tendency to rise, and care should be taken not to interfere with its progress upward until it escapes through an aperture along the ridge. This upward tendency, they say, may be facilitated by making openings along the sides under the eaves, so that air striking the sides of the building may be forced upward between the inner and outer covering of the roof until it escapes at the ridge, drawing with it the air from the interior. While it is undoubtedly true

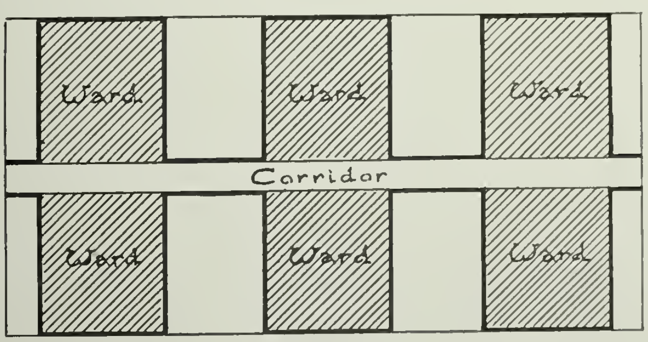


FIG. 25.

that this arrangement would work well in mild weather, and that this form of interior aids wonderfully in facilitating natural ventilation, it is equally true that it would not work well in cold weather, when ventilation is most needed. At such times all the heated air would immediately escape from the top, and its place be taken by a cataract of cold air falling from the ridge. Wards of this sort are practical, therefore, only in warm climates.

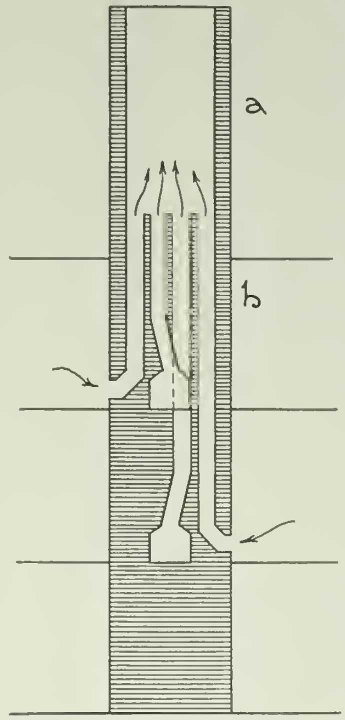


FIG. 26.

The best method of ventilating the wards, in our climate at least, seems to be to draw off the vitiated air through one or more apertures placed close to the floor, but not in the floor, opening into simple vertical ducts or aspirating flues, smooth on the inside and having a door at their base, so that they can be readily cleaned. The openings into the shaft are placed near the floor for the reason that the incoming fresh heated air lies near the ceiling, and as it gradually becomes cooled it falls. The air which has been longest in the room, being the coolest, lies nearest the floor and should be drawn off; the taking away of this cool stratum has a tendency to draw down the warm air and thus equalize the heat. It is best that the fresh heated air should be admitted at a point near the ceiling, so that it may not mix with the stale air near the floor. Where the direct-indirect system of heating is used the coils may either be suspended near the ceiling or else placed on the floor and encased with a metallic or other covering, having an outlet near the ceiling. Writers do not all agree upon

FIG. 27.

FIG. 28.

the amount of air which should be furnished for each patient per hour, but they do agree that there cannot be too much. Parkes says: "There can be no doubt that the necessity for an unlimited supply of air is the cardinal consideration in the erection of hospitals, and in fact must govern the construction of the buildings. For many diseases, especially the acute, the merest hovels with plenty of air are better than the most costly hospitals without it."

After the ventilation the next matter of importance to consider is the manner of construction and the choice of materials. For the exterior of course anything will do, but as it is desirable to give the buildings as cheerful an appearance as possible, it is best to choose some light-colored substance for the walls. Light-colored materials also have the advantage of reflecting more of the sun's rays, thus making the interior somewhat cooler in summer than if the exterior covering were dark. One very important matter is the damp-proofing. This should be extended across the cellar floor, through the walls and up the outside of them to the ground level. It is very

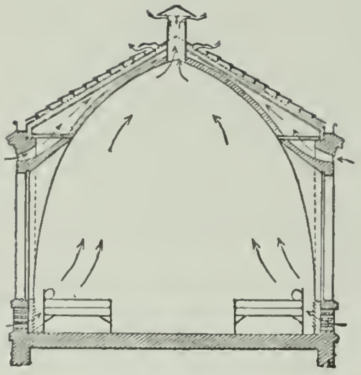


FIG. 29.

usual to take this precaution for almost all kinds of buildings in the larger eastern cities, but in smaller towns and in the South and West it is not so common. For hospitals it ought never to be omitted. If this precaution is not taken it would be better to omit the cellar altogether, at least under the ward pavilions. Most people have a mistaken notion that a cellar adds to the healthfulness of a building, while the contrary is the truth unless it has been damp-proofed.

When the Back Bay district of Boston was first laid out, many people were afraid to live in the houses because they could have no cellars, but experience soon demonstrated that they were the most healthful in the city. There is always a great deal of moisture in any soil, even the driest. If it were not so, trees and other vegetation could not exist. A growing tree requires an immense amount of moisture, which it can extract from what appears to be very dry earth. One often hears people say their cellars are "as dry as a bone," but they are mistaken if the walls and floor have not been damp-proofed. The walls are always damp if they are in contact with the earth, and these walls are constantly giving off moisture into the cellar. When a masonry wall is in contact with the earth, it acts as blotting paper does when the edge is dipped in water; the moisture is carried up it by molecular or capillary attraction. General Viele held that this moisture could be carried to the top of a wall of almost any height. Most people do not realize it, but it is true that we breathe a great deal of cellar air in almost all our houses, especially in the winter when the furnace is going. If any one wants a convincing demonstration of this, let him create a smoke in his cellar and see how soon it will be noticed on the floors above. It is therefore essential that all cellars should be wholesome, and doubly so in the case of hospitals.

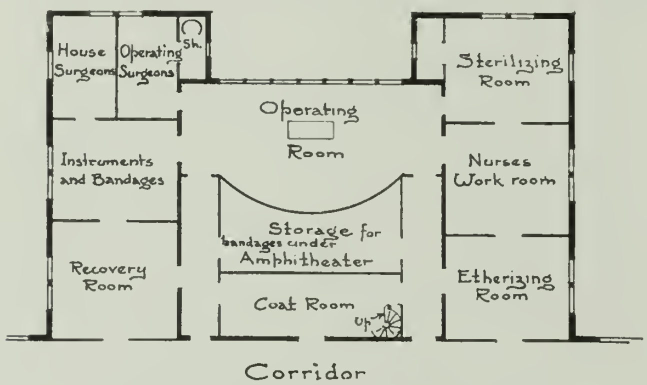
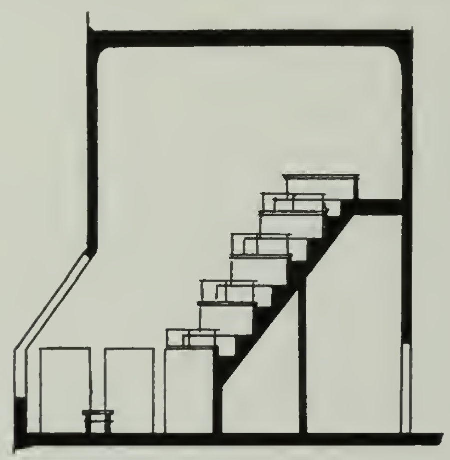


FIG. 30. PLAN OF OPERATING PAVILION.

For the interior finish of the building it is important that the substances used should be non-absorbent and easy to clean. Great care should be taken to avoid all projecting moldings or other sharp corners and angles which are hard to clean, by rounding them.

For the walls perhaps no better material can be had than any one of the several brands of hard plaster in general use, painted with enamel paint; they are then non-absorbent and easy to clean. The ideal floor for a hospital has yet to be invented. Such a floor would be one of about the density of wood, easy for the feet, non-absorbent, which could be put down in a plastic state and the edges coved up to meet the plaster. Several makes of cement floor which meet all but one of these requirements have recently been put on the market; they fail, however, in being absorbent, and are therefore useless for the purpose. Dr. Langstaff of Southampton, England, recommended a paraffin treatment for wooden floors, which certainly worked well where it was tried in England. Whether it would work equally well in this climate, and with our method of heating which tends to make the wood expand or contract at different seasons, is, so far as the writer knows, yet to be determined. The paraffin is put on in a melted state, and ironed into the grain and joints with a box iron heated with burning charcoal. It is said to penetrate about a quarter of an inch into the wood. The excess of paraffin is scraped off and the floor is brushed with a hard brush, a little paraffin and turpentine are then put on, and the floor is good for years; at least this is the experience at the Southampton Infirmary where the method has long been in use. It may be that the same treatment applied to the cement floors spoken of might render them non-absorbent.

It is not, however, within the scope of this paper to consider in detail the various aseptic materials or methods which can be used to advantage, or to discuss the best sanitary appliances and their use. To do so would require a volume. It was simply the intention of the writer to speak in a general way of some of the more important features common to all hospitals. This is an age of specialties. We have all sorts of hospitals, — hospitals for women, hospitals for babies, cancer hospitals, eye and ear hospitals, lying-in hospitals, etc., — each one of which requires of the planner special study. All large general hospitals and most other kinds are made up of many distinct parts or buildings, each one of which also requires careful study for its proper arrangement; there is the nurses' home, the out-patients' department, the obstetrical department, the pathological building, the administration pavilion, the steward's department, lodgings for the employees, etc.



Section through Amphitheater

FIG. 31.

We have considered, in a general way, the wards, their arrangement and planning. It may not be amiss to say a few words about the operating department. There is no part of a hospital where more money is usually spent than here. Of course no possible precaution should be left untried to make the surroundings as aseptic as possible, but the means employed, although they may be the most costly, are not always the best. Many of the materials used are more antiseptic in appearance than in reality. Marble doors, as heavy and hard to open as those of a safe, are often used, in spite of the fact that wooden ones, varnished, are much less absorbent, and that a surgeon ready to operate should not be obliged to handle a heavy door or, in fact, anything else. The doors ought to be so light and nicely balanced that they can be opened by a touch of the elbow. Tile floors, although they may look well and seem easy to clean, are really full of joints which are objectionable. Floors covered with sheet lead have been suggested for operating rooms, and although this does not sound very attractive, there is really a good deal to be said in its favor. It is smooth, need have no joints, is easy to clean, is noiseless, can be coved up to meet the wall surfaces, is non-absorbent, and is not affected by any of the acids used in an operating room. The only thing against it seems to be its appearance.

The arrangement of the operating department is a matter about which surgeons are very particular, and unless the planner has had a good deal of experience he is apt to have unpleasant things said about his work. For private operations the room need not be more than eighteen feet square. The lighting should be from the north. This side of the room should be practically entirely of glass, starting from about three feet from the floor; the window should be vertical for about three feet more, then slope back at an angle of about sixty degrees until it meets the ceiling, so that the operating table may be placed close under the light. The panes should be large and set in thin metallic muntins. There should be a room for the operating surgeons, opening from the operating room, with a light fly door which can be opened with a touch. This room should have a shower bath and basins with faucets and stoppers which can be operated by the feet. In large hospitals there should be another room for the house surgeons, the room for instruments and bandages and the sterilizing room should both open from the operating room, and the latter should connect with the nurses' workroom. The etherizing room and the recovery room should open directly from the corridor.

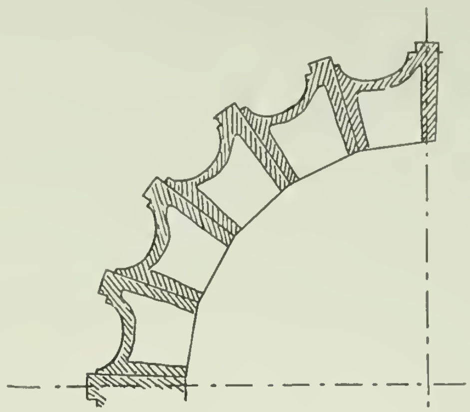
In operating theaters as generally planned the lighting is bad. Some operating theaters have glass roofs, but this makes the room too hot in summer, and the light is too high up.

Figures 30 and 31 represent a plan and a section of an operating theater and its dependencies arranged to overcome these difficulties. The lighting is the same as that recommended for the private operating room; a strong light is obtained for the operating table without interfering much with the comfort of the spectators in the amphitheater. The dependencies are arranged so as to bring each into convenient relationship with the others and with the operating room.

Hints on Design in Terra-Cotta.

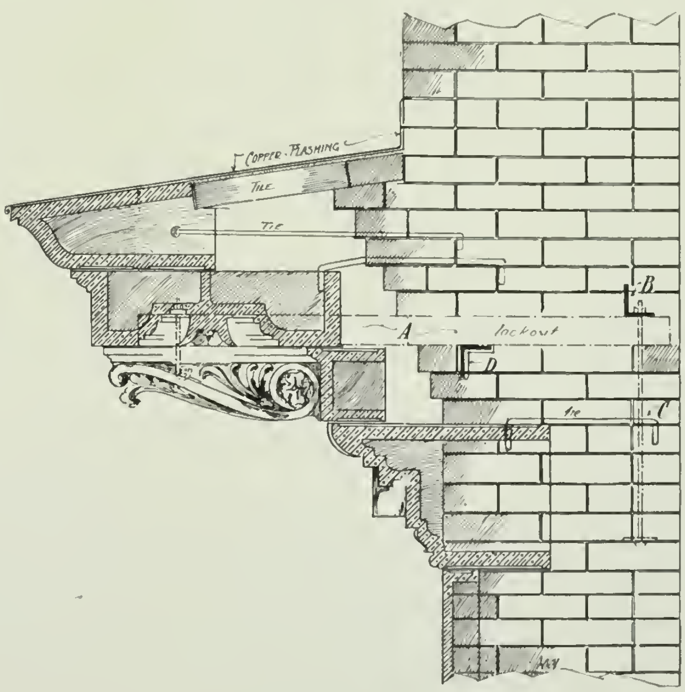
BY F. WAGNER.

TERRA-COTTA has characteristic qualities which distinguish it from stone. Some will try to hide them and imitate stone; the artist will emphasize them. The former get results which are "almost as good as stone"; the latter creates terra-cotta architecture.



SUBSTITUTE FOR THE PURE CLASSICAL FLUTE AND FILLET.

Terra-cotta is in many respects a better building material than stone, and there is no good reason for concealing its identity; but on the contrary the more it asserts its specific qualities in a design the better is the result.



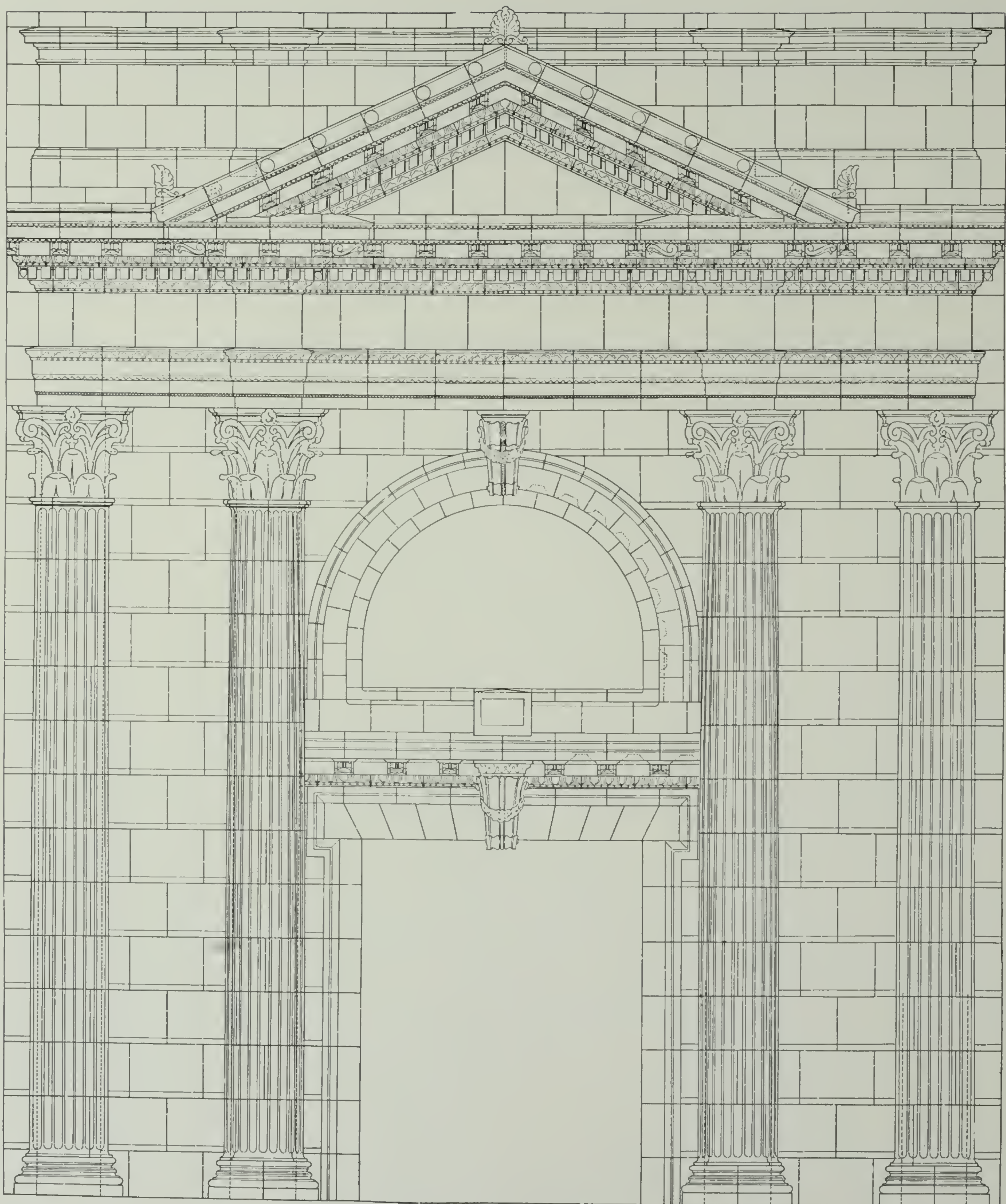
SECTION THROUGH A MAIN CORNICE.

Lookouts A held down by continuous L, B and rods C. D is a wall plate. Modillions are suspended from lookouts A, by means of clips and hangers.

As compared with stone, terra-cotta presents the following characteristics:

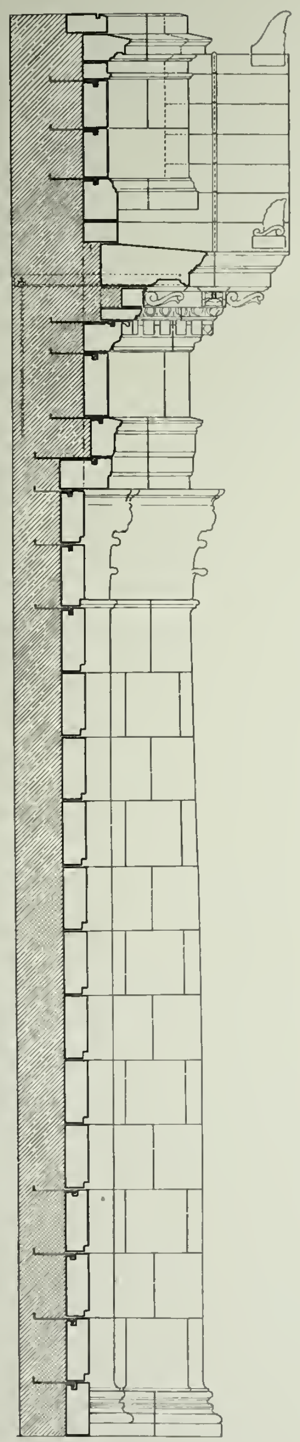
First. It has but one surface, which once destroyed can never be restored. This precludes the dressing of exposed surfaces of the finished ware.

NOTE. — The accompanying illustrations were furnished by terra-cotta manufacturers and are considered by them to be good examples of terra-cotta construction.

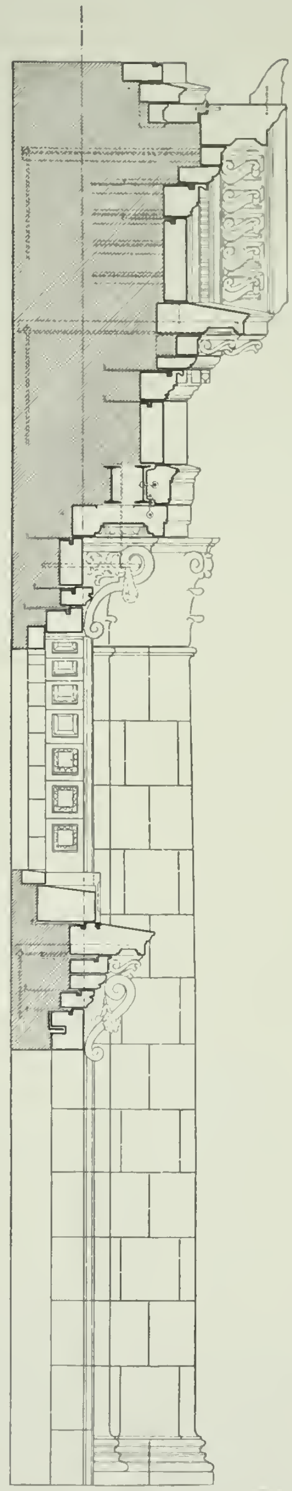


SUGGESTION FOR TERRA-COTTA ENTRANCE — ELEVATION.

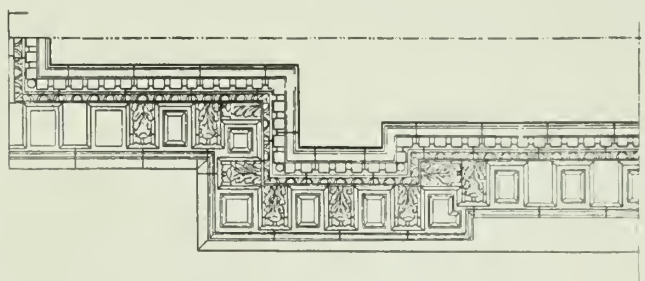
Second. It has a tendency to warp during the process of drying and burning. This tendency increases almost as the square of the larger axis, but decreases with the cross section. For this reason twelve-inch moldings can be made longer than four-inch moldings. In order to be filled with brick and for other practical reasons terra-cotta is usually open on the back. This, together with the irregular profiles of moldings, etc., increases the



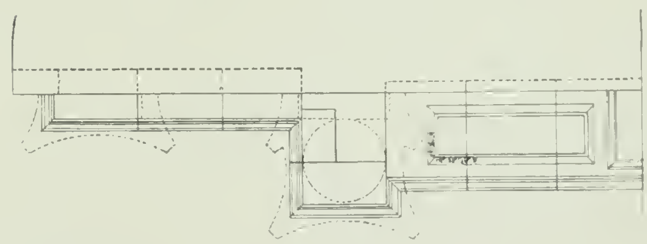
SECTION BETWEEN END PILASTER AND COLUMN, LOOKING TOWARD PEDIMENT.



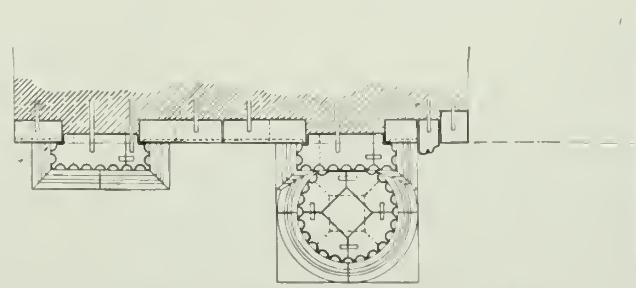
SECTION THROUGH CENTER.



SOFFIT PLAN OF CORNICE AT TOP OF FRIEZE.



SOFFIT PLAN SHOWING PANEL IN ENTABLATURE.



PLAN THROUGH PILASTER AND COLUMN.

DETAILS, SUGGESTION FOR A TERRA-COTTA ENTRANCE

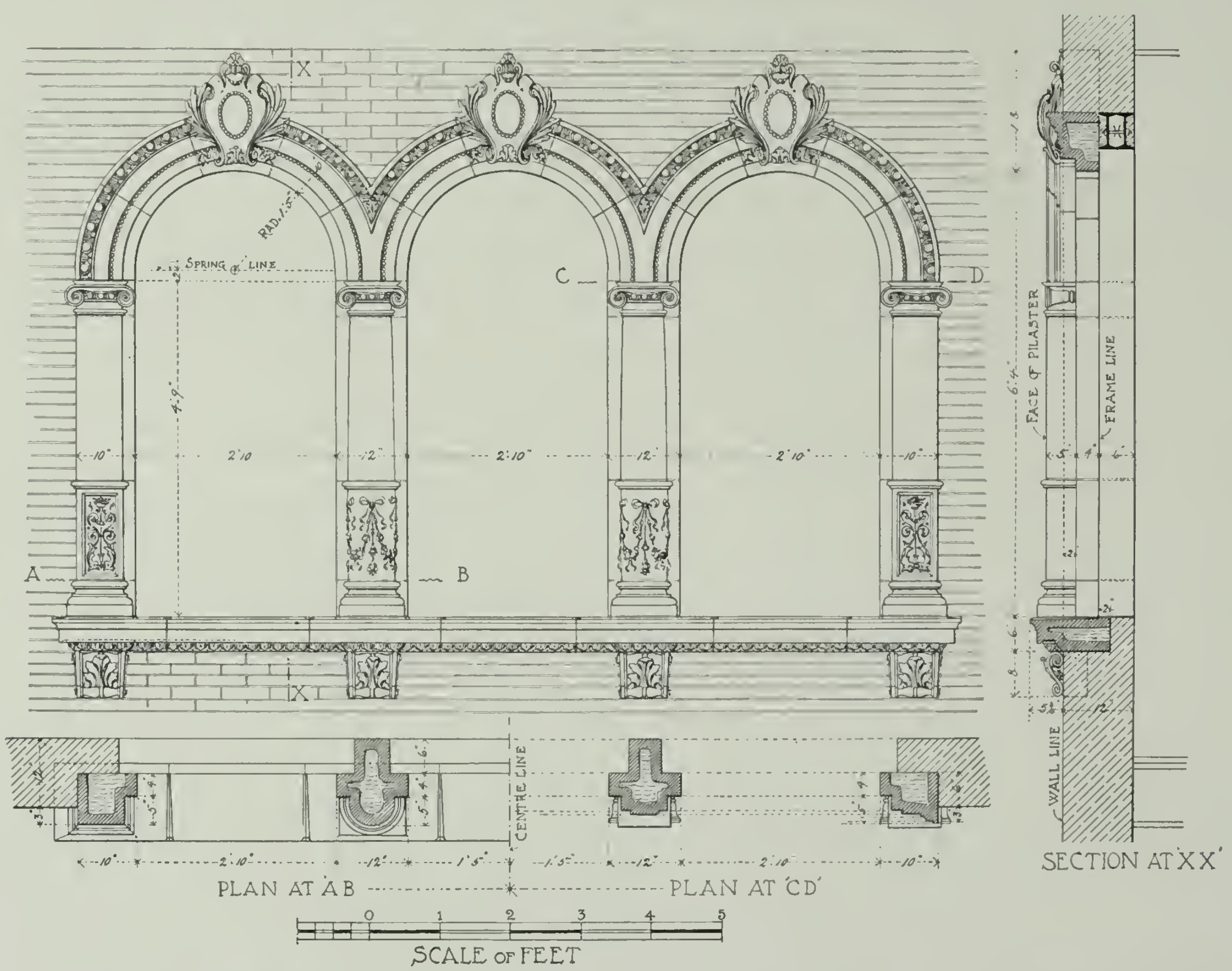
chances for warping. Circular columns, in which the tension is uniform in all directions, can therefore be made much longer, the practical limit being about ten feet. Three feet is unusually long for a twelve by twelve inch molding, while about one-half that length is the limit for a four by four inch molding. A plain ashlar is also open on the back and is very apt to warp, so that good results can hardly be expected if the size exceeds ten by twenty-four inches, although for cornices and parapets, where slight defects are not noticeable, larger sizes may be used.

The comparative shortness of pieces led to the roll or lip joint for exposed washes, and this is a feature characteristic of terra-cotta. Many designers try to hide it, but it would be better to give it an artistic treatment and emphasize it.

Third. The size of terra-cotta decreases almost an inch to the foot from the time it is molded until it is burned. This shrinkage is carefully determined by experiment and provided for in making the molds; but it is always subject to slight variations, which are practically beyond human control. These deviations from the calculated shrinkage are approximately in proportion with the size of the pieces. In very long pieces, which are set up on end in the kiln, the weight assists the tendency to contraction, while the friction counteracts it to some extent on the ends upon which the pieces rest while drying and burning. In order to reduce these variations in shrinkage and the resulting imperfect alignment of the adjoining pieces to a minimum, the moldings should be so profiled that courses in close proximity to the eye should not be more than twelve inches high, and the same holds good of the arises of moldings around panels which cannot be separated. For work more remote from the eye this limit may be increased by about one-half.

As a rule, columns over six feet high are divided horizontally into a number of drums, depending on the length of the shaft, and up to a diameter of about two feet it is possible, with the greatest care and at considerable expense, to make a fairly good fit of one drum upon the other, although a perfect fit can hardly be counted on when the diameter is more than sixteen inches. For columns more than two feet in diameter it becomes necessary to make vertical joints, in order to permit of the fitting and grinding of the various pieces, so as to produce a perfect alignment of the fillets. The most convenient way for the architect is to use the classic column, putting the joints in the flutes; but in this way terra-cotta lines are impossible. If vertical joints are objectionable, projecting or receding bands can be inserted between such blocks, thereby hiding the variation in length; or the ends of the blocks may be profiled so that the jamb can form a separate piece, then the ashlar between these jambs can be trimmed to proper size, and perfect joints and straight lines will be the result.

Fourth. Inasmuch as terra-cotta is nearly always made from molds, decorated surfaces can be obtained at a comparatively moderate cost. They not only enrich

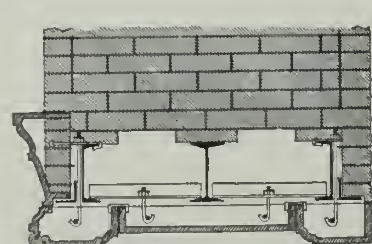


A triple window of somewhat ornate design can be made an attractive feature in any composition where surrounding conditions are at all favorable. The example here given could be introduced in many instances as a motif, subsidiary members being made to harmonize in proportion to the taste and dexterity of the designer. It has variety and symmetry to a greater degree than is usually met with, even in designs that would more than double the cost of execution. In the hands of a man familiar with the technical minutia of production, an elaborate design may be simplified and rearranged, from the manufacturer's point of view, without perceptible change in the general effect. On the other hand, over-elaboration is too often associated with unnecessary, time-consuming intricacy that renders the desired article impracticable on commercial grounds. This window is composed of forty pieces, which, with a few easily made changes in the clay, could be turned out of fourteen molds. Where two or three such windows could be used on the same building, or group of buildings, the cost would not exceed the average for comparatively plain work. Even for one window, it should not be a very abnormal figure. With a little modification in the height and proportions of columns and pilasters, lintels, etc., could be substituted for semicircular arches without appreciable increase in cost.

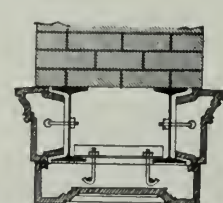
columns are not produced, they are simply imitations of marble columns. A true terra-cotta column should have a treatment which will allow of the use of vertical joint without making it an eyesore; or it should have projecting bands between the drums, which will make a perfect fit unnecessary.

A very neat substitute for the pure classical flute and fillet is shown in the accompanying sketch.

It is not difficult to produce pier blocks, say three feet long and twelve by twelve inches in section; but the length of these blocks will vary some, and if the ends are exposed and cannot be trimmed down to size, perfect

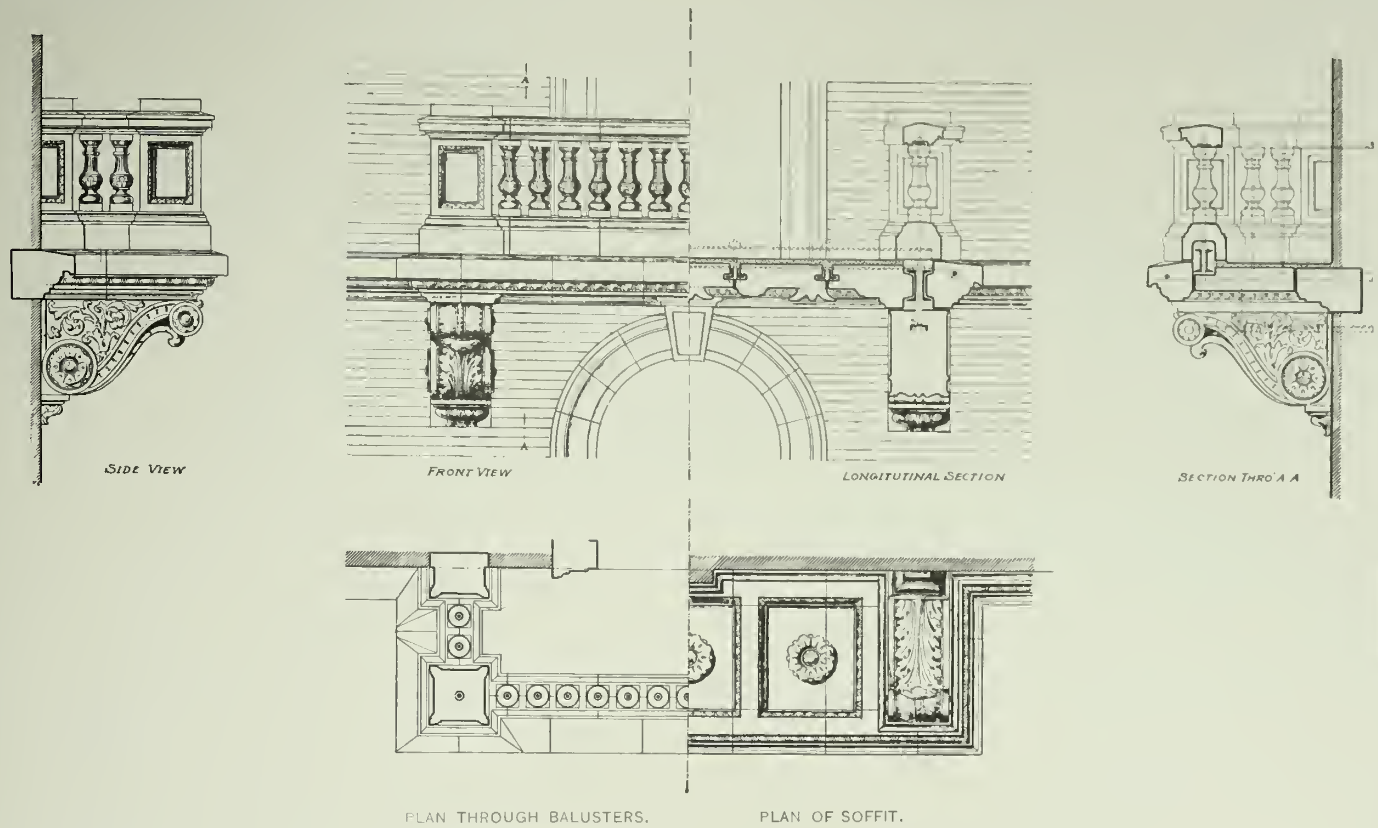


SECTION THROUGH SOFFIT, MAIN ENTRANCE.

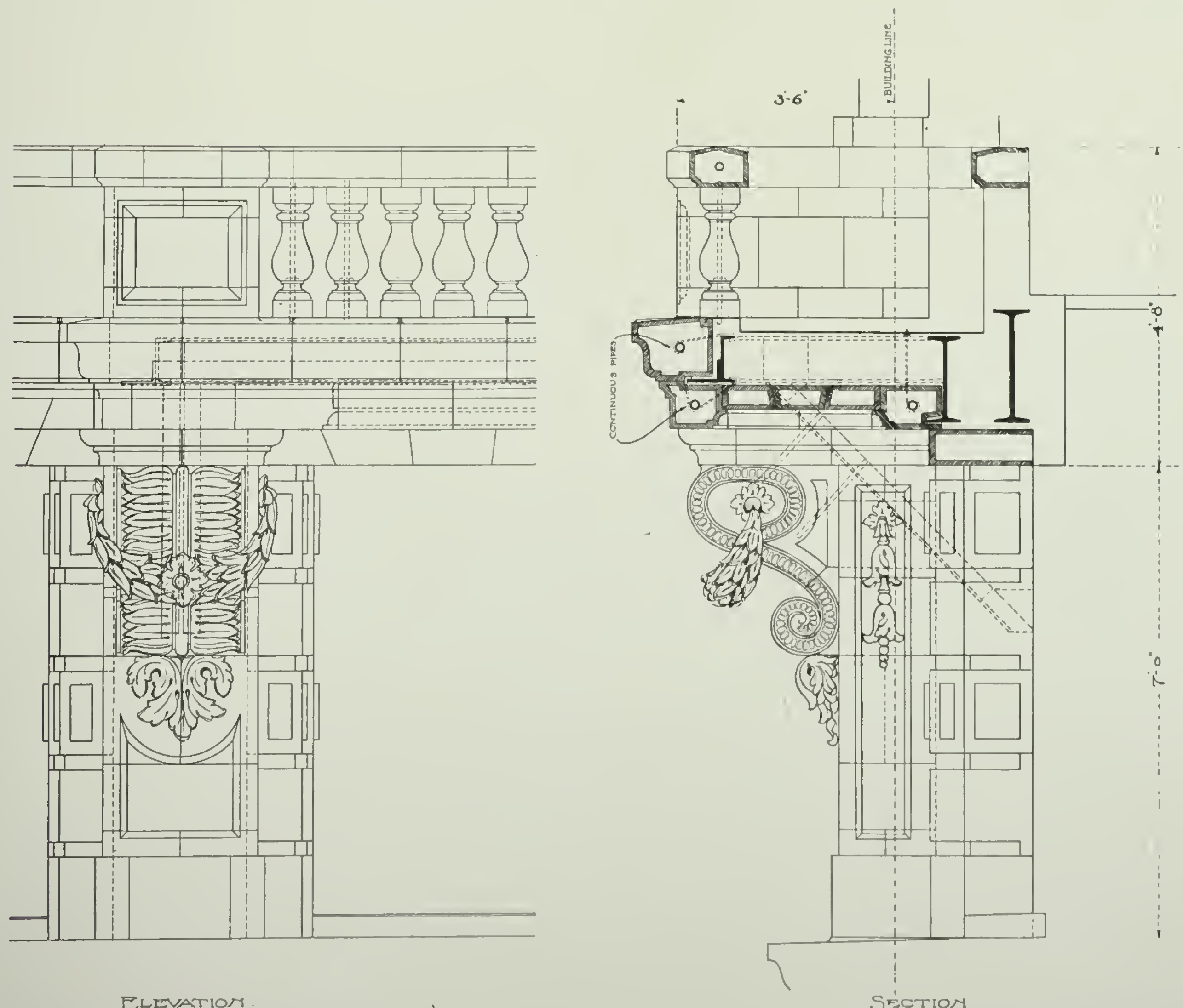


TYPICAL SECTION FOR COLONNADE ARCHITECTURE.

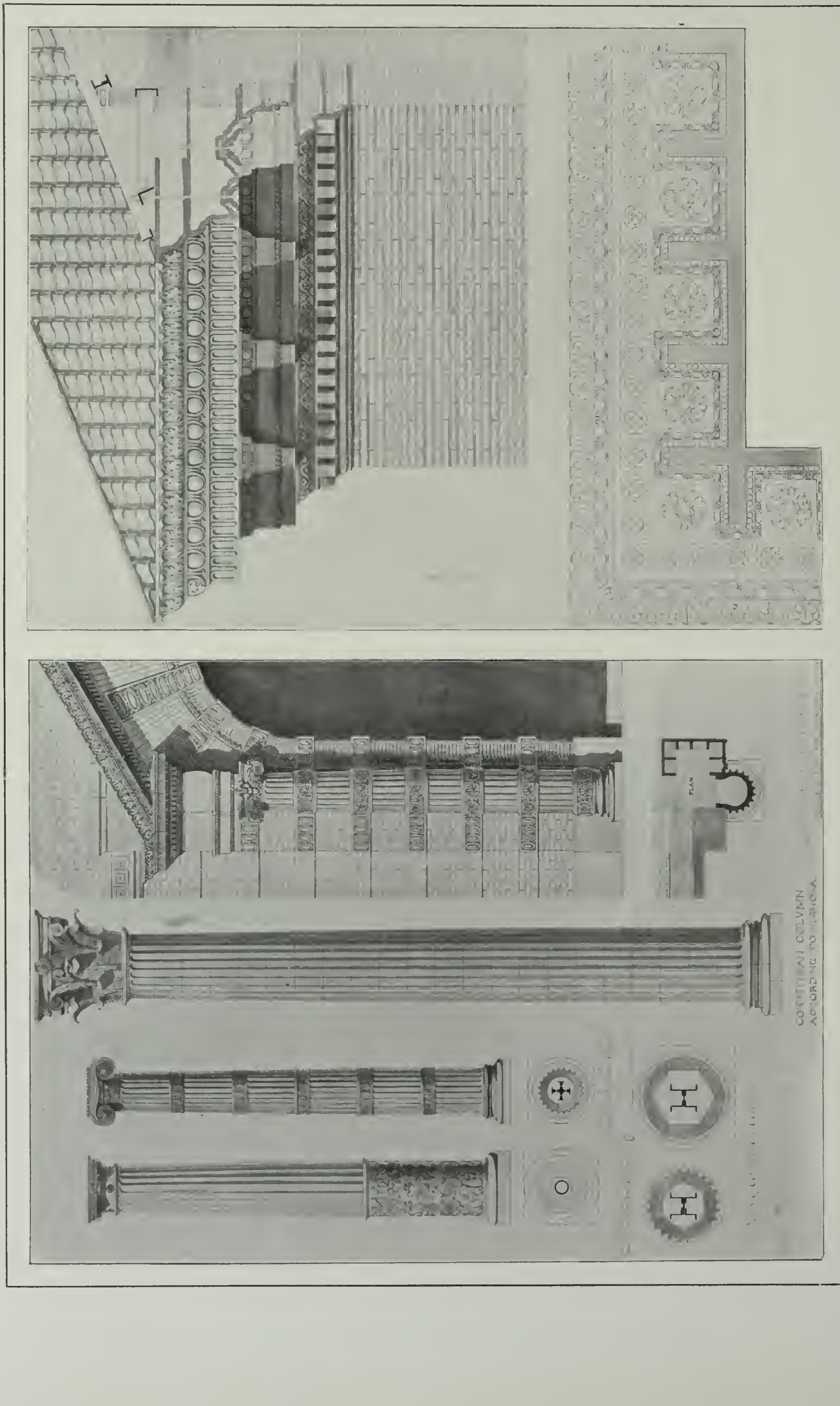
the design, but also assist in making the casual defects less conspicuous than in plain work.



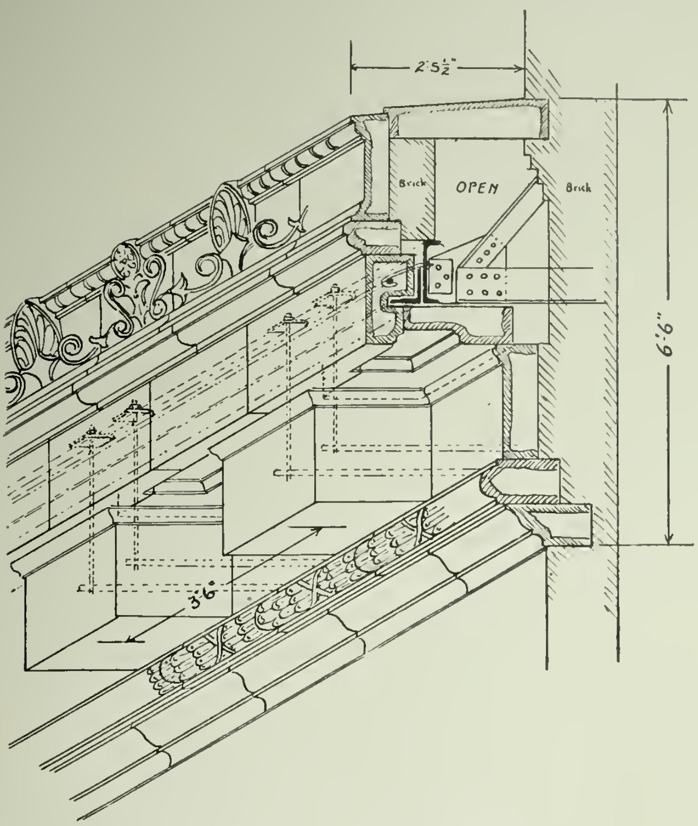
SUGGESTION FOR A TERRA-COTTA BALCONY.



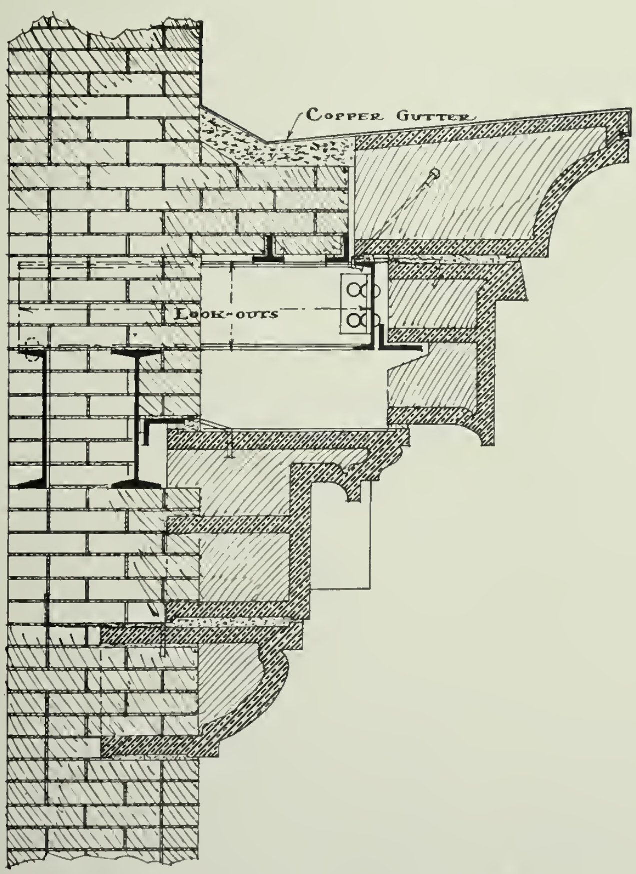
DETAILS OF CONSTRUCTION FOR A CENTRAL PAVILION.



DETAILS OF TERRA-COTTA CONSTRUCTION.



SECTION THROUGH A MAIN CORNICE.



SECTION THROUGH A MAIN CORNICE.

It is hardly necessary to add that terra-cotta, glazed, enameled and plain, offers an almost endless variety of colors, which can be used to emphasize the various architectural members, as well as to relieve the ornamentation by giving it a color different from that of the background.

Fireproofing.

Economics of Construction. II.

BY JOHN LYMAN FAXON.

IT may be well to preface this paper by saying that any building erected for income cannot be divorced from its business aspect as a paying investment; its construction and cost are primal factors which bear upon its character as an investment; its construction as to its life and repairs; its cost, life and repairs as to its gross and net per cent income. In the consideration of the subject in hand we base our estimates and conclusions on the use of the *best* and only the best materials, which adapt themselves to the different functions of structure, and that such estimates and conclusions are based upon computation, not guesswork. It is to be noted in nearly all papers which have been published on fireproof construction that the terms *iron* and *steel* have been used indiscriminately, synonymously, of same value and equivalent, when in fact there is an essential difference in respect to their structural value.

Of the buildings usually erected by the *steel*-frame system, office buildings, hotels and apartments predominate, and the general system of planning and construction is in the main so similar that they may be classed, constructively, as of one kind. In this and the next paper, after commenting on some elements more or less effective or impracticable, we will take up, for illustration, the construction, cost, rentals and per cent return of a simple type of office building.

In 1902 Professor C. L. Norton made some interesting and valuable experiments (see Report IV of the Insurance Engineering Experiment Station, also *Engineering Record* of November 8, 1902) in respect to the corrosion of steel and its prevention. Professor Norton opens his report by saying: "The constantly increasing use of steel as a structural member in modern buildings has led to many questions as to the permanency of the steel as sometimes used for this purpose. The examination of buildings ten to fifteen years old, when during alterations the steel framework has been exposed to view, reveals all stages and conditions of disintegration of the steel, etc. . . . But surely when a steel plate one-half inch in thickness loses more than one-eighth of an inch in five years there arises a question as to the ability of the structure to last more than twenty-five years." Further, in respect to the experiments: "The cleaning of the steel was the most troublesome problem met with. It was necessary to scour the pieces, then pickle in hot dilute sulphuric acid, and finally dip into hot milk of lime; when cold the lime was removed with a wire brush. This left the steel clean and bright, ready to put into the test bricks."

Fancy, if one can, such a process as that for the steel frame of any building, especially a skyscraper, also the cost. Also, "*Fifth*, it is of the *utmost importance* that the steel be *clean* when bedded in concrete. Scraping, pickling, a sand blast and lime should be used, if necessary, to have the metal *clean* when built into the wall."

We have italicized the words "utmost importance" and "clean" to emphasize what is unquestionably true.

We have a high regard for Professor Norton's ability, integrity of purpose and the value of his investigations: as we are also indebted to him for emphasizing by analogy our position, that a building of solid masonry construction in brick and terra-cotta is superior.

The value of his experiments and deductions is not only from the data obtained, but also in showing the impracticability of application; for to obtain the results illustrated by his experiments we need to be assured of three things: (1) that every member of a steel frame be absolutely *free* of corrosion before the cement coating is applied, which is out of the question so long as manufacturers of steel persist in putting the job and shop marks on the bare metal and so long as frames are erected in such manner as is now customary; (2) that all cement used be *free* of sulphates or sulphites of lime, which would involve the labor and expense, time and money, in testing every pound of cement used for the purpose; (3) an assurance of *the very perfection of care* in contractors and workmen, in the handling and assembling of members; that no piece be subject to abrasion and elements of atmospheric attack. Such a process and such *care* are not practicable in the nature of everyday affairs, short time contracts and competition in profits; for the extra cost involved would be prohibitive, and, expressed in business parlance, "will not pay"; for such extra cost means a material reduction in net per cent income.

Professor Norton in his experiments deals in laboratory science, not with the cold hard facts, demands and shortcomings of everyday practice, profit and loss, and hustle to get there. If such prevention of corrosion could be obtained, that alone will not insure a steel-frame building as a *fireproof* one; and that it is not, and cannot be as compared with solid masonry construction. Besides the steel-frame building is subject to other elements which in time will seriously affect its structural stability, especially so in excessively high buildings; one of the most potent is vibration, not alone from high winds, but by the constant, ceaseless, eternal vibration of the world, which will rack and strain the joints of structure to breaking pitch. No isolated part of a steel-frame structure should exceed in bulk proportions of six to four in length to width, or five to three in height to width; and aside from this, if an architect desires to prolong the life of steel supports, he should not design the columns with their bases below the level of the second floor for outside columns, or below the first floor for inside columns.

One of the most notable, able and experienced of American architects said some ten years back, "If I had my way, I would never again erect a steel-frame building." He spoke with a prophetic vision of a time to come. We are not inclined to be pessimistic or to condemn any system of building which is designed upon logical and sane principles; we are dealing with facts and imminent probabilities, known values and results; for the combined advantage of investors, architects and materials of tried and known consistency, tried by fire, the wear of time and the rack of the elements. Our endeavor is to bring architects to a sense of the signs of the times, a just conception of their responsibilities as *leaders* in thought and investigation — as it is their right of place to be — and owners and investors to a wise economy in the science of structure and lasting values of investments in buildings of right construction.

Time has demonstrated the inherent defect and danger — corrosion — of the steel-frame structure, and no process known at the present time will effect the elimination of such defect and danger or make such structures safe and permanent, except at such cost as to place such structures out of consideration from an investment point of view.

The question of structural stability and life can not be too urgently emphasized, not only in respect to first and secondary cost, but also in respect to the damage in case of collapse in the destruction of property and human lives; such damage is conceivable in terms of dollars and cents, but one may well stand appalled at the sum of consequences. The older buildings of the steel-frame system have now covered a span of time, or are rapidly approaching it, in which the destructive force of corrosion has been going on steadily, inexorably, to a degree exceeding 50 per cent of the original structural efficiency, and no one can say when the day or hour cometh when some of these buildings will come down in a confused, disorganized and awful heap of dust and junk, a shapeless and hideous commentary on the vanity of human efforts, destroying millions of property and hundreds, perhaps thousands, of our fellow beings.

Disasters never come heralded from the house tops. Such a disaster will be instantaneous in effect, — a weird and ghastly tragedy.

A building may catch fire with some good chance of 95 per cent of the occupants getting out alive and the saving of property, but in case of a collapse of a steel-frame building there is small likelihood of any premonitory signs. It will give way in an instant and be down in the time of a wink.

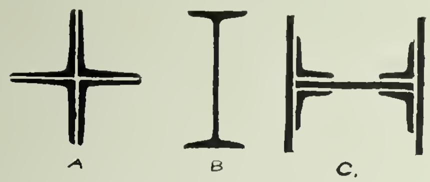
The time has come, and now is, when the owners of existing buildings and those contemplated should stop and think, and guard against present and future dangers, and take measures of prevention by investigating the present conditions of buildings ten to twelve years old, and the adoption in new buildings of a system of structure that will be safe and permanent.

The total fire loss in Boston in 1902 was $1,570,533.25 in buildings and contents, not including loss of rentals and business; total insurance, $18,986,710.95; total insurance loss, $1,481,723.88. Such loss would build five or six small office buildings *absolutely fireproof.*

The loss by the conflagration at Paterson, N. J., approximated $10,000,000 (loss and interest) and covered an area of about fifteen acres. This loss would build eight-story fireproof buildings over about a third of the building area of burnt district. This fire also emphasized the value of an approximation to all masonry construction, also the value of cast iron columns over steel columns. Cast iron columns rightly made and protected with four inches of terra-cotta encasement are superior to steel and almost, if not quite, as good as piers of solid masonry in respect to fire attack and are indestructible by corrosion.

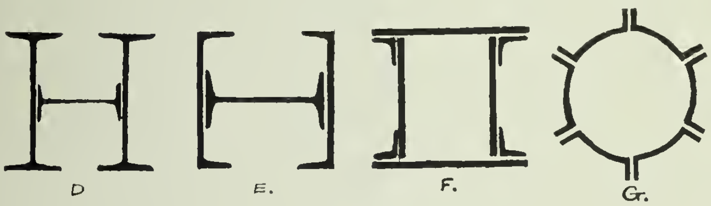
Another point: under present practice it is customary to erect steel frames weeks and months before the encasement is placed around them, thus exposing the frames to atmospheric attacks, storms, vibrations and damage by working on it, hoisting and shifting all sorts of heavy materials over and against it. The frame should not go up in advance of the encasement if one desires to attain some prevention of corrosion, minimize damage and prolong life. We note in some buildings now being erected the practice of painting the encasement of the steel supporting members (on the inside of the building); this is a mistake, for it will simply retard the evaporation of the moisture within the encasement and accelerate the propagation of corrosion.

No encasement of columns should be other than of circular form; also such members should be used in the make-up of columns as are best adapted to the maximum amount of fireproofing, the smallest number of joints and minimum exposure of surface to corrosion and fire attack. The sections for columns in general use may be classed under two heads, the *open* and the closed or *box* types.



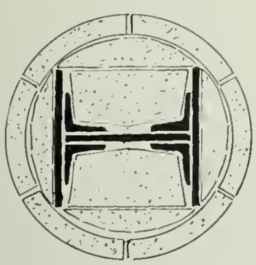
OPEN TYPES.

Of all of them, the + and the simple H (without flanges) are the best types. In general it



BOX TYPES.

H



I

may be said that no columns having *internal air cells*, or made with flange members so placed that terra-cotta blocks cannot be easily placed against inside members, should be used. Also that no box girders should be used; that the single I type of girders should be used, not II or III.

Another element of economy in construction in any class of building, and especially so in a steel frame, is that the plan should be laid out on a system of *units*, having right angles, and with close approximation of economical use of standard lengths of I's and plates, 30 feet, 40 feet, 50 feet, 60 feet lengths. This makes for quite an appreciable saving in cost.

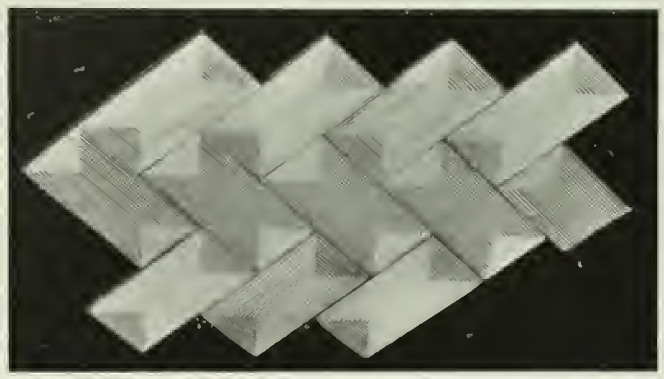
FIREPROOF HOTELS.

THE building laws of our larger cities now require all hotels to be built of fireproof construction. The tendency is moreover in most of the cities to insist upon fireproof construction for schoolhouses. The statement is often made that fireproof construction for a schoolhouse is a luxury, for the reason that so far as the records show human life has never been lost as a result of a fire in a schoolhouse. As against this we find noted in one of our exchanges a statement of the fact that during the past year in this country 546 schoolhouses were destroyed by fire and 1,378 hotels were burned down.

Selected Miscellany.

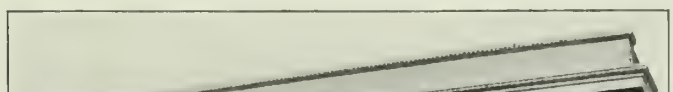
CHICAGO'S PARKS.

AS a result of the election held in Chicago on the first day of this month (June) the city has an assurance that not less than five hundred acres will be added to its park area without any delay whatsoever. Time was when Chicago had the largest park area in proportion to population of any city in the country. The enormous growth of the city both in population and acreage, without a corresponding increase in parks and



GUASTAVINO CORRUGATED TILE SHOWING LIGHT AND SHADE EFFECTS.

boulevards, has brought it down to the lowest rank as compared with other American cities. The increase has only been in mileage of new boulevards, or streets under the control of the several park commissions, but that has



Y. M. C. A. BUILDING, TOLEDO, OHIO.
E. O. Fallis, Architect.
Terra-Cotta by the New York Architectural Terra-Cotta Co.

APARTMENT, NEW YORK CITY.
Built of "Shawnee" Brick. Thorn & Wilson, Architects.

not been enough to keep pace with the progress of other large cities. At the session of the forty-third General Assembly of Illinois just closed there were passed no less than ten acts affecting the parks of Chicago. Five of them provided for the enlargement of the South Park system; one provided for the enlargement of Lincoln Park by accretions from the lake of two hundred and twenty-five acres; one provided for connecting the Lincoln and South Park systems by a boulevard, either over or under the mouth of the Chicago River, as may be hereafter determined; one bill provided for a large number of additional small parks; one provided the manner in which the New Field Columbian Museum can be located in the new Grant Park in the heart of the city and fronting on Lake Michigan; and lastly another bill made it possible to erect the new John Crerar Library on the site selected for it two years ago.

It can well be said that when Chicago does things it is not by halves. She has waited a long time for this consummation, and it has all come at once. The money to carry out all these improvements by park commissions will be provided by the issue of bonds. It will be a large sum. At the election referred to the voters confirmed the authority to issue $3,000,000 in bonds for the South Parks and $1,000,000 for Lincoln Park. An act of the General Assembly also authorized the Board of County Commissioners to issue bonds to the amount of $1,200,000 for various purposes, about $500,000 of which will be for buildings. As if this were not enough the Field Columbian Museum bills included a provision for adding a fraction of a mill to the taxation of the city, which will provide an income of about $50,000 per annum for the museum, and another $50,000 per annum for the Art Institute, which has never before been assisted from the tax levy. Then the Trustees of the Drainage Canal will be authorized to issue about $10,000,000 in bonds for the enlargement and im-

FIGURE, EXECUTED IN TERRA-COTTA BY CONKLING-ARMSTRONG TERRA-COTTA CO.
Bruce Price, Architect.

ORNAMENTAL WINDOW.
Victor Hugo Koehler, Architect.
New Jersey Terra-Cotta Co., Makers.

TERRA-COTTA GARDEN VASE.
Made by White Brick & Terra-Cotta Co.

PUMPING STATION, CHICAGO.
R. Bruce Watson, Architect. Terra-Cotta made by Northwestern Terra-Cotta Co.

provement of the Chicago River and the development of power at the controlling works.

The result of this legislation in the aggregate has been to place the whole water front of Chicago on Lake Michigan for a distance of about twenty miles under control of the park boards, together with all the lands under water belonging to the state, with privilege to fill in the same where necessary.

The people of Chicago probably will not realize for some time the full value of all these acquisitions. At present they can only value them in money, employing millions for units. For instance, the park additions will cost four millions, the John Crerar Library will cost one million, and all estimates of the cost of the Field Columbian Museum are based on a prospective outlay of five millions for buildings, with a five million endowment. The County Board will expend half a million for buildings, and the Trustees of the Drainage Canal will spend ten millions more. These are rough figures, given without exact statistics for handy reference.

The greatest of all Chicago's improvements will be the new Grant Park. It is located very much as Battery Park is in New York. But to realize its possibilities we must imagine Battery Park covering the whole ground south of a line drawn east and west through Wall Street. It is one and one-quarter miles long and about half a mile wide, and will have a sea wall on the long side and one end. This is the site once talked of for the World's Columbian Exposition, and the late Mr. Root made the first sketching for the buildings for that great enterprise to be here located on piles. For economy it was proposed to leave the water under the buildings and to fill in the earth

INTERIOR OF STABLE, SHOWING USE OF BLUE RIDGE ENAMEL BRICK, CREAM TINT.
Warren & Wetmore, Architects.

ENTRANCE TO DORMITORY, CINCINNATI COLLEGE OF MUSIC.
Terra-Cotta made by Indianapolis Terra-Cotta Co.
Gustave W. Drach, Architect.

HOUSES, CHICAGO.
Built of Tiffany Enameled Brick.

between them. The whole area was then without any shore protection except the government breakwater, half a mile away, enclosing the roadstead or anchorage for vessels seeking shelter from storms. In 1895, 1896 and 1897 the whole area now to be used as a park was enclosed with a cob dock, built with two rows of piles, with crib-work on top and filled in with stone. This will be the foundation of the sea wall that is to be. About half the area of the park is now filled in with dumpage from the city and some material from the drainage canal. Part of the area was retained by the state of Illinois for a drill ground and armory site, and the state has expended $100,-000 within the last two years in filling it in. But that has now been turned over to the park commissioners for the use of the city, and there will be no armories on it.

PENNSYLVANIA SUGAR REFINERY, PHILADELPHIA.
Brick furnished by O. W. Ketcham.

This entire park will have to be made from nothing, and the opportunity to develop a magnificent design is extroardinary. If, by good fortune, it should grow into a thing of beauty, it is safe to say that it will be a great surprise to the people of Chicago, for its possibilities are beyond the conception of even the best informed men and women.

NEW YORK INSPECTOR OF BUILDINGS.

MR. WALTER T. SMITH, who has for several years held a position as superintendent for Carrère & Hastings, and who had general oversight of the construction of the buildings at Buffalo for the Pan-American Exposition, has been appointed to the position of chief inspector of buildings in New York City. This appointment was made by Mr. Thompson, the new superintendent

FIDELITY TRUST BUILDING, BUFFALO.
Brickwork and Fireproofing laid in Akron Star Brand Cement.
Green & Weeks, Architects.

of buildings, upon the nomination of a number of the leading architects of New York City. However much we might wonder at an architect of so much experience and ability being willing to accept a political appointment of this sort, we can certainly congratulate the city most heartily upon securing his services, and the superintendent has taken a most wise course in acting in coöperation with the architects of the city.

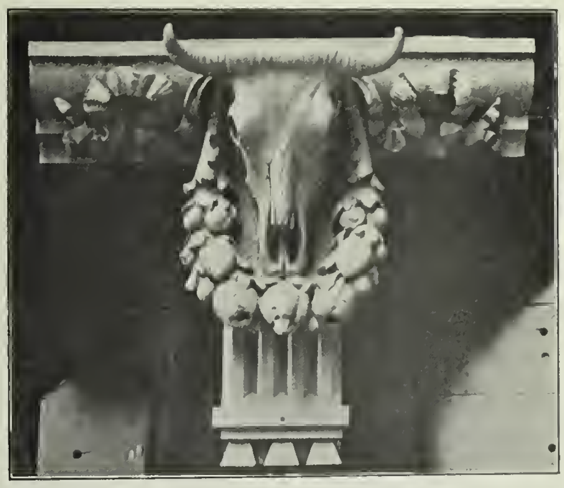
IN GENERAL.

What is probably the largest architectural commission ever awarded in the building line to a Boston firm has just come to Cram, Goodhue & Ferguson, who have been selected as architects to remodel the buildings and grounds of the military academy at West Point. The work will involve an outlay of $5,500,000.

The committee selected to pass upon the plans submitted in competition consisted of General Schofield, president of the West Point Alumni Association; Col. A. L. Mills, superintendent of the academy; George B. Post, Cass Gilbert and Walter Cook, all architects of New York. The committee was unanimous in its selection of the plans of the Boston firm, and its choice was last week ratified by the secretary of war.

DETAIL BY GEORGE H. STREETON, ARCHITECT.
Excelsior Terra-Cotta Company, Makers.

Francis S. Swales is announced as the winner of the Washington University Traveling Scholarship, Albert D. Millar receiving Honorable Mention. The competition consisted of three rendered and three sketch problems. For a special study Mr. Swales has chosen the great theaters of Europe.



DETAIL BY CLINTON & RUSSELL, ARCHITECTS.
Standard Terra-Cotta Works, Makers.

Charles T. Harris has retired from the office of president of the Celadon Roofing Tile Company and is succeeded by William R. Clarke, former first vice-president and treasurer. Mr. Clarke has been actively engaged with the company since its inception in 1888, and is admirably fitted both by experience and ability to take charge of its large and growing business. He is succeeded by C. Layton Ford as first vice-president, and by E. S. Marvin, former superintendent of the American Temperance Life Insurance Association, as treasurer. Both of these gentlemen have taken large interests in the company. Henry S. Harris, second vice-president, and Alvord B. Clarke, general manager, remain in charge of the Chicago office and Western Department.

A copartnership has been formed by Henry H. Meyers and Clarence R. Ward, architects, 532 Market Street, San Francisco. They desire samples and catalogues from material men.

DETAIL BY HEINS & LA FARGE, ARCHITECTS.
Atlantic Terra-Cotta Company, Makers.

A. J. Blix, architect, has opened an office at 17 Fifth Avenue S., St. Cloud, Minn., and desires manufacturers' catalogues and samples.

William H. Gruen, architect, St. Louis, has taken offices in the Chemical Building, and desires manufacturers' catalogues and samples.

The Monks Building and the Home for Crippled Children, Boston, Peabody & Stearns, architects, will be built of Sayre & Fisher Company brick; also the new library at Marlboro, Mass., by the same architects. A large quantity of their enameled brick will be used in the new Edison Building, Boston, Winslow & Bigelow, architects, and the Penn Mutual Insurance Building, Boston, E. V. Seeler, architect.

DETAIL BY HERTS & TALLANT, ARCHITECTS.
Perth Amboy Terra-Cotta Company, Makers

Competition for a Public Library

First Prize, $500   Second Prize, $200   Third Prize, $100

PROGRAM

IT is assumed that a public library is to be presented to a town located in the middle west. This town occupies a picturesque position in a rolling country bordering one of the Great Lakes and is the seat of a small but important college. The public square is a park which is assumed to be 300 feet wide and upwards of 1,000 feet long. At one end is already built the town hall, and at the opposite end will be placed the library. The ground rises gently towards the proposed site, so that the position will be a commanding one. The whole frontage of 300 feet will be given to the library and its approaches, and the entire depth of the lot is 200 feet. The total rise from the curb line to the center of the lot is 10 feet, and the grade falls off towards the rear 1 foot in 40. Sidewise the grade falls off equally each way from the center 10 feet to the boundary lines. The building must set back a distance of 75 feet from the front line, and the approach must be treated in an architectural manner.

The exterior of the building is to be designed entirely in terra-cotta, and colored terra-cotta or faience may be introduced as a feature of the design.

The following accommodation is to be provided for in plan. The dimensions given are only approximate and may be modified as required by the exigencies of the design:

First Story. Vestibule, 200 sq. ft.; periodical room, 1,000 sq. ft.; reference library and reading room, 1,000 sq. ft.; general delivery room, 600 sq. ft.; trustees' room, 350 sq. ft.; librarian's room, 350 sq. ft.; stack room, 1,500 sq. ft.

Second Story. Children's room, 500 sq. ft.; music room, 500 sq. ft.; exhibition room 500 sq. ft.; two rooms for special collections, 500 sq. ft. each.

It is assumed that the lavatories, storerooms, etc., are all to be located in the basement, which is to be raised sufficiently above the finished grade to allow of fair lighting. The stairs leading to the second story are to be double, but are not to be made a prominent feature. It will be assumed that the heating plant is entirely distinct from the building, there being consequently no provision made for a chimney, but space should be provided for ample ventilation flues.

Drawings Required. A perspective, taken from the left corner of the building, with the picture plane forming an angle of 30 degrees with the main line of the front, and also sketch plans of the first and second floors at a scale of 1-32 in. to the foot. The perspective is to show treatment of approaches. These drawings to appear upon one sheet 16 in. wide and 20 in. high, the perspective to be placed in the upper three-quarters of the sheet and the plans in the lower quarter of the sheet. Details, drawn at a scale of 3-4 in. to the foot, showing the character of the design and the construction of the terra-cotta, are to be shown on another sheet of the same size, *i. e.*, 16 in. wide and 20 in. high. These drawings are to be made in black ink without wash.

It must be borne in mind that one of the chief objects of this competition is to encourage the study of the use of architectural terra-cotta. No limitation of cost need be considered, but the designs must be made such as would be suitable for the location, for the character of the building and for the material in which it is to be executed. The details should indicate in a general manner the jointing of the terra-cotta and the sizes of the blocks.

In awarding the prizes the intelligence shown in the constructive use of terra-cotta will be a point taken largely into consideration.

Every set of drawings is to be signed by a nom de plume or device, and accompanying same is to be a sealed envelope with the nom de plume on the exterior and containing the true name and address of the contestant.

The drawings are to be delivered flat at the office of THE BRICKBUILDER, 85 Water Street, Boston, Mass., on or before October 31, 1903.

The designs will be judged by three well-known members of the architectural profession.

For the design placed first in this competition there will be given a prize of $500.

For the design placed second a prize of $200

For the design placed third a prize of $100.

All drawings submitted in this competition are to become the property of THE BRICKBUILDER, and the right is reserved to publish any or all of them.

We are enabled to offer prizes of the above-mentioned amounts largely through the liberality of the terra-cotta manufacturers who are represented in the advertising columns of THE BRICKBUILDER.

This competition is open to every one.

THE BRICKBUILDER.

JULY,

1903.

COURT OF THE ARCHBISHOP'S PALACE, ALCALA DE HENARES, SPAIN.

THE BRICKBVILDER

VOL. 12 No. 7 DEVOTED · TO · THE · INTERESTS · OF ARCHITECTVRE · IN · MATERIALS · OF · CLAY JULY 1903

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BRICKBUILDER COMPETITION.

WE wish to call the attention of our readers to a slight change in the program for the library competition, detailed announcement of which will be found elsewhere in this issue. At the request of several of our subscribers we have modified the conditions by substituting a line elevation for the required perspective. We have also modified the restrictions as to the size of sheets, giving each competitor a better opportunity to present his work in what seems to him the best manner.

THE ROYAL ACADEMY GOLD MEDAL.

WE have alluded in a previous issue to the bestowal of the Royal Gold Medal of the Royal Institute of British Architects upon Mr. C. F. McKim of New York. The first recipient of this medal was Professor Cockerell, to whom it was given in 1848. The successive recipients have been chosen with a great deal of wisdom and the bestowal has recognized the best talent which the architectural profession throughout the world has manifested during the last half century. Among those to whom it has gone are included Sir Charles Barry, Owen Jones, Sir Gilbert Scott, Viollet le Duc, Sir James Pennethorne, George Edmund Street, John Pearson, Baron von Ferstel, F. C. Penrose, H. Schliemann, Charles Garnier, Baron von Hansen, R. M. Hunt, Lord Leighton. It has become an unwritten rule to select in rotation an English architect, a foreign architect, and a literary man with architectural instincts.

Mr. Aston Webb, in presenting the medal to Mr. McKim, gave a very felicitous sketch of the recipient's career, and stated that the selection was made of him as "a highly distinguished American architect, a very near relation of ours and a representative man, in order that we may show to him personally and to the whole world of American artists our high appreciation and admiration of the great work that marvelous country is doing on the other side of the world, an appreciation not only of what they are doing, but also of what we expect them to do, untrammeled by traditions, full of youth, energy, imagination and initiative, and supported by almost boundless resources; and we are confident that as time goes on they will not only develop fresh types and plans of buildings, but that they will, though still mindful of the past, clothe those buildings in a language that will be distinctly their own." While a certain amount of this extremely flattering generalization can be put down to the courtesy which was so charming an accompaniment of this occasion, it is quite certain that Englishmen, and especially English architects, are looking to this country for a kind of development in our profession which has not been found in what we choose to call the older countries. It is also evident that their expectations have not been entirely disappointed, and that others have found in our work some of the elements which we have fondly felt ourselves were not conspicuous by their absence.

Quoting still further from Mr. Webb's introductory address, Mr. McKim was born in Chester County, Penn., six-and-fifty years ago, and at eighteen entered Harvard University with a view to becoming a mining engineer. A year later, finding the work uncongenial, he entered the office of Mr. Russell Sturgis, architect, New York, and, in the autumn of the same year, the Atelier Daumet in Paris, where he was prepared for and admitted to the Ecole des Beaux-Arts, remaining until the outbreak of the war some three years later. During this time Mr. McKim also traveled in Europe and visited England in 1869, during which time he was made an honorary member of the Architectural Association. Returning to New York in 1870, Mr. McKim entered the office of the well-known architect, H. H. Richardson, and in 1872, at the age of twenty-five, commenced practice on his own account, being joined in 1877 by Mr. William Rutherford Mead, and in 1879 by Mr. Stanford White, and since that time they have continued their practice as "McKim, Mead & White."

The Orientation of Hospital Buildings.

BY WILLIAM ATKINSON.

A HEALTHY hospital has been defined as "A hospital which does not *by any fault of its own* aggravate ever so little the recovery of persons who are properly its inmates, and this, the only right sense of the absolute word, governs the word's comparative applications, so that when we compare them together with reference to their 'healthfulness' and call one of them the 'unhealthier' hospital, our meaning is that in this hospital, by means of some faults of its own, disease cannot be treated as sueeessfully as in the other hospital; and the fault of its own, through which an 'unhealthy' hospital fails to attain the best results for its medical and surgical treatment, is of two kinds — either it is an *inherent fault*, as of site and construction; or else it is a *fault of keeping*, as dirtiness or overerowding or neglect of ventilation." *

Unquestionably the first requisite for a healthy hospital is abundance of sunlight. Not only the exterior wall surfaces of the buildings, but also the ground surfaces between and around them should have the direct rays of the sun for as long a time as possible each day.

"Second only to air is light and sunshine essential for growth and health, and it is one of nature's most powerful assistants in enabling the body to throw off those conditions which we call disease. Not only daylight, but sunlight; indeed fresh air must be sun-warmed, sun-penetrated air. The sunshine of a December day has been recently shown to kill the spores of the anthrax bacillus." †

Wall surfaces, especially brick walls, absorb a large amount of moisture during rains. This moisture is quickly dried out by exposure to sunlight, but is retained for a long time in walls which are not exposed to the sun and creates an unhealthy condition; for dampness, with lack of sunlight, is a combination favorable to the growth of low forms of vegetable life and should be avoided in hospital buildings.

To secure sunlight in the fullest measure requires that the general plan of the buildings shall be carefully studied with this end in view.

Several years ago in a little book on hospitals, ‡ in which I had the honor to be the eollaborator of Dr. Alfred Worcester, I stated as follows the principles to be observed, in the order of their importance, in designing the general ground plan of a group of hospital buildings:

"*First.* To secure a large amount of sunlight for each one.

"*Second.* To impede as little as possible the circulation of air in and around the buildings.

"*Third.* To provide for the future enlargement of the hospital; and

"*Fourth.* To promote convenience and economy of administration."

I added further: To study properly the question of sunlight, a "sun plan" of the buildings must be drawn and their positions considered with reference to the shadows they cast upon each other and upon the ground. An astronomical table, showing the path of the sun from sunrise to sunset at the different seasons of the year, is desirable for this work.

It is the object of the present essay to illustrate the application of the first of the above principles with a few diagrams representing some of the principal types of hospital plans.

In the latitude of Boston, Mass., the sun rises on the longest day of the year about 34 degrees north of east and sets at an equal distance north of west, traveling during the day over a horizontal circle of about 248 degrees and reaching at noon an altitude of approximately 72 degrees above the horizon.

On the shortest day of the year he rises about 34 degrees *south* of east and sets an equal distance *south* of west, traveling over a horizontal circle of only 112 degrees and reaching at noon an altitude of only 23 degrees above the horizon.

At the two periods of the year when the days and nights are of equal length (in March and September) the sun rises in the east and sets in the west, traveling over a horizontal eircle of 180 degrees and reaching at noon an altitude of 48 degrees (approximately) above the horizon.

The diagrams in Fig. 1 give the position of the sun at each hour of the day (sundial time) for the four periods of the year named.

Availing ourselves of this diagram, we may develop some useful principles to govern the general disposition and arrangement of hospital buildings.

Suppose "A" in Fig. 2 to represent a building square in plan, placed squarely north and south.

It is clear that the north wall will reeeive no sunlight at any time during the day during half the year (from September 22 to Mareh 21) and only a small amount in early morning and late afternoon during the other half; that the east wall will receive sunlight from sunrise till noon all the year round; that the south wall will receive sunlight all day during half the year (from September 22 to March 21) and a less amount during the other half, and that the west wall will receive sunlight from noon until sunset all the year round.

Suppose "B" in the same figure to represent the building placed at an angle of 45 degrees with the meridian.

It is clear that all four sides of the building will now have sunlight during some portion of the day throughout the year. The northeast wall will have the morning sun; the southeast and southwest walls will have the sun during the middle of the day, and the northwest wall will have the afternoon sun.

The following table gives the number of hours during whieh the walls in the two figures are exposed to sunlight at the four periods of the year named. It is evident that this table will serve not only for square buildings but also for buildings reetangular in plan.*

FIGURE A.

June 21.

N. wall	4 25 a. m. to 7.45 a. m. 4.15 p. m to 7.35 p. m.	6h 40m
E. wall	4 25 a. m. to 12 m.	7h 35m
S. wall	7.45 a. m. to 4.15 p. m.	8h 30m
W. wall	12 m. to 7.35 p. m.	7h 35m

* Sixth Report of the Medical Officer of the Privy Council, 1864.

† Galton, Healthy Hospitals.

‡ Small Hospitals. New York, 1894. Wiley & Sons.

* This table is calculated for sundial time, from the sun chart (Fig. 1), and is sufficiently accurate for our purposes.

March 21 and September 22.

N. wall	None
E. wall—6 a. m. to 12 m.	6h
S. wall—6 a. m. to 6 p. m.	12h
W. wall—12 m. to 6 p. m.	6h

December 21.

N. wall	None
E. wall—7.35 a. m. to 12 m.	4h 25m
S. wall—7.35 a. m. to 4.25 p. m.	8h 50m
W. wall—12 m. to 4.25 p. m.	4h 25m

Let us now compare the two figures with respect to the shadows they cast upon the ground.

Fig. 3 is the "shadow plan" of a cube, placed in the two positions in question. The shadows are drawn for each hour of the day from sunrise to sunset. They are superposed one upon the other, so that the depth of shadow at any particlar point corresponds to the length of time that point is without sunlight, the lightest tint representing

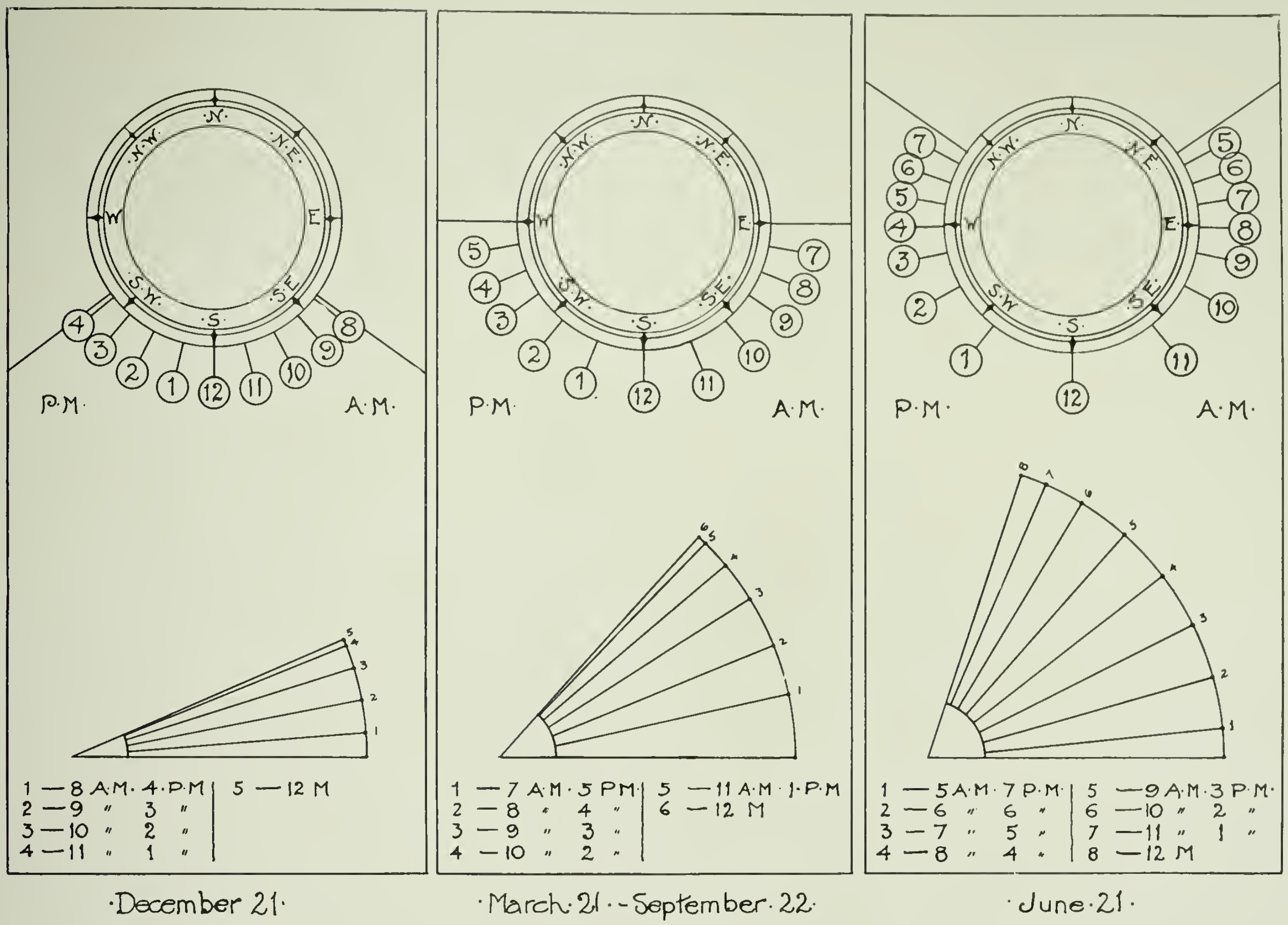


FIG. 1. SUN CHART.

FIGURE B.

June 21.

N. E. wall—4 25 a. m. to 10.45 a. m.	6h 20m
S. E wall—4.25 a. m. to 1.15 p. m.	8h 50m
S. W. wall—10.45 a. m. to 7.35 p m.	8h 50m
N. W. wall—1.15 p. m. to 7.35 p. m.	6h 20m

March 21 and September 22.

N. E. wall—6 a. m. to 9.45 a. m.	3h 45m
S. E. wall—6 a. m. to 2.15 p. m.	8h 15m
S. W. wall—9 45 a. m. to 6 p. m.	8h 15m
N. W. wall—2.15 p. m. to 6 p. m.	3h 45m

December 21.

N. E. wall—7.35 a. m. to 8.45 a. m.	1h 10m
S. E. wall—7.35 a. m. to 3.15 p m.	7h 40m
S. W. wall—8.45 a. m. to 4.25 p. m.	7h 40m
N. W. wall—3.15 p. m. to 4.25 p. m.	1h 10m

Evidently the arrangement shown at "B" has the better sun exposure.

In "B" all four walls have sunlight at some part of the day throughout the year, while in "A" 25 per cent of the wall surface is without any sunlight at all during one-half the year.

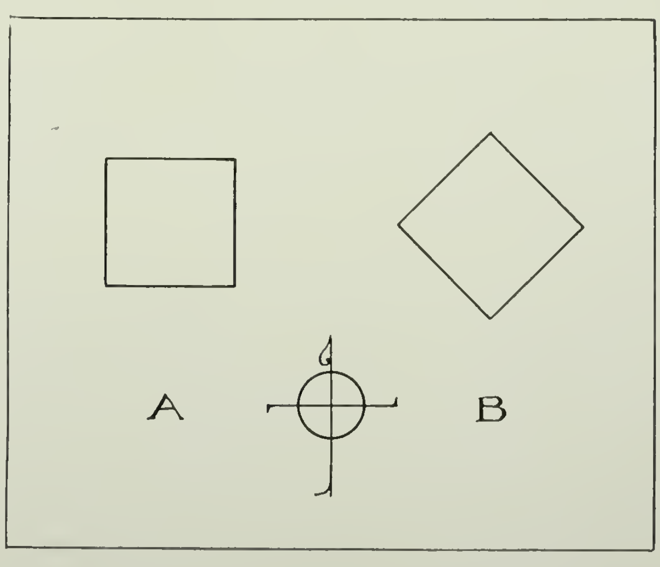


FIG. 2.

area in shadow for one hour or less and the darkest (solid black) area in shadow for eight hours or more. The Roman numerals denote the hour for which each shadow is drawn.*

The following table gives the areas of the shadows

From an inspection of the figure we see that in the case of "A" there is a considerable triangular area to the north of the cube (or building) which is exposed to the sun for a short time only in the early morning and late afternoon, whereas in the case of "B" there is no

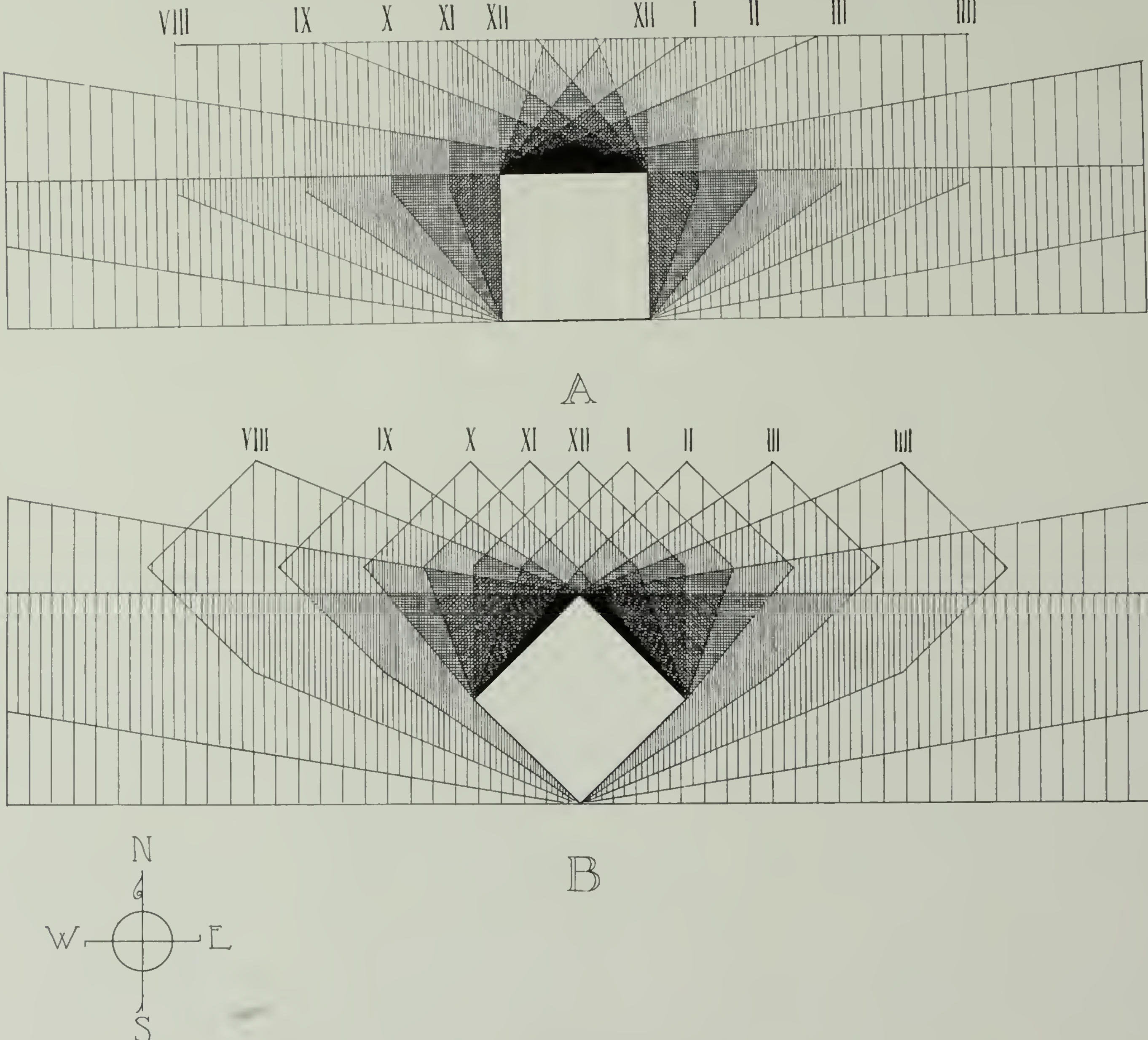


FIG. 3. SHADOW PLAN OF A CUBE.

cast upon the ground, supposing the cube to represent a building 100 feet square and 100 feet high:

	A. sq. ft.	B. sq. ft.
Area in shadow from 1 to 2 hours	49,922	71,175
" " " " 2 " 3 "	20,275	22,986
" " " " 3 " 4 "	12,053	12,833
" " " " 4 " 5 "	6,818	3,911
" " " " 5 " 6 "	4,616	2,733
" " " " 6 " 7 "	577	2,292
" " " " 7 " 8 "	508	2,115
" " " " 8 " 9 "	405	† 900
" " " " 9 " 10 "	350	none.
" " " " 10 " 11 "	250	none.
" " " " 11 " 12 "	200	none.

* In this and all the following diagrams the shadows are drawn for the two periods of the year when the days and nights are of equal length.

† In shadow from 8 to 8¼ hours.

portion of the area which does not have either the forenoon sun up to 9.45 A. M. or the afternoon sun from 2.15 onward.

It will be instructive to study the effect of a diminution in the height of the building.

If we draw out the shadow diagram for an object one-half the height of a cube (corresponding to a building 100 feet square and 50 feet high) we shall find that in the case of the position "B" *all* of the shadow areas are diminished in size, whereas in the case of the position "A" only those areas are diminished in size which are in shadow for six hours or less. (See Fig. 4.)

From a study of these diagrams we are led to the conclusion that a square building placed squarely north and south shades the ground area around it considerably more than the same building placed at an angle of forty-five degrees to the meridian.

In the series of diagrams which follow are shown the principal types of hospital plan placed in various positions in regard to the sun.

As it would be impracticable in the space at my command to give a separate shadow plan for each one, I have represented for each figure only that portion of the area which is without sunlight from 8 A. M. to 4 P. M. or longer, the lightest tint indicating area without sunlight from 8 A. M. to 4 P. M., the medium tint area without sunlight

The light and medium tinted shadow areas would not be affected by an increase in height, but those in solid black would be increased or diminished according to the height of the blocks. This is important to bear in mind in studying the diagrams.

The single straight block (Fig. 5) may fairly typify a single ward pavilion as well as the simplest type of block plan.

There is a difference of opinion as to the best orientation for ward pavilions.

In a description of the Heidelberg University Hospital,

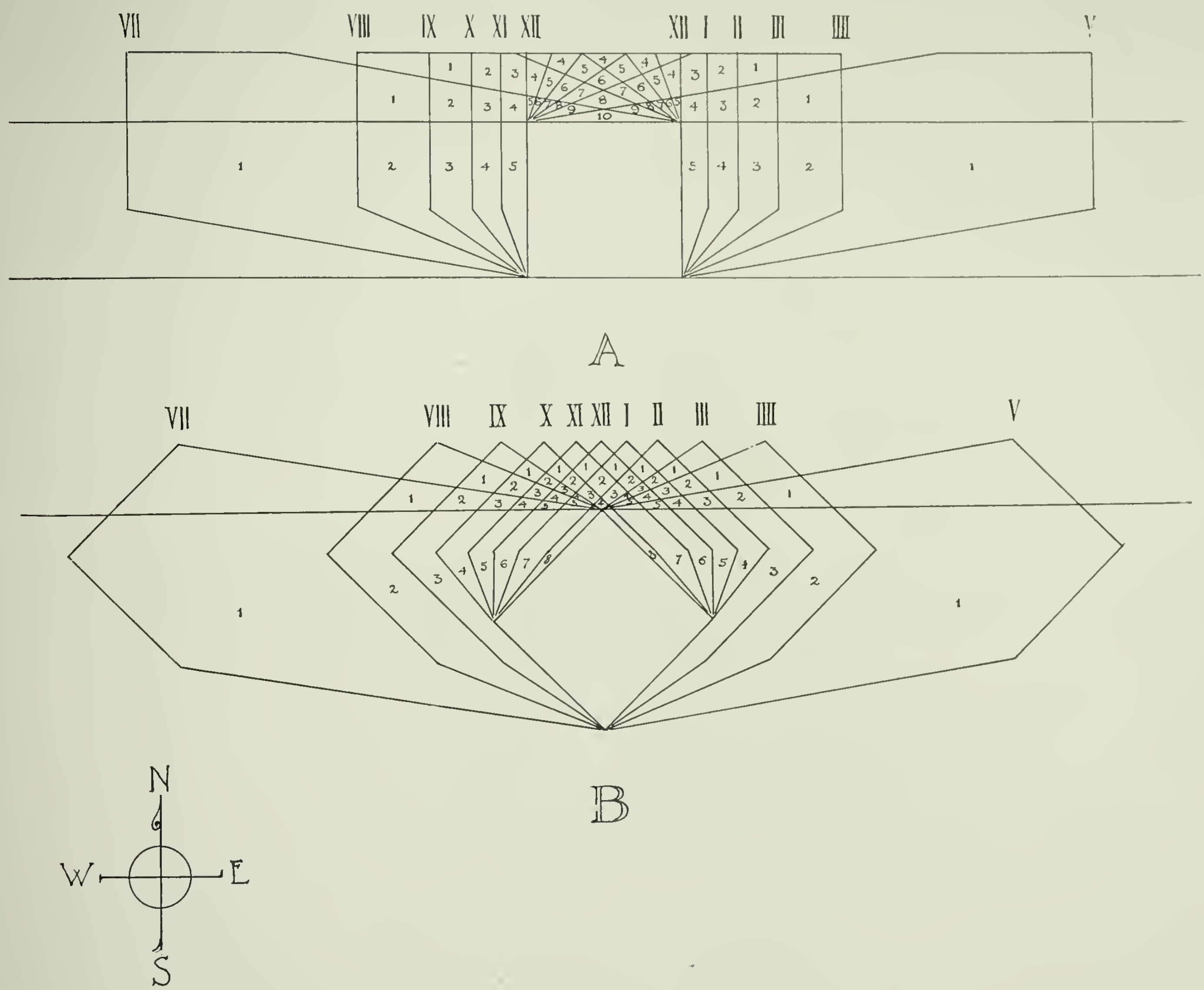


FIG. 4.

from 8 A. M. to 6 P. M. or from 6 A. M. to 4 P. M., and the solid black area without any sunlight whatever during the day.

In these diagrams I have followed Burdett's classification of hospital plans, to wit:

The single straight block.

Two blocks arranged as an L.

Three blocks arranged as a U.

Three blocks arranged as an H.

In the case of the single straight block, the height is supposed to be equal to its width, and in the case of the compound plans, to be equal to the width of the wings.

given in Mouatt & Snell's "Hospital Construction and Management," it is stated that "the question of the aspect of the windows of the wards was only settled after very great deliberation by the authorities charged with the erection of this building, and Dr. Knauff gives in his work* a very exhaustive account of the considerations which ultimately led to the determination of placing the axes of the various pavilions as nearly east and west as the shape of the ground would permit. Actually their direction is about E. S. E. and W. N. W. It is remark-

* Das Neue Academische Krankenhaus in Heidleberg.

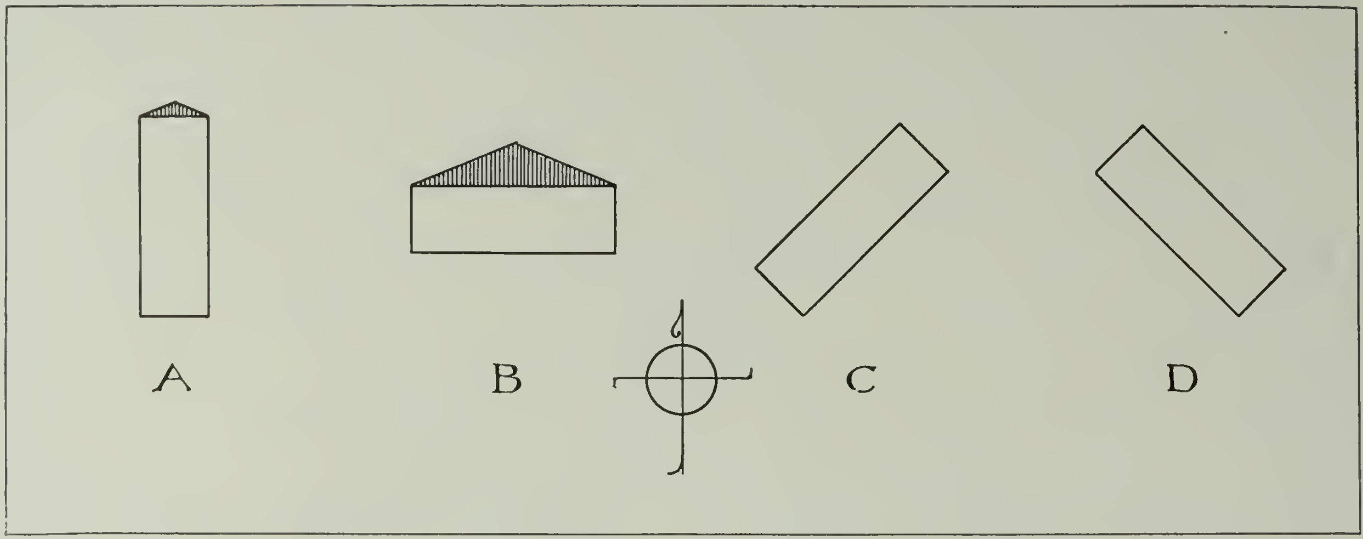


FIG. 5. THE SINGLE STRAIGHT BLOCK.

able that the Friedrichshain building authorities, as the result of their deliberations on this question, arrived at an exactly opposite conclusion, and placed the axes of their pavilions directly north and south."

In a list of 38 hospitals, given in the same work, there are 13 in which the pavilions are placed approximately north and south, 15 in which they are placed approximately east and west, 6 in which they are placed approximately northwest and southeast, and four in which they are placed approximately northeast and southwest.

The following table gives the percentage of wall surface which is without sun at any time during the day for the four different positions shown in Fig 5:

A—12½%.	C—None.
B—37½%.	D—None.

It will be observed that in the case of "A" and "B" there is a considerable area of ground to the north of the buildings which is in shadow from 8 A. M. until 4 P. M., or practically without any sunlight at all during the day; whereas, in the case of either "C" or "D," there is no portion of the ground around the buildings which is without sunlight.

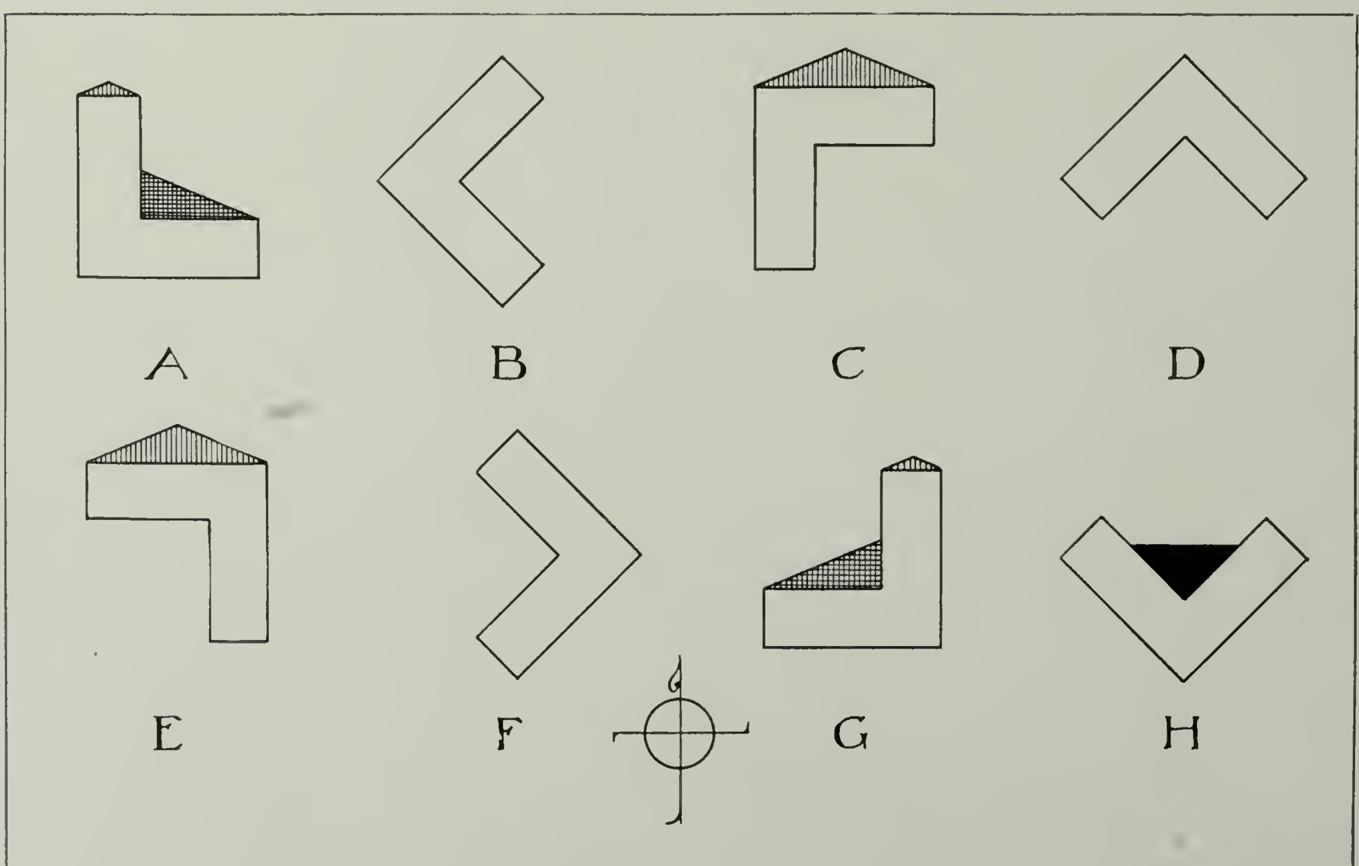


FIG. 6. TWO BLOCKS ARRANGED AS AN L.

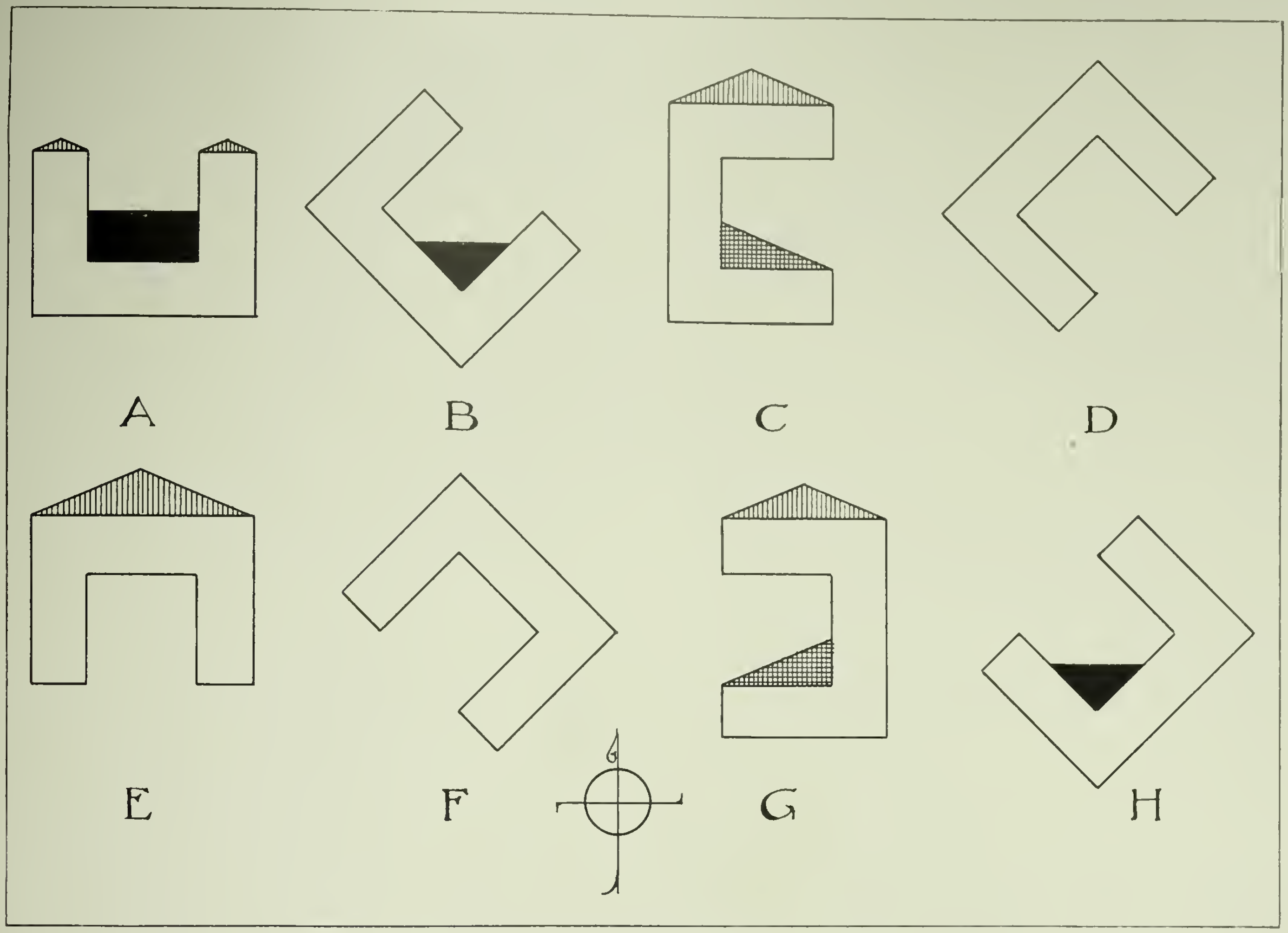
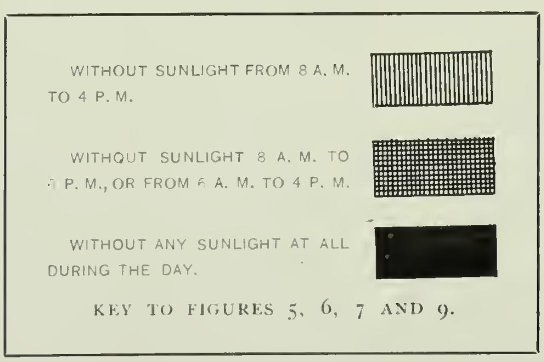


FIG. 7. THREE BLOCKS ARRANGED AS A U.

In the position "A" the windows on each of the long sides have the sun for an equal amount of time during the day, the windows on the east side having the sun during the forenoon and the west windows the afternoon sun. For a pavilion divided up into separate rooms, with windows only on one side, this might be considered an advantage.

Bearing in mind, however, that the forenoon sun is more prized than the afternoon sun, it is suggested that the position "D" is equally as good as "A" in this respect, inasmuch as one of the long sides has the sun from sunrise until 9.45 A. M., and the other from 9.45 A. M. until sunset, each long side thus having a share of the forenoon sun.



KEY TO FIGURES 5, 6, 7 AND 9.

The plan of two blocks arranged as an L (Fig. 6) is a common one for hospitals on the block plan, especially on confined sites.

From an inspection of the diagram it is seen that the positions "B," "D" and "F" are preferable to any of the others, while "H" is the least good.

The following table gives the percentage of wall surface without sun at any time during the day (Fig. 6):

A—28%.	E—25%.
B—None.	F—None.
C—25%.	G—28%.
D—None.	H—10%.

A good form of block plan is that of three blocks arranged as a U, giving a court enclosed on three sides (Fig. 7).

The best position for this type of plan is either "D" or "F," which are equally good.

The bad effect of such a court with a north aspect is easily seen from an inspection of the diagram ("A"). The northeast ("B") or northwest aspect ("H") is much better. This may be seen more clearly from the isometric view (Fig. 9), which contrasts a court with a north aspect with one having a northeast aspect, the shaded portion in each figure denoting the wall and ground surfaces which are without sun at any time during the day. Note especially the small amount of surface in shade in the court with the northeast aspect, almost insignificant in the case of a one-story building.

The following table gives the percentage of wall surface without sun at any time during the day (Fig. 7):

A—27%	E—22%
B—7%	F—None.
C—30%	G—30%.
D—None.	H—7%.

In the "H" type of block plan (Fig. 8) it is to be observed that in whatever position it is placed there is a

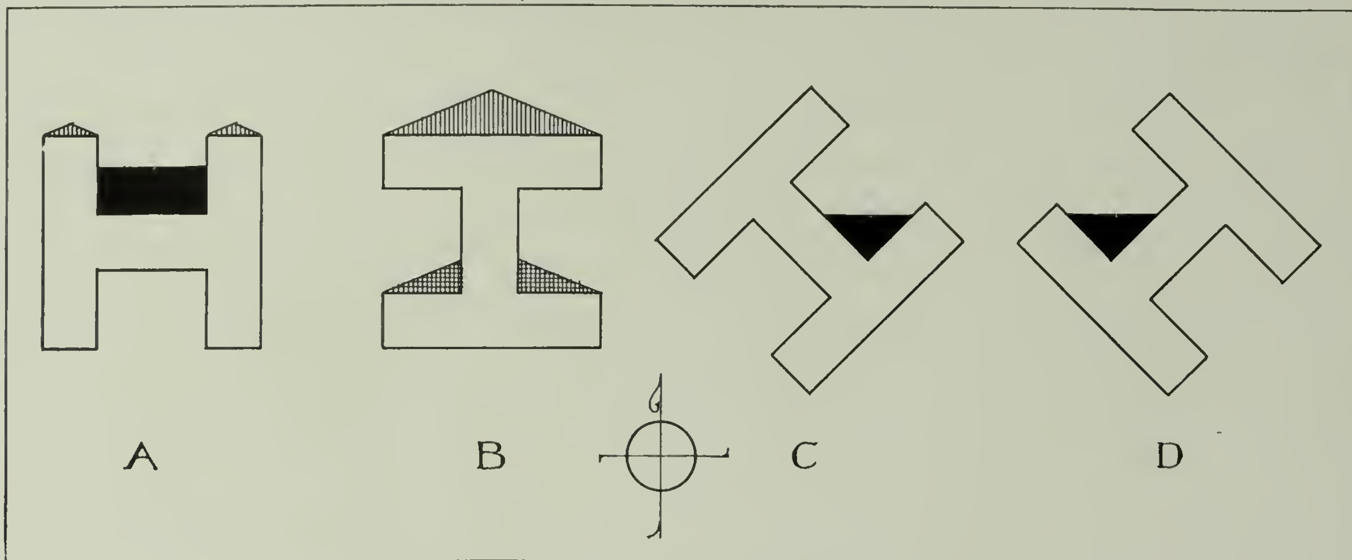


FIG. 8. THREE BLOCKS ARRANGED AS AN H.

portion of the wall and ground surface without sunlight, and it may therefore be dismissed as an unsuitable type of plan for hospitals.

Other forms of block plan may be made by combining the elementary forms above given, such as the cross plan,

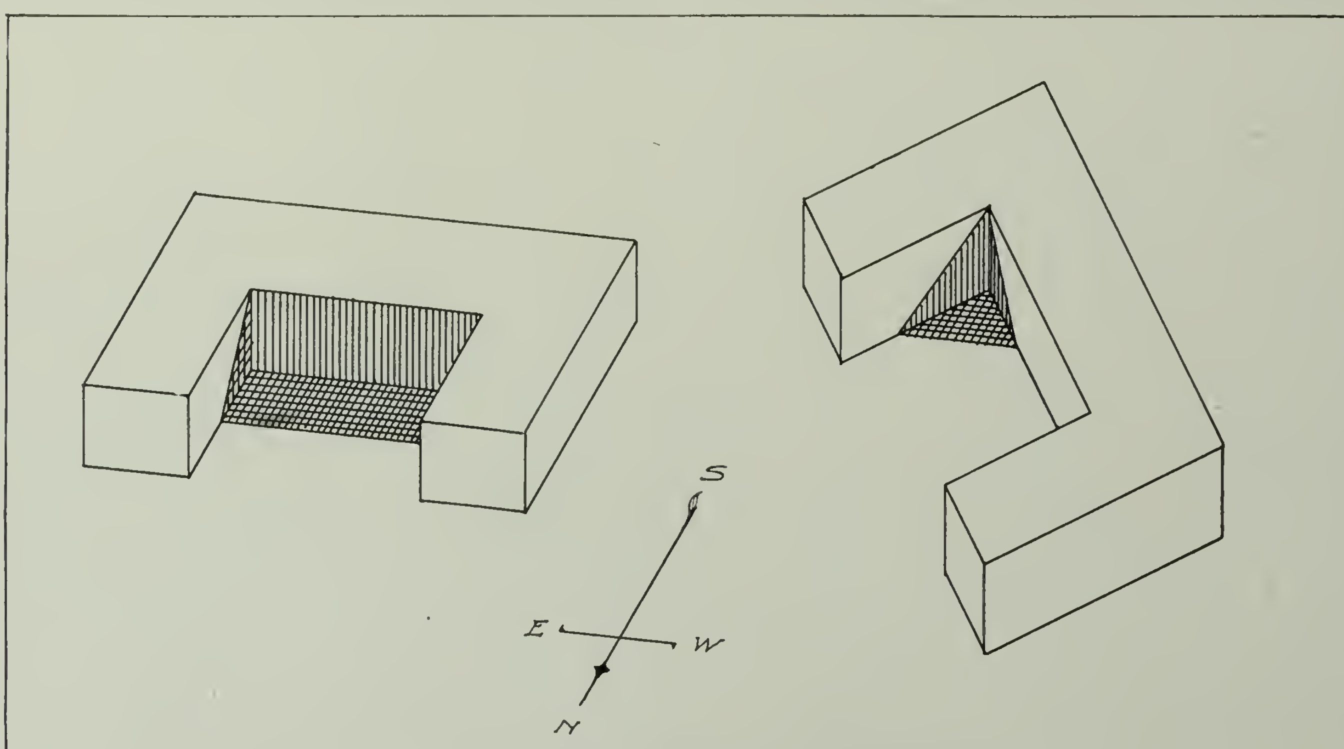


FIG. 9. THREE BLOCKS ARRANGED AS A U, ISOMETRIC VIEW.

which is a combination of two Ls, or the "E" plan, which is a combination of two U plans, and others, but the elements of nearly all such plans will be found to consist of U shape courts enclosed on three sides, or re-entrant angles of L shape, both of which have been investigated in the foregoing discussion.

We are now prepared to announce our final judgment, to wit: That for isolated buildings of all ordinary rectangular types of plan the location of the main axes of the buildings at an angle of 45 degrees to the meridian yields in all respects a satisfactory sun exposure for the wall and ground surfaces.

In the above discussion we have considered isolated buildings only.

In the pavilion type of hospital plan, which consists of a number of separate buildings of various shapes and heights, either entirely isolated or more or less connected by corridors, the problem becomes more complex, as it is necessary to consider the shadows cast by the different buildings upon each other. A separate and careful study of each case upon the lines indicated is a necessary preliminary to the creation of a successful hospital plan.

Rowton House, Whitechapel, London.

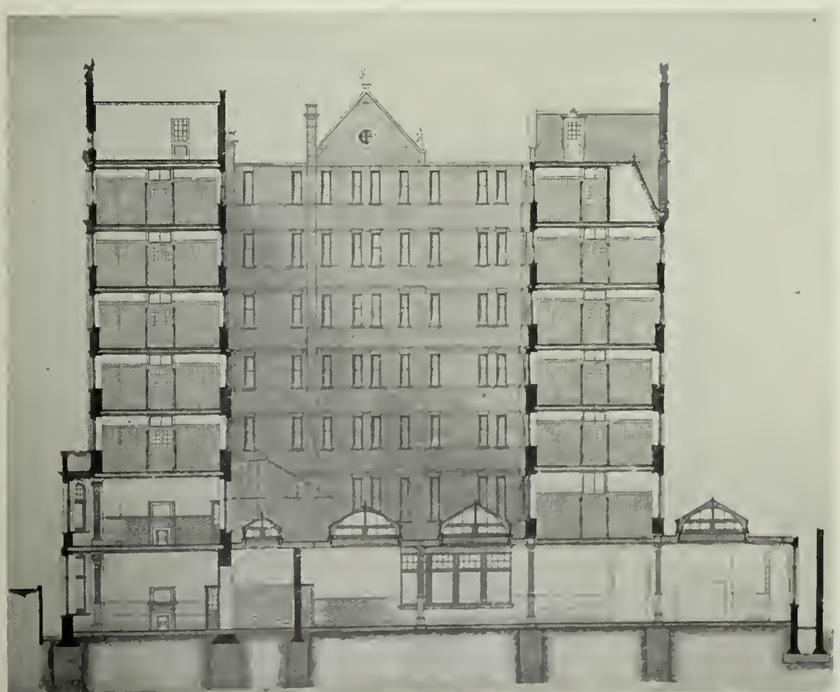
BY R. RANDAL PHILLIPS.

A ROWTON HOUSE is an astonishing example of what can be had for a small sum. Workingmen can stay there for twelve hours, with a clean bed, a place to take their meals, a footbath and the advantages of reading and recreation rooms, all for sixpence. And so far as the meals themselves are concerned there is no stipulation even that these shall be bought in the house (though this can be done at the cheapest rates), for if they choose to do so men may bring in their own food and have the use of a cooking stove and frying pans, pots, china, etc., without any extra charge. Moreover it should be remembered that "Rowton Houses, Limited," is not a philanthropic institution, but a business concern that pays a dividend of five per cent on its outlay, all profit in excess of that amount going towards the erection of new houses. The fifth and latest of these "poor men's hotels" is Rowton House, Whitechapel, in the east of London, which was formally opened last year. It has 816 cubicles. The first of these houses was opened in 1893 at Vauxhall, in the southwest of London; it has 475 cubicles. Two years later a house was erected at King's Cross, in the west central part of London; it has 677 cubicles. Then in 1897 came one of 805 cubicles at Newington Butts, in the southeast of London (by an addition just opened the building now has a total of 1,015 cubicles, with an extra smoking and writing room); then one of 800 cubicles at Hammersmith, in the west of London; and lastly this house at Whitechapel.

It should be explained that these buildings only pay a profit when the cubicles are fully occupied every night. That they are so occupied — indeed scores of men are turned away nightly — proves how exceedingly popular the houses are among the men whom they are intended to benefit.

ENTRANCE FRONT, ROWTON HOUSE, WHITECHAPEL, LONDON.
Harry B. Measures, Architect.

At the ninth annual general meeting of Rowton Houses, Limited, held in March last, a dividend of three per cent only was declared, but this was due to the outbreak of smallpox in London, for the houses had to be closed against newcomers, and the revenue consequently suffered a good deal. Sir Richard Farrant said at that meeting that the company now had 3,993 cubicles and that these were not sufficient for the demand. In existing circumstances a number of what may be called permanent lodgers are elbowed out from time to time by casuals. As a rule the casual is not so cleanly a person as a permanent lodger, and it would be impossible to pay a dividend if the company had to depend on him. At present the charge of sixpence per night is made irrespective of who the men may be, but in the future it is proposed that those booking for a week shall be charged *3s. 6d.* for that time and others *7d.* per night. About seventy-five per cent of the lodgers would be unaffected by the change, so far as the houses at Vauxhall, King's Cross, Newington Butts and Hammersmith are concerned. At Whitechapel the conditions are different. The site there cost more than the others, the building has been more costly, and the assessment is very high. The company therefore feel it will be necessary to charge *4s.* for weekly bookings in that house and *8d.* for single nights; besides, the amount of petty pilfering at Whitechapel has been serious, and this has not been the work of the permanent lodgers, but of the casuals.



ROWTON HOUSE, WHITECHAPEL, LONDON. SECTION ON A B.

FOOTBATHS.

A CUBICLE.

LOCKER CORRIDOR.

The Whitechapel house has its main front on Fieldgate Street. (Any one desiring to visit it should go on the Underground Railway to St. Mary's Station.) The site consists of two adjoining parallelograms, the larger of which has a frontage of 192 feet, with a depth of 129 feet, the smaller having a back frontage of 75 feet and a depth of 67 feet, the total superficial area being 29,500 feet. On each side are wide fore courts, which, with an inner courtyard 50 feet wide and open at one end, provide abundant light and air; while electric light is installed throughout, and on a system which gives the official on each floor of cubicles the control of the lights on that floor, with central control of all in the office on the ground floor.

The exterior of the building is of red pressed Leicester facing bricks, relieved with Flettons and terra-cotta dressings; inside Fletton (where plastered) and glazed bricks are used throughout. The whole of the brickwork is set in Portland cement mortar. Green slates are used on the roofs to the front elevation, nailed on coke-breeze concrete slabs carried by steel construction. The other roofs are concrete flats covered with asphalt. The sanitary work has received special attention, iron pipes with coated interiors being employed wherever it has been necessary to carry them under the building.

MAIN CORRIDOR.

For administrative purposes the building is divided into the five following sections: superintendent's department; catering section, which includes sleeping accommodation for females employed in the shop, kitchen and scullery; bedmakers; lodgers' day rooms; and lodgers' cubicles. The superintendent's residence is of two stories and self-comprised, with an office and clerk's residence adjoining, the office being immediately inside the main entrance to the building.

The catering department is on the

DINING ROOM.

OFFICE AND ENTRANCE.

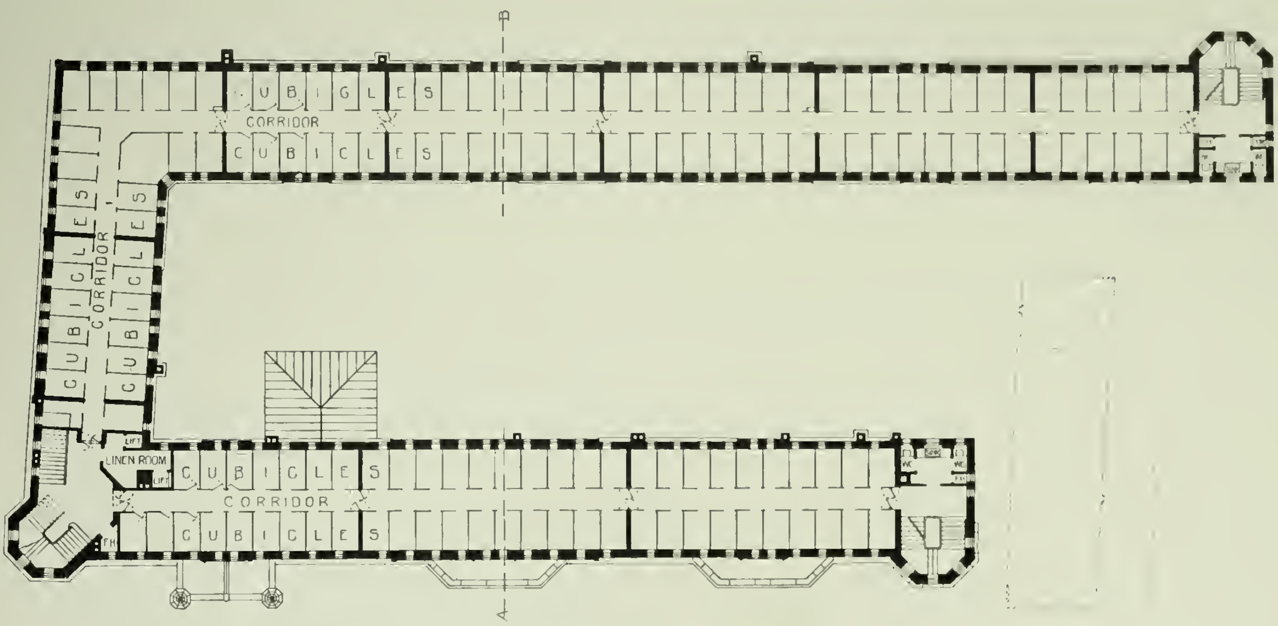
ground floor and comprises kitchen, scullery, larder, shop, service lobbies, storerooms and servants' rooms (one sitting room, six bedrooms, bathrooms, lavatory and water-closet).

The rooms, other than the sitting room and bedrooms, which are plastered, are lined with glazed brickwork from floor to ceiling, with a dado in chocolate bricks and white above. The kitchen measures 29 feet by 20 feet and has a wood block floor with tiled margin and hearths. The scullery is 27 feet by 22 feet and has large teak sinks, draining boards, plate racks and dresser; the larder is 15 feet 6 inches by 8 feet. Adjoining the main dining hall is a shop with sash windows and counter for service.

We now come to the lodgers' day rooms, which include a smoking room, reading room, dining room, scullery, etc. Leading to the right off the main entrance corridor on the ground floor is the smoking room. This has a floor space of 1,936 feet, and its windows look into Fieldgate Street, so that there is ample light. The tables and seats, as in the dining room, are of teak and seat one hundred and forty lodgers, in addition to which wooden easy-chairs are provided around the two fireplaces and in bays. Here again the walls have a dado of chocolate and cream bricks, with plastering above tinted a terra-cotta shade; mantels and overmantels are in glazed faience and fitted with large open grates.

Opposite, on the other side of the corridor, is the dining room. As well as windows it has large ventilating top-lights opening into the central courtyard. It is a very large room, the floor space being 5,891 feet, and seating accommodation at tables is provided for 456 men. There are four large cooking ranges with ovens, hot plates and grilles, and large boilers at the back with boiling water for lodgers' cooking, tea, etc. The scullery adjoining is intended for lodgers who wish to prepare their own food for cooking; in fact, every provision seems to have been made, so that the men may buy their meals cooked from the shop, buy raw material there and cook it themselves, or bring their own food and cook it; thus every one's personal means and inclination are considered. Adjoining the dining room are also a shelved room for crockery, cooking utensils, etc. (for the free use of lodgers who wish to prepare their own food), and a large space with more than eight hundred lockers, divided by seven passages top-lighted and ventilated. The lockers are 3 feet high by 1 foot 6 inches square inside and are arranged in three tiers.

The lavatory is at one end of the building and is 38 feet wide by 40 feet long. It is lined with glazed brickwork and has eighty basins of white enameled fire clay fitted with polished slate tops, brass taps, etc., the waste pipes discharging over an open white enameled earthenware channel in the floor, which is laid in falls to the channeling for cleansing and quick drying. The hot water pipes are exposed, and the heat radiated from them helps to warm the lavatory.



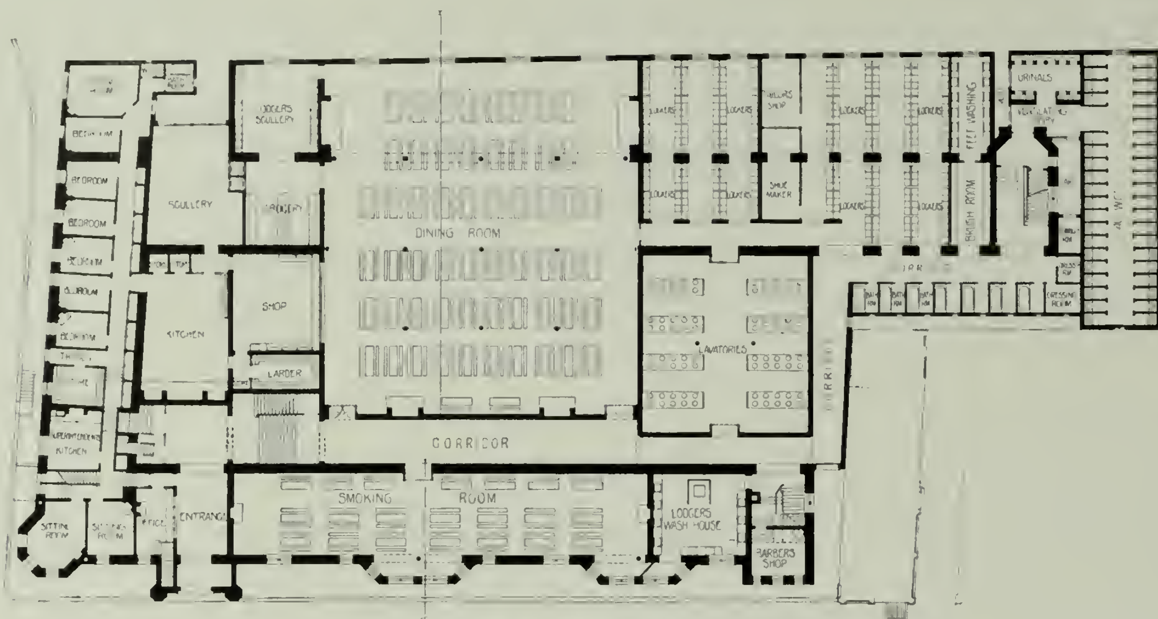
FIRST FLOOR

THE LAVATORY.

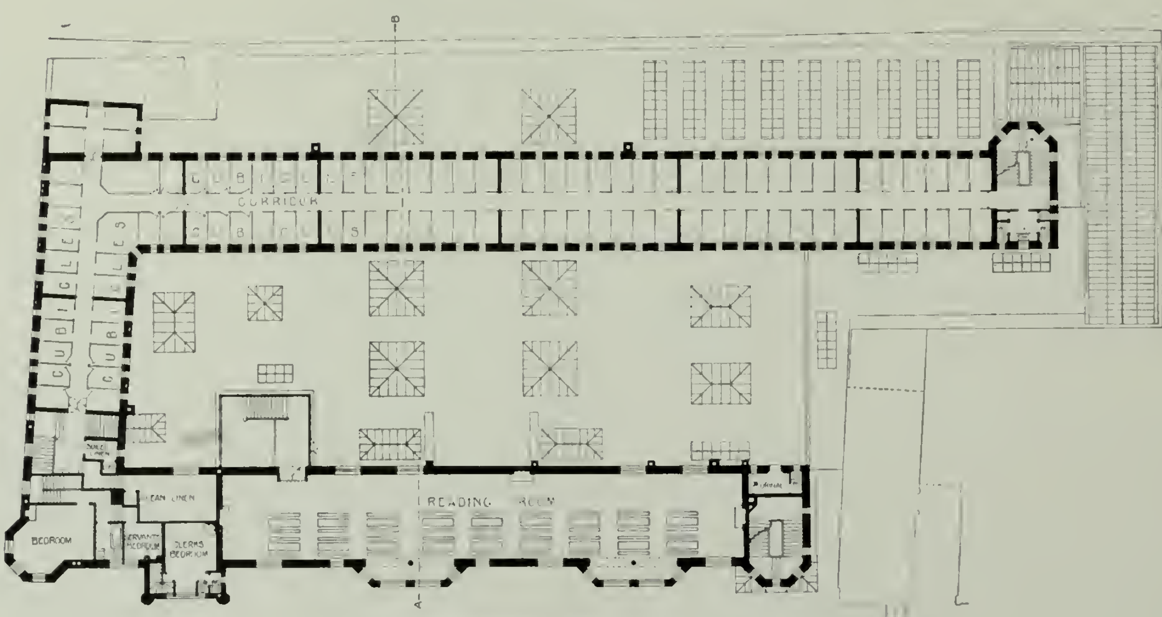
The other rooms on the ground floor include one fitted with eleven feet-washing troughs, seven bathrooms, two dressing rooms, a wash house where lodgers may wash their own garments, barber's, shoemaker's and tailor's shops, a place for cleaning boots and clothes, porters' day room, and parcel room; while outside in the courtyard, and cut off by a cross-ventilated lobby, are forty water-closets in one building and ten urinals in another.

artist in the elevating work of a Rowton House. Close by, on the roof over the dining and other rooms, is a smoking lounge.

The cubicles alone remain to be dealt with. They are approached by three fireproof staircases, all at the ends of the corridors, so that the lodgers cannot be trapped by fire, in addition to which each floor is divided by walls into ten sections, which would check the spread



ENTRANCE FLOOR



GROUND FLOOR

A fumigating room is also provided outside the building and a drying room formed where waste heat from the furnaces can be utilized.

Over the smoking room, on the first floor, is the reading room. Two bookcases are included in it, and the books are lent to lodgers on application to the superintendent. There are pictures on the walls, and, in addition, a series of panels of "The Seasons," painted by Mr. H. F. Strachey, given as the practical interest of an

of a fire horizontally; this sectioning, too, enables isolation and fumigation to be carried out in the event of an outbreak of contagious disease. There are five floors of cubicles. Each bed is in a separate cubicle, and each cubicle has a window under the control of the occupant. The cubicles are divided up by wood partitions painted a light color and varnished; the partitions next to the corridors are 6 feet 6 inches high, while the divisions are 7 feet 6 inches high, leaving a space above for ventilation.

Economics of Construction. III.

BY JOHN LYMAN FAXON.

THE *units* for office buildings vary somewhat according to demands of local needs or supposed desirable sizes, but, as a rule, the needs of any given line of office business are substantially the same, and there is no

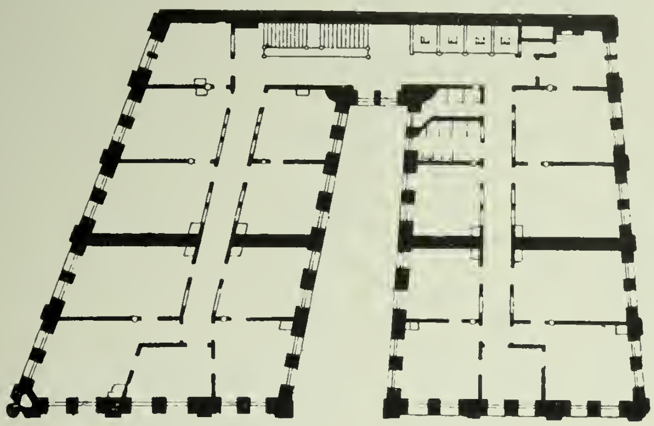


FIG. 1.

special reason why they should not be the same in Boston, New York, Chicago and other large cities, but the plans of office buildings show a useless variation in sizes of subdivisions, some showing sizes as much too large as others too small.

We have made some extended inquiries in reference to desirable units, and the consensus of opinion is that the best proportion is 4 to 5; that offices approximately 12 feet by 15 feet and 14 feet by 18 feet are most desirable; that dimensions less than 11 feet wide or 12 feet deep are not desirable, except for light business requiring desk room only, and that while it is desirable that all office buildings have a few small offices, it is not a good scheme to plan a whole building on such small units. For illustration of the *unit* system, we reproduce some plans, and outline modifications. (See Figs. 1, 2, 3, 3*a*.)

The area and angles of plan shown in Figure 1 are not such as present a ready solution at first glance, but it is subject to a similar scale of units as shown in Figure 3, in place of that as shown in Figure 2, and that such solution of the problem is better for business purposes and would make a material saving in cost. The area and shape of Figure 2 more easily adjust themselves to a desirable unit, as shown in Figure 3. In this problem we have a lot with three open sides, two right angles and one side at an off angle. The offices in Figure 2 vary from about 17 x 17 feet to 17 x 30 feet; the lay-out is costly as to construction. It will also be noted that the columns are irregularly disposed as to locations in the several offices, and such disposition takes up more than 100 per cent of rental area over that shown in Figure 3; also the columns in Figure 2 break up the use of office walls. The area of building to lot, Figure 2, is approximately 83 1/3 per cent; that of Figure 3, 81 per cent, a saving of 2 1/3 per cent. The rental areas of Figure 2 are approximately 55 9/10 per cent per floor; those of Figure 3 are practically the same, yet the wing corridors in Figure 3 are 50 per cent wider than in Figure 2, the unit of corridors in Figure 2 being about 1 to 3, in Figure 3, 3 to 5. A corridor unit of 1 to 3 is too narrow in any case, and 3 to 5 is none too large.

The office units, Figure 3, are approximately 4 to 5, 15 x 19 feet, except the six large offices in left wing, 15 x 25 feet; 15 x 31 feet; 15 x 37 feet; the small offices

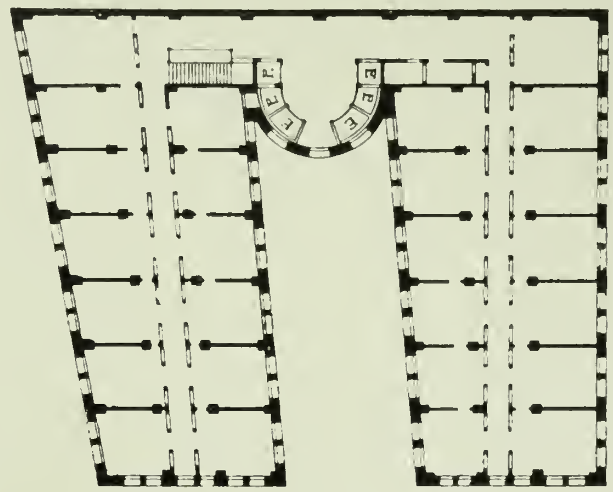


FIG. 2.

at ends of corridors, 9 x 10 feet; those at the front serve as private offices to suites of three to five offices; those at the rear (with borrowed light only) may be used as private offices, or are valuable for storage of books

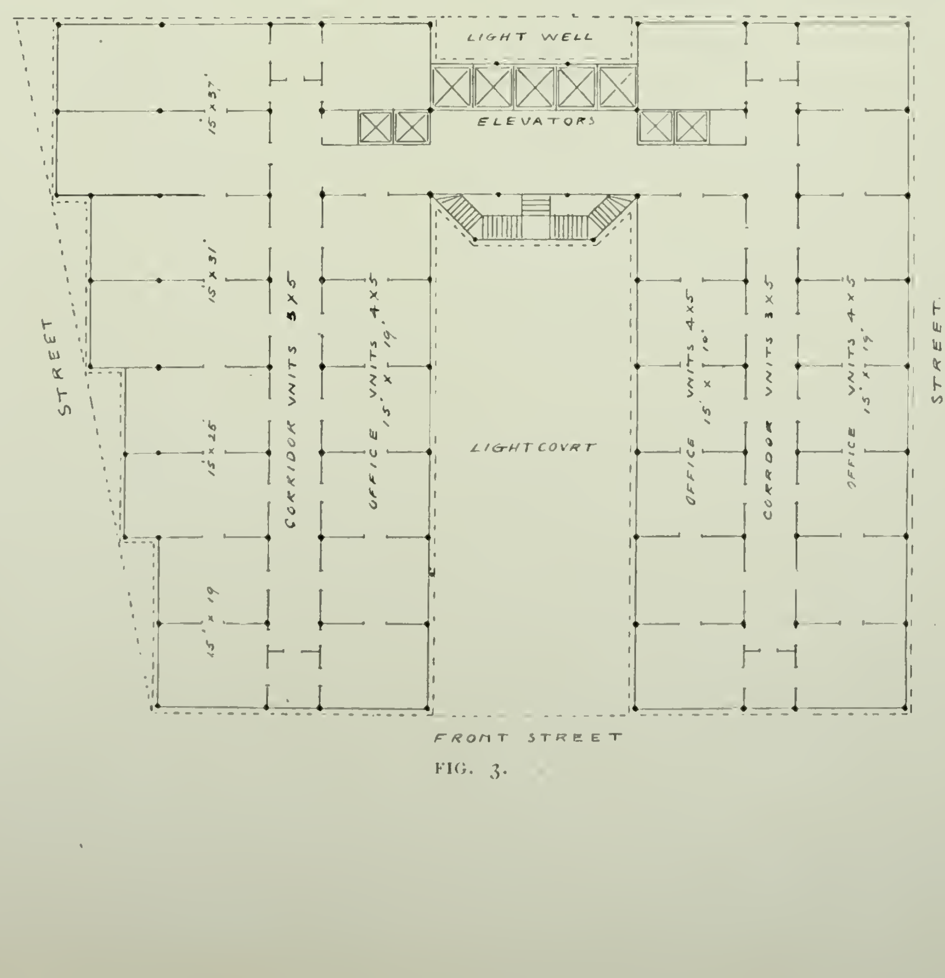


FIG. 3.

and papers of large corporations. The 15 x 25 feet offices are not excessively bad shape; the 15 x 31 feet and 15 x 37 feet offices overrun the mark, but these larger offices gain in light by having wall spaces for windows looking to the front; the gain in desirable size, unit of space, of all the other offices, and the saving in cost more than outweigh the undesirable size of the oversized offices. The saving in cost, plan Figure 3, over that of Figure 2, approximates $110,000 in a twenty-story building. This saving will in twenty-five years amount to about $293,000, to say nothing about reduced cost of insurance, which will amount to quite a penny in twenty-five years.

The essential elements in office buildings as a business proposition are: (*a*) Thoroughly *fireproof* construction, long life at minimum cost consistent with quality. A building of solid masonry construction meets this. (*b*) The use of best materials regardless of cost, which insure the *least* amount of materials and labor when rightly employed. (*c*) The omission of every ounce of woodwork and finish down to bare necessities (which are relatively small). It would be a great improvement if all flooring throughout were of terrazzo. Such floors are more lasting, cleaner, more sanitary and more desirable in every way, but probably 95 per cent of clients would put them out of consideration on account of first cost. In respect to doors, a metal-faced door on a wood core frame is not such a vast improvement over one of all wood. Some day some man or company will perfect a light fireproof door made of compressed asbestos. (*d*) The maximum amount of rental area consistent with a *unit* plan, wide corridors, cost of construction, light, and reduced premiums for insurance. (*e*) Mechanical plants that will reduce operating expenses from 16 to 20 per cent. This is not a rash statement. The average sum of fixed charges and expenses for office buildings in Boston is, as a rule, 40 per cent of gross income in the majority of cases, to 50 per cent in some cases. We know that this amount can be reduced materially without loss of efficiency or care.

As to insurance, the general practice is to insure for about 80 per cent of cost of building, and the rates vary from $1.75 to $2.50 per $1,000, according to location, surroundings and risk. On a solid masonry building 25 per cent would be *ample* protection and at lowest rates. This item alone means a saving of $28,000 in twenty-five years on a building costing $600,000.

The above means a larger per cent of gross and net income, which is the final and telling analysis in lowest terms of the value of a real estate investment.

Some years back one or more papers were published on the basis of units for office buildings, for lots of different areas, from which we select a typical plan for a building on a lot 50 x 100 feet or 5,000 square feet. As will be noted by the plan shown in Figure 4 the front offices (1, 2 and 3), 16 x 20 feet, have a four to five unit; the other offices have a unit of width of 9 feet 9 inches, which is too narrow; ten of them have a length of 15 feet and a corridor unit of 5 feet to 9 feet 9 inches. The rear wall, in the original, is shown as a dead wall. Offices 4 and 5 are 9 feet 9 inches x 21 feet 6 inches, and have windows against the corner at one end of a long side, which would not afford good light for offices of such areas and dimensions. Offices 16 and 17 are 9 feet 9 inches x 17 feet 6 inches, with windows at the ends.

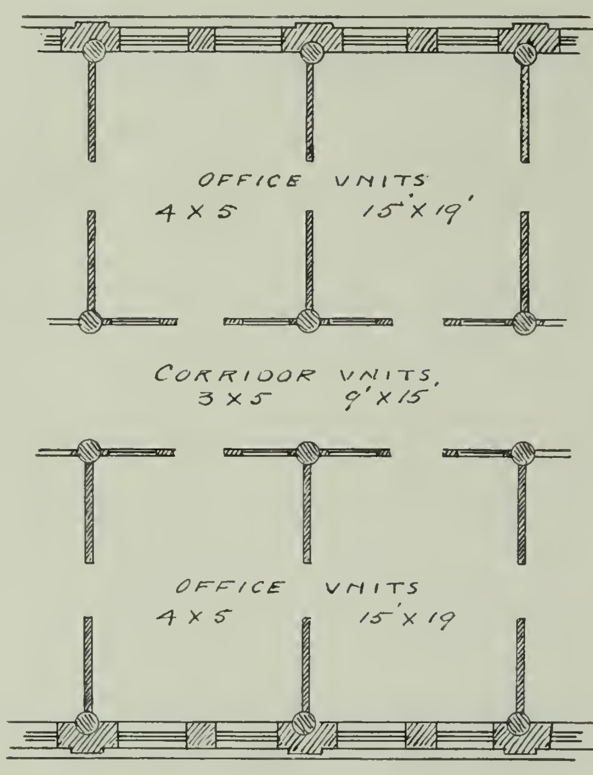


FIG. 3*a*.

In this plan (Fig. 4) the elevators and stairs are not well placed, as they are not central to all offices, being so near to the front that they seriously cut into valuable rental areas in the basement and first and second stories. Four elevators are too many for size of building, two being plenty for twelve stories, of this area. In respect to elevator service, a general good rule is, that 2½ per cent of the rental area (of one floor) is a fair allowance for a building ten to twelve stories high, and 5 per cent for one of twenty stories. A larger number of *small* elevators affords better service than a smaller number of *large* elevators.

The water-closets are inconveniently placed, and the steel framing is not economical. The outside columns are indicated as shown in original, the inside columns would need to be located and spaced as shown at A A or as at B B. They could not be spaced otherwise, for wash basins and communicating doors in all partitions are shown (in original) as indicated at A A.

Figures 5, 6, 7 and 8 show a unit plan of an office building, on lot 50 x 125 feet or 6,250 square feet, twelve stories, and illustrating four different systems of construction, *A*, *B*, *C* and *D*.

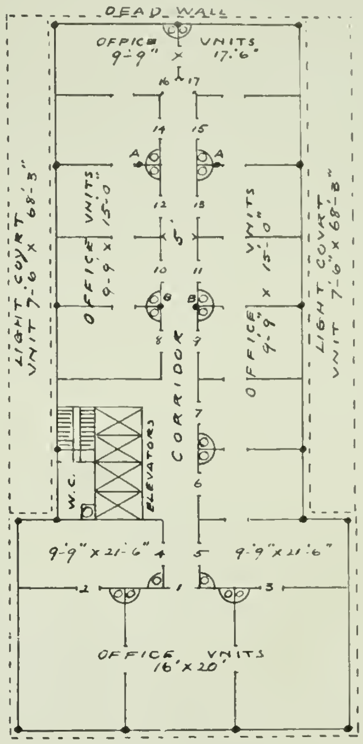
System A indicates a minimum number of columns, maximum cost; steel columns, I beams and terra-cotta flat arches.

System B indicates same number of columns with another disposition, less cost than *A*, steel columns, I beams and terra-cotta flat arches.

System C indicates a larger number of columns, less cost than *B*, I beams and terra-cotta flat arches.

System D shows same arrangement of supports (C. I. columns, fireproofed, or brick piers) as *C*, of solid masonry construction, in single vaults for unit of space, no steel frame, and is the least costly as will be shown by figures below. The units of space in *D* can be covered either with terra-cotta vaulting of requisite shapes or by the Guastavino system, and of two-centered, four-centered or flat dome vaults.

In and for such a building the question of economics is as to that system which will insure the least hazard as to life of structure, maximum protection against fire, low cost and insurance risk; not only in respect to cost of erection *per se*, but in respect to cumulative cost as an investment, earning capacity and net per cent income, for a term of years.



STREET FRONT.
LOT 50 X 100 FEET.
FIG. 4.

Assuming that the land costs $100 per square foot, the total investment at completion of building will amount to (steel frame system *A*) $1,215,970 — land, building, carrying charges, architect, taxes, and small allowance for contingencies and extras.

To yield 4 per cent net per annum, the gross income must approximate $9\frac{1}{2}$ per cent on the investment. Our estimate of fair rentals amounts to $112,948 gross or $9\frac{23}{100}$ per cent, but by the lower cost of system *D*, under system *A*, and the saving in operating expenses, it would gain a little over four-fifths of 1 per cent gross, which is quite material. Now, to arrive at a determination as to which system of construction is the most economical, we need to base comparative estimates, not only on first cost, but for a term of twenty-five years (assuming such term to be the maximum life of a steel frame building as now erected), for there are items of cost, charges, rent, interest, etc., which are compounded in any fixed term of years.

Assuming that the exterior walls are the same as to resistance to fire, either within or without the building, that the architectural treatment and general finish are the same as to quality and cost in *A*, *B*, *C* and *D*, we then have, as determining factors as to cost and net per cent, the relative cost of supports, floors, roof, fireproofing, architect's commission, loss or gain in rental areas, insurance and interest, which sum up as follows in twenty-five year term:

System A, Fig. 5 (S. F. and T. C.*),	$394,547.91
" *B*, " 6 " " "	378,621.65
" *C*, " 7 " " "	298,727.76
" *D*, " 7 (all masonry),	266,683.83

So in *D* as against *A* we have a saving or profit of $127,864.08, or 48 per cent. The above amounts, in relation to initial investment, are:

A, 32.4 per cent.	*B*, 31.1 per cent.
C, 24.5 per cent.	*D*, 21.1 per cent.

And what is of more importance, we have in *D* a building good for fifty, one hundred or one thousand years so far as structural permanency is concerned, instead of one good for eighteen to twenty-five years.

This difference in cost means, reduced rents, or a higher rate of gross and net per cent income; tenants do not inquire as to the *system* of construction, when a building is supposed to be fireproof and up to date; consequently there would be no call to reduce rents; on the contrary, if it were known that an office building stood indestructibly *fireproof*, as it would be under system *D*, tenants would undoubtedly pay full as much or more rent, as the feeling of security would be enhanced, and cost of insurance less.

All of which emphasizes what we said in the first paper, that the burnt clay interests should devote their efforts, brains, time and money towards the production of materials — terra-cotta and bricks — of ultimate strength, lightness and adjustability for solid masonry construction, and not stand, as now, the sponsors of the steel frame.

Every architect who has an ounce of pride and imagination in his professional efforts naturally desires that the buildings which are the offsprings of his creative faculties shall be endowed with as large an element of beauty as possible. This element does not in all cases depend upon cost, but nevertheless money does enter to a considerable degree into its possibilities; for, in the great majority of cases, buildings, whatever their nature or cost may be, have a limit, no matter what the sum may be, either because of the demands of business investments and per cent of income; public appropriations; or the limit of a client's purse.

Some architects appear to have the happy fortune in clients with a superabundance of means, but it may be said with truth that the results are not invariably of the highest order either as to structural science, architectural expression or beauty. The amount of an architect's practice does not by any means gage either his æsthetic or practical ability; there are many examples which prove the contrary. The great majority of architects are certainly less fortunate in the money at their disposal. With these the efforts to obtain beauty and to themselves at least satisfactory results must depend on two quite antagonistic elements of professional make-up, — the practical and the æsthetic, not an altogether common combination in one personality. Either one or both may be a gift of nature at the start, more or less evenly balanced or unbalanced. They are largely a matter of training, experience, observation and knowledge of the market. To our mind no American architect ever had the two, *intuitively*, in a higher degree than Henry Hobson Richardson. We say intuitively, because his mind was evidently not a practical one by training or otherwise, while it was, unquestionably, a highly organized æsthetic and creative one; no modern architect had so slight a conception of the value of money as money, yet he designed and erected a remarkable number of buildings solid and beautiful, and in respect to their solidity and beauty the cost was surprisingly low.

It is evident, having a limit of cost against a building, that its element of beauty depends not only on the architect's intuitive and trained perceptions and ability to de-

* Steel frame and terra-cotta construction.

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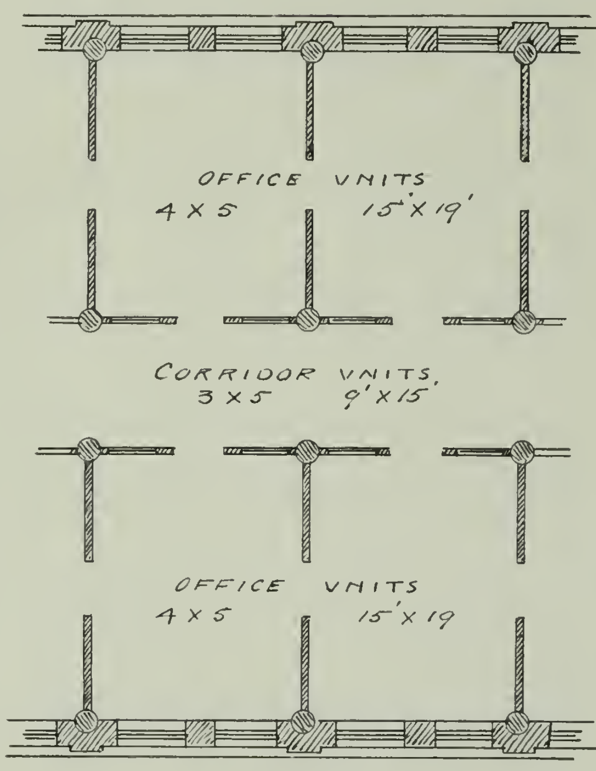

FIG. 3*a*.

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The above means a larger per cent of gross and net income, which is the final and telling analysis in lowest terms of the value of a real estate investment.

Some years back one or more papers were published on the basis of units for office buildings, for lots of different areas, from which we select a typical plan for a building on a lot 50 x 100 feet or 5,000 square feet. As will be noted by the plan shown in Figure 4 the front offices (1, 2 and 3), 16 x 20 feet, have a four to five unit; the other offices have a unit of width of 9 feet 9 inches, which is too narrow; ten of them have a length of 15 feet and a corridor unit of 5 feet to 9 feet 9 inches. The rear wall, in the original, is shown as a dead wall. Offices 4 and 5 are 9 feet 9 inches x 21 feet 6 inches, and have windows against the corner at one end of a long side, which would not afford good light for offices of such areas and dimensions. Offices 16 and 17 are 9 feet 9 inches x 17 feet 6 inches, with windows at the ends.

In this plan (Fig. 4) the elevators and stairs are not well placed, as they are not central to all offices, being so near to the front that they seriously cut into valuable rental areas in the basement and first and second stories. Four elevators are too many for size of building, two being plenty for twelve stories, of this area. In respect to elevator service, a general good rule is, that 2½ per cent of the rental area (of one floor) is a fair allowance for a building ten to twelve stories high, and 5 per cent for one of twenty stories. A larger number of *small* elevators affords better service than a smaller number of *large* elevators.

The water-closets are inconveniently placed, and the steel framing is not economical. The outside columns are indicated as shown in original, the inside columns would need to be located and spaced as shown at A A or as at B B. They could not be spaced otherwise, for wash basins and communicating doors in all partitions are shown (in original) as indicated at A A.

Figures 5, 6, 7 and 8 show a unit plan of an office building, on lot 50 x 125 feet or 6,250 square feet, twelve stories, and illustrating four different systems of construction, *A*, *B*, *C* and *D*.

System A indicates a minimum number of columns, maximum cost; steel columns, I beams and terra-cotta flat arches.

System B indicates same number of columns with another disposition, less cost than *A*, steel columns, I beams and terra-cotta flat arches.

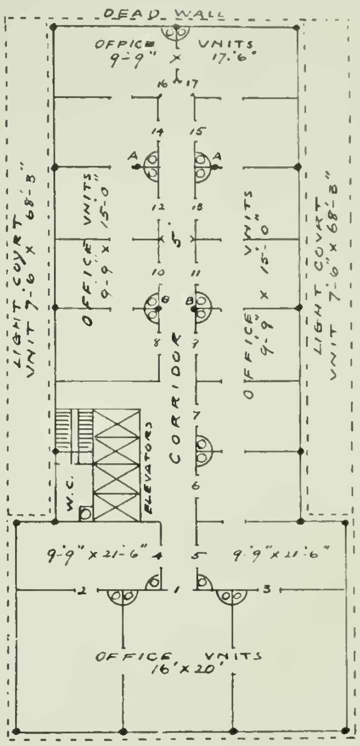
System C indicates a larger number of columns, less cost than *B*, I beams and terra-cotta flat arches.

System D shows same arrangement of supports (C. I. columns, fireproofed, or brick piers) as *C*, of solid masonry construction, in single vaults for unit of space, no steel frame, and is the least costly as will be shown by figures below. The units of space in *D* can be covered either with terra-cotta vaulting of requisite shapes or by the Guastavino system, and of two-centered, four-centered or flat dome vaults.

In and for such a building the question of economics is as to that system which will insure the least hazard as to life of structure, maximum protection against fire, low cost and insurance risk; not only in respect to cost of erection *per se*, but in respect to cumulative cost as an investment, earning capacity and net per cent income, for a term of years.

Assuming that the land costs $100 per square foot, the total investment at completion of building will amount to (steel frame system *A*) $1,215,970 — land, building, carrying charges, architect, taxes, and small allowance for contingencies and extras.

To yield 4 per cent net per annum, the gross income must approximate 9½ per cent on the investment. Our estimate of fair rentals amounts to $112,948 gross or 9$\frac{29}{100}$ per cent, but by the lower cost of system *D*, under system *A*, and the saving in operating expenses, it would gain a little over four-fifths of 1 per cent gross, which is quite material. Now, to arrive at a determination as to which system of construction is the most economical, we need to base comparative estimates, not only on first cost, but for a term of twenty-five years (assuming such term to be the maximum life of a steel frame building as now erected), for there are items of cost, charges, rent, interest, etc., which are compounded in any fixed term of years.



STREET FRONT.
LOT 50 X 100 FEET.
FIG. 4.

Assuming that the exterior walls are the same as to resistance to fire, either within or without the building, that the architectural treatment and general finish are the same as to quality and cost in *A*, *B*, *C* and *D*, we then have, as determining factors as to cost and net per cent, the relative cost of supports, floors, roof, fireproofing, architect's commission, loss or gain in rental areas, insurance and interest, which sum up as follows in twenty-five year term:

System A,	Fig. 5 (S. F. and T. C.*),	$394,547.91
" *B*,	" 6 " " "	378,621.65
" *C*,	" 7 " " "	298,727.76
" *D*,	" 7 (all masonry),	266,683.83

So in *D* as against *A* we have a saving or profit of $127,864.08, or 48 per cent. The above amounts, in relation to initial investment, are:

A, 32.4 per cent.	*B*, 31.1 per cent.
C, 24.5 per cent.	*D*, 21.1 per cent.

And what is of more importance, we have in *D* a building good for fifty, one hundred or one thousand years so far as structural permanency is concerned, instead of one good for eighteen to twenty-five years.

This difference in cost means, reduced rents, or a higher rate of gross and net per cent income; tenants do not inquire as to the *system* of construction, when a building is supposed to be fireproof and up to date; consequently there would be no call to reduce rents; on the contrary, if it were known that an office building stood indestructibly *fireproof*, as it would be under system *D*, tenants would undoubtedly pay full as much or more rent, as the feeling of security would be enhanced, and cost of insurance less.

All of which emphasizes what we said in the first paper, that the burnt clay interests should devote their efforts, brains, time and money towards the production of materials — terra-cotta and bricks — of ultimate strength, lightness and adjustability for solid masonry construction, and not stand, as now, the sponsors of the steel frame.

Every architect who has an ounce of pride and imagination in his professional efforts naturally desires that the buildings which are the offsprings of his creative faculties shall be endowed with as large an element of beauty as possible. This element does not in all cases depend upon cost, but nevertheless money does enter to a considerable degree into its possibilities; for, in the great majority of cases, buildings, whatever their nature or cost may be, have a limit, no matter what the sum may be, either because of the demands of business investments and per cent of income; public appropriations; or the limit of a client's purse.

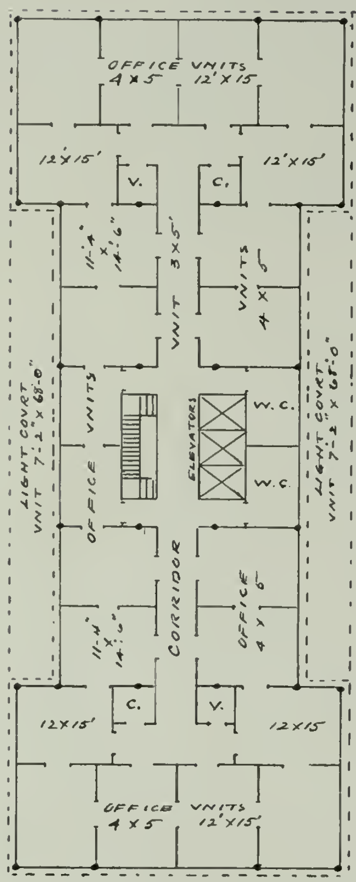
Some architects appear to have the happy fortune in clients with a superabundance of means, but it may be said with truth that the results are not invariably of the highest order either as to structural science, architectural expression or beauty. The amount of an architect's practice does not by any means gage either his æsthetic or practical ability; there are many examples which prove the contrary. The great majority of architects are certainly less fortunate in the money at their disposal. With these the efforts to obtain beauty and to themselves at least satisfactory results must depend on two quite antagonistic elements of professional make-up, — the practical and the æsthetic, not an altogether common combination in one personality. Either one or both may be a gift of nature at the start, more or less evenly balanced or unbalanced. They are largely a matter of training, experience, observation and knowledge of the market. To our mind no American architect ever had the two, *intuitively*, in a higher degree than Henry Hobson Richardson. We say intuitively, because his mind was evidently not a practical one by training or otherwise, while it was, unquestionably, a highly organized æsthetic and creative one; no modern architect had so slight a conception of the value of money as money, yet he designed and erected a remarkable number of buildings solid and beautiful, and in respect to their solidity and beauty the cost was surprisingly low.

It is evident, having a limit of cost against a building, that its element of beauty depends not only on the architect's intuitive and trained perceptions and ability to de-

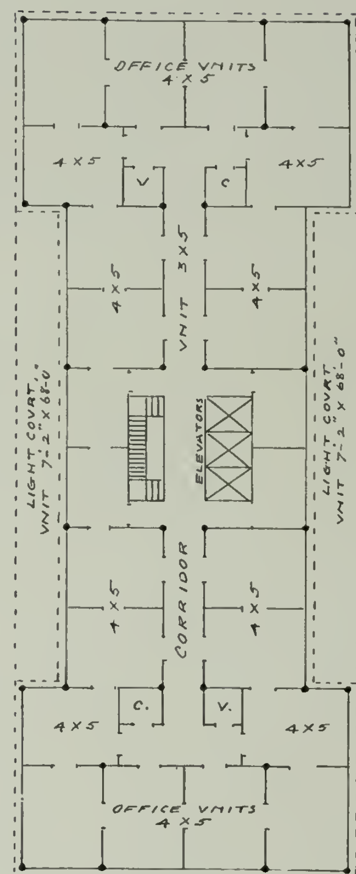
* Steel frame and terra-cotta construction.

sign, but upon his practical constructive ability to plan, *construct*, with the least expenditure of materials, labor and cost, consistent with sound structural principles, knowledge of materials and how to use them, of labor and how and where to apply it, of cost and how to compute it. This knowledge is not and can not be taught in the schools. It can only be acquired by personal study, effort, investigation and experiment, *i. e.*, testing materials himself: the accumulation of a store of data and facts, with the mental agility and confidence to quickly select and apply the right thing to the right purpose, the knowing how to *do*, and the best way of *doing* it. And so he knows in a given case how much his construction will cost and how much he can use to embellish his construction, and what is or should be a fair cost per cubic foot for the building complete. If he knows how to save 5 to 10 per cent in the cost of construction, without sacrificing stability, he knows he has 5 to 10 per cent more to spend for beauty, and whether or not he can spend 7 to 12 per cent of cost in stone or terra-cotta trimmings and carving, and 2½ to 5 per cent in marble or mosaic decorations, or use low or high cost woods for inside trimming.

There are building stones, easily obtainable for structural uses, which in respect to compression vary all the way from 10,000 to 40,000 pounds per square inch, and bricks which run all the way from 2,000 to 18,000 pounds per square inch, yet the evidence is rare in which the use of such materials is employed as an economic basis of means to ends; with a requisite factor of safety, one make of bricks is cheaper, laid in the building, at $35.00 per thousand than other make of bricks at $20.00 per thousand. A *Corinthian* cornice in a building will cost $25 to $40 per linear foot, according to the kind and quality of stone used; the same in terra-cotta or sheet copper will cost $15 to $17.50 per linear foot, and in galvanized iron considerably less. In case of fire the chances are that the stone cornice will go to pieces and some parts of it fall and kill some one; the terra-cotta will stay in place, with the probability that no great cost will be involved in its restoration; the galvanized iron (steel) will be a wreck any way.



STREET FRONT.
LOT 50 X 125 FEET.
FIG. 5. SYSTEM A.



STREET FRONT.
LOT 50 X 125 FEET.
FIG. 6. SYSTEM B.

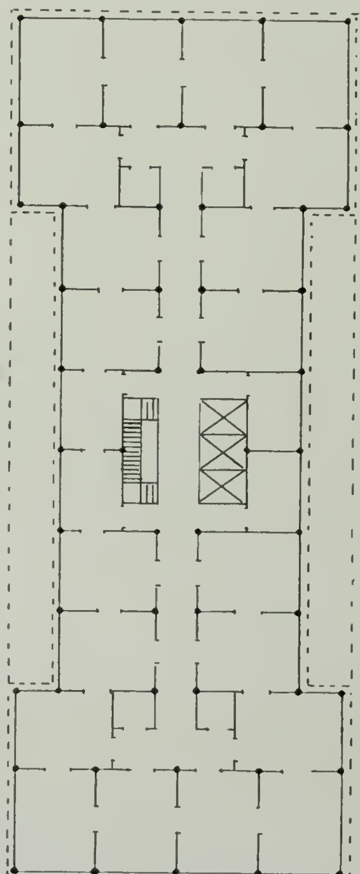


FIG. 7. SYSTEM C.

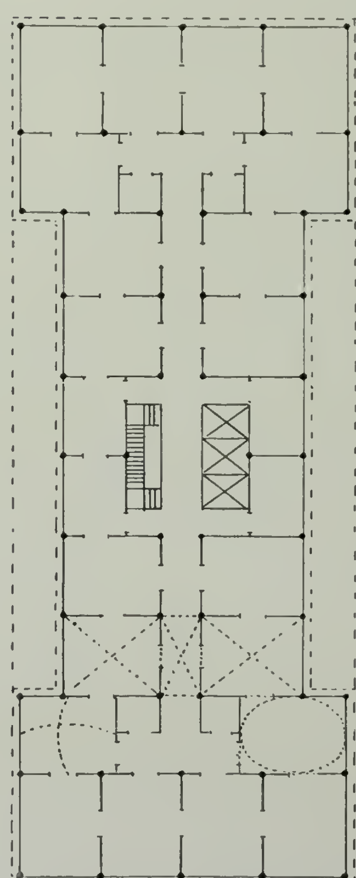


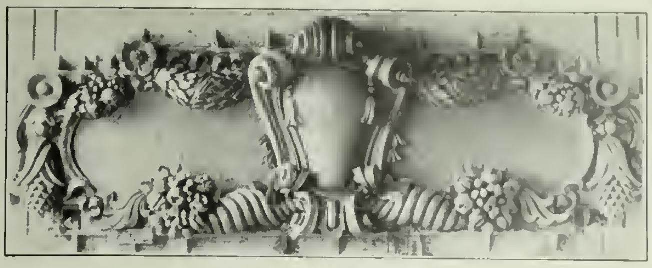
FIG. 8. SYSTEM D.

IT is now a year since the destruction of the campanile of St. Mark's, and apparently Venice is as far from seeing the beginning of the restoration as she was the day after the disaster. It was reported that Signor Boni was to undertake the restoration of this important monument. We are told now that this work was intrusted to Moretti and Beltrami, and that the former has resigned rather than let the work interfere with his work as a teacher of architecture, while the latter has withdrawn because he does not wish to do it alone. What they need in Venice is a little American get-up-and-go. They do those things better this side of the Atlantic. The principles involved in a construction of this sort are so extremely simple that here it would not be considered in any sense a large commission, and if the whole structure could not be built inside of four months it would surely not be for lack of ability or experience on our part.

Selected Miscellany.

NEW YORK NOTES.

In spite of the long tie-up of building operations, the large architectural offices seem to keep busy with new work, and we may safely say that the tide of prosperity shows no sign of turning yet.

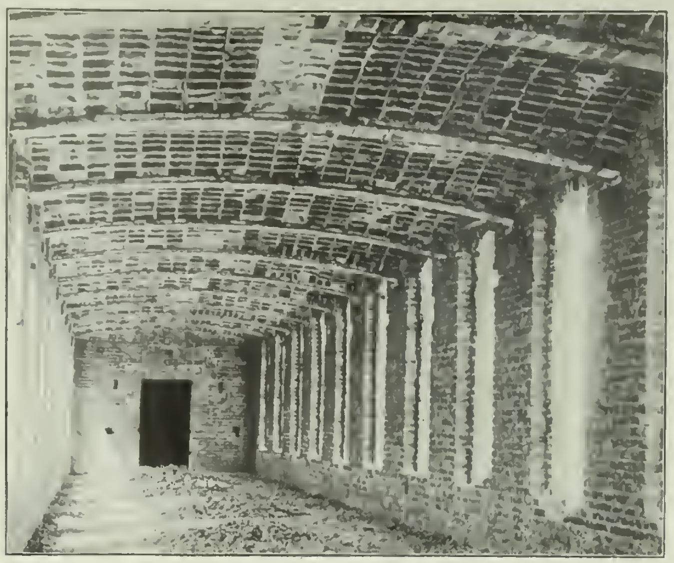


DETAIL BY ISRAELS & HARDER, ARCHITECTS.
New York Architectural Terra-Cotta Co., Makers.

A great many of our younger architects and draughtsmen are sharpening their pencils for a dig at THE BRICKBUILDER Library Competition. It is seldom that so tempting a bait is offered, aside from the interesting study involved in such a problem. Competitions of this sort, based absolutely on merit, cannot fail to produce splendid results.

CHRIST CHURCH, PENSACOLA, FLA.
John Sutcliffe, Architect.
Covered with American, Spanish Model, Roofing Tile made by Cincinnati Roofing Tile and Terra-Cotta Co.

Brooklyn is to have a new $1,000,000 municipal building. The program for the competition has been given out and thirteen architects have been invited to compete. They are now at work on the preliminary sketches. Each competitor is to receive $500 for his work, a provision of the city fathers which is much to be commended. Professor Despradelles, of the Massachusetts Institute of Technology, prepared the program, and is to be the professional adviser.



GUASTAVINO TILE CEILING FORMING FLOOR IN A DORMITORY OF THE NEW HOSPICIO FOR THE GOVERNMENT, CITY OF MEXICO.

Another interesting competition now under way is for the $150,000 high school at Plainfield, N. J. Fifteen architects have been invited to compete for this building, the best design being awarded the contract, the second $400 and the third $300. Mr. Walter Cook, of the well-known firm of Babb, Cook & Willard, is the professional adviser.

The fact that so many competitions at the present time are guided by professional advice of the highest standard is exceedingly encouraging, and will make work of this sort far more agreeable and satisfactory.

Henry F. Hornbostel has prepared some elaborate and beautiful drawings for the reconstruction of City Hall Park and the housing of all our municipal departments. He proposes removing every building in the present park except our dignified and beautiful old City Hall, and enlarging the park by the removal of our ugly and expensive post office. Of course these ideas are so tremendously extravagant that I am afraid they will never be adopted, although they are perfectly feasible and practicable, and in a matter of this sort expense should cut no figure.

These plans also call for two more buildings to be built on Chambers Street facing the park, and resembling the present Hall of Records. The central

PANEL FOR MANTEL.
Executed in Terra-Cotta by Conkling-Armstrong Terra-Cotta Co.
Peabody & Stearns, Architects.

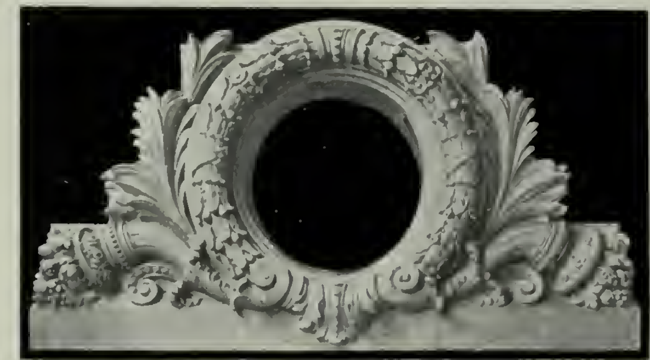
PUBLIC SCHOOL, JERSEY CITY, N. J.
Built of Brick made by Kreischer Brick Mfg. Co.

building would be more ornate and would be connected with the park by a handsome stone bridge across Chambers Street. Not the least feature of the scheme is the granite tower, an office building forty-five stories high, for the housing of all the city departments. This part of the scheme seems to me faulty and visionary beyond reason.

CAPITAL BY J. T. W. JENNINGS, ARCHITECT.
American Terra-Cotta and Ceramic Co., Makers.

Catalogue of the National Fireproofing Company of Pittsburg, U. S. A. Abridged edition. Offices: Boston, New York, Philadelphia, Pittsburg, Chicago. Author and compiler Henry L. Hinton, Engineer, National Fireproofing Company. New York: National Fireproofing Company. 1903. Price, $3.

This catalogue is most carefully prepared to afford the architect, the engineer and the builder, the insurance underwriter, and all others interested, reliable information concerning the fireproofing of buildings by means of the various materials and methods in common use to-day, but more particularly by the use of the material known as porous terra-cotta, the special product of most of the works of this company. All the details of terra-cotta construction in the various forms which are manufactured



DETAIL BY VICTOR HUGO KOEHLER, ARCHITECT.
New Jersey Terra-Cotta Co., Makers.

by the company are carefully considered and analyzed in every respect, with abundant tables giving strength and dimensions, together with the sizes of beams, etc. The whole is most carefully worked out, and the publishers have very wisely left every alternate page blank for memoranda such as are sure to occur in connection with the use of the book. This catalogue consists in essence of an abridgment from the advance sheets of a work planned by the National Fireproofing Company on a very comprehensive scale and intended to exhaustively treat the whole subject of fireproofing with burnt clay. The completed work will include a great deal of very scien-

BEACON BUILDING, BOSTON.
Goodwin & Siter, Architects.
Built of Kittanning Gray Brick, Fiske & Co., Boston Agents.

tific investigation into clays and shales, the finished terra-cotta, methods of loading, economical floor construction and steel framing, and will form a compendium of existing knowledge upon the subject. The handbook, however, offers in very compact shape practically all the information which the designer would need in laying out work and proportioning the various members, both of the steel frame and of the terra-cotta filling, the former naturally receiving, however, only a relatively brief consideration. We imagine that many architects who have used terra-cotta for years will be surprised in studying this volume to find in how many different shapes terra-cotta fireproof construction is now put on the market and how carefully the various forms have been studied to meet all the emergencies of the necessities which have arisen in connection with our modern steel frame structures, so that really the designer need not be at a loss to know what particular form to use, but can design his steel frame in such manner as will give the most economical structural results and be pretty sure of finding in these

DUDLEY MEMORIAL DORMITORY, BROOKLYN, N. Y.
William C. Hough, Architect. Terra-Cotta made by Excelsior Terra-Cotta Co.

DETAIL BY BARNETT, HAYNES & BARNETT, ARCHITECTS.
Winkle Terra-Cotta Co., Makers.

DETAIL BY B. H. MARSHALL, ARCHITECT.
Atlantic Terra-Cotta Co., Makers.

pages full descriptions of the special shape of arch, skew back or filling block which would most completely answer for this special construction. The consolidation of the various fireproofing interests has made a work of this kind possible both by standardizing the forms and by making practical such economies in consructions as will allow the company to make and keep on hand a great variety of shapes.

HOUSE AT CAMDEN, N. J.
Harvey J. Shumway, Architect. Built of Brick made by Atlantic Brick Co.

BAS-RELIEF EXECUTED IN TERRA-COTTA.
Made by St. Louis Terra-Cotta Co.

BARN, CHICAGO.
Burtar & Gassman, Architects.
Covered with Tiles made by Ludowici Roofing Tile Co.

IN GENERAL.

Marsh & Peter, Washington, D. C., have been commissioned by the War Department as the architects for the proposed new Army Post and General Hospital to be located on a site yet to be selected near Washington. The group will consist of administration and hospital buildings, chapel, memorial hall, nurses' home, residences for the officers and medical staff, dormitories and barracks for the hospital corps, gymnasium and recreation hall, guard and store houses, power plant, etc., and the general drawings, block plan and bird's-eye view of the buildings will be submitted to Congress at the coming session, when it is expected that appropriations will be made to begin the construction work, the total cost of the work being estimated at $2,500,000.

PUBLIC BATH HOUSE, CHICAGO.
R. Bruce Watson, Architect. Terra-Cotta made by Northwestern Terra-Cotta Co.

It has been the constant aim of the management of the American School of Correspondence to raise the standard of correspondence instruction in general to the plane of serious educational work. All the officers and instructors of the school are college men, graduates from such institutions as the Massachusetts Institute of Technology, Harvard, Tufts College, Lehigh University, Dartmouth and

Armour Institute of Technology. They are men fitted by experience and education to offer sound instruction, and they are men whose sense of responsibility to their alma mater will not permit them to hold any but the highest educational ideals and standards.

BALUSTRADE, HERTS & TALLANT, ARCHITECTS.
Perth Amboy Terra-Cotta Co., Makers.

Modern business methods would surprise our grandfathers. The offices of modern up-to-date manufacturers are equipped after a fashion that would make the pioneers of American trade rub their eyes. I had occasion the other day to visit the great plant of the New York Architectural Terra-Cotta Company at Ravenswood with a friend, an architect, who wished to inspect some elaborate and artistic models for one of the new buildings. After we had passed a few hours in the great modeling room, where the workmen were working clay into designs for the various ornamental parts of a building, reminding

METROPOLITAN MUSEUM OF ART, NEW YORK CITY.
Hunt & Hunt, Architects.
The large quantity of enameled brick used in interior was made by American Enameled Brick and Tile Co.

me of the studios of sculptors, we visited the office. Here we met Mr. Walter Geer, the president, and Mr. Bushnell Danford, the secretary. They invited us to lunch. Now it is here where the old method is superseded by the new. An entire floor is devoted to entertainment. It has reception rooms, retiring rooms, a large dining room and kitchens. The walls are adorned with photographs of great buildings like the University Club, the Waldorf-Astoria, the Hotel Imperial, Ansonia, Delmonico's, German Square, Dorling's and other conspicuous edifices for

GARDEN FROM PORCH, HOUSE, WARREN, R. I.
Charles A. Platt, Architect.

which the company has furnished terra-cotta; the great brick fireplaces are noble specimens of the work done in this favored building material, etc. In the reception rooms are great albums showing the noblest specimens of Greek and Roman architecture, also of the Italian and French Renaissance. — *The Pittsburg Press.*

A fairly good idea of the immense growth of the enameled brick business in this country may be gathered from the pamphlet just issued by the American Enameled Brick and Tile Company of New York, in which is given a list of the more important buildings in this country in which their brick have been used. The names of the architects and number of bricks used are also given.

A pocket catalogue and price list, furnishing information regarding their product in the simplest and most concise form, has been issued by the Illinois Hydraulic Press Brick Company of St. Louis. It contains a great deal of desirable information relating to everyday practice.

Competition for a Public Library

First Prize, $500 Second Prize, $200 Third Prize, $100

PROGRAM

IT is assumed that a public library is to be presented to a town located in the middle west. This town occupies a picturesque position in a rolling country bordering one of the Great Lakes and is the seat of a small but important college. The public square is a park which is assumed to be 300 feet wide and upwards of 1,000 feet long. At one end is already built the town hall, and at the opposite end will be placed the library. The ground rises gently towards the proposed site, so that the position will be a commanding one. The whole frontage of 300 feet will be given to the library and its approaches, and the entire depth of the lot is 200 feet. The total rise from the curb line to the center of the lot is 10 feet, and the grade falls off towards the rear 1 foot in 40. Sidewise the grade falls off equally each way from the center 10 feet to the boundary lines. The building must set back a distance of 75 feet from the front line, and the approach must be treated in an architectural manner.

The exterior of the building is to be designed entirely in terra-cotta, and colored terra-cotta or faience may be introduced as a feature of the design.

The following accommodation is to be provided for in plan. The dimensions given are only approximate and may be modified as required by the exigencies of the design:

First Story. Vestibule, 200 sq. ft.; periodical room, 1,000 sq. ft.; reference library and reading room, 1,000 sq. ft.; general delivery room, 600 sq. ft.; trustees' room, 350 sq. ft.; librarian's room, 350 sq. ft.; stack room, 1,500 sq. ft.

Second Story. Children's room, 500 sq. ft.; music room, 500 sq. ft.; exhibition room, 500 sq. ft.; two rooms for special collections, 500 sq. ft. each.

It is assumed that the lavatories, storerooms, etc., are all to be located in the basement, which is to be raised sufficiently above the finished grade to allow of fair lighting. There are to be two flights of stairs leading to the second story, but they are not to be made a prominent feature. It will be assumed that the heating plant is entirely distinct from the building, there being consequently no provision made for a chimney, but space should be provided for ample ventilation flues.

Drawings Required. An elevation at a scale of 1-16 inch to the foot, which is to show the entire frontage of the lot, 300 feet, and to indicate the treatment of approaches. There are also to be sketch plans of the first and second floors at a scale of 1-32 inch to the foot, and details drawn at a scale of 3-4 inch to the foot showing the character of the design and the construction of the terra-cotta. The elevation is to appear upon one sheet, and the details and plans upon another. The width and length of each sheet shall be in proportion of three to four and not exceed 24 x 32 inches. All drawings are to be made in black ink without wash or color.

It must be borne in mind that one of the chief objects of this competition is to encourage the study of the use of architectural terra-cotta. No limitation of cost need be considered, but the designs must be made such as would be suitable for the location, for the character of the building and for the material in which it is to be executed. The details should indicate in a general manner the jointing of the terra-cotta and the sizes of the blocks.

In awarding the prizes the intelligence shown in the constructive use of terra-cotta will be a point taken largely into consideration.

Every set of drawings is to be signed by a nom de plume or device, and accompanying same is to be a sealed envelope with the nom de plume on the exterior and containing the true name and address of the contestant.

The drawings are to be delivered flat at the office of THE BRICKBUILDER, 85 Water Street, Boston, Mass., on or before October 31, 1903.

The designs will be judged by three well-known members of the architectural profession.

For the design placed first in this competition there will be given a prize of $500.
For the design placed second a prize of $200
For the design placed third a prize of $100.

All drawings submitted in this competition are to become the property of THE BRICKBUILDER, and the right is reserved to publish any or all of them.

We are enabled to offer prizes of the above-mentioned amounts largely through the liberality of the terra-cotta manufacturers who are represented in the advertising columns of THE BRICKBUILDER.

This competition is open to every one.

THE BRICKBUILDER.

AUGUST,

1903.

COURT OF THE PALACE OF THE INFANTADO, GUADALAJARA, SPAIN.

THE BRICKBVILDER

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GEORGE F. SHEPLEY.

MR. H. H. RICHARDSON was unquestionably not merely a genius, but also one of the greatest architects this country has produced, and when on his death his business, by his express instructions, was handed over to three young men who had grown up in his office, the opportunities which such inheritance carried with it, involved a degree of responsibility which could not have been met by men of ordinary calibre. The success which has attended the firm of Shepley, Rutan & Coolidge has shown to what extent Mr. Richardson's successors were able to meet these opportunities; and the position which Mr. Shepley took in his firm was one which few could have occupied more acceptably. He was a man of singularly delicate balance. He was thoroughly artistic and refined by sentiment, and yet possessed the temperament which could reconcile the conflict which so often arises between high art and practical requirements. He succeeded in winning the confidence of some of the largest property owners in the country and received from them respect for his practical executive abilities, as well as for his artistic judgment. His health was never robust and though he never seemed worried or perplexed under the strain of his large practice, the anxieties of a very exacting profession unquestionably hastened his death. He was a man eminently fitted in everything except robust health to cope with the largest problems and these were presented to him in abundance. He was born in St. Louis in 1860, his father having been one of the most brilliant lawyers in the city. His architectural training was received entirely in Boston, where he graduated from the Massachusetts Institute of Technology in the class of 1882. His professional training thereafter was obtained entirely in the office of Mr. Richardson, whose daughter he married. He was always deeply interested in professional matters, was a director of the American Institute of Architects, was frequently called upon for individual consultations outside of the usual routine of business, and made himself many friends and no enemies by his unvarying courtesy and quiet tact. The firm of which he was a member has been entrusted with some of the largest work in the country. The Art Institute in Chicago, the Leland Stanford, Jr. University in California, the United States Building at the Paris Exposition of 1900, both of the enormous railway stations in Boston, the Union Station at Albany, the Public Library at Chicago, the Ames Building and numerous other commercial structures in Boston, and, most recently, the extensive buildings for the Harvard Medical School, show to what extent this firm has earned its high position. Mr. Shepley's death leaves a gap which will not easily be filled, and his reputation as well as his character is of a sort which should be an inspiration to every young architect.

CLERK OF THE WORKS.

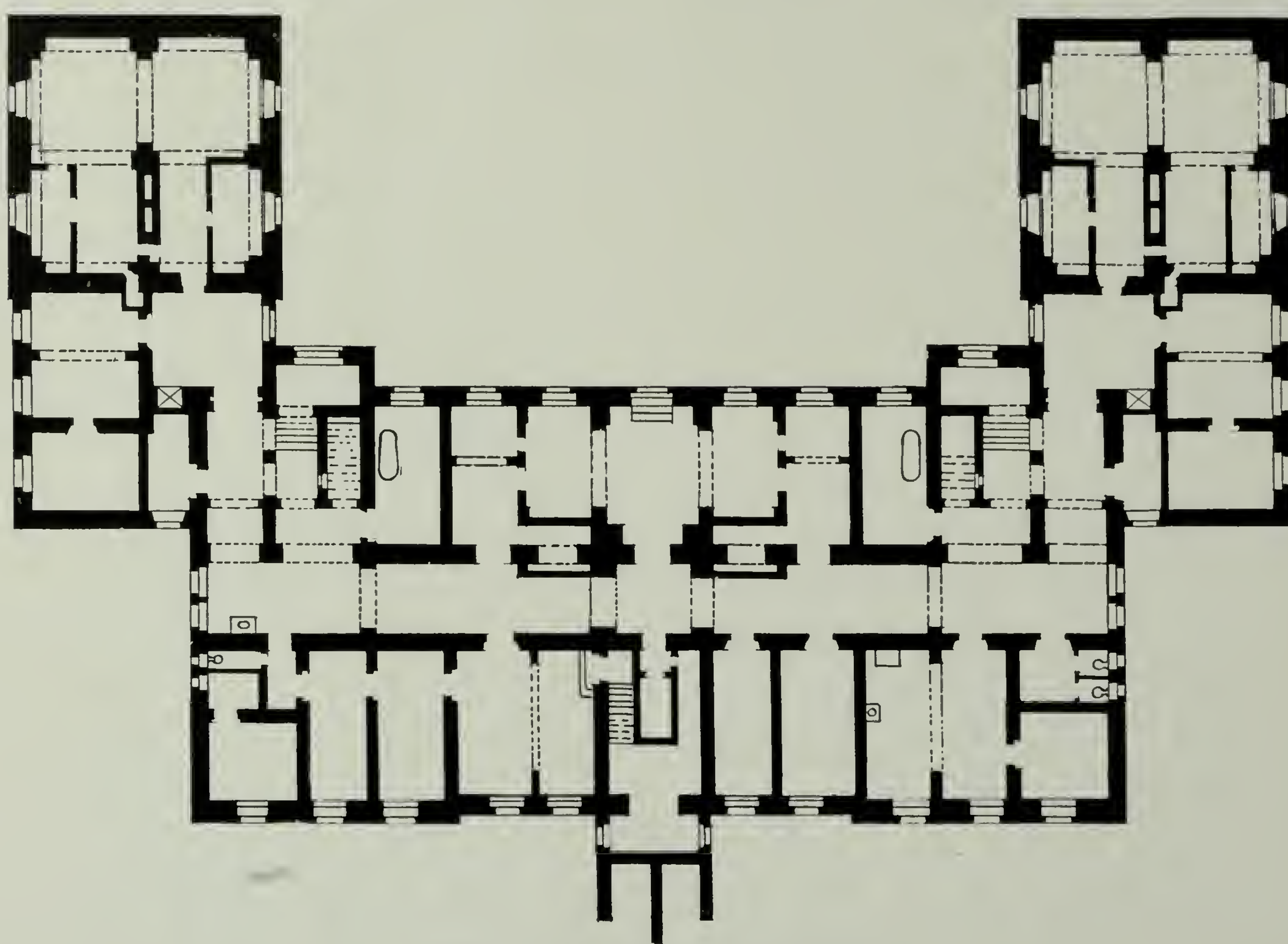
IT is a custom among some architects to maintain on a building, at their own expense, a competent inspector who shall be constantly watching over portions of the work. In England the practice is almost universal to have a so-called clerk of the works, whose salary is paid by the owner. It is to be regretted that that practice has not been followed more generally here, especially in the supervision of steel construction and fireproofing. Abundant investigation has shown beyond doubt that the action of Portland cement is to protect for an indefinite period the steel work with which it is directly in contact, but nothing short of the most thorough and unremitting personal supervision ought to satisfy the architect that the cement coating or filling has been properly applied. In the same manner constant supervision is required in the setting of fireproof material. When floor blocks are once in place it is practically impossible to know the manner in which they are set, and, as custom has decided rather against grouting the blocks, the only way to make sure that the joints are properly filled is to watch every one.

Three Special Clinical Hospitals of the University at Breslau, Germany.

BY EDMUND M. WHEELWRIGHT.

THE hospital at Breslau is, I believe, the latest example of the German university hospital. The professor in charge of each department has full control of the staff, the nurses and the administration of his hospital, and the general superintendent of the hospital has only charge of the food and other supplies and the care of grounds. The professor of each clinic is therefore practically the superintendent of a small special hospital. It is, in fine, a federation of hospitals. Such a system permits a very close relation between the hospital wards and clinical and laboratory work, and it would appear to be a better organization for scientific and educational work than that of the centralized hospital system, which has been developed by the gradual establishment of scientific and educational equipments in connection with charitable foundations for the care of the sick. It is doubtful, however, whether such a system is as economical as the centralized system in meeting the chief function of a hospital, that of the immediate care of the unfortunate, but none the less it is to be desired that in our great centers of medical education hospitals thus especially equipped for scientific and educational work may be founded. Such institutions would appear requisite for the development of highly trained specialists as well as for the highest scientific study of diseases.

From an architect's point of view these buildings at Breslau are unsatisfactory in the picturesqueness of their external expression and in the use of columns and vaults in floor construction where fireproof floors carried on steel beams, permitting flat ceilings, better lighting and unobstructed floor space, would have been more reasonable. It should be considered a fundamental principle of hospital construction that picturesque effect gained by the slightest sacrifice of utilitarian advantage should not be permitted.

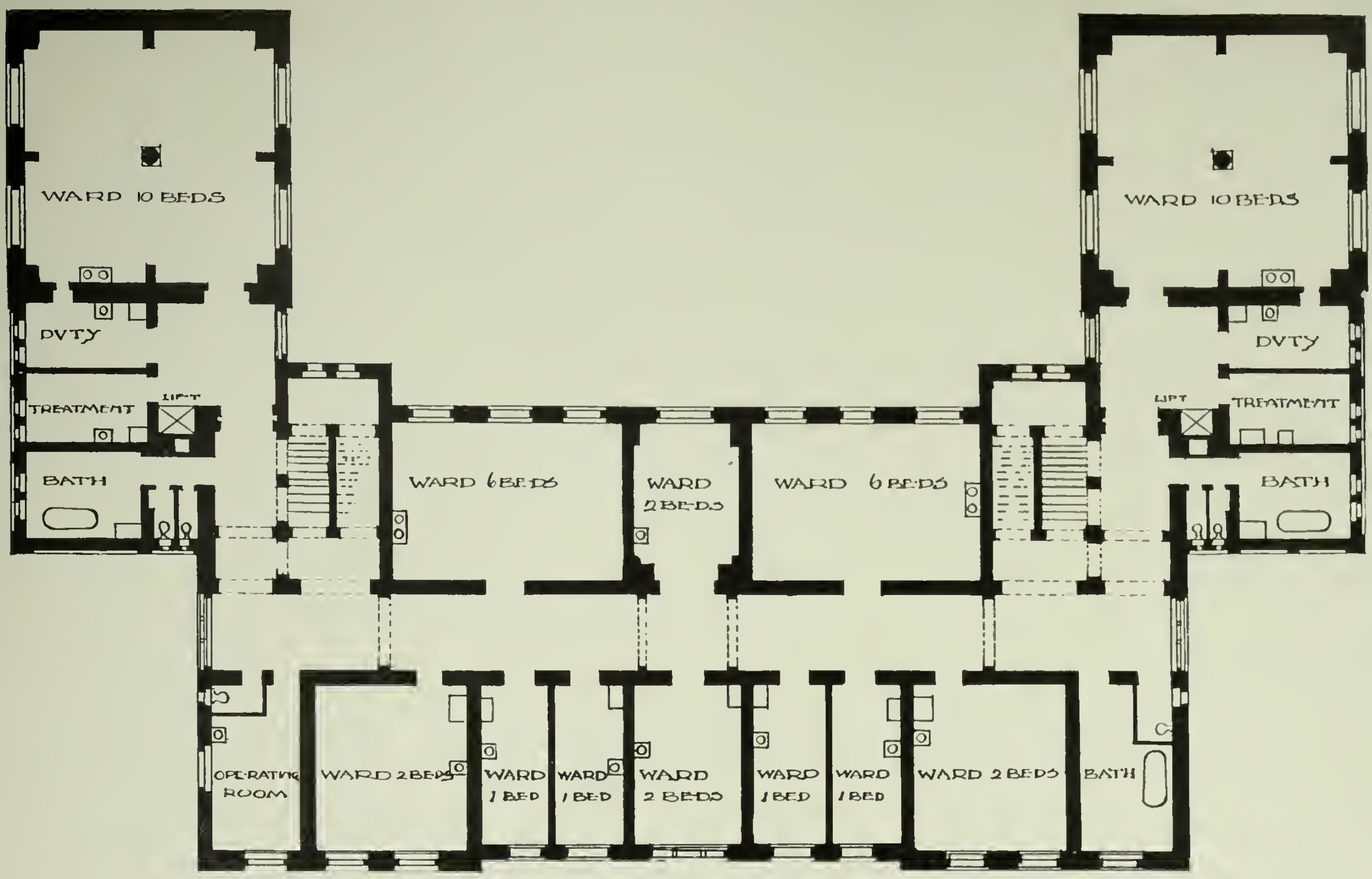


BASEMENT PLAN, HOSPITAL FOR SKIN DISEASES.

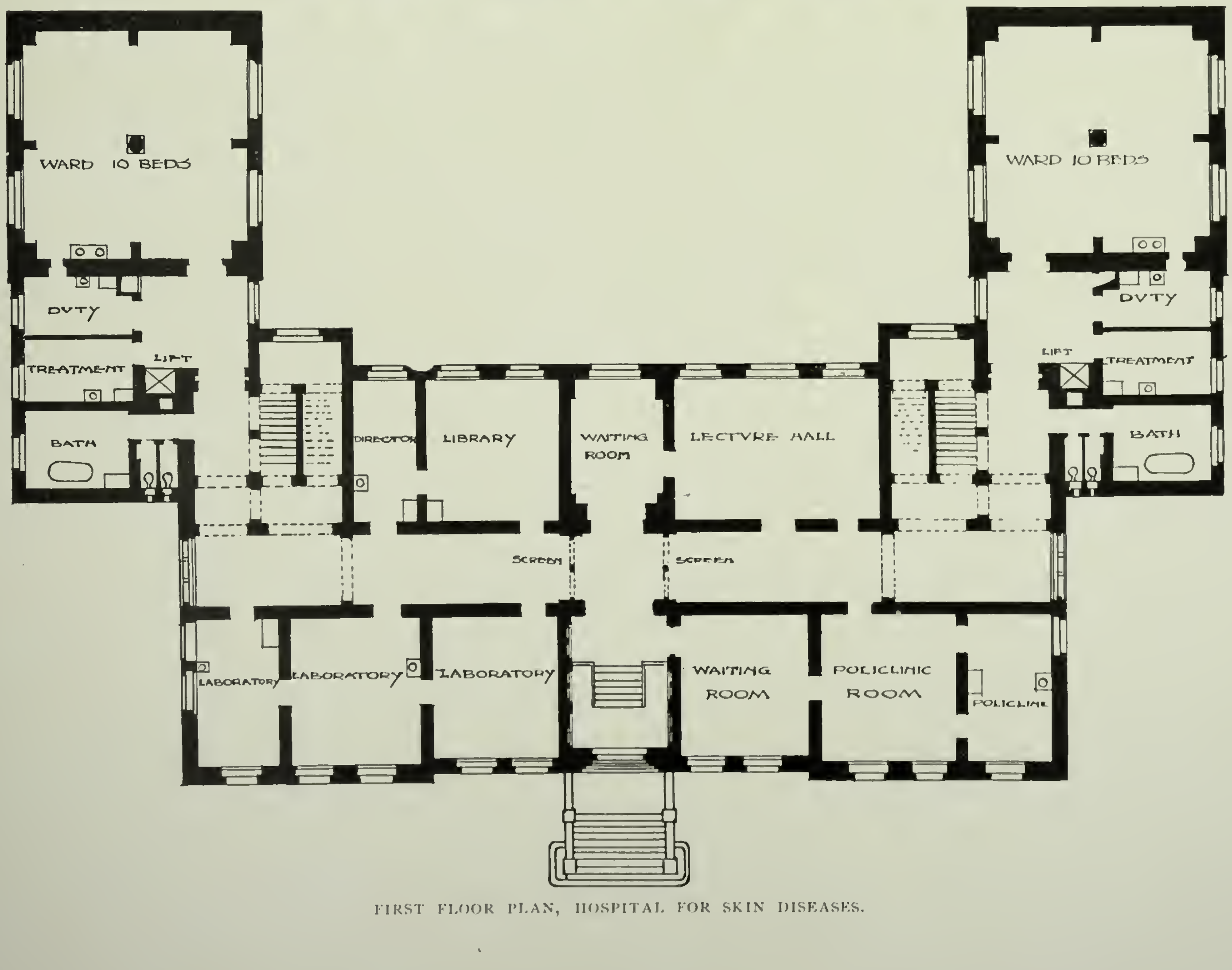
HOSPITAL FOR SKIN DISEASES.

The building for the skin clinic has two stories and an attic. The hospital has eighty-nine beds, twelve of which are for children. The patients are in three classes, two of which are for paying patients, those of the first class having private rooms and those of the second class occupying two and four bed wards. The third-class patients are in open wards.

No provision is made for complete separation of the paying patients from the charity patients, and Professor Neissen, the director, recognizes this to be a disadvantageous arrangement in a hospital of this kind, where patients are seldom seriously ill and confined to their beds,



SECOND FLOOR PLAN, HOSPITAL FOR SKIN DISEASES.



FIRST FLOOR PLAN, HOSPITAL FOR SKIN DISEASES.

since privileges given the paying patients cannot well be denied the others. There are four first-class wards and four second-class wards. The latter are designed for two beds each, but are often used for four patients, as can properly be done without violation of hygienic laws as the space per patient is nine and one-half square meters.

One of the second-class and each of the first-class wards has a stationary bath so that the patient can be treated either in the bath or in the bed, and a movable raising and swinging apparatus makes it possible to easily lift the patient and lower him into the bath without causing the suffering to certain patients that is inevitable in lifting and handling by nurses. Each of the single rooms has a set bath which is used in case of need by other patients.

The operating room is in the second story and is lighted from the north and the northwest. The patients are moved to this room on a four-wheeled truck under each bed. The third-class patients are placed in the four large wards in the wings of the first and second stories and in two smaller wards in second story of the main building. In all there are for this class sixty-four beds for adults and twelve for children. For certain diseases sex is not regarded in assignment to rooms. The entire north wing, first and second floors, is for women and the south wing for men. A glass door on the second story separates the two parts of the building. As far as the classification can be maintained, sexual diseases are treated on the first story and skin diseases on the second.

Adjoining each of the large wards is a duty room with a window commanding the ward, and adjoining this duty room is a room for examination and treatment. Immediately adjoining each large ward is a lobby which is used as a day room. In each wing is a bathroom, arranged for electrical treatment, and two water-closets. Besides the five bathrooms on first and second stories there is a steam bath for each sex in the basement. These can also be used as hot-air baths. Here too are two sets of sweating apparatus and hydro-therapeutic apparatus. At the right of the entrance are the policlinical rooms. Patients have immediate access to the waiting room without passing through the main corridor. Adjoining the waiting room is the examination room, divided by a screen set between the windows and permitting the examination of two patients at a time. In this room are the appliances for the examination and preliminary treatment of gonorrhea. Adjoining the examination room is a second room, which can also be divided by a curtain, one-half being used for the examination of women and the other for out-patients. This room is also used to a certain extent for treatment of out-patients.

The laboratories are on the left of the entrance and in the basement.

The library is in the first story, which contains, in addition to books, a most interesting collection of casts. The professor's private room is to the left of the library, and to the right is the waiting room for the lecture hall. In this room are kept charts, photographs, microscopic and other drawings used for instruction, as well as the records of cases.

The lecture hall accommodates sixty-eight students, who sit on either side of the patient, who is placed upon a raised platform. The pupils can easily step down to closely inspect the subject.

In front of the corridor door is an opaque glass screen which serves to shut off draughts and also as a surface upon which changes in the subject may be noted. Washbowls are set on either side of the hall.

In the attic is a large protographic studio and the X-ray apparatus. Here also are a parlor and bedroom for the assistant physician, a bedroom for the head nurse and one for the engineer. The janitor's quarters are in the basement.

In each wing of the basement is a diet kitchen to which food is brought from the central kitchen of the hospital. The wards are served by lifts. Adjoining each kitchen is a dormitory for housemaids who prepare the food and clean the building. There are, besides, in the basement, storerooms, soiled clothes room, boiler room, students' toilet room, sterilizing room and animal room, together with the laboratories mentioned above.

The building is of fireproof construction; all the ceilings are vaulted and the staircases are of granite. The floors of the wards and the clinical rooms are of oak laid in asphalt; the floors of other rooms are of pine; the corridors and toilet rooms of terrazo. The stud of both the first and second stories, including the vaulting, is 4.80 meters. The cost of the building, not including special interior fittings, was about $70,000.

HOSPITAL FOR DISEASES OF THE EYE.

The basement, the floor of which is nearly on the street level, contains quarters for the janitor, the engineer and the women servants; two kitchens with lifts for food service, animal rooms, boiler rooms, etc. There are exits on the east side to admit patients to the garden. The animal rooms in the northeast wing are separated from the other rooms by a corridor opening into the garden.

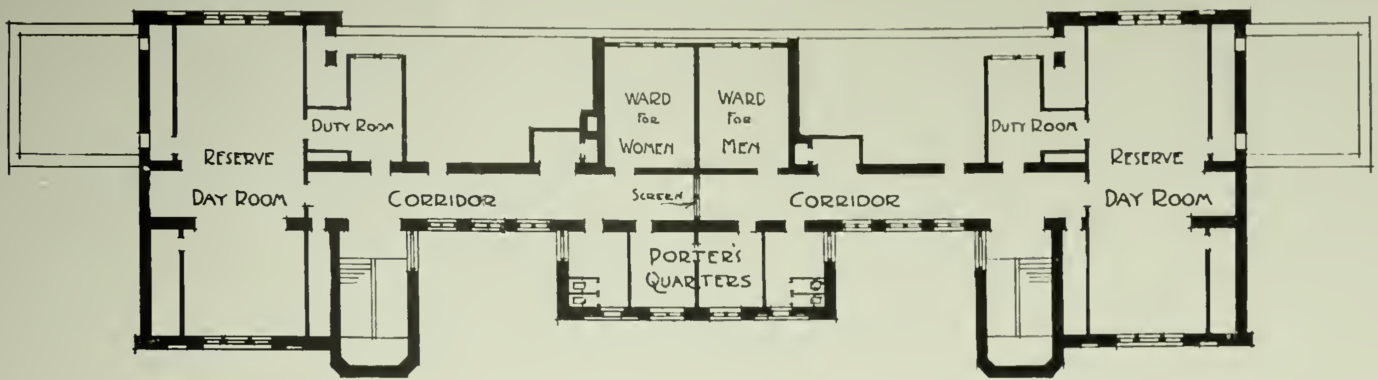
An outside staircase is provided for the out-patients' access to their waiting room on the first story; a large examining room, immediately adjoining this waiting room, is connected with the ophthalmoscopic room. The ophthalmoscopic room has walls colored with a pale tint and is fitted with appliances for darkening the room to any required degree. Adjoining this room is a policlinical examination room, which is also provided with apparatus for chemical anaylsis and has a bay window of glass for perimeter and ophthalmometer work.

Next to this room is the lecture hall, which has apparatus for darkening like that in the ophthalmoscopic room. There are ninety-one folding seats, the back of each being fitted with a hinged shelf which gives a writing surface for the occupant of the seat behind.

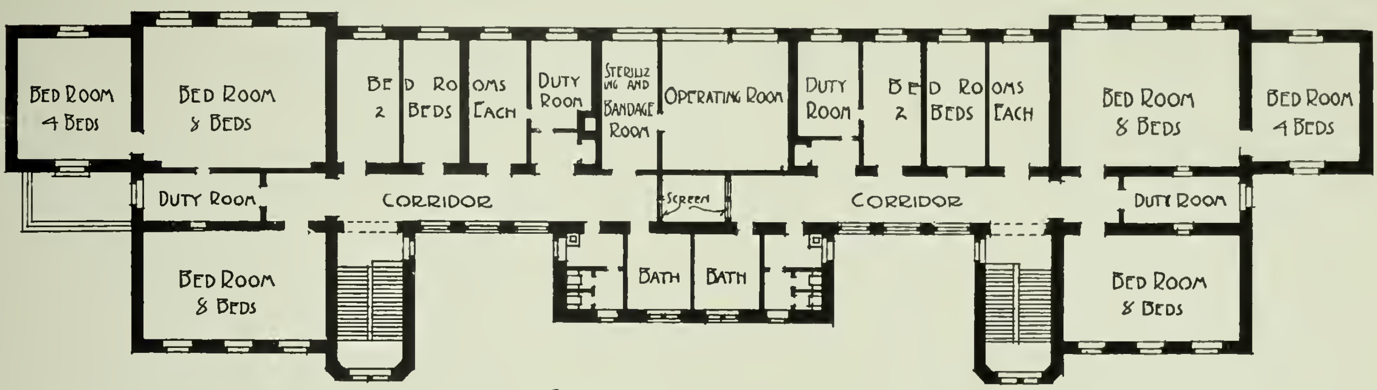
Adjoining the lecture hall is a clinical examination room with light-proof window shutters and diaphragms.

This room is intended primarily for apparatus for physiological-optical tests, the sideroscope, electrical devices, neurological investigation, etc. This room, the lecture hall, the policlinical examination room and the ophthalmoscopic room are connected by doors placed opposite to each other, so that when open, tests of sight can be made at a distance of thirty meters.

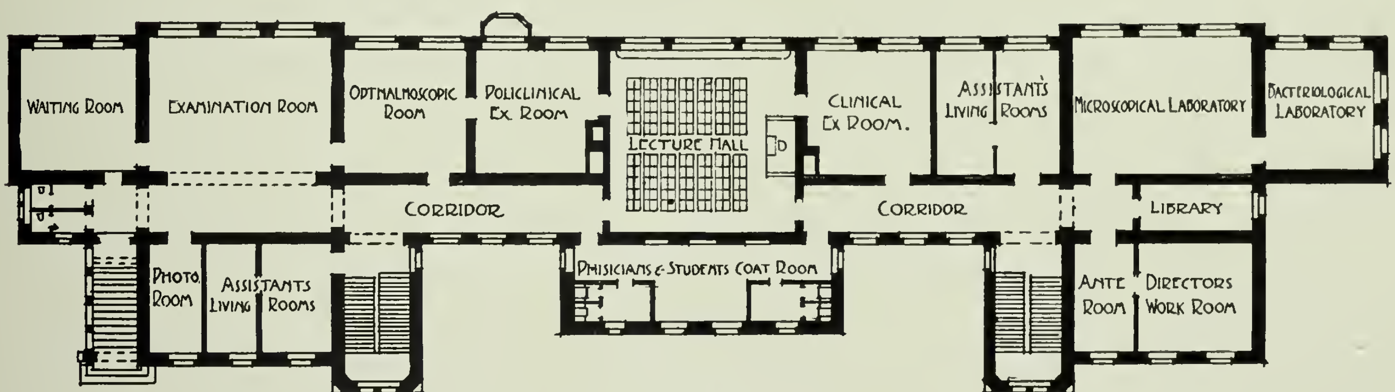
Next come two living rooms for an assistant, and beyond these is the microscopical laboratory, with the



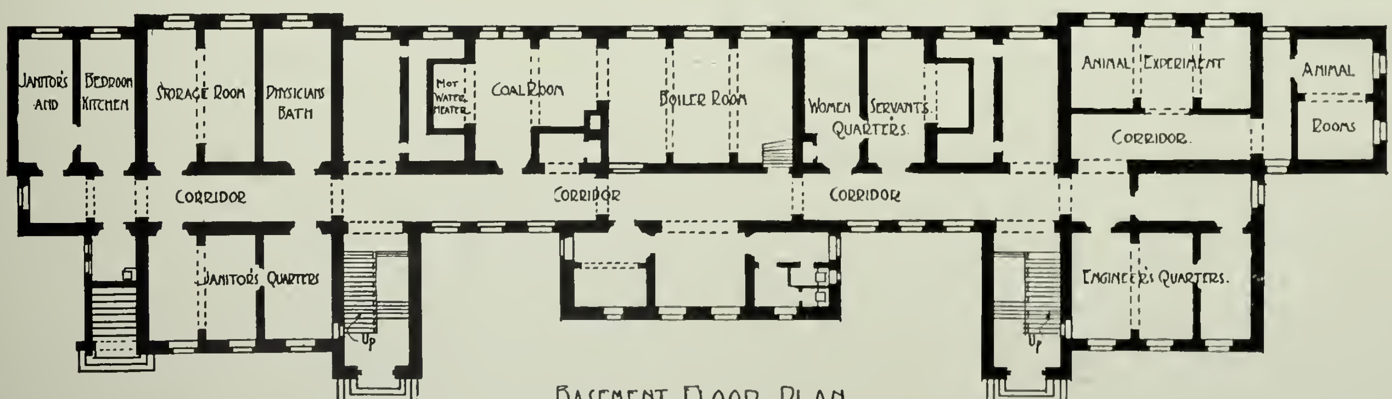
ATTIC FLOOR PLAN



SECOND FLOOR PLAN



FIRST FLOOR PLAN



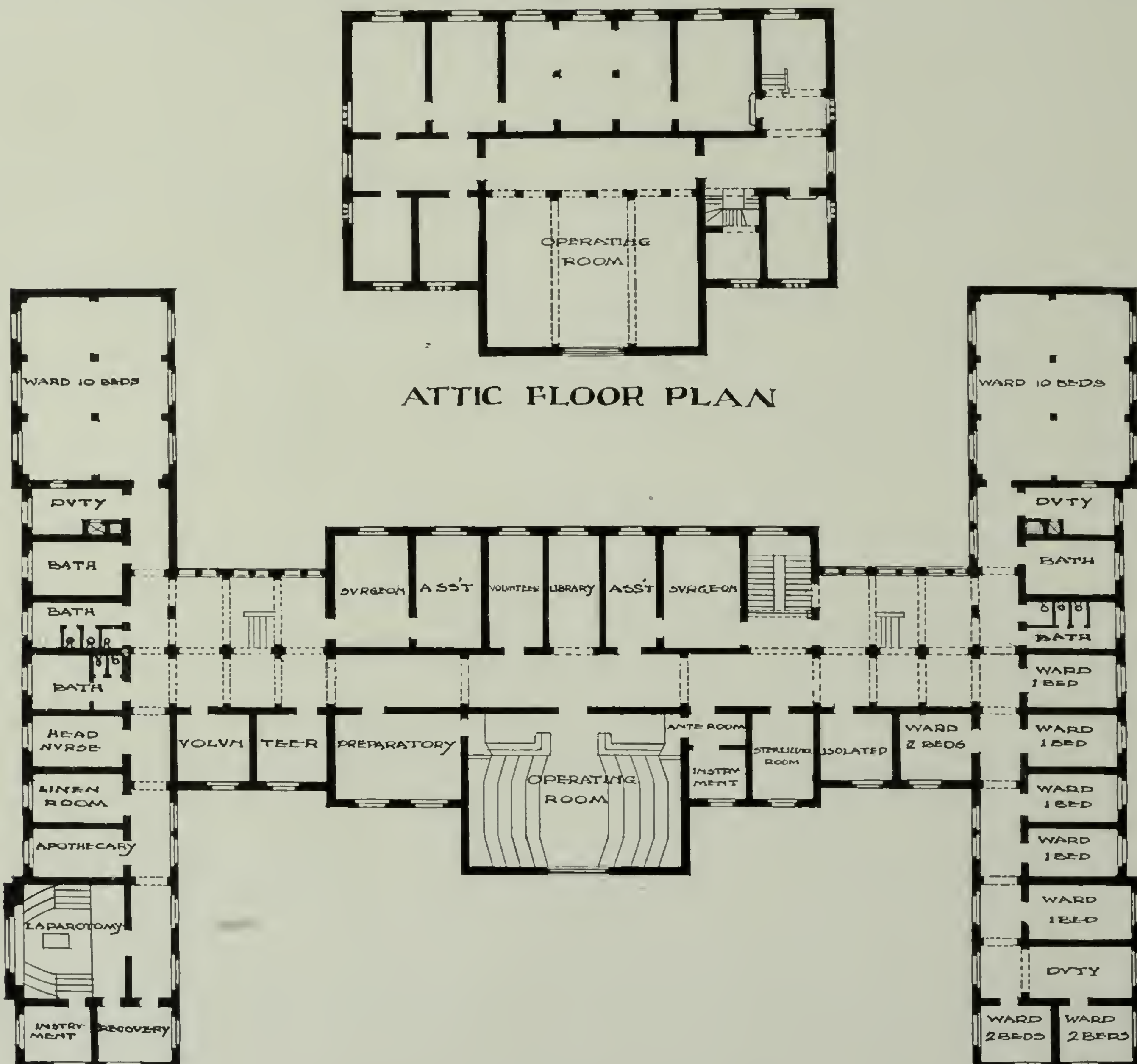
BASEMENT FLOOR PLAN

HOSPITAL FOR DISEASES OF THE EYE.

bacteriological laboratory adjoining. These two rooms give seats for twenty students.

In the southerly wing is the photographing room and two living rooms for an assistant. The cloak and toilet rooms for physicians and students are in the central pavilion.

In the second story the southerly wing is for women and the northerly for men. There are for each sex two eight-bed, one four-bed and three two-bed wards. For ment and of all hallways and toilet rooms are vaulted; those of the other rooms are plastered. The floor of the entrance halls, together with those of the operating and sterilizing rooms, is of vitrified tile. The hallways and the water-closets in second story have terrazo floors; elsewhere in the building these floors are of asphalt. Otherwise the living and work rooms, the wards and the lecture hall, have pine floors, those of the second story being laid in asphalt.



SECOND FLOOR PLAN, HOSPITAL FOR WOMEN.

each group of wards there are two duty rooms, one of which has a diet kitchen adjoining.

The operating room, with sterilizing and bandage room adjoining, is on the west side. The toilet rooms are in the central pavilion on the north.

In the attic are reserve wards and day rooms for both sexes. The porter's quarters are in this story.

The first and second stories have each a stud of 4.40 meters. The building is of brick. The ceilings of base-

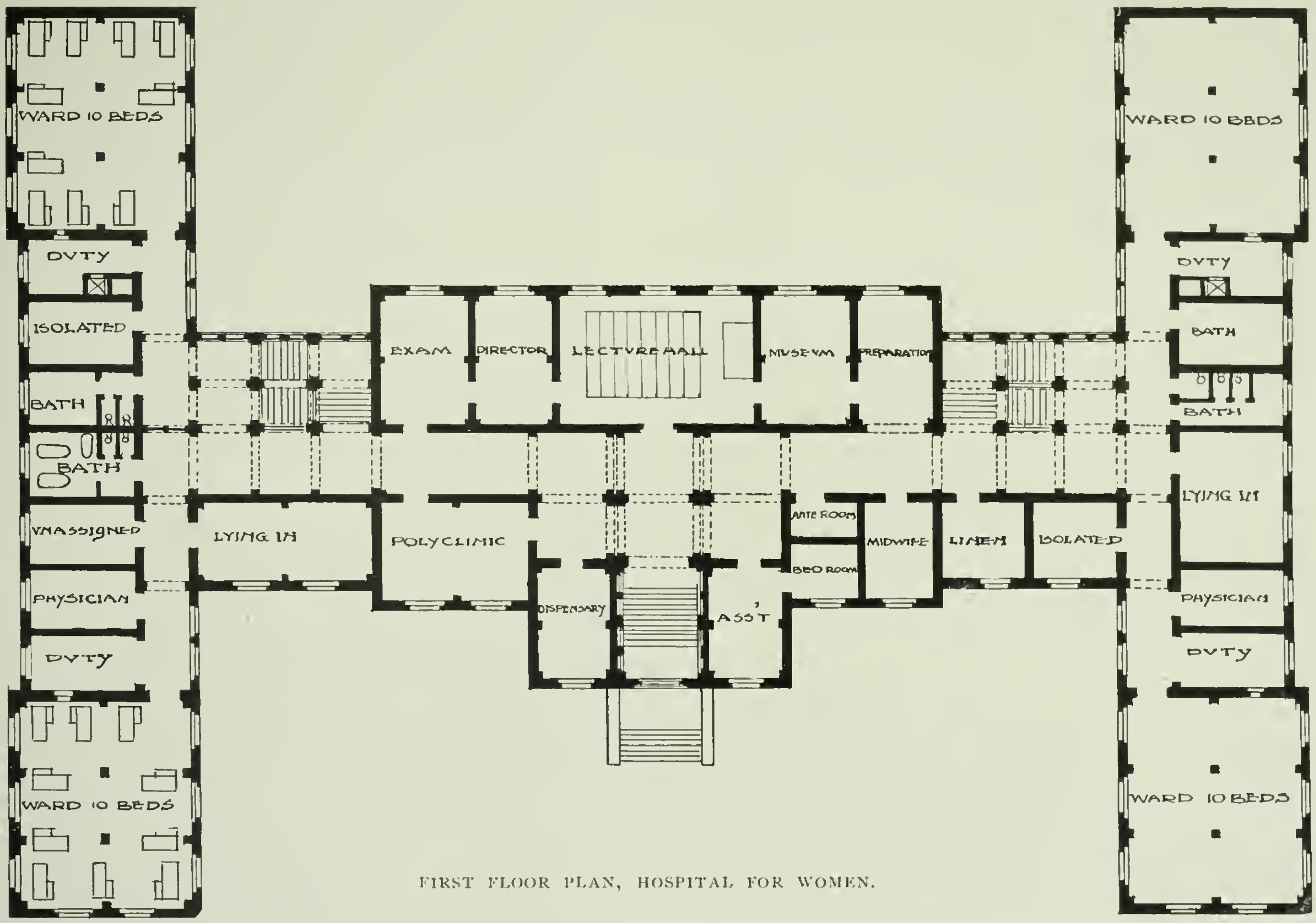
Except for the living rooms in the basement and the assistants' rooms, which depend upon stoves, the building is heated by steam.

The cost of this building, exclusive of grading and of interior furnishings, was about $50,000.

HOSPITAL FOR WOMEN.

The building is in the form of the letter H. The projecting wings for the accommodation of patients are separated by the central portion containing lecture rooms, etc.

For general dispensary work there is a large room at the left of the main entrance, opposite which is an examination room; from this opens a series of connecting rooms, viz., the director's office, a small lecture hall and two rooms for museum purposes. At the right of the entrance are the living apartments of the dispensary assistant. Two staircases placed in the angles which the main building makes with the wings lead to the second floor, the principal division of which is the operating room, occupying the central portion. Students, however, continue the ascent to the second story, where from a gallery, 4.1 meters above the floor, they descend to their



FIRST FLOOR PLAN, HOSPITAL FOR WOMEN.

seats. In this way all contact of students with patients and operating surgeons is avoided. Adjoining the operating room is a large anteroom and also a small instrument room. Two rooms for assistant surgeons and three for volunteer surgeons, a library and a sterilizing vault are also on this floor.

On the first floor both wings are devoted to maternity patients. The left one is divided by means of a glass partition in the corridor in two equal parts, one of which is a reserve ward and is, in general, unoccupied. The ten-bed maternity wards are at the ends of the wings, those at the back having windows on two sides, and those at the front on three. Each wing has its own lying-in room.

On the second floor, over the maternity wards, are accommodations for other patients; two rooms with ten beds each, three with two beds and five with one each, besides a few rooms for patients who must be isolated.

In the north wing is the laparotomy room, with a broad central window, and seats for about twenty-four spectators; adjoining this is a recovery room and an instrument room. All the rooms in each story are vaulted.

A noteworthy feature of the operating room is that the doors are hung on overhead tracks, the wheels of which are exposed. They are opened by long, curved handles that are readily worked by the elbow.

TERRA COTTA MARBLE.

THE most beautiful and durable building stone to be found in the United States is undoubtedly the gray Knoxville marble. It takes a fine finish, is susceptible of the most delicate carving and its composition is such as to resist the action of the atmosphere for an indefinite period, only the hardest granite and gneiss excelling it in this respect. Aside from cost it has but one fatal defect; it is not in any sense fireproof. All the good qualities, however, of Knoxville marble, plus the fire-resisting attributes, and at far less cost, have been successfully united in terra-cotta. The Nixon Theater at Pittsburg is being built with a terra-cotta enameled on a light body. Mr. B. H. Marshall, the architect of the building, experimented with the enamel by adding a very slight amount of blue and red in the mixture, and had the surface of the enamel cut down to a dull velvet with sand blast. The result is a beautifully matted surface showing a mere suggestion of the pale purples, blues and reds which run through the gray Knoxville marble, and it requires a very close inspection to satisfy one that the building is not actually constructed of marble.

Old Brick Houses at Richmond, Surrey.

BY R. RANDAL PHILLIPS.

TO think of the Strand as a muddy path between bramble bushes and the embankment as a meandering walk by the side of a rural Thames requires considerable effort of the imagination; and it is similarly strange to conceive the riverside lanes at Richmond and Twickenham as thoroughfares of a great city, the trees

GATEWAY, OLD PALACE, RICHMOND.

gone, the air tainted, and electric cars speeding along where once the quiet barge horse towed his gayly-painted craft; yet the first has been, and the second in all probability will be. For Richmond is scarce ten miles from St. Paul's Cathedral, and as the giant octopus of London throws its restless arms ever farther, the fields become enveloped in the deadly embrace — even now there is little green space left between Richmond and the metropolis. That fact means much. It means that the appearance of Richmond — its streets and houses — has been changed; that the cockneyizing element spreads apace; and that large houses stand empty, their former tenants flown to higher reaches of the river, reaches yet unspoiled by the proximity of a vast city. The fate of these mansions is to be pulled down by the speculating builder, who will erect a great many small houses in the grounds, houses generally devoid of taste, and maybe built of the cheapest and flimsiest materials. But here and there among the modern buildings are many remnants of a century and more ago, old brick houses overgrown with creeper, unpretentious, dignified, restful houses in quiet contrast to the bizarre all around them.

The town proper lies at the foot of the hill, that vantage-ground whence one may look down on a world-famous view of woodland and meadow with the Thames shining here and there like a spangle on the grass. Not for that view alone, but for the general sylvan beauty of the place, Richmond enjoyed five centuries of Royal and distinguished patronage. Formerly its name was Sheen (meaning beautiful, bright, shining, from a Saxon derivative) and one part of it is still called so; but it was Henry the Seventh who gave it his own name, Rychemonde (the name of the Yorkshire town from which he received his title before ascending the throne).

As one writer has put it, imagine to yourself a tolerably-sized, rudely-constructed manor house; some thirty rudely-built cottages, or rather huts, inhabited by hewers of wood and drawers of water; imagine a long procession of a king and court, heralds and men-at-arms, servitors and pages, threading along the old road through Mortlake and passing these hovels, the owners of which run from the fields, and their wives from their baking on iron plates, to follow it to the manor house; a little braying of horns, a good deal of trouble with the emblazoned banners, and much clanking of accoutrements and arms; and then you have a picture of Sheen in the days of Edward the Third (1312–1377), when first it became a place of note.

Ever afterwards, up to comparatively modern times, it remained a favorite resort of the court, the nobility, and distinguished persons in all stations of life; some brief reference to whom will be made later.

Perhaps the most suggestive piece of brickwork in Richmond is the fragment of the old Palace and its gateway, which seems to have been the entrance to the wardrobe court. It is said that Edward the Confessor built a palace at Richmond, but fire and time utterly destroyed

THE OLD PALACE, RICHMOND.

that building, and also the several succeeding royal houses which occupied the site; so that this gateway and the little building within alone remain as a relic of the palace which Henry the Seventh built, — "that magnificent mansion where Henry the Eighth had entertained right royally Imperial guests; where Queen Elizabeth had loved

HOUSE ON THE GREEN, RICHMOND.

the back is a newer relieving arch. Over the front are the royal arms of England, with the dragon and greyhound for supporters, as borne by Henry the Seventh. The gatehouse faces the Green — that delightful feature of old-time England — whereon tournaments, jousts, lists, games and other festivities took place. It has been repaired within the last ten years and some attention given to the little bay window. The story goes that in the room to which this window belongs Queen Elizabeth died, — of smallpox, as is well known, — but there is no absolute authority for the statement, and it would seem much more probable that her death took place in another and larger part of the palace. Just inside the gateway is the small range of buildings shown in one of the accompanying illustrations, especially interesting as having had very little done to them in the way of restoration. It seems that only such necessary works of repair as repointing the brickwork, putting new tiles on the roof where needed and painting afresh have been carried out on the exterior, while inside the woodwork (including a fine staircase) remains practically in its original condition.

At the lower end of the little courtyard to which the gateway gives access is a building which is often spoken of as the "Old Palace," but this is quite erroneous. The building is called "The Trumpeting House," from the fact that two stone figures of boy trumpeters stood on either

to retire her dignity from the pressure of affairs of state; the residence Prince Henry had adorned with the taste of a Francis and the splendour of a Medici; whose corridors had been familiar with the dignity of Wolsey, the wisdom of Burleigh, the gallantry of Essex, Sydney and Raleigh; and whose presence-chamber had been illumined by the beauties of a dozen successive generations."

The palace grew sadly dilapidated under Cromwell and eventually after a life of vicissitude (Strype in 1720 speaks of it as "now decayed and parcelled out in tenements") fell into utter ruin.

The gatehouse is of red brick (now weathered a dull color) with bluish bricks for the pattern work so characteristic of Tudor architecture. The stonework of the arch at the front is very much eaten away, but at

THE TRUMPETING HOUSE, FRONT TO COURTYARD, RICHMOND.

THE TRUMPETING HOUSE, RIVER FRONT, RICHMOND.

side of the entrance (they are now in the cellars). The house was built in the time of Queen Anne (who died in 1714). It is a very delightful example of what has come to be called early Georgian work, carried out, like most of that work, in warm red bricks with the flat arches over the windows in bricks of a brighter tint, forming a pleasant contrast. The roofs are covered with slates which have weathered to a beautiful silver-green color, and with the white-painted wood cornice and window frames the whole forms a very charming composition. The entrance from the courtyard is by a small octagonal hall. On the opposite front — the main front, facing the river — is a large pediment carried by four Tuscan columns in stone, the

THE TRUMPETING HOUSE, RICHMOND.

tympanum being filled in with brick. Details can be seen in the illustrations and need no comment, but perhaps incidentally it is worth while referring to the modern sun-blinds, which might have been treated more squarely at the head in keeping with the rest of the house; it is just in small matters of this kind that modern additions and alterations often mar old buildings. "The Trumpeting House" has a beautiful lawn running down towards the river, bordered by many fine trees, and in the grounds is an old archway with a finely wrought iron gate probably of the time of Henry the Seventh.

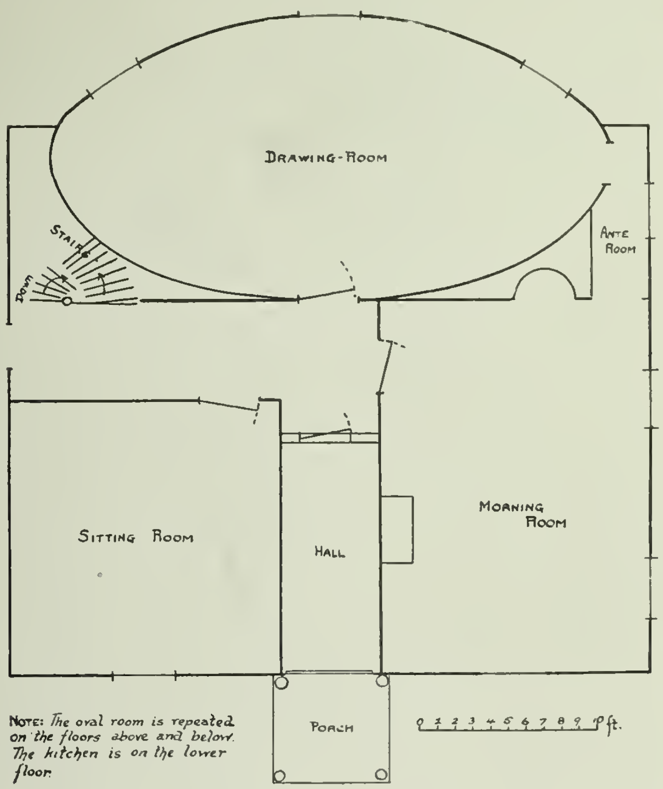
Adjoining the old Palace gateway is "Maids of Honor Row," consisting of four large brick houses built about 1737 by King George the Second and Queen Caroline, when Prince and Princess of Wales, to provide accommodation for the ladies of the court. In No. 4 lived John James Heidegger, master of the revels to George the First and Second, and he died there in 1749. He was a Swiss and came to London in 1708. These houses, then, which form "Maids of Honor Row" are Georgian, with which period I am mainly concerned for the present, and in considering them it is opportune to draw a few comparisons. Georgian architecture has been the subject of much abuse. Men in the vanguard of a Gothic revival, inflamed beyond measure in their zeal for "living work," men to whom the detail on a building seemed often of more concern than the building itself, — such as these found much to revile in Georgian work. Its symmetry did not appeal to them, — they called it lifeless monotony; its scanty decoration had no attraction for them,— it was too classical, too academic, and its squareness was distasteful to minds that loved all kinks and corners. Doubtless there was some truth in the imputation; but, looking at the houses designed by the average architect in England to-day, one doubts the tenets of which they are the outcome, — in many instances indeed the results are appalling. Men there are in plenty capable of designing houses worthy of English architecture, but they are not the men who form the bulk of the profession. These latter have little talent, — often they have been pushed into architecture by well-meaning but mistaken parents who desired their sons to have a "gentlemanly" calling, — and I have long been of opinion that it would be far better for English architecture if such men were taught the A B C of Georgian work. In education it is becoming an accepted axiom that the greatest

MAIDS OF HONOR ROW, RICHMOND.

OLD PALACE TERRACE, RICHMOND.

THE WICK, RICHMOND.

attention needs to be given to the average intellect, and the same is eminently applicable to architecture. The method of each man for himself has resulted in the medley of modern building—that mixture which is of no style and has no style, that proportionless hotchpot, that muddle of materials and that miscellany of fussiness so absolutely at variance with the sense of a home. The A B C of Georgian work is comparatively easy to learn, and it would be far better if architects were content to be guided by it. Maybe that is a low view to take of architecture, but it is one calculated to produce better results than the indiscriminate preaching of the doctrine to be original. A developed Georgian practised generally would do much for English domestic architecture. Men of more than average ability could be trusted to make such variations



"The Wick", Richmond.

as they chose, but let the rank and file of architects set Georgian models before them, following them in a modern spirit, and one of the most beneficial changes would result. I am not interested in the apotheosis of Georgian architecture, but at its worst it was innocuous, and so much cannot be said of the generality of modern work. We need not copy it blindly; we can avoid its faults; we can add variety and life where they are lacking; we can in fact do what we will to meet the conditions of our own times, so long as we preserve those qualities of restfulness, dignity and cheerfulness which are demanded by the associations of a house.

These houses in "Maids of Honor Row" are admirable examples of my meaning. They are very roomy inside and paneled. The doorways, of wood, are well proportioned, and the railings enclosing the small gardens at the front are admirable specimens of wrought ironwork, all differing in design.

A short way to the east are a number of interesting eighteenth century houses, such as those in Old Palace Terrace; indeed, all around two sides of the Green (the oldest part of Richmond) are houses of this period—

THE QUEEN'S HOTEL, RICHMOND.

good sturdy examples of early Georgian work, with dentiled wood cornices, enriched doorways and simple wall surfaces, having large halls and rooms and a considerable amount of solid woodwork.

Leaving the Green and walking up the Hill, we see one or two houses of a similar type amidst the host of new erections — mostly belonging to the latter half of the last century — until at the end of the Terrace is found "The Wick," a house occupying the site of an alehouse called the "Bull's Head," which was pulled down in 1775. From the accompanying illustration it will be seen that this is a very pleasant little house, though the side fronting the road has rather a bare appearance and would be

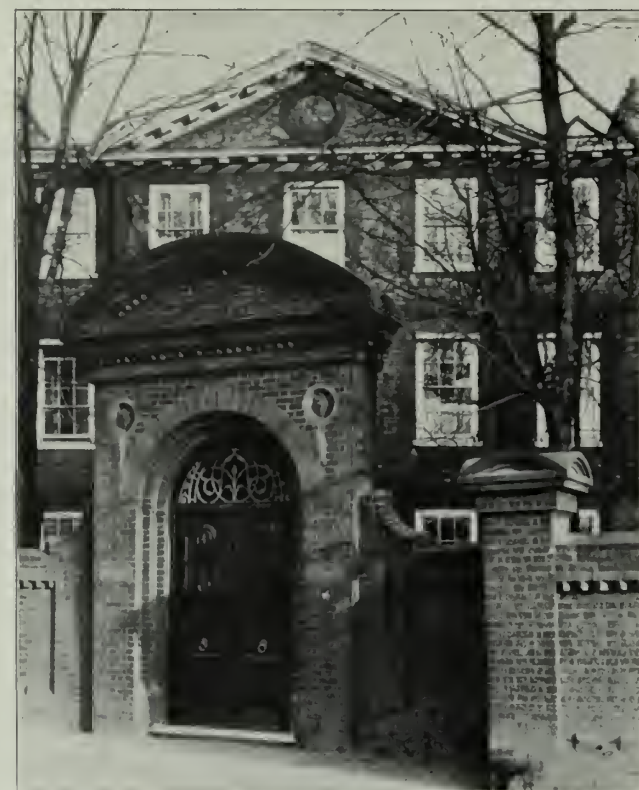
THE WICK, RICHMOND.

MARSHGATE HOUSE, RICHMOND.

the better for a little creeper; but the recessing of the wall within the arches is a relief and the balustrade, cornice and porch are acceptable enrichments: the ends of the tie-rods that pass through the wall are treated as medallions, with a small female head in the center of each. The front door is a stout piece of work, like the wood rail bordering the road; the ironwork is similarly straightforward in treatment. The zinc chimney-pots, I need hardly say, are recent additions. (What hideous sky lines these zinc pots make — one can see them in thousands standing up at all angles over central London, and Paris is even more blighted with them.)

Just above "The Wick" is "Wick House," a modern casing (in the worst taste) over the house, designed by Sir William Chambers, in which Sir Joshua Reynolds lived for some time. Directly opposite is the Queen's Hotel. It was formerly called Mansfield House, having been once the residence of the Countess of Mansfield. Severely simple, it borders on monotony, yet the proportion is good and the general effect pleasing. On paper the building would look utterly uninteresting, but these old houses, when time has mellowed their bricks, form delightful pictures, — the proportion which they exhibit is quite absent from most modern work, and if there is little or no ornamentation about them, they are far more satisfactory than many similar houses of to-day with their plethora of so-called embellishments.

At the bottom of Richmond Hill on the road that leads to Mortlake — towards London — are several old houses which merit attention. Marshgate House is the most interesting. This is another good example of Georgian work and follows very much on the same lines as those already dealt with, though the exposed roof with its dormers is an exception; here, too, there is some good ironwork in the gate.



LICHFIELD HOUSE, RICHMOND.

Lichfield House, once the palace of the Bishop of Lichfield and now the residence of Miss Braddon, the novelist, is close by. It is a straightforward design, but the modern covered way (an iron erection) which leads from the front door proper to the door abutting the pavement should never have been perpetrated; the door piece and the pillars on either side are also rather clumsily treated and top-heavy.

Further along, at the bottom of Queen's Road, is Spring Grove, a rather less interesting house with a modern porch and new stabling.

Besides those which I am describing, there are many other brick houses in Richmond belonging to the same period — that in Parkshot where George Eliot once lived (recently pulled down) was of this class, — but they have no particular features which need comment.

SPRING GROVE, QUEEN'S ROAD, RICHMOND.

Fireproofing.

AMERICAN FIREPROOFING METHODS.

THE convention of the International Fire Prevention Congress which was held in London July 6 to 11, was in many respects the most noteworthy event in fireproofing lines of the year. There has never been anything like it in this country, and several thoughts suggest themselves in connection therewith. The contributors to the discussions and papers were by no means all of them of British origin. Out of a total of thirty-eight papers presented eleven were from continental contributors, seven from American and only twenty from British sources. In reading over the papers one is struck with the extent to which American methods were considered, discussed and criticised, and it is readily seen that our experience is being studied very closely abroad. It must not be assumed from this, however, that our British constructors are not keenly alive to the necessities of fireproof construction or are not in many respects quite equal to us in their technical, scientific knowledge. We have had such bitter experiences here with fires, and large constructions have taken such enormous proportions that we have been obliged to study the questions often, it must be admitted, in a hasty and unsatisfactory manner, but on the whole we have pretty successfully mastered the problems involved. But it will not do for us to rest on our oars. Perfection is never attainable in any science, and if we are to remain complacently satisfied with what we have achieved we may have the mortification some day of discovering that our British cousins have not only absorbed all the lessons of our experience, but are surpassing us in practical application thereof. The lack in this country is in coöperation among fireproofing engineers and constructors. We have the experience, the means and the opportunities, but too much of our work is sporadic in its nature, and in the intense rush of business there is a danger that we may neglect the opportunities for coöperation and coördination of ideas of which architects and builders abroad are so ready to avail themselves. It is to be hoped that the approaching St. Louis Exposition will serve as a seasonable opportunity for gathering in this country a convention similar to that which has just been held in London, and we are sure that the material that could be presented at such a convention would be of enormous value to all those who are interested in the subject. We have been in the past too busy to theorize and deduce lessons from our experience, but we must do so if we are to keep abreast of progress.

PROGRESS IN FIRE PROTECTION.

NOTWITHSTANDING the efficient methods which have been devised to guard against danger from fires, the total fire loss has steadily increased during the past twenty years until it has reached the enormous sum of \$160,000,000 annually in the United States and Canada. During that period the annual loss has varied from a minimum of \$51 per \$10,000 of property value in 1897 to a maximum of \$64 per \$10,000 in 1899. The average for twenty-two years ending in 1901 was \$58 per \$10,000, while in the last three years of that period the average was over \$62. In France the average loss is only \$6 per \$10,000, in Germany \$10 and in Great Britain \$14. This might be assumed as a confession of the inadequacy in our fireproofing methods, but a more reasonable explanation is based upon the fact that most of our fires during the last twenty years have been confined to the old buildings, the imperfectly constructed ones, and especially to those of non-fireproof construction, or have been communicated from such to others of a better nature. We are gradually evolving from a slow-burning, or perhaps more properly a quick-burning, into a fireproof construction, and the high rate of loss will undoubtedly continue and possibly even increase until such time as the principles of fireproofing with burnt clay are applied to the majority instead of the minority of our city buildings. That consummation can of course come only with time. European cities have not inherited such vast areas of inflammable structures as menace all our large cities, and it is that fact rather than any advantages of their systems of construction which reduce so tremendously the ratio of loss.

SLOW BURNING vs. FIREPROOF CONSTRUCTION.

MR. EDWARD ATKINSON in his address before the International Fire Prevention Congress made some rather contradictory statements. Speaking of staircases he says, that where such must necessarily run through a building, stone or concrete should be avoided in their construction, and that good solid wood is the most reliable under all circumstances. We admit the undesirability of either stone or concrete, but can hardly accept wood as being desirable even under any circumstances, and Mr. Atkinson admits it in another portion of his paper by expressing the belief that the materials suitable for fireproof construction are those which are not subjected to the laws of expansion and contraction when suddenly exposed to the effect of heat, and that if we take for our guidance the results of the tests of time, we find these materials to be principally timber, bricks, mortar and good plaster. The first material is neither fire-resisting nor fireproof. The two last will stand neither fire nor water to any extent, but as regards bricks or terra-cotta we perfectly agree with Mr. Atkinson.

FIREPROOF WINDOWS.

THE Insurance Engineering Experiment Station at Boston, of which Mr. Edward Atkinson is director, has conducted a series of fire-resisting tests of the electro-glazed prisms and plate glass manufactured by the American Luxfer Prism Company. The prisms were set in metallic frames enclosing the windows of a specially constructed room about eight feet square and ten feet high, so built as to develop a temperature quite equal to that of any ordinary building fire, and after exposure to the heat for one hour the door of the hut was opened and a stream of water thrown in for several minutes until the hut was cool enough to enter. The tests were made to compare wired glass, electro-glazed prisms and electro-glazed plates, and resulted in demonstrating the ability of all of them to remain in position and effective operation up to the time when the temperature of melting glass was reached.

PLASTER BLOCKS.

PLASTER of Paris is undoubtedly one of the most perfect insulating materials which we possess, and as a matter of protection against heat only the magnesia compounds and infusorial earth can equal it. When, however, plaster of Paris is considered for the protection of a building against the action of fire, so many different elements are introduced that other things have to be thought of besides mere resistance to heat. Plaster blocks have been used repeatedly for partitions and floors, but in every case the fatal objection is discovered that no compound of plaster can successfully stand either long continued exposure to direct flame or even a limited exposure to combined heat and water. Even the best of the plaster block compounds now on the market will absorb from 40 to 50 per cent of their dry weight of water, while an ordinary brick will absorb considerably less than 10 per cent in twenty-four hours. A piece of plaster block exposed to a flame having a temperature even as low as 450 degrees for two hours would be quite thoroughly calcined, and upon immersion in water would almost totally disintegrate into a fine powder. Brick or terra-cotta subjected to the same conditions might crack slightly, but would not disintegrate. Furthermore, it is extremely difficult to set plaster blocks in partitions and have the mortar or cement cohere properly unless the blocks are first thoroughly soaked in water, when the amount of water absorbed becomes so large that it takes sometimes even months for the water to dry out of the wall. In setting terra-cotta blocks the pieces are likewise immersed in water, but the absorption is slight and evaporates in a comparatively short time. There is simply no comparison in efficiency, fire-resisting qualities or ease of manipulation between plaster blocks and terra-cotta.

FIREPROOFING.

MANY of our subscribers have undoubtedly received copies of a very spicy, enterprising monthly journal which has devoted itself not only entirely to fireproofing, but has assumed a special province of attacking the so-called slow-burning construction and more particularly the various forms of fireproof construction which are based upon the employment of reinforced concrete. The attacks which this journal have made upon concrete construction have been so straightforward and wholesale in their denunciation and have been moreover backed by citations of so many actual examples of failure that they must have attracted the attention of those who are specially interested in the concrete construction. Our own special province includes burnt clay in its various forms, which we consider by all odds the most suitable for use in connection with fireproofing of buildings. We have never taken the position that concrete might not under some conditions be used to advantage for fireproof construction, but either the statements made by our western contemporary regarding concrete failures are absolutely true or else the concrete industries are afraid to talk back. The situation is in some respects an amusing one, and the controversy, though one sided, makes very entertaining reading. We hope for the sake of fairness and to see what would be brought forth that those companies which are engaged in the manufacture of concrete fireproofing may see fit to take up the cudgels in their own defence, not in a general way, but to specifically tell the reading public whether or not the seemingly well-endorsed records of failures of this material can or cannot be accepted as conclusive evidence. Our own convictions as to what is the most appropriate material for fireproof constructions are perfectly clear. If concrete cannot be trusted architects and builders should be told so.

COST OF FIREPROOF CONSTRUCTION.

IN the report of the Schoolhouse Commission of the City of Boston there are some very suggestive figures presented in the summaries of cost of various schoolhouses. Nearly all of the buildings now being erected are of first-class construction, that is to say fireproof throughout, but the cost is given of a few recent ones of second-class construction, namely, with wooden partitions and floors, and these afford an interesting comparison. The second-class construction schools range in price per cubic foot from 16.58 cents for the Chapman to 24.01 cents for the Winship, while the buildings entirely of first-class construction range from 22.39 cents for the South Boston High School to 24.98 cents for the Heath Street School; and the schools which are all of first-class construction, except for a planked roof, range from 16.33 cents for the Dorchester High to 23.79 cents for the Kenwood Road School. It will be seen that some of the second-class construction schools cost actually more than some of those which are practically entirely fireproof.

The question has been repeatedly raised in our large cities as to the advisability of employing first-class or fireproof construction for a schoolhouse. In the light of the figures quoted above there would seem to be actually very little difference in cost between the two constructions. The cost of a building of first-class construction is generally from ten to thirty per cent higher than one of second-class construction, not, however, because the system of construction is in itself more expensive, but chiefly because in a first-class building nearly everything is planned on a more expensive scale. The very designation of first-class carries with it the idea of a superior building, and this idea is generally warranted by the results. But, as we have repeatedly urged in these columns, the mere constructive expense for a building which will be practically fireproof is but very little more than the cost of the ordinary second-class construction.

THE SPREAD OF FIRE.

IT is stated that the aggregate of the annual fire losses in the United States due to conflagrations spread from one building to another is $50,000,000, or one-third the total loss. In nearly every case these are preventable losses, and we owe them not in the slightest degree to lack of knowledge of fireproof construction, but wholly to the inheritance of the past period, when fireproof construction was not enforced or to a misapplication of principles which are perfectly understood at present and which should be insisted upon in every new structure.

Selected Miscellany.

THE INTERNATIONAL CONGRESS OF ARCHITECTS.

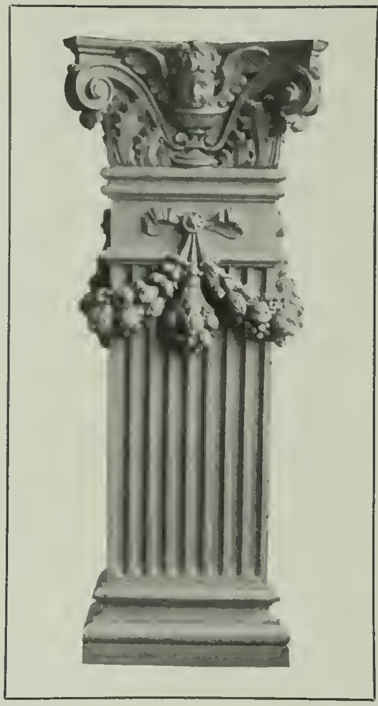
THERE is to be an International Congress of Architects in Madrid during April of 1904. The American section of the International Committee includes George O. Totten, Jr., Augustus Saint Gaudens, Herbert Putnam, J. M. Mauran, John LaFarge, W. L. B. Jenney, Cass Gilbert, W. S. Eames, John M. Carrère, Glenn Brown, George B. Post and others. A detailed program has been drawn up which includes very interesting exhibits from various points of architectural interest. This congress would offer an excellent opportunity for our American architects to visit Spain under the most favorable circumstances and is one of which many of our readers will doubtless be glad to avail themselves.

SAND BRICKS.

IT would be interesting to keep an account of the different individuals who, at various times and at extremely short intervals, have "discovered" or "invented" processes of brick making which dispense with clay and substitute therefor a more easily manipulated material. Some very excellent sand bricks have been made for a number of years at Racine, Wis. Somewhere in New York state we have also heard of processes of making bricks with combinations of sand and a cementing material. We see stated in one of the English papers that a Russian engineer has invented a process which is being worked in Germany, which utilizes a mixture of slaked lime and sand, the bricks after molding being placed in a closed chamber and exposed to the action of steam at a pressure of about one hundred pounds per square inch for twelve hours. The bricks are said to have a crushing strength of two hundred and twenty tons to the square foot. They are so porous that they will absorb thirteen per cent of their volume of water under immersion. The amount of lime used varies from four to ten per cent of the total. In the absence of specific statements as to the kind of lime used and the description of sand it is not easy to form a judgment of what these bricks might be worth. The experiment, however, is in no sense a new one and we can hardly think it will prove that bricks made under such conditions would be of very great value. If the lime were strongly hydraulic the resulting compound would be a species of low grade concrete. With ordinary lime a brick of this sort would be almost worthless for exposed places. Novelty has a charm which appeals to brick makers quite as strongly as to less enlightened individuals, but we have yet to know of

DOOR, HOUSE AT LLOYD'S NECK, L. I.
Boring & Tilton, Architects.

NEW MARSHALL FIELD STORE, CHICAGO.
D. H. Burnham & Co., Architects.
Terra-Cotta made by Northwestern Terra-Cotta Co.



DETAIL BY F. C. SAUER, ARCHITECT.
Conkling-Armstrong Terra-Cotta Co., Makers.

ALBANY CITY SAVINGS INSTITUTION, ALBANY, N. Y.
Marcus T. Reynolds, Architect.
Terra-Cotta by Perth Amboy Terra-Cotta Co.

any clayless brick which is of any great value. Burnt clay is at once the oldest, the simplest and the most durable building material the world has ever seen.

BOOK REVIEWS.

"Stones for Building and Decoration." By George P. Merrill, Curator of Geology in the United States National Museum and Professor of Geology in Columbian University. Third edition, revised and enlarged. New York: John Wiley & Sons. 1903. Price, $5.

The best comment on this work is that it is its third edition, for when one considers the relatively slight demand for works of this general character it will be understood that a third edition implies a more than average degree of excellence. The book is very thorough in every respect, and the third edition brings everything up to date, besides adding a good deal of additional material. The work includes a historical account of the development of stone quarries, etc., in this country, followed by a statement of the geographical distribution of stones in the United States and a consideration of minerals and building stones from the physical, chemical and geological standpoint. The second part takes up in detail the different kinds of rocks, describing them thoroughly in every respect and locating the sources of supplies. The third part considers methods of quarrying, implements used, the weathering of building stone, selection and tests of same and methods of protection and preservation. Part four contains elaborate tables showing the qualities of stone as shown by crushing strength, weight, absorption and chemical composition, together with prices of material, a very complete list of stone buildings and date of erection and a bibliography of works on building stone. The whole subject is treated exhaustively and yet concisely. The illustrations are admirable, including a number of maps showing the geographical distribution of quarries. There are also a number of admirable photographs from actual specimens, together with photographs of many of the more prominent quarries. The work lacks an index, otherwise we would have little fault to find with it and would heartily recommend it as a practical work of great value to every architect and constructor.

"Fire Insurance and How to Build." Combining also a Guide to Insurance Agents Respecting Fire Prevention and Extinction, Special Features of Manufacturing Risks, Writing of Policies, Adjustment of Losses, etc., etc. By Francis C. Moore. New York: The Baker & Taylor Company, 1903. Price, $5.

Mr. Moore has been collecting material for this book during the past twenty-five years, and his long experience in connection with insurance work qualifies him to speak authoritatively from the insurance standpoint. Nearly everything he says from that point of view is worthy of careful consideration. Our only criticism of the book would be that it says too much. A pitiless blue penciling of repetitions, the omission of some of the insurance schedules, and the elimination entirely of matters which are not

TERRA-COTTA UMBRELLA STAND.
White Brick and Terra-Cotta Co., Makers.

LIBRARY.

LIVING ROOM.

HOUSE, SYRACUSE, N. Y. BENSON & BROCKWAY, ARCHITECTS.

questions of insurance but rather of the theories of construction, would make the work far more readily available, while the absence of a table of contents is something which we should hope would be remedied in a subsequent edition. Mr. Moore is an authority upon matters of insurance pure and simple. He is far from being an authority on the subject of strength of materials, especially when he speaks of the limit of elasticity as that point at which a beam is liable to break, but the good of the book far outweighs the objectionable. It does not tell us how to build, but it gives a great many points as to what constitutes wise risks from the insurance standpoint.

DOOR, HOUSE 1921 WALNUT STREET, PHILADELPHIA.

We have received the book of the College of Architecture of Cornell University, containing a most excellent series of reproductions of students' work during the past year. The drawings show a decided improvement over previous years. The book is admirably gotten up and is in every way a credit to the university.

DETAIL BY CLINTON & RUSSELL, ARCHITECTS.
Excelsior Terra-Cotta Co., Makers.

DETAIL BY B. H. MARSHALL, ARCHITECT.
Atlantic Terra-Cotta Co., Makers.

NOTES ON THE CLAY INDUSTRY EXHIBIT AT THE ST. LOUIS WORLD'S FAIR.

The Hydraulic Pressed Brick Company are working up a design that will make a masterly exhibit of the brick industry. The exhibit will be in the form of a pavilion, in which their numerous types of pressed brick will be well illustrated in actual use. Their enameled brick will be used for decorating the interior, and their paving brick will be used for flooring. The entire structure will be made exclusively out of brick that will be gathered from their numerous plants that are scattered all over the country.

CHURCH OF CHRIST, SCIENTIST, BROOKLYN, N. Y.
F. R. Comstock, Architect.
Terra-Cotta by New York Architectural Terra-Cotta Co.

1921 AND 1923 WALNUT STREET.

1926 SPRUCE STREET.

A GROUP OF HOUSES, PHILADELPHIA, PA.

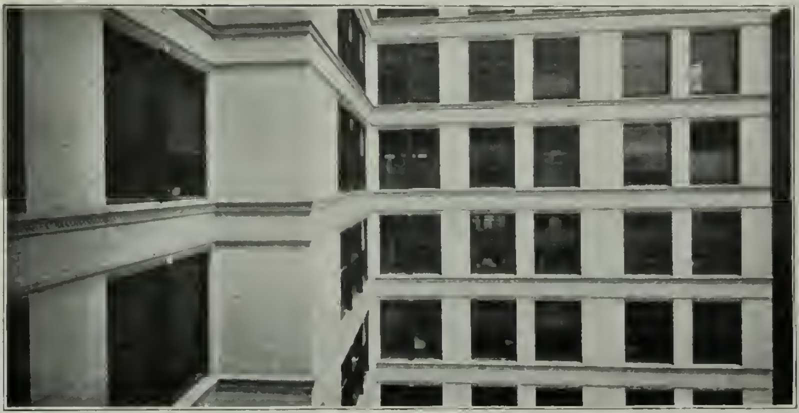
CHAPEL AND RECEIVING VAULT, EVERGREEN CEMETERY, NEWPORT, KY.
W. W. Franklin, Architect.
Covered with American S Tile furnished by Cincinnati Roofing Tile and Terra-Cotta Co.

The Northwestern Terra-Cotta Company will exhibit a very attractive pagoda that will be built entirely of their well-known terra-cotta. It will be designed in their own factory by Mr. Fritz Wagner, the secretary of the company, and will be a study in both form and color, showing the latest advancement in terra-cotta work.

The Tiffany Enameled Brick Company are working on a design that will illustrate all their different shapes and colors of enameled brick. It will be in the form of a small office building that will be built entirely of clay products. It will be built on lines to bring out the great wealth of colors possible with enameled brick, and yet it will be handled in such a way as to be a beautiful study in color as well as design. This promises to be one of the features of the clay industry exhibit, and the details are being worked up by Mr. Garden of the firm of Mauran, Russell & Garden of St. Louis.

Among the applications recently received for the clay industry exhibit, which will cover about one-half acre of ground in the Mines Building at the St. Louis Exposition, was one from the Excelsior Terra-Cotta Company of New York, whose works are at Rocky Hills, N. J., and of which Mr. W. H. Powell is manager. This company will execute one of the imposing terra-cotta entrances by which access is obtained to this exhibit. As it is on one of the through aisles of the building it will be visible from the extreme end of the building.

The American Terra-Cotta Company of Chicago have taken a prominent alcove in the clay industry exhibit for showing their terra-cotta work for interior architecture. The alcove will be embellished with their beautiful Teco ware, especially some of their recent matt-glazed, soft, green art goods.



COURT OF OFFICE BUILDING, SHOWING USE OF ENAMELED BRICK.
Made by Tiffany Enameled Brick Co.

DETAIL BY CLINTON & RUSSELL, ARCHITECTS.
Standard Terra-Cotta Co., Makers.

The Sayre & Fisher Company, the oldest and largest manufacturers of brick on the Atlantic seaboard, have taken an alcove to exhibit a full line of the brick manufactured by them at their Sayreville, N. J., brickyard. Their brick exhibit will be very comprehensive, from the common or rain drop brick through the various colors and shapes of stock brick and a full line of enameled brick.

IN GENERAL.

Elliott Woods, the superintendent of the Capitol, at the direction of the House commission, has designated Robert S. Peabody of Boston to act as advisory architect in the preparation of plans for the proposed office building for the use of members of the House of Representatives.

Architect Elmer Grey, of Milwaukee, has been appointed a member of the advisory and judiciary committee on architecture for the Louisiana Purchase Exposition.

BISHOP'S RESIDENCE, WHEELING, W. VA.
N. C. Hamilton & Sons, Builders.

Mr. Grey is to be one of the sixteen men of the profession who are to have charge of the general arrangement and placing of exhibits at the St. Louis world's fair.

The American Enameled Brick and Tile Company are supplying their brick for use in the exterior of two new office buildings now being erected in Columbus, Ohio, Stribling & Lunn, architects; also for a new bank building in Cleveland. Three hundred thousand of their brick

DETAIL BY VICTOR HUGO KOEHLER, ARCHITECT.
New Jersey Terra-Cotta Co., Makers.

will be used in the new Bellevue-Stratford Hotel at Philadelphia. Among other contracts on which their brick will be used are the new automobile station in Boston; Belvedere Hotel, Washington; and an export order to South America.

Robert T. Vrydagh, architect, Terre Haute, Ind., has taken offices in McKeen block.

BUILDING operations in nineteen of the principal cities of the country for July show a falling off of seventeen per cent in point of cost as compared with the corresponding month a year ago, but there was a considerable increase in the number of buildings according to special reports to *Construction News*. During the month just closed permits were taken out in these cities for the construction of 5,890 buildings, the cost of which was $22,282,581, as against 5,162 buildings at a cost of $26,839,692 for the same month a year ago. This is an increase of 728 buildings in number and a decrease of $4,557,111 in the estimated cost. The figures in detail are as follows:

City	1903		1902		Per Cent.	
	No.	Cost	No.	Cost	Gain	Loss
New York (Boroughs of Manhattan and the Bronx)	453	$7,053,730	385	$10,402,508	.....	32
Chicago	548	3,191,790	570	3,322,480	.....	4
Philadelphia	659	2,383,655	660	4,013,510	.....	41
Brooklyn	560	2,144,010	430	1,746,605	23	...
Detroit	296	817,800	370	646,400	27	...
San Francisco	135	810,100	88	726,973	11	...
Indianapolis	248	793,397	241	226,356	251	....
Cleveland	330	774,170	270	482,660	60	...
Washington	371	682,758	278	1,049,166	...	35
Minneapolis	387	520,040	319	800,160	...	35
Seattle	560	503,713	489	873,456	....	42
Milwaukee	230	459,736	231	506,044	...	9
Denver	183	452,100	138	451,870	05	....
Buffalo	170	438,943	158	538,771	.....	19
Cincinnati	219	390,425	166	304,785	28	.....
St. Paul	175	342,940	94	274,020	25	....
Atlanta	314	212,399	222	125,775	64	....
Memphis	..	157,175	.....	201,253	.....	22
Allegheny	52	153,700	53	146,900	4	......
Totals	5,890	$22,282,581	5,162	$26,839,692	.....	17

It is somewhat difficult to account for the falling off, but it is believed that it is due to the temporary stringency in the money market and the apprehension of just what the future has in store. It is now believed, however, that the sky is practically clear and operations will go ahead upon a much larger scale. Investors, manufacturers and builders now feel assured that no serious calamity is in prospect and that the situation will be on the mend from this on. Reports of the trustworthy commercial agencies have assurance of continued prosperity in mercantile lines, and people who are competent to judge believe that building will soon be resumed upon an extensive scale. Some of the large cities which have during the past few years shown remarkable gains, show a considerable falling off. In the list of cities showing an increase is Indianapolis, with an increase over the same month a year ago of 251 per cent; Atlanta, 64 per cent; Cleveland, 60; Cincinnati, 28; St. Paul, 25; Detroit, 27; Brooklyn, 23; Allegheny, 4 per cent; Denver, 5 per cent. The list of cities showing a loss include Seattle, 42 per cent; Philadelphia, 41; Minneapolis and Washington, 35; New York City, 32; Memphis, 22; Buffalo, 19; Milwaukee, 9; Chicago, 4 per cent.

Competition for a Public Library

First Prize, $500 Second Prize, $200 Third Prize, $100

PROGRAM

IT is assumed that a public library is to be presented to a town located in the middle west. This town occupies a picturesque position in a rolling country bordering one of the Great Lakes and is the seat of a small but important college. The public square is a park which is assumed to be 300 feet wide and upwards of 1,000 feet long. At one end is already built the town hall, and at the opposite end will be placed the library. The ground rises gently towards the proposed site, so that the position will be a commanding one. The whole frontage of 300 feet will be given to the library and its approaches, and the entire depth of the lot is 200 feet. The total rise from the curb line to the center of the lot is 10 feet, and the grade falls off towards the rear 1 foot in 40. Sidewise the grade falls off equally each way from the center 10 feet to the boundary lines. The building must set back a distance of 75 feet from the front line, and the approach must be treated in an architectural manner.

The exterior of the building is to be designed entirely in terra-cotta, and colored terra-cotta or faience may be introduced as a feature of the design.

The following accommodation is to be provided for in plan. The dimensions given are only approximate and may be modified as required by the exigencies of the design :

First Story. Vestibule, 200 sq. ft. ; periodical room, 1,000 sq. ft. ; reference library and reading room, 1,000 sq. ft. ; general delivery room, 600 sq. ft. ; trustees' room, 350 sq. ft. ; librarian's room, 350 sq. ft. ; stack room, 1,500 sq. ft.

Second Story. Children's room, 500 sq. ft. ; music room, 500 sq. ft. ; exhibition room, 500 sq. ft. ; two rooms for special collections, 500 sq. ft. each.

It is assumed that the lavatories, storerooms, etc., are all to be located in the basement, which is to be raised sufficiently above the finished grade to allow of fair lighting. There are to be two flights of stairs leading to the second story, but they are not to be made a prominent feature. It will be assumed that the heating plant is entirely distinct from the building, there being consequently no provision made for a chimney, but space should be provided for ample ventilation flues.

Drawings Required. An elevation at a scale of 1-16 inch to the foot, which is to show the entire frontage of the lot, 300 feet, and to indicate the treatment of approaches. There are also to be sketch plans of the first and second floors at a scale of 1-32 inch to the foot, and details drawn at a scale of 3-4 inch to the foot showing the character of the design and the construction of the terra-cotta. The elevation is to appear upon one sheet, and the details and plans upon another. The width and length of each sheet shall be in proportion of three to four and not exceed 24 x 32 inches. All drawings are to be made in black ink without wash or color.

It must be borne in mind that one of the chief objects of this competition is to encourage the study of the use of architectural terra-cotta. No limitation of cost need be considered, but the designs must be made such as would be suitable for the location, for the character of the building and for the material in which it is to be executed. The details should indicate in a general manner the jointing of the terra-cotta and the sizes of the blocks.

In awarding the prizes the intelligence shown in the constructive use of terra-cotta will be a point taken largely into consideration.

Every set of drawings is to be signed by a nom de plume or device, and accompanying same is to be a sealed envelope with the nom de plume on the exterior and containing the true name and address of the contestant.

The drawings are to be delivered flat at the office of THE BRICKBUILDER, 85 Water Street, Boston, Mass., on or before October 31, 1903.

The designs will be judged by three well-known members of the architectural profession.

For the design placed first in this competition there will be given a prize of $500.
For the design placed second a prize of $200
For the design placed third a prize of $100.

All drawings submitted in this competition are to become the property of THE BRICKBUILDER, and the right is reserved to publish any or all of them.

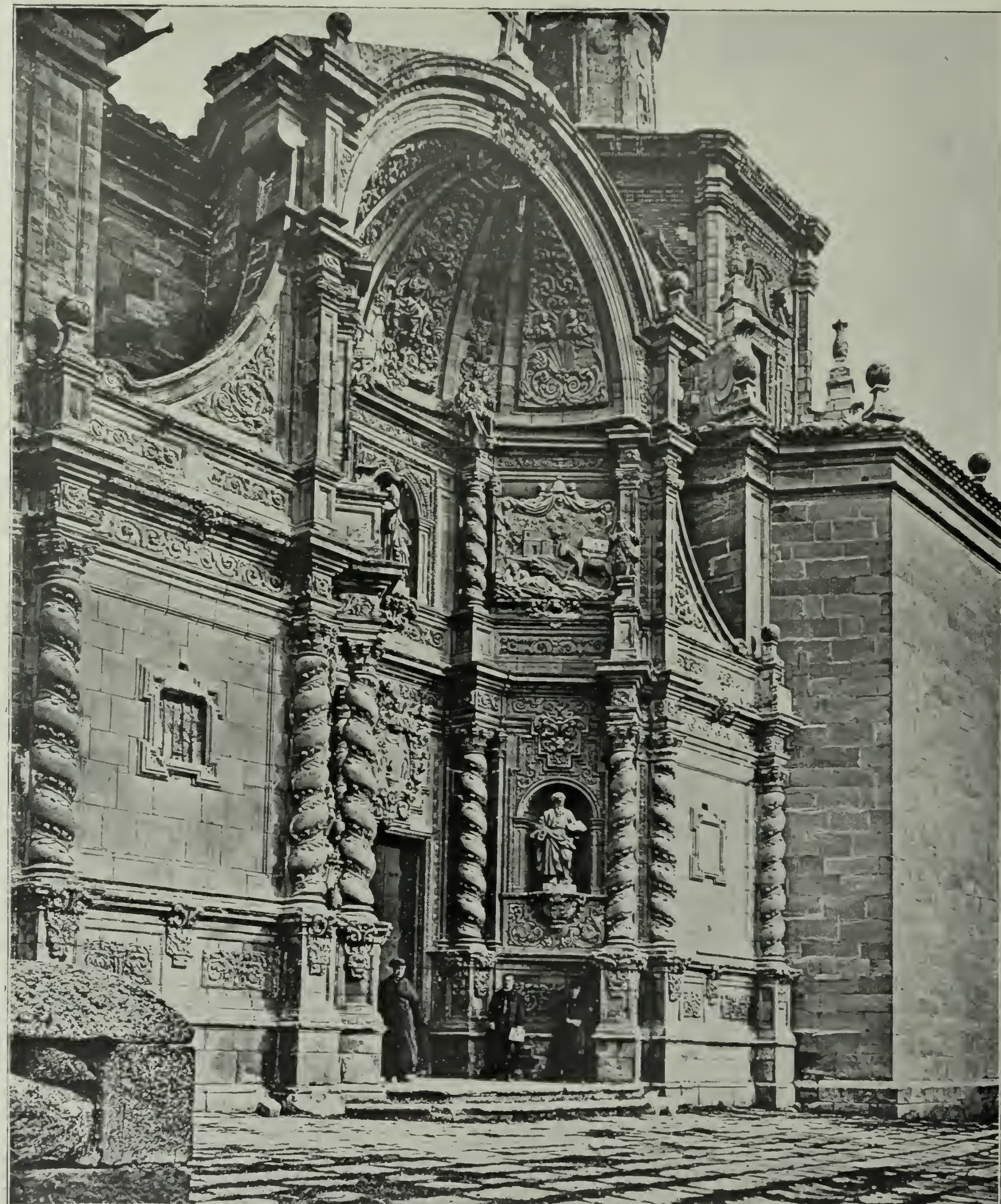
We are enabled to offer prizes of the above-mentioned amounts largely through the liberality of the terra-cotta manufacturers who are represented in the advertising columns of THE BRICKBUILDER.

This competition is open to every one.

THE BRICKBUILDER.

SEPTEMBER,

1903.



CHURCH OF S. GREGORIO OSTIENSE, MÚES, NAVARRE, SPAIN.

THE BRICKBUILDER

VOL. 12 No. 9 DEVOTED · TO · THE · INTERESTS · OF ARCHITECTVRE · IN · MATERIALS · OF · CLAY SEPTEMBER 1903

THE BRICKBUILDER.

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THE CLEVELAND GROUP PLAN.

THE city of Cleveland has been making a determined effort for civic beauty. The conditions are far from ideal. The railroads have usurped the entire lake frontage; and though the city proper is set on a bluff raised considerably above the tracks, the railroad still is a pretty hard proposition to bring in line with any attempt at a dignified approach into the center of the city. Realizing that in a proper solution of questions of this sort there is involved more than mere matters of business expediency, the city some time since very wisely employed a Commission consisting of Daniel H. Burnham, John M. Carrère and Arnold W. Brunner, who together constitute a Board of Supervision for Public Buildings and Ground, and who, in that capacity, have just made a most interesting report upon what has come to be known as the Group Plan of Public Buildings. The conditions now are substantially as follows: There is a prominent square at about the center of the city forming the termination of Euclid Avenue, and being bisected by Superior Street. Facing this square are a number of the most prominent commercial buildings, and the Chamber of Commerce occupies one corner. The Post Office is under construction, occupying the major portion of one side of the square. The district between the Post Office and the railroad tracks is at present filled with a poor class of buildings, the greater portion of which could easily be spared. The present City Hall is an old structure which never was adapted for its purpose and which it is proposed to abandon entirely. The county building has been decided upon, plans have been accepted, and this building, which is to cost several millions, is a very important factor. The Board of Supervision have taken all these various points into consideration and have laid out a species of esplanade starting from a new station to be built on the lake front and carried on a line at right angles to the lake, the end of the esplanade being formed by the Post Office and a projected Public Library. This esplanade occupies a width equivalent to an entire city block and is adorned by a sunken garden treatment, with fountains, etc. The City Hall and the county building respectively balance each other on the lake end of the esplanade and are designed to face towards the lake. The report of the Board includes very complete plans, showing a possible architectural treatment of the buildings facing on the esplanade or mall, together with the proposed treatment of the railway station and its approaches. The report is most carefully considered, reflects great credit upon the Board, and places within the reach of the city of Cleveland an opportunity such as few cities have ever possessed to build a dignified, imposing entranceway to its business center.

The most interesting point in connection with this report as affecting cities outside of Cleveland is the revelation it affords of possibilities in influencing public sentiment. We believe that this is the beginning of a movement of civic improvement which will be very far reaching in its influence. Perhaps it is not quite fair even to call this the beginning. Washington has already set a splendid pace in practically adopting the report of the Commission appointed to improve the city. Chicago, under Mr. Burnham's directions, is considering a very remarkable series of improvements which will transform the present unsightly lake front into a beautiful, formal park. Wherein the Cleveland plan is different from any of the others is that it contemplates a sweeping condemnation of private property, not for mere business development, but for an artistic, dignified approach to a great city. This is, if we understand it rightly, the first instance in the world's history where such an act has been considered by a municipality, and we believe it will be by no means the only instance, but that it will be speedily followed by similar action on the part of other cities who will awaken to an appreciation of the fact that beauty is a necessary concomitant of city improvements.

Brick Architecture in and about Chicago.

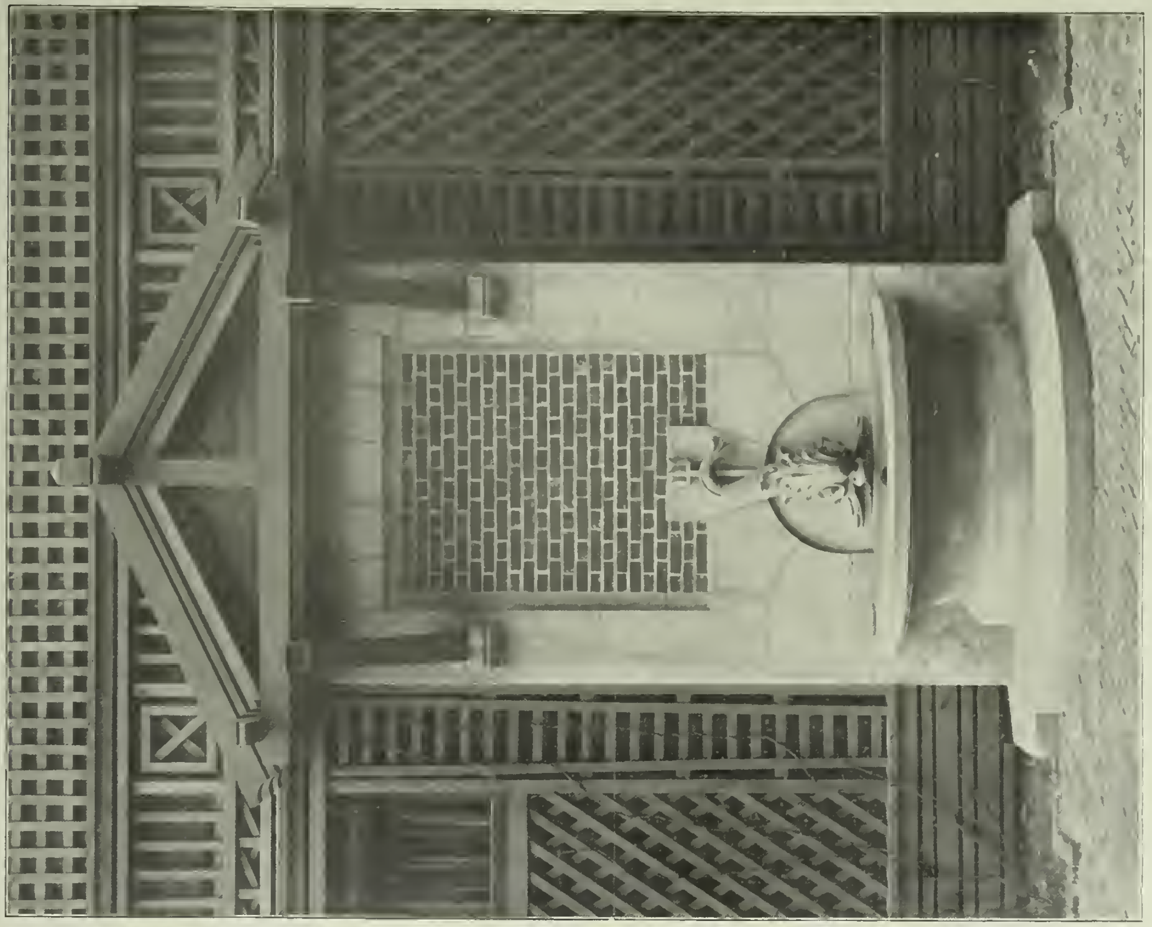
BY ROBERT C. SPENCER, JR.

OUTSIDE of a few favored sections, interesting examples of good modern brickwork in Chicago and its environs are as hard to find as the proverbial "needle in a haystack." So great, however, is the extent of territory over which her vast mushroom growth is sprawled that careful gleaning discovers a lot of interesting work; — interesting in possessing the elements of individuality or originality as well as that good, substantial architectural quality which recognizes the possibilities and respects the limitations of brick as a building material.

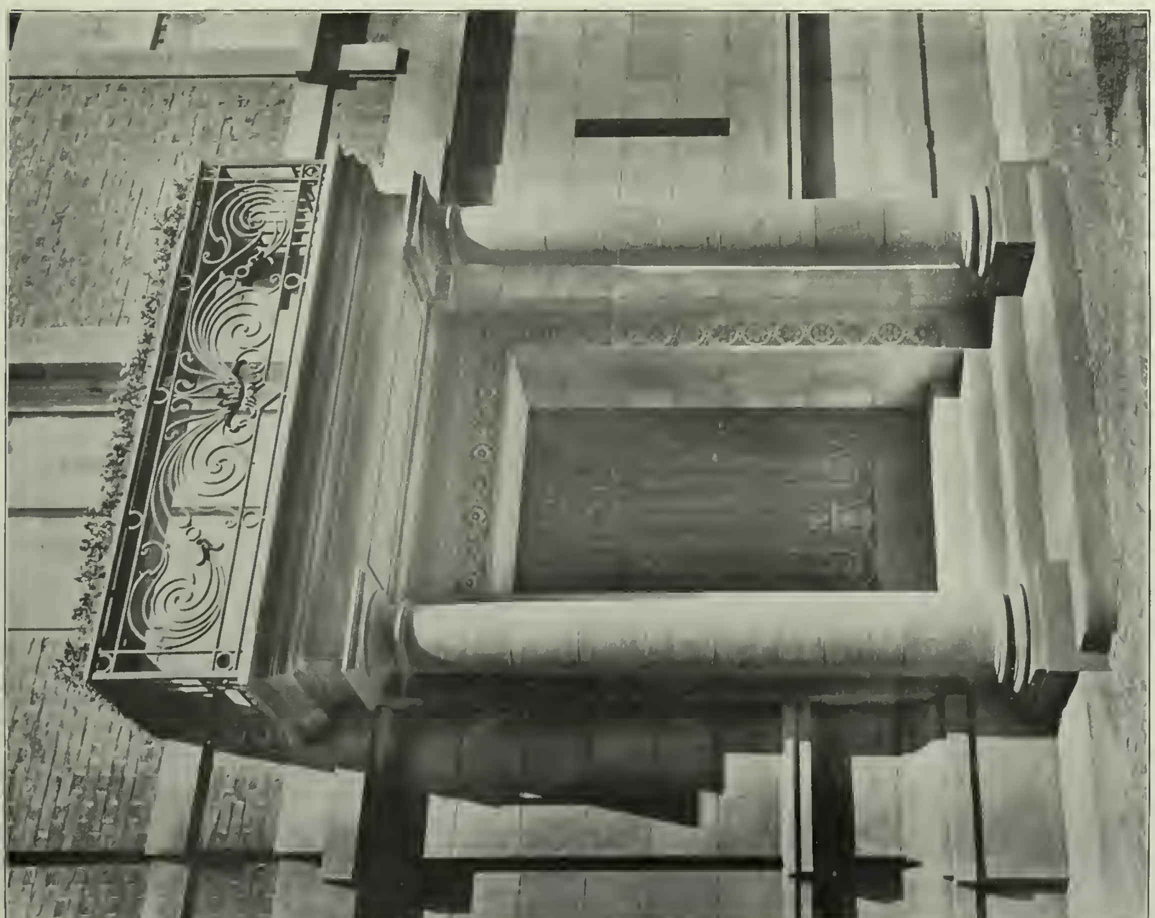
It is the purpose of this series to present a pictorial survey of the brick architecture of Chicago and its environs, illustrating chiefly those numerous but widely scattered examples, chiefly residential, which the transient architect visitor would not be likely to see unless accompanied by a wise guide and willing to travel long distances. Outside of certain limited districts, Woodlawn and Kenwood on the south side and the Lake Shore Drive neighborhood and Buena Park on the north side, the good work is widely scattered. Some of the best examples are in the remoter suburbs, where the architect has not been hampered by lack of space. Chicago, like New York and Boston, seems destined to be a city of apartments, "flats" and tenements. In the future comparatively few fine detached homes

STABLE AND WORKSHOP, RIVER FOREST. Frank Lloyd Wright, Architect.

APARTMENT HOUSE. Frank Lloyd Wright, Architect.



FOUNTAIN.



FRONT ENTRANCE.

HOUSE FOR DR. GEORGE S. ISHAM.

James Gamble Rogers, Architect.

HOUSE, LAKE SHORE DRIVE.
Howard Shaw, Architect.

ENTRANCE, HOUSE FOR FREDERICK C. BARTLETT, ESQ.
Frost & Granger, Architects.

ENTRANCE, HOUSE, WOODLAWN AVENUE.
Frank Lloyd Wright, Architect.

ENTRANCE, HOUSE, BUENA PARK.
George W. Maher, Architect.

HOUSE, BUENA PARK. Frank Lloyd Wright, Architect.

HOUSE. ASTOR STREET. Adler & Sullivan, Architects.

HOUSE, GREENWOOD AVENUE. George W. Maher, Architect.

HOUSE, HINSDALE. George W. Maher, Architect.

ENTRANCE TO APARTMENT, OAKWOOD BOULEVARD.
Dwight H. Perkins, Architect.

ENTRANCE, POST-GRADUATE MEDICAL SCHOOL.
Dwight H. Perkins, Architect.

APARTMENT HOUSE, OAKWOOD BOULEVARD.
Dwight H. Perkins, Architect.

POST-GRADUATE MEDICAL SCHOOL.
Dwight H. Perkins, Architect.

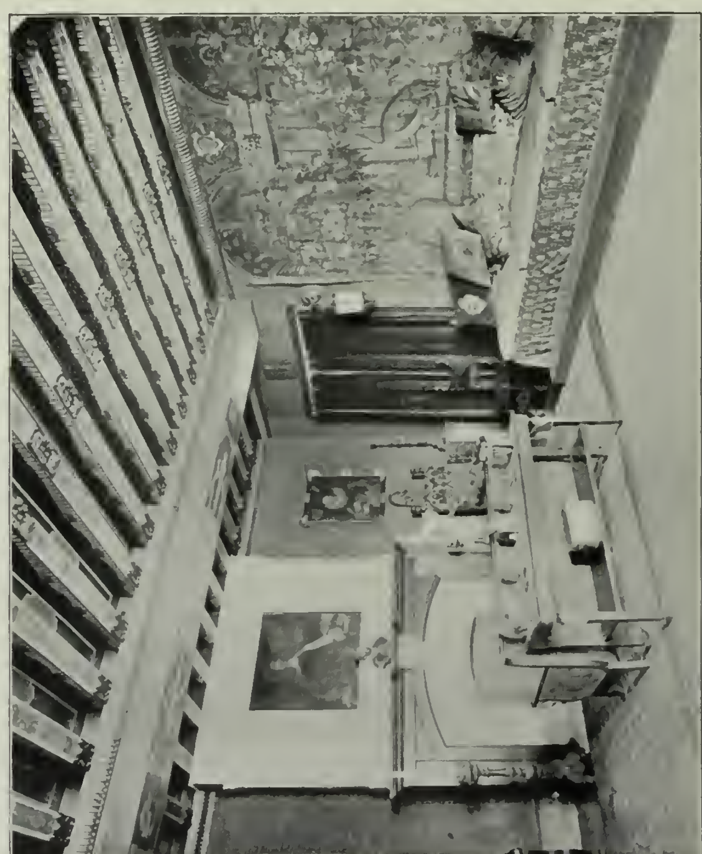
DORMITORY, LAKE FOREST COLLEGE, LAKE FOREST.

TOWN HALL AND FIRE ENGINE STATION, LAKE FOREST.

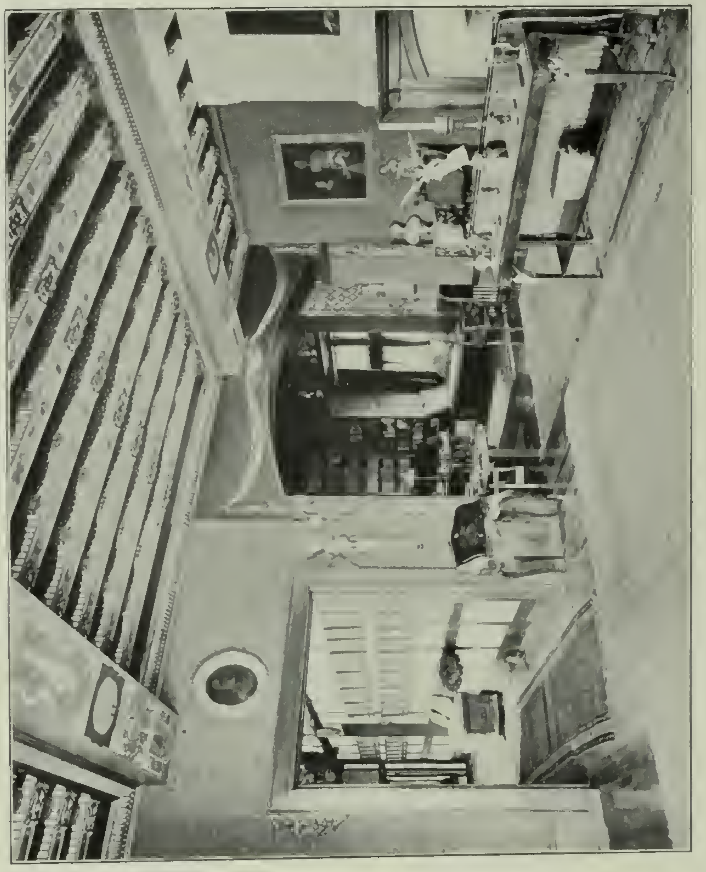
HOUSE, DREXEL BOULEVARD.

C. & N. RAILWAY STATION, LAKE FOREST.

Work by Frost & Granger, Architects.



LIBRARY.



LIBRARY.

HOUSE FOR FREDERICK C. BARTLETT, ESQ., CHICAGO. Frost & Granger, Architects.

LIBRARY.

DINING ROOM.

HOUSE, BUENA PARK. Pond & Pond, Architects.

MUSIC ROOM.

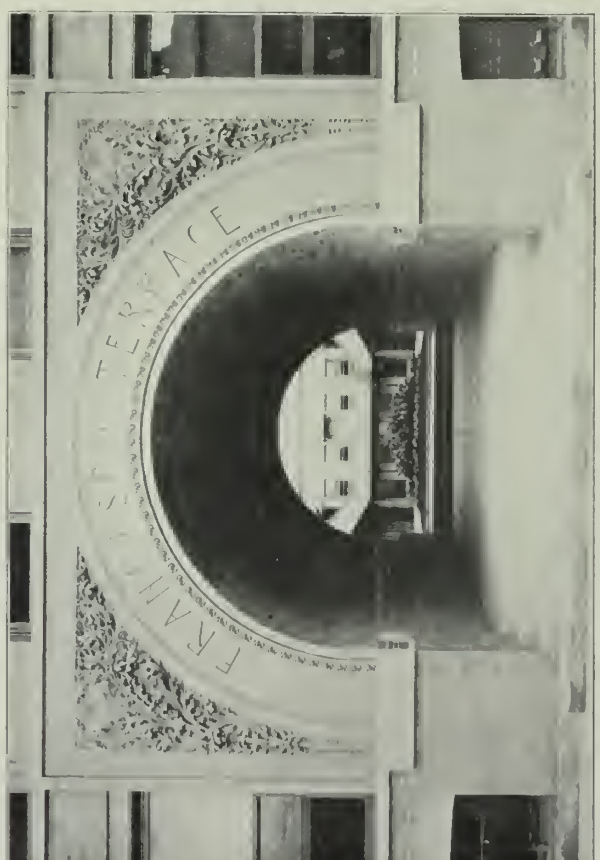
LIBRARY MANTEL, IN TERRA-COTTA.

HOUSE, LAKE SIDE DRIVE. Howard Shaw, Architect.

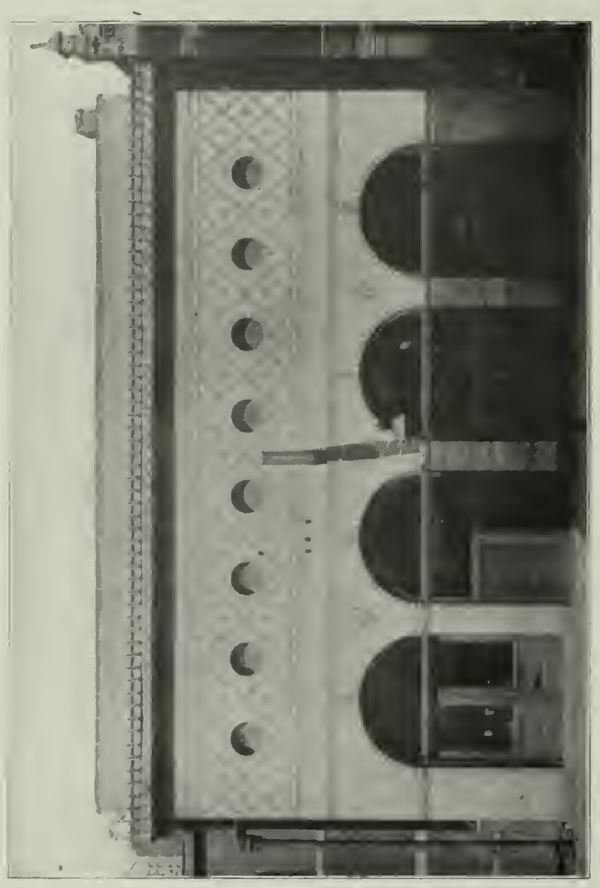
LIBRARY, HOUSE FOR DR. GEORGE S. ISHAM. James Gamble Rogers, Architect.

in ample grounds will be built within her present corporate limits.

The bald sameness of most of the modern apartment buildings is very tiresome; only here and there is any intelligent and tasteful originality shown. No. 157 Oakwood Boulevard is a refreshing departure from the stereotyped neo-classic affairs with their cornices and bays of galvanized iron, aptly dubbed "Chicago granite." Here bands of light pinkish red bricks and ivory toned terra-cotta in gray-white mortar form a strong yet agreeable contrast. The cornice, somewhat reminiscent of North Italian brickwork, is excellent in design and scale. The

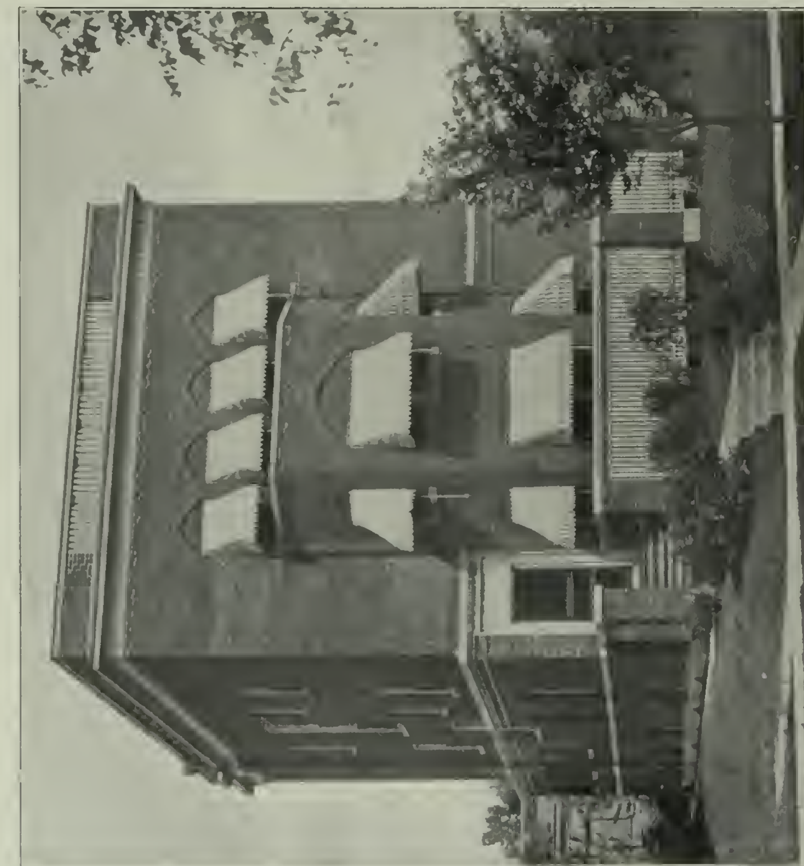


ENTRANCE, FRANCISCO TERRACE. Frank Lloyd Wright, Architect.



DREXEL CAFÉ ANNEX. George R. Dean, Architect.

FRANCISCO TERRACE, AN ANGLE OF THE COURT. Frank Lloyd Wright, Architect.



HOUSE, WOODLAWN AVENUE. Dwight H. Perkins, Architect.

portal, with its flanking, open loges, is very effective, and the carved detail is quiet and good.

Another excellent though more conventional doorway in brick and terra-cotta is that of the Post-Graduate Medical School at Twenty-fourth and Dearborn Streets. The building is of brick, with deeply raked-out horizontal joints, the vertical joints being unaccented.

In the house at 5711 Woodlawn Avenue Mr. Perkins has used a light red brick in gray mortar. Although plain almost to the verge of baldness, the building is given a degree of interest by the grouping and proportion of openings and its simple all-brick details.

One of the most severely dignified of the very new city houses is James Gamble Rogers' Isham house on North State Street. Of rough purplish-red brick laid in Flemish bond in light mortar, with trimmings of Bedford stone, already smoke-toned to a dull gray, it suggests quite strongly the refinement of the best modern French domestic architecture, the only jarring note being the almost brutally plain hip-roofed dormers in the slate roof, which contrast a little too strongly with the ornate gabled ones. The half court on the street with a fountain built into the neighboring latticed and vine-covered wall and the glimpse into the rear court through the *porte-cochère* are pleasing details of this simple and effective though unusual scheme.

The house at No. 99 Astor Street is one of the few which came from the office of Adler & Sullivan. Severe in its general aspect, its richness of detail is massed at and above the entrance and in the cornice. In these parts wood and copper have been employed, contrasting darkly with the buff Roman brickwork. Unfortunately the effect of this little building is now seriously marred by the huge walls of a newly built apartment house near by.

George R. Dean has made very clever use of light buff and dull red bricks in the little building fronting on Thirty-ninth Street, just off Cottage Grove Avenue, which was originally designed for a theatre and is now devoted to bowling alleys. The arms of Chicago, three branches on a shield, appear in the spandrels.

In the suburb of Oak Park the Farson house, designed by George W. Maher and built of a very delicate mottled gray brick in white mortar with red shingle tile roof, is interesting as an original attempt to solve the problem of the wide covered porch. While the cornice lines of porch and house are harmonious, the porch does not attach itself to the building sufficiently in composition. The same criticism applies to the house at Hinsdale, the porch and first story of which are built of white enameled Roman brick. The house at 4820 Greenwood Avenue, of red Roman brick, designed also by Mr. Maher, has less of the strong horizontal feeling than the others, although equally square and severe

The house in Buena Park, a more recent example of Mr. Maher's work, is of cream white Roman brick with cement base, Bedford stone trimmings and portal, wooden cornice and dormer and red shingle tile roof. The carved detail is refined and beautifully executed.

Frank Lloyd Wright's houses are all original and interesting. The house at River Forest is the architect's work best known and, on the whole, the most successful. The richly ornamented frieze and simple, widespreading roof are in perfect harmony with the site, the chief feature of which is a grand twin elm. In coloring, the house is very rich, the bricks are Roman of an almost orange tan in the mass, and are full of variety in shading and texture. The roof is of shingle tile especially burned to a rare, dull salmon pink.

The little stable and workshop is classic in composition and terminates the vista through the *porte-cochère*.

There are a lot of interesting houses on Woodlawn Avenue. The clere-storied one at 5132, designed by Mr. Wright, has been given a very pleasing, delicate texture by laying up the warm light gray Roman bricks in white mortar, suppressing the vertical joints with mortar colored to match the bricks. A formal planted approach of unique design, a loggia with octagonal columns of bricks laid with rustic angles, a rich frieze of "staff" modeled by Richard Bock, the sculptor, are interesting features, handled with characteristic cleverness and originality.

The half-timbered house in Oak Park is noteworthy for its quiet simplicity and the richness of the timber treatment in the overhanging north gable. The lower walls are of deep warm buff Roman bricks, the balustrade of the yard wall and the corbel course under the second story are of richly modeled terra-cotta. A tool house is connected to the main building in picturesque fashion.

The house in Buena Park is more striking than any of the preceding ones, but is hardly so successful. The projection of the eaves overpowers the staircase bay and the general effect of the building is not quiet enough. A charming feature of the exterior, however, is the little roofed colonnade or ambulatory, which forms an extended entrance porch, the reception hall, offices, etc., being on the ground floor. The principal rooms on this and the main floor are wainscoted with buff brick to the tops of the openings, the brick wainscot being enriched with inlaid bands of tile mosaic of gold and color.

The "Francis" apartment house on Forestville Avenue is bold and dignified in scheme yet refined in detail. Here Mr. Wright has used, in the lower story, a rich wall treatment of thin, flat band courses of Bedford stone with broad bands of flat terra-cotta ornament between them. The two entrance porches are ingeniously and delicately treated, but being in the angles of the porch, are not visible in the accompanying illustrations.

The "Francisco" apartments out on the west side, widely known as "Honeymoon Terrace," is another building designed on novel lines for collective housing by the same architect. One view shows an angle of the great courtyard which is treated as a small public garden and on which the majority of the apartment entrances face. The other gives a glimpse of the court through the main portal on Francisco Street. A staircase at each angle gives access to a gallery extending all around the porch from which the tenants enter their respective suites of three and four rooms. The premises, particularly the gardens, are kept with scrupulous care and the apartments are very popular with young married people of modest means who have no small incumbrances.

Old Brick Houses at Richmond, Surrey. II.

BY R. RANDAL PHILLIPS.

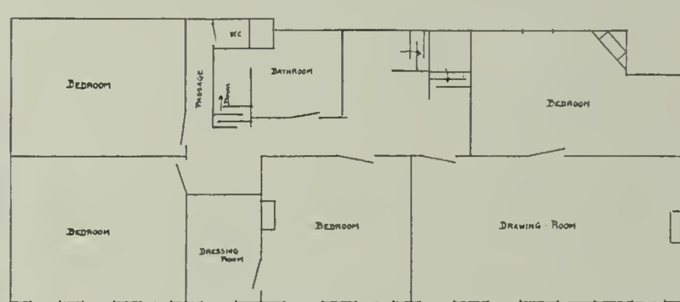
A NUMBER of small parishes lie around Richmond. They have a history of their own which goes back centuries, but with the increase of population and the extension of building their boundaries are becoming broken down and they merge into the larger borough of Richmond. Petersham and Ham on one side of the river and Twickenham on the other, once distant and distinct hamlets, have now lost their rusticity, just as Kew is no longer an isolated village, but an oasis between London and Richmond, connected with both by a line of suburban houses. So that we may very legitimately extend our consideration to the outlying parts, though in doing so it will be necessary to be circumspect, else the houses become so numerous as to be impossible of notice in the present article. For that reason I do not propose to go along the road to Kew, which would soon lead us aside to Mortlake and the several fine old buildings in its vicinity, but rather to take a short circuit on the Petersham and Twickenham sides of the river.

PETERSHAM HOUSE.

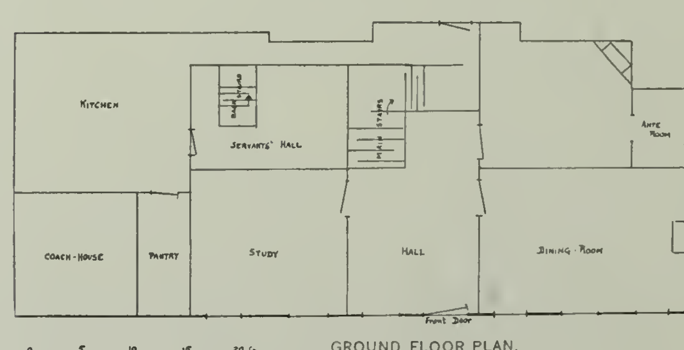
RUTLAND LODGE, PETERSHAM.

At a bend of the road that skirts the foot of Richmond Hill — below the famous "Star and Garter" Hotel — is Petersham Park, close to which are two or three delightful brick houses of the Georgian period. There is Petersham Lodge, with its typical flat arches over the windows and wood stringcourse, even what some may be disposed to call its monotonous fenestration; but externally its particular feature is the entrance doorway, shown among the accompanying illustrations. The domed porch with its four Ionic columns (the bases of which, by the way, are happily arranged with the step) is painted a creamy-white color, in pleasant contrast to the red brick house. The windows have old-fashioned panes, but demand no special reference; indeed the whole house, with the exception of its porch, exhibits nothing of particular moment, though its appearance is undoubtedly satisfactory and dignified.

A little farther along the road is Rutland Lodge. This was built about 1685 (a bell at the top of the house bears this date), so that it belongs to the time of Queen Anne and not to the Georges; but it seems that some ad-



First-Floor Plan



GROUND FLOOR PLAN.

RUTLAND LODGE, PETERSHAM.

ditions were made in Georgian days. The house offers considerably more diversity of treatment than usual. The wall surface is relieved by slight projections carried up as piers the whole height of the house. Here again the doorway is a special feature. It is of painted wood, protected by lead flashing. Whatever we may think of the architects of this period, they at least had an admirable sense of proportion, as this doorway exemplifies. How many modern doorways, even to large mansions, are half so fine? It has been suggested that the top story of Rutland Lodge is a later addition, but there is practically nothing in support of this suggestion; indeed everything

MAIN ENTRANCE, RUTLAND LODGE, PETERSHAM.

points to the conclusion that the house was originally built as it now stands, with the exception of the kitchen wing on the left and a passage leading to this wing on the garden front.

Close behind these houses is old Petersham Church, a tiny building originally erected in 1505, and now consisting of an ancient tower crowned by a wooden belfry with a brick nave added in 1840. The interior is very quaint, with its galleries and its box pews that leave only heads showing.

In what is now Petersham Park, nearly opposite the church, was a fine house called "Harrington's Retreat," from the fact that it was built by the Earl of Harrington, after designs by Lord Burlington. It was pulled down in 1834; the beautiful cedars seen from the road mark its site.

HOUSE, SUDBROOK PARK, PETERSHAM.

Not far away is a red brick building known as Sudbrook Park, consisting of a central portion faced with

HAM HOUSE, RIVER FRONT.

plaster and bearing columns on the front, with a wing right and left. It was once the residence of the Duke of

THE MANOR HOUSE, HAM.

Argyle, who was born in Ham House. A writer says: "The duke seems only at first to have built a hunting lodge about 1717, namely, the present drawing room and

CHIMNEY-PIECE AND PANELING IN DINING ROOM, HAM MANOR HOUSE.

KING STREET, TWICKENHAM.

the arched rooms and passages beneath. This part of the house is very curious, the lower walls being four feet thick and the upper ones three feet, lighted by six windows and decorated with the arms of Argyll and various trophies, and is altogether an exceedingly fine room. Subsequently, between 1717 and 1743, a large portion of the present mansion was erected." The house was still further enlarged by the duke's eldest daughter, who died in 1794. It is now a private hotel, and its grounds are used by the Richmond Club, but it is chiefly noted as having been the residence of Canning, and from the fact that the Reform Bill of 1832 was drawn up within its walls.

In dealing with the old houses in the neighborhood of Richmond it is imperative to make some reference to Ham House, with which the infamous Cabal* ministry is associated. As Mr. E. Beresford Chancellor remarks, when we look into the chamber where the Cabal held its mysterious meetings, we can almost fancy we see the cynical Ashley arguing with the brilliant Buckingham (or rather trying to educate him to argument), Clifford whispering to Arlington (and we all know Arlington's face with the black patch across the nose), and Landerdale, rough and ready, strident and brusque, trying to domineer over all, while his duchess sits leaning on her stick, saying very little but thinking very much. "When

NORTH FRONT OF ORLEANS HOUSE, TWICKENHAM.

SION ROW, TWICKENHAM.

* The letters of this word of course stand for the names of the five men who composed the ministry.

RIVER FRONT OF ORLEANS HOUSE, TWICKENHAM.

we stand in this place we are on the very spot where an unprincipled ministry did its best to compass the ruin of a free people." But Ham House is too well known both for its architectural features and historical associations to call for much attention here. The illustration serves the present purpose, and it will suffice to add that the house was built in 1610, that it has a large central hall paved with black and white marble surrounded by an open gallery, that on the western side is a gallery ninety-two feet long, that Verrio painted some of the ceilings, and that the iron gates are said to have been closed since they were opened to allow Charles the Second to escape when hunted by the Roundheads.

A house which is very little known is Ham Manor House. The entrance front is quite disfigured by the covered way that leads to the gates, but the garden front forms a pleasant, essentially English composition, with its creeper over the red brick walls, its white-painted woodwork and weathered tiles. Inside is an old oak

MONTPELIER ROW, TWICKENHAM.

staircase. The projecting bay (of the drawing room) is a later addition. The dining room is paneled from floor to ceiling, the wood being grained and the beveled edges of the panels gilded. The ceiling, however, attracts the chief attention. This has an oval border of intertwining stems with a center design filling the space within: a reflection of a portion of it is seen in the pier glass over the mantel-piece. Crossing now to the other side of the river and so reaching Twickenham, we find a terrace of houses called Sion Row, built in 1721. These, despite modern blemishes, preserve their Georgian character.

NO. 13 MONTPELIER ROW, TWICKENHAM.

FIREPLACE, NO. 13 MONTPELIER ROW, TWICKENHAM.

THE LIBRARY, ORLEANS HOUSE, TWICKENHAM.

They are built on a slight curve, which, with the wide-projecting eave, adds considerably to their effect.

In Twickenham town itself are several old brick houses, such as those in King Street, — the main street, now gradually being spoiled, — but it is Orleans House to which I would next refer. This derives its name from the residence in it of King Louis Philippe, who rented the house on his arrival from New York in 1800, when he was still Duke of Orleans; the whole vicinity, in fact, bears relics of the exiled royal family of France. Orleans House was built by James Johnstone, secretary of state for Scotland, the octagonal room at the western end having been added for the special entertainment of Queen Caroline, wife of George the Second. It is now used as the dining room, and has pillared doorways with pediments, figures of cherubs and over-ornate embellishments to walls and ceiling.

BACK OF NO. 13 MONTPELIER ROW, TWICKENHAM.

The house has been very much altered. As originally built by Johnstone it consisted of the center block only and the octagonal hall; the conservatory joining these two, the dormers and the end bay of the main block, the library on the eastern side and the picture gallery on the north front are all additions made by the duke, as also the stables. It is easy to detect the difference between the later and the old work, the old being carried out in a brown-red brick with redder dressings, while the later work is in a livelier red brick with yellow strings and pilasters, caps and ornaments in light terra-cotta. On the garden front of what is called the library is a marble statue of "Malempré" by Copio, dated 1861. The fleur-de-lis and the monogram "H. O." are conspicuous in many parts. Over the lower windows of the morning room bay on the river front are three plaques in the Della Robbia manner — female heads in white on a blue ground — which I understand were put there by the present owner about ten or fifteen years ago.

STABLES, ORLEANS HOUSE, TWICKENHAM.

Twickenham Church has a flint tower like Richmond Parish Church, — survivals of the older buildings, — but the remainder is in brick, and was rebuilt in 1715 from the designs of John James, the architect of St. George's, Hanover Square, and other London churches.

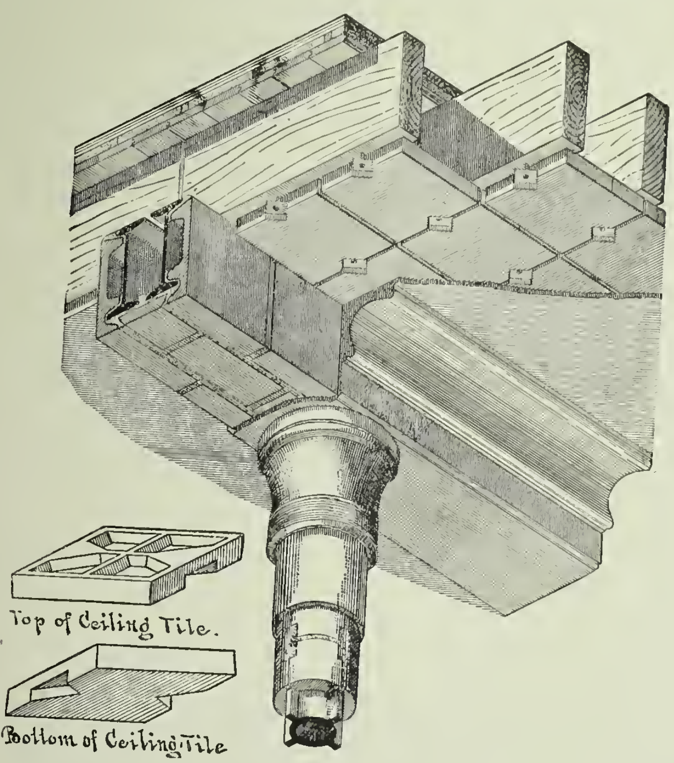
Halfway between Twickenham and Richmond is a row of about twenty-four houses. These are called Montpelier Row. They were built about 1720; one of them (now known as Holyrood House) is famous as the residence of Alfred Tennyson in 1850, and it is possible that part of "In Memoriam" was written here. In No. 13 (the residence of Mr. D. S. MacColl, the well-known art critic), which I have selected as a typical example, some plain but effective wood paneling is to be seen and a fine fireplace on the first floor. Of the rest the photographs speak for themselves.

I have now dealt with the more interesting of the old brick houses in the area chosen. Many others might be noticed, but they bear much the same character as those already dealt with, which serve to show clearly what solid and satisfactory work could be done by architects in England during the Georgian period.

Fireproofing.

A BUILDING WITH WOODEN FLOOR JOISTS THAT IS ACTUALLY FIREPROOF.

ON the evening of Wednesday, August 26, a mysterious explosion started a fire on the first story of the large furniture store of A. H. Revell & Co. at the northeast corner of Wabash Avenue and Adams Street, Chicago. This store occupies more than ten thousand feet of area and is six stories high. Each story is practically one room, only broken by columns, and on the north side is a handsome staircase with one wide flight and two narrow flights to each floor, leaving two open well holes, in which, since the store was originally built, open passenger elevators have been constructed. This building was erected about twenty years ago from the plans of Adler & Sullivan, architects, and was the first of two buildings fireproofed according to the same system. These stores have cast-iron columns supporting all the floors and roof, with double I-beam girders and white pine floor joists. A detailed illustration of the method of fireproofing for columns, girders, ceiling and floors is here given, all the fireproofing having been done with hand-made porous terra-cotta.



FIREPROOF CONSTRUCTION WITH IRON COLUMN AND GIRDER, BOTH PROTECTED; AND WOOD FLOOR JOISTS, WITH POROUS TILE CEILING AND DEAFENING PLASTER FINISH ON COLUMN, GIRDER AND CEILING.

About thirteen years ago the sixth story of this building was occupied as a fringe factory, and many wooden partitions had been unwisely introduced. A fire, said to have been caused by lightning, burned out a large part of the contents and destroyed the skylights, but never got through the roof. The firemen pulled off a few of the ceiling tiles after the fire was out, to find if there was any fire behind them, but there was none.

About ten years ago the other building referred to was stocked with wall paper in closely built alleys of wooden pigeonholes on the second floor. A fire occurred directly in the center of the floor and destroyed most of the contents, but did not injure the building, except as to the window frames and interior plastering. It did not reach the third floor.

The fire in the Wabash Avenue store in August last started in a gallery built at the east end of the first story, which was closely stocked with furniture. This part of the stock of furniture was totally destroyed, and the fire extended up through the well hole used by a passenger elevator, and was distributed through the upper floors to the top. But the explosion did not break a tile, and the fire only injured the plastering on ceilings, girders and columns. The grand stairway was fireproofed in the same manner as the girders and ceilings, the construction being with I-beam outside strings and intermediate wooden carriages, the only exposed combustible part being the treads of wood. It was plastered with Keene's cement and elaborately moulded. The platforms were carried by two fireproofed cast-iron columns from foundation to sixth story. The Keene's cement work was only slightly injured.

The fire was extinguished in one hour after it started, and the loss of goods is said to have been $50,000. The building could be repaired in a week.

This and the other experiences of actual fires above alluded to (which were described in THE BRICKBUILDER at the time) are other illustrations of the efficiency of a system of fireproofing carefully executed many years ago, which has been discarded and is practically "out of date." Even this building would now be rated by the present building ordinances of Chicago as "slow burning construction." But it seems it did not burn at all. It is not an example of the average of work done twenty years ago, but was then an exception. However, it was not an accident, but a deliberate performance intended to get the greatest possible fire protection when wooden floor and roof joists are used. It was not expensive either.

ARTIFICIAL STONE.

EVER since the possibilities of concrete were discovered, and this carries us back thousands of years, attempts have been made to produce with cement an artificial stone, but thus far there have been almost no successes. That is to say, concrete for external walls can be used with a very fair degree of success in climates like Florida or Southern California, but at the most they have given only qualified successes in northern latitudes, and thus far the only composite material, if it can be so termed, which has been a complete success is burnt clay. If it can not be depended upon for an external wall when subjected merely to dead loads, is it wise to employ it where subjected to transverse and shearing strains, as is the case in all the suspended constructions and wherever it is reinforced by steel? Lacking a better material, concrete can unquestionably be used in some forms with perfect safety, but modern experience has certainly shown that any virtues possessed by concrete in floor or wall construction are shared in even greater measure by terra-cotta, in addition to which the latter material has a permanence which no other composite can offer.

Selected Miscellany.

HINTS ON DESIGN IN TERRA COTTA.

The accompanying illustration (Fig. 1) is that of part of an ideal terra-cotta pier, made for the Hayden-Clinton National Bank building, Frank L. Packard, architect. The probable variation in the lengths of these pier blocks, due to unequal shrinkage in drying and burning, is about one-quarter inch, and in the hands of the careless or inexperienced may be more; but the

FIG. 1.

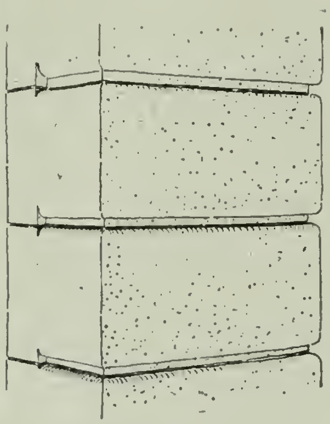


FIG. 2.

rustication conceals this variation. The ashlar forming the jamb is separate, and therefore admits of perfect alignment in the building.

To emphasize this by contrast, a sketch of another

HOUSE, SHORT HILLS, N. J.
Parish & Schroeder, Architects. Covered with American S Tile furnished by Cincinnati Roofing Tile & Terra-Cotta Co.

pier is shown (Fig. 2), which is not designed for terra-cotta. It admits of no alignment and will produce a ragged jamb line. F. WAGNER.

NEW YORK NOTES.

Building interests in this city are almost in a state of stagnation, owing to the long continued fight of the labor unions against the employers. It is a pitiful sight to travel around the city and see so many large operations at a standstill, particularly the new school buildings, which affect thousands of children. Workingmen are seen everywhere idle and apparently unhappy, their fam-

TYMPANUM, CHURCH OF EPIPHANY, PITTSBURG, PA.
Edward Stotz, Architect. Northwestern Terra-Cotta Co., Makers.

ilies suffering, yet they hold out, believing as they do in their walking delegates, or afraid to oppose them.

The New York City Board of Education has approved

DETAIL BY E. C. JONES, ARCHITECT.
Winkle Terra-Cotta Co., Makers.

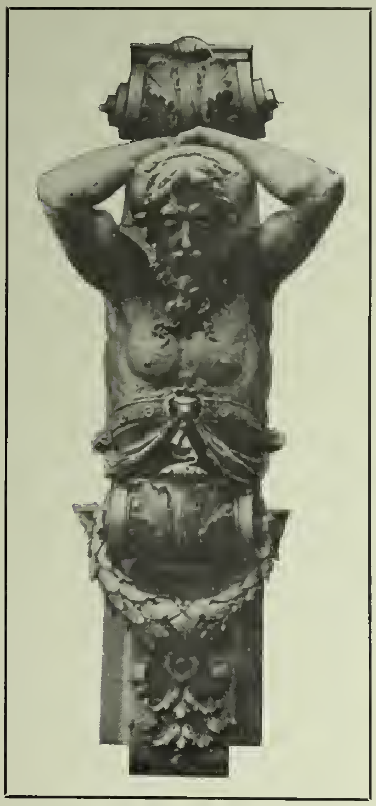
plans for the first six-story schoolhouse to be erected in the city and probably the forerunner of the skyscraper school. It is the first grammar school to have elevators,

DETAIL BY B. H. MARSHALL, ARCHITECT.
Atlantic Terra-Cotta Co., Makers.

and probably numerous others will follow. The problem of providing sufficient school accommodations for a large city is exceedingly difficult and serious, and in New York it seems impossible to keep pace with the increase in population. This new school will have, besides four huge elevators which will hold thirty pupils each, a series of escalators, or moving stairways; it will have ground measurements of 200 x 75 feet, a height of 200 feet, and will cost at least $400,000, exclusive of the value of the site. If capacity is measured by the number of classrooms, this will be the largest school in the city, for it will have ninety-seven classes.

McKim, Mead & White are preparing plans for a new building for Columbia University, for which Joseph Pulitzer has given $1,000,000. It will be used as a school of journalism.

In the future the old and almost defunct Sta-



DETAIL BY JOHN E. SCHARSMITH, ARCHITECT.
Brick, Terra-Cotta & Tile Co., Makers.

ten Island ferry is to be owned and operated by the city, and elaborate plans are being made to remodel the entire system. The terminal ferry houses are being planned by Carrère & Hastings and Snelling & Potter.

Plans are being completed by Israels & Harder for an eleven-story apartment hotel to be built on Columbus Avenue and Seventieth Street. It will be built of limestone, brick and terra-cotta and will cost $550,000.

DETAIL BY HERTS & TALLANT, ARCHITECTS.
Perth Amboy Terra-Cotta Co., Makers.

The plans for the Pennsylvania Railroad Company's terminal, Thirty-first to Thirty-third streets, and Seventh to Ninth avenues, are now practically complete in the office of McKim, Mead & White. Work has been delayed, however, owing to the indecision of the company's engineers regarding the track system, the plan for which will determine the foundations of the superstructure. The new terminal will be a four-story brick building containing the offices of the various departments, and the passengers' waiting room will be surmounted by a dome rising seven or eight stories in height.

Hunt & Hunt are preparing plans for the new 69th Regiment armory to be built on Lexington Avenue, Twenty-fifth and Twenty-sixth streets. The cost of the building is estimated at $600,000.

The Grueby Faience Company are supplying their decorative faience for fourteen of the first-class stations of the New York subway. Heins & La Farge are the architects.

THE THIRTY-SEVENTH ANNUAL CONVENTION, AMERICAN INSTITUTE OF ARCHITECTS, CLEVELAND, OCTOBER 15 TO 17.

The Thirty-seventh Annual Convention of the American Institute of Architects will be held in Cleveland, Ohio, October 15 to 17 inclusive.

Mr. John Ely, vice-president of the Pennsylvania Railroad and also vice-president of the American Academy of Rome, will discuss the general subject of the necessity and value of well-trained men to execute the future artistic work in the United States and the value of the School of Rome for producing educated artists.

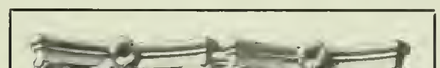
On the subject of Mural Painting and the facilities for its study in the School of Rome, papers will be prepared by Mr. John La Farge and Mr. E. A. Blashfield.

Mr. Augustus St. Gaudens will prepare a paper on the development of sculpture in this country and the advantages for the study of sculpture in the School of Rome.

Mr. Austin W. Lord, one of the American students at the School of Rome, will discuss the question of architectural study in this school.

Papers are expected from a distinguished Italian on the City of Rome, and from Mr. Mowbray, the managing director of the Academy in Rome, on the School and its Methods of Study and Management.

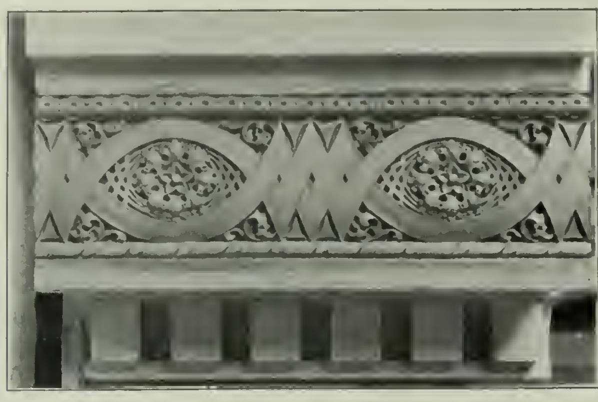
The president's address and the various committee reports will be interesting. Arrangements will be made for reduced rates, and there will be various entertainments during the convention.



DETAIL BY V. HUGO KOEHLER, ARCHITECT.
New Jersey Terra-Cotta Co., Makers.

THE FIFTH ANNUAL CONVENTION OF THE ARCHITECTURAL LEAGUE OF AMERICA, ST. LOUIS, OCTOBER 5 AND 6.

The coming convention of the Architectural League of America, which is to take place in St. Louis, October 5 and 6, will undoubtedly be of great interest. It is needless to say that the local committee have prepared a program which is not only instructive but interesting. The fact



DETAIL BY KEES & COLBURN, ARCHITECTS.
American Terra-Cotta Co., Makers.

that the convention is to be held at St. Louis in advance of the opening of the Exposition makes possible an architectural investigation of the work already completed that will be as instructive as it is unusual. Many of the Exposition buildings are practically completed; many are in progress and much of the landscape architecture and landscape gardening is still in a formative stage. But

CHAPMAN SCHOOL, BOSTON, MASS.
Built of Kittanning Brick furnished by Fiske & Co., Boston, Agents.

the Exposition is assuming a sufficiently developed appearance to make a careful study of it by experts most profitable.

The convention will hold some of its sessions at the World's Fair grounds: on Monday in the Administration Building, and on Tuesday morning and possibly afternoon in the Art Museum. Papers of interest are to be read and the usual routine business to be disposed of.

UNION CLUB, NEW YORK CITY.
John Dufais, Architect.
Enameled Brick furnished by American Enameled Brick & Tile Co.

NOTICE TO THE CLAY TRADE.

The financial difficulty into which the American Clay-Working Machinery Company has been drawn will not in any way affect the continued operation of the Bucyrus and Willoughby plants at their full capacity. Orders for new machinery and repairs will be filled with the usual promptness and on the usual terms.

It has been the aim of this company in the past to put upon the market a line of machinery built strictly on merits, and the patronage extended was a gratifying evidence that the quality of their machinery was appreciated. A continuation of that same generous patronage will be more than ever appreciated at this time and will be reciprocated by a watchful care after the interests of patrons.

ARCHITECTS' DIRECTORY.

THE ARCHITECTS' DIRECTORY AND SPECIFICATION INDEX FOR 1903-4. Containing a complete list of the architects in the United States and Canada. Classified by states and towns, indicating those who are members of the American Institute of Architects, also the names of the officers and locations of the different architectural associations in the United States. Prepared with the greatest care to secure accuracy both in names and location. One octavo volume, red cloth. Price $2. New York: Wm. T. Comstock.

SCHOOL, PITTSBURG, PA.
S. T. McClaren, Architect.
Covered with Tiles made by Ludowici Roofing Tile Co.

DETAILS BY GEORGE H. STREETON, ARCHITECT.
Excelsior Terra-Cotta Co., Makers.

Considerable space has been given to architectural societies, as far as possible giving names of officers and addresses of secretaries. Lists of publications devoted to this interest have also been given, with subscription prices, date of founding and other matters of information. Architectural schools are also given.

IN GENERAL.

Celadon Roofing Tile will be used on three new buildings for the Metropolitan Water Board of Massachusetts, Shepley, Rutan & Coolidge, architects.

Charles Bacon, Boston representative, reports the following new contracts for Sayre & Fisher Company brick: Beacon Hill Trust Company building, Boston, W. G. Preston, architect; Registry of Deeds building, Dedham, Mass., and building for Simmons College, Boston, Peabody & Stearns, architects.

An interesting and valuable catalogue has just been issued by the Cleveland Hydraulic Press Brick Company, Cleveland, Ohio. Interesting because of the illustration of the many molded shapes made by the company, and valuable because the price and dimensions of each shape are given. It is pocket size, and its contents are presented in the most concise and business-like manner.

DETAIL BY ST. LOUIS TERRA-COTTA CO.

Among the recent contracts closed by the Brick, Terra-Cotta and Tile Company for architectural terra-cotta are the following: Allentown National Bank, Allentown, Pa., Jacoby, Weishampel & Biggin, architects; St. Ann's Monastery building, Scranton, Pa., and St. Mary's Church, Plymouth, Pa., Owen McGlynn, architect; building for Buffalo Milk Company, Buffalo, N. Y., S. H. Woodruff, architect; sub-station for the Metropolitan Street Railway Company, Yonkers, N. Y., A. V. Porter, architect.

BUILDING, FIFTH AVENUE, NEW YORK.
C. I. Berg, Architect.
Terra-Cotta furnished by the New York Architectural Terra-Cotta Co.

The White Brick and Terra-Cotta Company have recently furnished the following buildings with terra-cotta: United Bank building, New Milford, Conn., Wilson Potter, architect; office building, 21 Liberty Street, New York City, Butler & Rodman, architects; office building, Hudson and Franklin streets, New York City, G. Howard Chamberlin, architect; apartment hotel, 127–135 West 43d Street, New York City, Mulliken & Moeller, architects; residence for F. Robert Schell, Northfield, Mass., Bruce Price, architect; residence for F. R. Halsey, Tuxedo Park, New York, Bruce Price, architect.

DETAIL BY E. O. FALLIS, ARCHITECT.
Conkling-Armstrong Terra-Cotta Co., Makers.

Competition for a Public Library

First Prize, $500 Second Prize, $200 Third Prize, $100

PROGRAM

IT is assumed that a public library is to be presented to a town located in the middle west. This town occupies a picturesque position in a rolling country bordering one of the Great Lakes and is the seat of a small but important college. The public square is a park which is assumed to be 300 feet wide and upwards of 1,000 feet long. At one end is already built the town hall, and at the opposite end will be placed the library. The ground rises gently towards the proposed site, so that the position will be a commanding one. The whole frontage of 300 feet will be given to the library and its approaches, and the entire depth of the lot is 200 feet. The total rise from the curb line to the center of the lot is 10 feet, and the grade falls off towards the rear 1 foot in 40. Sidewise the grade falls off equally each way from the center 10 feet to the boundary lines. The building must set back a distance of 75 feet from the front line, and the approach must be treated in an architectural manner.

The exterior of the building is to be designed entirely in terra-cotta, and colored terra-cotta or faience may be introduced as a feature of the design.

The following accommodation is to be provided for in plan. The dimensions given are only approximate and may be modified as required by the exigencies of the design:

First Story. Vestibule, 200 sq. ft.; periodical room, 1,000 sq. ft.; reference library and reading room, 1,000 sq. ft.; general delivery room, 600 sq. ft.; trustees' room, 350 sq. ft.; librarian's room, 350 sq. ft.; stack room, 1,500 sq. ft.

Second Story. Children's room, 500 sq. ft.; music room, 500 sq. ft.; exhibition room, 500 sq. ft.; two rooms for special collections, 500 sq. ft. each.

It is assumed that the lavatories, storerooms, etc., are all to be located in the basement, which is to be raised sufficiently above the finished grade to allow of fair lighting. There are to be two flights of stairs leading to the second story, but they are not to be made a prominent feature. It will be assumed that the heating plant is entirely distinct from the building, there being consequently no provision made for a chimney, but space should be provided for ample ventilation flues.

Drawings Required. An elevation at a scale of 1-16 inch to the foot, which is to show the entire frontage of the lot, 300 feet, and to indicate the treatment of approaches. There are also to be sketch plans of the first and second floors at a scale of 1-32 inch to the foot, and details drawn at a scale of 3-4 inch to the foot showing the character of the design and the construction of the terra-cotta. The elevation is to appear upon one sheet, and the details and plans upon another. The width and length of each sheet shall be in proportion of three to four and not exceed 24 x 32 inches. All drawings are to be made in black ink without wash or color.

It must be borne in mind that one of the chief objects of this competition is to encourage the study of the use of architectural terra-cotta. No limitation of cost need be considered, but the designs must be made such as would be suitable for the location, for the character of the building and for the material in which it is to be executed. The details should indicate in a general manner the jointing of the terra-cotta and the sizes of the blocks.

In awarding the prizes the intelligence shown in the constructive use of terra-cotta will be a point taken largely into consideration.

Every set of drawings is to be signed by a nom de plume or device, and accompanying same is to be a sealed envelope with the nom de plume on the exterior and containing the true name and address of the contestant.

The drawings are to be delivered flat at the office of THE BRICKBUILDER, 85 Water Street, Boston, Mass., on or before October 31, 1903.

The designs will be judged by three well-known members of the architectural profession.

For the design placed first in this competition there will be given a prize of $500.
For the design placed second a prize of $200
For the design placed third a prize of $100.

All drawings submitted in this competition are to become the property of THE BRICKBUILDER, and the right is reserved to publish any or all of them.

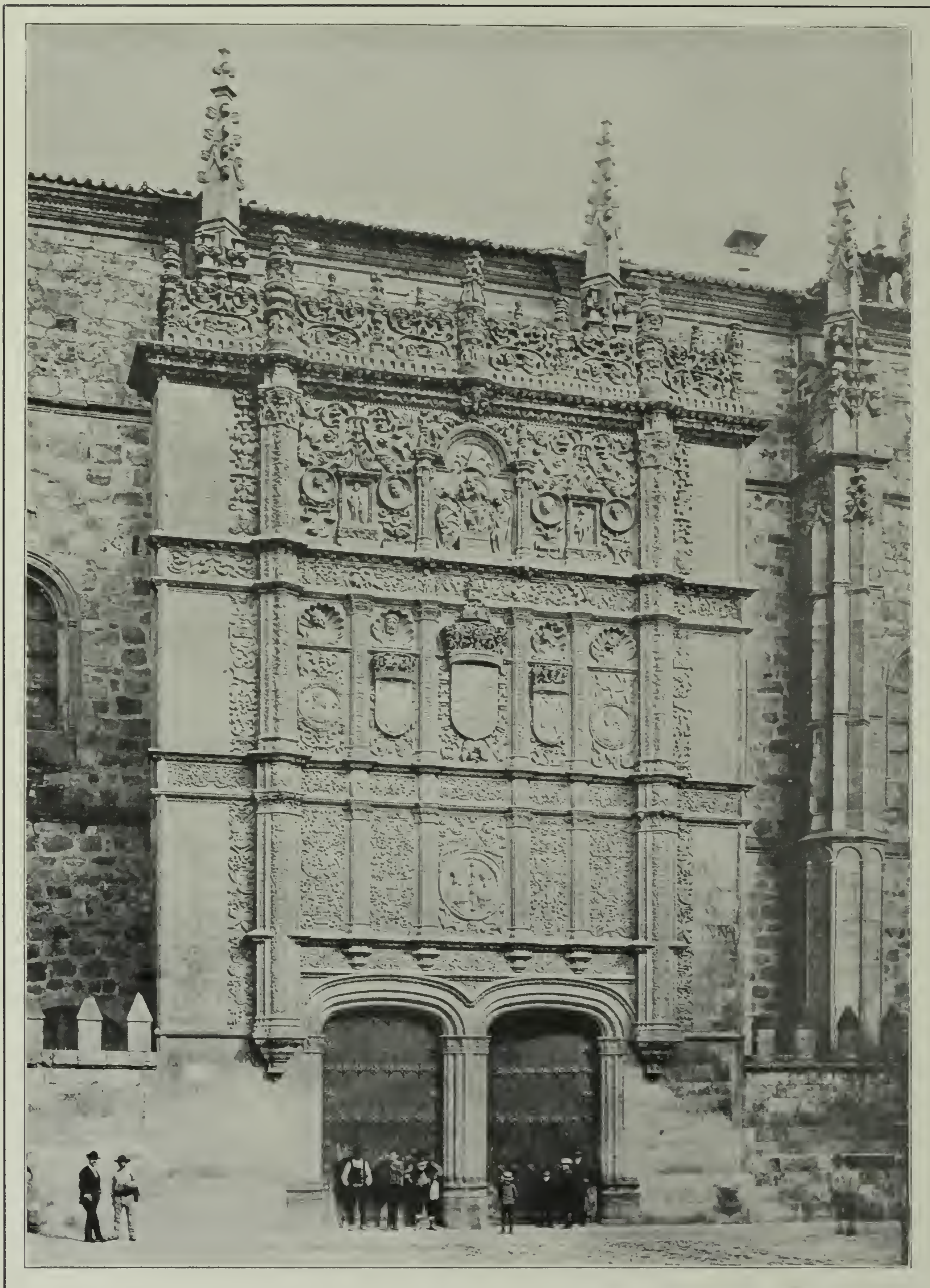
We are enabled to offer prizes of the above-mentioned amounts largely through the liberality of the terra-cotta manufacturers who are represented in the advertising columns of THE BRICKBUILDER.

This competition is open to every one.

THE BRICKBUILDER.

OCTOBER,

1903.



ENTRANCE OF THE UNIVERSITY OF SALAMANCA, SPAIN.

THE BRICKBVILDER

VOL. 12 No. 10 DEVOTED · TO · THE · INTERESTS · OF ARCHITECTVRE · IN · MATERIALS · OF · CLAY OCTOBER 1903

THE BRICKBUILDER.

PUBLISHED MONTHLY BY

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IN 1901 the upper portion of the building occupied by the Boston *Advertiser* was destroyed by fire. Incidental to the adjustment of the insurance loss upon the structure it was found that the building laws were so framed as to practically prohibit the building being restored to its former condition, and that if it were to be restored at all the reconstruction would involve an expense of some fifteen thousand dollars more than would have been necessary to merely put the building back in its first condition. The owners naturally made a claim on the insurance companies for the larger amount, about forty-six thousand dollars, and after a long fight in the courts the Supreme Court of Massachusetts has decided that under a general policy not specifically limiting the loss to what would be necessary to put the building back in its former condition the insurance companies must pay the full amount required, taking into consideration full compliance with the existing laws. This seems like hard justice for the insurance companies, and the Boston *Herald*, in an editorial manifestly inspired by insurance circles, objects decidedly to this interpretation. The decision might doubtless in many cases work hardship in the companies. Section 20 of the Building Law states that "no permit for the alteration or repair of a wooden building within the building limits shall be granted if the cost of the proposed alteration exceeds 50 per cent of the cost of renewing the building." There are still within the fire limits of Boston many wooden structures, some of which date back over a century. There have been a few cases where a permit to rebuild such structures after a fire has been refused in accordance with Section 20 just cited, and in such cases, considering the recent decision of the Advertiser suits, the insurance companies would be liable for the cost of a new building of far better construction than that destroyed. This seems unfair to the companies, but the real point is that their policies in most states indemnify the owner against loss, and if conditions are such as to require a special form of rebuilding it seems no more than equity for the companies to accept and pay for that method. We cannot help a feeling that there will come before very long a radical revision of the methods of proportioning both premiums and insurance, and when that readjustment takes place it is earnestly to be hoped that the companies will somehow be able to so arrange a sliding scale that it will be for everybody's interest to build well and thoroughly and in a fireproof manner instead of, as now, being able to build in almost any method and then protect themselves against loss merely by paying a sufficient premium. Insurance ought to be, and can be, an encourager of good building. The immediate obligation to the insured is one of indemnification. The larger obligation to the community on the part of the insurance companies is to foster good construction.

ARCHITECTURE is assuming strenuous proportions as a profession, and the importance of the architect thoroughly knowing his business is appreciated to a wider extent than ever before. There have been of late a number of articles in the papers upon the subject which show that, while the architectural opportunities have enormously increased in number and size, the demand upon the architect has increased in an even greater ratio, so that to be an educated, trained architect means a great deal more than ever before and carries with it very grave responsibilities. It is no longer enough to have influential friends, nor to have passed through a technical school with brilliant record. One must have both of these together with a degree of business executive ability which finds its parallel only in the management of some of the large trusts, if one is to reach the highest possibilities of the profession. Indeed, in one sense the architect i really trustee for the owner and the builder, and though he is paid by the former it is part of his business to see that both parties receive fair treatment; and in order to do this he must know pretty thoroughly his client's, his builder's and his own business.

Thirty-Seventh Annual Convention, American Institute of Architects.

REPORT.

THE annual convention of the American Institute of Architects was held at the Hollenden Hotel, Cleveland, Ohio, on October 15, 16 and 17, about ninety delegates being present. It was opened by President McKim; Mayor Tom L. Johnson of Cleveland, who was to welcome the visitors, being unable to be present. His absence, however, was fully atoned for by the warmth of the welcome extended by the members of the local chapter.

The report of the Board of Directors was read by Frank Miles Day of Philadelphia. It stated that the total membership was 754, of whom 359 were fellows and 395 associate members. Five fellows and eleven associates were added and twenty dropped. Twelve members and honorary members had died. The need of further organization of the architects was urged, as was the institution of a fund for the further development of instruction and the maintenance of the Octagon. The amount hitherto subscribed for payment on the Octagon was reported as about $13,000, and the taxes and interest were a heavy burden on the resources of the Institute. This statement awakened great interest, and during the convention, by the efforts of Mr. Carrère, about $10,000 more was pledged. This was followed by reports of the treasurer, Auditing Committee, Chapters and House and Library Committee, which reported repairs to the Octagon and additions to the library.

H. L. Warren, for the Education and Publishing Committee, referred to the retirement of Professor Ware from active practice, and resolutions were adopted appreciative of his lifelong services to the profession. Reports were read from all the architectural schools in the United States. Glenn Brown reported for the Foreign Correspondence Committee that reports had been received from eight or nine foreign architectural societies relative to the remuneration of architects. The Contract and Lien Law Committee — Alfred Stone, chairman — reported the sale of 69,491 Uniform Contracts. No report was received from the Applied Arts and Sciences Committee, the chairman being absent. George B. Post, chairman of Legislative Committee on Government Architecture, reported that government officials have the impression that architects are too highly paid and show a disposition to turn the designs over to government engineers for execution, and that action was necessary to prevent injury to the architecture of the Capital City. The directors were directed to protest against the extension of the Capitol being intrusted to incompetent hands. Mr. Post's remarks on the subject of superintendence as distinguished from supervision were very interesting to the younger architects.

Mr. Mundie of Chicago suggested the appointment of a delegate to the meeting of National Fire Protection Association each year.

Mr. Boring, chairman of the Improvement of Washngton Committee, recommended that the matter of the improvement of Washington be not taken up at present. The Committee on Metric System reported that the bill would probably come up in the next Congress.

An invitation to the International Congress of Architects to next meet at Washington was authorized.

On Tuesday afternoon a delightful tallyho ride through the charming parks and suburbs of Cleveland was enjoyed through the courtesy of the local chapter. A stop was made at the Country Club, and supper was taken at the Euclid Club.

At the evening session papers by Theodore N. Ely, John La Farge, Augustus St. Gaudens and E. H. Blashfield were read, but none of these gentlemen were present, so the interest due to personality was lacking. Mr. Blashfield's paper was interesting, he strongly advocating Rome as a place of study for decorative painters on account of its central location in relation to the great galleries and works of art. He said only technically prepared graduates should be sent there, however, and such pupils can select from the mass of material that for which they are best fitted and can adorn their work with the experience of others. The artistic atmosphere of Rome is freer from passing clouds than that of Paris. Culture is the need of American art, "but not the culture of penny pictures of the Sistine Madonnas which are cut out by children to paste on boxes." From Rome as a center the student can study the use of gold in mural decoration at Palermo, Monreale, Ravenna, Venice and Siena and tricks of ceiling decoration at the Ducal Palace at Venice. He said that before long an example of the work of the American School at Rome would be seen on the walls of New York. Mr. St. Gaudens's paper stated that if the American Academy at Rome helped only one pupil in a century it would be worth while. Austin W. Lord then read a paper on "The Significance of Rome to the American Architectural Student," which was of much interest and was well received.

Friday morning's session commenced with the appointment of special committees and the report of the Committee on Credentials, the latter evoking a lively discussion.

Mr. Boring stated that the Washington Improvement Commission had effected the removal of the Pennsylvania Railroad Station from the Mall, and that the contract for the new station had been let. The Lincoln Monument was to be located in accordance with the new design. Twenty-five million dollars' ($25,000,000) worth of improvements are now under way on the lines of the new scheme.

Nominations were made for officers, and an interesting discussion was entered upon regarding the place of holding the next convention. In behalf of the St. Louis Chapter, Mr. Ittner invited the Institute to St. Louis. The opinion, however, seemed to prevail that the convention ought to be held in Washington, on account of the still doubtful attitude of Congress towards the new plan of Washington and the profession in general. The matter was finally left to the governing body of the Institute. Honorary members were elected as follows: Aston Webb of England, Victor Laloux of France, Hon. Joseph Choate, American Ambassador to England, and Theodore Cooper of New York. Frederick Crowninshield of New York and Owen Fleming, consulting architect of the London County Council, were elected corresponding members, and William M. Kendall and Austin W. Lord were elected to fellowship.

A resolution to appoint a committee to confer with that of the Architectural League of America was adopted.

Mr. Carrère then explained the group plan of the city of Cleveland, drawings for which were hung upon the walls.

A long discussion ensued upon the matter of revising the schedule of charges, but no tangible result was reached beyond the general impression that no allowance should be made for non-superintendence.

In the evening a banquet was given to the members at the Century Club by the Cleveland Chapter, which proved to be a most delightful occasion and was enjoyed to the utmost by all present.

Saturday morning's ballot resulted in the election of W. S. Eames of St. Louis as president of the American Institute of Architects; Frank Miles Day of Philadelphia, first vice-president; W. A. Boring of New York, second vice-president; R. D. Andrews of Boston, C. F. McKim of New York and George B. Post of New York as directors; J. C. Hornblower and J. G. Hill of Washington as auditors; and Glenn Brown as secretary and treasurer.

After hearing further reports from committees the convention adjourned.

PRESIDENT McKIM'S SPEECH.

Ladies and Gentlemen:

ONCE more it is my privilege to welcome you to an annual convention of the American Institute of Architects, the thirty-seventh.

Last year, as the guest of the Washington Chapter, we met in the Capital City to discuss the affairs which bring us annually together. This year it is our good fortune to be welcomed by our brothers of the Cleveland Chapter. Not only is this true, but we are assembled here in a community whose splendid spirit of progress in recent years has placed it in the front rank of cities in the march of public improvement.

The tribute to the Institute you make by your presence is abundant proof of your interest at a time when the demands of professional practices are both numerous and imperative. Last year we rejoiced that the Institute, after nearly half a century of existence, had come into possession of a permanent home, of which, as one of the historic monuments of the country, we are justly proud.

Remembering the dispatch of "sympathy" sent us on the day of President McKinley's death by the president of the Royal Institute of British Architects, the receipt at this moment of our convention of a message from the same source attests the increasing and cordial interest with which the problems surrounding our advancement are regarded in England.

At this unsettled stage of our professional relations with our own government, it is especially gratifying to feel that the older professional body of the mother country, whose relations with their government are already well established, are not indifferent to the interests of their younger colleagues on this side of the water, in answer to the questions now pending between Congress and our profession, so vital to the welfare of both. President Webb's message brings timely encouragement to our Committee on Government Architecture and "on the improvement of Washington," but we cannot fail to appreciate still more strongly the spirit which prompted him to send it.

He cables: "War Office, Public Offices, Museum, College of Science, five per cent on estimated cost. Washington Commission Park improvement plans as fine as anything could be." (Signed) WEBB.

Indeed, if I may be permitted to digress for a moment, the intelligent interest in the details of the Park Commission scheme, not only by London men, but by members of the allied societies elsewhere, is more general and outspoken than some of us realize.

Your Commission has received during the present year many letters and expressions attesting this feeling.

Mr. Webb was from the first interested in the Washington plan, and especially in those of its features which reflected the influence of Le Notre. His warm endorsement was shared by leading men in and out of the profession and should mean much to those who may hereafter be charged with the responsibility of deciding the fate of the plan approved by President Washington.

The voluntary withdrawal of the Pennsylvania Railroad from the Mall — an act of public spirit and appreciation of the original purposes and aims to which this great central artery was devoted by the Father of his Country — must henceforth render impossible encroachment upon a space reserved for the public use and essential to the development of one of the noblest avenues ever laid out in any country.

The relations of our profession to Congress are of the highest interest to us. Congress owes much to architects, for the nation's greatest architects built Congress a palace to live in, one of the noblest capitols of any country.

But we owe much to Congress, and the Institute must feel that this is now especially true. The 57th Congress, besides the restoration of the White House, authorized the construction of a municipal building for the District of Columbia, the Army War College, a building for the National Museum, the Engineers' School of Application, the Union Railroad Station, an office building for the use of Representatives, a Hall of Records, besides making provision for the Lincoln Memorial. Designs for nearly every one of these buildings have been intrusted to members of our profession.

Bearing in mind this great volume of work and the intimate relations that have for so many years been maintained between our profession and the central government, it should be by no means a cause of astonishment that from time to time difference of opinion should arise as to the exact form that these relations should assume. We should not feel that representatives of government, zealous in what they consider wise economies, are inimical to those principles that we regard as fundamental. Yet we must bear in mind that there are times when right relations are to be maintained only by the greatest tact and moderation.

If, as some fear, such times are upon us now, it behooves us to meet each situation as it arises fairly, calmly and above all without heat, remembering that nothing is to be gained by mere assertion, everything by convincing proof; remembering that we have fair-minded men to deal with, but men who can look at things from our point of view only when they have been convinced that that point of view is right and for the good of all. We must approach them in a spirit of the highest consideration, prepared to yield everything except principle.

It is very desirable, at this time especially, that the Institute should not remain idle with respect to the future development of the Park System of the National Capital. The plans of the Commission, appointed by the Senate through the efforts of the Institute, have already been made familiar in the public press and by illustrated lectures in all the principal cities, and have made a strong appeal to the national pride.

Educated people everywhere have come to understand the scope of the work and to sympathize with it. Throughout the country, especially in Buffalo, in Cleveland, St. Paul and as far west as Seattle, the example has served to quicken, strengthen and inspire each city to develop and to make the most of its natural advantages. Moreover, in England the interest in this undertaking has been very great.

But it must not be forgotten that the execution of the project depends now, not upon the attitude of a sympathetic public, but solely upon the appropriations which Congress may see fit to make from time to time. Ultimate success can only be hoped for in the fuller understanding of the plan by our legislators. They must be brought to realize its fundamental importance.

This is a work which may be accomplished largely by the zeal and perseverance of this Institute through its chapters. The senator or representative who must make up his mind whether or not the needed expenditure from the public treasury is justified will be influenced less by the resolutions we may pass here than by the architects of his own city and his own state, who are known perhaps to him personally and who can explain the plan and make clear to him its merits.

A word here as to the duties of chapters. They are the organic members of the national body. In such matters as that of which I have just spoken the influence of the Institute is exercised largely through them. It is of the highest importance then that they zealously and faithfully perform the duties which belong to them.

While their coöperation in all that concerns the welfare of the Institute has, as a rule, been earnest and the Institute owes daily more to their efforts, yet there have been felt in certain quarters a lack of interest, a failure to grasp opportunities, fatal to effective work as a whole. The need of united effort cannot be too strongly emphasized.

The Institute has ample reason for felicitation in both the increase and betterment of our schools of architecture in Harvard, Columbia, Pennsylvania, Cornell and Illinois universities, as well as in the admirable and still older foundation of the Institute of Technology in Boston.

The movement to endow an American Academy of Fine Arts in Rome on the general lines of the French Academy in the Villa Medici is not new to you.

Until now dependent for support upon the insufficient means at the command of the incorporators (members of the Institute), the number of scholars has of necessity been small, and the convenience for work not such as would be afforded by an older, well-equipped and well-endowed institution. Nevertheless, in spite of its vicissitudes, such has been the quality of the work, and the few men turned out so strong, the conviction of those most deeply interested in the need for an institution offering a post-graduate course intended only for those who shall be already technically equipped, that a bill for the incorporation of the American Academy in Rome by act of Congress, and asking for the protection of the United States government, was introduced in 1901 by the late Senator McMillan.

The persons named as incorporators, besides the leading architects, painters and sculptors, include the great universities and technical schools represented by their presidents, the secretaries of state and war, the librarian of Congress, the government architect and a considerable number of men chosen from the community at large, known for their interest in art and education.

The bill passed the Senate and was favorably reported to the House, but owing to the legislative conditions prevailing in the latter body during the closing weeks of the session, it failed to become a law. I am happy to say that it will be reintroduced in the coming Fifty-eighth Congress, and is considered to have every prospect of success.

In this enterprise the Institute has a deep concern and towards its final achievement and the passage of the bill has already pledged its earnest support.

It is proposed to add to the incorporators of the bill the principal institutions and societies of art, represented by their proper committees; it would seem eminently fitting that this body should be included in, if not lead the list, and I ask your attention to this point.

Gentlemen of the Institute, I thank you for the honor you were pleased to bestow in electing me a second time your president. I shall value the remembrance of this and of my participation in the work of the Park Commission and of the restoration of the White House enterprises, so largely yours, as the most precious testimonial of the good will and kindly feeling of my professional fellows, and I shall carry with me, as long as I live, the deepest sense of your generous confidence.

Looking back over the past two busy years, I realize more and more fully how very much the welfare of the profession is bound up in the welfare of the Institute; in the work we are called upon to share, how much each member is strengthened by becoming a participator in the work for all.

As a proof of gratitude for all that I owe the Institute, I shall endeavor by every means in my power to further the principles and aims which make it deservedly the national body.

Fifth Annual Convention of the Architectural League of America, St. Louis, October 5 and 6.

REPORT.

WHEN it is recalled that the movement which culminated in the organization of the Architectural League of America had its inception in St. Louis, it seems fitting that, after an existence of four years, it should return thence to render an account of its stewardship of the powers delegated to it by the constituent clubs. If it lacked the presence of as many accredited delegates as several former conventions, it nevertheless made up in earnestness and enthusiasm what it lacked in numbers.

We are glad to see questions of style discussed and keenly analyzed in the convention of the League. The movement for the New Art appeals so strongly to every lover of intelligent, rational design that even while admitting the crudities and absurdities of some of its manifestations, it yet stands for a vigor of growth and an intensity of purpose which, so far from being ignored, demand imperatively the most careful consideration. We are also glad to see questions of ethics discussed at these conventions. They are discussed little enough anywhere else, and they have only too little influence upon the daily practice of the architect, so that it is fitting for the League to take up a certain amount of its time and energies in such topics. But the Architectural League stands for so much more than professional ethics, its scope is so far beyond the limitations of any one style, that we cannot help a feeling that such subjects are, after all, secondary, to be considered surely, but with caution and not to the exclusion of the broader questions which involve the whole subject of good architecture. It is not so much a question of what style a certain body of delegates consider most adapted to American needs, nor of what rules or regulations can best restrain the unprofessional, but it is a question of bringing architecture to the people, of showing people what architecture can be, and of throwing the strength and enthusiasm of youth into the large civic as well as private problems which are constantly arising in all our cities, but which are generally avoided by the more strictly professional bodies as being upon debatable ground. No one would for a moment claim that the American Institute of Architects has ever done all it might, could or will do. The very fact of its high professional standard precludes it from entering into some fields where the younger men can afford to rush in unchecked with the consciousness that mistakes will be more easily overlooked when accompanied by the enthusiasm of youth. It is the young men, the young men's clubs that will keep the profession alive and vigorous, and the work of the Architectural League is distinctly in the line of such methods as will kindle and arouse the greatest architectural enthusiasm among its members, by exhibitions, participation in public functions, the cultivation of a broad civic spirit and a hearty feeling of co-operation which shall entirely avoid mere abstruse questions of either ethics or style and bend everything to the effort to call out the very best in this generation.

The opening session was called to order by President Lamb and an organization effected by the election of J. P. Hynes of Toronto as speaker, and J. B. Nettleton of Detroit as secretary. Delegates were enrolled from the Architectural League of New York, the Society of Mural Painters, the Society of American Sculptors, the Civic Improvement Alliance and the Architectural Clubs of Chicago, Cleveland, Pittsburg, Washington, Toronto, Philadelphia and St. Louis.

The report of the Executive Board was presented by President Lamb, and that of the treasurer by Julius F. Harder. The reports of the various standing committees were then read.

The convention then adjourned to meet in Congress Hall at the Louisiana Purchase Exposition. An address of welcome was made by Mayor Wells, followed by President Francis of the Exposition Company, and Director of Works Isaac S. Taylor. President Lamb responded upon behalf of the League.

After luncheon, as guests of the Exposition Company, a tour of the grounds followed and an inspection made of the various exhibit buildings completed and in course of construction.

At Tuesday's session the affiliation with the Civic Alliance was unanimously ratified. The report of the Committee on Professional Ethics and Competition Code was read by Chairman Harder and discussed by the delegates.

The method of carrying on the Current Exhibition for the coming year was discussed, and the report of the Committee upon Current Work was read by the chairman, Charles O. Pfeile of St. Louis.

A committee was appointed to present names for the office of president. The balloting resulted in the election of William B. Ittner of St. Louis to serve until the holding of the next convention at Pittsburg in May, 1904.

On Monday evening a public meeting was held at the Museum of Fine Arts, and an address of welcome delivered by Professor Halsey C. Ives. A discussion of "The New Thought in Design" was participated in by Frederick S. Lamb of New York, who spoke of "The Influence of the Movement upon Ornamentation." "L'Art Nouveau and American Architecture" was brilliantly treated by Claude Fayette Bragdon of Rochester. In the absence of H. B. Herts of New York, Hugh M. G. Garden discussed in an able manner "The Influence of the New Thought in Design."

The papers by Mr. Lamb and Mr. Garden were very favorably received and contained matter for a great deal of profitable thought. We publish elsewhere in this issue the paper of Mr. Bragdon, which presents in a very complete manner the essence of the thought expressed in a slightly different vein by the other papers and covering the whole ground in a very efficient manner. Only our lack of space prohibits the publishing of the other papers.

On Tuesday evening a symposium was given by the St. Louis Architectural Club to the visiting delegates. Mr. Harder of New York served as toastmaster, and addresses were made by Mr. Lamb, C. Y. Turner and H. K. Bush-Brown of New York, J. P. Hynes of Toronto, William S. Eames and Hon. F. W. Lehman of St. Louis. A portfolio of blue prints of architectural songs composed and illustrated by Oscar Enders, poet laureate of the St. Louis Club, was presented to the guests, — a fitting memento of an evening that will linger long in the memory of those present.

In the election of Mr. Ittner the League has chosen a worthy successor to Mr. Lamb. A founder of the League, he brings to the position a broad sympathy with the aims of the organization which, joined to executive ability of a high order, should do much to enlarge the scope and promote the usefulness of the Architectural League of America.

L'Art Nouveau and American Architecture.*

BY CLAUDE FAYETTE BRAGDON.

EVERY man may be said to have either a Latin or a Gothic mind. That is to say, either he loves law, order, precedent; and finds delight in simplicity, symmetry, artificiality, and everything implied by the word "classical," or else he is all for freedom of individual expression, for following the logic of the moment and not a predetermined formula; finding pleasure in complexity and variety in naturalism and picturesqueness.

Because architecture, the work of man's hands, is the pattern of his mind in space, it necessarily partakes of the nature of one or the other of these divergent types; it is either Latin or Gothic, sometimes one being in the ascendant and sometimes the other.

When the Renaissance spread through Italy into northern Europe the Gothic ideal was displaced by the Latin ideal, and this has held practically undisputed sway throughout the western world until the present time. The movement known by the name of L'Art Nouveau is significant because it marks, perhaps, the beginning of the opposite swing of the pendulum, since it is the first organized and popular effort toward the re-establishment, not of the outworn forms of Gothic architecture, as in the case of the abortive Gothic revival in England, but of the basic principles of Gothic art, namely: expressiveness, inventiveness, freedom and individuality. It has spread like a fire — its enemies would declare like a pestilence — throughout France, Germany and Belgium; it has invaded Italy; a chastened and finer manifestation of it is to be found in England; but except as an influence it has not yet crossed to this side of the Atlantic.

In the field of the minor arts — in furniture, jewelry, textiles, glass and metal work — L'Art Nouveau may be said to have justified itself; but in architecture so much cannot be admitted, and this is because that very liberty which emancipates and renews the other arts becomes, in architecture, sheer license. Necessarily the most conservative of the arts, architecture at its best is always a growth, an evolution, — an accretion, not a creation; and one feels about the buildings designed in the style of L'Art Nouveau not only that they are creations, but that they are the creations of an undisciplined and riotous imagination. They are free, certainly, but they provoke us to the exclamation, "O Liberty, what sins are committed in thy name!" The new manifestation has been wittily called "Loop the Loop architecture." It reminds one of nothing so much as the last convulsions of a dying angleworm. The forms are excessive, the lines are tortuous, and the whole effect is one of restlessness and strain, relieved sometimes, it is true, by excellence of color, of texture, and by episodes of well wrought and originally conceived ornament.

Even at its worst there is much in this new style of architecture to commend itself, if not to our admiration, then to our attention. Illogical and false it may be; but, when all is said, is it not better in principle than the style which it displaces, the latest survival of classical tradition — that Roman toga which fits us ill, the folds of which we are perpetually readjusting, but which we continue to wear and to think becoming? I said just now that architecture is a conservative art, that it should respect tradition and follow precedent; but the modern world, its aims, its needs, its methods, are these not, in a sense, unprecedented? Architecture obeys a higher law and admits a sterner necessity when, ceasing to perpetuate traditional forms, tried by use and consecrated by beauty, it attempts only to be truthful and to show, ugly or beautiful, the living face of the Zeit-geist. This is the ideal of L'Art Nouveau, whatever its failure of achievement; and it is not too much to hope that out of its fantastic hurly-burly may be developed the first words of a new architectural language, more adequate for the expression of our civilization than that afforded by those inherited forms which, for lack of better, we continue to employ.

Although as yet we possess so little of the imported article, we have L'Art Nouveau architecture which is all our own, not less radical and original than its foreign prototype, antedating it in point of time and much more deserving of commendation. I refer to the work of that distinguished architect and man of genius, Mr. Louis Sullivan of Chicago. I even hazard the theory that the influence of his work has been no inconsiderable factor in the birth of the new movement abroad. Ideas, like thistle down, travel far on favoring winds and take root in unexpected places. When it is remembered that Mr. Sullivan's buildings in Chicago and at the Columbian Exposition aroused the interest of the French commissioners of the Museum of Decorative Art to such an extent that they secured drawings, photographs and casts of his ornament for their museum in Paris, and that duplicates of these were obtained by many other similar institutions throughout Europe, it is not unreasonable to suppose that these examples exercised a potent influence upon the men in whose minds L'Art Nouveau was germinating.

Mr. Sullivan possesses in an eminent degree what I have called the Gothic mind. He is strongly individual, a lover and a student of nature and at once a logician and a mystic. The Prudential building in Buffalo, which is perhaps his masterpiece, is entirely Gothic in spirit. Although it suggests the style in nothing except the soaring lines of its piers and the profuse and intricate ornamentation of its terra-cotta casing, one feels that the spirit of the great cathedral builders dwelt in the man who made it. Necessity determined its form and fenestration, and beauty has been achieved at the cost of no

* Paper read before the Fifth Annual Convention of the Architectural League of America.

compromise with this necessity. The exterior expresses the plan, and the ornament is of a kind well adapted to the plastic nature of the fire-resisting material which clothes like flesh its iron skeleton.

I need not dwell, in addressing this assembly, upon the influence of Mr. Sullivan upon the younger members of the profession. This Architectural League of America is in a sense a living witness of it. While not all of its members accept his convention, regarding it as something personal to the man, not suitable for imitation, all, I am sure, are in sympathy with his aims and subscribe to his formula, "Form Follows Function." Like every artist of force and originality, he has many imitators who copy his mannerisms, and a few true disciples who have assimilated his ideas and work in their own way according to his methods. This little group, animated by the Gothic spirit, stands practically alone in the attempt to stem the rising tide of Latinism which floods the East and flows westward, for by far the greater part of the work and the best work now being done in this country is upon classic or neo-classic lines. The starved eye turns with relief from the crudities and eccentricities of certain dingy Chicago streets, wherein Mr. Sullivan's influence is rampant, to the ordered and sumptuous façades which glitter in the sharp sunlight of Fifth Avenue; but the mind, unseduced by superficial beauty, denies the eye its pleasure in them. After this masquerade, what possibly can follow? No answer is forthcoming. Like artificial flowers, these buildings seem animated by no vital principle of growth. Chicago's commercial architecture, on the other hand, is like an ugly plant, which, having its roots deep in the native soil, may grow and put forth some day some rare blossom.

For the exponent of the Latin ideal in architecture the way is pleasant and the rewards immediate and sometimes great; but the man who, by conviction or by the constitution of his mind, enlists among those devoted to the Gothic ideal, dedicates himself to a certain measure of failure. It is not for him to assimilate the popular taste and reproduce it; he is self-condemned to labor at the foundations of a palace of art whose superstructure will be reared, if it be reared at all, by other and more skillful hands. But when time shall have precipitated the muddy elements of our modern life, I predict that he, and not the other, will be adjudged to have chosen the better part. Beneath the dense materiality of our civilization there is fermenting a leaven of spirituality which may usher in a period of faith like that which Europe underwent in the Middle Ages, when Gothic architecture had its origin; a period in which the soul comes near the surface of life, sweeping away existing conventions and creating for its expression a new symbolism and a new art. In such a movement the men who have all along followed the Gothic method of constantly inventing, and not merely reproducing, will have the least to unlearn and the most to contribute.

The architecture of a nation is the mirror of the national consciousness. It cannot lie. If it seems to do so it is only the better to betray the falsity of the social condition under which it had its origin. The iron hand of Roman sovereignty, encased in the silken glove of Roman luxury, found its prototype in buildings which were stupendous, crude, brute masses of brick and concrete, encased in a covering of rich marbles and mosaics. The "sad sincerity" of soul, the mysticism and fanaticism of the monkish Middle Ages found embodiment in the Gothic cathedral. The newest street façades of modern Paris publish French cleverness as publicly as the pages of *Gil Blas*, and betray French degeneracy as pitilessly as reports on alcoholism and vital statistics.

The tall office building, America's most characteristic architectural product, is in like manner a symbol of our state. Its steel framework, strong, yet economical of metal, held together at all points by thousands of little rivets, finds a parallel in our highly developed industrial and economic system, maintained by the labor of thousands of commonplace individuals, each one a rivet in the social structure; and just as this steel framework is encased in a shell of masonry, bedecked with the architectural forms of alien civilizations, meaninglessly employed, so are we still encumbered with a mass of inherited religious, political and social ideas, which impede our free development and interfere with the frank expression of our national character. When we discard these old ideas for newer and better ones our architecture will mirror the fact by sloughing off its ancient encumbrance likewise. This may seem a far-fetched conclusion, but history shows that architecture, though the least plastic and animate of the arts, images at all times a nation's character, changing as that changes.

The public temper and the public taste are responsible, therefore, to a large extent, for the quality of the national architecture, but this does not at all abate the architect's responsibility; it is for him to educate the public taste by building better and more beautifully than is demanded of him. The difficulty consists in the fact that he, too, is afflicted with the modern disability of over-sophistication. He knows too much and sees and feels too little; the free action of his mind is impeded by a mass of archæological knowledge, and this finds its way into his work to its detriment. He is too truly characterized by the little girl's definition: "An architect is a man who puts architecture into houses. Greek and Roman is the best."

To this sort of thing L'Art Nouveau comes as a wholesome corrective. It calls upon him to throw away his classical crutches and learn to walk with his own strength. Some — the radicals, the reactionaries, the "Gothic minded" — will answer to this call of the New Art. The question then arises, to what sources shall such turn for inspiration, how shall they train themselves in proportion and design, having abjured historic ornament, and having ceased to employ the classical formulæ?

This question I attempted to answer at some length before this Convention two years ago in Philadelphia, and I can only reiterate, in brief, what I said then, that the architect should study nature, the human figure, geometry and music, because in all these he is still studying architecture, — the architects of the world and of the soul.

By the study of nature I do not mean that he should go into the fields with a book and botanize, nor make sloppy water colors of picturesque scenery. These things are well enough, but not as profitable for his purpose as observation directed towards the discovery of those simple yet subtle and occult laws which determine form and structure, such as the tracing of the spiral line, not alone where it is obvious, as in the snail's shell and the ram's horn, but where it appears obscurely, as in the disposition of leaves or twigs upon a parent stem. He should make sketches as an aid to observation, rather than with any ulterior object of adorning a wall or enriching a portfolio. There is more and better architectural instruction contained in a tree than in the dome of the Pantheon. A tree is everything a perfect building should be, for it is well and firmly planted in the ground, strong and simple at the base, becoming by imperceptible transitions delicate and various in its outline against the sky. Its foliage conceals yet reveals the structure, and its mass, considered with relation to a central axis, has perfect balance without the repetition inseparable from perfect symmetry.

In studying the human figure it is not necessary to make elaborate and carefully shaded drawings from a posed model. An equal number of hours spent in copying and analyzing the plates of a good art anatomy will be found a more profitable exercise for an architect, because it will make him familiar with the principal and subsidiary proportions of the bodily temple and give him sufficient knowledge to be able to indicate the figure in any position with fair accuracy.

As for geometry, he should play with squares, circles and triangles as a child plays with its letter blocks, arranging and rearranging them, making them into patterns as the Japanese do, and as did the Greeks. He should learn also to discern the few and simple geometrical elements at the basis of the most intricate designs.

By the study of music I do not mean the mastery of any musical instrument. I mean that an architect should hear as much good music as he can, and should learn the rudiments of harmony, that he may know the simple numerical ratios which express the principal consonant intervals; then, if he play a little, he can translate this knowledge into pleasure.

All these exercises will be found to be excellent training for the architect, but there are certain deficiencies which they will by no means supply; the lack, I mean, of the broad view, the deeper insight, a mind alive to the sublimity and significance of the spectacle presented by our laboring cities, a faith equal to believing that their squalor and ugliness only await the alchemy of art to be converted into new and extraordinary beauty. He must have these things before the power will be his to perform the transmutation.

Just as the electric lights in our city streets put out the stars, so the exclusive cultivation of the mind blinds us to that dimmer, because more distant radiance which is the soul, the source of wonder, mystery and beauty. The arts to-day prate drearily of facts. Music alone still has power to lift us above ourselves, but architecture had that power once and might conceivably again. To render architecture potent in this wise, to make of it a living and a beautiful thing and not a resuscitated corpse, this is the task to which we architects should dedicate ourselves. This, too, has been the aim of the organizers and exponents of L'Art Nouveau. They offer us an inspiring example, not of accomplishment, perhaps, but of endeavor.

Recent School Building in St. Louis. I.

WILLIAM B. ITTNER, ARCHITECT.

BY S. L. SHERER.

ONE of the most hopeful signs of the time has been the activity that has characterized the building of institutions devoted to educational purposes. Nowhere has this activity been more manifest than in St. Louis, where the splendid group of buildings for Washington University is rising on the western heights that overlook the city; and which has also witnessed the construction of sixteen new and eighteen additions to old school buildings during the past five years. Consideration of the more recent of these buildings in their relation to architecture is the purpose of these notes.

MAIN ENTRANCE, EDWARD WYMAN SCHOOL.

In common with other cities, St. Louis was until recently content with school buildings that were ill adapted to the purpose, judged by the requirements of the most advanced educators of the day. Except in several instances, the earlier schools had little thought bestowed upon the architectural character of the building, the value of such treatment from an educational point of view being entirely ignored. With the organization of a nonpartisan Board of Education, elected at large, and composed of men of character and educational attainments, and the appointment of an architect of ability whose entire time is devoted to the work, has come the notable change in the character of the public school buildings of St. Louis.

Unlike most foreign and some American cities, the St. Louis Board of Education has not formulated a code of rules governing the planning and construction of school buildings other than a strict compliance with the building laws of the city, which provide that buildings of this class shall be fireproof.

Commissioner Ittner has endeavored to develop a plan in line with the best and most recent development in

EDWARD WYMAN SCHOOL. (For plan see plate form.)

EUGENE FIELD SCHOOL.

school architecture; one that would insure improved hygienic conditions and consequently preserve the health and morals as well as promote the intellectual progress of the pupils, and at the same time invest the buildings with that measure of architectural fitness now recognized as essential in training the minds of the pupils to the perception of the beautiful during the most receptive period of life.

Before passing to the consideration of individual buildings, it may be well to briefly summarize the general requirements that have influenced the plan, design and construction of the schools, which are all of the grammar grade.

The adoption of the almost universal rule advanced by experienced educators, that a classroom should accommodate not more than fifty-six pupils (the tendency being to reduce the number, as with fewer pupils the teacher's energies are less quickly exhausted, — therefore insuring more rapid promotions), forms the keynote to and has largely governed the planning. As authorities agree that each pupil in the grammar grade requires a space of sixteen square feet and two hundred cubic feet of air space, it follows that a room approximating 25 feet wide x 32 feet long x 13 feet 6 inches high will give the required accommodation, admit of adequate lighting and enable the teacher to control by eye, and voice, the pupils. With such a room as a unit it follows that the architect should so dispose the rooms to receive proper light in sufficient quantity and render them easily accessible from stairways and corridors wide enough to permit rapid circulation of classes.

Another consideration that has influenced the plan was the endeavor to depart, not only from the conventional type of school building, wherein the central corridor, lined with rooms on each side, was necessarily dark, but to introduce, if possible, outside light into the main corridor on practically its entire length, thus insuring the penetration of sunlight to all parts of the building during some part of the day. This naturally led to a plan grouping the classrooms on three sides of the corridor only, the remaining side being opened its whole length to the light.

Since the success of the building depends upon adequate light, of the proper quality, it naturally follows that the width, height and location of the windows dominate the exterior design. In no case is the window surface less than one-fourth of the floor area.

As it is conceded that the maximum, if not all, of the light should come from the left of the pupil, and preferably from one side only, in order to avoid cross lights, windows set 3 feet 6 inches above the floor and extending within 6 inches of the ceiling, are located to diffuse such light. This fenestration is possible except in corner rooms, which are usually lighted from two sides, partly because of amount of light required to properly light the room, and in order that the design should receive fitting architectual treatment; it being manifestly impossible to locate desks in all rooms so pupils will receive light from the left only, without enclosing the façade side of the room with a blank wall, something few architects deem essential.

The general plan developed by these rigid requirements is, necessarily, more or less similar in all of the schools, approximating in form to the letter E, except where kindergarten rooms are incorporated in the plan. In all cases the sites have been wisely selected to permit ample space surrounding the building, thus affording generous playgrounds as well as good light and air.

The basements average 13 feet in height (or a clear height of 10 feet under heating ducts) and have been planned with the view of supplying separate playrooms for boys and girls, accessible from outdoors, as well as affording space for the installation of the heating and ventilating plant, the storage of coal, and the toilet rooms. On floors above basement, corridors 17 to 20 feet wide afford direct communication to classrooms averaging 25 by 32 feet in size, with ceiling 13 feet 6 inches in height. Wardrobes lead from classrooms only, a radical departure from the usual custom of opening them upon the corridor as well as the room side, — an arrangement that not only gives the teacher full control over the wardrobe, but permits ventilation of the room through the wardrobe; the constant air passage carrying with it the vitiated air from the room as well as odors arising from damp clothing in the wardrobe, thus eliminating the disagreeable odor usually prevalent in schools.

Staircases are located at each end of corridor, and also on the open side of corridor, which permits rapid egress in case of fire. In no case has the height of the buildings exceeded three stories; the tendency in the later buildings being two stories, with a high basement entirely above grade.

Heating and Ventilation. The buildings have been planned for the low pressure steam plenum system of heating and ventilation, a method that insures — regardless of the state of the weather without or the humidity of the air within — a positive flow of pure, warm air, at a uniform temperature, into each room, and a consequent outflow of a like quantity of vitiated air through the wardrobe vents. The system has been designed on the basis of supplying each pupil with 30 cubic feet of air per minute, — an amount exceeded by 20 to 30 per cent under actual conditions. This delivers to each room 1,800 cubic feet of air per minute, and changes the entire volume of air in the room every seven minutes, thus insuring the health and comfort of pupils and rendering them capable of study and instruction. This is accomplished with a steam pressure of from 5 to 15 pounds upon the boiler. The system is arranged so the building can be warmed in mild weather by the exhaust steam from the engine that drives the fan (experience proves this is possible in our climate for one-third of the firing season), thus effecting a material reduction in the consumption of coal.

Fresh air is drawn into the fans in the basement, usually from an elevation of about 30 feet above grade, through the tempering coils, where the temperature of the air is raised to about 60 degrees; it then passes through the fan to the heating coils, where its temperature can be raised to any required degree; then impelled through ducts from the hot chamber to the various rooms and corridors. The heating and tempering coils are arranged with a system of by-passes, so that the air heated may be taken from the hot chamber and mixed with the cooler air passing beneath the heating coils and tempered to any desired degree. The system is, therefore, very flexible and capable of many combinations at the will of the operator.

The heated air is introduced into the rooms about eight feet above the floor, the heat inlets being placed at or near the same end of the room as the outlet. The air is thus compelled to make a complete circuit of the room before passing out of the room through the wardrobe vent.

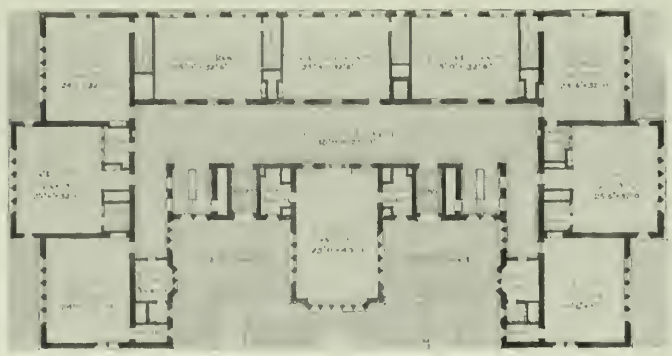
During the summer months a system of cooling the air by forcing it through a water spray or cooling chamber can be adopted and the rooms rendered cool from the constant flow of cold air. In order to heat the building rapidly in the morning the systems have been arranged to by-pass at the fresh-air inlet, the fan drawing the air from the rooms, thus converting it into what might be termed a direct system for a sufficient length of time to thoroughly heat the building before fresh-air inlets are opened and the breathing process of the building begun. All toilet rooms are separately ventilated to a stack that is kept heated at all times.

Construction. All outer bearing walls are of hard brick laid in Portland cement mortar; interior partition

FIRST FLOOR PLAN, EUGENE FIELD SCHOOL.

walls are formed of hollow tile and plastered with cement plaster. The interior framing is of steel girders and floor beams, the spans varying from 10 feet 6 inches to 15 feet. Floors are constructed of a system of concrete and metal or of tile, capable of sustaining a load of four hundred pounds per square foot, exclusive of the weight of construction. All stairways are of iron, 5 feet wide, the boxes of treads filled with concrete and covered with asphaltum, rendering them noiseless and non-slipping. The roofs are covered with slate or red shingle tile, cemented and nailed to concrete or sheathing; gutters are lined with vitreous tile bedded in asphaltum, copper being used only for the down spouts. Corridors are paved with granitic mosaic with 6-inch border and base of marble. Basement floors are granitoided, with an asphalt finish in toilet rooms. Classrooms are floored with maple laid on strips over concrete filling. The plumbing is of the most approved sanitary type and is installed, like the balance of the work, under a system of rigid inspection. Such woodwork as is used is of quartered oak and simple in design. All doors open into corridors, are leather covered and equipped with floor hinges.

Equipment. Classrooms are equipped with slate blackboards set 1 foot 9 inches above floor for lower and 2 feet 6 inches for higher grades, and extending around all walls. The desks are of the single adjustable type, with aisles 18 inches wide between desks. A bookcase,

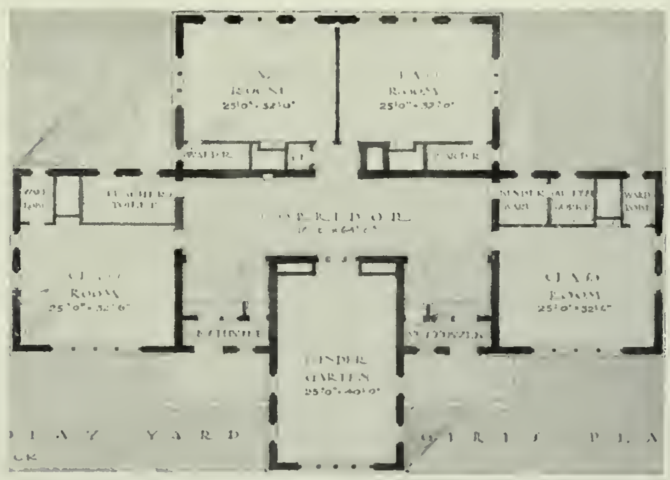


FIRST FLOOR PLAN, RALPH WALDO EMERSON SCHOOL.

shelf and wardrobe are provided for teacher, and cases are placed in the library, kindergarten and storerooms. Drinking fountains are installed in corridors as well as in yards. The walls are painted in light colors, with a stenciled frieze, and a picture molding is placed at the ceiling line. The corridors are also treated in the same manner and serve for exhibition of photographs loaned by the Patrons Association. Kindergartens are decorated with mural paintings typifying the life of childhood.

Each room has a self-winding electrical clock, regulated from principal's office. Artificial light is furnished by gas and electricity.

Cost. The average cost of fireproof rooms, including outwork (paving, fencing, etc.), has been $4,487, plus $533 for heating, a total of $5,020 per room. Comparing these figures with cost of schools during the preceding five years shows the fireproof buildings have cost $175



FIRST FLOOR PLAN, HORACE MANN SCHOOL.

less per room than former buildings not fireproof. The average cost per cubic foot has been twelve cents; this has increased to fourteen and fifteen cents, due to the advance in price of building materials and labor.

Architectural Design. From the illustrations it will be seen that, with the exception of the Field School, the Tudor Gothic has afforded the architect a model for the style employed, although there has been no slavish adherence to the style, which has been made subservient to the logical development of the scheme as a whole, something the flexibility of the style permits. So characteristic a feature of the Tudor style as transom bars has been omitted, because of possible interference with light-

DOORWAY, HORACE MANN SCHOOL.

ing, — an omission detrimental to the design, if viewed from the standpoint of style alone. Where windows are wide and high and undivided by mullions and transom bars, a good design in this style is difficult of attainment. Economy in planning necessitates a balanced disposition of rooms, which also militates against any but a formal treatment. Since the fenestration is fixed, the designer is therefore compelled to rely upon mass and proportion and in the manipulation of the material for the architectonic treatment of his building. The brickwork in Mr. Ittner's schools has been well studied and made to play no unimportant part in accentuating the architectural character, and to this important feature much of their interest is due.

While the style mentioned seems peculiarly appropriate for the purpose, because of its long and traditional use for collegiate buildings, the closer the adherence to forms that go to the making of a style, the less individual the architect's work. Mr. Ittner, however, has invested his work with an individuality that is pleasing and a distinction that promises to be enduring.

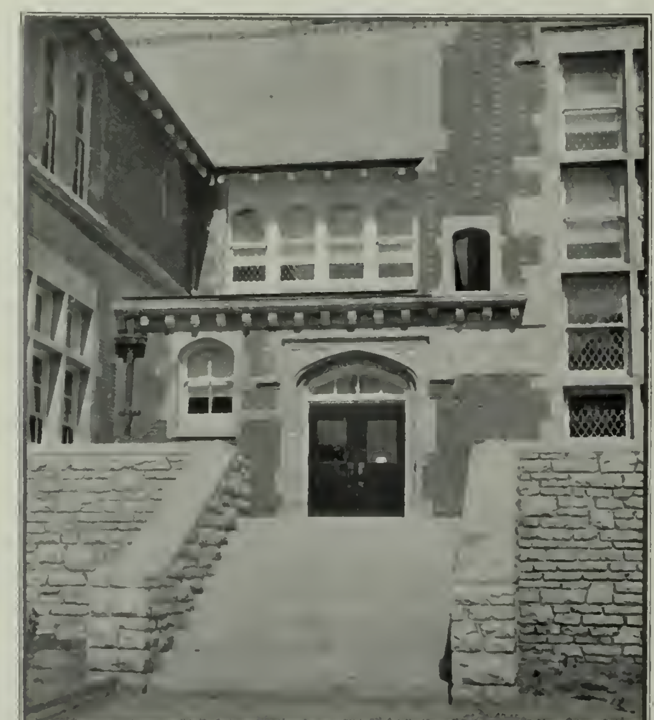
Eugene Field School. The earliest of the schools, wherein a marked departure was made from the design of previous buildings, was the school named in honor of the poet of childhood, Eugene Field, a native of St. Louis.

The design does not classify itself under any of the conventional styles, although it owes more to Spanish influence than to any other. This feeling is more apparent in the attic story and overhang of the cornice, in the low gables and red tile of the roof, and in the towers, which connote well with the design of the building in general character as well as in detail. One naturally looks for a central entrance, but this feature has been omitted and entry is made through the basement openings, distinguished by label inscriptions, to vestibules, which in turn open into a stair hall, and from which stairways in the towers ascend to upper floors.

The basement contains separate playrooms for each sex, 76 feet by 25 feet in size, accessible through side entrances; space for boiler, coal and fan room. The first floor has six classrooms 25 feet by 32 feet in size, with a small office for principal, and a kindergarten 30 feet wide by 50 feet long. Second and third floors have same disposition of rooms, except the space over kindergarten is utilized for an additional classroom. Adjoining every room is a wardrobe having outside light and ventilation and accessible from classroom only. The corridors are 20 feet wide by 106 feet long, thus affording ample space for rapid egress in case of fire.

Exterior walls are of a reddish speckled brick laid in Flemish bond, with joints of white mortar, flashed brick being introduced at random. The gables and towers are laid in a diapered pattern that adds interest as well as variety to the wall surfaces. Cream white terra-cotta has been used for the trimmings, a color that harmonizes well with the brickwork.

The design exhibits a logical development of the plan, clearly expressed in a direct manner. It owes little to precedent, and withal is a well-managed composition, in-



ENTRANCE, RALPH WALDO EMERSON SCHOOL.

vested with a quality of fine distinction. The cost per room was $5,600; per cubic foot, 15¾ cents; total cost of building, $123,241.

Edward Wyman School. The Wyman was the first school wherein Mr. Ittner reverted to the Tudor Gothic

HENRY T. BLOW SCHOOL.
(Plans practically same as Wyman School.)

RALPH WALDO EMERSON SCHOOL.

HORACE MANN SCHOOL.

COTE BRILLIANTE SCHOOL.
(Plans practically same as Wyman School.)

style for a model. It has not been servilely followed, however, but has been used in a free and individual manner. However admirable the forms that fitted conditions of a bygone age, they have not been used where they were not well adapted to the requirements of the problem. The design gains immeasurably by the grouping of the windows, which are of sufficient area to effectually light the rooms, but this characteristic feature of the style has not been well sustained by such other characteristic features as stone mullions, molded jambs and label moldings, — an omission necessitated by the limitation of cost, while transom bars are usually considered detrimental to effective lighting.

The plan shows a building 240 feet in length, with projecting wings and a central entrance accentuated by towers that are reminiscent of an age when such a feature was one of defense, but in this instance serve the very useful purpose of ventilating shafts. The side entrances and accessory terrace features are especially interesting in design, and open into the playrooms in basement. The building is but two stories in height and is crowned by a roof of red tile, whose long and unbroken sweep imparts a dominant note to the design.

The floor plans illustrated show twenty classrooms with a large kindergarten and a lecture room over same; a library and principal's office conveniently located on the axis of the second story corridor. This general plan, modified by the conditions arising from variation of site and size of lot, has been adopted for subsequent buildings. It seems admirably adapted to the requirements, while the limitation of height to two stories is an improvement over earlier three-story buildings that readily commends itself.

The brickwork is of the same color and texture as the Field School, but the walls above the stringcourse of stone have been enlivened by a diapered pattern composed of varying shades of red and gray brick. The balcony and mullioned window over the main entrance are interesting for the skillful manner in which they have been worked out in brick.

The cost per room was $5,600; per cubic foot, 14 cents; total cost of building, $128,888.

Ralph Waldo Emerson School. In the Emerson School, Mr. Ittner has attained a more picturesque result than in the preceding school, and one that suggests more clearly the feeling of English work of the Tudor period; tempering the style, however, by his own point of view. It is distinctly more successful than the earlier designs, and proves that a restrained picturesqueness adds to, and is not incompatible with, a successful building from a utilitarian standpoint. It also appeals more strongly to the pupil, and is therefore valuable in inspiring that liking for one's environment which counts for much in school life.

A variation from the preceding plan results from the addition of a central wing, making the plan form the letter E. The same arrangement of stairways that obtains in the Field School is also present in the Emerson, the towers occupying the same relative position on plan. The entrances, however, as shown by the charming illustration of the fore court, are more distinctive and have been located and treated in a more logical manner, and the general result is somewhat more pleasing. The small groups of windows in the wings are designed with the view of lending architectural effect, rather than for the purpose of light; that vital feature being derived from the larger groups of mullioned windows on the side elevations.

The superstructure rests on a stone underpinning of singular charm, laid up in white limestone of long, thin courses, with wide joints of unusual depth. The walls are of red brick laid in English garden wall bond, with flashed headers; the openings being accentuated by jambs and trimmings of buff Bedford stone. A pitched roof covered with black slate, with ridges of red terra-cotta, crowns the building, which contains twenty-two rooms.

The cost per room was $5,636; per cubic foot, 14¾ cents; cost of completed building, $123,992.

Horace Mann School. The Mann School is on a much smaller scale than the schools heretofore mentioned, containing but nine 25 feet by 32 feet classrooms and a kindergarten room 25 feet by 40 feet in size. The plan illustrated explains itself, and the exterior design faithfully expresses the plan. It follows the same general style that characterizes the Wyman School, and is not without interest for its simple, though well-considered design.

As will be seen from the detail of the entrance doorway, the brickwork is also of the same texture and character as the Field and Wyman schools.

The cost per room was $6,007; per cubic foot, 14 9-10 cents; total cost of building, $60,070.

Cote Brilliante School. This school is also Tudor Gothic in general feeling, quiet and refined to a marked degree, and recalls the aspect of English collegiate buildings. Like the preceding schools, it is but two stories in height, — an element in design most effective in giving a desirable long and low line, which, in this instance, is terminated by the end wings and broken by the well-designed central entrance. The grouping of the windows is also effective in imparting character to the building, which is in course of erection, and gives promise of being one of the most successful designs that has come from Mr. Ittner's hand.

It will contain a high and well-lighted basement, twenty-two classrooms, a kindergarten, a principal's office, storerooms, etc.

The brickwork will be light red in color, laid with wide joints of white mortar. The roof will be covered with red shingle tile.

The cost per room will be $6,758; per cubic foot, 17 cents; total cost of building, $162,213, which includes wrecking and removal of the old school buildings and an unusual amount of grading and yard work.

Henry T. Blow School. The plan of this school follows the same lines developed in the Cote Brilliante School, and the exterior design also suggests and conforms in a measure to the design of the same school, differentiated, however, by the Dutch treatment of the gables that crown the end wings, and in the design of the main entrance.

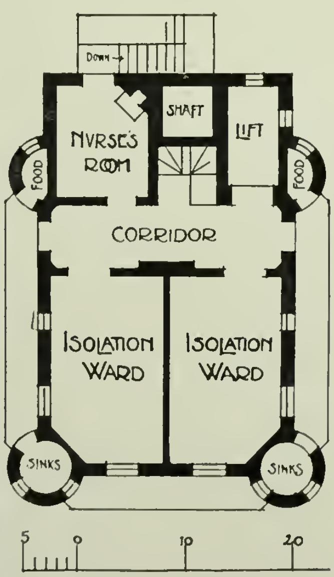
Like its prototype, it reveals its purpose in a clear manner, and is likewise notable for its dignified and well-managed design. It will contain 22 rooms.

The cost per room will be $6,243; per cubic foot, 16 cents; total cost of building, $149,840, which also includes wrecking and removing old school buildings and an extraordinary amount of grading and yard work.

strongly pointed out to them by their assessors, Mr. Bodley and Mr. Norman Shaw; so that they eventually asked Mr. Bodley to coöperate with Mr. Scott. This he declined to do, but offered to act as advisory architect. The committee dissented, stating that unless their proposal were agreed to, the matter would fall through. Hence it was in these circumstances, and to prevent the competition becoming once more a fiasco, that Mr. Bodley finally consented to act conjointly with Mr. Scott.

HOUSE AT STANMORE, MIDDLESEX.
Horace Field, Architect.

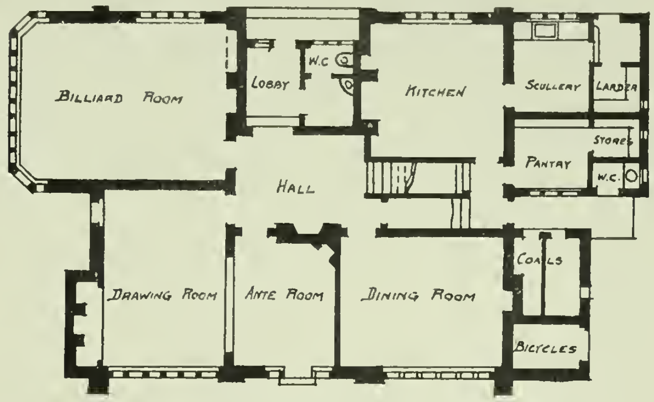
A start has been made with the setting-out of the ground for the National Memorial to Queen Victoria in front of Buckingham Palace, though a long time must elapse before the work is by any means complete. Two notable changes have been made in the scheme since it was last before the public. It seems that the building of London's long-talked-about hotel-de-ville will be connected with the scheme, for the County Council intend to house themselves at the eastern end of the roadway that will lead from the palace to Charing Cross (the extension of the Mall), and we may expect the occasion to institute the largest architectural competition for many years.



FIFTH AND SIXTH FLOOR PLANS.

THE NEW TOWER AT CHARING CROSS HOSPITAL.
Alfred Saxon Snell, Architect.

The reception of Mr. McKim was a most hearty one and appreciation for his work was general among those who saw the large number of photographs which he brought over on the occasion of the Royal Gold Medal presentation. Mr. Aston Webb, the president of the Institute, observed that Mr. McKim's style was based largely on Italian examples and showed French training; it had true artistic feeling, nobility of plan, breadth of treatment, suitability of purpose, and absence of unnecessary or meretricious ornament; and while founded on traditional lines showed just that amount of individuality required, without which the best work must be dull and uninteresting.



FIRST FLOOR PLAN, HOUSE AT STANMORE.

The new library at Kingston-on-Thames, shown among the accompanying illustrations, is of a type of design one would like to see more generally followed in this country. The building is of red brick with stone enrichments, the roof being tiled.

At Charing Cross Hospital a new surgical block and nurses' home are being built. The tower illustrated is noteworthy for its two top floors of isolation wards, which are a special feature of the hospital. Besides being lifted well above all surrounding buildings, each room has three sides open to the air. The sanitary conveniences are placed in the projecting turrets and can be reached from the wards by the open balconies only.

Mr. Lutyens is always individual and the house at Overstrand is particularly characteristic in its treatment.

The Belgrave Hospital for Children, Clapham Road, London, has quite recently been opened and is a good example of the architect's methods in emphasizing the vertical. It is a red brick pile.

The Maurice Hostel at Hoxton needs no comment. The architect is the son of Mr. Alfred Waterhouse, R. A.

The houses at Stanmore and Huntly, by Mr. Horace Field, are both built of red brick with white painted woodwork and red tiles on the roofs. The entrance doorway to the nurses' house at the new hospital for women on the Euston Road, London, W. C., is in white Portland stone; the shutters to the windows are painted green.

Fireproofing.

FIREPROOF CONSTRUCTION.

AT the recent annual convention of the International Association of Fire Engineers held at Atlantic City, Perez M. Stewart, late superintendent of buildings in the Borough of Manhattan, New York City, read a highly interesting paper on fireproof construction. In view of the opportunity afforded Mr. Stewart, while the head of the New York Building Department, to study the advancement made in the design and construction of fire-resisting structures, and the further circumstance that he is a builder of long practical experience, his recent paper is of more than ordinary interest. Following are extracts from it:

SUPERIOR TYPES.

"It would seem to indicate almost mental aberration to seriously question to-day the efficiency of the better types of fireproof construction. No better proof can be wished for of the fact that fireproof construction really does reduce the fire loss than the favorable premium rates granted by fire underwriters on superior types of construction.

"Fire protection is a term broad and elastic. Roughly speaking it may be divided into three parts: (1) the protection from without afforded by the municipality; (2) the ability of the building itself, in consequence of its structural excellence, to withstand the effects of fire, either from within or from without; (3) the multitude of fire-detecting and fire-fighting devices installed in, but not integrally a part of, the building itself.

"Concerning the first division it would be presumptuous for me to speak to this audience.

"Anything like a comprehensive review of the third division would run far beyond the limits of a paper such as this.

"Prior to, however, and during my term of office as superintendent of the Department of Buildings, Borough of Manhattan, somewhat unusual opportunity was afforded me to study the question of fireproof construction pure and simple, and it is concerning a few phases of this that I shall call your attention.

"A careful consideration of the matter of fire protection should convince every owner that the introduction of safeguards against fire will bring a fair return in reduced rates on the increased outlay, besides fulfilling a moral obligation which he owes to his lessees, tenants, neighbors and himself.

DEPARTMENT STORE HAZARDS.

"Several theaters in New York have had their insurance rates materially reduced because of changes in their construction made at the instigation of the Department of Buildings.

"That the fireproof character of a hotel is a most desirable advertisement is indicated by the fact that some proprietors who cannot honestly claim that characteristic attempt to deceive their patrons by untrue representations. One of the large hotels of New York maintains a room in a burnt condition as an indication of what can happen in a fireproof hotel without the knowledge of any of the patrons or the proprietor. A fire that originated in this room nearly burned itself out before any one was aware of it.

"This is preliminary to a question which I wish to ask: Why is so much in the way of municipal regulation given to the subject of theaters and so little to the subject of department stores?

"Municipal regulations all over the country provide for almost every contingency which may occur affecting human life in theaters or other places of public assemblage. Department stores, however, seem to be passed over entirely in the requisites of the city fathers. Theaters and their management are provided for by a code as long as the moral law. In the case of department stores, however, probably three to five times as many people are allowed to congregate to the square feet of building occupied, and yet no adequate provision for their safety is made.

FIREPROOF MATERIALS.

"By fireproof materials is meant such as not only do not burn, but which, under the action of fire, remain intact and preserve their strength or the strength of those parts which they protect.

"As an illustration of the distinction between incombustible materials and fireproof materials, we need only refer to the unprotected as against the protected or fireproof column. Cast iron certainly will not burn, yet the effect of the heat of a fire is well shown in the bulging and collapsing of the unprotected columns of the Hackett-Carhart building at the corner of Broadway and Thirteenth Street, New York City, last winter, causing nearly the entire roof and part of the floor below it to fall in.

SPREAD OF FIRE.

"The danger of the spread of fire in a building increases, first, with the increase in area covered; and second, in greater degree with the increase in height.

"The danger is met in the first instance by providing fire stops in the way of brick walls or fireproof partitions. Any openings that may be necessary in these partitions should be provided with fireproof doors and windows.

"The spread of fire in a vertical direction is undoubtedly most effectively guarded against by making the floors continuous and unbroken, that is, eliminating all openings in the floors and placing necessary means of communication, such as stairways, elevators, pipes, shafts, belts, etc., in shafts entirely separated from the rest of the building by brick walls.

WHERE PROTECTION IS NEEDED.

"Such ironwork as is necessary for the construction of the shaft should be thoroughly protected by fireproof covering. No woodwork whatever must enter into the construction. The necessary openings must be provided with fireproof doors. For this purpose the fire underwriters' door is the best, although for offices and residence buildings it is generally regarded as impracticable on account of its unsightliness. In such cases doors and frames of metal or wood covered with metal, the so-called Kalimined process, which are now being produced in a variety of shapes and finish, can be well used. Door openings should be the only ones allowed in shafts. Where it is necessary to provide light, and it cannot be obtained by windows opening directly to the outer air, it can be secured by window lights in the doors; or if that is not sufficient, by stationary metal sashes set in metal frames. In all cases the windows should be glazed with wire glass.

"What has been said of elevator shafts applies equally well to interior light and vent shafts, except, of course, that in such cases the window sashes cannot be made stationary.

EXPOSURE HAZARD.

"In a closely built-up location, no matter how much care or money has been expended upon a building to make it safe against fire within itself, there still remains the danger of fire damage, if not destruction, from the outside. Underwriters generally regard a brick wall increasing in thickness from the top down as the most satisfactory protection against the attacks of fire from the outside.

"If a building can be inclosed in solid brick walls on all sides, carried three feet above the roof level, it would be practically safe against fire from the outside. But the public is not yet ready to sacrifice the space necessary for the interior courtyard that would be required for light and ventilation purposes under such conditions.

"One of the most potent natural conditions tending to augment the fire loss is what is known as the exposure hazard. This defines the likelihood of a building to become ignited by a fire from without the walls. Tables of fire loss, covering a number of years, show that nearly one-third of the fire loss of the country is due to the exposure hazard. Fire is communicated from one building to another in almost every case through wall openings, through doors or windows, and to provide against this danger fire protectionists have devoted some of their best endeavors.

FIRE DOORS AND SHUTTERS.

"Since wall openings must normally be open more or less of the time, either to traffic or to the passage of light, the first form of protection took the obvious form of a sheet-iron door or shutter arranged to be closed at night. Practical experience, however, soon showed that any considerable amount of heat warped the sheet-iron shutter to such an extent as to seriously impair its usefulness. A great improvement on the iron shutter came with the design of the tin-clad wooden shutter, a device without a superior for many forms of wall opening protection. As applied to the windows of mercantile establishments, however, the tin-clad shutter shared with the sheet-iron shutter several defects. It did not admit a night fire in a building to be seen from the outside; it did not lend itself readily to the adaptation of devices to close the shutter automatically in the event of fire, and it was very unsightly.

WIRE GLASS WINDOWS.

"Among the recent important fires showing the efficiency of wire glass windows in reducing the exposure hazard may be cited the Armour Lard Refinery, Union Stock Yards, Chicago; the Case Plow Works in Racine, Wis., and the Mitchell Wool Warehouse in Philadelphia. In each of these instances the spread of fire to very valuable properties standing but a few yards distant was prevented through the resistance offered by wire glass windows in the walls of the adjoining building."

Selected Miscellany.

PULLING A BUILDING TOGETHER.

THERE are several things we understand better in this country than they do on the other side of the Atlantic. The St. Pancras Midland Railroad Freight Depot in London was visited by a fire, and under the in-

DETAIL BY BEEZER BROTHERS, ARCHITECTS.
Northwestern Terra-Cotta Co., Makers.

fluence of the heat the girders, which to judge from the accounts were not protected at all, expanded sufficiently to throw the walls perceptibly out of line. The advent of the fire department and the chilling effect of large

DETAIL BY SASS & SMALLHEISER, ARCHITECTS.
New Jersey Terra-Cotta Co., Makers.

volumes of water which were thrown into the building then caused a reaction which resulted in the walls being gradually pulled back into position as the metal cooled. An application of a similar principle has been often used

DETAIL BY CHARLES B. MEYERS, ARCHITECT.
White Brick & Terra-Cotta Co., Makers.

COURTHOUSE, HAMMOND, IND.
J. T. Hutton, Architect.
Covered with American S Tile furnished by Cincinnati Roofing Tile & Terra-Cotta Co.

in this country to rectify irregularities in a brick wall. A short time since, the side wall in a large building in a western city bulged so far out of line that the authorities intervened and a total collapse of the structure was looked for. The difficulty was remedied by connecting the two opposite walls across the building at short intervals by two-inch iron rods with nuts and heavy washers on the ends. Alternate rods were heated and the expansion taken up by turning in the nuts. Then as the wall was drawn in by the contraction of the iron on cooling the remaining bolts were heated and in their turn tightened, and the process repeated until a bulge of some eight or ten inches was effectually counteracted. This process is an excellent one when it is carried out intelligently. But we remember one occasion in which the same system was tried but the strain on the rods was so great that, though they expanded with the heat, they were simply pulled out again under the contraction, and it was the rods instead of the brickwork which gave way.

SWAYING SKY SCRAPERS.

It is extremely interesting to note the varying accounts in the papers of the behavior of the Flatiron building, New York, during a storm which recently passed over the city. According to one witness the upper portion of the structure rocked like a ship in a gale. According to another nearly all the glass in the windows was shivered in fragments and portions of the coping stones were hurled to the ground, while many confess to have been able to see a very marked oscillation in the structure. In the absence of scientific testimony we are inclined to believe that nearly all of this is the effect of the imagination. Some years since, when the American Surety building was newly built, similar statements were made about its behavior in a storm, and to test them the superintendent suspended a heavy plumb bob by a fine piano wire, dropping through a height of fifteen or more stories, the bottom being arranged to be self-registering. He was unable to detect the slightest motion during the heaviest wind storm. The Flatiron building is thoroughly well built, is a thoroughly substantial structure, and while we would not be so rash as to claim that it did not move at all, we very much doubt that any one could have detected motion without the most scientific investigation. If any one looks up against the sky toward any tall stationary object, that object seems to be at the point of toppling over. It is an optical delusion which is often noticed, and might easily account for what observers claim to have clearly distinguished in connection with the Flatiron building.

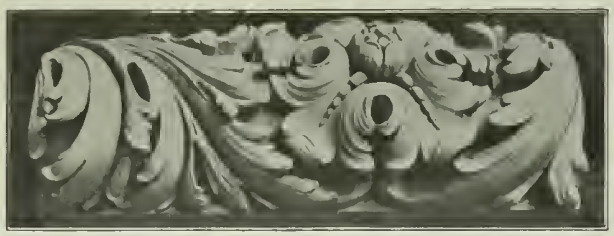
DETAIL BY HARRY ALLEN JACOBS, ARCHITECT.
Excelsior Terra-Cotta Co., Makers.

BUILDING, JACKSONVILLE, FLA.
J. H. W. Hawkins, Architect.
Built of "Ironclay" Brick.

IN GENERAL.

The Atelier Donn Barber of New York City gave its third annual "smoker" on October the first. The projects rendered during the past year were exhibited, and talks were given by

MINNEAPOLIS GAS LIGHT CO. BUILDING.
Brick furnished by Columbus Brick & Terra-Cotta Co.
Terra-Cotta by Winkle Terra-Cotta Co.



DETAIL BY A. H. VINAL, ARCHITECT.
Standard Terra-Cotta Co., Makers.

Mr. Barber, Mr. Carrère and Mr. Louis Metcalf, also by Professor Hamlin of Columbia College, and Lloyd Warren, chairman of the Committee on Education of the Society of Beaux Arts Architects.

Eli Benedict, architect, has taken an office in the new building at No. 1947 Broadway, New York City, and would like to receive manufacturers' catalogues and samples.

E. Brielmaier & Sons, architects, Milwaukee, Wis., have opened a branch office at 640 Broadway, New York City, and would be pleased to receive catalogues and samples of building materials.

Browne & Joy, engineers and architects, First National Bank Building, Birmingham, Ala., desire manufacturers' catalogues and samples.

Special attention should have been called to a feature of the tile roof of the house, Buena Park, Ill., George W. Maher, architect, shown in the inserted pages of our September number. The roof is the closed shingle pattern of the Celadon Company, and the feature referred to is the special hip roll, designed for shingle patterns carrying the line of each course unbroken around the angle of the hip, which gives a quiet, and highly artistic effect to the entire roof.

The Kendrick Promotion Company, Denver, Colo., are about to erect new plants for the manufacture of common and high-grade bricks, also cement and plaster. The land which this company owns, which is in close proximity to the city of Denver, contains millions of tons of clays which are particularly well adapted for the manufacture of the better grades of brick. This same land is also rich in cement material and lime rock in large quantities.

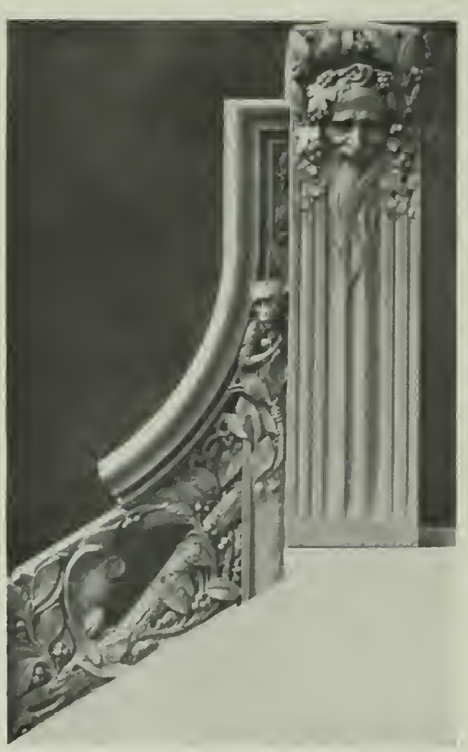
HARLEM CASINO, NEW YORK CITY.
Alfred Zucker, Architect.
Front brick made by Ohio Mining & Manufacturing Co., Pfotenhauer & Nesbit, New York Agents.

DETAIL BY CLINTON & RUSSELL, ARCHITECTS.
Atlantic Terra-Cotta Co., Makers.

In the fall of 1872 the Union Akron Cement Company, through its Chicago house, furnished 2,100 barrels of the Akron (Star Brand) Cement to the United States government, for putting in the lower part of the concrete foundation for the Chicago post office.

Nearly twenty-five years afterward, during the spring of 1897, the Chicago post office was taken down, to make room for a new and larger building.

In the May, 1897, issue of the *Cement and Engineering News*, the following in reference to the concrete foundation is found: "In the wrecking of the Chicago post office, the contractor encounters a mass of 14,000 cubic yards of concrete, underlying all foundations, walls



DETAIL BY HERTS & TALLANT, ARCHITECTS.
Perth Amboy Terra-Cotta Co., Makers.

and vaults, while a continuous mass or slab of concrete covers the entire area of the building from three feet six inches to four feet six inches thick. The space between the underside of the basement floor and the top of the concrete slab is filled in with Louisville cement; this yields easily to only slight efforts. The *concrete slab composed of a higher grade of cement is tough and refractory* and is giving the contractors much trouble, and is the cause of the delay in clearing the site, and involves a penalty of $100 per day to the contractors, running since April 1. The work of removal of this large body of concrete is being vigorously prosecuted by the aid of numerous steam drills and dynamite. Even this proves a slow and tedious process, and is an object lesson as to the respective qualities of a good and sometimes indifferent cement."

CHAPIN BUILDING, BUFFALO, N. Y.
E. H. Kent, Architect.
Terra-Cotta furnished by the New York Architectural Terra-Cotta Co.

The following is an extract from a letter received by them from the Chicago House Wrecking Company who had the contract for taking down the old post office building:

CHICAGO, ILL., December 3, 1897.

UNION AKRON CEMENT COMPANY, Buffalo, N. Y.

Gentlemen, — Answering yours of November 23, regarding foundation of the post office building, will say regarding its resistance to the drills and dynamite, that it was a very tough composition, and it was the worst thing we ever ran up against. We had to drill holes every eighteen inches, and we used five times the amount of dynamite figured upon. It was very slow work, without any satisfactory results. Yours truly,

CHICAGO HOUSE WRECKING COMPANY.

IRVING NATIONAL BANK BUILDING, NEW YORK CITY.
Built of light gray Roman brick, made by Kreischer Brick Mfg. Co.

The concrete slab mentioned herein, that was so *tough and refractory*, was made with the Akron (Star Brand) Cement.

THE BRICKBUILDER.

NOVEMBER,

1903.

CONVENT OF SAN MARCO, LEON, SPAIN.

THE BRICKBVILDER

VOL. 12 No. 11 DEVOTED · TO · THE · INTERESTS · OF ARCHITECTVRE · IN · MATERIALS · OF · CLAY NOVEMBER 1903

THE BRICKBUILDER.

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ADVERTISING.

Advertisers are classified and arranged in the following order: —

Advertisements will be printed on cover pages only.

LIBRARY COMPETITION.—JURY OF AWARD.

THE following named gentlemen have consented to judge THE BRICKBUILDER Library Competition:

ROBERT S. PEABODY (Peabody & Stearns), president Boston Society of Architects.

PROFESSOR D. DESPRADELLE, Professor of Architecture, Massachusetts Institute of Technology.

CHARLES A. COOLIDGE (Shepley, Rutan & Coolidge).

CLARENCE H. BLACKALL.

WILLIAM C. HALL, president of the Perth Amboy Terra-Cotta Company.

There was a large number of drawings submitted in the competition, and the work of judging them will necessarily be slow. We hope, however, to be able to announce the awards in THE BRICKBUILDER for December.

THE ARCHITECT'S NAME.

THE earliest appearance of an illustrated architectural journal in this country dates from about 1876. Up to about 1890 illustrations of architecture were restricted to purely technical papers and a very few magazines, but the improvement in process work and the development of the capabilities of the press made it possible for the daily papers to print with the news more illustrations of various sorts, though it was six or eight years later before the newspapers discovered the way to print half-tones. The architectural illustrations in the daily press were a natural outgrowth of the real-estate column, but every year now sees a larger proportion of the space in our leading daily papers given up to illustrations of actual or proposed architecture. The reporters are keenly on the alert to secure drawings for reproductions of every prominent building proposed or even thought of, and usually these drawings are obtained through the intermediary of the architect, being in many cases reproductions of the work which he has prepared for his clients. The character, both of the drawings themselves and the reproductions which have appeared in the daily press, has been steadily increasing with each year, and some of the finest examples of draughtsmanship and design have found their way into the news columns. The equitable rights of the architect in such reproductions have, however, been very generally misunderstood by the journalists. During the earlier years of such publication it was the exception to note a drawing with which was coupled the name of the architect; and while a reporter was usually quite willing to avail himself of the architect's efforts, to copy his drawings and to pump him for information, there seemed to be a feeling that if the architect's name appeared in print it was in the nature of a puff or a species of advertising to which the architect had no equitable right. This point of view is, we are happy to say, changing in many respects, and we believe it is coming to be the rule with the best daily papers to endeavor in each case to set forth the architect's name in connection with the building illustrated or described, not merely as a return of courtesies for the loan of drawings, but because it is an item of legitimate news in which many people are personally interested.

We feel that right in this line there is a possibility for a great work to be done by our draughtsmen's clubs. A newspaper would not omit an architect's name as a matter of spite any more than they would put it in as a matter of mere complimentary puff; but if our younger architectural societies were to take the matter up with their editorial friends and do a persistent amount of missionary work, to state the architect's position rightly, a great deal might be accomplished towards a more general recognition of the architect's right in the reproduction of his design, and anything which would so help the profession would tend to foster better architecture, and quite directly be a benefit to the community.

Brick Architecture in and about Chicago. II.

BY ROBERT C. SPENCER, JR.

THE best domestic architecture of Chicago during the last decade has been distinguished by its simplicity and severity. This severity, however, lies particularly in an absence of ornament and the use of simple, almost cheap materials. The wealthy citizens, as a rule, are loath to spend money here for the sort of palatial magnificence which is making of New York a transplanted and more gorgeous Paris.

The work of Pond & Pond exemplifies excellently the possibilities of simple brickwork thoughtfully handled, in which interest and effectiveness are gained by composition, sometimes formal, oftener picturesque.

HOUSE, 4575 OAKENWALD AVENUE.
Pond & Pond, Architects.

Of the formal types the colonial house on Asbury Avenue, Evanston, and the very clean-cut gabled house at 4575 Oakenwald Avenue are good examples. The latter is of dull purplish red bricks, delicately freckled with accidental headers and stretchers almost black. The entrance arch, flanked by quoined piers with a double opening above, is unhackneyed and effective. In the picturesque apartment house at 5515 Woodlawn Avenue the basement is of dull brown rock-faced bricks with dull tan-colored pressed bricks above, serving as the ground for a diaper pattern and band treatment in the dark bricks in the third story.

At 4854 Washington Avenue is another apartment building which, as a whole, is the best of the three. There is practically no ornamentation, except the frets on the pilasters flanking the entrance.

At Lake Forest University, Reid Hall is a very pretty example of clean, formally picturesque brickwork. The proportion of the gables, the contrast of wall surface and massed openings, the judicious use of dark brick for base and horizontal bands above the delicate stratification of sunken courses in the central gable with its delicately crowned bell tower, are all admirable.

The house at 5220 East End Avenue and the house at 5749 Woodlawn Avenue illustrate the difficulty of grafting the slight American porch upon a masonry house having a solid substantial English feeling.

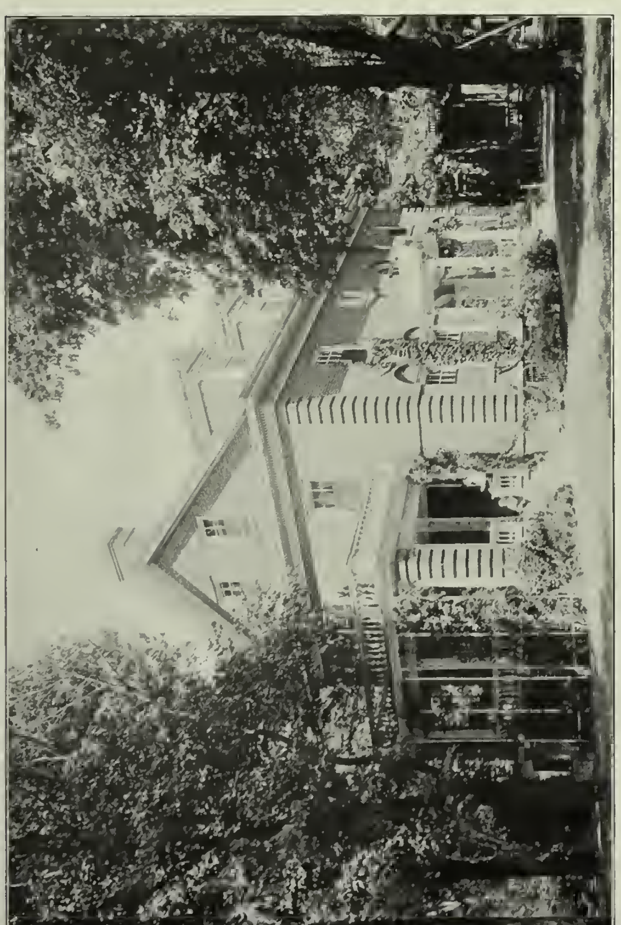
The more pleasing of the two is the Woodlawn Avenue house, in which the porch is replaced by a terrace which is screened and sheltered by an arbor.

The work of the Pond brothers in the field of brick buildings for social settlements is as individual as their domestic work and presents similar characteristics. It is so well known that it is not shown here.

Chicago, Milwaukee and St. Louis boast a great many brewery buildings, but they are distinguished for their bulk rather than for architectural merit.

In a very unpromising manufacturing neighborhood near the South Branch of the Chicago River is the plant of the Schoenhofen Brewing Company, to which has just been added a remarkably clean, dignified and clever example of brickwork from the office of Richard G. Schmidt. Although absolutely devoid of ornament in the common sense of the word, raised bands of the rough red paving bricks have been used in a masterly

ENTRANCE, AMERICAN MEDICAL JOURNAL BUILDING.
Holabird & Roche, Architects.



HOUSE, ASBURY AVENUE, EVANSTON.

ENTRANCE TO APARTMENT, 4854 WASHINGTON AVENUE.

REID HALL, LAKE FOREST UNIVERSITY.

APARTMENT, 5515 WOODLAWN AVENUE.

Work by Pond & Pond, Architects.

manner to give a highly architectural appearance of unity and finish to the whole, in spite of the irregular fenestration with which the designer had to contend on both street fronts, the principal one of which is here shown. The effectiveness of the tower and of the entire building is marred by the lofty and irreconcilable steel stack of the power house in the rear.

HOUSE OF CHARLES A. FROST, ARCHITECT.

If any serious fault may be found with so excellent a modern building it is in the rather too sharp contrast of the stone entrance with the brickwork. The smoke of the city will, however, remedy that in a few months.

The entrance detail is simple, original and strictly in harmony with the building; it is not a piece of borrowed bric-a-brac.

Out on the prairie northwest of the city a sanitarium for consumptives has recently been erected, — from the same office, — very interesting in composition, though severe in detail and almost without ornament. The central portion only is shown, the wings being at present uncompleted. Here the square masses of the central tower and flanking pavilion, with their airy bays and grouped fenestration against plain wall surfaces, combine to produce a most agreeable effect.

In the house at Burton Place and North State Street the same feeling for square blocky masses and grouped openings is seen, somewhat modified by the exigencies of planning and much more refined in detail. Here a gray Roman pressed brick has been used, with bands and stylobate of Bedford stone, which about the doorway is richly carved with an original and beautiful "Sullivanesque" design.

A very successful three-story house, in which the third story is given an attic treatment without foolish sacrifice of livable height, is the one designed by Howard Shaw at 49th Street and Woodlawn Avenue. Here an almost bald squareness is relieved on one façade by the rather forced arcade treatment between bays, and on the Woodlawn Avenue end by the bowed cornice across the chimney.

The delicate bits of carved detail are effectively placed, redeeming a certain rudeness in the rough red bricks.

The entrance is very prettily managed with its splayed flat stone lintel serving as a hood. It is interesting to note here how well Mr. Shaw has managed the iron balcony without noticeably disturbing his cornice scheme.

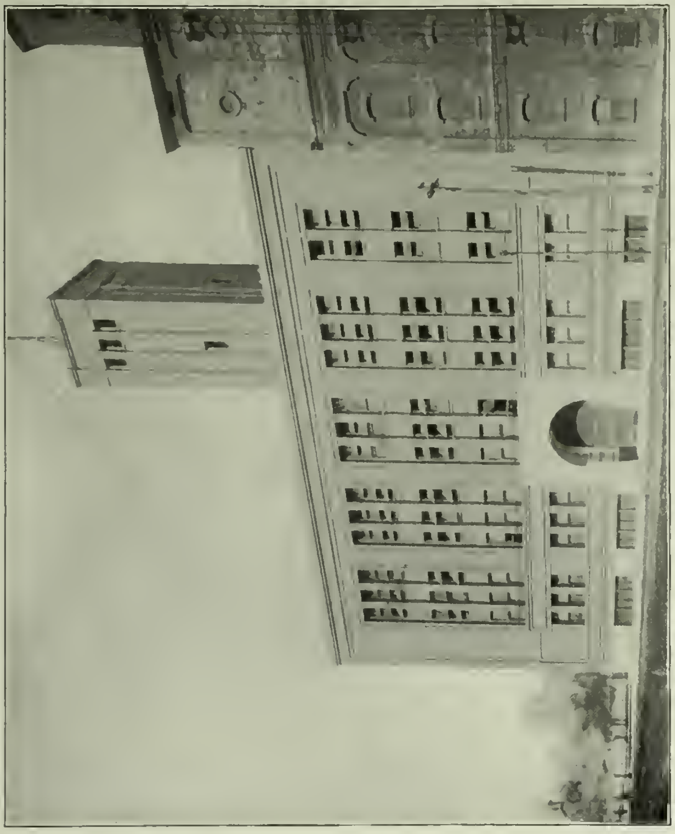
The house at 5733 Lexington Avenue is equally good, although less original. An interesting feature is the use of comparatively light red headers with darker stretchers in Flemish bond. As for ornament it is abundantly supplied by a luxuriant growth of "Boston ivy," broad in scale and most refined, crisp and delicate in detail.

The house at 2106 Calumet Avenue is less successful than the two former, but shows the same restrained and refined use of detail, against a foil of plain red brick, and is also another illustration of the great restraint which is shown by many wealthy Chicagoans when it comes to spending money for domestic architecture in their own city.

In Evanston, the unannexable and aristocratic north shore suburb of Chicago, Myron Hunt has done several notably good brick buildings; of these the most interesting and picturesque is the double house on Ridge Avenue. The balcony front of brick on a heavy timber lintel supported by solid timber braces is its happiest feature. Here, certainly, is a good house without architectural ornament, serving all the better as a foil for the drooping sprays from the flower boxes behind the balcony rail.

HOUSE OF ALFRED H. GRANGER, ARCHITECT.

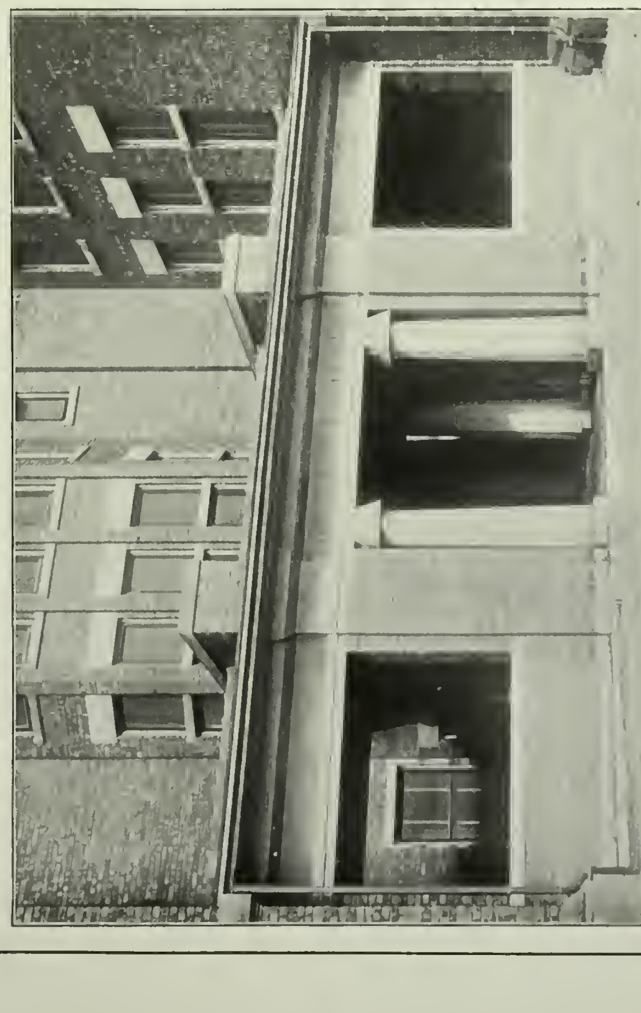
The apartment house on Chicago Avenue has a decidedly domestic air, as do the flat buildings on Orring-



SCHOENHOFEN BREWERY.

HOUSE, BURTON PLACE.

ST. ANNE'S SANITARIUM.



ENTRANCE, ST. ANNE'S SANITARIUM.

Work of Richard E. Schmidt, Architect.

ton Avenue and on Clark Street. Each is an agreeable departure from the stereotyped work of this class, so common nowadays in all large cities. Fortunately the citizens of Evanston have taken a firm stand against the invasion of cheaply built speculators' "flats," and the local building ordinances applying to buildings of this class are so rigid as to almost prohibit such structures.

The power house of the Yaryan Company is built of a dull buff brick, laid in an effective cross bond with well-proportioned openings and a good denticulated cove cornice.

It is always interesting to see what manner of house an architect builds for himself. The neighboring houses of Mr. Frost and of Mr. Granger at Lake Forest, the one formally informal, the other romantic and more picturesque, are greatly enhanced in effect by their beautiful setting.

Across the way from the University of Chicago campus on Lexington Avenue in a row of exceptionally good houses, occupied mostly by members of the faculty, are two designed by Hugh M. G. Garden. The one at the corner of 58th Street, opposite the Quadrangle Club, is one of the best examples of colonial adaptation to an unusual plan in Chicago.

HOUSE, FIFTY-EIGHTH STREET AND LEXINGTON AVENUE.
Hugh M. G. Garden, Architect.

The pressed bricks of soft light red, laid with fine joints in white mortar, give a wall of a most agreeable tone. The details have been chosen from the best examples of old work and used with an unusual delicacy and restraint. It may be of interest to remark that this is Mr. Garden's first and last work in this style. There is an argument or, at least, a "preachment" to be drawn from this fact, which it is doubtless wise to suppress. It might lead to a discussion of the old question of "progress before precedent," that one time alluringly alliterative slogan of the Architectural League of America. But to return to Lexington Avenue. The Herrick house, 5727 Lexington Avenue, is another one of those good plain houses which are satisfactory without external ornament, if less interesting and less inviting of close inspection than some others not one hundred miles from New York City.

HOUSE, KENWOOD, ILL.
Dwight H. Perkins, Architect.

HOUSE, 5727 LEXINGTON AVENUE.
Hugh M. G. Garden, Architect.

We are certainly learning restraint here, and I believe we rather like it. There is, after all, a very keen satisfaction in getting a pleasing and interesting building without a lot of features and "frills" that cost the owner good hard money, and which in a few years may go out of fashion.

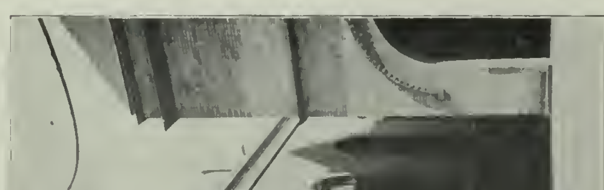
HOUSE, FORTY-NINTH STREET AND WOODLAWN AVENUE.

HOUSE, 2106 CALUMET AVENUE.

ENTRANCE, HOUSE FORTY-NINTH STREET AND WOODLAWN AVENUE.

HOUSE, 5733 LEXINGTON AVENUE.

Work of Howard Shaw, Architect.



POWER HOUSE AT EVANSTON.

HOUSE, RIDGE AVENUE, EVANSTON.

APARTMENT, ORRINGTON AVENUE, EVANSTON.

APARTMENT, CHICAGO AVENUE, EVANSTON.

Work of Myron Hunt, Architect.

Recent School Building in St. Louis. II.

WILLIAM B. ITTNER, Architect.

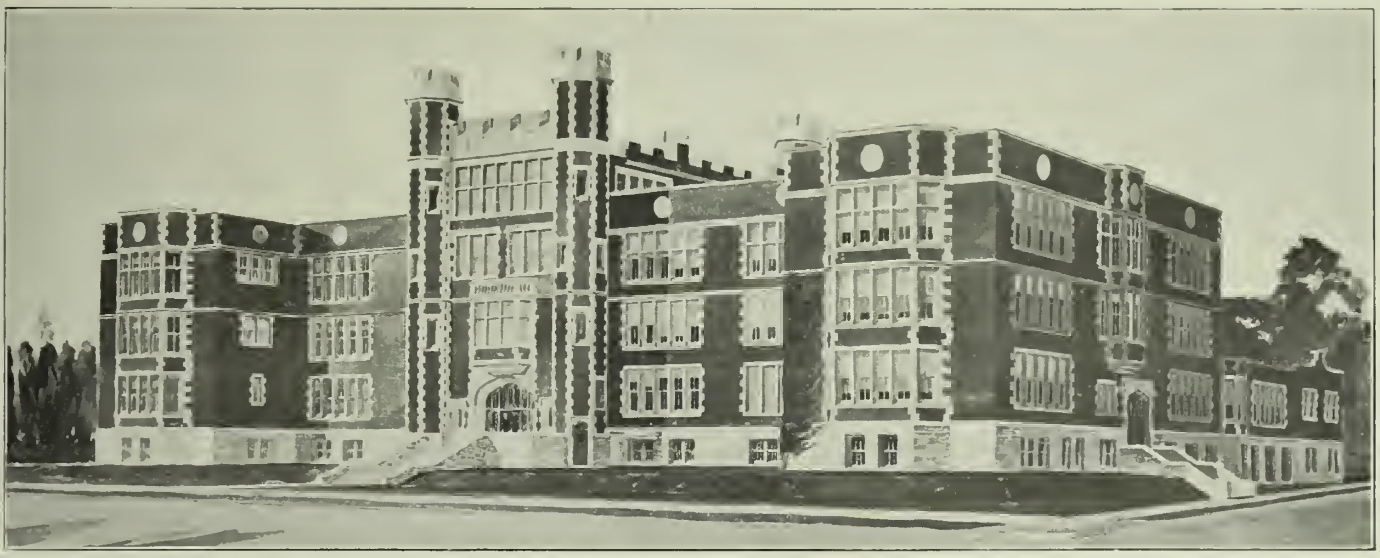
BY S. L SHERER.

MANUAL TRAINING HIGH SCHOOLS.

THE idea of manual training, like that of the kindergarten, had its first trial in St. Louis, although introduced by Professor Woodward in Washington University in 1879, and not in the public schools. Now that it has passed the experimental stage in the schools, the Board of Education has deemed it advisable to add it to the curriculum of the new high schools, and thus supplement the work of the brain by the work of the hand.

The first of the schools in which this idea has dominated the plan is the William McKinley High School, and the plan well illustrates that expansion of the educational idea which is one of the marked tendencies of our time.

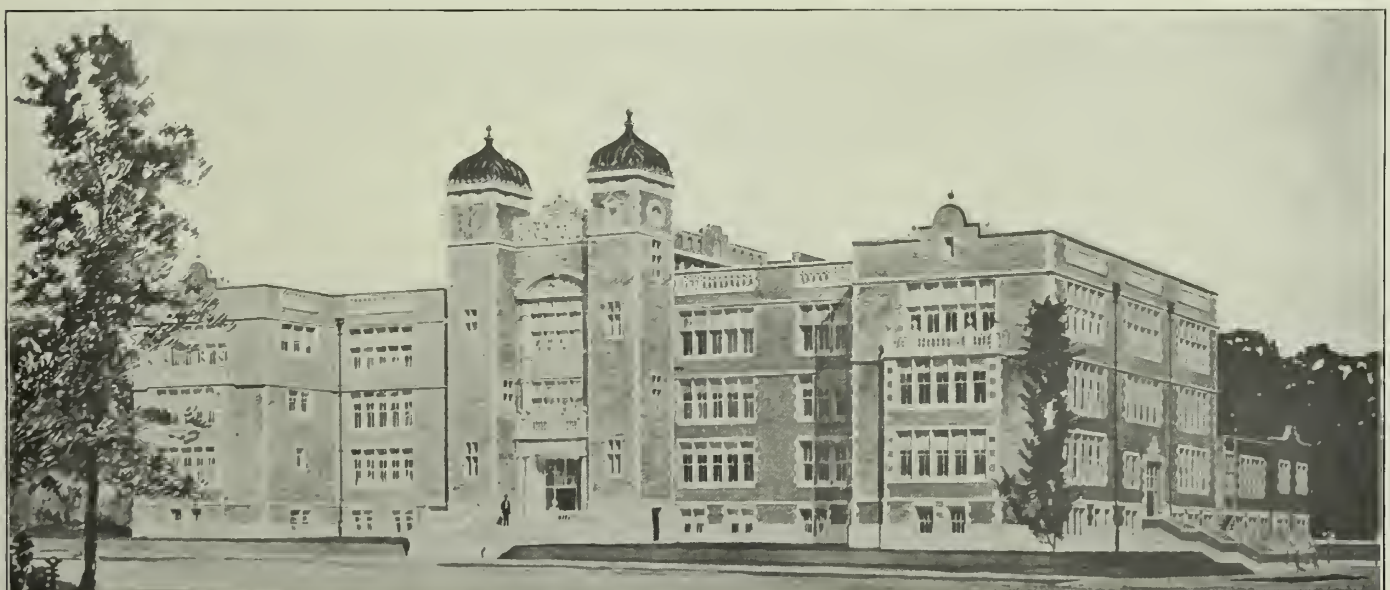
It shows a building almost square on plan (255 by 253 feet), and of a much more complex nature than the schools considered in article I. An imposing central entrance, flanked by octagonal towers, is supplemented by side entrances leading to the main corridor, twenty feet in width, from which give auxiliary corridors eight feet wide.



WILLIAM McKINLEY HIGH SCHOOL.

On the first floor there is a classroom for forty pupils, a reception room and principal's office; three laboratories devoted to the study of Chemistry, Physics and Biology, equipped for classes of twenty-four pupils, each laboratory having a lecture room for forty-eight pupils, a teacher's laboratory, a storeroom for apparatus, and a dark room for photography.

There are two woodworking shops 32 by 70 feet in size, one for carpentry, the other for wood turning and pattern work, each equipped for twenty-four pupils and each having a wash, locker and tool room, as well as a storage and stock room.



JAMES E. YEATMAN HIGH SCHOOL.

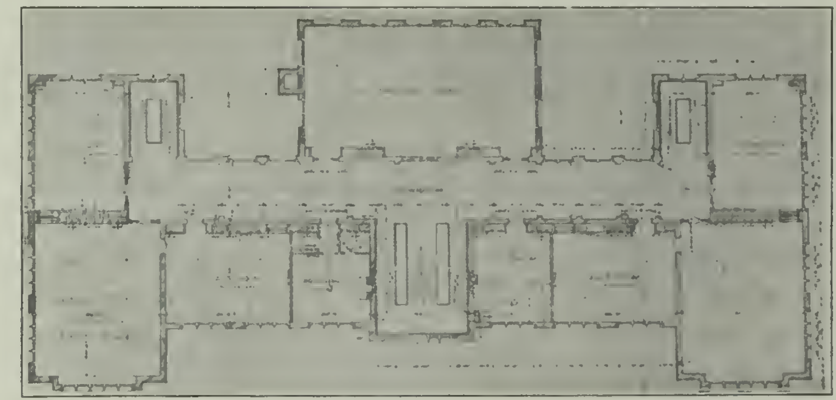
To provide for the manual training of girls, two rooms are devoted to Domestic Science, with a small model dining room adjoining, and one room for Sewing, each with its storeroom.

The auditorium is entered from the main corridor on the first floor and has a seating capacity of 736; the gallery is entered from the main corridor of the second floor and seats 216 pupils. It has a large stage and two dressing rooms, while coat rooms are provided near the entrance to the auditorium, which is arranged and equipped so it may be used for evening lectures.

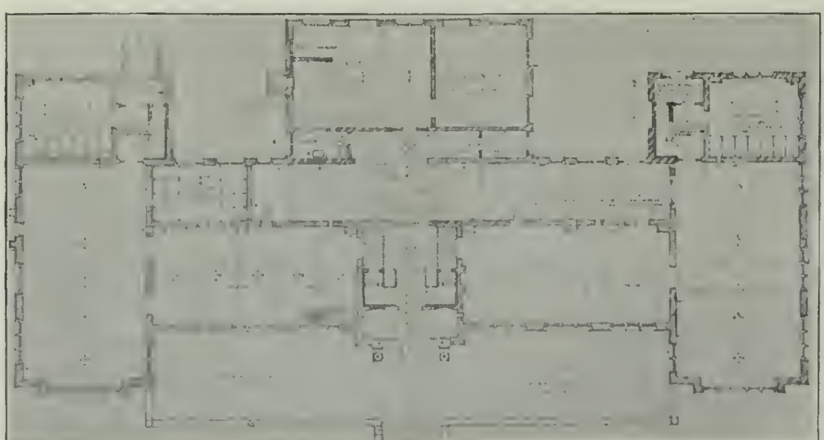
SECOND FLOOR PLAN.

The second floor has four 23 by 32 foot classrooms equipped for twenty-four pupils, four 28 by 32 foot rooms for forty-eight pupils, and two 32 by 41 foot rooms for seventy-two pupils. There is also a large room to be used as a library of reference.

The third floor has four classrooms equipped for sixty-four pupils and two rooms for ninety-eight pupils; also a 23 by 64 foot room for freehand drawing; a business room with necessary banking rooms, offices, etc., each equipped for forty-eight pupils; a large room for stenography and typewriting for twenty-four pupils; also a room for photography with dark room adjoining.



FIRST FLOOR PLAN.



GROUND FLOOR PLAN.

PLANS, NORMAL HIGH SCHOOL.

The classrooms were planned to enable the teacher to supervise the class at study, as well as to hear a class at recitation, provision being made for recitation chairs in addition to fixed seats, — an arrangement that obviates large study halls used for recitation only.

Where the central tower is carried above the third floor it provides space for a mechanical drawing room 72 by 32 feet in size, equipped for sections of forty-eight pupils, with two storage rooms and a room for blue printing.

In the basement, adjoining the entrance vestibules, are located the general locker rooms for each sex; small locker rooms being also provided on each floor in order not to concentrate lockers in one location. Retiring rooms adjoin the general locker rooms.

The boiler and coal rooms are located outside of the main building; the heating and ventilating apparatus and the electrical equipment for supplying power to shops have been installed under the auditorium, where an amphitheater seating forty-eight pupils is also located, in order that the dynamos and engines may serve for illustration and study by classes.

The blacksmithing and machine shops, each 40 by 84 feet in size and equipped for sections of twenty-four pupils, are located in the courts, lighted by skylights, and entered from main corridor through vestibules, thus preventing noise penetrating the building. Each shop has a storage, tool, locker and wash room.

There is a gymnasium 41 by 85 feet in size, with locker and shower baths for each sex; also a lunch room of the same dimensions, with kitchen adjoining.

The entrance for janitors, engineers, etc., is placed at rear of basement, and the head janitor's room commands a view of all entrances to the main corridor.

From the foregoing description, and by reference to the floor plans illustrated, which show more clearly the position of the rooms in their relation to the general scheme, it will be seen that Mr. Ittner has devised an ingenious plan that evinces much study, and one that promises to answer the multifarious requirements of a problem comparatively new in school architecture.

The constructional features follow the same general lines outlined in article I, except that the interior bearing walls are of brick in lieu of steel columns enclosed with hollow tile.

The brickwork is light red in color, laid with wide and deep horizontal joints, in courses composed of three stretchers and a header, the latter being flashed.

The cost of the building, exclusive of heating, ventilation and plumbing, will be $352,475, or $380,000 ready to receive equipment and furniture; the cost per cubic foot sixteen and nine-elevenths cents, while the cost per square foot of floor area will be $2.95, a sum considerably less than the cost of the old high school, not of fireproof construction, — a fact that demonstrates the efficient manner in which the new work has been administered.

The high school named in honor of James E. Yeatman is located in the northern part of the city, and will do for that section what the McKinley School will do for the southern district. It follows the same general plan developed in the latter school, and the differences that exist are of degree rather than of kind. The plan being practically the same, it naturally follows that the exterior design should reflect the same general treatment that characterized the design of the McKinley School, although the impression conveyed is that of a Jacobean rather than a Tudor design. The octagonal towers of the earlier building are replaced by square towers in the Yeatman, one of them being used as a clock tower. The design of the main entrance shows a mingling of English Renaissance detail, while the limiting of the end bays to two stories, the piercing of the parapet wall and other variations serve to distinguish the building from its prototype.

The brickwork is light red in color, laid in English garden wall bond, with wide joints of white mortar.

On the whole, the building exhibits the same well-considered plan and well-controlled design that distinguish the McKinley School.

In passing, it may be of interest to mention that in the naming of the new schools, civic pride has prompted the Board to perpetuate the names of eminent citizens of St. Louis, as well as associating some of the schools with names famous in education, literature and statecraft.

The cost of the building will be $307,766, exclusive of equipment, heating, ventilation, plumbing and wiring.

In the new Normal High School a somewhat different problem is presented in that it is to be devoted exclusively to the training of teachers. It will provide accommodation for two hundred and fifty young women who will receive a training that will fit them for service in the public schools of St. Louis. The building will be located immediately north of the Edward Wyman School and connected with same by a pergola, permitting communication between the two buildings and thus utilizing the Wyman School as an object lesson in practical teaching.

The plans illustrated show that the ground floor will contain, in addition to boiler, coal and toilet rooms, a gymnasium, a lunch room with serving room adjoining, a large locker room and a large morning room with fireplace.

The first floor will contain two large laboratories, an assembly room, four classrooms and the principal's office.

The second floor will have a library, drawing room, five classrooms and a lecture room or critique, with seats arranged on three sides and graduated in height.

It will thus be seen that an unusual opportunity has fallen to Mr. Ittner to design a school building whose function is wholly unlike the buildings heretofore considered.

The general architectural design harmonizes with, and conforms in a measure to, the adjoining school and the brickwork will partake of the same general character. There is here, as in the other buildings, an entire absence of any straining for effect not justified by the function expressed in the plan. Certainly the aspect of these school buildings leaves no doubt as to their purpose.

NORMAL HIGH SCHOOL.

That the schools illustrated in these articles show a marked advance upon previous school work in St. Louis, and that they will bear favorable comparison in design, construction and cost with the best school work thus far developed in the United States, is probably beyond contention. That they will demonstrate the wisdom of building schools of fireproof construction, thus insuring a feeling of security to parent, pupil and teacher, as well as reduced cost of maintenance; and that the expenditure for architectural fitness and the attainment of a beautiful environment is money well spent, and will bear good fruit in imparting higher ideals to the pupil, will be finally conceded by the people at large, as well as by those who contend that our educational institutions should reflect the best thought of the age in design, construction and equipment, thus fulfilling their true function as part of our educational system.

The Business Side of an Architect's Office. VI.

BY D. EVERETT WAID.

ARCHITECTS' FEES.

THE subject of architects' fees, treated in article V of this series, was greeted with an interest which led the editors of THE BRICKBUILDER and the writer to submit the following questions to a large number of the leading men of the profession throughout the country:

1. Will you kindly state what your charges are for professional services (or send a copy of your printed schedule)?

2. Do you find difficulty in charging more than five per cent for residence work or work costing less than $10,000?

3. What, in your opinion, is the proper charge for factory work, mercantile and office buildings?

4. Do you think it is common practice for architects to accept less than five per cent for office buildings or for work in general of large cost?

5. Do you find that clients decline to pay traveling expenses and fees for experts?

6. Observations as to the practice of submitting drawings without compensation in the hope of securing work;

7. On entering competitions without compensation;

8. On entering competitions in which prizes are offered;

9. On the desirability of charging clients, in addition to the regular fee, five per cent on sanitary, heating and electric work to cover expert service as recommended by the American Institute of Architects.

It is proposed here to present to the reader some of the answers received to these questions, in some instances individual replies and in others generalizations deduced from many replies.

Question One: The printed schedules which came in response to this question are essentially similar to those given in THE BRICKBUILDER for February, 1903. Several architects replied that they use the Institute schedule. It is a fact not only that the Institute schedule itself is used by very many members of the profession, but that this selfsame scale is a bulwark to the profession in general in the matter of fees.

It is therefore highly important that that official pronouncement be most carefully revised if it does not now represent the sense of the profession and does not inform the public clearly as to the main ethical points and fair charges which should obtain in the practice of architecture.

Question Two: Here are some of the answers:

"No."

"Except in special cases we refuse all work costing under $10,000."

"Some difficulty in collecting."

"Yes, but people are gradually becoming educated to it."

"If we charge more than five per cent, somebody else does the work."

"If I do the work the price is paid, but very, very often the work goes to those who charge but half."

"We do not find any special difficulty in getting seven and a half per cent on residence work and ten per cent for alterations."

"We have found by experience that we cannot do residence work at five per cent without an actual loss, and we prefer to eliminate such work entirely from our practice rather than to lower our rate below seven and a half per cent."

Some architects, like C. F. Schweinfurth and George W. Maher, invariably charge seven or seven and a half per cent for work costing less than $10,000. The profession is quite a unit in declaring that five per cent is inadequate to give proper service on residence work. Yet there is no doubt that the majority of architects, having small offices and doing perhaps most of the work with their own hands, charge five per cent. And while they do, larger firms take such commissions at the same rate at an actual loss even, as leaders to larger work which they might otherwise lose.

Question Three: The majority of replies say five per cent even for factories. Two firms say three and a half per cent for factories, others charge four per cent. The writer, not doubting that many factories of which he has no information were designed for three and a half per cent and even less, has been surprised to find that very many expensive plants going up to-day have been designed by architects who actually received five per cent for their work; and there is evidence that the owners consider the fee a good investment.

A prominent firm in Chicago writes: "Our charge for this class of work, including supervision, has been five per cent. In one case, which was a very plain factory building, merely a shell, we received four per cent. We feel that if a uniform charge of four per cent on office buildings over $500,000 is generally asked, the remuneration would be sufficient." Two other architects intimate that a slight reduction might be made from the five per cent rate on office buildings costing more than a million each.

With the exceptions stated, the weight of testimony is strongly in favor of five per cent as the proper charge on factory, mercantile and office buildings, and particularly is it true of those best known as the architects of large works. The profession will be interested in knowing that D. H. Burnham & Co. never charge less than five per cent for any class of work under any circumstances. We have the highest authority for making that as an absolute statement. A very similar assertion may be made regarding the practice of Holabird & Roche of Chicago, and Cass Gilbert of New York.

A member of the firm of Clinton & Russell gave the writer permission to quote him in this article: "Point to the Institute schedule and say that we never deviate from it. We get five per cent for all our office building work, except that which we do for the realty companies who build for themselves. The corporation of which the Fuller Construction Company is a part, for example, pays us three and one-half per cent on their buildings and do their own superintending."

George B. Post states that in the past twenty-five years he has not done even the largest work for less than five per cent. He, with Clinton & Russell, aver in the most emphatic way that architects cannot afford to do their work, if they do it thoroughly as it should be done, for less than five per cent. This seems incredible to young architects who have counted themselves prosperous out of the fees on five thousand dollar houses. It is incredible because they do not realize that as soon as work becomes too large to be done all with one's own hands he must carry an expensive office and office force. Mr. Post's business has been of the most lucrative kind, including, as it has, but a comparatively small amount of residence work. His office is carefully conducted on a business basis, with no extravagant salaries, and yet his expenditures, as shown by exact systematic records extending over a long series of years (the exact figures Mr. Post showed to the writer), have been enormous and amounted to two and one-half per cent; that is to say, his actual cash expense, not counting any allowance for his own time, was one-half the fees. For a series of three years at one period when prices of building materials were low, although Mr. Post had a large amount of work on hand, his actual office cost was three and one-half per cent. Mr. Post calls attention to one fact which will surprise less experienced architects, and that is that the cheaper and simpler class of office buildings cost the architect more in proportion than more expensive and elaborate buildings. It need hardly be said to architects that all this presupposes that we are referring to work thoroughly and properly designed and detailed and effectively supervised. A two per cent architect perhaps makes as much money in his own way as a five per cent man, but he, as plenty of illustrations prove, produces obviously two per cent buildings. If any of our readers will put away the temptation to win his first important piece of work by cutting his price with the hope thereby of establishing his reputation (and many a well-known architect must admit that he did that very thing), and if we can help in the struggle of architects to place competition among themselves on a basis above price, we will have done something toward attaining recognition of the architect as a professional man with the high standing which he deserves. Let every architect fight for the regular schedule as a minimum corresponding to the physicians' "stated charge per visit," and look forward to the time when the prestige of his executed work will permit him to increase his rates, as does the famous surgeon doing a $5,000 operation.

Question Four: Some answered, "No." Two or three said, "Unfortunately, yes." Others more guarded, "We have reason to believe that such is sometimes the case;" and another, "No, the cutting of rates is more general in the cheaper class of work."

Eames & Young, St. Louis, write: "Yes, quite common for them to accept almost any kind of offer."

Clinton & Russell say: "We have had prospective clients tell us that Mr. So-and-so offers to do this work for two and one-half per cent. We reply that if it is a matter of price, we must lose the commission. An architect cannot afford to take work for less than five per cent if he does it thoroughly, as it should be done."

Another well-known New York architect writes: "I believe some architects do accept less than five per cent for buildings of simple design and construction and of great cost, such as large loft buildings, plain office buildings, etc.; but if proper attention be given, I do not understand how they could do it for a smaller amount; I myself have never done so."

Question Five: The general response to this query indicates that the payment of traveling expenses in addition to the regular fee is a well-recognized custom. One firm writes: "Where our work is out of town, we generally have it understood and agreed in the beginning that the client pay all traveling expenses, and we have always found where this matter is discussed in the beginning, there is no trouble." The subject of traveling expenses, however, has quite another phase to those architects who take work, not exactly "out of town," but in other cities where they have to come into competition with local men. This, of course, does not refer to those practitioners who, by reason of conspicuous ability and reputation, are independent in the matter of fees. In this connection Patton & Miller of Chicago write of a problem which interests almost all architects at times: "We offset the cost of traveling expenses to a certain extent by insisting upon the employment of a clerk of the works, or local superintendent, to be paid for in addition to our regular fees. We do not notice this among your questions, but it seems to us an important point as to what extent architects procure the services of a clerk of the works at the expense of the owner. We might say that our work at a distance from Chicago is superintended in one of two methods: the first, by the employment of a firm of local architects, who take entire charge of the superintendence, and we divide our commissions with them. In some cases we secure an addition to the five per cent commission. Where we do not have local architects take charge of the superintendence, we insist upon the employment of a clerk of the works. In such a case we limit the number of visits to one a month, or in small work to, say, two or three trips of inspection during the progress of the work. By reducing the number of trips for small work, we keep down the cost of traveling expenses, and we have found it much easier to persuade building committees to employ a local superintendent, outside of our fees, than it is to pay us traveling expenses."

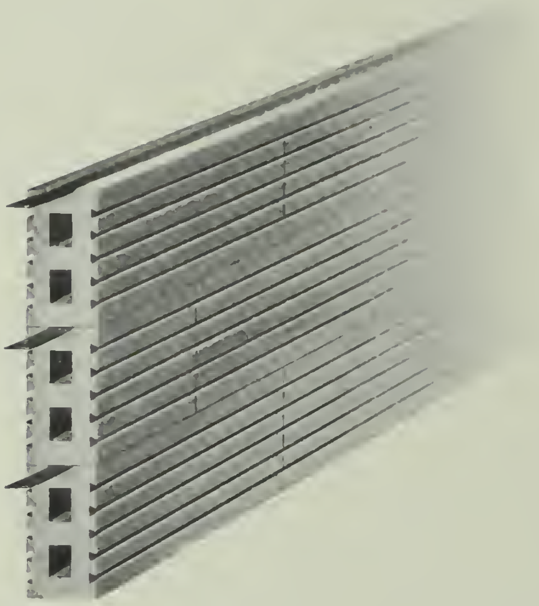
In another article I shall touch upon the remaining questions submitted and the replies received to same.

THE design submitted by Architects Pond & Pond for the new Federal building for the occupancy of the post office at Kankakee, Ill., has been accepted by the Treasury Department and as soon as the details are completed, work on the building will proceed. The selection of a design for this building is a matter of considerable interest, inasmuch as it is the first that has been made under the recent ruling of the Treasury Department under what is well known as the Tarnsey Act providing for competition among leading architects for public buildings. Heretofore the Tarnsey Act as interpreted by the Treasury Department has been made to apply only to the larger cities of the country in which buildings of considerable cost were to be erected. Under the recent ruling, however, of the Department the buildings in the smaller cities now come within the provision of that act, affording a generous opportunity for people who wish to compete for work of this class.

Fireproofing.

A NEW WALL CONSTRUCTION.

WE have had frequent occasion in these columns to call attention to the tentative use which has been made of hollow terra-cotta tile in the construction of walls. Material of this description possesses so many and such obvious advantages that only lack of familiarity stands in the way of its very extended employment for all classes of buildings in which lightness, dryness, protection against change of temperature, and low cost are to be desired. It has so far been used only in a very few



PHŒNIX HOLLOW TILE WALL CONSTRUCTION.
(Patented by Henry Maurer & Son.)

cases in such a manner as to show its highest artistic possibilities: but as architects become more familiar with it, it is sure to develop a perfectly rational, æsthetic treatment which can be thoroughly in accord with its structural possibilities. As at present used it has been confined mostly to storehouses, train sheds, stations, tank houses, and mills, though we have noted in another issue a few cases where it was used with great success in small isolated structures. Under the name of the Phœnix Hollow Tile Wall Construction the use of this material has been reduced to a system which has proven extremely satisfactory.

The American Smelting and Refining Company last year erected in Perth Amboy a tank house 350 feet long by 200 feet wide and 24 feet 6 inches high, in which the walls were constructed with a framework of twelve-inch vertical I beams spaced sixteen inches on centers, the enclosed wall being laid up with hard burned terra-cotta hollow blocks four inches thick and eight by twelve inches. On every second course of blocks and fitted in grooves thereon strips of band iron one by one-eighth inch were laid in Portland cement and riveted to the I beams with one by five-sixteenths inch rivets, thereby securing great tensile strength to the wall. The engineer in charge considered such construction as fully meeting all requirements and as being equivalent in strength to a solid twelve-inch wall, while the saving in cost over the solid brick was fully one-third, and the difference in weight under brick was 1,700,000 pounds. Besides this, the construction was much more rapidly erected than brick and was drier and warmer.

The Barber Asphalt Paving Company also adopted the Phœnix system for the walls of their different buildings at Perth Amboy; besides which several other buildings are in process of construction, one now being erected with walls 255 feet long. In all of these the terra-cotta blocks were four inches thick. Where heavier walls are desired the thickness of blocks would of course be correspondingly increased.

This construction not only saves in cost of the wall itself, but it also makes possible a very material reduction in the cost of foundations, as bearing is required only under the upright I beams and a very slight footing course under the intervening space.

The comparative cost and weight of a wall of common brick and one of Phœnix hollow tile is as follows:

Brick Wall, per 1000.

1000 brick		$7.25
1 barrel Portland cement		2.50
1 barrel lime		1.25
1 cubic yard sand		1 25
Labor: A mason will lay in 8 hours at 65 cents, 1200 bricks	$5.20	
Helper, 8 hours at 37½c	3.00	
Total for 1200 bricks	$8.20	
Or, labor per 1000		6.33
Cost of brick per 1000, laid		$18.58

Counting 190 brick to the square yard makes the cost per square yard of brick wall 12 inches thick, $3.55.

Phœnix Wall Construction.

Steel work, including one 6-inch upright I beam every 15 feet, or for each 25 square yards of wall, 8 84 lbs. per yard, at $2.65 per 100 lbs.		$ .24
Band iron, 1-16 inch x 1 inch, 350 lineal feet for each 25 square yards, or 1¼ lbs. per yard, at $3.20 per 100		.04
Portland cement, for every 150 square feet, 1 barrel	$2 50	
Sand, ½ cubic yard	.63	
Per 150 square feet	$3.13	

NEW WORKS, BARBER ASPHALT PAVING COMPANY.

Per square yard	.19
Phœnix blocks, 9 per square yard, at 12 cents	1.08
Labor: A mason and helper will in one day lay 150 square feet of these blocks at a cost of $8.20 for 150 square feet, or per yard	.50
Cost per square yard of Phœnix wall	$2.05

Scaffolding is omitted in both the above estimates, the cost being about equal.

Compared by weight, a brick wall containing 190 bricks per square yard at 4 lbs. each weighs 760 lbs.; whereas 13½ Phœnix blocks occupying the same space at 16 lbs. each weigh only 216 lbs. Applying these to a wall 200 feet long, if built of brick, and 12 inches thick, it would weigh about 252,000 lbs., as against 75,479 lbs. if constructed of Phœnix blocks and steel.

SHORTLY after the Boston fire of 1872, Capt. John S. Damrell, who had been the Chief of the Fire Department, was appointed to the office of Building Commissioner, having charge of the department for the supervision of buildings throughout the city. Captain Damrell's resignation from this office was accepted by the mayor last spring. While he has been at the head of the Building Department the country has passed through the greatest building epoch it has ever seen. During the decade just completed the system of steel skeleton construction has been introduced into the city and brought to its present development. In 1872 a six-story structure was exceptional. To-day nothing but the restrictions of the law prevent us from going to fifty stories. During this time the city has nearly trebled in population and the whole business portion has been entirely rebuilt. It speaks well for Captain Damrell's ability and his personal integrity that the affairs of his office were from first to last conducted in such an admirable manner; and we know of no city in the country in which there has been so long a tenure of office for so important a position. The Commissioner who has just been appointed to succeed him is Mr. James Mulcahy, an architect of acknowledged standing and large experience in Boston. The office is one which rightly ought to be filled by an architect, and it is certainly a matter of congratulation to the city that an architect can be willing to forego his private practice and take upon himself the thankless tasks which are involved in the routine work of the department. Building commissioners are usually selected from the ranks of builders, but any argument which would apply in favor of such choice would apply even more strongly to the selection of an architect who would be able to appreciate so much more thoroughly the æsthetic considerations which very often largely control the practical constructional methods, and Mr. Mulcahy has an opportunity before him to not merely administer the laws in their true meaning and intent, but to also materially help in the development of good construction and better architecture. Usually the building commissioners and the architects are inclined to regard each other as natural enemies, to be circumvented by all possible legal methods, but with the inspectors and the architects working in harmony, applying a broad, common-sense interpretation to the necessarily obscure requirements of a complicated law, the results cannot fail to be interesting and valuable to all concerned.

There is one respect in which the existing laws respecting fireproofing in Boston are far from satisfactory, in that they demand at once too much and too little. According to the letter of the statute all structural steel of every sort must be protected against the action of heat. This clause is so sweeping and its application at times so obviously absurd that we recall one instance in which a coat of fireproof paint applied to the members of a truss over a shed was accepted as compliance with the law. There was absolutely no necessity for any fireproofing whatever in this particular case, and there arise many instances in daily practice where a beam or column might be entirely melted away without affecting in the slightest degree the stability of the structure. In such cases fireproofing constitutes an unnecessary tax which is better dispensed with. On the other hand, we will venture to say that three-quarters of the so-called fireproof construction with materials other than burned clay or terra-cotta has very little practical value, and if fireproofing is to be done at all it ought to be more efficient. It is not in practice at all difficult to strike a reasonable average in this matter. The difficulty is in so framing and applying a law that shall neither allow a loophole for carelessness nor rascality nor be an undue tax increasing unnecessarily the expense of good building. Our laws should encourage reasonable economy in construction quite as much as they should discourage bad building; and in the endeavor to make our laws comprehensive we have in some cases, and especially in some portions of the Boston Building Law, carried fireproofing to an extreme. It is now proposed to appoint a commission to revise the statutes having these points especially in view.

FIREPROOF STAIRWAYS.

HOWEVER much question there may be as to the equitable manner in which New York building inspectors are permitted to exercise their discretion, the building law of that city is in many respects the best in the country, and it goes into scientific details to an extent that no other municipal ordinance has followed. The changes which from time to time have been made have been on the whole judicious ones and in accordance with scientific knowledge, and if the laws are not rightly enforced or do not always produce the best results, the trouble is seldom with the wording of the statutes. One of the latest changes is in regard to stairways in fireproof buildings. Heretofore, a construction including iron stringers, cast iron risers and slate or marble treads was considered sufficient; but it was found by fatal experience that the combined action of sudden heat and water would so shatter either marble or slate that a platform or tread might be totally inadequate to bear the weight of a single individual. The law consequently now provides that where slate or stone is used, such material shall rest upon a solid tread of wrought or cast iron. Unfortunately compositions of concrete, which in our judgment are quite as liable to disintegrate as either marble or slate, are still allowed to pass the law. Undoubtedly the most perfect construction which could be devised for this purpose would be hollow terra-cotta blocks, which have been made to form the riser, tread and soffit of each step in a single piece, and which can be built up in place in same manner as some of the older constructions in stone so as to be self-supporting and not requiring the use of steel.

Selected Miscellany.

EXTERIOR PLASTERING ON IRON LATHING.

We have recently been shown a slab of cement plastering with sheet-iron lathing attached which was removed from the exterior walls of a house built not over five years ago. The iron lathing had suffered so much destruction from rust that it had caused cracks and leaks in the plastering, so that the entire exterior of house had to be removed and replaced by wooden finish; this and repairs of interior of house, necessitated by leaky walls, entailed a very considerable expense.

If the construction of walls and roofs, including the needed flashings, is in any way defective, water will of course find its way to the back of lathing and plastering:

DETAIL BY BEEZER BROTHERS, ARCHITECTS.
Northwestern Terra-Cotta Co., Makers.

but even if walls and roofs are water-tight, a certain amount of moisture is certain to be condensed between plaster and wooden sheathing of outside walls. Iron lathing not protected by cement, waterproof coating or galvanizing and subjected to even a slight amount of moisture must speedily perish, with disastrous effect to the exterior plastering. It should be remembered also that a wooden frame exposed to high winds may rack enough to form cracks in cement plastering, which at the best is decidedly brittle. Through cracks in the exterior walls the wind will certainly drive rain at every opportunity.

If the lathing used for exterior work is of such a nature that cement mortar is not forced through its mesh sufficiently to cover all iron surfaces, it is evident rust will attack the lath unless it is sufficiently covered by paint, waterproofing or galvanizing.

It is possible that a wire lathing might be entirely preserved by cement plastering, even if painting or other protection was not employed, but it would seem as if wire lathing galvanized is the safest material to use if speedy destruction of plaster is to be avoided.

UNIFORM BRICK DIMENSIONS.

After efforts extended through many years a standard for building brick has been agreed upon between the Royal Institute of British Architects and the Brick Makers' Association, together with representatives of the Institution of Civil Engineers, and has been ordered to go into force on May 1, 1904. The length of the brick is to be double the width plus the thickness of one vertical joint, and the thickness of the brick should be such that four courses and four joints would lay up one foot in height. Joints should be five-sixteenths for the bed, thus giving a standard length of nine and one-fourth inches from center to center of joints.

DETAIL BY ISRAELS & HARDER, ARCHITECTS.
New Jersey Terra-Cotta Co., Makers.

The bricks, laid dry, to be measured in the following manner:

A. Eight stretchers laid square end and splay end in contact in a straight line to measure seventy-two inches.

B. Eight headers laid side to side, frog upwards, in a straight line to measure thirty-five inches.

C. Eight bricks, the first brick frog downwards, and then alternately frog to frog and back to back, to measure twenty-one and one-half inches.

A margin of one inch less will be allowed as to A, and a half inch less as to B and C.

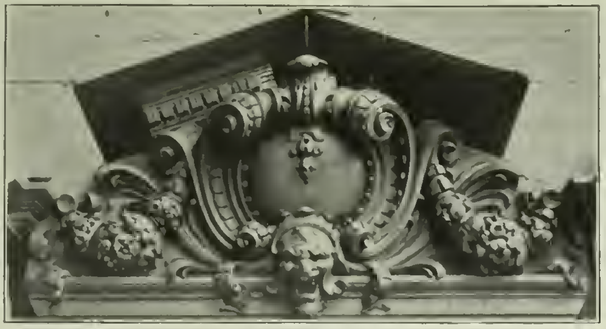
DETAIL BY BARNEY & CHAPMAN, ARCHITECTS.
Conkling-Armstrong Terra-Cotta Co., Makers.

This is to apply to all classes of walling bricks, both machine and hand made.

The advantage of uniformity in this direction is so obvious to every one that some such concerted action is bound to come in time in this country, and will surely be welcomed by every one who has ever had to bother over the lengths of brick and the jointing.

BRICKLAYING BY MACHINERY.

We note accounts of the trials which have been made of the machine invented by a London engineer for laying bricks. The machine is of quite simple design and is intended to do for bricklaying what the sewing machine has done for needlework, and the hydraulic riveter for bridge and boiler work. It works on a girder capable of being raised as the work progresses, and travels along the girder by means of a pinion gear and chain. The bricks are fed to the machine by hand, being pushed into position by a lever and kept plumb by revolving rollers at the side. Three men are required for the operation, one to spread the mortar, one to feed the machine, and a third to work the mechanism. It is claimed that six hundred bricks per hour can be laid with this machine as against five hundred per day by hand, which appears to be the average for brick masons in England, or twelve hundred a day, the amount to which we are accustomed on this side of the water. There is no mechanical reason why a contrivance of this sort should not be perfectly adaptable for plain work and heavy walls, and if helped out by hand labor at angles and restricted lengths it could undoubtedly effect material saving in expense. When it comes to work around windows and building about a steel framework a machine would apparently be totally inadequate.



PEDIMENT PANEL, REID BROTHERS, ARCHITECTS.
Perth Amboy Terra-Cotta Co., Makers.

FIREPLACE IN LOUNGING ROOM, TENNIS AND RACQUET CLUB, BOSTON.
Parker & Thomas, Architects.

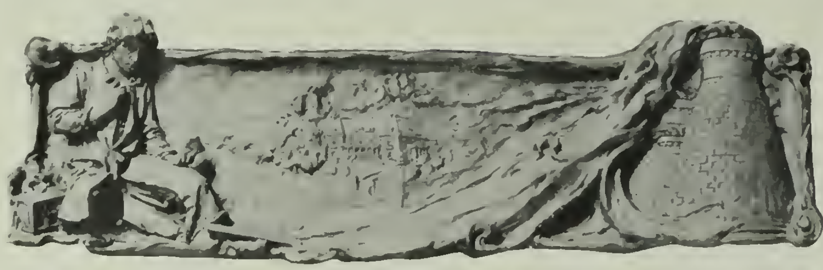
MODEL TENEMENTS.

That model tenements can be erected and run in American cities on a remunerative basis, while furnishing comfortable and sanitary homes for the poorer classes of the community, has been proven in a number of instances; but no more striking illustration can be offered of the practical results of these substitutes for the crowded rookeries which have heretofore disgraced many large cities than the latest report of the City and Suburban Homes Company of New York City. This company was organized six or seven years ago, and, backed by a number of philanthropic capitalists, began the work of erecting model tenements for the poor and the humbler wage-earning classes. The company has issued $1,707,250 of capital

PANEL FOR BAY WINDOW.
Executed in Terra-Cotta by White Brick and Terra-Cotta Co.

CAPITAL EXECUTED IN TERRA-COTTA.
St. Louis Terra-Cotta Co., Makers.

stock, and its total assets are now figured at nearly $3,000,000. It has just declared a dividend of four per cent, while leaving a large sum for the sinking fund. The report states that the losses which have been met with from vacancies in apartments have been extremely small, while the total losses from irrecoverable arrears are insignificant, being but $248. In view of the fact that the company has three hundred and sixty-two separate families as tenants, and that the character of the population in which its buildings are located is notably a shifting one, this showing is remarkably satisfactory. So successful has the company been in managing its own properties that it has recently taken over the management of six hundred and ninty-nine apartments which belong to other persons or companies. It has a trained corps of workers, sufficient to enable the concern to be an efficient operating landlord. The benefits conferred by the class of housing provided by the company are incalculable, not only from the point of view of comfort, but notably from that of sanitation and morals. Undoubtedly a need exists for the inauguration of similar enterprises in other of our large cities. Every great center of population has some kind of a tenement or slum district where model tenements would be a public benefit. American men of wealth could invest their spare capital in no better way than in providing for the erection and management on honest and common-sense lines of model tenements for the wage-earning classes. *Carpentry and Building.*

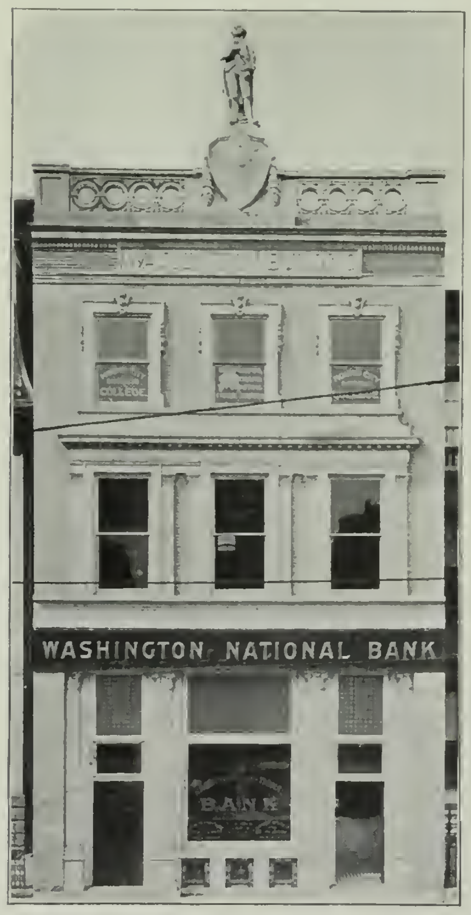


PANEL FOR OFFICE OF BRICK TERRA-COTTA AND SUPPLY CO., CORNING, N. Y.
Louis Urich, Sculptor.

PANEL BY CLINTON & RUSSELL, ARCHITECTS.
Atlantic Terra-Cotta Co., Makers.

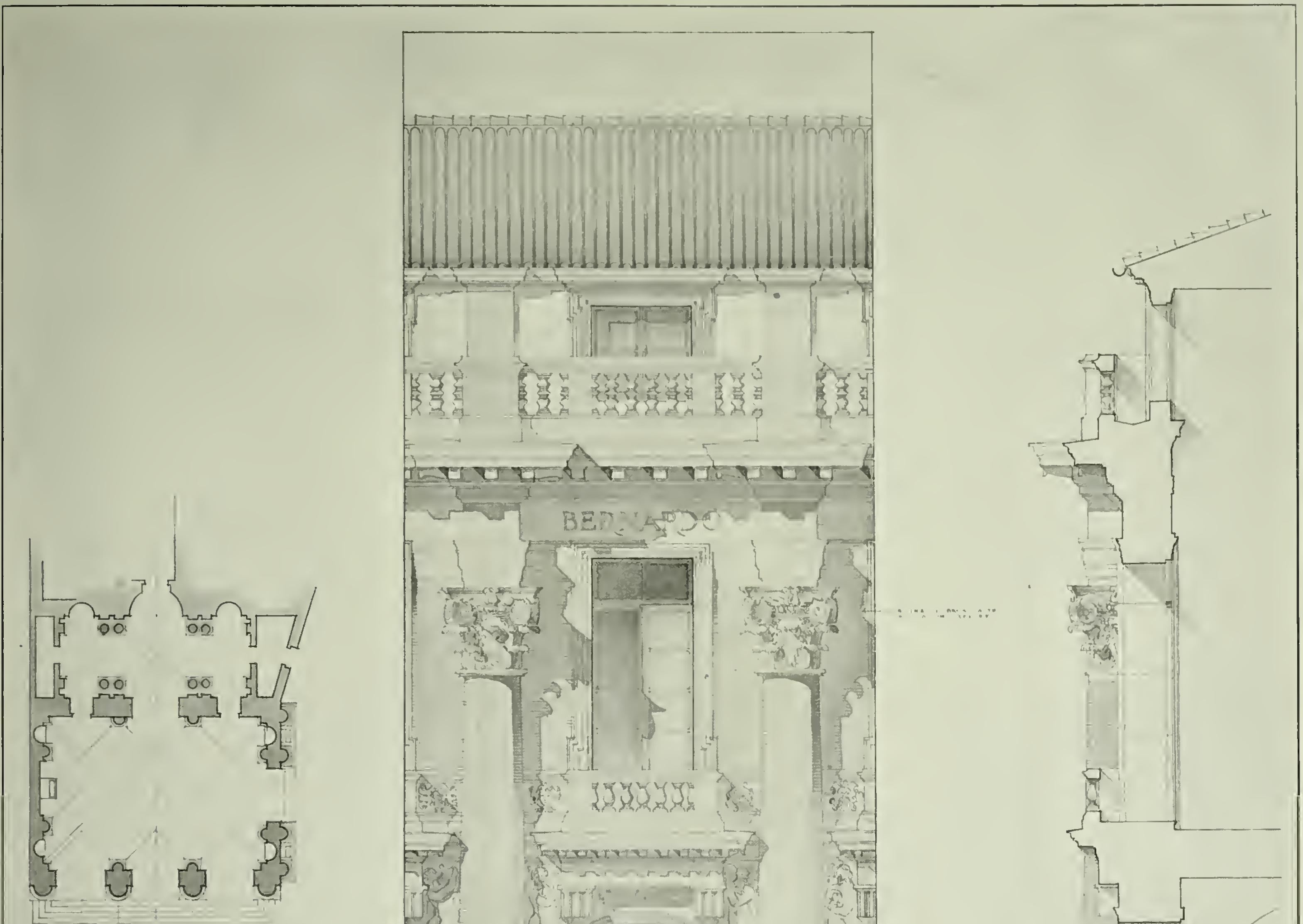
DEFECTIVE FIRE PLACES.

Mr. Max Clarke, A. R. I. B. A., in an address made at the fire congress recently held in London, referred to some of the defects in fireplaces and flues which are being repeated every day in modern building work. "Few," he said, "know



BANK BUILDING, ST. LOUIS, MO.
Terra-Cotta by the Winkle Terra-Cotta Co.

HOUSE, CHICAGO, ILL.
Jenny & Mundie, Architects. Roofed with Ludowici Roofing Tile.

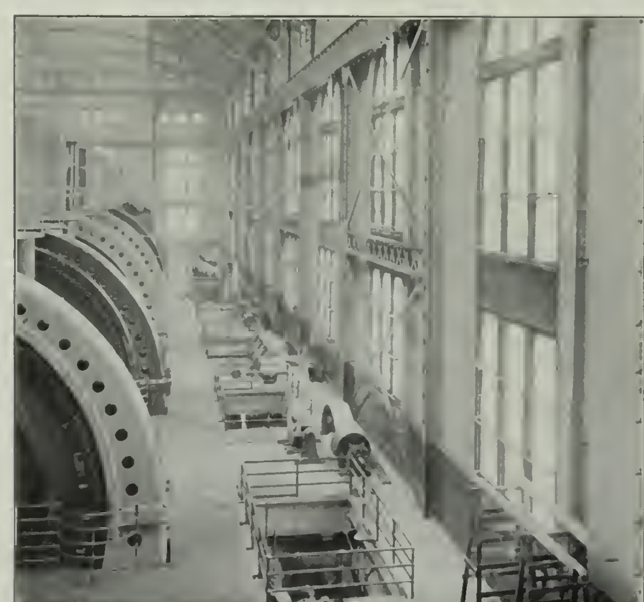


TOWN HALL, VIACENZA, ITALY.
Measured and Drawn by William L. Welton, Rotch Traveling Scholar.

STEVENS BUILDING, DETROIT, MICH.
Donaldson & Meier, Architects.
Built of "Ironclay" Brick.

the number of fires caused by defects in and about the fireplace. Personally I am disposed to think that most of the causes are brought about by careless workmanship and a few perhaps by the use of methods which were quite adequate in former times, before the invention of what are now called slow-combustion stoves, close ranges, boilers and the like. I place first in point of danger the practice of building half-brick trimmer arches to carry hearths in wooden floors, the arches having the centering left in and forming an open space under the brickwork. The underside of this space is lathed with wood laths and plastered in the same plane, as a rule, as the rest of the ceiling This form of hearth should give place, in my opinion, to a concrete or other self-supporting hearth the full depth of the floor joists, having a flat soffit on which the plaster could be applied direct. Next I should like to advocate the use of fireclay linings to all flues, a common practice in many districts, but not in use as a rule in London. Improperly bonded and badly built flues, the brickwork of which is only four and one-half inches thick and in which bad mortar forms a considerable component part and which after a time drops out, leaving the joints open. This is often assisted or caused by the nails, spikes or plugs, driven in for the purpose of fixing inflammable finishings. All these defects lead to a considerable number of fires annually, the details of which I am sure my insurance friends know a great deal more about than I do. Wood finishings should not be fixed with iron spikes in front of flues unless the brickwork is of a greater thickness than four and one-half inches; in fact it is probable that a great safeguard against fire would be effected if woodwork in such proximity to flues was abandoned altogether. It seems to me a cause of danger that flues built with only half-brick surroundings are at times used for high-pressure boilers, kitcheners and the like, the brickwork being quite hot when work is in progress and in many cases much too hot for safety. New types of stoves of either the 'slow-combustion' or 'well-fire' classes should not be fixed in old houses unless a thorough examination of the hearth and its surroundings is made, numerous fires having been caused from timbers being in close proximity to chimney breasts, quite unknown to the people who fixed new and powerful stoves in old openings."

DETAIL BY KEES & COLBURN, ARCHITECTS.
American Terra-Cotta and Ceramic Co., Makers.



INTERIOR EDISON POWER HOUSE, NEW YORK CITY.
J. Van Vleck, Architect.
For which 50,000 second quality enameled brick were supplied by American Enamel Brick and Tile Co.

IN GENERAL.

The outlook in New York City at this writing can scarcely be called encouraging, but the chances are that

GRAND STAIRCASE, GUASTAVINO CONSTRUCTION.
DEPARTMENT STORE, PATERSON, N. J.
Treads and risers ready to receive finish.

vance over the earlier New York theaters in good looks.

Chester H. Aldrich and Carrère & Hastings, associate architects, should have been given credit for the house at Providence, R. I., illustrated in THE BRICKBUILDER for October, instead of Carrère & Hastings, as stated.

The Boston Society of Architects and the Boston Architectural Club dined together on the evening of November 5 and entertained as special guests Mr. Albert Kelsey of Philadelphia, Rev. Charles Fleischer of Cambridge, Mr. Meyer Bloomfield of the Civic Service House, Mr. Leslie C. Wead and Professor Hugo Meyer of the committee appointed by the governor on the investigation of the wider use of the right of eminent domain, and Mr. J. Randolph Coolidge, Jr., secretary of the legislative committee of the Society of Architects, who discussed "The Artistic Development of the City."

the spring will see the relations between employers and their men on a firmer basis, prices of materials will be lower, and building will boom.

DETAIL BY J. E. ALLISON, ARCHITECT.
Excelsior Terra-Cotta Co., Makers.

Probably McKim, Mead & White have more new work in prospect than any other large firm of architects. They are making preliminary plans for a new building for the Harmonie Club, to be built on Sixtieth Street, near Fifth Avenue. It will be a seven-story building and will be a combination clubhouse and apartment house. They are at work on final plans for the new building for the Lambs' Club to be built on Seventy-sixth Street. Plans for the new Madison Square Presbyterian Church are also being prepared in this office. The plans for the Pennsylvania Railroad's terminal are completed. Preliminary plans are being made for the School of Journalism for Columbia University, the gift of Joseph Pulitzer.

During the past two months four new theaters have been opened in New York City. There has been considerable doubt as to whether New York can support so many, and it may mean a financial loss to some one. These new theaters have characteristics which put them in a different class from the old ones. Their location is exceptional, their excellent planning and ventilation mean a great deal for the public comfort, and they show an enormous ad-

The happenings at the Boston Architectural Club indicate a season of unusual activity. Already there have been exhibitions of water colors and sketches by well-known men, and many of the members have visited in a body places of unusual interest about the city.

The Washington Architectural Club, too, is engaged in carrying out a program

UPPER PORTION OF TWELVE-STORY BUILDING, BROADWAY, NEW YORK CITY.
Robert Maynicke, Architect.
Terra-Cotta furnished by New York Architectural Terra-Cotta Co.

CHAMBER OF COMMERCE, MINNEAPOLIS, MINN.
Kees & Colburn, Architects.
Built of gray speckled Norman brick, made by Columbus Brick and Terra-Cotta Co.
Terra-Cotta by American Terra-Cotta and Ceramic Co.

which keeps its members busy. It includes lectures or talks on interesting subjects by prominent men and a series of club competitions, with criticisms, awards, etc.

This is all good work along the right lines. It brings the younger men into a closer relationship and encourages a unity of purpose which is bound to be beneficial to the profession as a whole. Let us have real, live architectural clubs in all the cities, clubs which shall be a benefit, not only to its members, but to the community in which it lives.

Robert C. Sweatt, architect, has opened an office at Sault Ste. Marie, Mich., and desires manufacturers' catalogues and samples.

C. N. & C. LIGHT AND TRACTION CO. OFFICE BUILDING, COVINGTON, KY.
Dittoe & Wisenall, Architects.
Roofed with American S Tile, made by Cincinnati Roofing Tile and Terra-Cotta Co.

The Celadon Roofing Tile Company has recently added two new kilns and extensions to both press and dry rooms, also a number of additional workmen, to its Alfred, N. Y., works, thereby increasing its capacity by about forty thousand tile annually. The company has completed a large number of contracts the past season and has on hand the largest amount of orders in its history for the present season of the year.

R. Guastavino Company announce that they have removed their Boston office to Old South Building, corner of Washington and Milk streets.

Herbert C. Chivers, architect, St. Louis, would like new catalogues of companies manufacturing architectural and engineering lines.

The Atlanta Terra-Cotta Company, of Atlanta, Ga., is now building in that city an entirely new plant, which when finished will be one of the most up-to-date plants in this country, — probably the largest in the South. From a very small beginning some seven or eight years ago, they have outgrown their present quarters, and have found it necessary to make a more substantial increase in their equipment. About one hundred and fifty men will be employed when the new plant is finished.

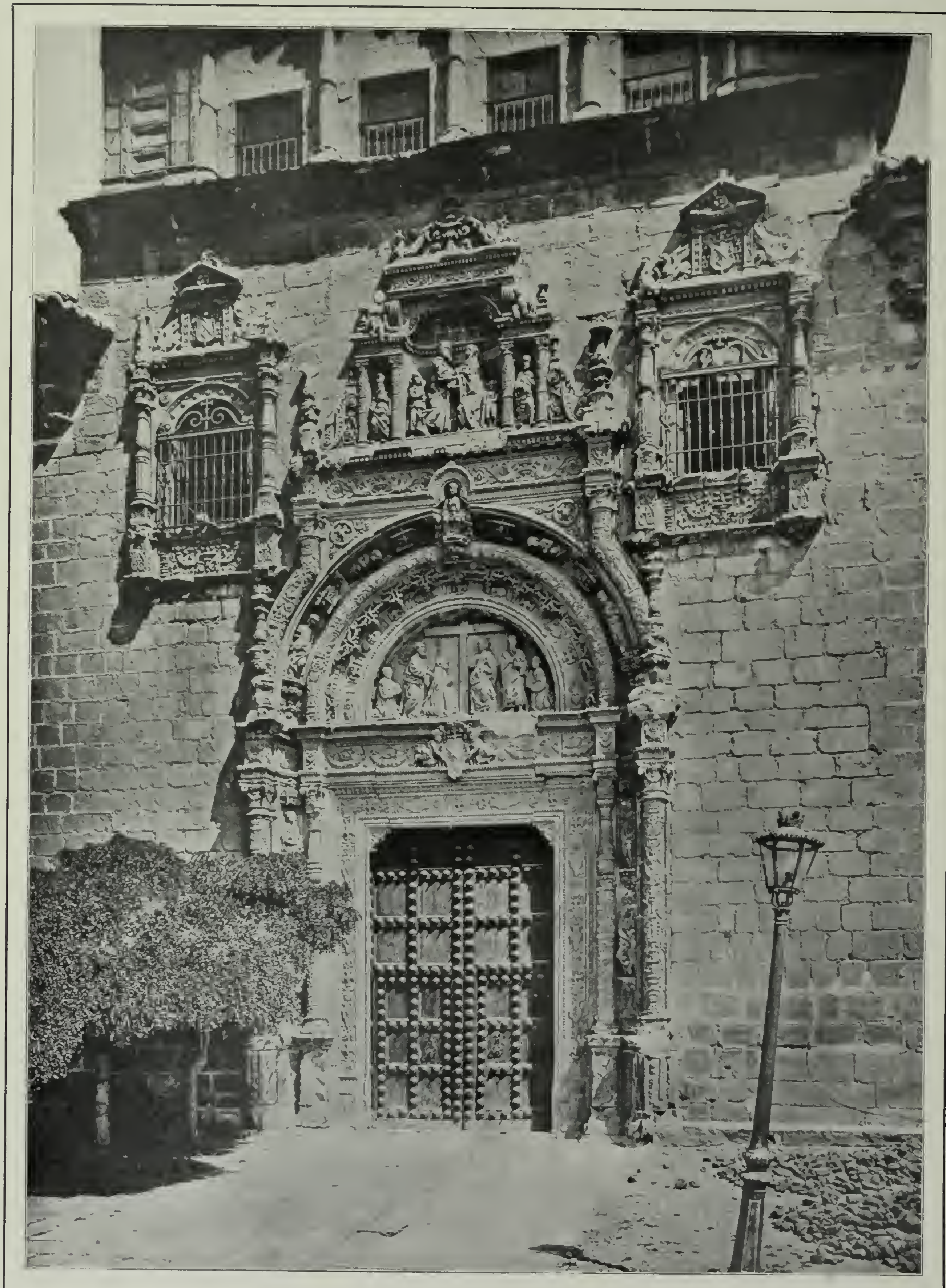
Robert C. Martin & Son, 156 Fifth Avenue, New York, have been appointed local agents for the Ironclay Brick Company of Columbus, Ohio.

Harlan P. Kelsey and Irving T. Guild (formerly of Bates & Guild Co., architectural publishers) announce that they have entered into a partnership for the practice of landscape architecture, with offices at 6 Beacon Street, Boston.

THE BRICKBUILDER.

DECEMBER,

1903.



HOSPITAL OF SANTA CRUZ, TOLEDO, SPAIN.

THE BRICKBUILDER

VOL. 12 No. 12 DEVOTED · TO · THE · INTERESTS · OF ARCHITECTVRE · IN · MATERIALS · OF · CLAY DECEMBER 1903

THE BRICKBUILDER.

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THE LIBRARY COMPETITION.

ANNOUNCEMENT.

THE work of the Jury of Award for the Library Competition was not completed (nearly three hundred designs were submitted) in season to permit of the results being published in THE BRICKBUILDER for this month. The prize winners will, however, receive due notification about the first of the year.

The prize-winning designs, with the criticism of the Jury of Award, also some twenty-two other designs which are considered especially interesting, will be published in a special number, which will be issued during the month of January.

THE ARCHITECT'S FEE.

The portion of Mr. Waid's paper published in the current issue which deals with the subject of architects' compensation touches a very tender spot in the professional feelings. As will be seen by reference to this article, there is a considerable difference in actual practice. If all could take the frank, outspoken position assumed by Mr. Flagg, who claims that everything going to produce a building should be under his direction, we imagine there would not be much difficulty in speedily establishing a uniform rate of considerably more than five per cent for the architect's work, including expert advice. But architects are by no means of accord in claiming as one of their functions the supervision of expert work, and some even maintain that the electrical, structural and heating and ventilating work are such matters of pure engineering that, in consideration for the client's best interests, the architects should let them alone entirely. With such diversity of opinion there is naturally a corresponding difference in practice. It is, however, a pretty well established custom among the architects having a large practice to charge more than five per cent for work involving technical difficulties. It is interesting to compare this condition with that which existed not so very long ago in this country, when the majority of even the best architects thought they were doing well if they received an unchallenged five per cent, and measured in the light of what is now expected of them professionally they were indeed highly paid for their services. It must not be supposed, however, that the conclusions stated in Mr. Waid's article represent the custom of the average modest practitioner. There is a theory that the very best architect costs no more than the poorest; that since the rate is five per cent the client is sure in advance of exactly what his architect will charge. This is true only of those who are not blessed with a large business, or whose prominence would not rank them among the recognized leaders in the profession. It is one of the prerogatives, if we may so term it, of the successful architect that clients want him and are willing to pay his price. So that when a client carries a ten or fifteen thousand dollar dwelling to such an architect he may be called upon to pay ten per cent rather than five. If he feels he must have the best architectural advice the country affords he must pay an additional five per cent on his expert work; and if, having selected his architect from the top of the list, he desires that architect's opinion on such vital matters as decoration and furniture, these items do not go into the bill on the five per cent basis, but he is charged at least ten; when, if his architect had been more dependent upon small jobs and was a relatively unknown factor in national affairs, five per cent would probably have covered the whole. In other words, a high professional ability brings a distinct reward if in no more than that the architect who has won such position is free from any necessity of contesting his terms with a penurious client and does not have to do certain portions of the work at an actual loss to himself. We do not believe that under any circumstances can alterations or interior work of any magnitude be attended to by the architect with any profit to himself at less than seven and a half per cent, and ten is surely none too much for the varied responsibilities which he has to undertake. It has been claimed as one of the reproaches of the architectural profession that no matter how experienced a man might be or no matter how great his artistic ability, his fees would remain the same, but as we have just explained, this is only partially true.

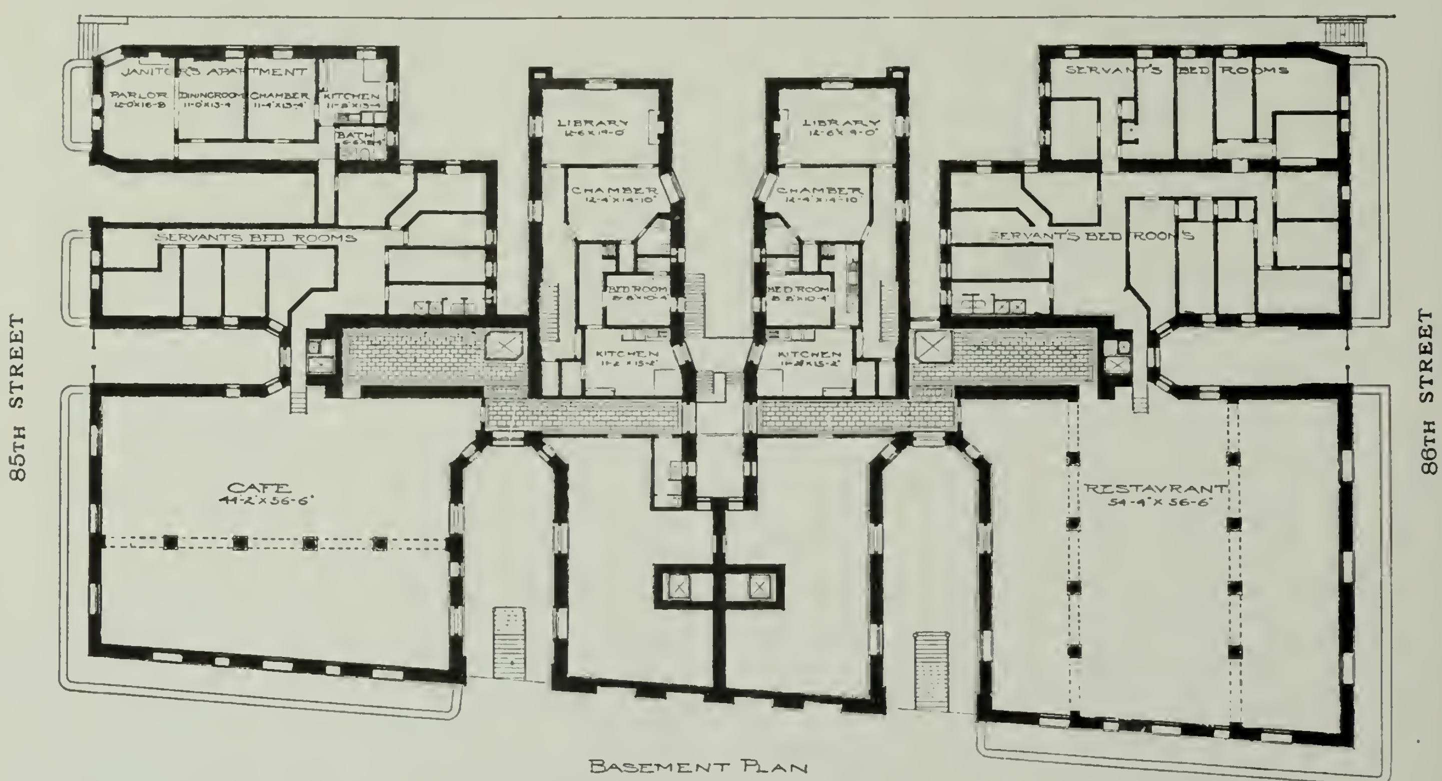
The Planning of Apartment Houses. III.

BY WALTER H. KILHAM.

AN inspection of the appended plans of New York apartments, which may be taken as fairly typical of those lately erected, appears to show that the French idea of a large enclosed court fails of appreciation in the United States. In spite of the architectural advantage afforded by the enclosed court plan, it cannot be disputed that an apartment which possesses an outlook on the street and possibly has a bay window is far more attractive to the prospective American tenant than one giving only on a court, no matter how well designed may be the opposite wall, or how well the rooms may come "on axe." Unfortunately for Art, apartment houses crevasses, marked alluringly "light and air" on the plans, while affording really neither illumination nor ventilation, involve the construction of a large amount of costly exterior wall with angles and curves, and fail of their purpose both in utility and cost. The indentations of the plans of many new houses are almost incredible.

It may be remarked that apartments badly lighted and ventilated, with long corridors and tasteless decoration, will never hold permanent tenants, but will steadily fall through the scale of social as well as physical deterioration, while one planned on sound architectural lines will often be as popular, if well located and managed, at the end of its thirtieth year as when first occupied.

In general, common defects in the present-day apartment houses of the middle class in New York are, long corridors to reach the living rooms caused by the attempt to make one elevator do the work for an entire large build-



BASEMENT PLAN

"EUCLID HALL," NEW YORK CITY.

are rarely regarded by their owners as anything but investments, and the tenant must be attracted by features to which he is accustomed and which he has, perhaps, long desired. No one wishes more heartily than the writer that for the good of our artistic well-being the long straight façades and charming interiors of Paris might be substituted for the restless and indented fronts of many American buildings; but as a matter of immediate return on the investment the implanted tastes of the public must be met, even if these tastes happen to be astray. In the matter of interior courts the writer does not believe these tastes to be astray. The courts of most French apartment houses are certainly dismal enough from the point of view of sunlight, and on account of their greater height, those of our buildings would be worse.

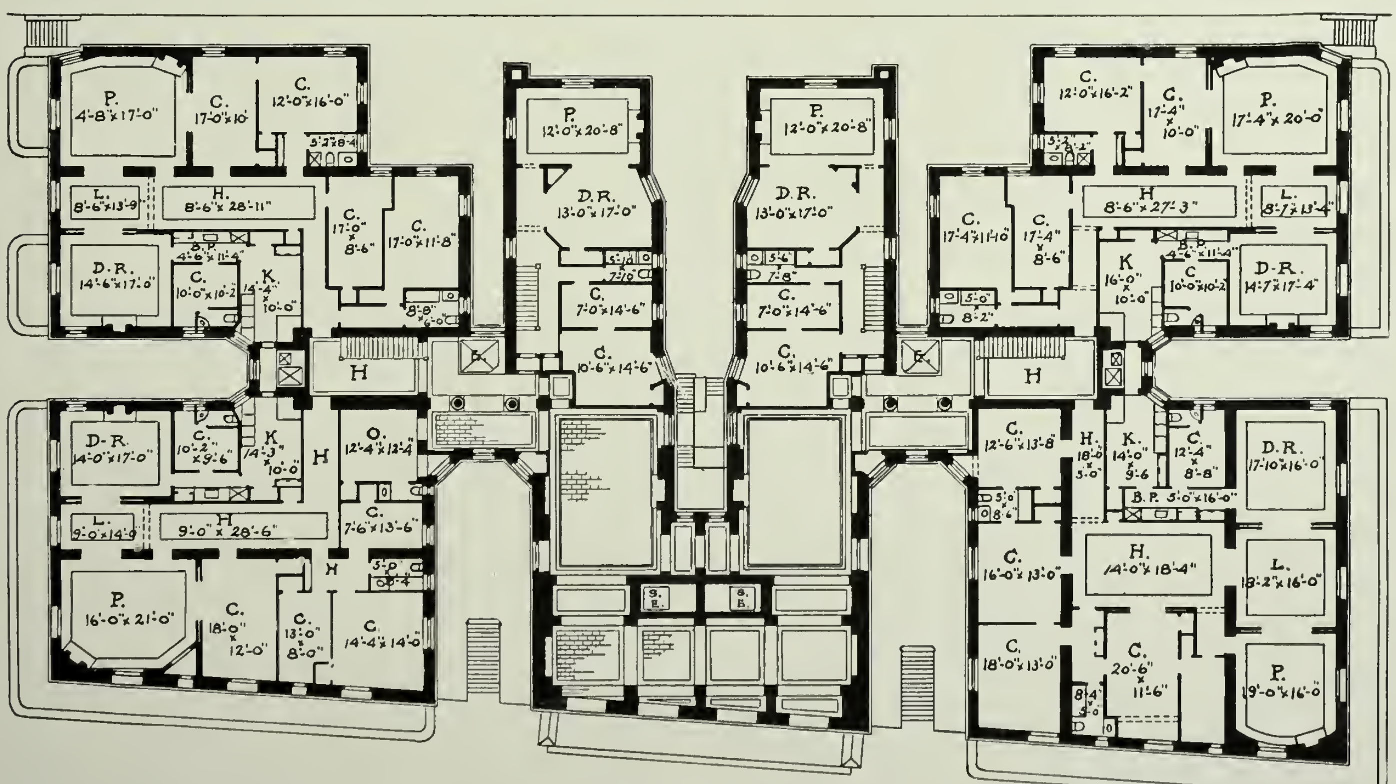
When the lot is sufficiently large, however, the courts should by all means be massed. The narrow and dark ing; small size of rooms and insufficient means of egress, one interior stairway only being provided, which is frequently poorly lighted. No matter how fire-resisting the building, stairways and elevator shafts may be choked by the smoke from a slight blaze with disastrous results, and an exterior iron flight leading to the street through a basement passage is a poor substitute. At the same time it must be borne in mind that in many cases the requirements of the tenement house and other acts, however wisely framed for the protection of the poor, result in certain arrangements which are peculiar to New York, and the annexed plans of apartments in that city should be considered in relation to the ordinances governing areas and minimum dimensions for courts and air shafts. The "dumb-bell" plan, previously referred to, appears to be a direct outgrowth of these conditions.

The plans of "Euclid Hall" are good examples of present-day planning on a large scale. The suites are

TYPICAL FLOOR PLAN.

exceptionally good in providing facilities for entertaining, the reception halls being almost large enough for dancing.

In the city of Boston comparatively few large housekeeping apartment buildings have been erected. A large number of blocks were built, most of the later ones on lines similar to Figure 1. Four stories was regarded as the limit at which they would rent readily without an elevator. The single or double unit plan was considered desirable from the owner's point of view, on account of the fact that when all the suites were once taken in a house it could be sold more readily than a larger building. As the chief end in the erection of many of these buildings was a quick sale, this was considered more important than either architectural effect or the comfort of the tenants. Moreover, the smaller the number of families



FIRST FLOOR PLAN.

Key to plans: B., bath. C., chamber. D. R., dining room. H., hall. K., kitchen. P., parlor.

"EUCLID HALL," NEW YORK CITY.

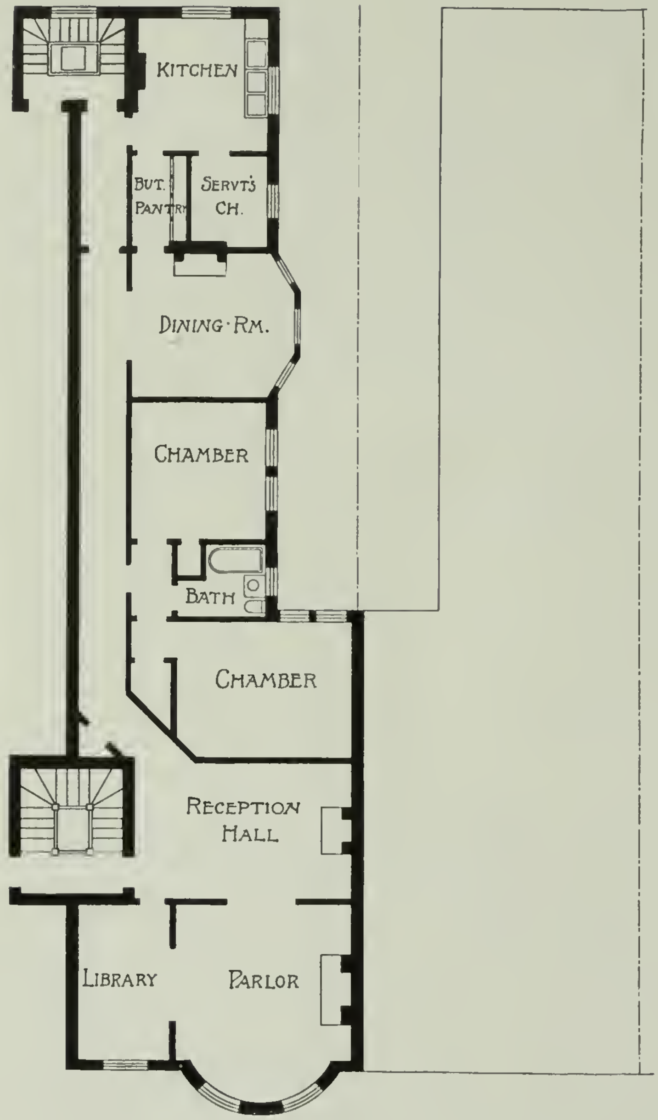
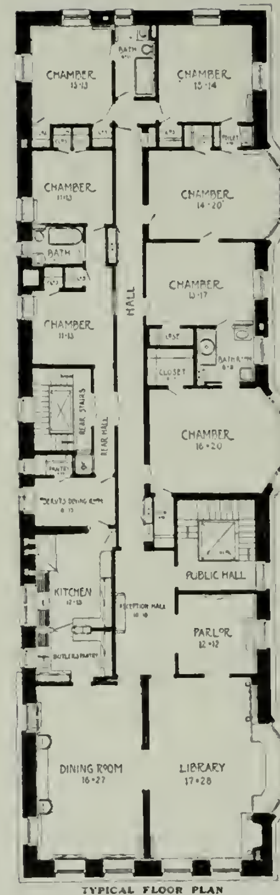


FIGURE 1.

occupying the same building the smaller would be the chance of mutual disagreements and complaints. In some of these houses the kitchen is moved up near the center of the apartment, giving the rear outlook to the chambers. The newer apartments have, by force of the city ordinance, a well-lighted rear staircase (two staircases being obligatory), and the living rooms are almost always conveniently near the front entrance. "Real" fireplaces are generally provided for the living rooms and dining rooms, and the dumb-waiter runs in the rear stair well, which is built of brick, unfinished. The "fake" fireplace, which has no flue nor vent pipe, is not common.



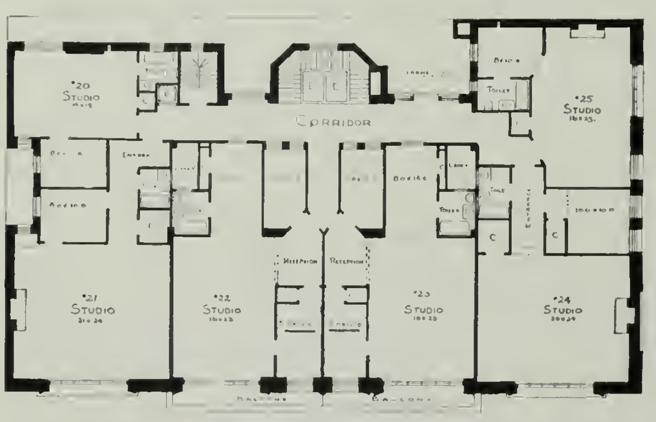
THE "RAYMOND," CHICAGO.

In some the dining rooms extend clear across the apartment, thus saving the space occupied by the corridor, but obliging the servant to pass through it in going to the front of the house.

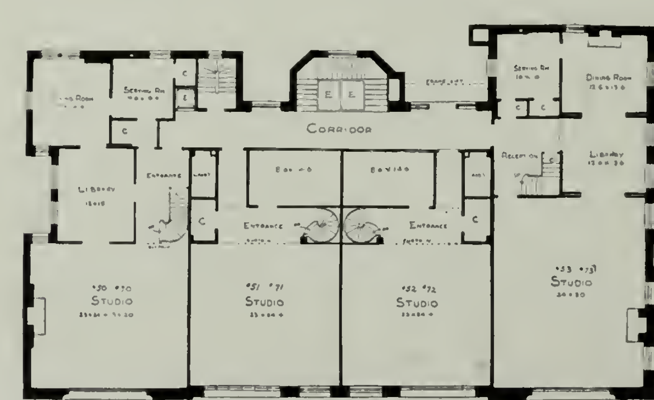
The equipments present little of interest and are generally far behind those in New York.

The annexed plans of apartment buildings in Chicago show interesting local variations in treatment. That of the "Raymond" is worthy of study, and that of the "Lessing" is novel in many ways, though the service entrances to the suites seem to be somewhat confused with the main corridors and passages to the bedrooms. As the building is only five stories in height, the apartments on the court would seem to be well lighted. The building contains a "banquet hall." The other plans show various treatments. Stress is laid by the managements of these houses on Flemish or "weathered" oak trim, burlap wall hangings (Lincrusta Walton in some) and fountains lighted through stained glass, and some advertise to keep the street in front swept at the expense of the house.

Another phase of the apartment-house problem is that of the studio apartments, which meet with a ready rental in large cities. The plans of the upper story of Trinity Court (see THE BRICKBUILDER for December, 1902) show

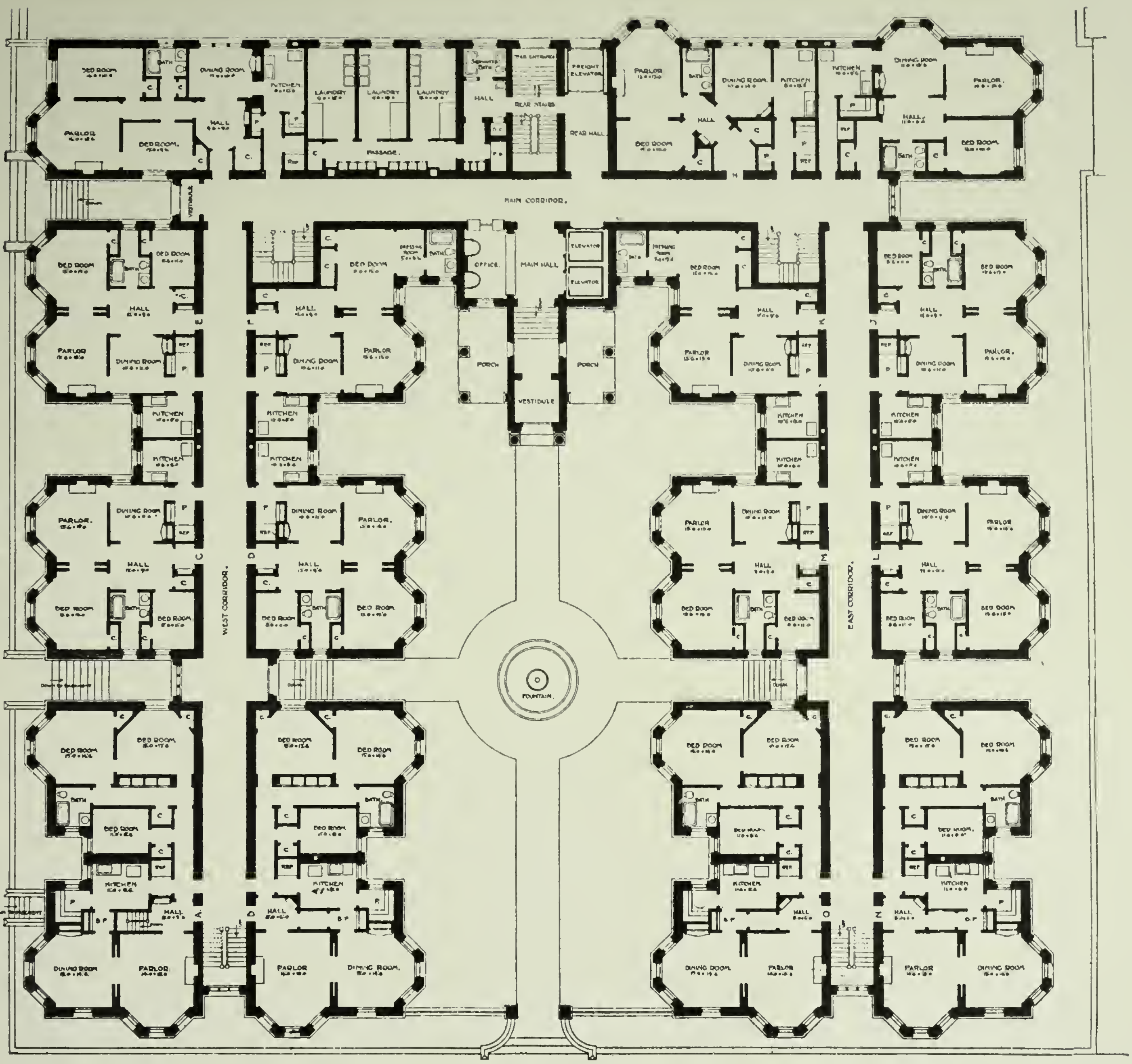


SECOND FLOOR PLAN.



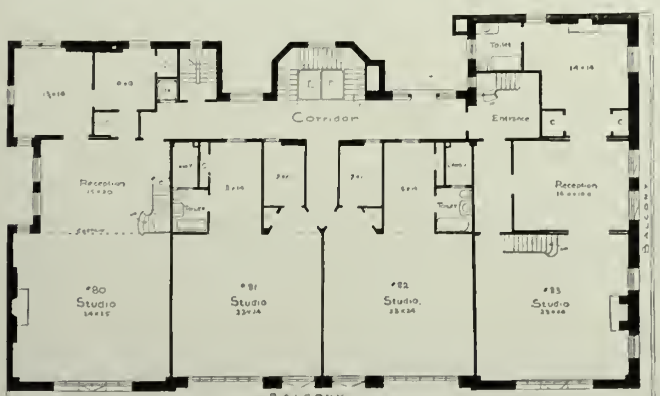
FIFTH AND SEVENTH FLOOR PLANS (WITH MEZZANINES.)

BRYANT PARK STUDIOS, NEW YORK CITY.

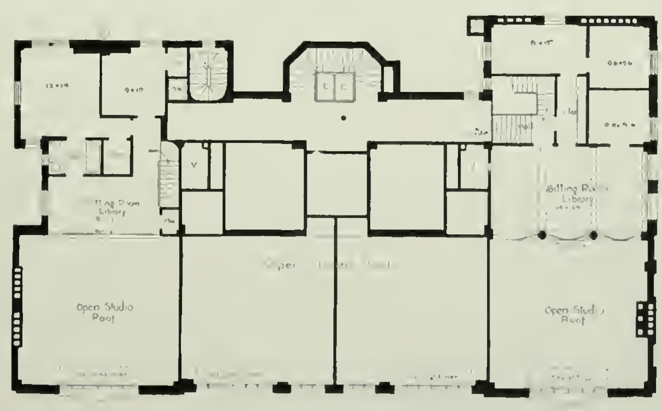


FIRST FLOOR PLAN, THE "LESSING," CHICAGO.

one arrangement in connection with a house devoted to regular non-housekeeping apartments. This house has a high sloping roof in which the studios are built, with large dormers for admitting the north light.



EIGHTH FLOOR PLAN.



MEZZANINE SIDE STUDIOS FOR EIGHTH FLOOR.

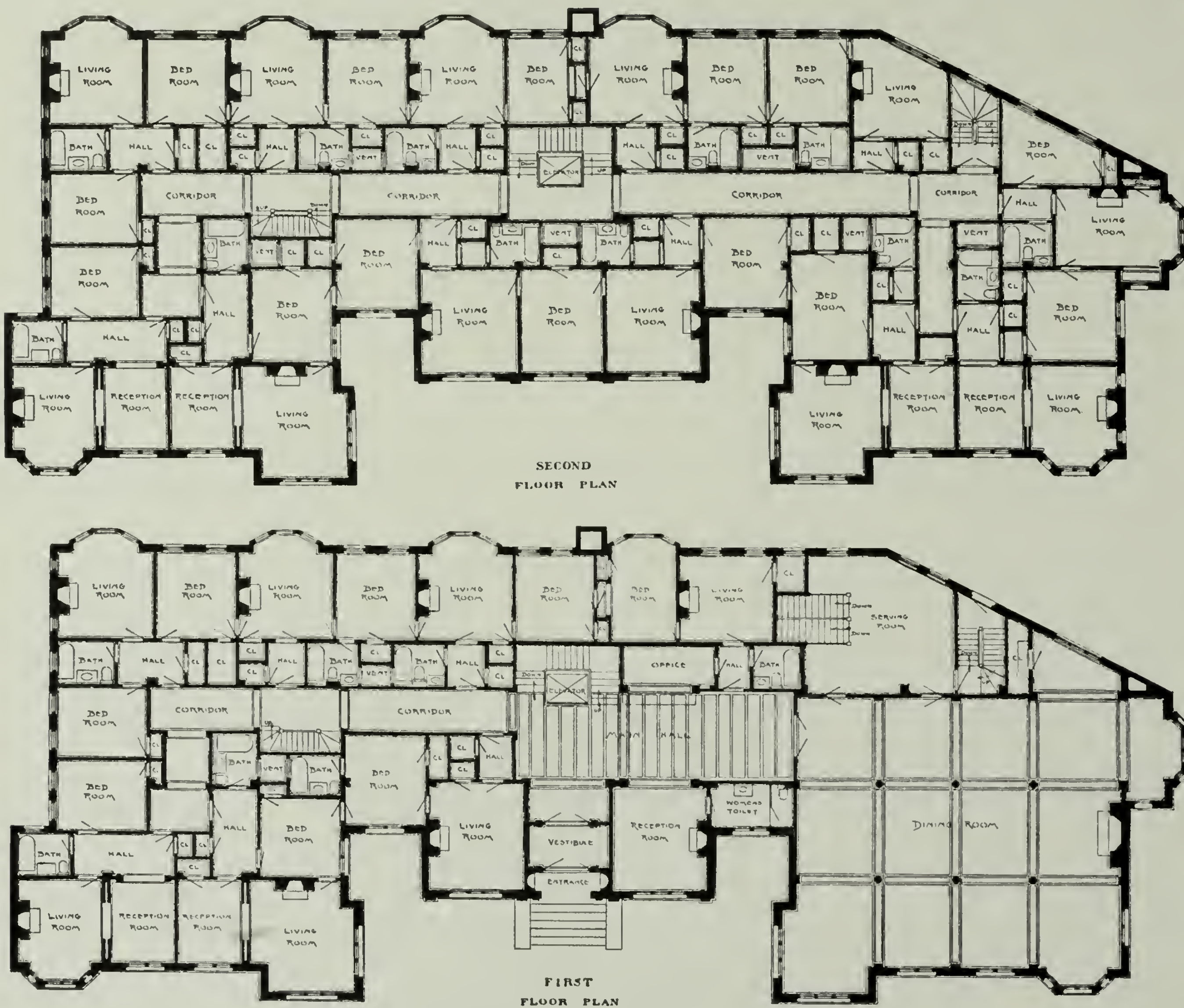
BRYANT PARK STUDIOS, NEW YORK CITY.

The Bryant Park Studios, Charles A. Rich, architect, in Fortieth Street, New York, is a good example of a building devoted to studio apartment purposes alone. A restaurant, called, appropriately enough, Café des Beaux Arts, occupies a portion of the ground floor and basement. Above the ground floor the stories are variously divided, with and without mezzanines, into suites of studios with bedrooms, baths and kitchens. The height of the studios runs from twelve feet and six inches to nineteen feet, but the first height is sufficient. The baths are

THE SUBURBAN TYPE.

In the suburbs of large cities, where lower land values allow freedom from party walls, with possibility of admitting light on all sides of the building, another type of a house is being developed with much greater possibilities. These houses are generally three or four stories high and lend themselves to a more or less picturesque treatment, often with courtyards and gardens where the investment will allow it.

Richmond Court in Brookline, Mass., Cram, Goodhue

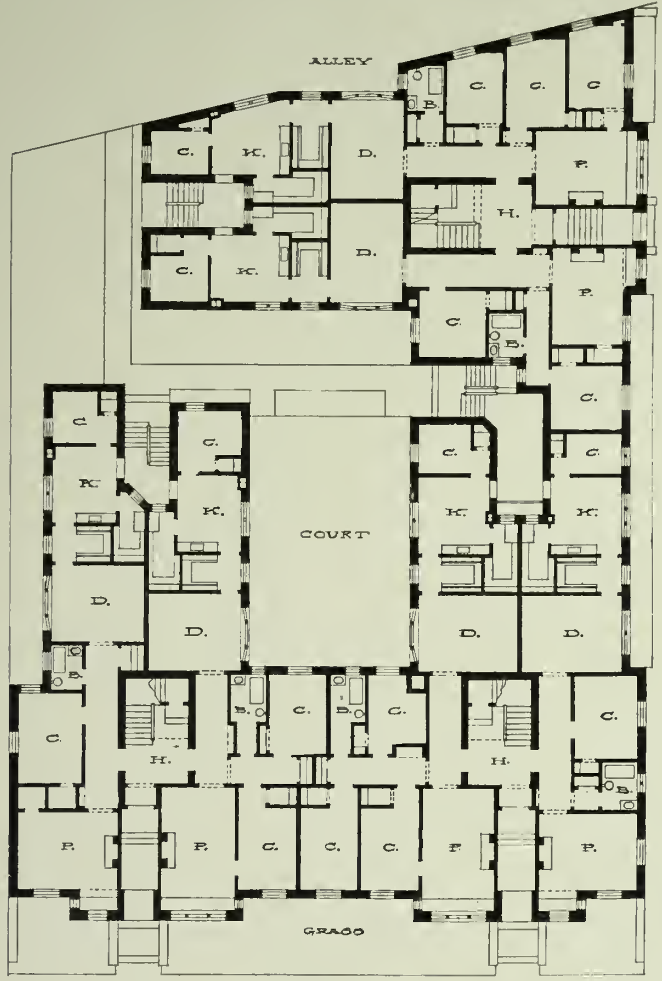


HAMPTON COURT, BROOKLINE, MASS.

ventilated by shafts. There are two passenger elevators and a large frame lift outside operated by hand power. A good-sized freight elevator is desirable in a studio building, and as much room as is possible in the basement should be allowed the tenants for storage of large frames and other bulky effects likely to be possessed by artists. Some of the apartments in the Bryant Park Studios are designed for light housekeeping and have small but convenient kitchens and pantries. A north light is much desired by many, though not all, artists, and a top light, which can be obtained in the upper story, will also be acceptable to some.

& Ferguson, architects (see THE BRICKBUILDER for May, 1900), architecturally is one of the best pieces of work that has been done in this line. The suites are mostly of five rooms and bath, cosily arranged about a reception hall. The arrangement of bedrooms and baths is especially good. A charming garden with a fountain is arranged in the court. The plan of Hampton Court, adjoining, Charles E. Park, architect, shows a good arrangement of non-housekeeping suites, with quite spacious rooms, but with the bathrooms relegated to the dark interior portions of the plan.

Figure 2 is a type of house of which a very large number have been built in and around Brookline, Mass., usually on side streets. These houses are three stories in height and are wider than usual, allowing three good



FIRST FLOOR PLAN.

SECOND FLOOR PLAN.

Key to plans: B., bath. C., chamber. D., dining. H., hall. K., kitchen. P., parlor.

THE "VONNOH," CHICAGO.

rooms to front on the street. The plan is worth studying, for it has proved very popular at low rentals.

Figure 3, Kilham & Hopkins, architects, is another type of small house, standing free, which rents readily at somewhat higher prices.

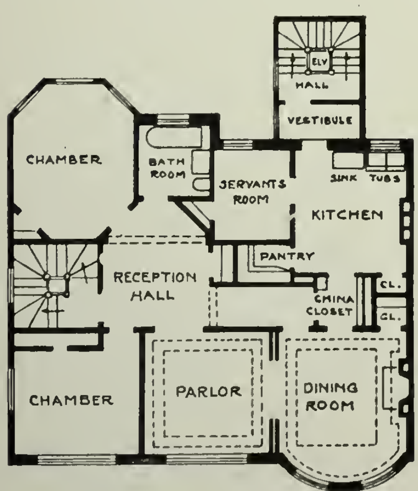


FIG. 2.

One more plan is subjoined, that of the Vonnoh Apartments, Chicago, James Gamble Rogers, architect, showing a good arrangement.

The plans published with these articles will serve to show in a general way the trend of American apartment-house planning at the present time. The fact of publication is not necessarily to be taken as a recommendation. It must be acknowledged that the bulk of apartment houses are not planned by architects at all, but are the work of speculative builders. The plans herewith shown, most of which are by architects of recognized standing, will serve to indicate to the prospective investor the desirability of intrusting his capital to trained and experienced hands, for, as was remarked above, a house planned on architectural lines will retain its standing long after the crude design of the contractor has fallen into disrepute.

(*To be continued.*)

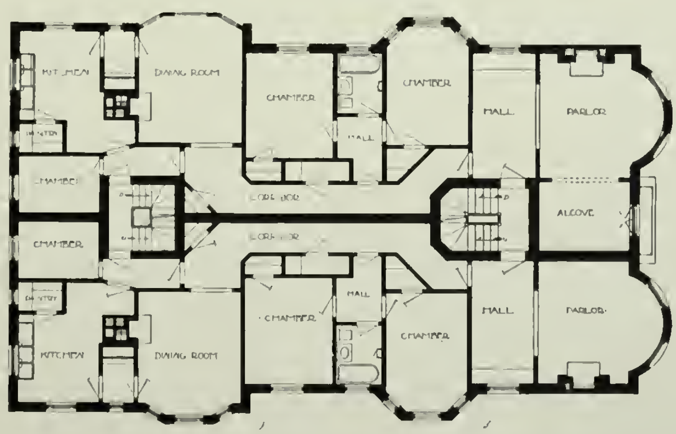
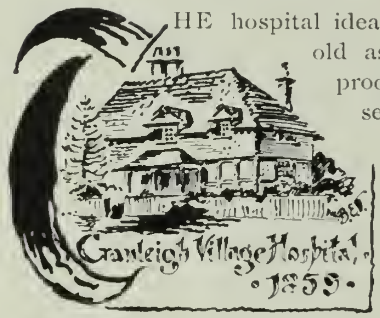


FIG. 3.

Hospital Planning. I.

SUBURBAN HOSPITALS, SHOWING THE DEVELOPMENT FROM THE VILLAGE OR COTTAGE HOSPITAL.

BY BERTRAND E. TAYLOR.



THE hospital idea is literally almost "as old as the hills" and is the product of no clime and no sect. Many imagine that so-called Christian philanthropy is responsible to a great extent for the inauguration and growth of this most beneficent and praiseworthy movement; but although the greatest portion of the world's work in this direction is traceable to the "Good Samaritan" principle, the followers of Buddha and Mohammed, the ancient Greek, the Aztec and the Hindoo have all had their hospitals and their free dispensaries or medical service for the poor.

According to Burdett, the earliest known hospitals were those in Greece in the fifth century before Christ, although there were shrines in Egypt some fifteen centuries before Christ that from their inscriptions were evidently used for hospital purposes. Dispensaries also were probably commenced at this time.

The mediæval hospitals were always administered by the church and were very broad in their scope. Even the "Hotel Dieu," founded in Paris in 600 A. D., was an inn, a workhouse and an asylum as well as a hospital or infirmary.

The church hospitals of to-day, with their central and dominant idea in the church or chapel, are along the same lines as the ancient prehistoric hospitals in which the temple was the hospital and the priests the medical advisers. Thus through all ages the church and the care of the sick have gone together, and complete separation is of quite recent date.

The village or small hospital movement seems to have been inaugurated about the year 1855 by Mr. Albert Napper, a surgeon in Cranleigh, England, under the name of a "village hospital."

It was a small affair of six beds installed in a cottage given by the rector and adapted, in a simple way, for its proposed use at a cost of fifty pounds.

The surgeon, in his practice, felt the great need of a specially arranged building for locally treating severe medical and surgical cases. The general management was placed in the hands of a committee and an active manager was appointed, who, with the medical officer, should be responsible for the details and report to the committee. An efficient nurse was placed in charge of the patients, and subsequently this branch of the hospital work was supervised by a ladies' committee. This general scheme of management is still followed by practically all small hospitals.

During the next seven years some fifteen village hospitals were established in England, all but two of which still survive, and one of these has been superseded by a larger hospital.

The fact that all these hospitals were established in cottages caused all small hospitals to be called cottage hospitals; and this name has been used until quite recently to designate a small hospital, whether installed in a cottage, a mansion or in a specially designed plant of several buildings. Many hospitals in America have been incorporated under the name "cottage hospital," causing much annoyance and complication later when the scope has broadened, as has almost invariably been the case in this country.

In England the village or so-called cottage hospital idea spread to all parts of the country, starting with the opening of one, and reaching in 1867 thirteen a year. The rapid growth after 1866 is accounted for in part by the publication at this time of a work on this subject by a Mr. Harris and Dr. Waring, a pamphlet by Mr. Napper and a "Handy Book of Cottage Hospitals," published in 1869 and 1870 by Dr. Swete.

The demand for more information on the subject became so great that Sir H. C. Burdett, the eminent hospital specialist, was induced to publish a small volume on Cottage Hospitals in 1877, in which he gives a list of about two hundred and eight cottage hospitals in operation in England.

The reported cost of some of these hospitals is of interest. The Bourton Hospital of eight beds, built of brick and tiles, but probably deficient in what we would consider necessary conveniences, cost £1,200, or $6,000.

One of the best and most complete English cottage hospitals of this period is that at Grantham, Lincolnshire, erected in 1876, at a cost of £5,344. It is of stone, has two wards for male and two for female patients of seven or eight beds each, in wings projecting from each side of the administration block. A small isolation pavilion, or, as they term it, a "fever hospital," of four beds in two wards, is on the same lot, also a separate laundry and mortuary. (Figs. 2 and 3.)

Although interesting as being at that time the best, it is severely criticised by Mr. Burdett and is manifestly inferior to his own model plan of 1877. The faults and deficiencies are so evident it is scarcely worth while to call attention to them; but the special points of interest are the block plan, showing a fairly extensive lot and the isolation of laundry and contagious hospital. This isolation department or, as they term it, the "fever block," is much better in plan than the hospital proper, and could scarcely be improved. This hospital cost £5,364, or $26,820. This Burdett model plan is exceedingly interesting in many ways. It is the typical plan still recognized as the most ideal, and that upon which practically all the best small hospitals of the United States have directly

or indirectly been based, as the relative position of the various departments cannot be improved.

The great size of the administration, compared with the pavilions and small bed capacity, is interesting to note, also the fact that the committee room is nearly as large as a ward. It is interesting also to note that the operating room has no accessories, and is itself only a lobby, or vestibule, to the surgical ward.

The location of the only bathroom, next to the kitchen, clearly suggests the crude ideas in plumbing possibilities of the day. The complete isolation of the sanitary necessities, the lavatory, the slop hopper and the water-closet are in line with the almost universal custom in Great Britain, a necessity in the early days of crude plumbing and no adequate ventilation.

It will be noted that there are no isolating or private rooms, no diet kitchens, no clothing or linen rooms, no nurses' room, no medicine closet or storeroom. But there is one feature that many fine hospitals lack, which is of the greatest importance, and that is an open-air veranda facing south, flooded with sunshine and protected from all cold winds.

Here, then, we find earliest types of the present-day suburban hospital containing the embryo operating department, simply a room, and the embryo pavilion, an open ward; no classification except the most general, viz., male, female and surgical, yet all that is possible in a very small hospital.

Mouat & Snell, in their work on Hospitals, publish designs of the Blackburn and East Lancashire Infirmary and an article in which they claim that this was the first hospital erected in England planned upon the pavilion principle.

Much has been written about it on this account, and also because of the location of the pavilions; but although interesting as the first of a type, it has been very severely criticised.

It was planned evidently about 1857, as the foundation stone was laid in 1858. The general block plan shows a very ambitious scheme for the day, but only a portion of it had been carried out up to 1882. The plan of the general pavilion shown herewith is principally interesting because it shows how very inadequate the general scheme as compared with the requirements of the present day. (Fig. 5.)

A very interesting plan of an early pavilion, consisting of a surgical ward with operating rooms, is that of the Nativity Hospital, St. Petersburg, Russia, built in 1877. (Fig. 6.)

It is constructed of logs, finished with tongued and grooved boards inside. The floors are generally of asphalt on a concrete base.

The operating rooms were designed to be used for separation wards for patients before and after operations.

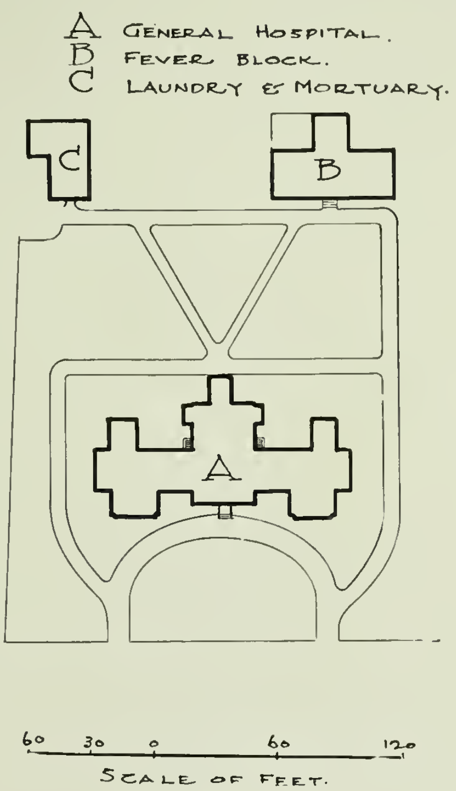


FIG. 2. GRANTHAM HOSPITAL, ENGLAND.
R. A. Came, Architect.

This building is a special pavilion in a group of fourteen, the others having been erected previously.

The first cottage hospital specially designed on the pavilion principle is Allhallows Hospital, Ditchingham, Norfolk. It has twenty beds and cost £3,000, and was completed in 1873.

An English authority on hospitals says that "the small hospital should have at least two wards for patients, a matron's room, sitting room, a medical officer's room or operating room, two bedrooms, a kitchen, a scullery and wash-house, larder, storeroom, bathroom, two water-closets, fuel house and mortuary external to hospital building." This certainly is a very modest schedule of requirements, and must apply only to the embryo hospital in its preparatory stage, in a cottage or small house. This same authority also remarks that "this adapted cottage, though in some districts all that is possible to obtain, is never wholly satisfactory, and in fact although good work is done it is always under great difficulties."

In England these little institutions have continued in active operation all these years, and, probably on account of the stationary character of the population, have seldom been replaced by larger, specially designed buildings.

Our experience in America is that the demonstration of the great value of service rendered by a hospital in a specially fitted private house results, in a few years, in a substantial sum being raised by voluntary subscription and a new, specially designed hospital of several buildings on as ideal and ample a lot as is obtainable.

In my rambles about the old country I have found many so-called hospitals of very early foundation that were extremely interesting artistically, but of little value as hospitals, for on investigation they generally proved to be homes for old people or orphans; and although sometimes having an infirmary, embody otherwise none of the special features or accessories of a hospital, as we understand the term to-day. These beautiful old hospitals serve to illustrate the fact that the word "hospital" has come to mean an entirely different institution, performing a very different mission, than was expected in the early days.

In many of these most interesting old structures the great size and relative importance of the chapel or church, and the small size and retired character of the infirmary, lead one to think that the chief aim of the founders was ministering to the soul rather than to the infirmities of the body. The name "hospital" is, however, amply justified by the hospitality dispensed daily both to native and to stranger; so that even to-day, after centuries of generous giving, the pilgrim, though he be from over the sea, can get his "horn of ale and dole of bread" as of yore, long before the day of public houses.

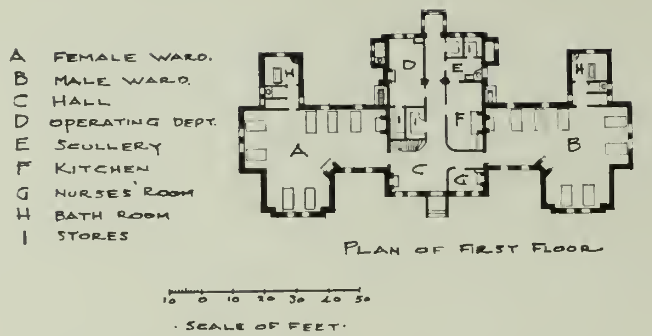


FIG. 3. GRANTHAM HOSPITAL. WARDS ARE ONE STORY ONLY. CONVALESCENT ROOM, FOUR CHAMBERS AND STORAGE IN SECOND STORY.

The Leycester Hospital, Warwick, established by Lord Dudley in 1571, is a most beautiful quaint old half-timbered building of great antiquity. Bablake Hospital and Ford's Hospital in Coventry are delightful bits of sixteenth-century work and most interesting types of the so-called hospitals of early times. The most interesting and beautiful country hospital of this class I ever visited is the Hospital of St. Cross, situated a mile or so outside the ancient city of Winchester, England. This "hospital" was founded away back in 1136 by Bishop Henry DeBlois, and consists of a number of buildings of great interest. The infirmary is not now in use, but the other portions are still occupied evidently as intended by the founder.

The lessons these ancient buildings teach are many, even if their utility as twentieth-century hospitals might be questioned. They suggest that a well-built, beautiful building will sometimes be allowed to endure for ages, and in order to insure this the founders in many cases took good care to liberally endow the institution. The present-day tendency is for a rich man to furnish the money for a fine building or institution, giving it his name, and then to leave it to take care of itself, totally ignoring the fact that quite frequently the burden of the maintenance is wholly beyond the resources of those in charge.

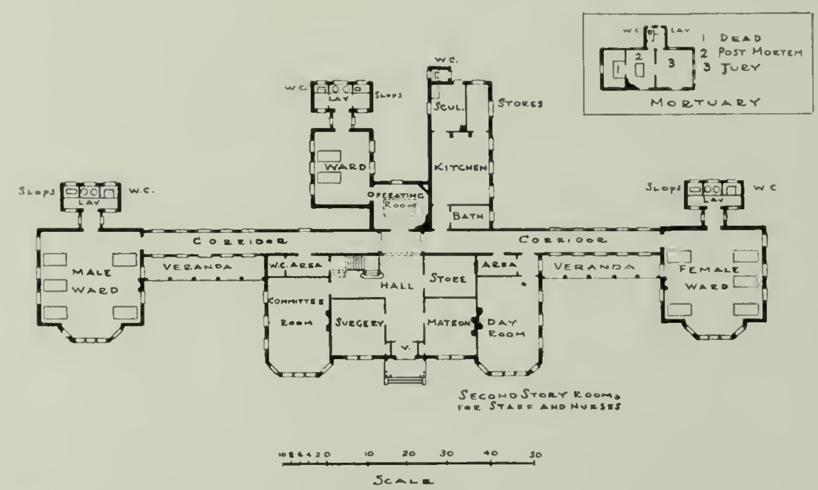


FIG. 4. SIR H. C. BURDETT'S MODEL PAVILION OF 1877.

The old builders "builded better than they knew" in many ways.

The desirability of local hospitals in the smaller cities and towns in America was evident very soon after their demonstration in England, but there were very few or none built before 1870. In the year 1878 there were, as nearly as can be ascertained, some four hundred and fifty hospitals all told in America, and this figure will undoubtedly cover all institutions of an analogous nature. These were almost all, except the asylums and insane hospitals, in the cities and large towns and were at the time considered large hospitals.

Between 1880 and 1890 a large number of hospitals were incorporated and started, most of them in a small way, but all of them inaugurating a most noble and greatly needed work, calling for a development of the highest and most humanitarian qualities of citizenship.

According to Burdett's "Cottage Hospitals," edition of 1880, there were at that time in Boston some fifteen hospitals with accommodations for about one thousand patients, and in the rest of the state, exclusive of those for the insane and those belonging to the naval and marine services, but eleven hospitals, aggregating about two hundred and forty beds. All of the hospitals were in cities of from twelve thousand to fifty thousand inhabitants, therefore there were none of a distinctly rural or suburban character. Of the eleven Massachusetts hospitals there were —

- 6 in remodeled dwellings,
- 2 in dwellings not remodeled,
- 2 in specially designed brick buildings,
- 1 in a specially designed wood building.

This latter, the first American cottage hospital, was the "House of Mercy" at Pittsfield, Mass. It was opened in a frame dwelling, January 1, 1875, and was the direct result of visits to England and a careful study of the successful work then well under way.

The capacity was eight beds, and it was used for three years. In 1877, being convinced of the unsuitable character of the building, location and soil, a lot of three-quarters of an acre was purchased and a new specially designed hospital of thirteen beds, arranged for extension, was built and opened to the public January 15, 1878. This new structure consisted of two small two-story wooden buildings connected by a corridor. There were no open wards, each patient having a separate room. The smaller building contained the administration and service, also an anomaly in the shape of an isolated ward for contagious cases. The entire cost is given as $9,500, one thousand dollars of which was for the lot. (Figs. 7 and 8.)

This, in brief, is the small and humble beginning of a great movement that has spread to all parts of the land until now there are very few towns of any size that have not a better hospital than the only one of its class twenty-five years ago.

The vital principles of small hospital construction were well understood a quarter of a century ago, as we see in Dr. W. Gill Wylie's very comprehensive essay in competition for the Boylston prize, published in 1876.

Dr. Wylie advises the absolute isolation of the ward unit to a degree not adopted, as far as I know, in any modern hospital. This comprehension is also shown in H. C. Burdett's schedule of desirable points, which have evident reference to fever or isolation hospitals, but which are well up to the ideal practice of to-day and are, I think, well worth copying as a very short and consequently very general schedule of requirements, namely:

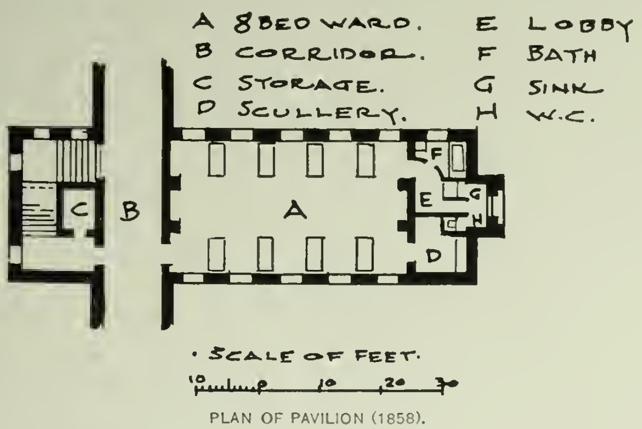


FIG. 5. BLACKBURN AND EAST LANCASHIRE INFIRMARY.

"1. Accessibility of situation, so that the sick may not be exhausted by long journeys; wholesomeness of situation; and, as far as consists with these conditions, an open, uncrowded neighborhood.

"2. Adequate ward space for each patient, approaching as nearly as circumstances allow to 2,000 cubic feet, with a floor space of not less than 144 square feet.

"3. Thoroughly good provision for ward ventilation (*i. e.*, for sufficient unceasing entrance of pure air and of exit of ward air), with arrangements also for immediate change of air in the whole ward when necessary.

"4. Perfect security against the possibility of any foul air (as from privies or sinks) entering any ward.

"5. Means of warming each ward in winter to a temperature of 60 degrees Fahrenheit and of keeping it cool in summer.

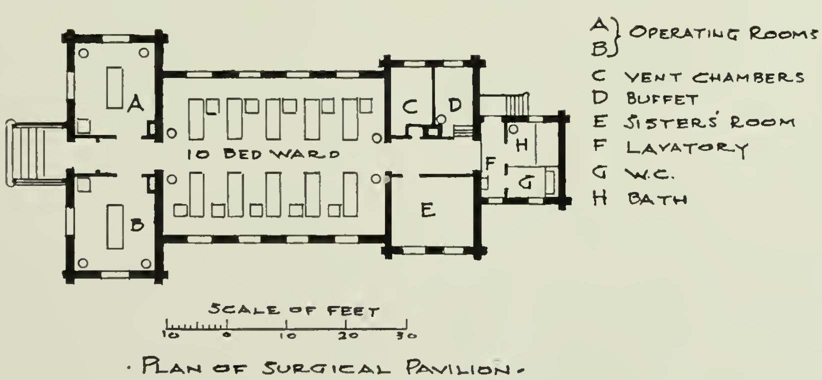


FIG. 6. THE NATIVITY HOSPITAL, ST. PETERSBURG (1878).

"6. Safe means (safe both for the hospital and for the neighborhood) for disposing of excremental matters and of slops and for cleansing and disinfecting infected linen and bedding.

"7. Facilities for obtaining in the use of the hospital the very strictest cleanliness in every part."

The causes leading to the establishment of hospitals in the towns and villages of America are the same as those dominant in England, and are suggested very clearly in No. 1 of the schedule above. The rich could be sent to the cities to the great general hospitals or to the private hospital of some renowned specialist; or, in many cases, the specialist visited the wealthy patient in the home of comfort if not of luxury, and a portion of the residence was for the time transformed into a fairly successful hospital ward. The mass of the people were, however, debarred from either of these possibilities, involving the expenditure of hundreds and sometimes thousands of dollars, and the result was suffering and death and needless spread of disease.

Humanitarians, professional and non-professional, the family physician and the family minister or priest welcomed the news that small hospitals were possible, and here and there set to work to interest good men and women in the new work for humanity.

The history of all such movements is very similar. In very rare cases money was furnished by some philanthropist and a complete new hospital built, but this was very unusual. In practically all cases a very small beginning was made by a few; an organization effected resulting in an incorporation, a little money raised or pledged, and a start made in a small house hired for the purpose. The scheme was usually regarded as an experiment, and the people had to be slowly educated up to the hospital idea by practical demonstration.

A few years ago the people generally regarded the hospital as a last resort, a place in which to die, a place of suffering, and not to be thought of except of necessity; and there was good reason in many cases for this feeling. All this had to be changed and it has been changed, but it has taken a great deal of hard work and much time to effect this change.

The cottage or the mansion first devoted to the hospital use, however crudely adapted to its new mission, has been invariably successful in demonstrating the great value of the hospital service to the community. This house, large or small as may be, has soon become inadequate to the demands made upon it, and additions and improvements are made from time to time.

In many cases a few years' demonstration has resulted in donations of various amounts, aggregating generally many thousand dollars, enabling the corporation to buy a large lot as ideally located as possible, and to start the nucleus, at least, of a new hospital plant of several buildings, providing for the most perfect classification possible in a small institution.

Dr. Alfred Worcester of Waltham, Mass., published in 1894 an admirable little treatise on Small Hospitals, a valuable work for all interested in the organizing of a small hospital. In it he emphasizes the great need for hospitals in all small towns and villages, and shows that the isolation of the sick, the special advantages of a local training school for nurses, which every hospital, however small, should have, and the great advantages to the local medical practitioners in being able to place their patients where they can be treated under the most ideal conditions, are of vital importance to the community.

(*To be continued.*)

FIG. 7. FIRST FLOOR PLAN, THE HOUSE OF MERCY.

THERE is one point which Mr. Waid brings out which ought to be insisted upon. The general custom has been for the architect to receive his first payment of one-half of his total commission when the contract is signed. The plan adopted by the United States Government and by the trustees of the Carnegie Libraries in New York and Brooklyn, of paying one per cent when the perliminary studies are completed, ought to be insisted upon by

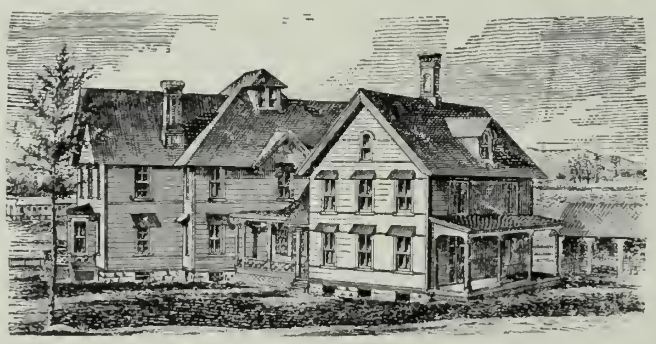


FIG. 8. THE HOUSE OF MERCY, BOSTON, MASS. (1874).

every architect. Furthermore, as recommended at the last convention of the American Institute of Architects, an additional two-fifths of the whole commission ought to be paid when the drawings are ready for a contract or within thirty days therefrom. The architect is now practically called upon to advance a large sum of money for the preparation of the drawings, and this constitutes a very heavy load from which he ought to be relieved.

The Business Side of an Architect's Office. VII.

BY D. EVERETT WAID.

ARCHITECTS' CONTRACTS AND FEES.

IN reference to question nine, "On the desirability of charging clients, in addition to the regular fee, five per cent on sanitary, heating and electric work to cover expert service as recommended by the American Institute of Architects," Ernest Flagg has stated to the writer that he never charges less than five per cent for his work, whatever its character or magnitude. On the contrary, he regards five per cent as too low compensation, and believes very strongly that the profession should endeavor to increase the fee to seven and one-half per cent. Mr. Flagg opposes emphatically the employment by the client of engineers or other experts; everything that goes to produce a building should be under the direction of the architect. Moreover, all experts and engineers should be employed and paid by the architect. A client does not want to be annoyed with charges for extra items like blue prints, five per cent additional on the heating contract, another five per cent for electrical engineering, etc., but would rather pay a fixed rate on the total cost of a building. Mr. Flagg believes in this position so firmly that even when he is getting no more than five per cent on a piece of work he pays his own experts and under ordinary conditions does not even ask his client to pay traveling expenses. He stated that during one series of four years when his executed work exceeded a million dollars per year, his actual office expenses had amounted to three and eight-tenths per cent.

Mr. Post takes a somewhat similar stand in the matter of charging for experts' services. He has a sanitary engineer in his office, has a standing contract with a firm of electrical engineers to do all his work in that line for a fixed percentage, and employs special engineers who come into his office and work with his own draughtsmen, designing the heating and ventilating apparatus so that it may become an intimate and harmonious part of the structure of the building. On the great Stock Exchange building, recently finished, in which the heating and ventilating apparatus cost an unusually large amount, he paid the heating engineer five per cent on that amount and himself received ten per cent plus five per cent on the engineer's fee. In other words, the engineer is paid by the owner on the architect's certificate in the same manner in which contractors are paid. But under ordinary conditions Mr. Post considers that the architect should furnish at his own cost all skill needed in designing, heating, plumbing and electrical equipment.

McKim, Mead & White, on the other hand, strongly oppose this attitude and make it their practice to charge an additional five per cent on heating and electrical work (if not always on plumbing) for all buildings of importance, and they cite a long list of structures, including the Brooklyn Institute of Arts and Sciences, Columbia University buildings, etc., etc., on which the clients have paid ten per cent.

It is the custom of the office of Carrère & Hastings to charge to cover expert fees in like manner.

Shepley, Rutan & Coolidge write: "The majority of our clients pay ten per cent for expert work, others seven and one-half per cent."

One well-known firm writes in regard to charging for expert fees: "This depends on circumstances, but it should be only in exceptional cases."

Holabird & Roche say: "We have our own departments to cover the sanitary, heating and electrical work, and expert services in these lines is included in our regular fee."

A Pittsburg firm of high standing remarks regarding this ninth question: "Very desirable, but difficult."

Cass Gilbert writes: "I believe the architect is entitled to such additional fee."

A Cincinnati firm replies thus: "We believe here, as a rule, the architect's commission covers expert service for special lines, though the American Institute of Architects' recommendation will in time prevail as the value of expert service becomes more recognized."

A Chicago architect of long experience discusses the matter as follows: "In regard to charging clients five per cent extra on sanitary, heating and electrical work, we have recently added this provision to our schedule of charges, but have not had time to get it in working order. We consider that the five per cent is too small a charge for the average run of work. Buildings have increased greatly in complexity since the schedule of the Institute was adopted, and the cost of making plans is thereby greatly increased. Such a relief as would be gained by an additional percentage on these items is needed by the profession, and if it cannot be secured from the public, then the percentage of charge on the building as a whole should be increased."

A number of Boston architects whose attention has been drawn to this matter of expert service agreed that Mr. Wheelwright has stated the case fairly in his book on School Architecture, in which he treats it as follows:

"An architect should be expected to so plan a building that radical changes in construction are not required to admit the satisfactory installation of a system for heating and ventilation, but few architects have had the technical training coupled with the experience which warrants them in designing such a system without consultation with an engineer whose interest in the work is not commercial. Where a system has been almost paralleled in a former building constructed with such expert assistance, an experienced architect, if he has an honest and competent contractor, may accomplish a fairly good result, but even under such condition the work would generally be brought to a nicer conclusion if an expert were employed.

"Where a competent expert makes the plans and specifications and supervises the construction of such a system, all competitors for the work are put upon an equal footing, and the expert's compensation will be offset to the owner, if not by the first cost, certainly by the greater economy in running and maintaining the plant and its greater efficiency above that of a system installed by the lowest commercial bidder who uses his own plans and specifications. Expert service is rendered primarily for the client's benefit, and if a client is unwilling to pay for such service, the choice of a system based upon commercial competition is all that he can fairly expect his architect to furnish."

Turning now to questions

"6. Observations as to the practice of submitting drawings without compensation in the hope of securing work;

"7. On entering competitions without compensation;

"8. On entering competitions in which prizes are offered."

One answer from a firm of long experience in the West is this: "We never enter a competition unless guaranteed pay for our designs. We do not consider a prize as any inducement. We refuse every competition, unless we are guaranteed a definite cash payment for our plans, whether used or not."

Another writes: "We seldom go into competition any way, and where for special reason we do enter them, we always insist that some kind of prize shall be offered and that some competent judge shall decide the question."

One of the best-known firms in the country takes this attitude: "We submit drawings when requested, without compensation when not in competition. We do not enter competitions unless paid for our service."

A New England architect writes on submitting drawings without compensation: "It depends on what the service is, and should never be done for the sake of getting work away from another."

Holabird & Roche say: "We do not enter competitions without compensation."

A St. Louis firm, Mauran, Russell & Garden, states: "We have not entered competitions of any sort during the last few years, previously having confined ourselves to those offering compensation. We consider competitions, broadly speaking, of little if any value to the client and a waste of time and money to the architect."

C. F. Schweinfurth expresses his belief that "submitting drawings without compensation is common practice, but it should be discouraged in every honorable way. It is what some people call 'business,' so also is entering competitions without compensation, or where prizes are offered called 'business,' but both methods are entirely foreign to the honorable practice of a profession."

Babb, Cook & Willard answer the questions thus: "We do not enter competitions without compensation except in the case of work for the Treasury Department, and we trust this exception will not long exist. We do not enter competitions in which prizes are offered unless there is also compensation."

Cass Gilbert says: "I do not enter competitions without fixed compensation, nor unless the organizer of the competition is advised by an expert architect. . . . The practice of submitting drawings without compensation, in the hope of securing work, should be discountenanced."

Eames & Young answer question 6, "no, no, no;" question 7, "never;" and question 8, "never."

Another architect writes: "The practice of submitting sketches without compensation is demoralizing, to say the least, though quite common."

Let us close this chapter of various considerations on architects' fees by reverting to the matter of architects' supervision. Important precedents are now making in this connection which demand the attention of the profession. The United States government seems inclined to take the ground that it is proper to allow an architect three and a half per cent for his services exclusive of supervision, and to turn that important function over to government engineers. Thus would architects find themselves in the humiliating position of being held responsible for good buildings while without authority in the execution of their designs. The question came to issue in connection with the Agricultural Building, for the government at Washington. Lord & Hewlett won the commission through a competition, but when a contract for partial services was submitted for their signature they declined to sign except on the following conditions:

"1. That it shall provide that we shall certify to the proper performance of the work in accordance with our plans and specifications.

"2. That we shall provide such superintendence as is necessary to such certification.

"3. That our remuneration shall be a sum equivalent to five per cent on the total cost of the work."

Lord & Hewlett may suffer for taking such a stand, but they realized that a vital principle is at stake and that not a mere loss of a few dollars was in question, but a precedent which may become of far-reaching importance to the profession. If the government chooses to sublet contracts and places the army engineers in charge, they can do the superintendence which belongs to general contractors most effectively; but they must work under the direction of the designer of the building or an elemental mistake will have been made. The above-noted instance and others of recent date have called the attention of the profession to the misapprehension of the Institute schedule in its old form, and hence the adoption of a new phraseology at the convention in Cleveland lately.

Every architect has occasionally to make a special contract for partial services, leaving supervision to others; but his schedule should give rates for partial services, only for the purpose of fixing time of payments due himself or to cover the contingency of abandonment of work. He should guard carefully against giving his client the option of dismissing him after drawings are made and at will, assuming to himself the supervision of execution, or placing it in the hands of outsiders.

(To be continued.)

PHŒNIX HOLLOW TILE WALL CONSTRUCTION.

A CORRECTION.

IN our last number, describing the Phœnix Hollow Tile Wall Construction as used in the construction of the tank house for the American Smelting and Refining Company, by an oversight the vertical I beams were stated to be sixteen inches on centers. This should have been sixteen *feet* apart. Henry Maurer & Son write us that such large beams are not necessary for walls of only four inches thickness, and as we stated in the summary of cost, for a four-inch wall the uprights need be no heavier than six-inch I beams every fifteen feet, as in the building for the Barber Company illustrated.

Fireproofing.

"NEW YORK" REINFORCED TERRA-COTTA FLOOR ARCH.

ALTHOUGH terra-cotta arches have been in use many years and numerous patents taken out on so-called improvements, there have been few departures in practice from the ordinary flat, side or end construction and segmental types.

The segmental arch is the strongest and cheapest for a given weight, but it cannot be used under conditions where a flat ceiling is indispensable.

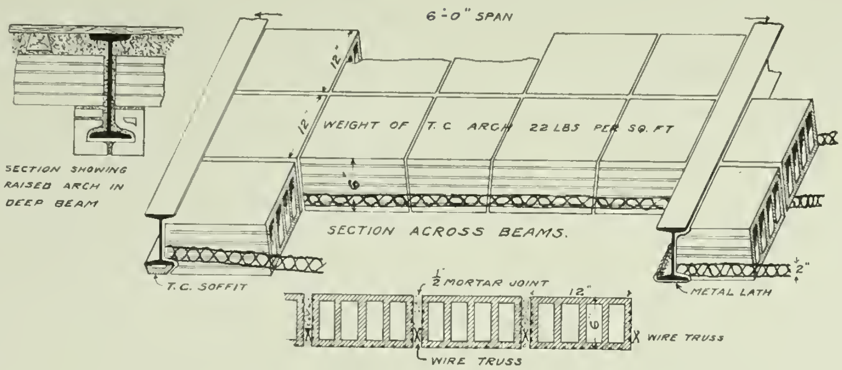
For a number of years the New York Building Department has limited the width between "I" beams in fireproof floors to about six feet. The Building Law required the depth of all hollow-tile floor arches to be one and one-quarter inches for each foot of span, and not including the

"NEW YORK" REINFORCED TERRA-COTTA ARCH, SHOWING PILE OF BRICK EQUAL TO SIX HUNDRED POUNDS PER SQUARE FOOT OVER ARCH SIX FEET BY FOURTEEN FEET, CARRIED BY THE ARCH AFTER THE FIRE AND WATER TEST. NOTE CRACK IN TEST HOUSE WHICH CAUSED THE SPREADING OF THE BEAMS.

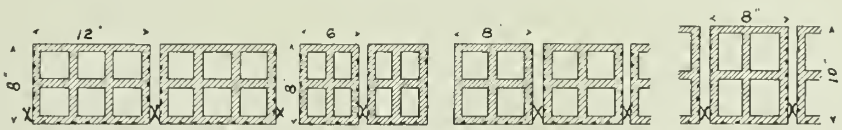
projection below the flange of the beams. This allowed the use of an eight-inch arch in a six-foot span. Such an arch of light section, side construction, is good for a live load of one hundred pounds per square foot with a factor of safety of seven, or one hundred and seventy pounds if of end construction. There never was a failure of such an arch if properly set, so that theoretically and practically nothing more was required; but when the General Building Law was revised a few years ago, the law was changed to read one and three-quarters inches instead of one and one-quarter inches, making the conditions more favorable to reinforced concrete construction than to terra-cotta. This change necessitated the use of a twelve-inch terra-cotta arch in a six-foot span, even though only seventy pounds per square foot live load would be carried in a dwelling or hotel. This meant a loss of about four inches of ceiling height on each story, besides greater weight of steel to carry the unnecessary dead weight in the floors.

To overcome these disadvantages in the use of terra-cotta arches and to meet the competition of cheap and light so-called fireproof floor constructions, and at the same time to give a floor that is fireproof, P. H. Bevier, an engineer, has designed a new type of arch, which the National Fire-proofing Company has recently put upon the market.

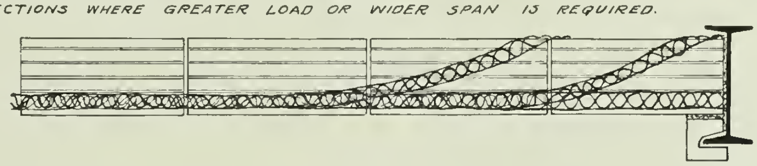
On the twenty-third of November the representatives of the various bureaus of buildings of the boroughs of Greater New York met at the Perth Amboy factory of the company to make the official fire and water test of the six-inch flat arch which had been erected twenty-eight days previously under the direction of the representative of the Department of Buildings. The test house was built of twelve-inch brick walls fourteen feet by fourteen feet by nine feet six inches high from the grate bars to the underside of the arch. The arch to be tested was six feet wide by fourteen feet long, built in the center of the house, with a narrower arch on each side, and loaded with one hundred and fifty pounds of brick built in detached piers. At twelve o'clock noon the fire was started, using pitch pine and hard cord wood, and an average temperature of 1730 degrees Fahrenheit maintained until four P. M. At the end of the four hours of fire a stream of water under sixty pounds' pressure at the pump and thrown from a one and one-eighth inch nozzle was directed against the red-hot underside of the arch for five minutes. The top of the arch was then flooded for five minutes and the drenching from beneath repeated for another five minutes. The arch was then allowed to stand over night.



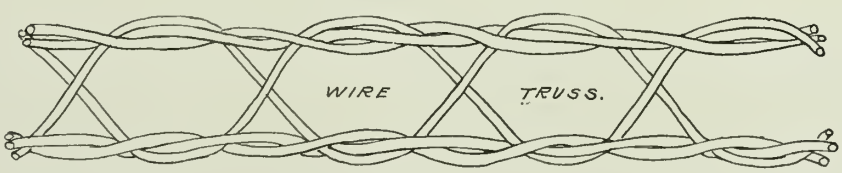
ABOVE ARCH ACCEPTED BY NEW YORK BUILDING DEPARTMENT FOR LIVE LOAD OF ONE HUNDRED AND FIFTY POUNDS PER SQUARE FOOT.



SECTIONS WHERE GREATER LOAD OR WIDER SPAN IS REQUIRED.



HALF SECTION THROUGH WIDE SPAN ARCH, SHOWING USE OF MORE THAN ONE PIECE OF WIRE TRUSS TO GIVE GREATER STRENGTH IN CENTER AND PREVENT SHEARING OF BLOCKS AT ENDS OF ARCH. DEPTH OF BLOCKS, NUMBER OF TRUSSES AND SIZE OF WIRES ARE PROPORTIONED TO LOAD AND SPAN.



"NEW YORK" REINFORCED TERRA-COTTA ARCH (BEVIER PATENT).

The next morning the load on the arch was increased to six hundred pounds per square foot over the entire surface, using hard brick built in isolated piers one foot by two feet, so that they did not bond, and carried thirty-four courses high, or to a height of six feet eight inches. The twelve-inch "I" beams deflected about three-fourths of an inch under the heat and load, while the center of the arch deflected about one inch. The deflection of the arch was largely caused by the cracking and spreading of the top of the fire house, allowing the beams to spread and the arch to sag. This cracking is clearly shown in the illustration. The underside of the arch blocks was somewhat checked by the sudden contraction caused by the stream of cold water, but the strength of the arch was not seriously affected by the ordeal through which it had passed, as was shown next day when the six hundred pound per square foot load was carried without further deflection.

The arch as tested by the Building Department consists of six-inch flat terra-cotta end construction blocks weighing twenty-two pounds per square foot, with no middle horizontal cross web, each block having four cells.

The metal reinforcement is in the form of a wire truss, the upper and lower chords being composed of two No. 13 galvanized twisted wires and the diagonal members being single No. 14 wires.

Being embedded in Portland cement mortar the wires are preserved from rust, and being enclosed in terra-cotta they are protected from the heat. The lower chord is about one-half inch above the bottom of the arch. The advantages of this style of tension member are:

First. It can be made cheaply by machinery now in use.

Second. It gives a perfect mechanical grip to the mortar as well as the adhesion of cement to the wire.

Third. When the wires are bedded in the mortar the compression members are kept from deflecting under pressure, so that it becomes a true truss and acts as a beam in itself as well as a tension member in the arch.

Fourth. It is conveniently shipped on reels, and when unrolled the spring of the wire causes it to straighten out, its rigidity being equal to that of a piece of band iron of equal section. This feature will appeal to any one who has ever tried to use ordinary twisted wire in any form of arch construction.

Fifth. It can be cut to proper lengths on the job by hand shears to fit the varying spans between the beams.

Sixth. On account of the metal being used in two cables and connecting wires, it occupies less horizontal space than if all the wires were twisted into one cable, thus permitting the use of a narrower vertical mortar joint than would be possible with one cable.

Seventh. On account of its peculiar construction, and by exposing a large amount of surface to the mortar, the bond between the cement and the wire cannot readily be broken by sudden jars or vibrations in the arch, as is the case where any form of smooth bars is used.

Eighth. On account of the openwork construction of the metal, soft mortar readily flows around all the wires, thoroughly embedding them and also forming a continuous mortar joint through the truss connecting the terra-cotta blocks on either side. Where flat band irons are used, it being very difficult to keep the bar exactly in the center of the joint, it is impossible in setting to get the mortar between the bar and the block, where one side of the bar is in contact with it, thus getting only one-half the efficiency of the metal construction.

"NEW YORK" REINFORCED TERRA-COTTA ARCH. SIX-INCH END CONSTRUCTION BLOCKS — DOUBLE TRUSS, CARRYING SIXTEEN HUNDRED POUNDS PER SQUARE FOOT ON SIX-FOOT SPAN BY FIVE FEET WIDE.

Ninth. It is a well-known fact that Portland cement is the best preservative of steel known. For this reason the wire will last indefinitely to its full efficiency, which is not the case where light sections of steel are used in cinder concrete, plaster Paris or similar compositions.

The arch which was tested was six inches deep and for a span of six feet between beams, but the same principle can be applied to wider spans by increasing the depth of the arch blocks and increasing the thickness of wires, or by increasing the number of them in each joint.

Where the span between beams would be so great that the blocks would tend to shear off near the beams, this tendency is overcome by turning up the ends of some of the trusses, as shown in the drawings, while keeping the center down to the bottom of the arch, where the greatest tensile strength is required. Various methods are shown in the drawings for supporting the ends of the arches, but these are not peculiar to this arch.

The cost of this arch is but slightly more than the ordinary six-inch end construction arch. The permit issued by the New York Bureau of Buildings allows it to be used for a live load of one hundred and fifty pounds per square foot. The photographs show the test house required by the New York regulations and the weight carried after the test. The drawings show, more clearly than any description, the form of the wire truss used and the method of its application.

The truss is placed on edge and runs from beam to beam in the vertical joint between adjoining blocks, the joint being about one-half inch wide and the mortar well grouted around the wires.

The experimental development of this construction to wide spans is being carried on, but the results are not yet ready for publication. There seems to be no question as to the possibility of using it up to about sixteen feet between supports for light loads. Made of porous terra-cotta, it would make an ideal roof construction.

THE CONCRETE DANGER.

IN justice to the community there ought to be a decided stand taken by every one who is interested in security of construction, in permanence of building, against such concrete work as we are hearing so much of nowadays. A short time since the floors of a courthouse in eastern Illinois collapsed almost without warning. Concrete. A flooring which was being installed in a large manufacturing plant at Trenton, N. J., collapsed on December 8 under a test, and a big section of it fell from the third story through the second and third floors to the basement, killing two men, narrowly missing forty others and doing twenty thousand dollars' worth of damage. Concrete. A few days before, in a large new apartment in Pittsburg, sections of each of the floors were totally destroyed by the giving way of a section of the false work on the roof. One man was killed, two hundred and fifty men were in peril of their lives and many thousand dollars' worth of damage resulted. The roof fell, taking with it all the lower floors through to the basement. Some of the floors had been in place about five months. The construction consisted of expanded metal and cinders concrete in bays of about 16 x 20 feet between beams. Concrete again. And so the tale might be extended. The number of concrete constructions which have absolutely collapsed within a single year is certainly appalling. Of course their failure was due to poor workmanship or poor design. So is everything untoward which happens, but that constitutes a very poor defense of a weak system. The fact that other systems fail occasionally is no excuse for the use of a concrete which not merely has failed under greatly varying circumstances, but has been shown again and again to be lacking in the very quality for which it is chiefly designed. Why a construction which is unsafe, which does not guard against fire, which has killed scores of unsuspecting workmen, should be used by any intelligent architect or builder who can read and use his senses is one of the mysteries which is by no means fully explained by any statement that it is cheap. We do not condemn concrete altogether. In its way and in its place, for some purposes, it is the most admirable material which the builder has at command, but we have yet to see any system of concrete floor or column construction which in our judgment is fit to be trusted in any building.

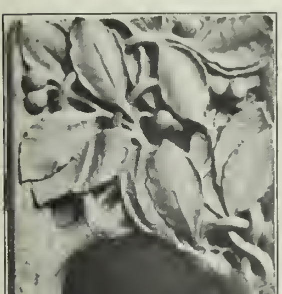
Selected Miscellany.

PANEL BY BEEZER BROTHERS, ARCHITECTS.
Northwestern Terra-Cotta Co., Makers.

PROFESSOR WILLIAM R. WARE.

ON the twenty-eighth of November a dinner was given to Professor William R. Ware at the Tavern Club, Boston, by a number of his former students in Boston and New York. The occasion was a most enjoyable one in every respect. Professor Ware has been before the architectural profession as its foremost teacher for thirty-five years, and during that time he has sent out to practise architecture something over six hundred pupils, without counting those whom he could fairly style his architectural grandchildren to even the second and third generations. Shortly before the war Professor Ware in company with Mr. Gambrell Mr. Post and a few others, studied in the New York studio of the late R. M. Hunt. Immediately after the war he opened an office in Boston and gathered around him a few earnest young men, of whom we only mention such names as John G. Stearns, Professor F. W. Chandler and Robert S. Peabody, to show the character of those who were attracted by Professor Ware's personality and his ability to inspire all who came in contact with him. The Institute of Technology was started in the late sixties, and owes its present high character almost entirely to the foundations Professor Ware laid so well, and when later he was called to Columbia his influence speedily brought the New York school to a very high rank. He has practically set the standard throughout the country for architectural education. John A. Mitchell, of *Life*, was one of Professor Ware's earliest students who has abandoned architecture. Another has made a fortune in running moderate-priced lunch-rooms in Boston and New York. There were others still who for various reasons did not pursue architecture as a profession, but the greater portion of those who once came under Professor Ware's influence have held fast to the mother art and have risen to some of the highest positions in their profession.

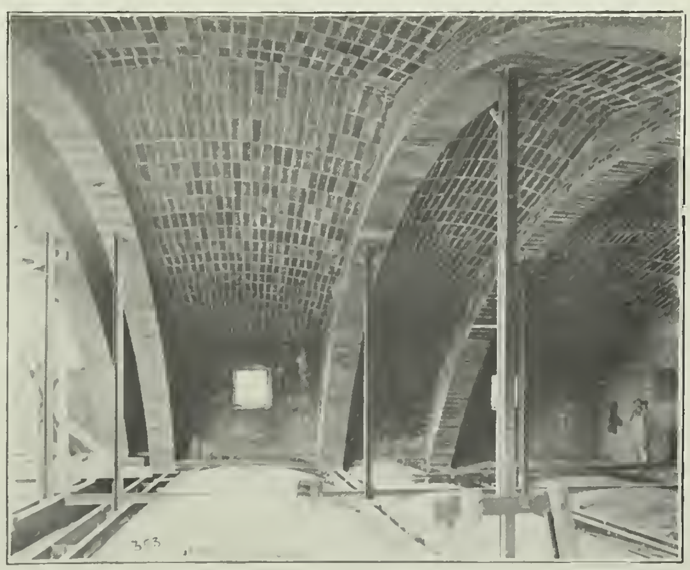
STRATFORD APARTMENT, CLEVELAND, OHIO.
William R. Watterson, Architect.



DETAIL BY HERTS & TALLANT, ARCHITECTS.
Perth Amboy Terra-Cotta Co., Makers.

TESTS OF ARCHITECTURAL TERRA-COTTA.

Unquestionably a series of tests which would determine the bearing capacity of architectural terra-cotta would meet a long-felt want among architects. Such tests should begin with the crushing weight of solid and cellular blocks of various sizes, the latter being submitted to separate tests as to their relative strength when filled and when left



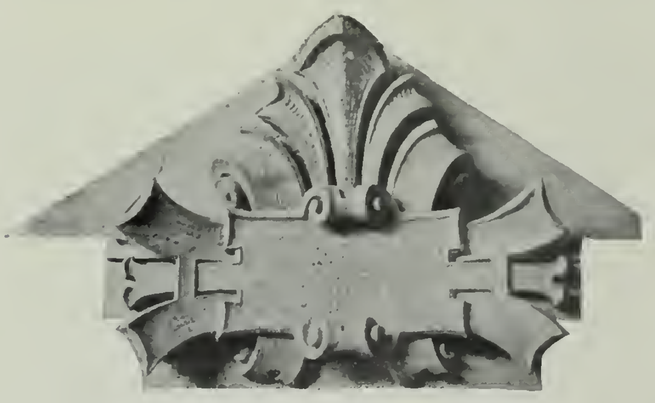
VIEW OF MASONRY ROOF GIRDERS AND ROOF AND FLOOR CONSTRUCTION OF STABLE FOR HOWARD GOULD, ESQ. BUILDING ABOUT FOUR HUNDRED FEET LONG. GUASTAVINO CONSTRUCTION THROUGHOUT.

unfilled. Following these should be a test of self-supporting arch lintels, spanning apertures of varying widths, with voussoirs of different depths and with reveals of from four to twelve inches. After this might come sections of columns of widely different diameters up to the limit allowable in single drums and then up to say three feet diameter, made in sections and filled with the customary brick backing. Such tests, to be conclu-

DETAIL BY W. B. TUBBY & BROTHER, ARCHITECTS.
Standard Terra-Cotta Works, Makers.

sive, should be thorough in character, comprehensive in scope and exhaustive in point of tabulated analysis.

The practical results of such a series of tests would be of unquestionable benefit alike to purchaser and producer, or — to bring it more directly under the eyes of those immediately concerned — let us say the architect and terra-cotta maker. The former is often in doubt as to what would be a safe load, from which he takes refuge in one



DETAIL BY CLINTON & RUSSELL, ARCHITECTS.
Excelsior Terra-Cotta Co., Makers.

of two alternatives. He introduces iron support, sometimes where it is not really wanted or necessary, so as to be "on the safe side," or he abandons his previous intention of using terra-cotta, substituting stone lintels, and in the case of columns uses granite or cast iron.

The data resulting from such tests would be highly reassuring to a man otherwise favorably disposed towards

LIGHT SHAFT, METROPOLITAN LIFE INSURANCE COMPANY BUILDING, NEW YORK.
Lined with Blue Ridge White Enamel Brick.

the use of terra-cotta, and in this category most of our best architects may be included. Thus would arise an increasing demand for terra-cotta to be placed in situations formerly reserved for other materials. Those who had not used it before would feel warranted in doing so after its strength had been demonstrated, while those who had always used it would continue to do so more extensively than before.

Robert W. De Forest, the Tenement House Commissioner of New York City, has transmitted to Mayor Low

LOWER PART OF WYLLYS BUILDING, PLATT AND WILLIAM STREETS, NEW YORK.
Front brick made by Kreischer Brick Manufacturing Co.

the first report of New York's new Tenement House Department. In it he says:

"On January 1, 1902, a new department of the city government, known as the Tenement House Department, was created. Since that time all tenement houses in New York have been examined and their condition ascertained.

"Tenement conditions in many instances have been found to be so bad as to be indescribable in print: vile privies and privy sinks; foul cellars full of rubbish, in many cases of garbage and decomposing fecal matter; dilapidated and dangerous stairs; plumbing pipes containing large holes emitting sewer gas throughout the houses; rooms so dark that one cannot see the people in them; cellars occupied as sleeping places; dangerous bakeries without proper protection in case of fire; pigs, goats, horses and other animals kept in cellars; dangerous old fire traps without fire escapes; disease-breeding rags and junk stored in tenement houses; halls kept dark at night, endangering the lives and safety of the occupants; buildings without adequate water supply; the list might be added to almost indefinitely.

LOGGIA, HOUSE AT THOMPSON, CONN.

STABLE OF HOUSE AT THOMPSON, CONN.
Shepley, Rutan & Coolidge, Architects.

"The cleansing of the Augean stables was a small task compared to the cleansing of New York's 82,000 tenement houses, occupied by nearly three millions of people representing every nationality and every degree in the social scale.

DETAIL BY V. HUGO KOEHLER, ARCHITECT.
New Jersey Terra-Cotta Co., Makers.

"The task that confronted the department was not, however, limited to this. Without organization, without employees, with all its problems before it, it was on the very day that it came into existence confronted with an organized and vigorous attack in the Legislature upon the fundamental principles of the law for whose enforcement it was created.

"Without previous records, with almost no information in regard to the condition of the existing tenement

DETAIL BY HOWELLS & STOKES, ARCHITECTS.
Atlantic Terra-Cotta Co., Makers.

houses, it was called upon to carry out an important and far-reaching scheme for their improvement, involving the structural alteration of over 40,000 buildings.

"In the period under consideration in this report a new branch of the city government has been organized, its machinery created and a force of about four hundred employees trained, disciplined and educated; far-reaching and important advances in legislation have been secured as a result of the department's action, and radical and vicious attempts to break down the tenement laws defeated.

"Living accommodations for 16,768 families, or 83,840 persons, have been provided in sanitary, comfortable and decent houses, each one of which has been built according to law; notorious evasion of and non-compliance with the laws have given place to their complete, uniform and impartial enforcement; the evil of prostitution has been practically abolished in the tenement houses;

DETAIL BY BORING & TILTON, ARCHITECTS.
Conkling-Armstrong Terra-Cotta Co., Makers.

337,246 inspections have been made; 55,055 violations filed; 21,584 repairs made to plumbing; 13,617 water-closets cleaned; 11,611 accumulations of filth removed from cellars and other parts of such buildings; 13,732 ceilings cleaned; 15,364 walls cleaned; 10,060 unsafe wooden floors removed from iron fire escapes, and new iron floors substituted; 1,701 fire escapes erected on buildings that before were without this protection.

"The registration of 44,500 owners' names has been

HIGH SCHOOL, TROY, N. Y.
M. F. Cummings & Son, Architects.
Terra-Cotta furnished by New York Architectural Terra-Cotta Co.

ST. MARGARET'S HOSPITAL, PITTSBURG, PA.
Ernest Flagg, Architect.
Roofed with eight-inch Conosera Tile made by Celadon Roofing Tile Co.

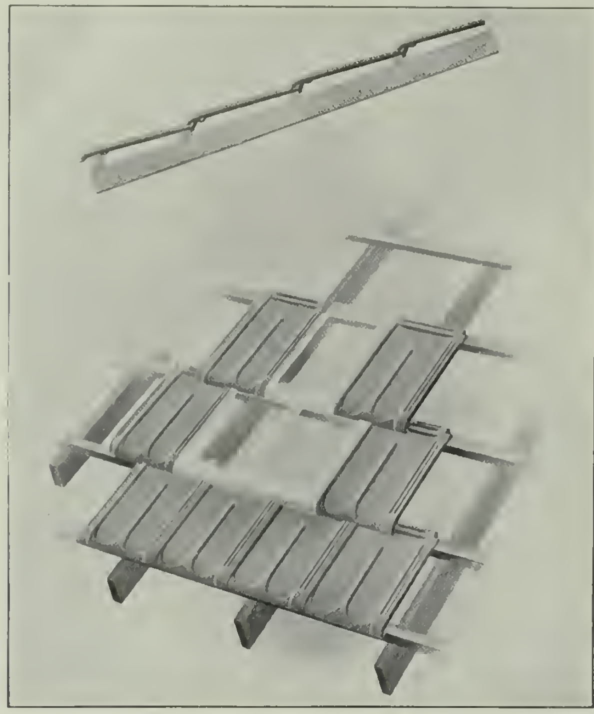
secured, thus fixing the responsibility for bad conditions in the tenements; contagious disease has been checked and prevented; 32,825 citizens' complaints have been investigated and the conditions complained of remedied; and an important tabulation and presentation of the population in every tenement house block in the Borough of Manhattan has been prepared that will be of incalculable value to the city.

"The existing tenement houses have been frequently and systematically inspected; foul cellars have had the accumulated filth of years removed; defective and unsanitary plumbing, which has apparently existed for long periods, has been remeedied; houses unfit for human habitation vacated; hundreds of houses have been radically reconstructed and improved; light has been let into dark rooms; vile yard privies and privy sinks have been removed, and the whole sanitary condition of the city raised to a higher standard. The results of this work are clearly reflected in the reduced death rate, which in 1902 was 18.7 as compared with 20 in 1901, and in the first eight months of 1903 has been reduced to 18."

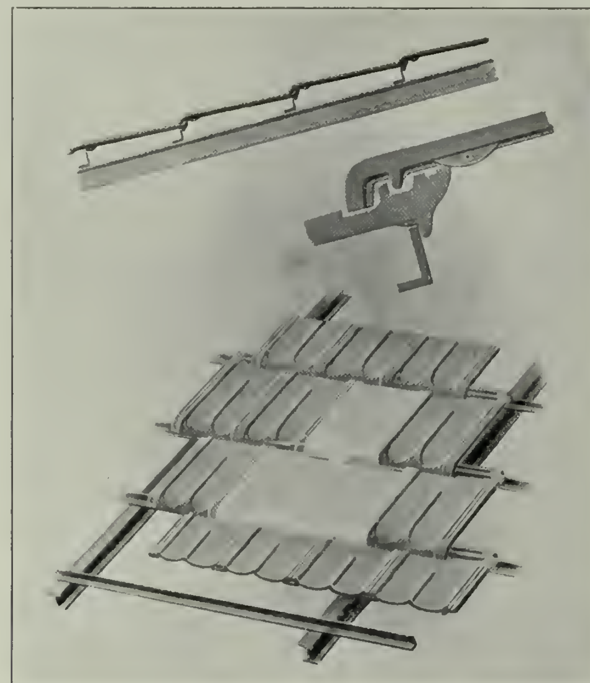
HOUSE, COMMONWEALTH AVENUE, BOSTON.
Peabody & Stearns, Architects.
Built of Sayre & Fisher Co. Brick.

ROOFING TILES.

Many years ago we had the interesting experience of measuring the central tower of the Cathedral at Toro, Spain. Our only means of access to the tower was by climbing ladders set against the walls of the nave and thence walking across the low pitch roof, which was covered with the light red semi-cylindrical roofing tiles which are so interesting a feature of Spanish architecture. We would not dare to say how many of these frail coverings were broken beneath our rough American shoes, but we heard them cracking at every step. When tiles were first introduced to this country they were unfortunately many of them quite as friable as the soft



RED CLAY ROOFING TILES WITH INTERCHANGEABLE GLASS TILES ON WOODEN CONSTRUCTION.



RED CLAY ROOFING TILES WITH INTERCHANGEABLE GLASS TILES ON IRON CONSTRUCTION.

Henry Maurer & Son, Manufacturers.

Spanish tiles, and a considerable prejudice existed against them for a long time. But the construction of roofing tiles has been brought to a very high state of perfection of late years, until now the market affords most excellent tiles which compare very favorably with those which are manufactured abroad as to color and texture, and are at the same time extremely durable, so that if properly applied a tile roof need cause very little trouble from repairs. One of the most annoying sources of trouble in a tile roof is the joints about the skylight and the difficulty of making the glass tight without building an unpleasing frame to project from the surface of the tiling. This difficulty, however, is obviated by the use of clear glass tiles, which can be had of shapes and sizes identical with the red tiles, through which light is admitted to any required extent. For factories, stations and railroad sheds these tiles, with the glass set in, give a very handsome roof, requiring the minimum of repair.

NOTES.

The Boston Architectural Club held during this month an exhibition and sale of sketches and water colors which were donated to the club by members and friends. Among them were drawings by C. Howard Walker, R. Clipston Sturgis, R. S. Peabody, Dwight Blaney, W. G. Preston, H. B. Pennell, William R. Emerson, R. D. Andrews, George F. Newton, S. W. Mead, E. F. Maher, H. P. White and others. The proceeds of this sale will be devoted to the benefit of the class and scholarship funds of the club.

We have received the catalogue of the second annual exhibition of the San Francisco Architectural Club. It is interesting, particularly, because of the work of the local men which is illustrated, and further as indicating that the club seems to be in a healthy and prosperous condition. About three hundred drawings were exhibited.

Mr. F. W. Fitzpatrick has opened offices as consulting architect in Washington, New York, and Chicago. He stands ready to supply a long-felt need on the part of many architects who will be glad to know of some one to whom they can turn when the office force is inadequate and there are not enough hands to do the work, or when special emergencies call for a kind of experience entirely outside of ordinary practice. Mr. Fitzpatrick has associated with him a corps of most eminent specialists.

COXE MEMORIAL HALL, ADMINISTRATION BUILDING, HOBART COLLEGE, GENEVA, N. Y.
CLINTON & RUSSELL, ARCHITECTS.

MEDBURY HALL, DORMITORY, HOBART COLLEGE, GENEVA, N. Y.
CLINTON & RUSSELL, ARCHITECTS.

COMPETITIVE DESIGN FOR BUILDING FOR THE FOUNDRY M. E. CHURCH, WASHINGTON, D. C.
EDGAR V. SEELER, ARCHITECT.

CHURCH, 93RD STREET AND BROADWAY, NEW YORK CITY.
W. A. POTTER, ARCHITECT.

THE BRICKBUILDER,
JANUARY,
1903.

HOUSE, NO. 5 EAST 66TH STREET, NEW YORK CITY.
HUNT & HUNT, ARCHITECTS.

FRONT ELEVATION.

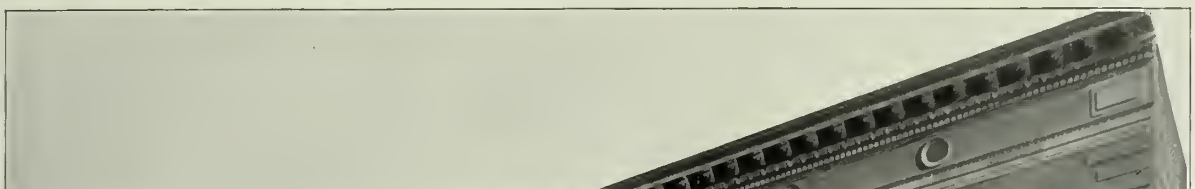
COMPETITIVE DESIGN FOR BUILDING FOR THE FOUNDRY M. E. CHURCH, WASHINGTON, D. C.

WARREN, SMITH & BISCOE, ARCHITECTS.

(PLACED FIRST BY THE PROFESSIONAL ADVISER.)

COMPETITIVE DESIGN FOR BUILDING FOR THE FOUNDRY M. E. CHURCH. WASHINGTON, D. C.
RANKIN & KELLOGG, ARCHITECTS.

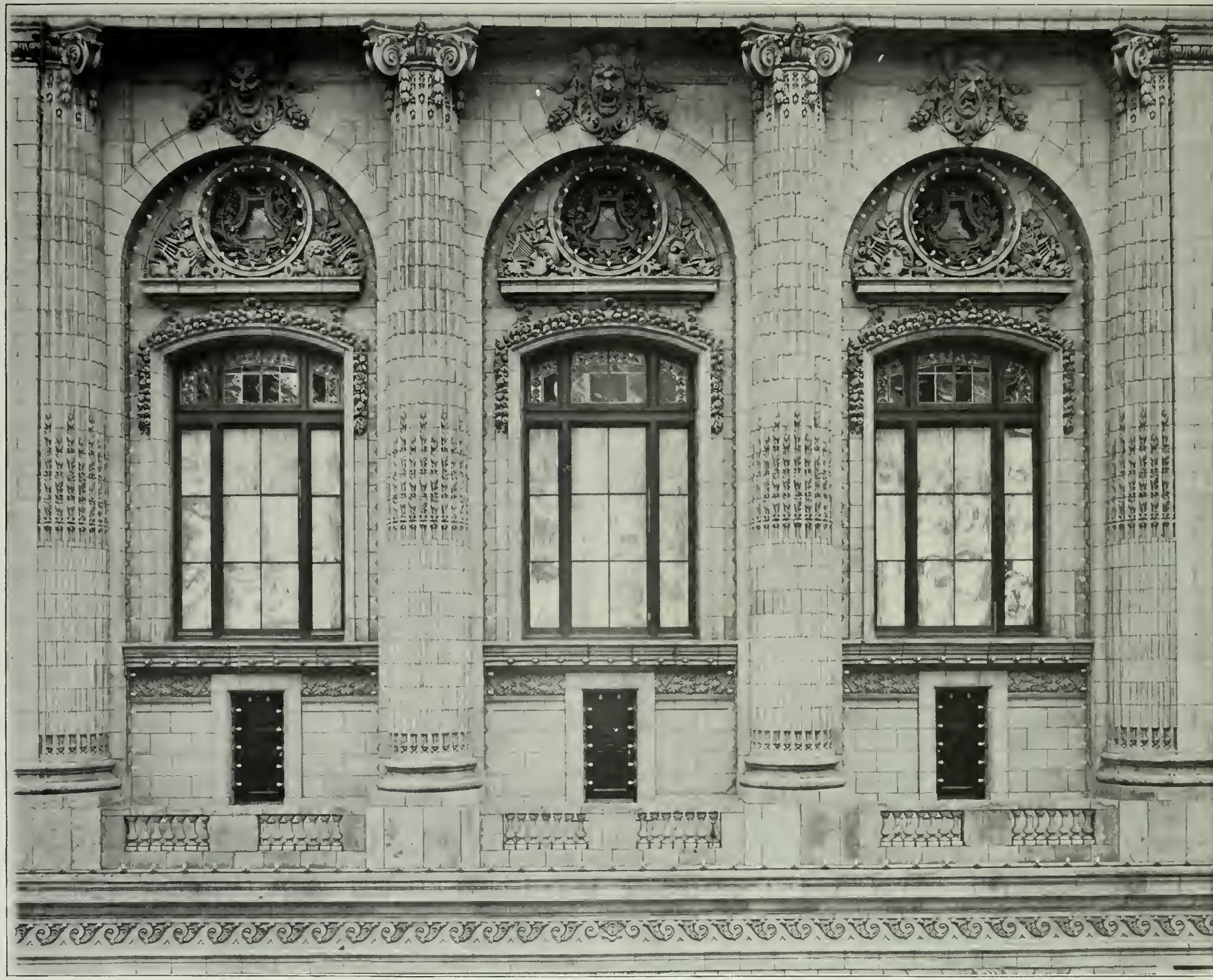
THE BRICKBUILDER,
JANUARY,
1903.



NEW BUILDING FOR THE NEW ENGLAND CONSERVATORY OF MUSIC, BOSTON, MASS.
WHEELWRIGHT & HAVEN, ARCHITECTS.

DWELLING FOR NURSES, BOSTON CITY HOSPITAL, BOSTON, MASS.
WHEELWRIGHT & HAVEN, ARCHITECTS.

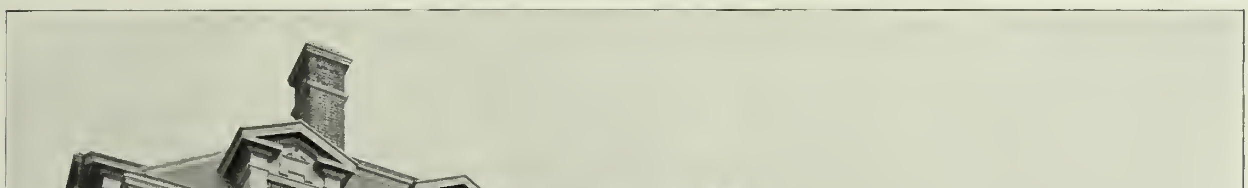
RECITATION HALL, VASSAR COLLEGE, POUGHKEEPSIE, N. Y.
YORK & SAWYER, ARCHITECTS



MAJESTIC THEATER, BOSTON, MASS. DETAIL OF FRONT.

JAMES M. WOOD AND JOHN GALEN HOWARD, ASSOCIATE ARHITECTS.

ADMINISTRATION AND WARD BUILDINGS.



ADMINISTRATION BUILDING.

FAULKNER HOSPITAL, WEST ROXBURY, MASS.

KENDALL, TAYLOR & STEVENS, ARCHITECTS.

VIEW OF THE AISLES.

VIEW GIVING DETAILS OF APSES AND CHOIR.

CHURCH OF SAINT-SERNIN, TOULOUSE, FRANCE.

HOTEL SCHENLEY, PITTSBURG, PA.
RUTAN & RUSSELL, ARCHITECTS.

FRONT.

REAR.

LECTURE HALL, HARVARD UNIVERSITY, CAMBRIDGE, MASS.

Guy Lowell, Architect.

GENERAL VIEW SHOWING APSES, CHURCH OF SAINT-SERNIN, TOULOUSE, FRANCE.

HOUSE AT PROVIDENCE, R. I.
STONE CARPENTER & WILLSON, ARCHITECTS.

ENTRANCE VESTIBULE.

OFFICE BUILDING, 457 AND 463 EAST 10TH STREET, NEW YORK CITY

WILKINSON & MAGONIGLE, ARCHITECTS.

RAILWAY STATION, RICHMOND, IND.
D. H. BURNHAM & CO., ARCHITECTS.

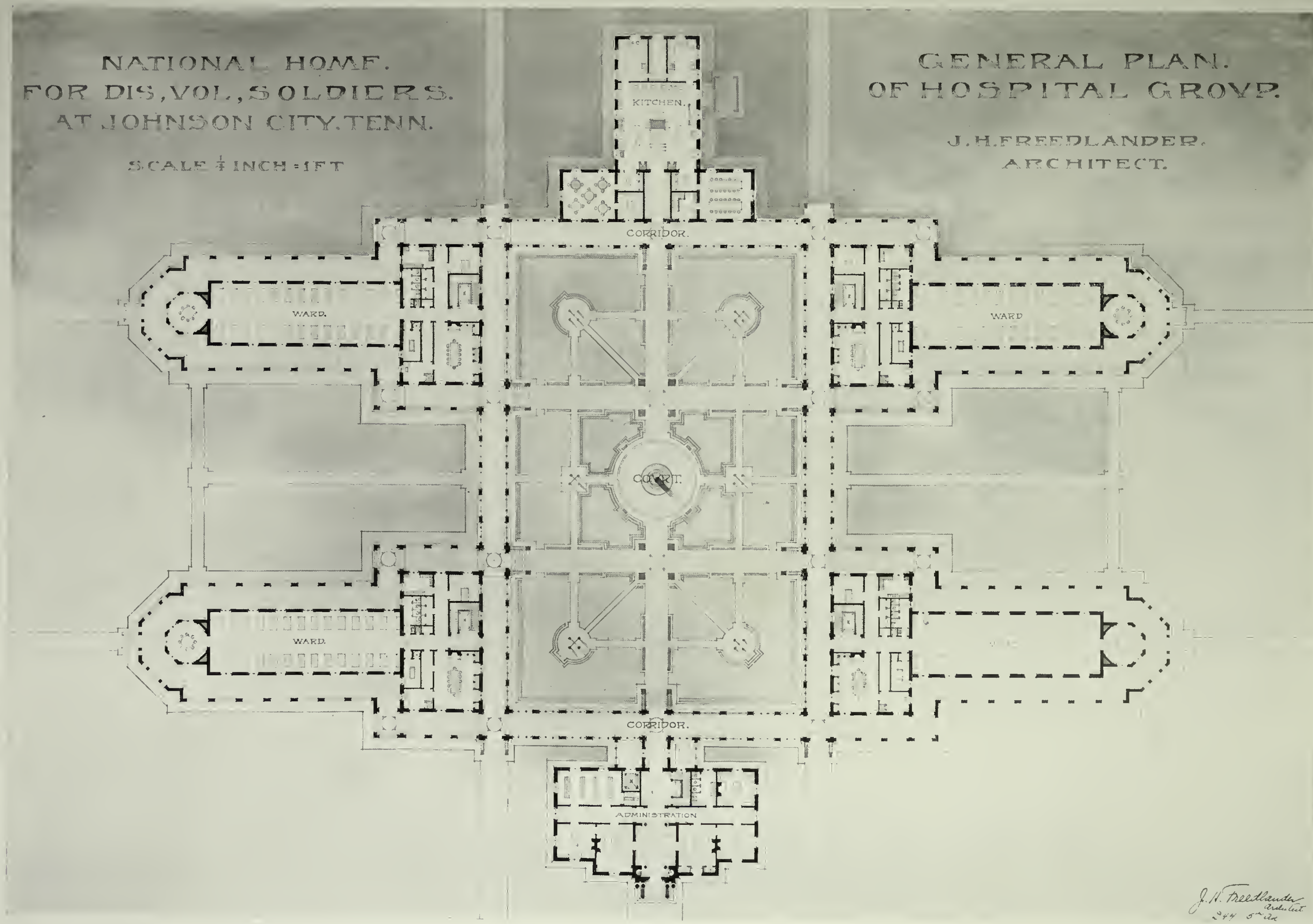
DETAIL OF MAIN ENTRANCE.

BUILDING FOR THE DEPARTMENT OF ARCHÆOLOGY, PHILLIPS ACADEMY, ANDOVER, MASS.

GUY LOWELL, ARCHITECT.

BUILDING FOR THE DEPARTMENT OF ARCHÆOLOGY, PHILLIPS ACADEMY, ANDOVER, MASS.
GUY LOWELL, ARCHITECT.

BOARD OF TRADE BUILDING, BOSTON, MASS.
WINSLOW & BIGELOW, ARCHITECTS.



THE BRICKBUILDER,
APRIL,
1903.

HOTEL TOURAINE, BOSTON, MASS.
WINSLOW & WETHERELL, ARCHITECTS.

GYMNASIUM, PHILLIPS ACADEMY, ANDOVER, MASS.
PEABODY & STEARNS, ARCHITECTS.

DETAIL OF FAÇADE, THE ROCHESTER ATHLETIC CLUB, ROCHESTER, N. Y.
LEON STERN AND BRAGDON & HILLMAN, ASSOCIATE ARCHITECTS.

MORGAN PARK GYMNASIUM, UNIVERSITY OF CHICAGO, CHICAGO, ILL.
DWIGHT H. PERKINS, ARCHITECT.

THE ROCHESTER ATHLETIC CLUB, ROCHESTER, N. Y.
LEON STERN AND BRAGDON & HILLMAN, ASSOCIATE ARCHITECTS.

SCHOOL BUILDING, GROTON SCHOOL, GROTON, MASS.
PEABODY & STEARNS, ARCHITECTS.

REAR ELEVATION.

FRONT ELEVATION.

GYMNASIUM, GROTON SCHOOL, GROTON, MASS.

PEABODY & STEARNS, ARCHITECTS.

HOUSE AT PENLLYN, PA.
A. W. LONGFELLOW ARCHITECT.

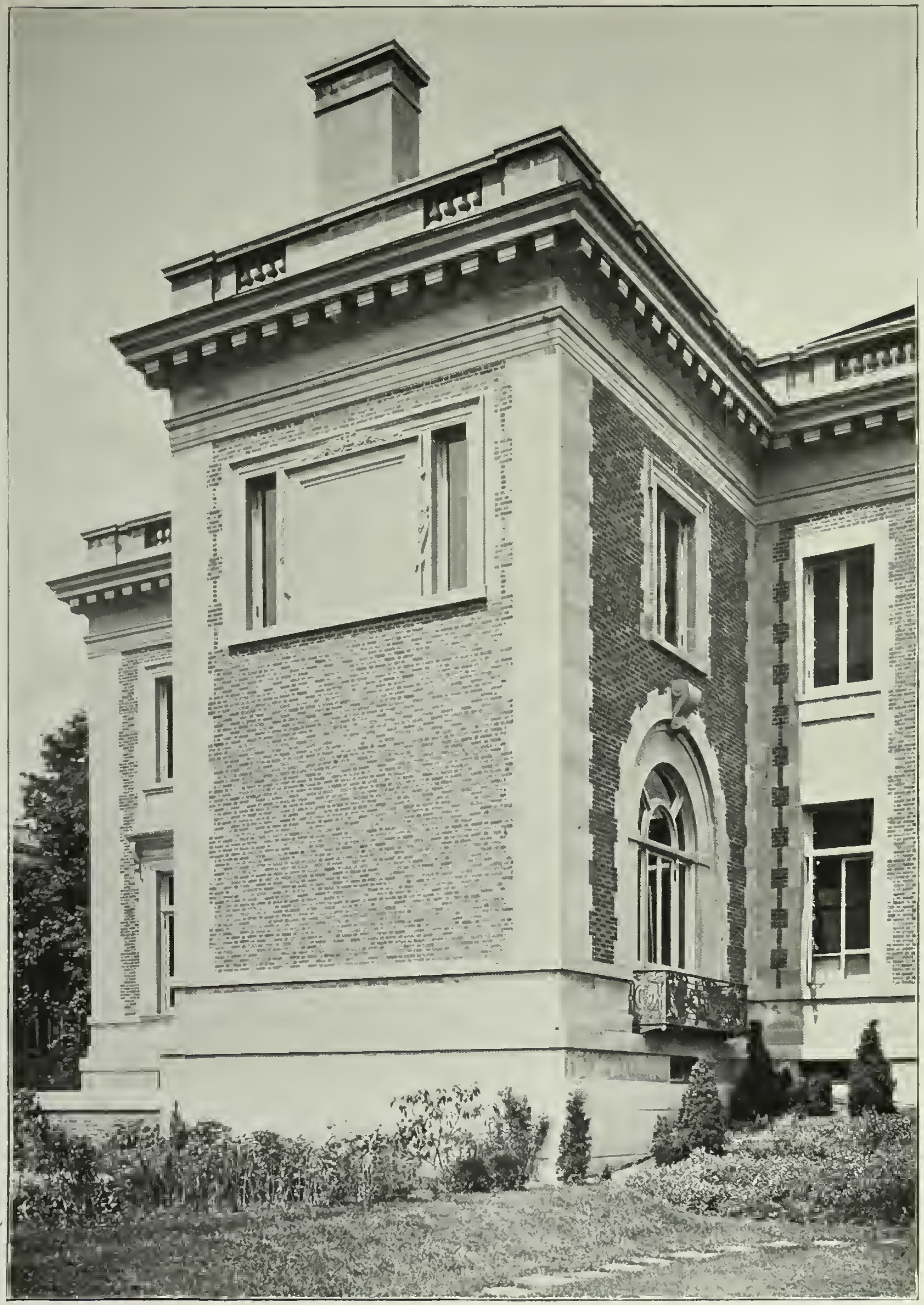
HOUSE AT LARCHMONT MANOR, N. Y.
WARD W. WARD, ARCHITECT.

HOUSE AND STABLE RADNOR, PA.
PEABODY & STEARNS ARCHITECTS.

HOUSE AT BROOKLINE, MASS.
SHEPLEY, RUTAN & COOLIDGE, ARCHITECTS.

HOUSE AT RADNOR, PA.

PEABODY & STEARNS ARCHITECTS.



DETAILS, HOUSE AT BROOKLINE, MASS.

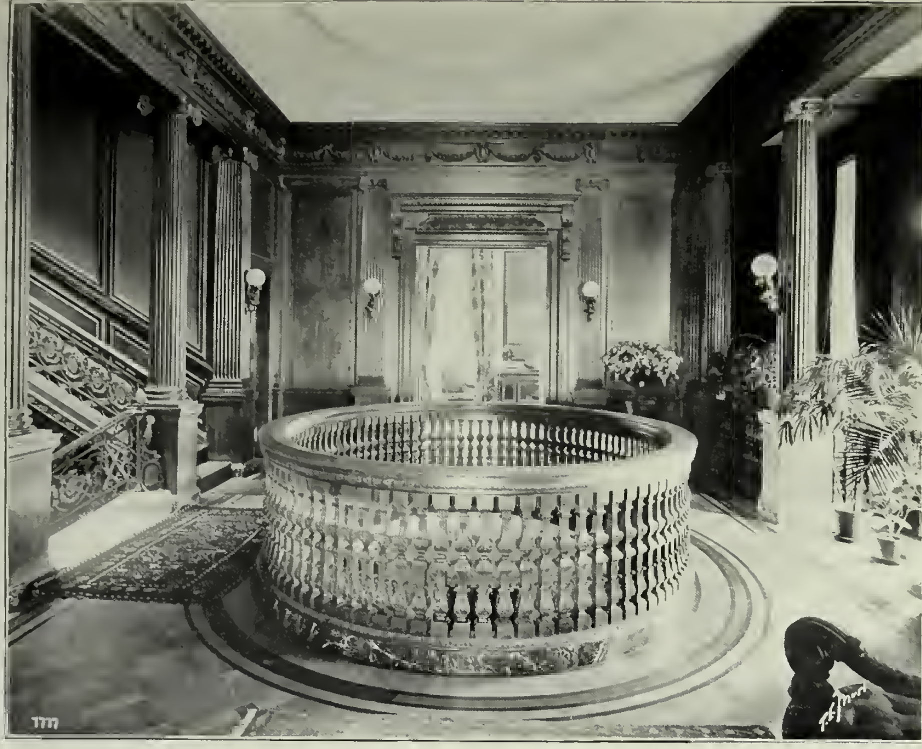
SHEPLEY RUTAN & COOLIDGE, ARCHITECTS.

HOUSE, BAY STATE ROAD, BOSTON, MASS

PETERS & RICE, ARCHITECTS.

HOUSE, CLINTON AVENUE, BROOKLYN, N. Y.
BABB COOK & WILLARD, ARCHITECTS.

THE BRICKBUILDER,
JULY,
1903.



HALLWAY, SECOND FLOOR.

DINING ROOM.

DRAWING ROOM.

LIBRARY.

INTERIORS. HOUSE, BAY STATE ROAD, BOSTON, MASS.

PETERS & RICE, ARCHITECTS.

THE BRICKBUILDER,
JULY,
1903.

WATER FRONT.

ENTRANCE FRONT.

HOUSE AT BAYVILLE, L. I.

Babb, Cook & Willard, Architects.

THE BRICKBUILDER,
JULY,
1903.

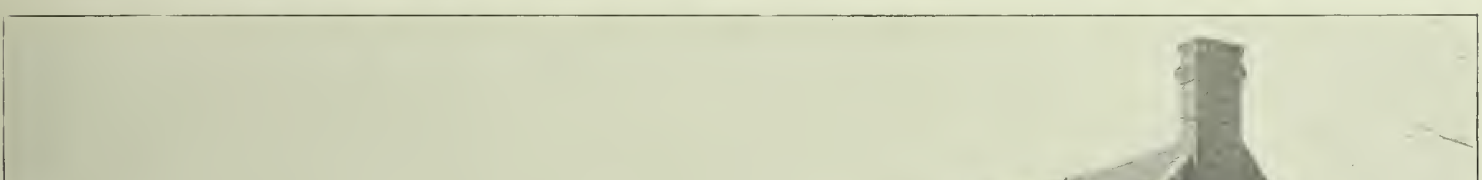
NEW CHINESE LEGATION. WASHINGTON, D. C.
WOOD DONN & DEMING, ARCHITECTS.

HOUSE AT WARREN, R. I.
CHARLES A. PLATT, ARCHITECT

HOUSE AT LLOYD'S NECK, LONG ISLAND, N. Y.
BORING & TILTON, ARCHITECTS.

PRIVATE CASINO, BROOKLYN, N Y.

BORING & TILTON, ARCHITECTS.



HOUSE AT SYRACUSE, N. Y.
BENSON & BROCKWAY, ARCHITECTS.

HOUSE, RIVERSIDE DRIVE, NEW YORK CITY.
HERTS & TALLANT, ARCHITECTS.

HOUSE AT LLOYD'S NECK, LONG ISLAND, N. Y.
BORING & TILTON, ARCHITECTS.

CINCINNATI GYMNASIUM AND ATHLETIC CLUB, CINCINNATI, OHIO.

WERNER & ADKINS, ARCHITECTS.

THE BRICKBUILDER,
AUGUST,
1903.

HOUSE FOR DR. GEORGE S. ISHAM, CHICAGO, ILL.
JAMES GAMBLE ROGERS ARCHITECT.

THE BRICKBUILDER,
SEPTEMBER,
1903.

HOUSE, BUENA PARK, ILL.
GEORGE W. MAHER, ARCHITECT.

HOUSE AT OAK PARK, ILL.
GEORGE W. MAHER ARCHITECT.

HOUSE OF FREDERICK C. BARTLETT, ESQ., CHICAGO, ILL.
FROST & GRANGER, ARCHITECTS.

THE BRICKBUILDER,
SEPTEMBER,
1903.

HOUSE, BUENA PARK, ILL.
POND & POND, ARCHITECTS.

HOUSE, RIVER FOREST, ILL. FRANK LLOYD WRIGHT, ARCHITECT.

HOUSE, OAK PARK, ILL. FRANK LLOYD WRIGHT ARCHITECT.

THE BRICKBUILDER,
SEPTEMBER,
1903.

HOUSE WOODLAWN AVENUE, CHICAGO, ILL.
FRANK LLOYD WRIGHT ARCHITECT.

HOME FOR THE FRIENDLESS AND FEMALE GUARDIAN SOCIETY, NEW YORK CITY.
WILLIAM BURNET TUTHILL, ARCHITECT.

THE BRICKBUILDER,
OCTOBER,
1903.

HOUSE AT LAKEWOOD, N. J.
BRUCE PRICE & DE SIBOUR, ARCHITECTS.

THE BRICKBUILDER,
OCTOBER,
1903.

HOUSE AT OVERSTRAND, NEAR CRAMER, ENGLAND.
E. L. LUTYENS, ARCHITECT.

HOUSE AT HUNTLY, CAMBRIDGESHIRE, ENGLAND.
HORACE FIELD, ARCHITECT.

HOUSE AT PROVIDENCE, R. I.
CARRÈRE & HASTINGS, ARCHITECT.

HOUSE AT LAKEWOOD, N. J.
BRUCE PRICE & DE SIBOUR, ARCHITECTS.

HOUSE AT PROVIDENCE, R. I.
CARRÈRE & HASTINGS, ARCHITECTS.

HOUSE, 5220 EAST END AVENUE CHICAGO. POND & POND, ARCHITECTS.

HOUSE, 5749 WOODLAWN AVENUE CHICAGO. POND & POND ARCHITECTS.

HOUSE, LAKEWOOD, N. J.
EDWARD PEARCE CASEY ARCHITECT.

DINING HALL, PHILLIPS EXETER ACADEMY EXETER N. H.

EDWARD PEARCE CASEY, ARCHITECT.

TENNIS AND RACQUET CLUB, BOYLSTON STREET, BOSTON MASS.
PARKER & THOMAS, ARCHITECTS.

APARTMENT HOUSE, CHICAGO. JAMES GAMBLE ROGERS, ARCHITECT.

APARTMENT HOUSE, CLARK STREET, EVANSTON. MYRON HUNT ARCHITECT.

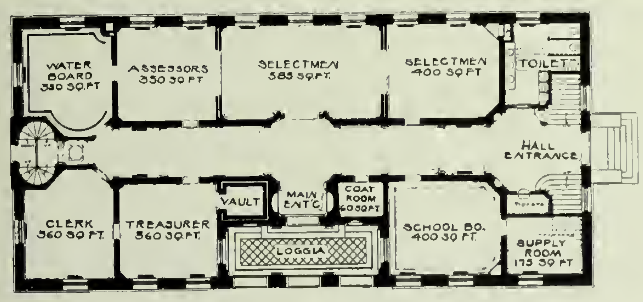
HOUSE, LAKEWOOD, N. J.
EDWARD PEARCE CASEY ARCHITECT.

FRONT OF HOUSE.

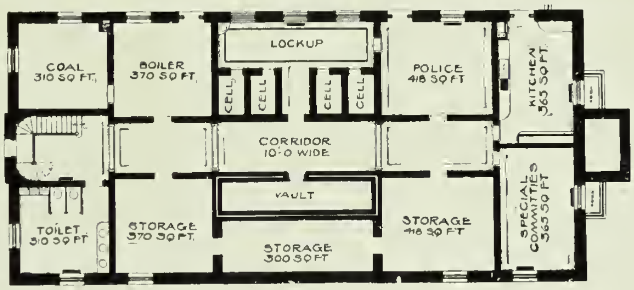
REAR OF HOUSE.

HOUSE AT THOMPSON, CONN. SHEPLEY, RUTAN & COOLIDGE, ARCHITECTS.

FRONT PORCH, HOUSE AT THOMPSON CONN. SHEPLEY RUTAN & COOLIDGE, ARCHITECTS.

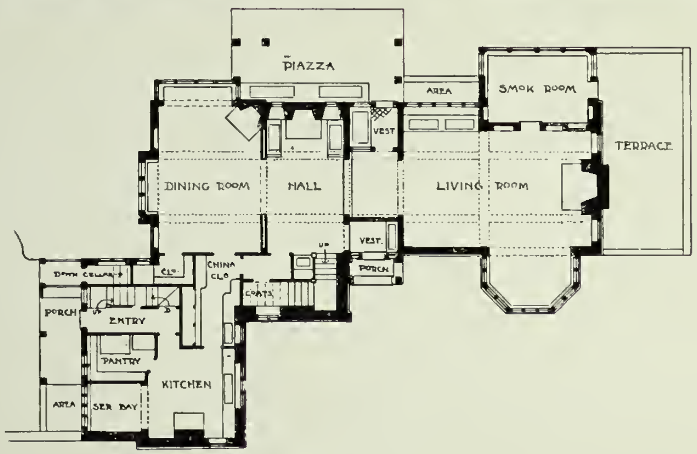


FIRST FLOOR PLAN.

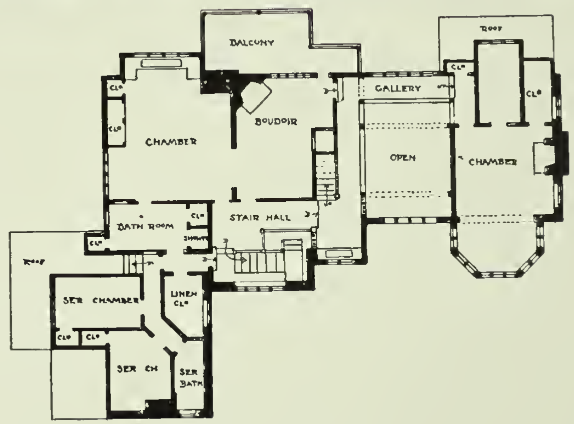


BASEMENT PLAN.

TOWN HALL, NEEDHAM, MASS. WINSLOW & BIGELOW, ARCHITECTS.



FIRST FLOOR PLAN.

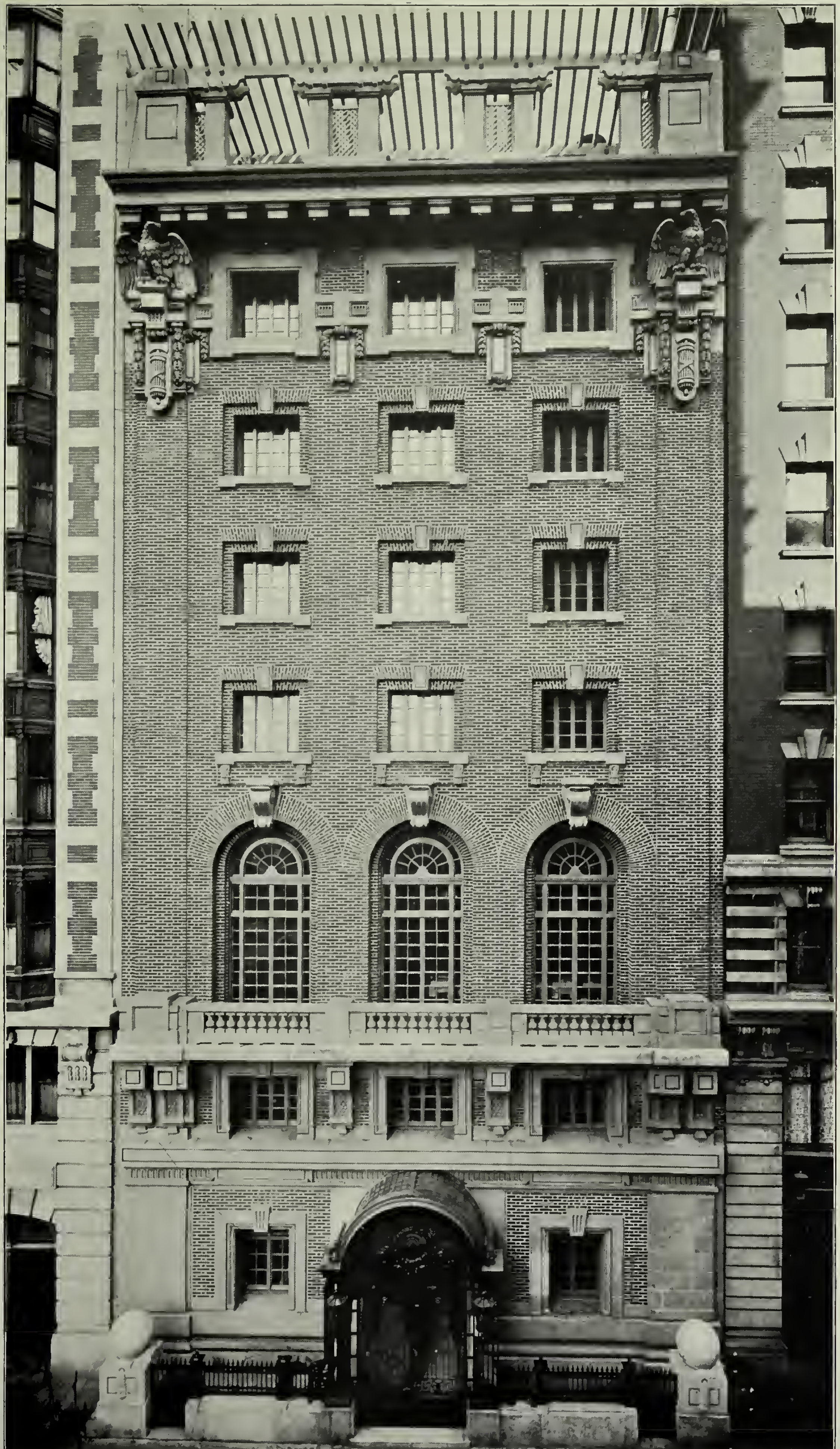


SECOND FLOOR PLAN.

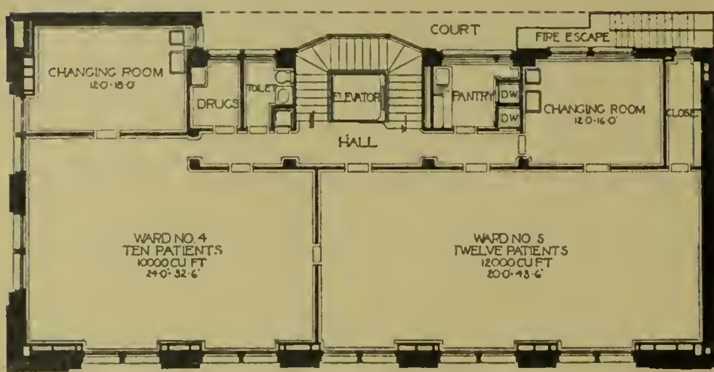
HOUSE, DES MOINES, IOWA. WILLIAM G. RANTOUL, ARCHITECT.

THE BRICKBUILDER,
DECEMBER,
1903.

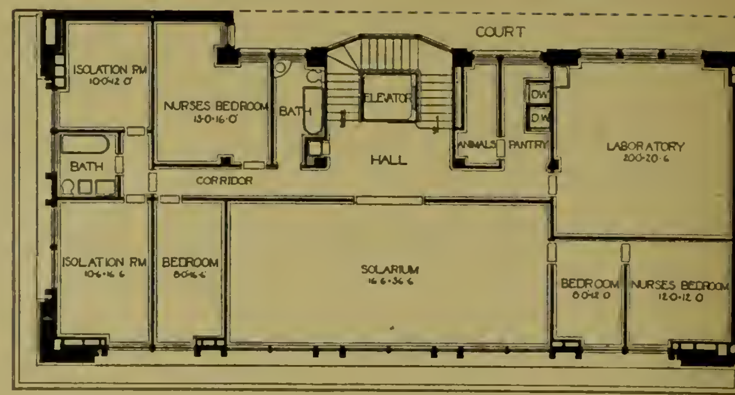
PUBLIC LIBRARY, MONTCLAIR, N. J.
JOHN GALEN HOWARD AND D. EVERETT WAID, ARCHITECTS.



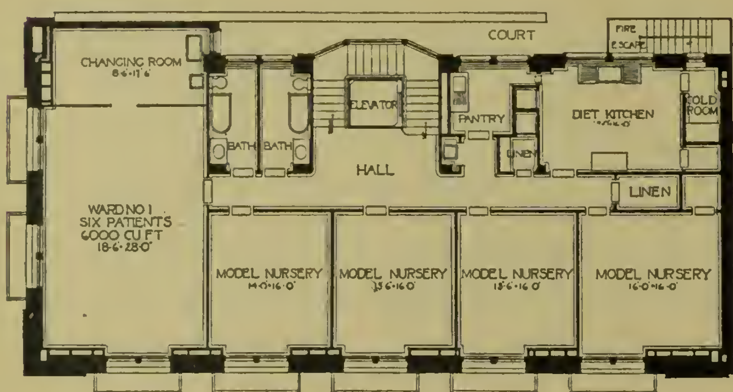
CITY CLUB 55 AND 57 WEST 44TH STREET, NEW YORK CITY.
LORD & HEWLETT, ARCHITECTS.



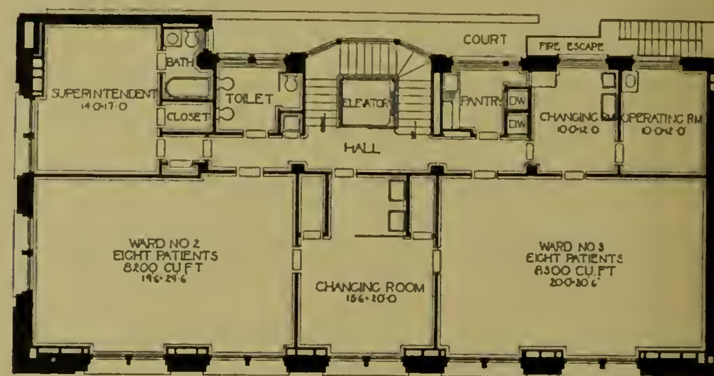
SIXTH FLOOR.



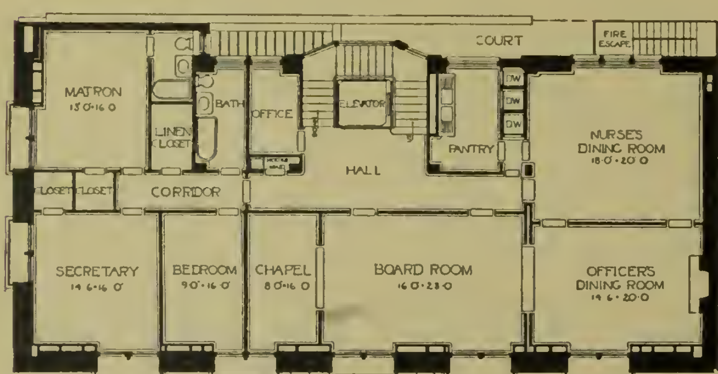
SEVENTH FLOOR.



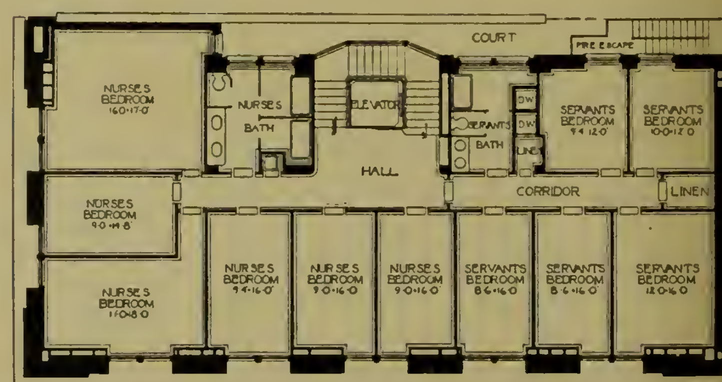
FOURTH FLOOR.



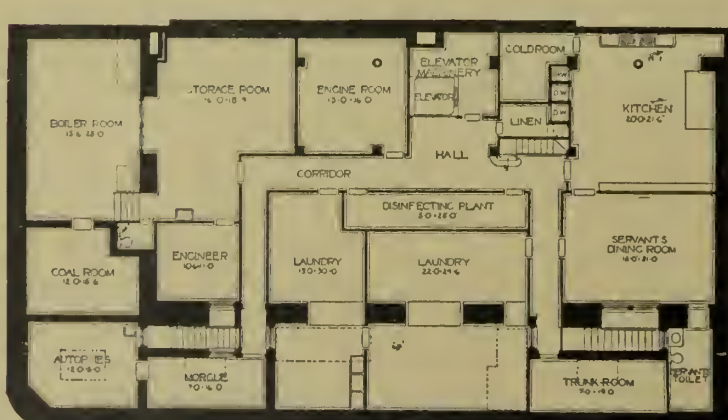
FIFTH FLOOR.



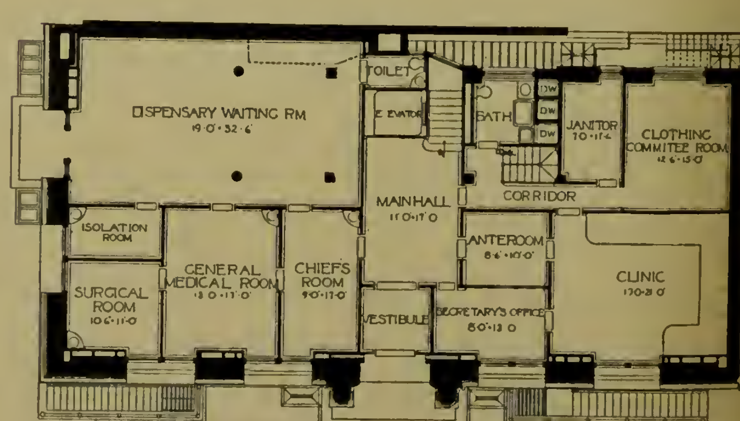
SECOND FLOOR.



THIRD FLOOR.



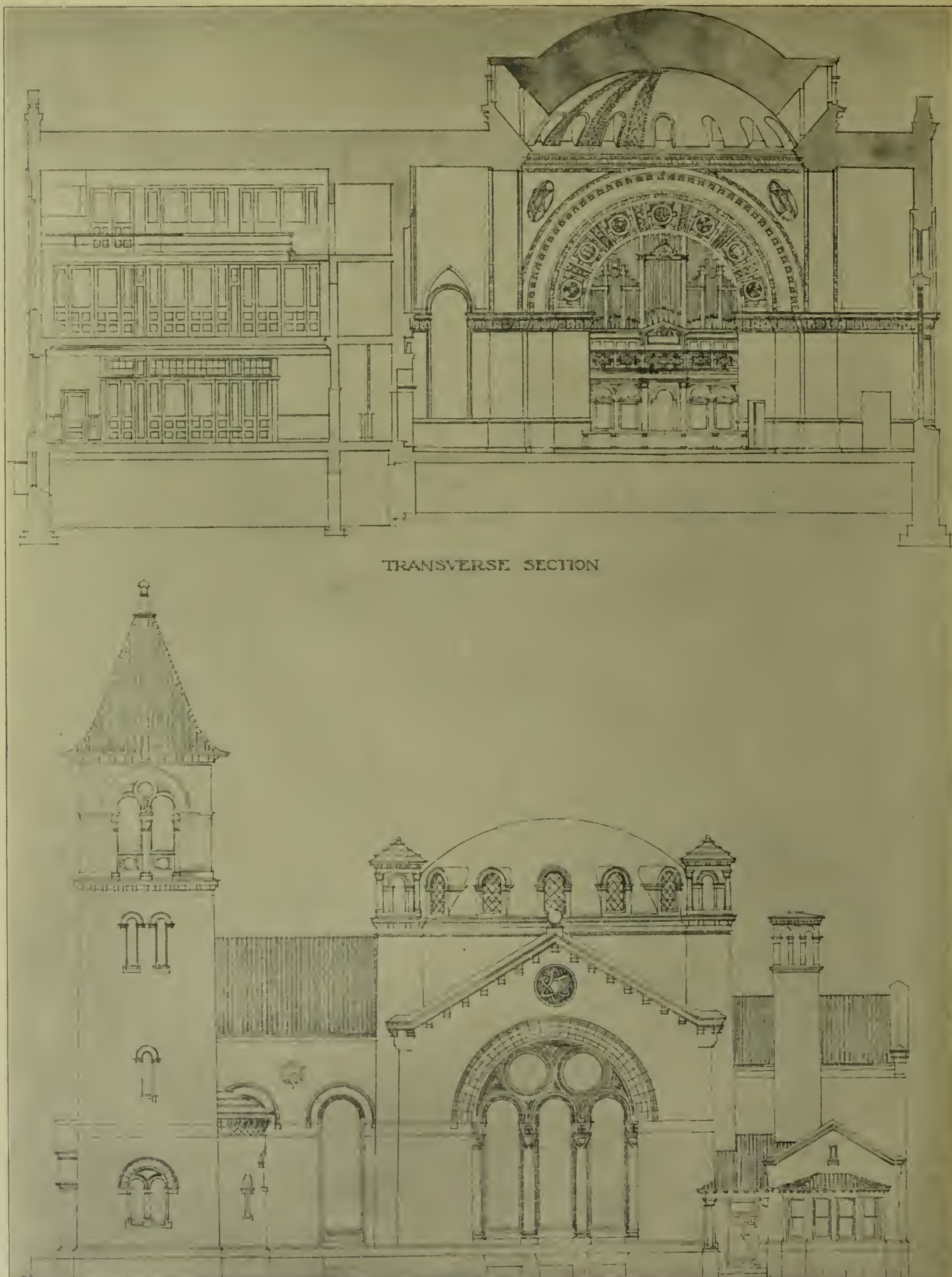
BASEMENT.



FIRST FLOOR.

(BUILDING ILLUSTRATED ON PAGE 18.)

FLOOR PLANS, THE BABIES' HOSPITAL OF THE CITY OF NEW YORK.
LEXINGTON AVENUE AND 50TH STREET.
YORK & SAWYER, ARCHITECTS.

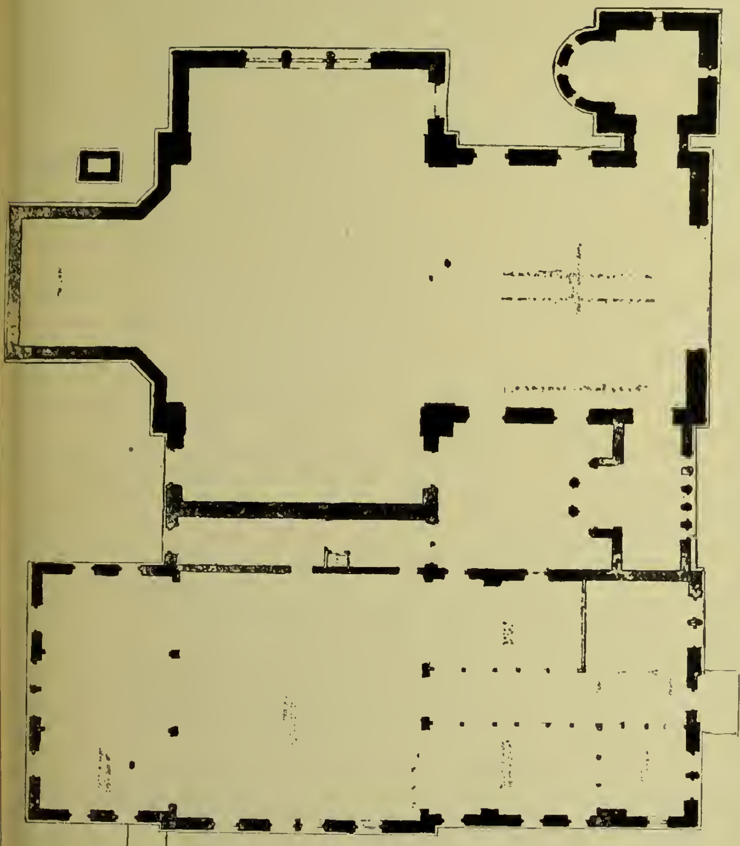


SIDE ELEVATIONS.

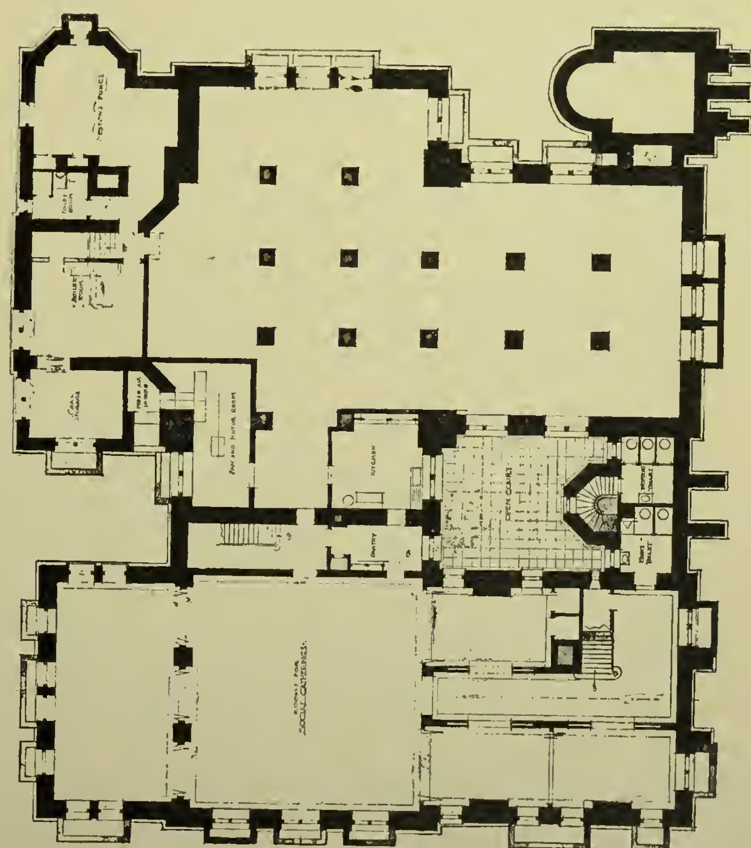
COMPETITIVE DESIGN FOR BUILDING FOR THE FOUNDRY M. E. CHURCH, WASHINGTON, D. C.

EDGAR V. SEELER, ARCHITECT.

FIRST FLOOR PLAN.



SECOND FLOOR PLAN.

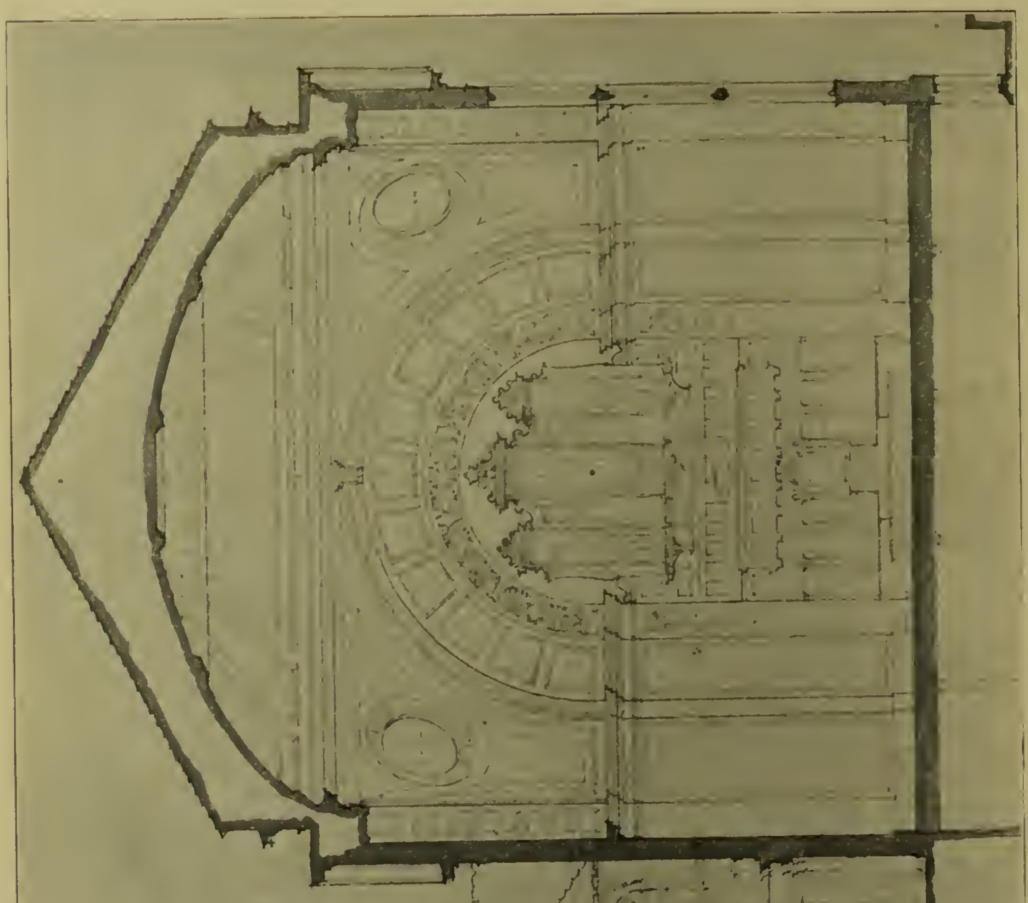


BASEMENT PLAN.

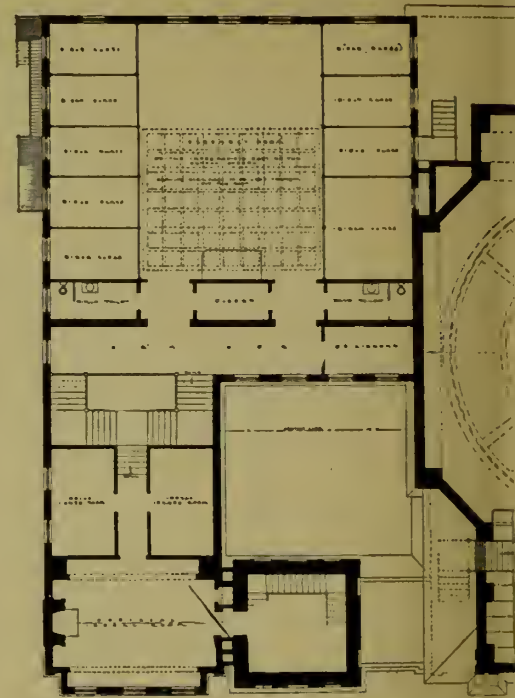
PLANS.

COMPETITIVE DESIGN FOR BUILDING FOR THE FOUNDRY M. E. CHURCH, WASHINGTON, D. C.

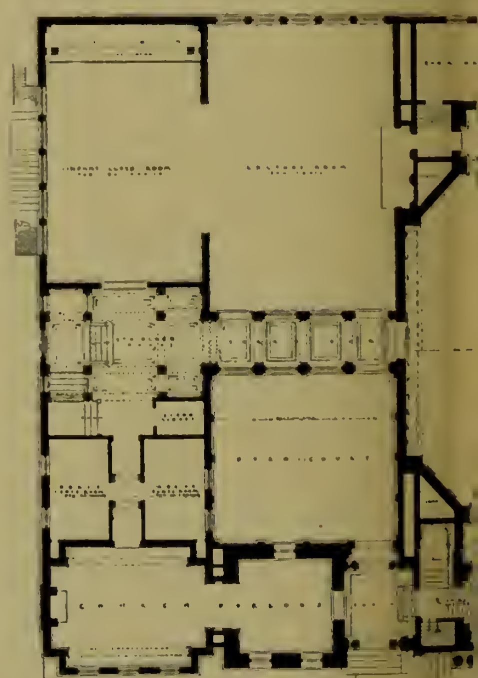
EDGAR V. SEELER, ARCHITECT.



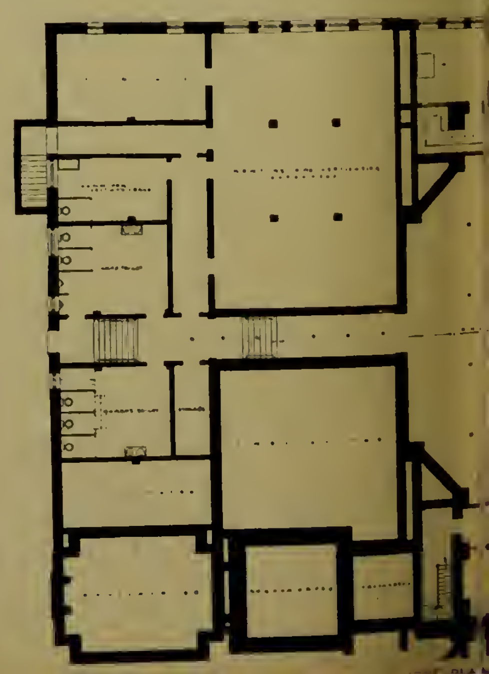
TRANSVERSE SECTION.



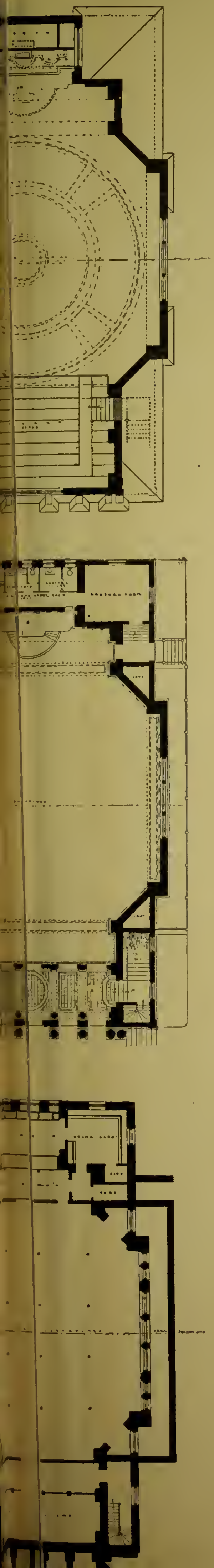
SECOND FLOOR PLA

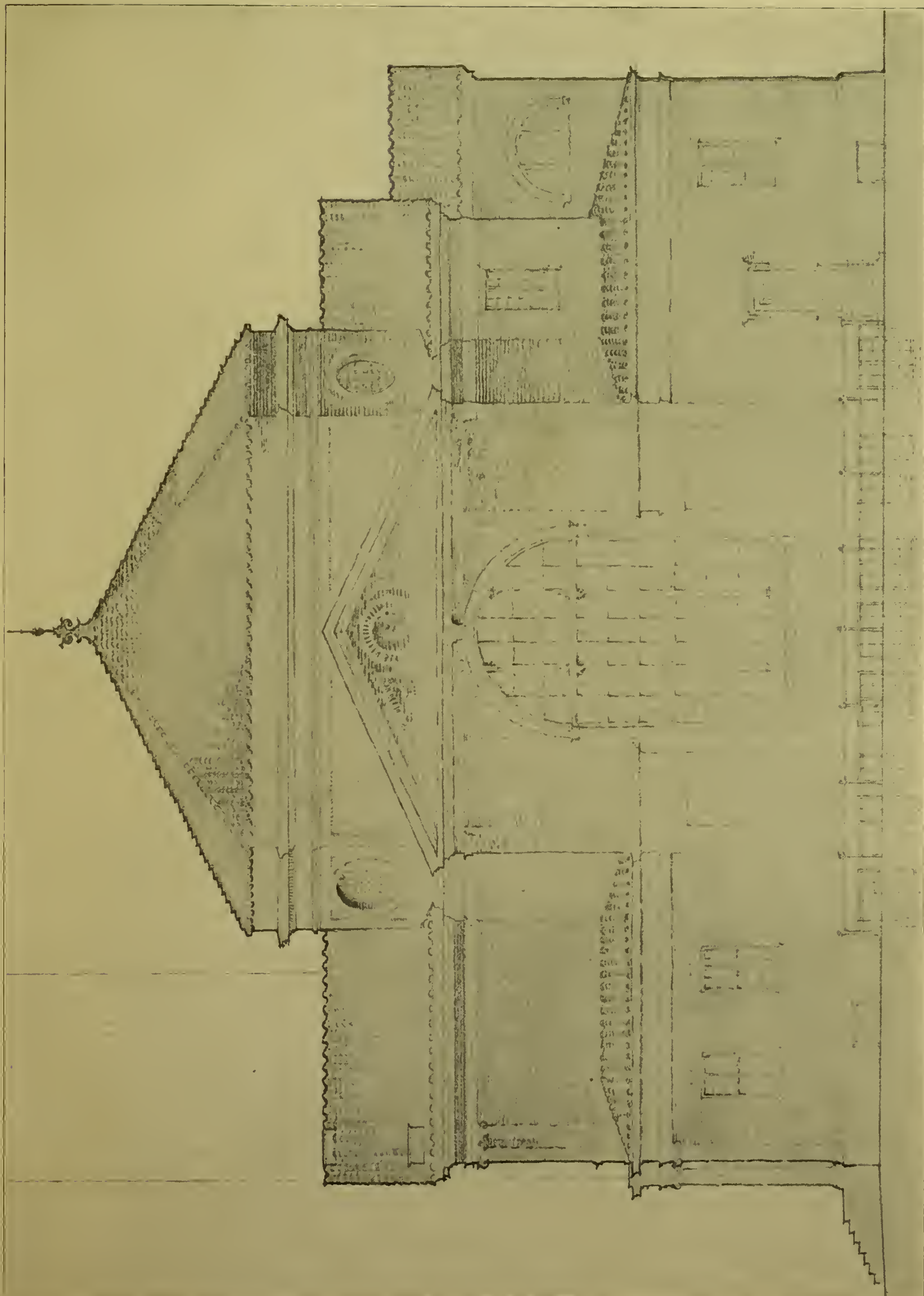


FIRST FLOOR PLA



PLATES 3 and 6.

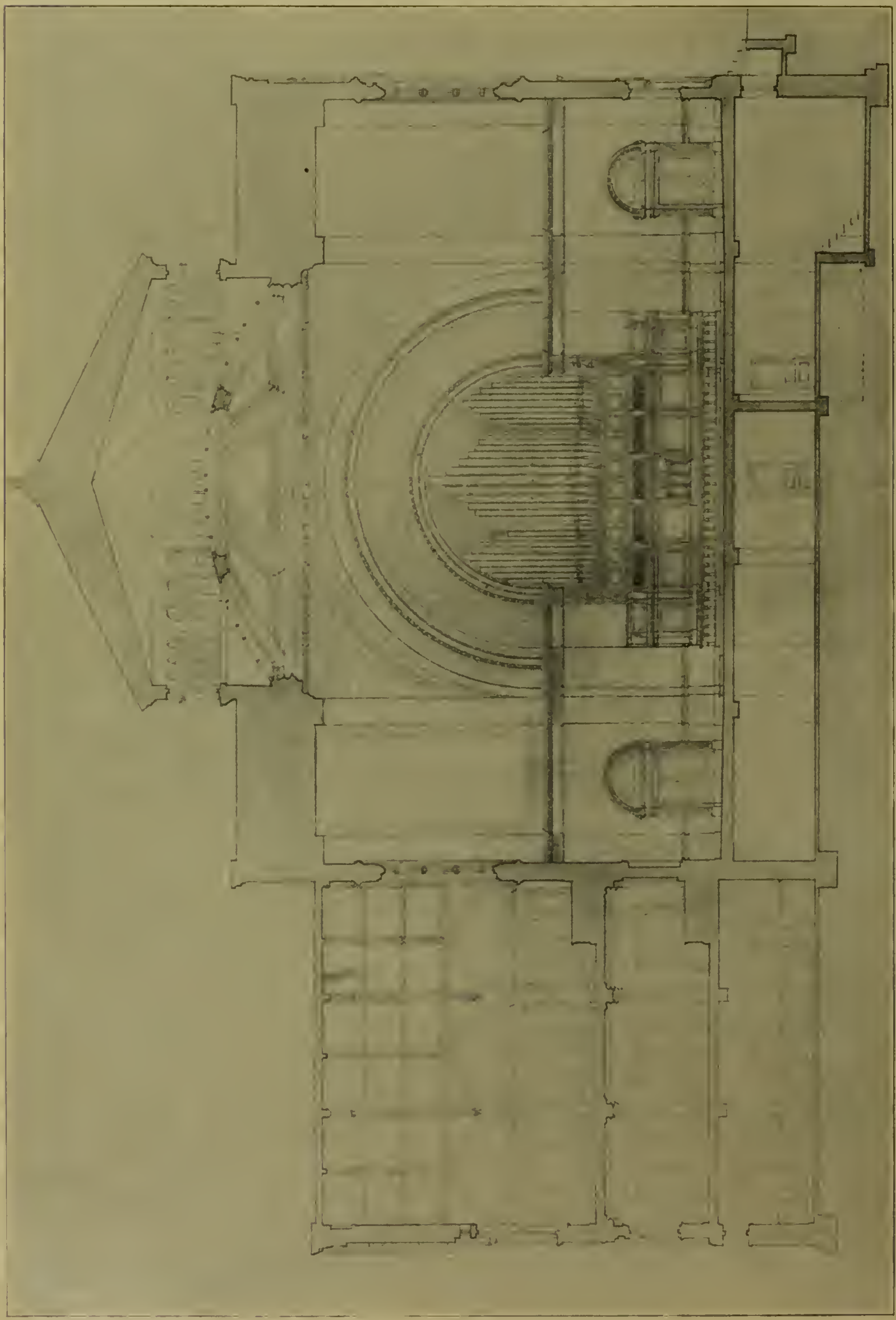




SIDE ELEVATION.

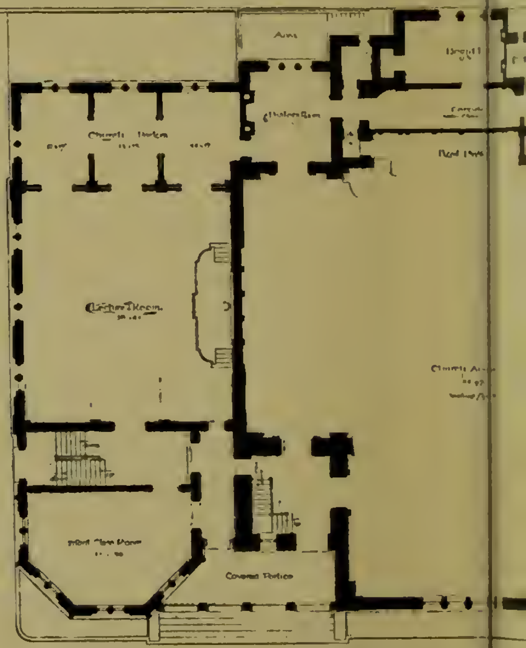
COMPETITIVE DESIGN FOR BUILDING FOR THE FOUNDRY M. E. CHURCH, WASHINGTON, D. C.

WARREN, SMITH & BISCOE, ARCHITECTS.



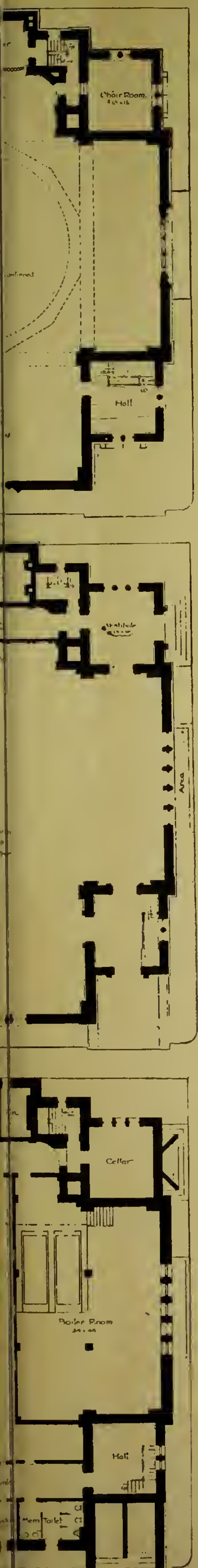
TRANSVERSE SECTION.

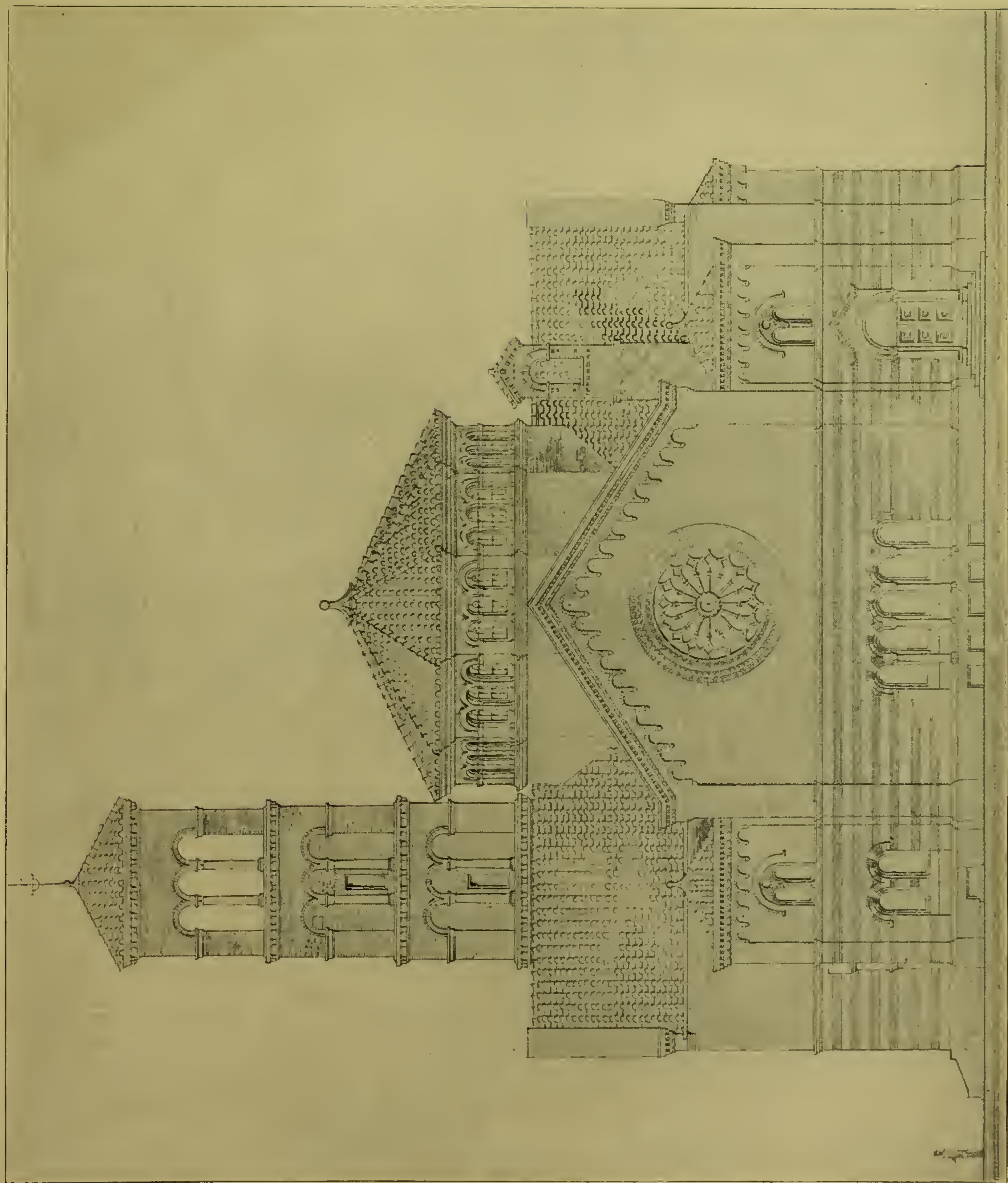
Second Floor Pla



First Floor Plan

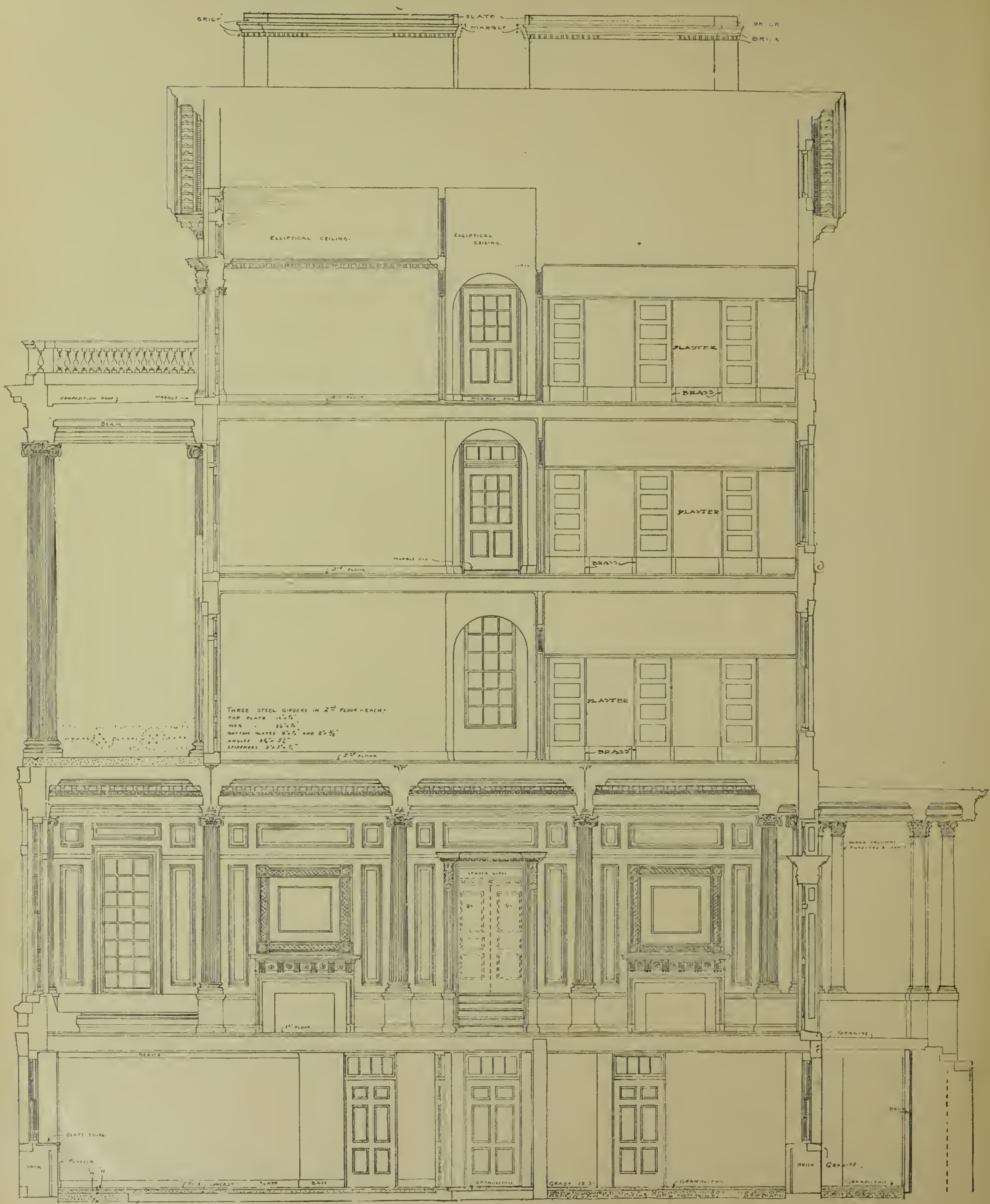
PLATES 4 and 5.





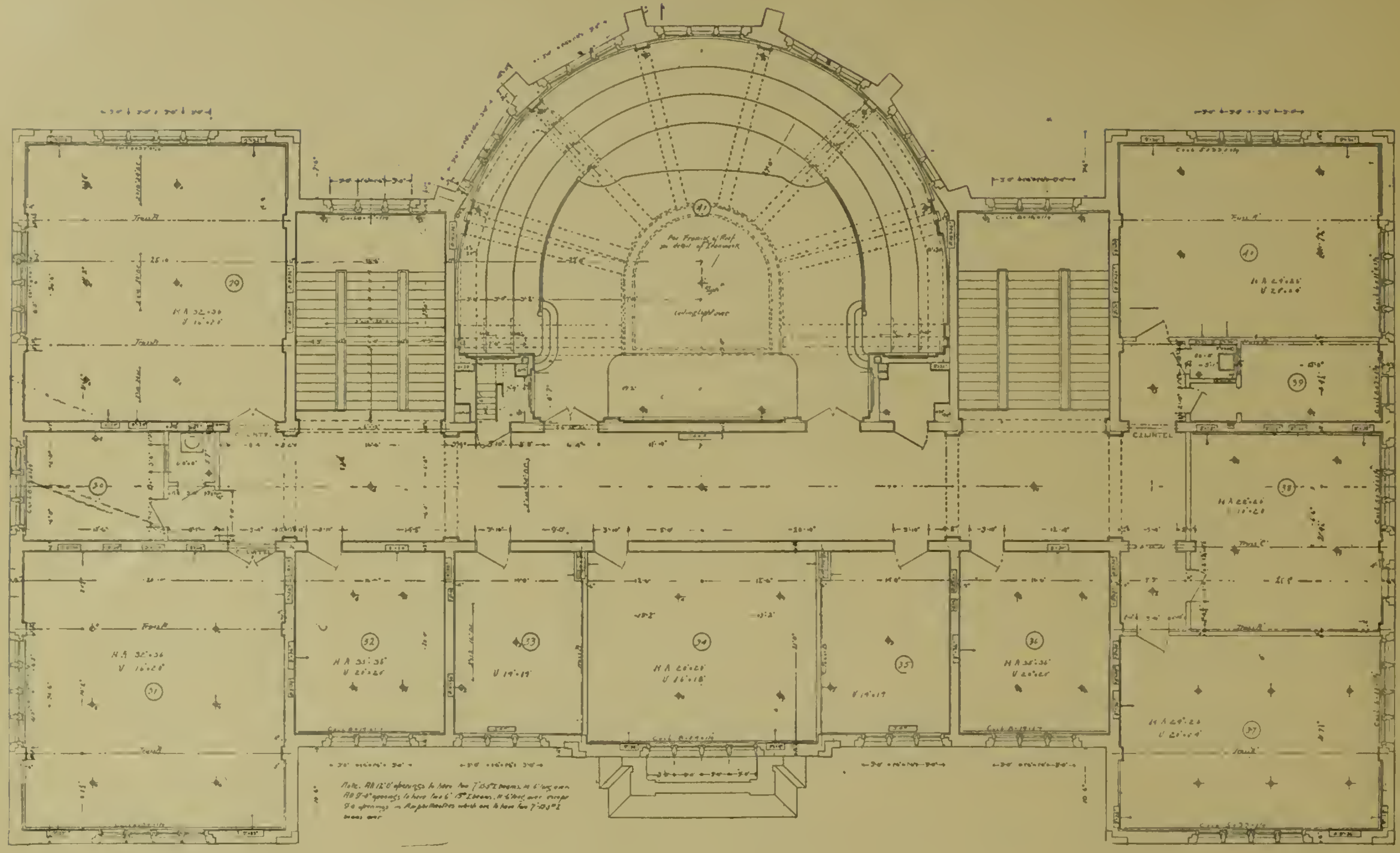
SIDE ELEVATION.

COMPETITIVE DESIGN FOR BUILDING FOR THE FOUNDRY M. E. CHURCH, WASHINGTON, D. C.

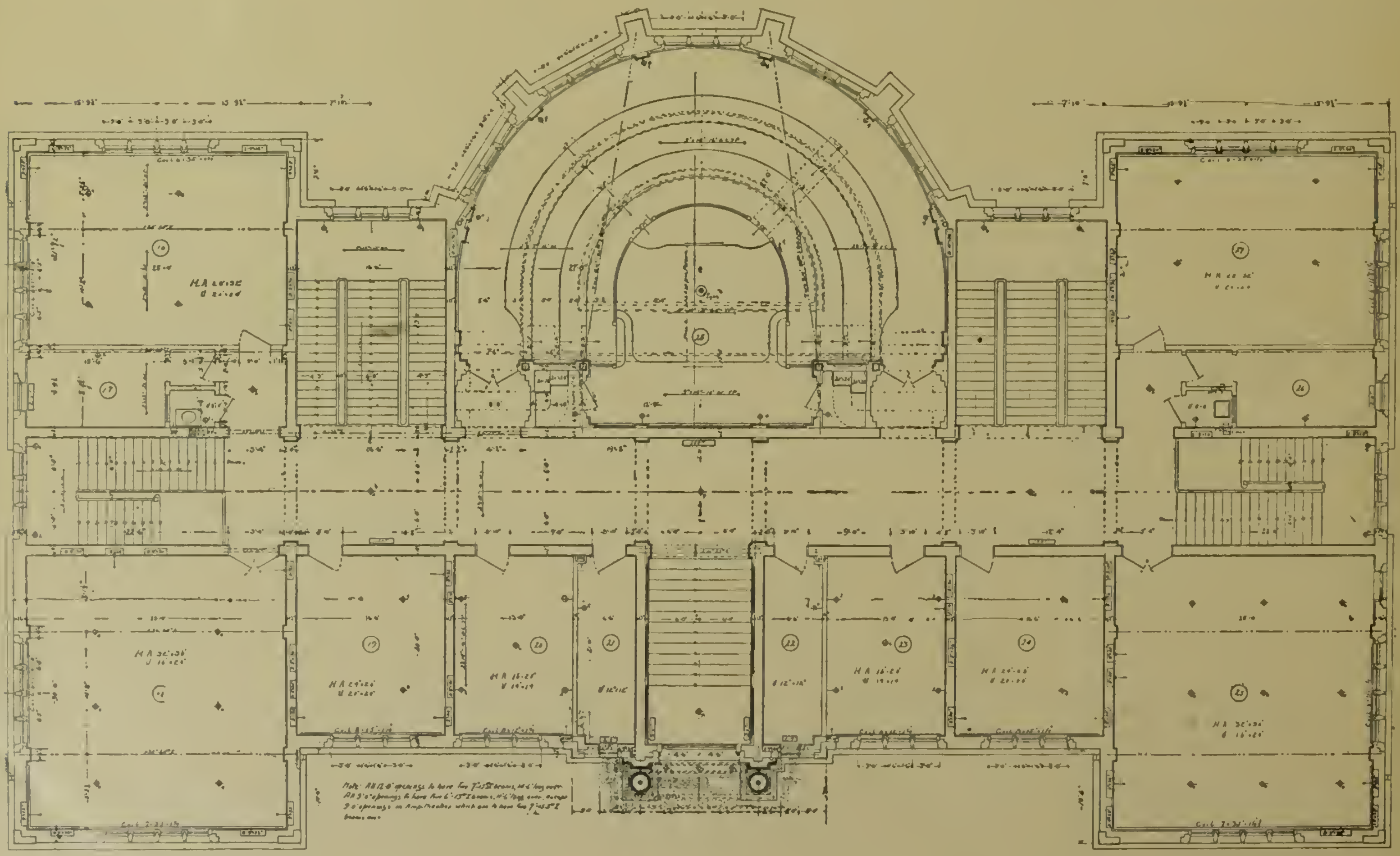


SECTION. DWELLING FOR NURSES, BOSTON CITY HOSPITAL, BOSTON, MASS.

WHEELWRIGHT & HAVEN, ARCHITECTS.



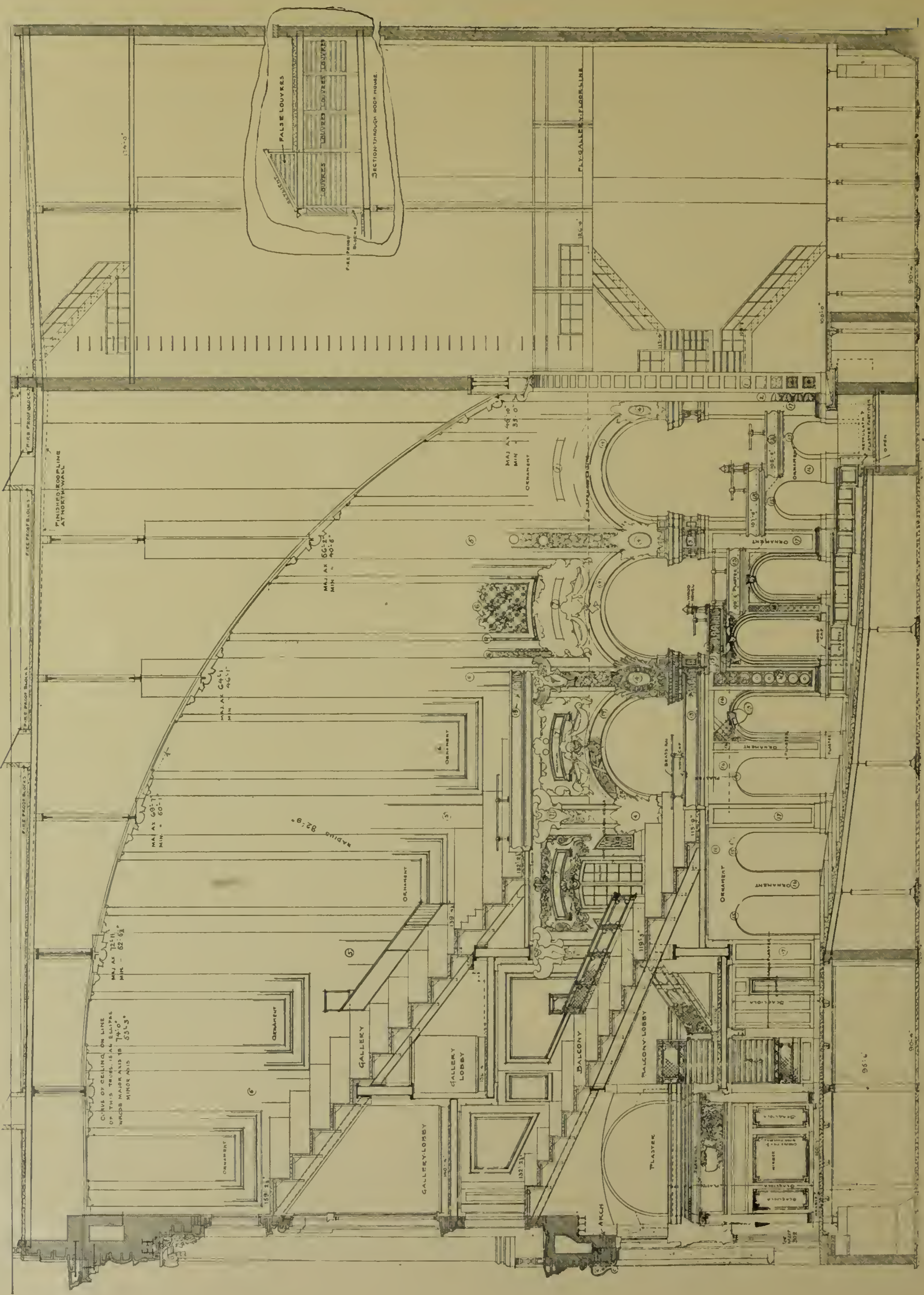
SECOND FLOOR PLAN.



FIRST FLOOR PLAN.

PLANS, RECITATION HALL, VASSAR COLLEGE.

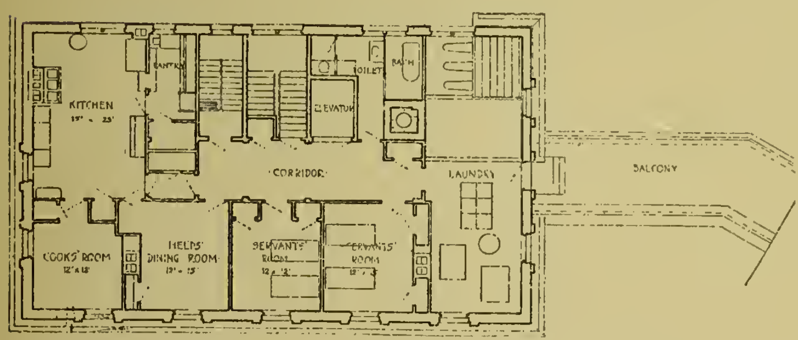
YORK & SAWYER, ARCHITECTS.



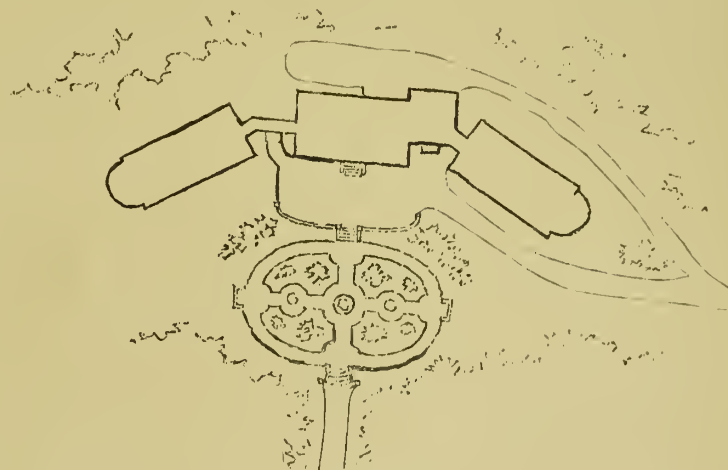
LONGITUDINAL SECTION.

MAJESTIC THEATER, BOSTON, MASS.

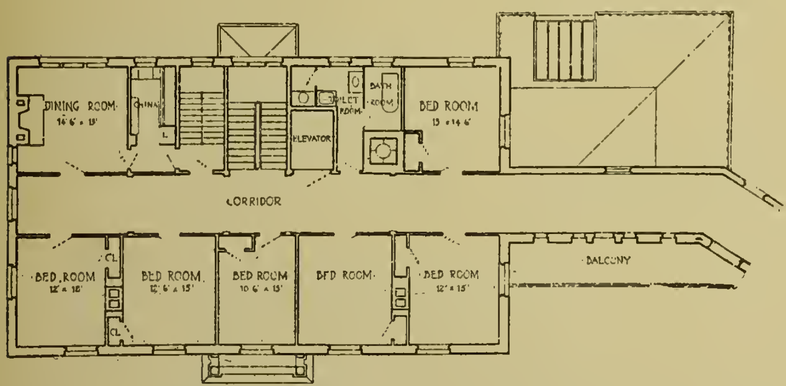
JAMES M. WOOD AND JOHN GALEN HOWARD, ASSOCIATE ARCHITECTS.



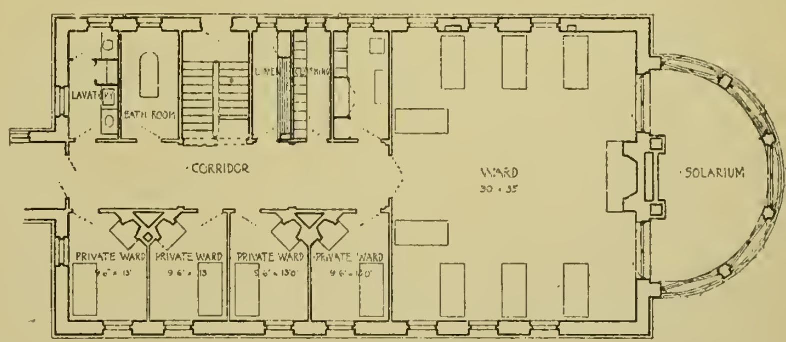
THIRD FLOOR, ADMINISTRATION BUILDING.



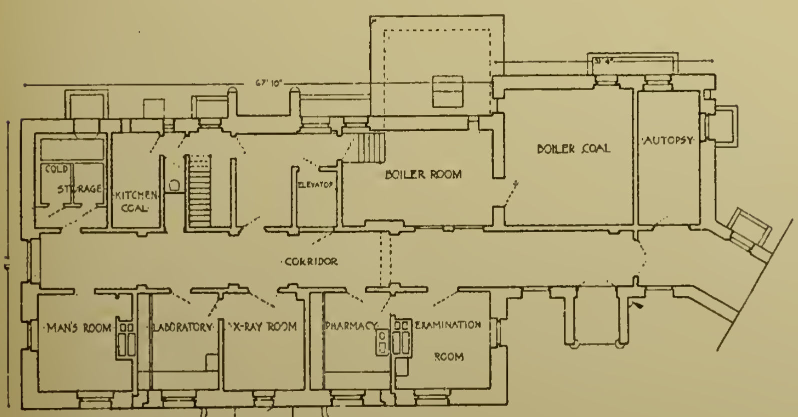
GROUND PLAN.



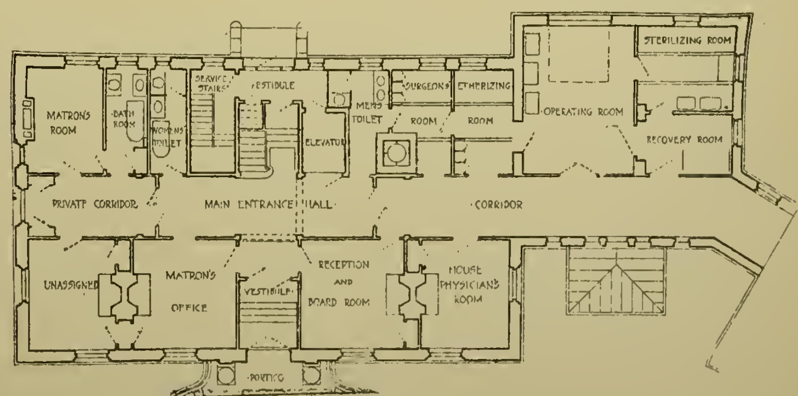
SECOND FLOOR, ADMINISTRATION BUILDING.



WARD BUILDING.



BASEMENT, ADMINISTRATION BUILDING.

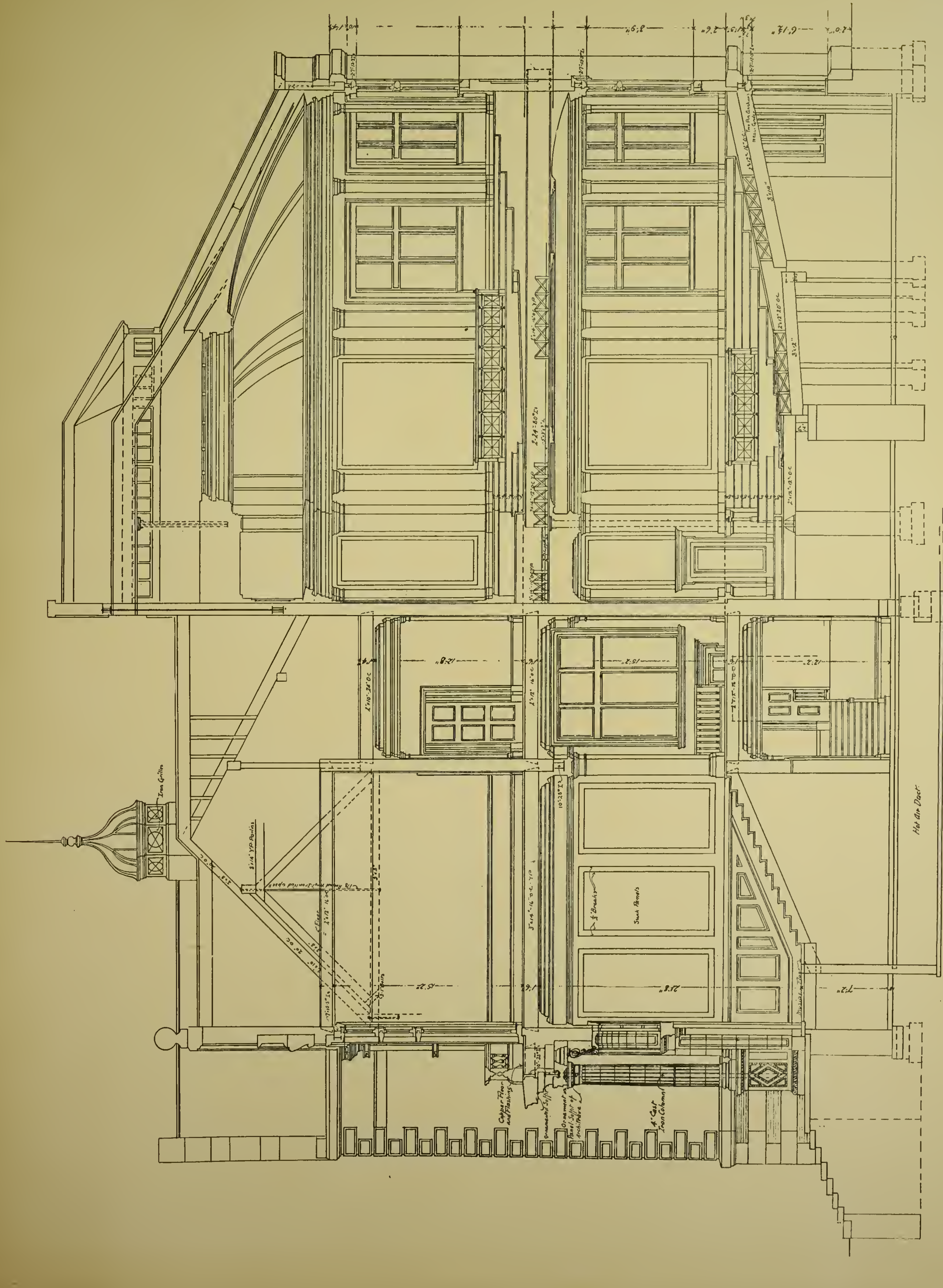


FIRST FLOOR, ADMINISTRATION BUILDING.

FAULKNER HOSPITAL, WEST ROXBURY, MASS.

KENDALL, TAYLOR & STEVENS, ARCHITECTS.

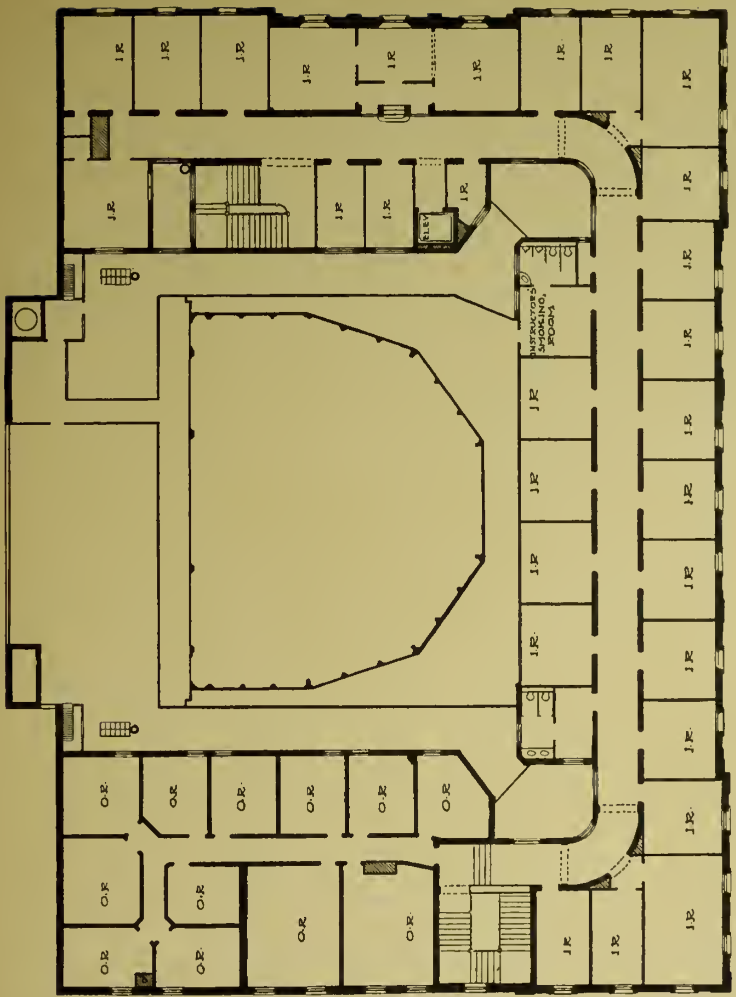
VOL. 12. NO. 2. PLATE 14.



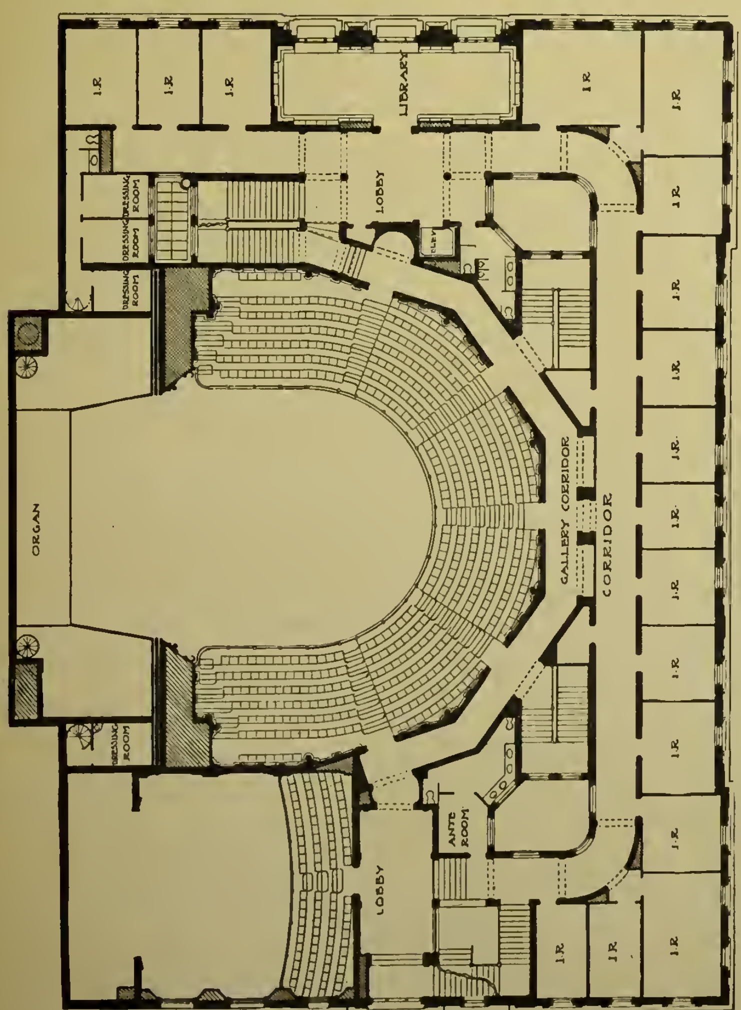
TRANSVERSE SECTION.

RECITATION HALL, VASSAR COLLEGE.

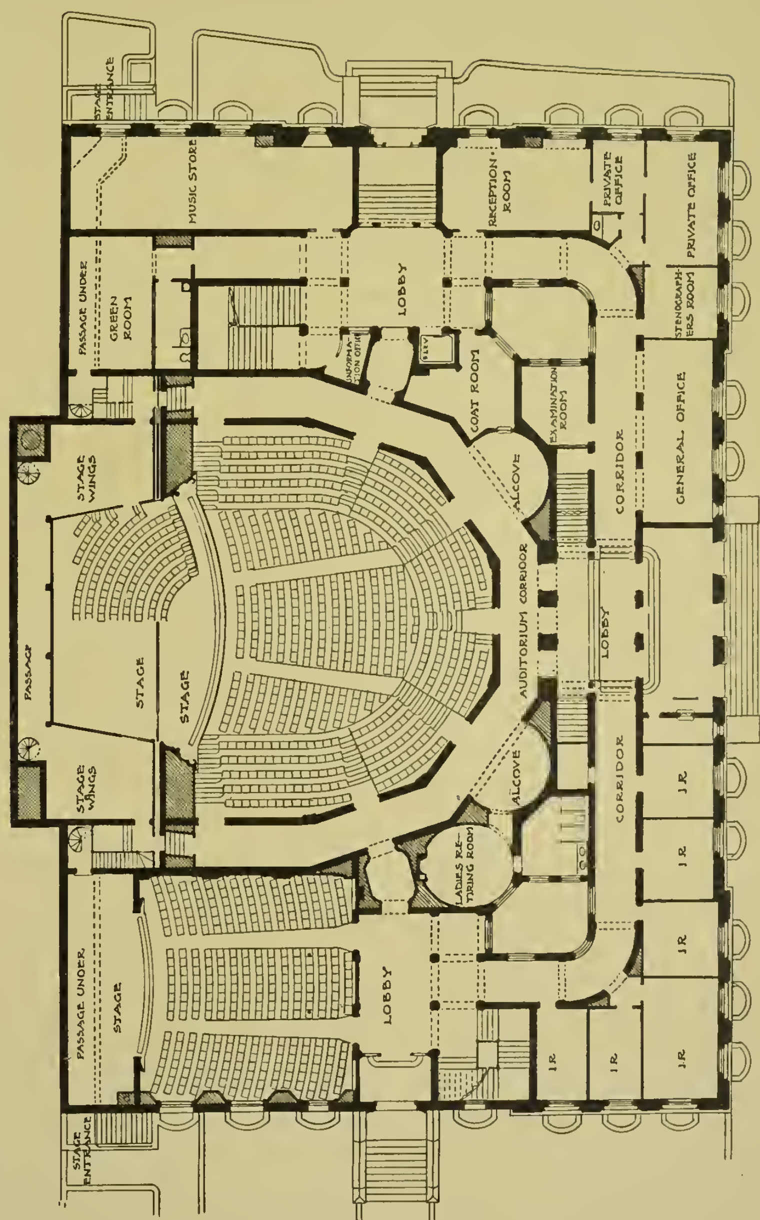
YORK & SAWYER, ARCHITECTS.



THIRD FLOOR PLAN



SECOND FLOOR PLAN.



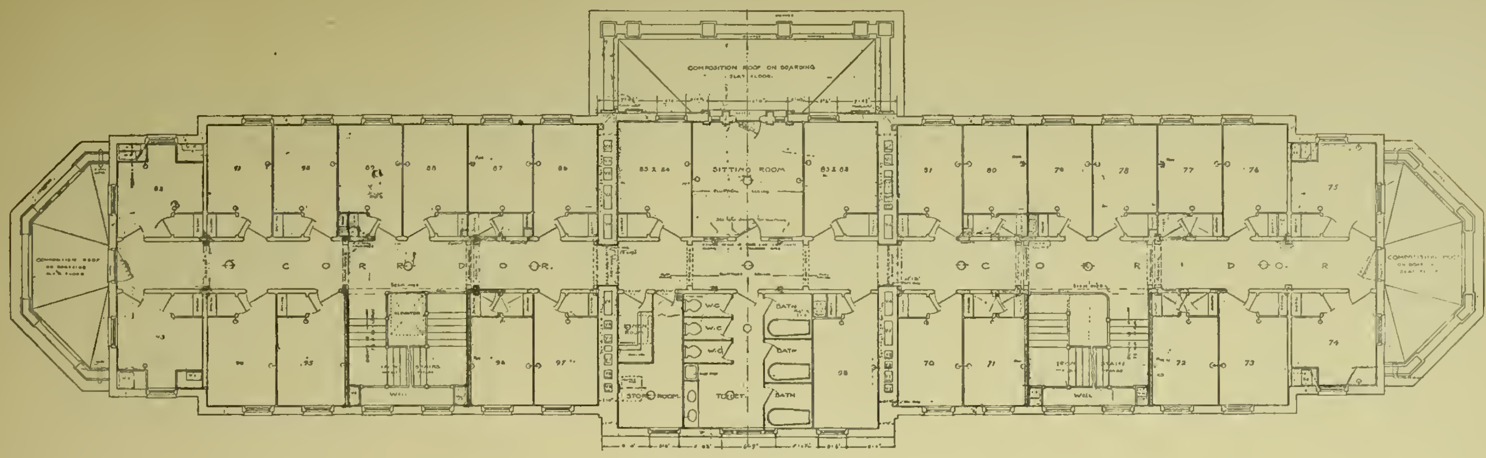
FIRST FLOOR PLAN

PLANS, NEW BUILDING FOR THE NEW ENGLAND CONSERVATORY OF MUSIC, BOSTON, MASS.

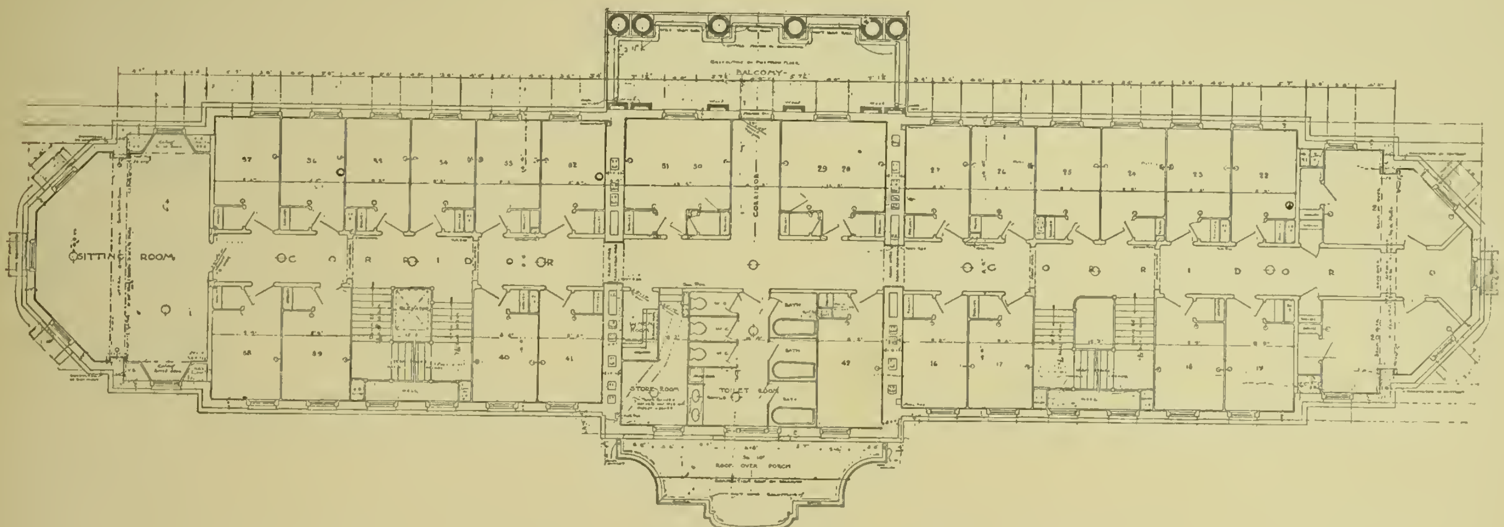
WHEELWRIGHT & HAVEN, ARCHITECTS.

I. R. INSTRUCTION ROOM.
O. R. ORGAN ROOM.

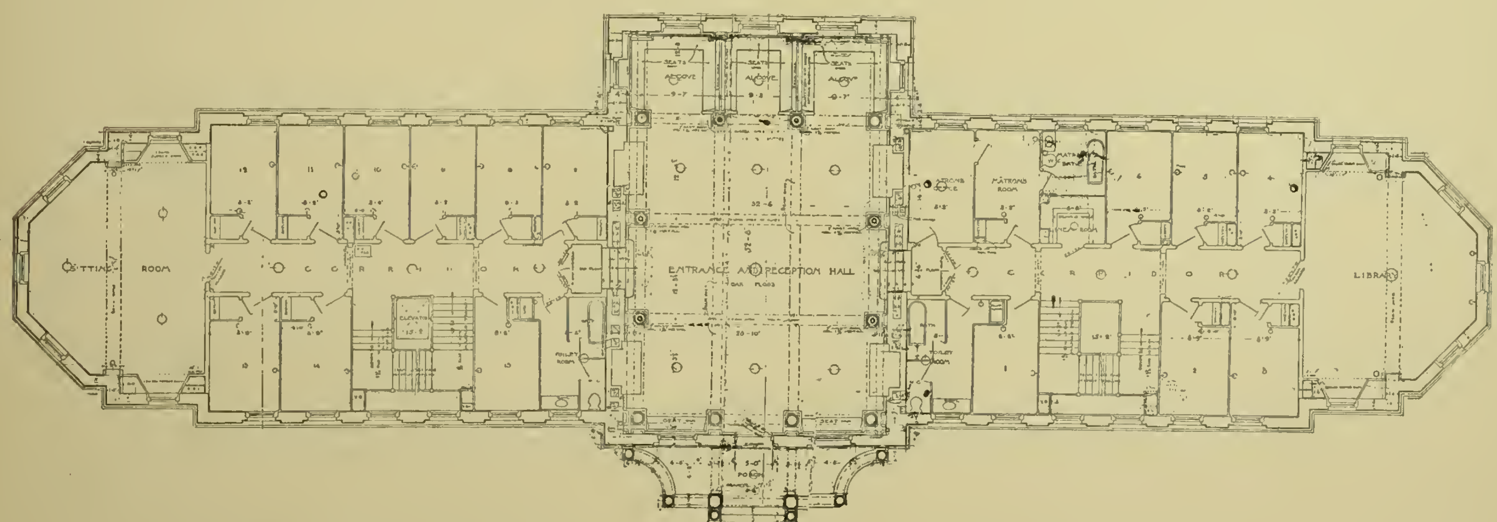
VOL. 12. NO. 2. PLATE 16.



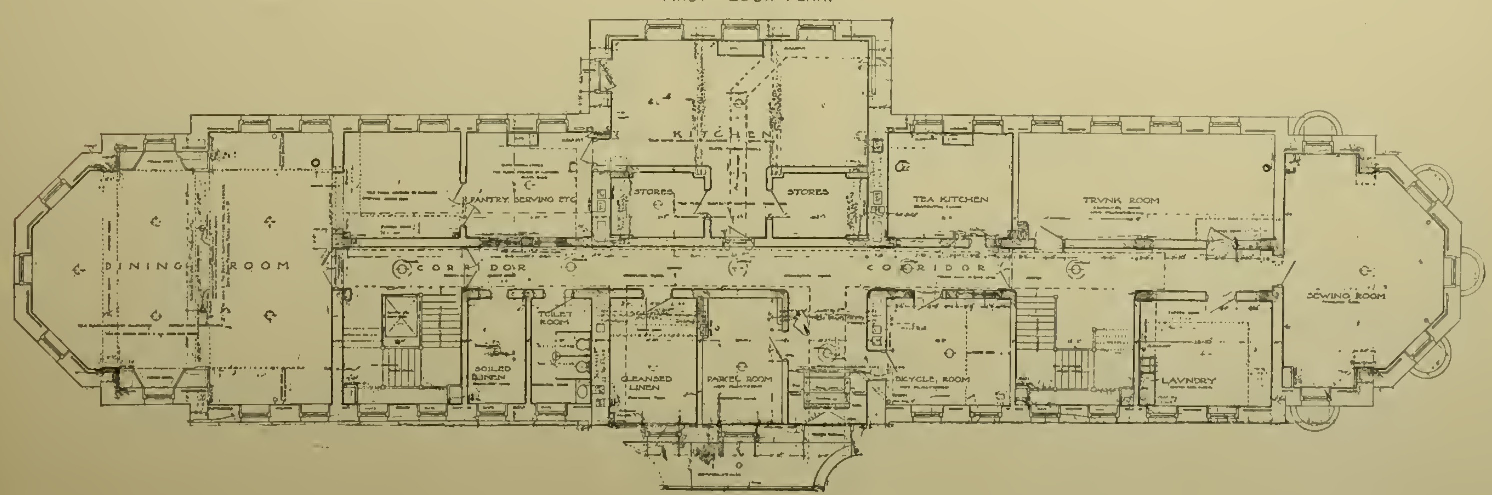
FOURTH FLOOR PLAN.



SECOND FLOOR PLAN.

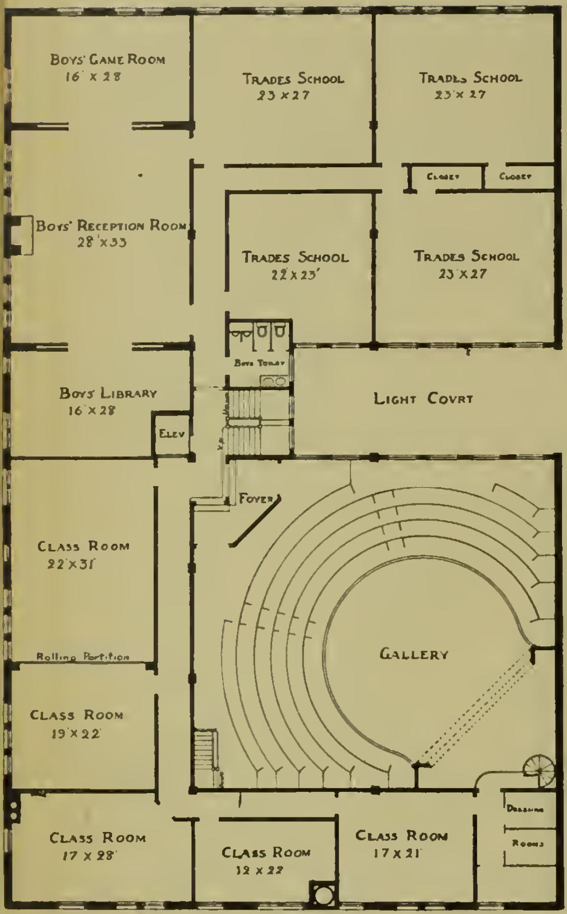


FIRST FLOOR PLAN.

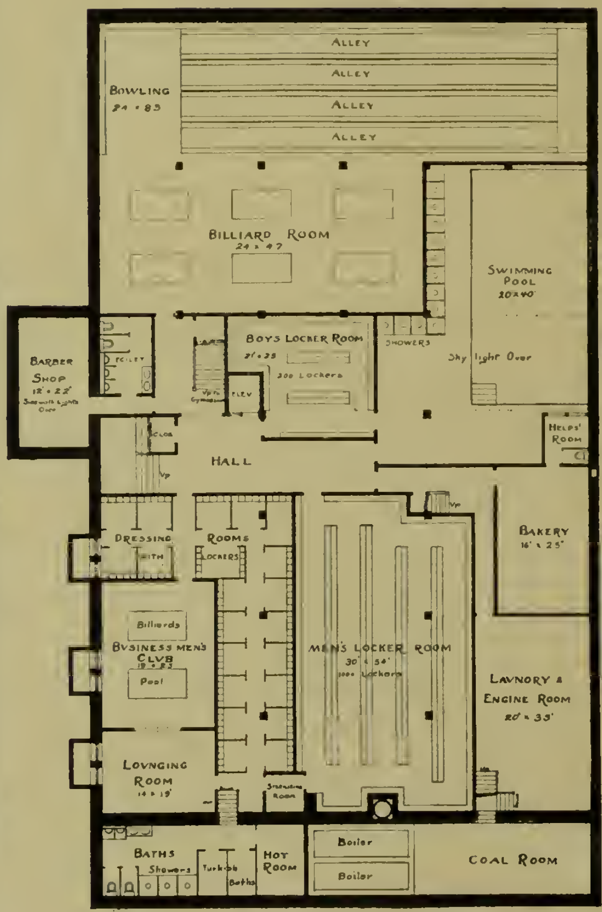


BASEMENT PLAN.

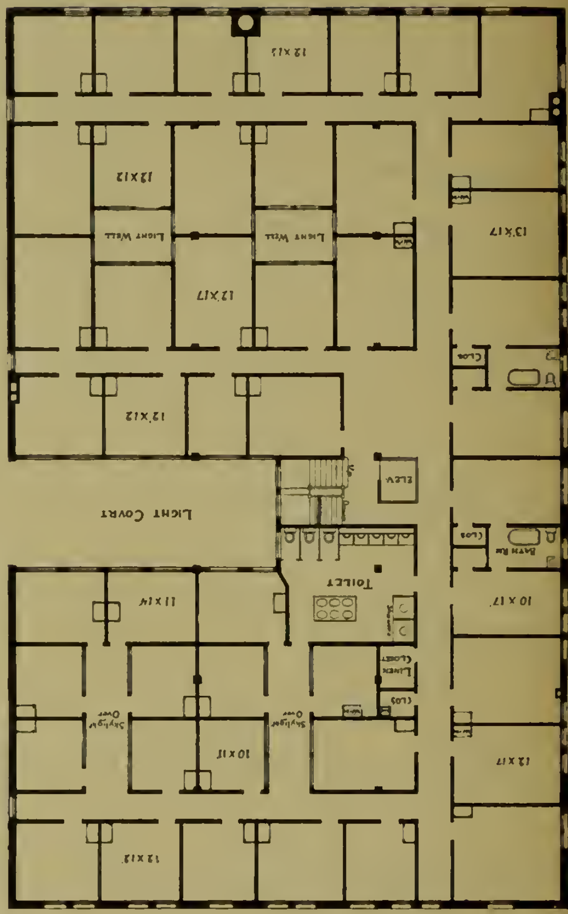
PLANS, DWELLING FOR NURSES, BOSTON CITY HOSPITAL, BOSTON, MASS.



THIRD FLOOR PLAN.

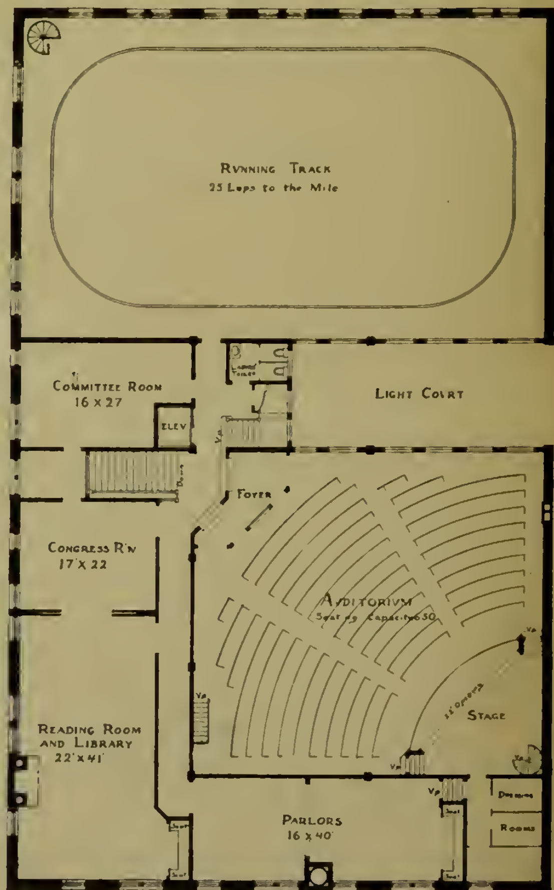


BASEMENT PLAN.



FOURTH FLOOR PLAN, DORMITORIES.

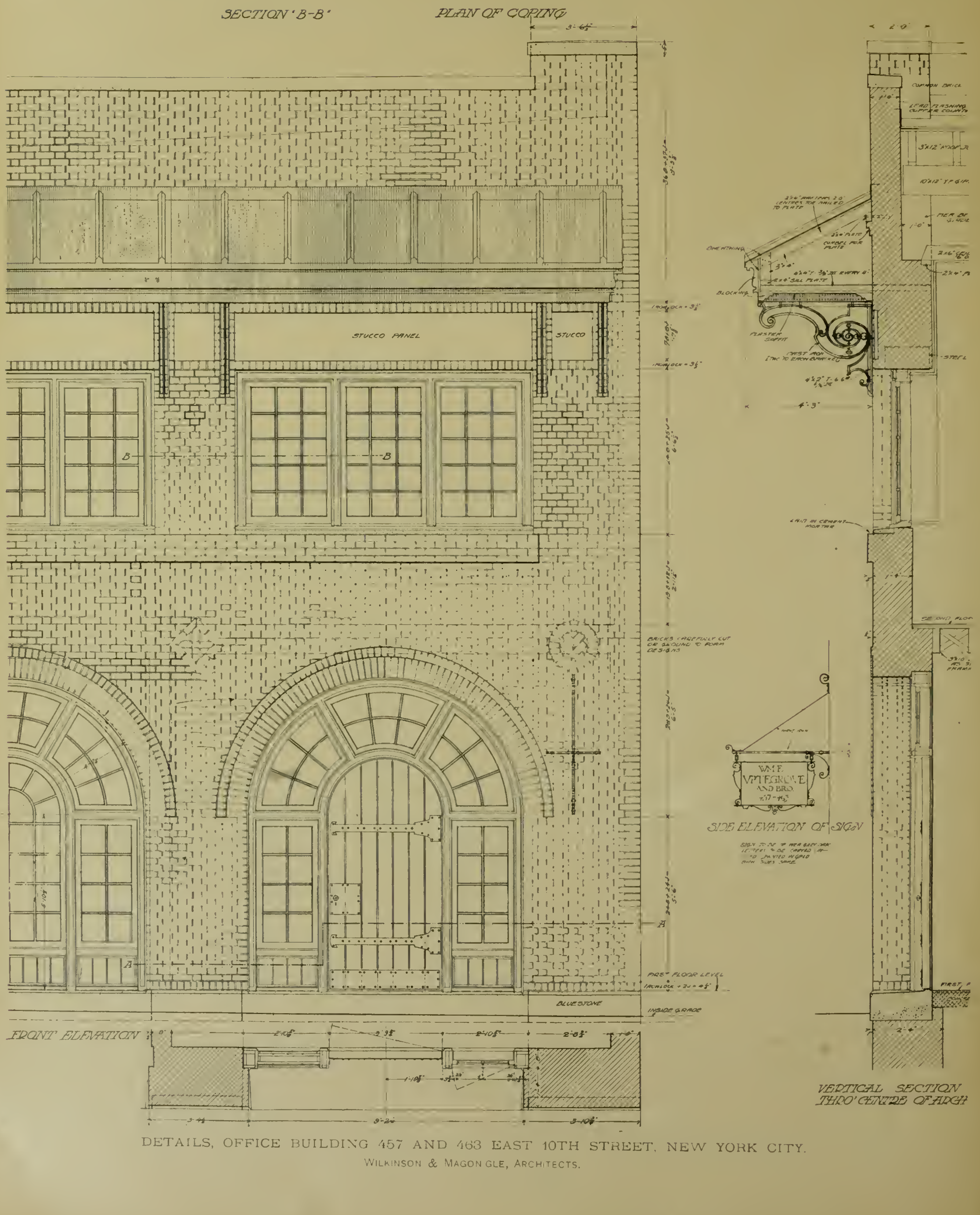
FIRST FLOOR PLAN.



SECOND FLOOR PLAN.

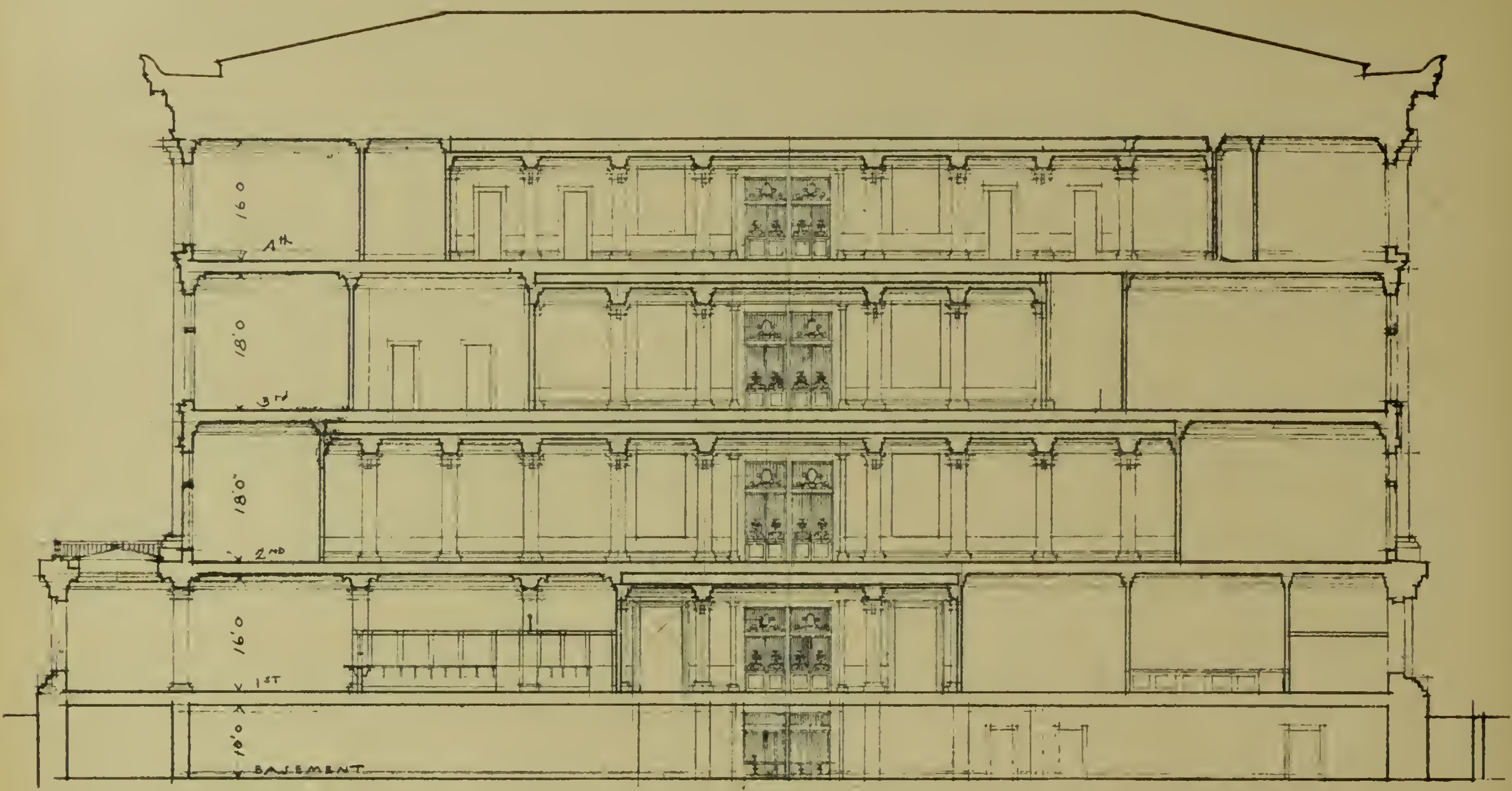
PLANS, Y. M. C. A. BUILDING, AKRON, OHIO.

BUNTS & BLISS, ARCHITECTS.



DETAILS, OFFICE BUILDING 457 AND 463 EAST 10TH STREET, NEW YORK CITY.

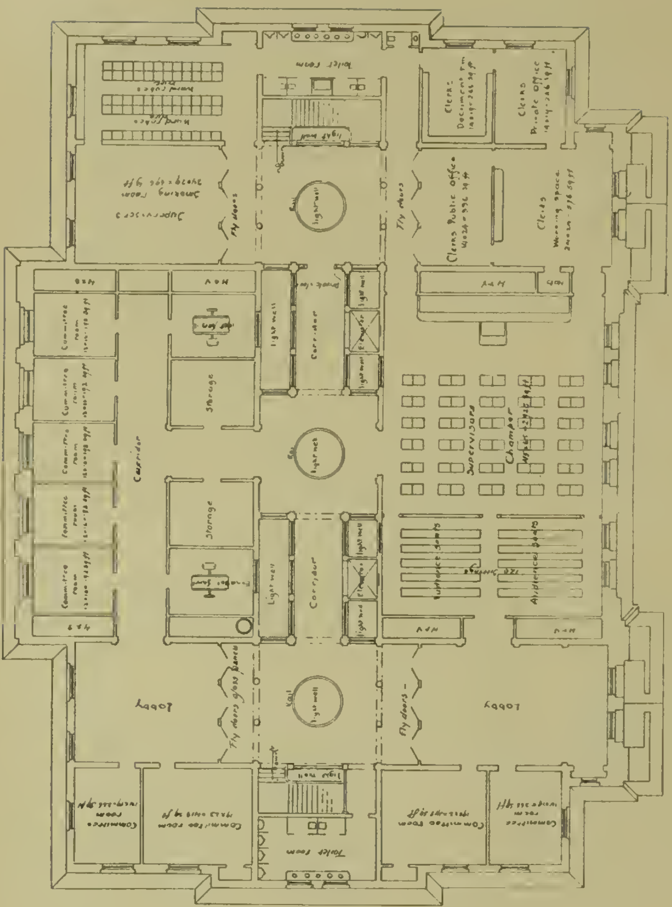
WILKINSON & MAGONIGLE, ARCHITECTS.



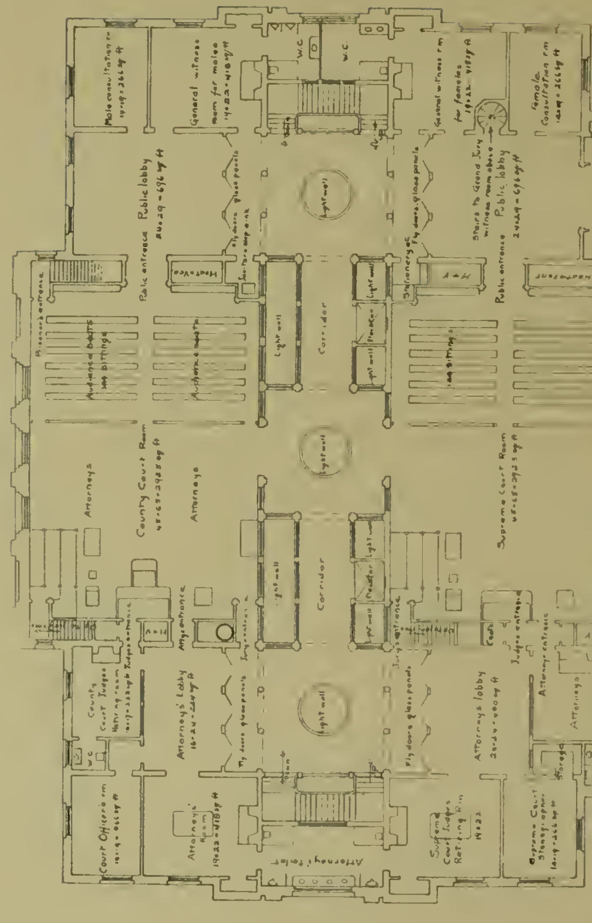
LONGITUDINAL SECTION THROUGH CORRIDOR.

COMPETITIVE DESIGN FOR ONEIDA COUNTY COURTHOUSE, UTICA, N. Y.

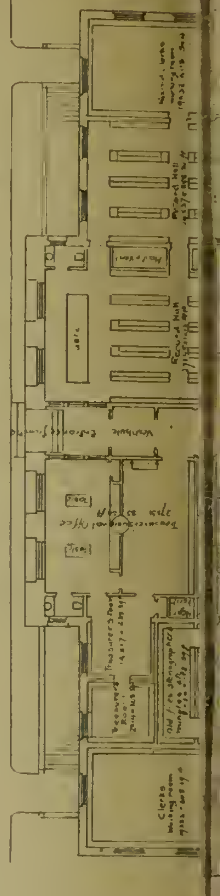
GREEN & WICKS, ARCHITECTS.

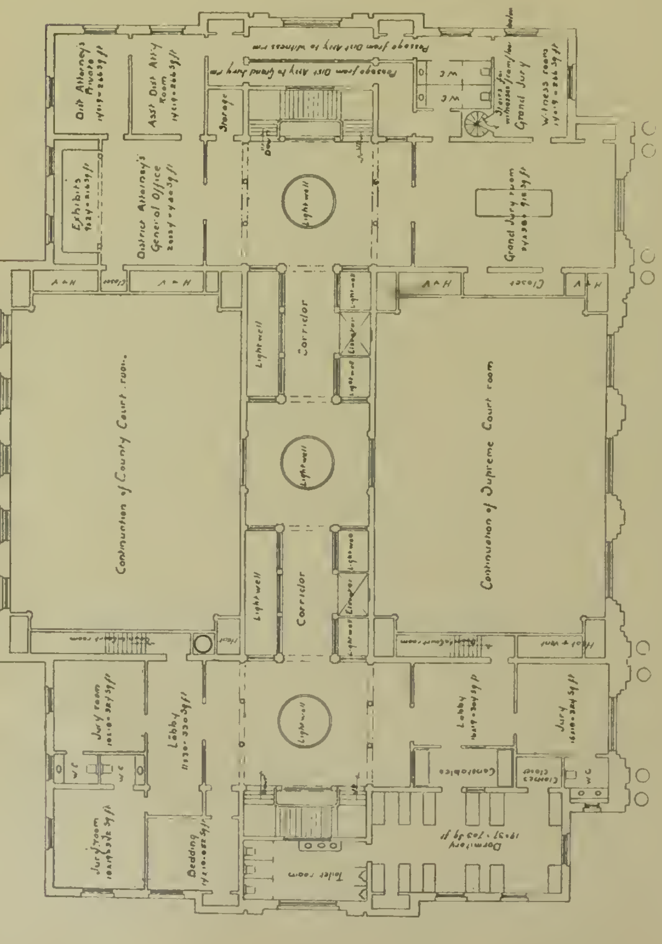


FIFTH FLOOR PLAN.

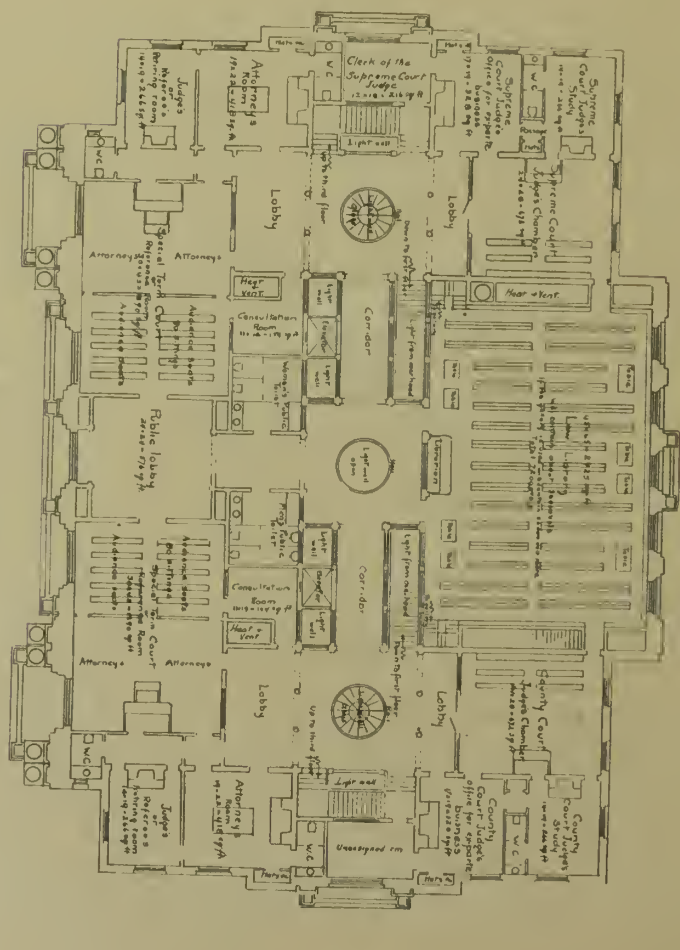


THIRD FLOOR PLAN.

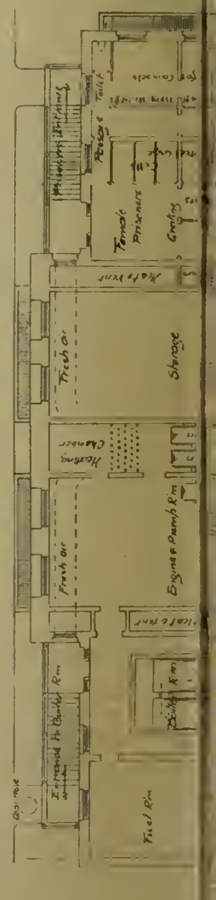


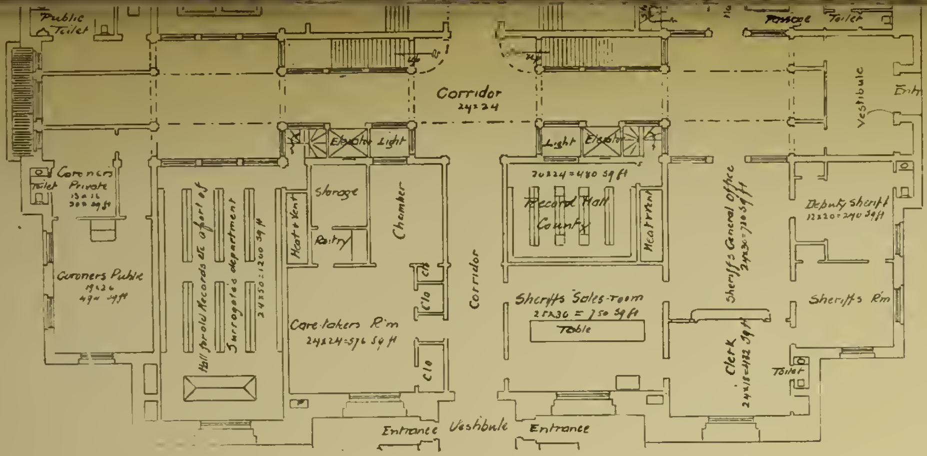


FOURTH FLOOR PLAN

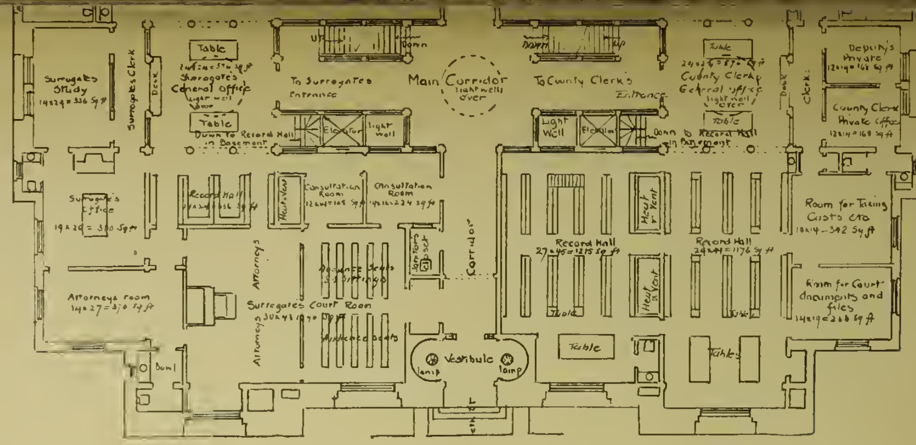


SECOND FLOOR PLAN.

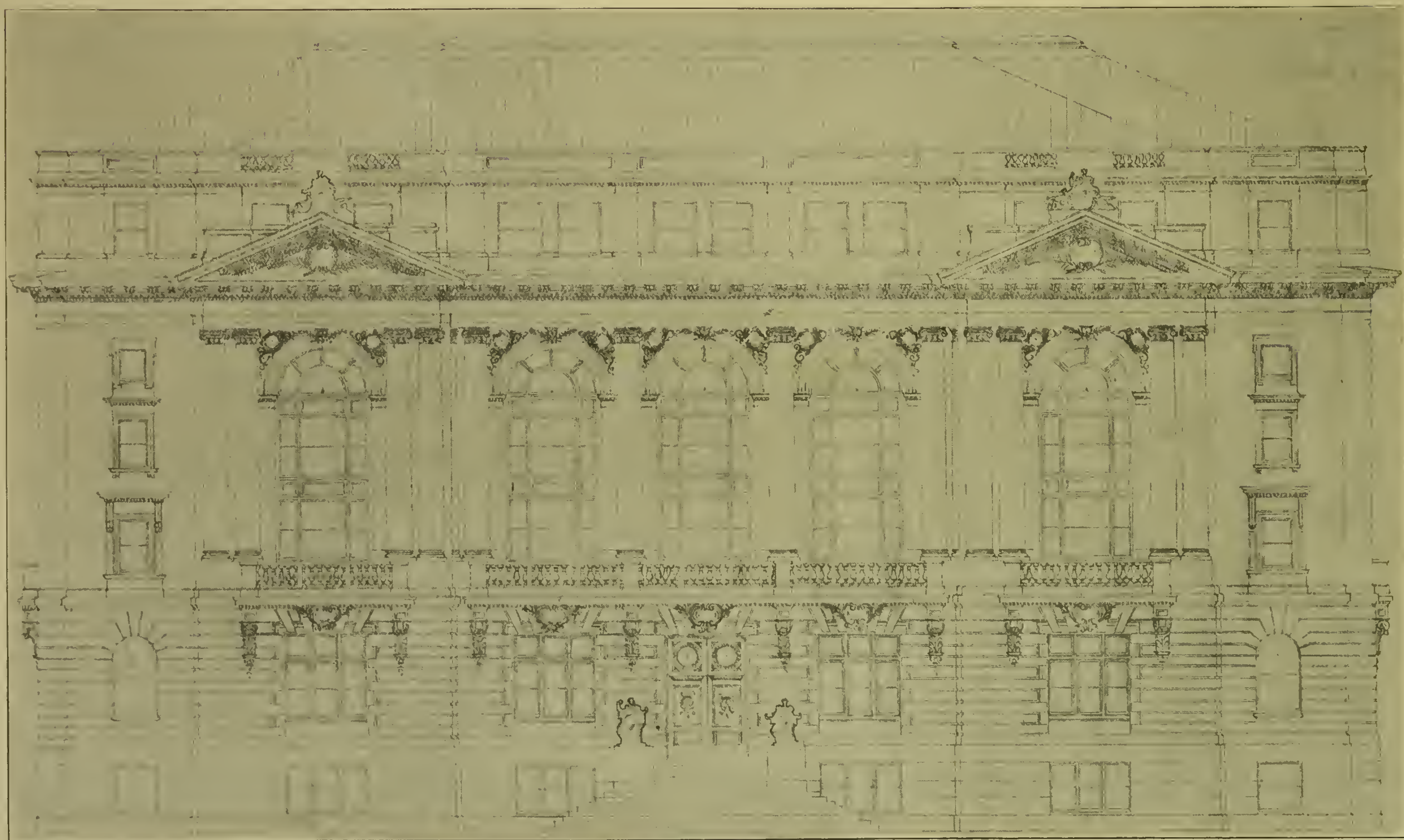




BASEMENT PLAN.



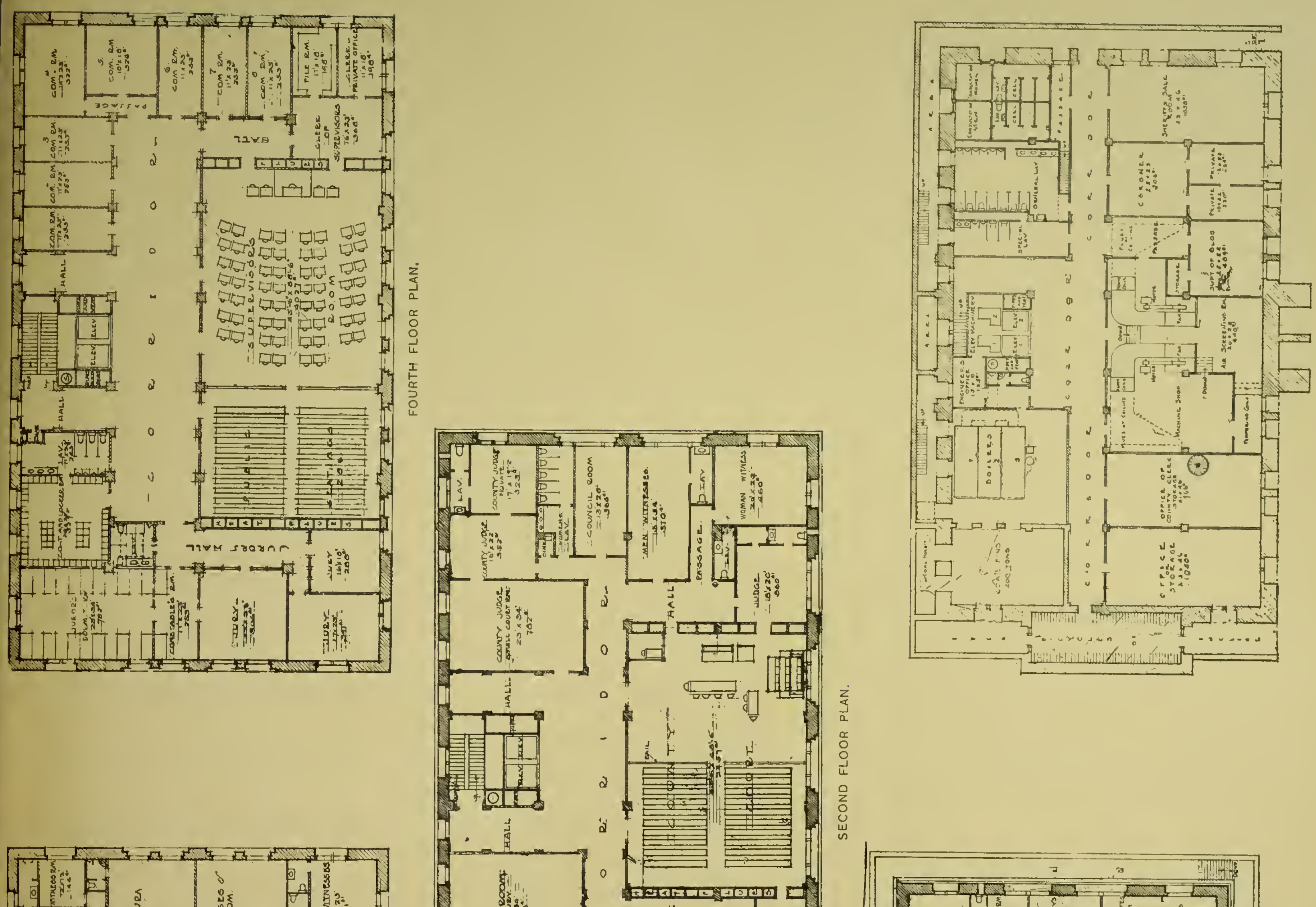
FIRST FLOOR PLAN.



FRONT ELEVATION.

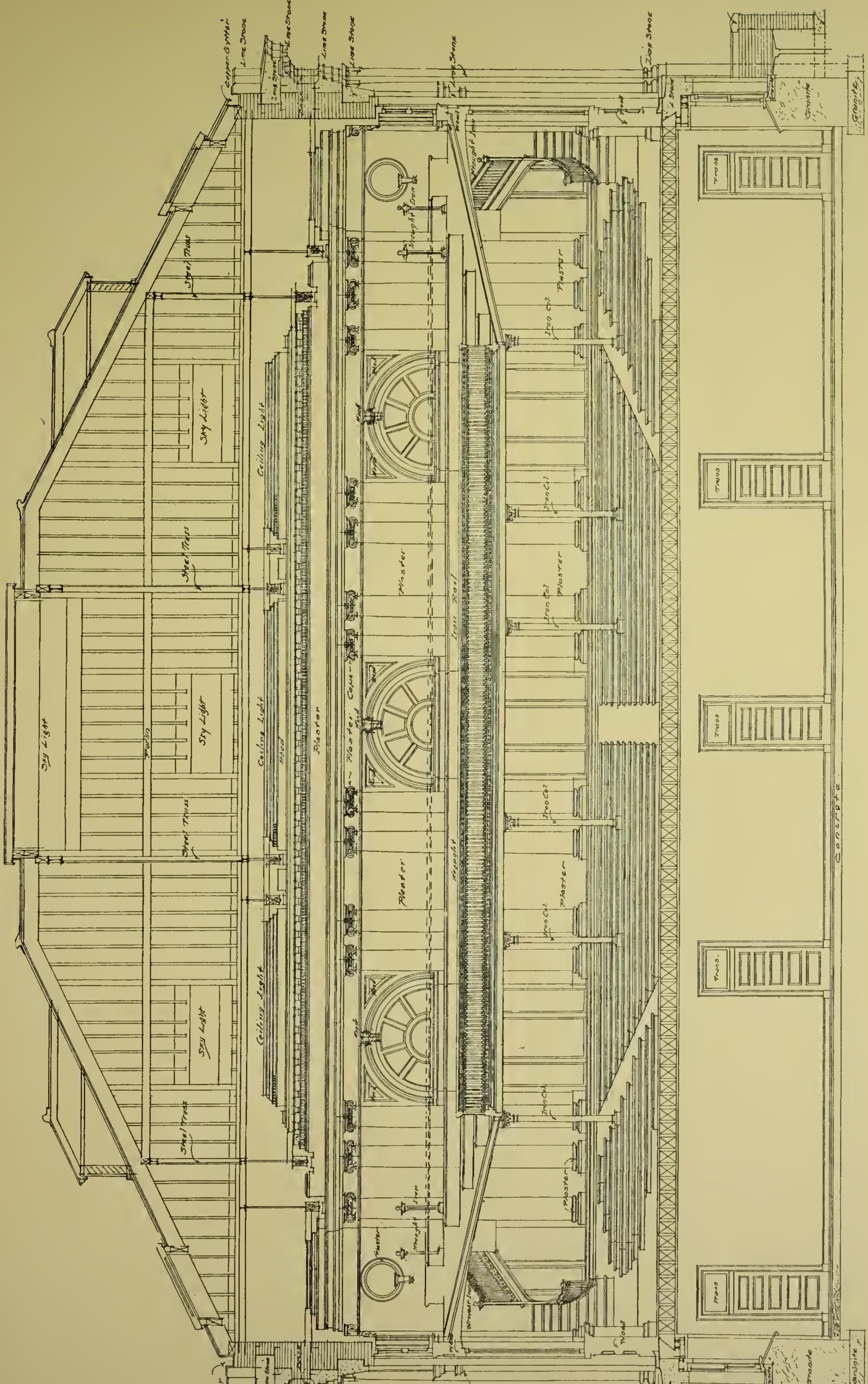
ACCEPTED DESIGN FOR ONEIDA COUNTY COURTHOUSE, UTICA, N. Y.

OLIN W. CUTTER, ARCHITECT.



FLOOR PLANS FOR ONEIDA COUNTY COURTHOUSE, UTICA, N. Y

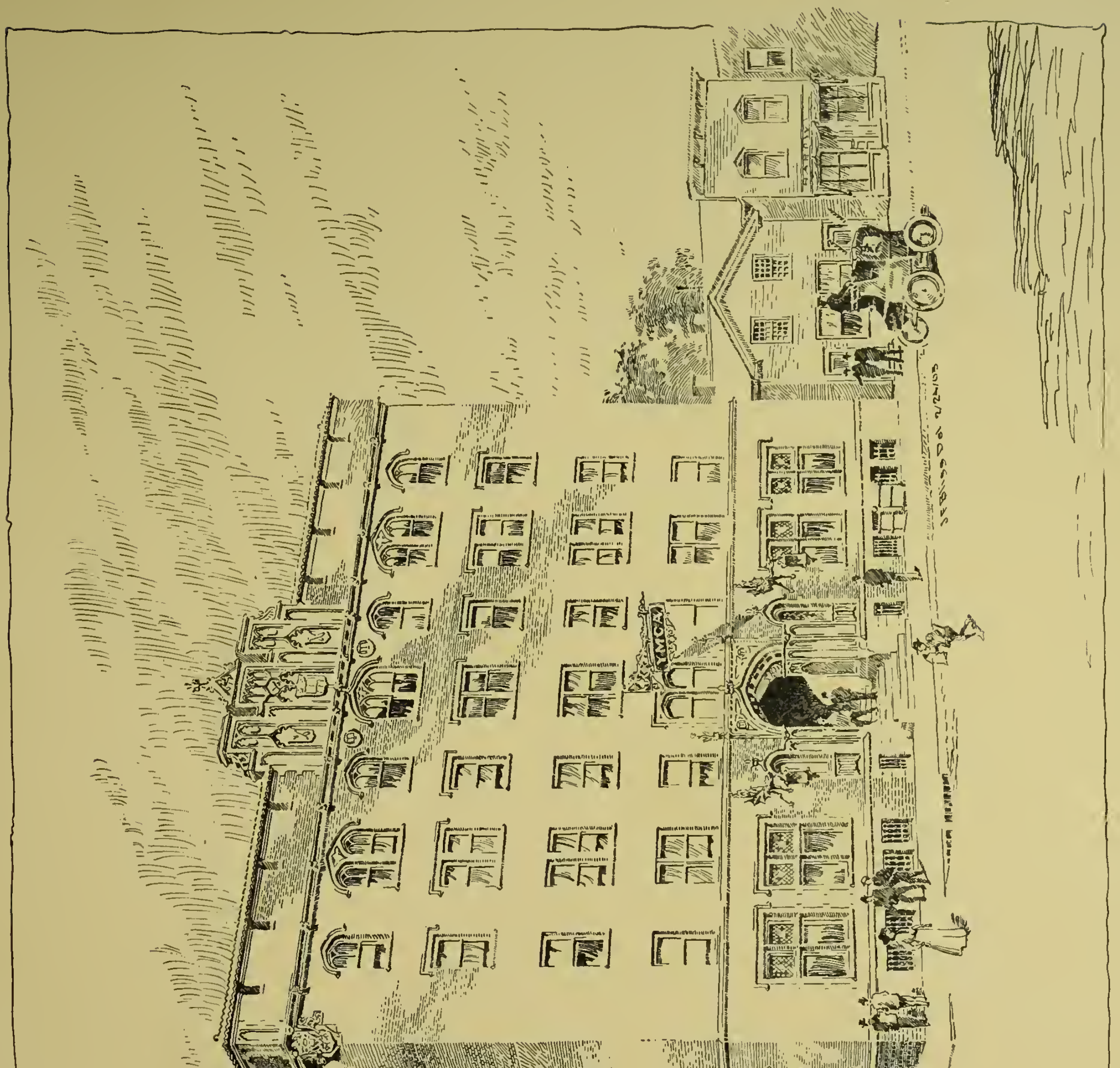
GREEN & WICKS, ARCHITECTS.



LONGITUDINAL SECTION.

LECTURE HALL, HARVARD UNIVERSITY, CAMBRIDGE, MASS.

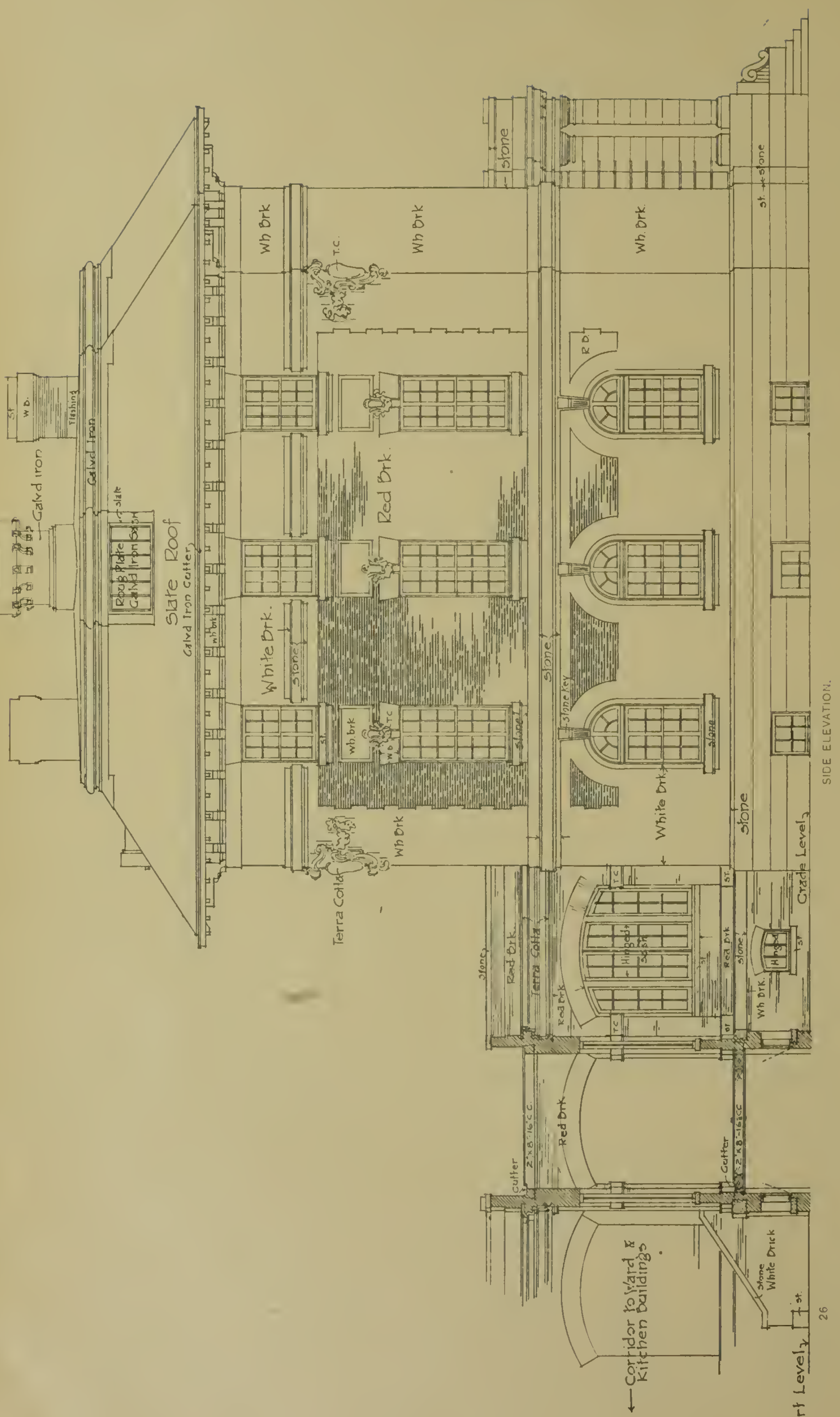
GUY LOWELL, ARCHITECT.



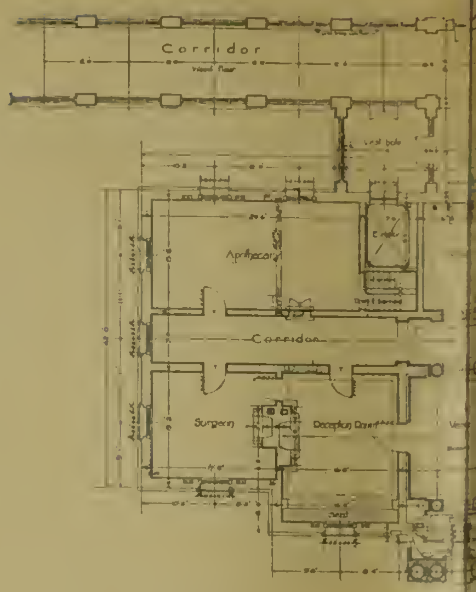
NEW BUILDING FOR THE Y. M. C. A., AKRON, OHIO.

BUNTS & BLISS, ARCHITECTS.

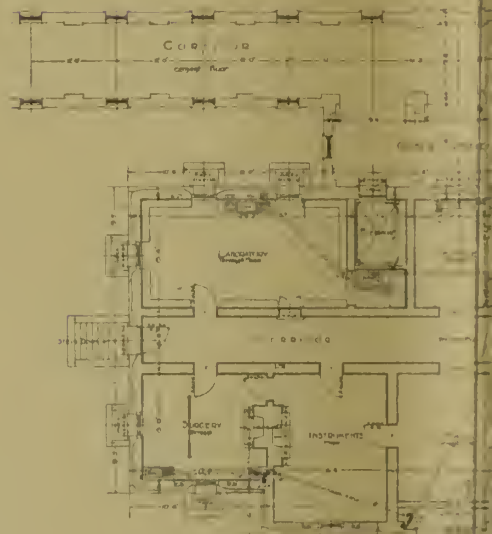
VOL. 12. NO. 4.



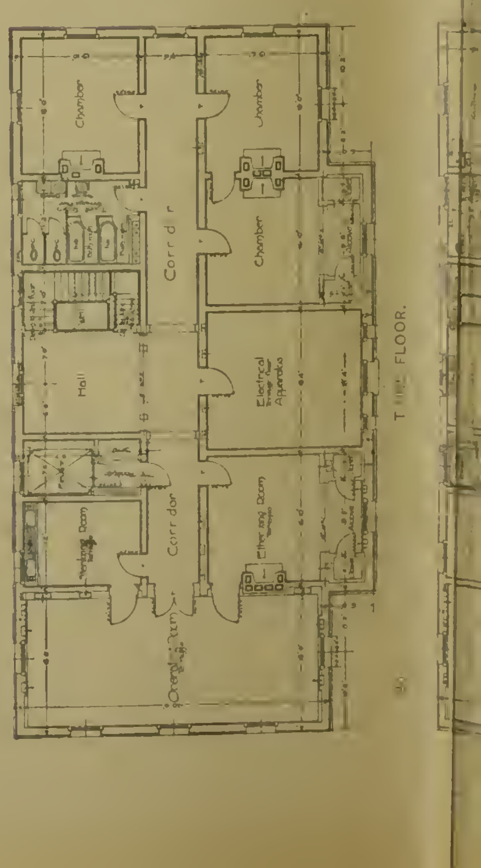
SIDE ELEVATION.
26



28

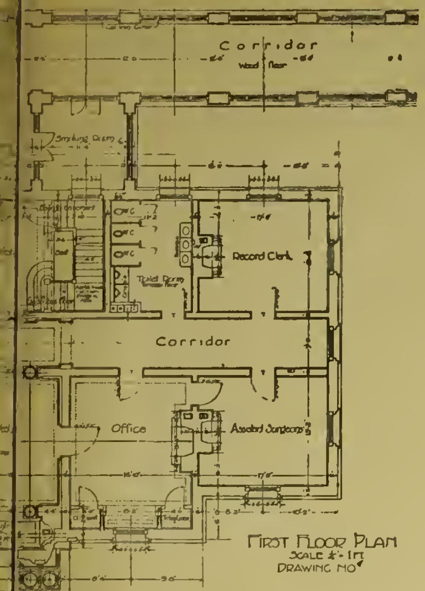


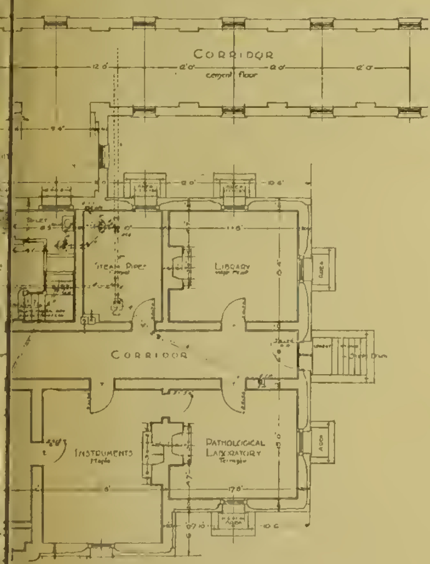
27
BASEM



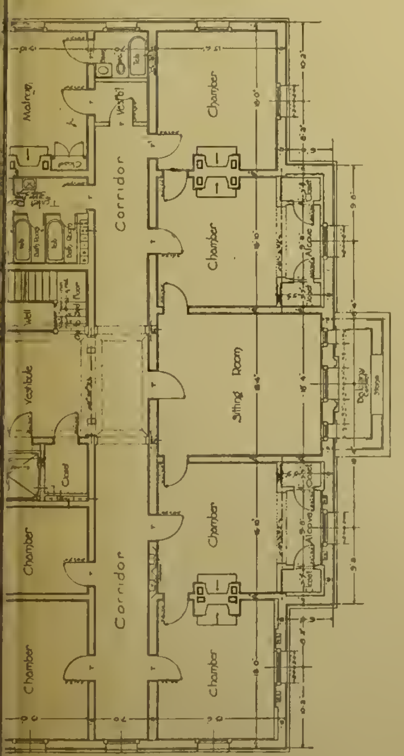
FLOOR.

PLATES 28 and 29.



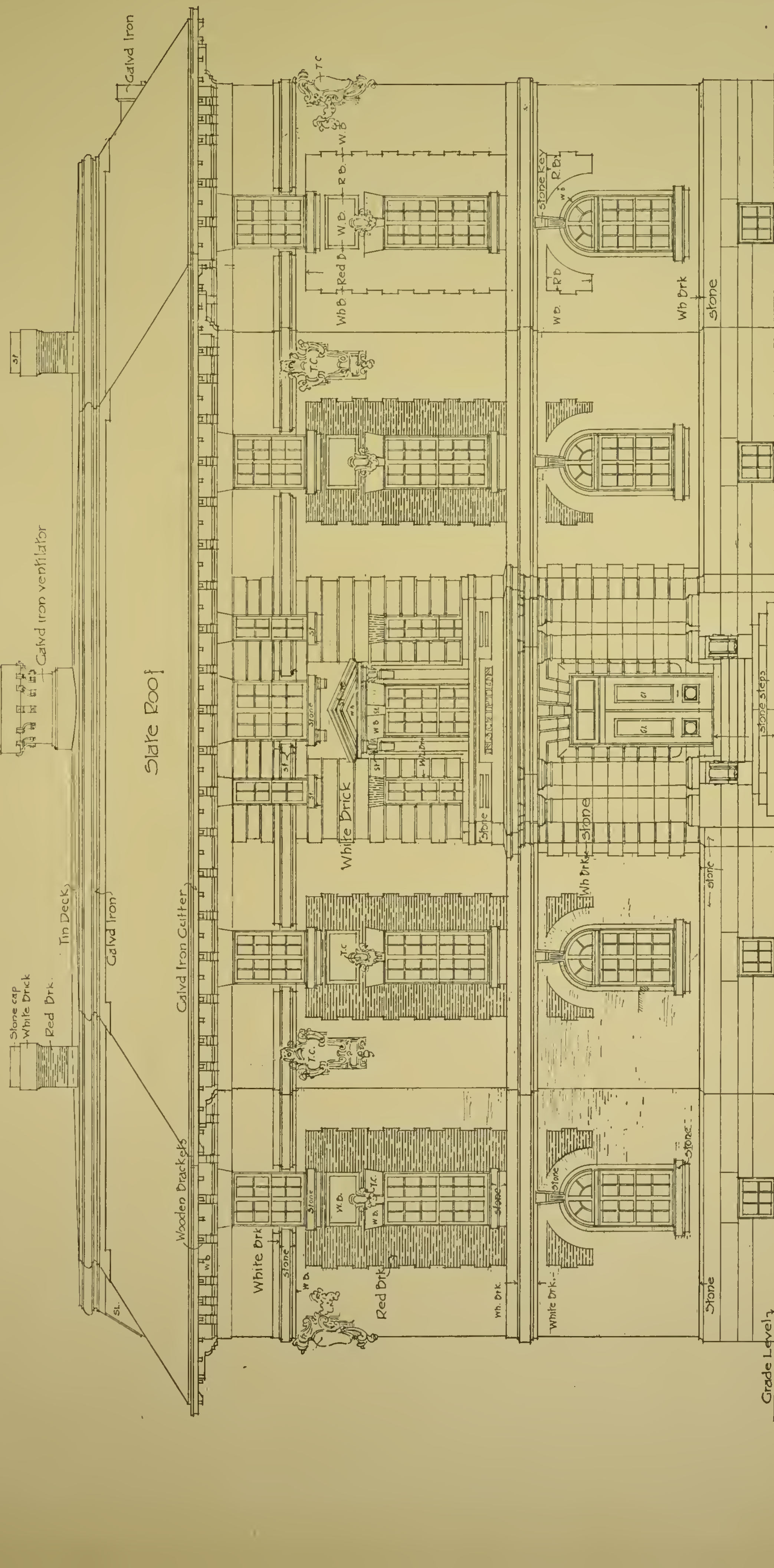


LAN.



SECOND FLOOR.

29

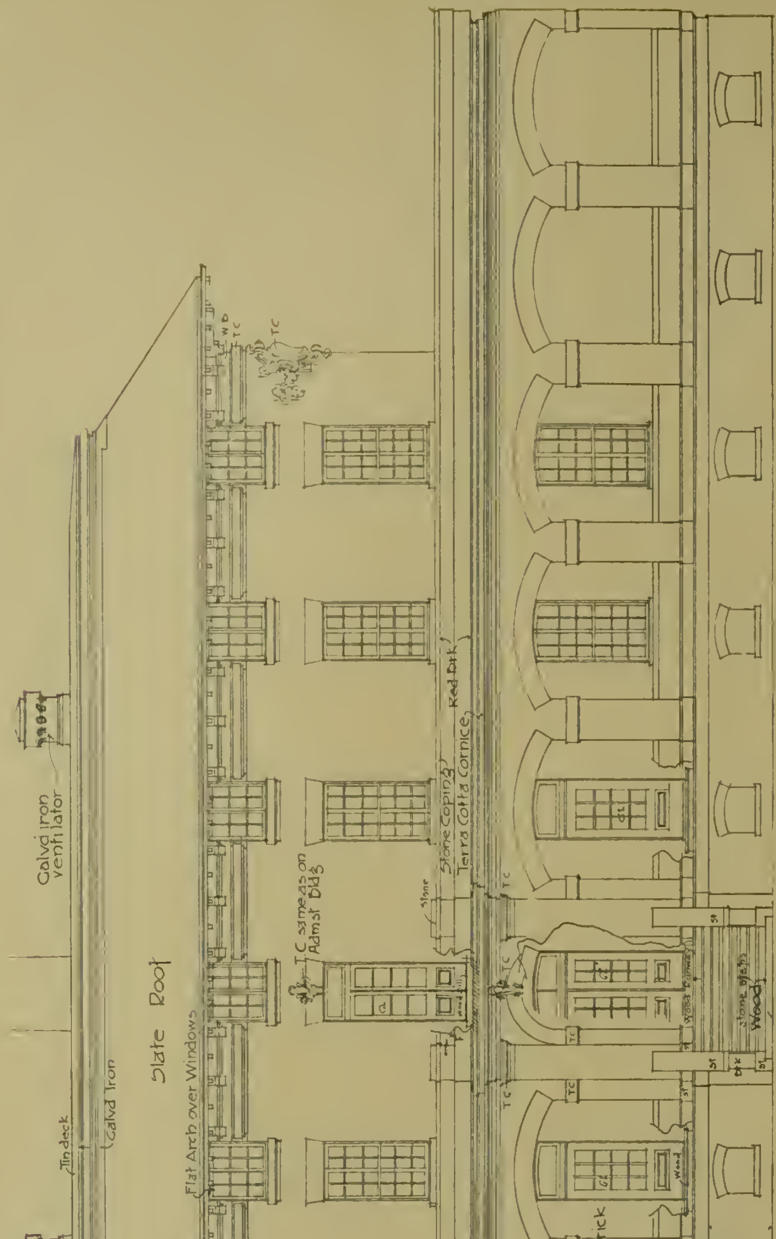


FRONT ELEVATION.

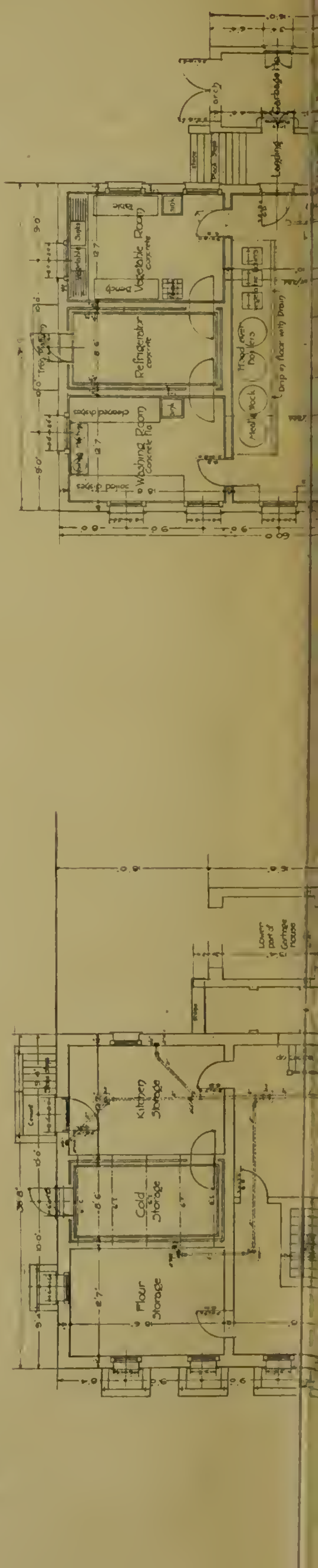
ADMINISTRATION BUILDING, NATIONAL HOME FOR DISABLED VOLUNTEER SOLDIERS, JOHNSON CITY, TENN.

J. H. FREEDLANDER, ARCHITECT.

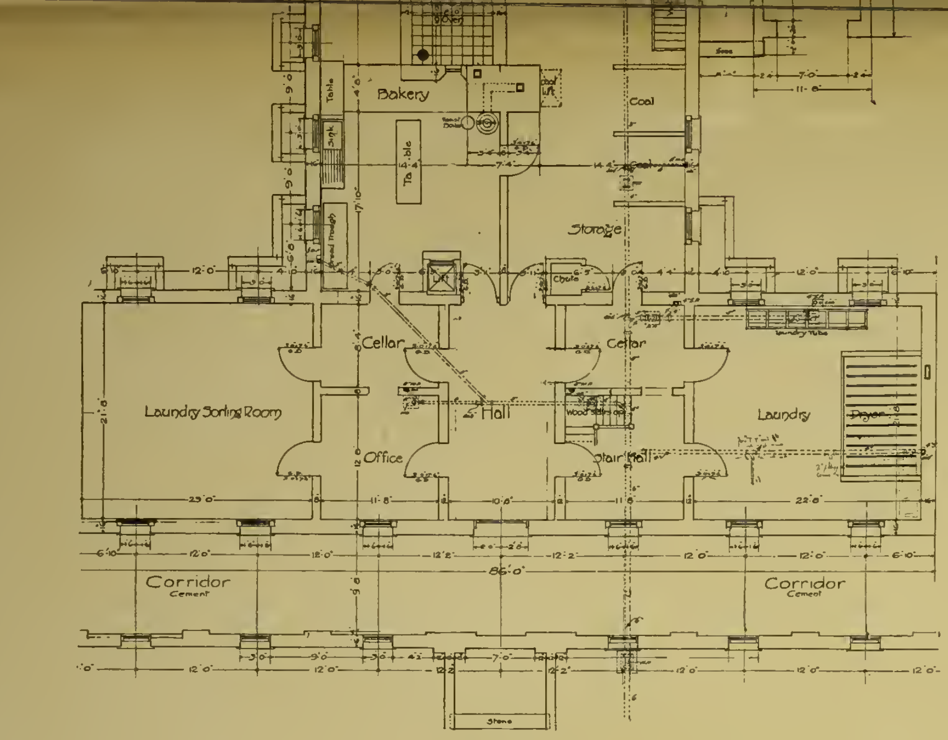
25



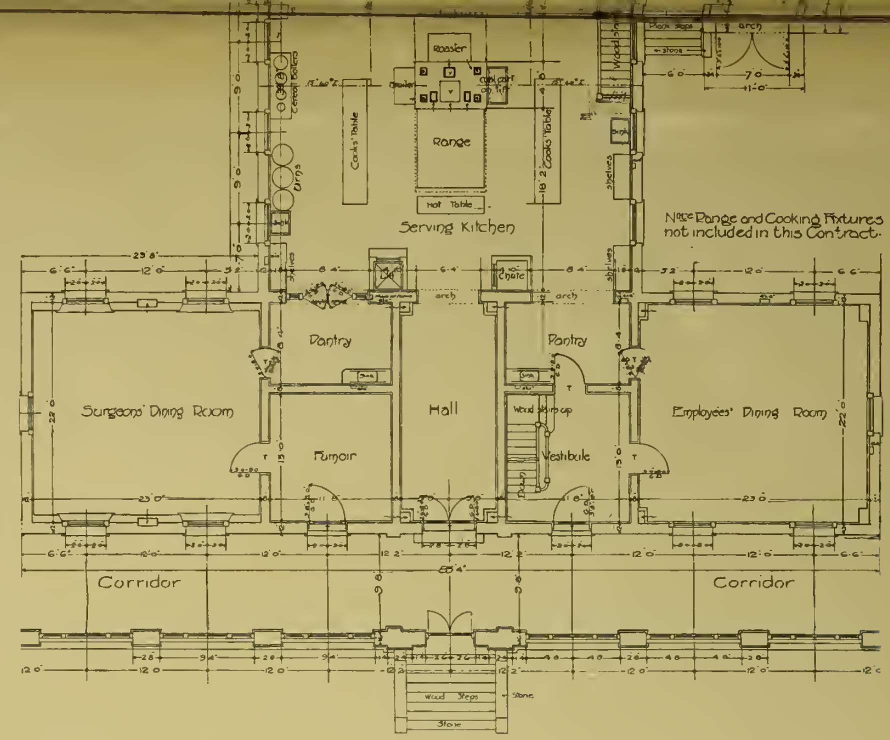
FRONT ELEVATION.



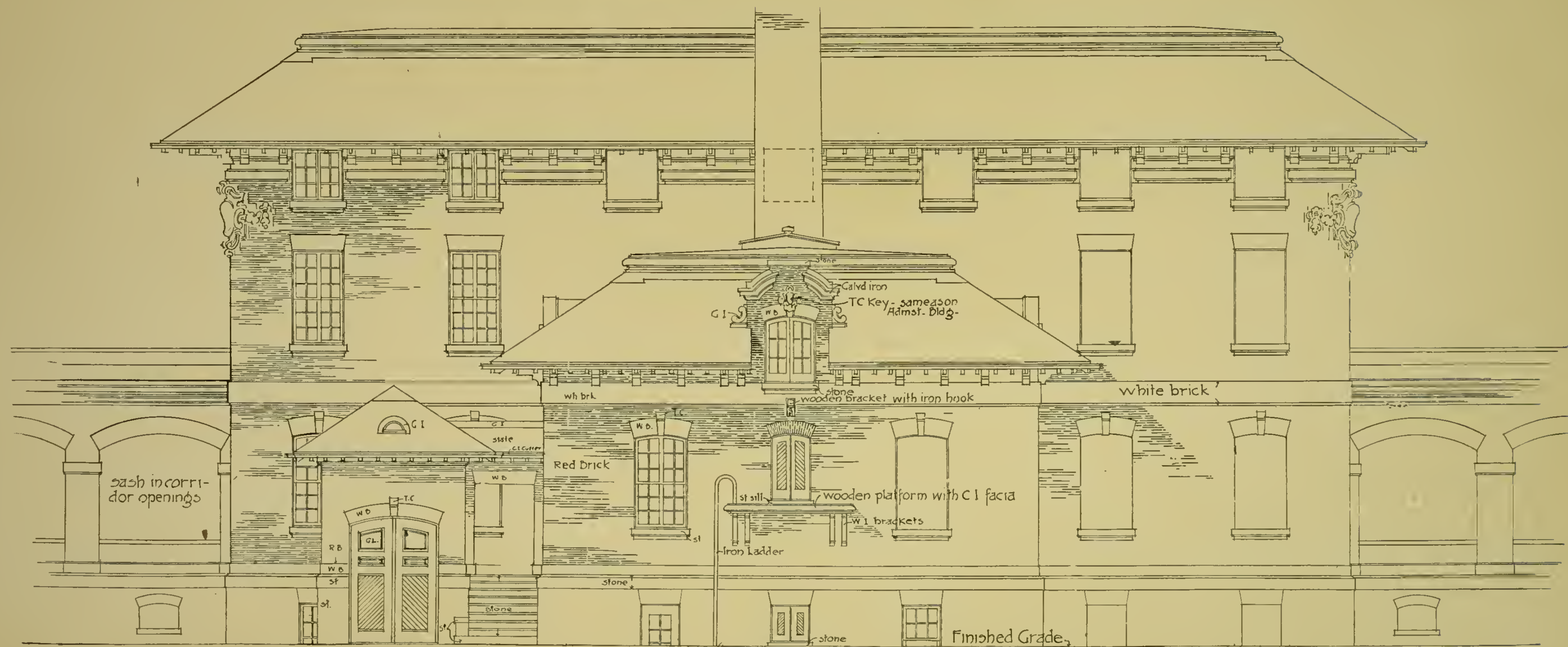
PLATES 27 and 30.



37 BASEMENT PLAN.



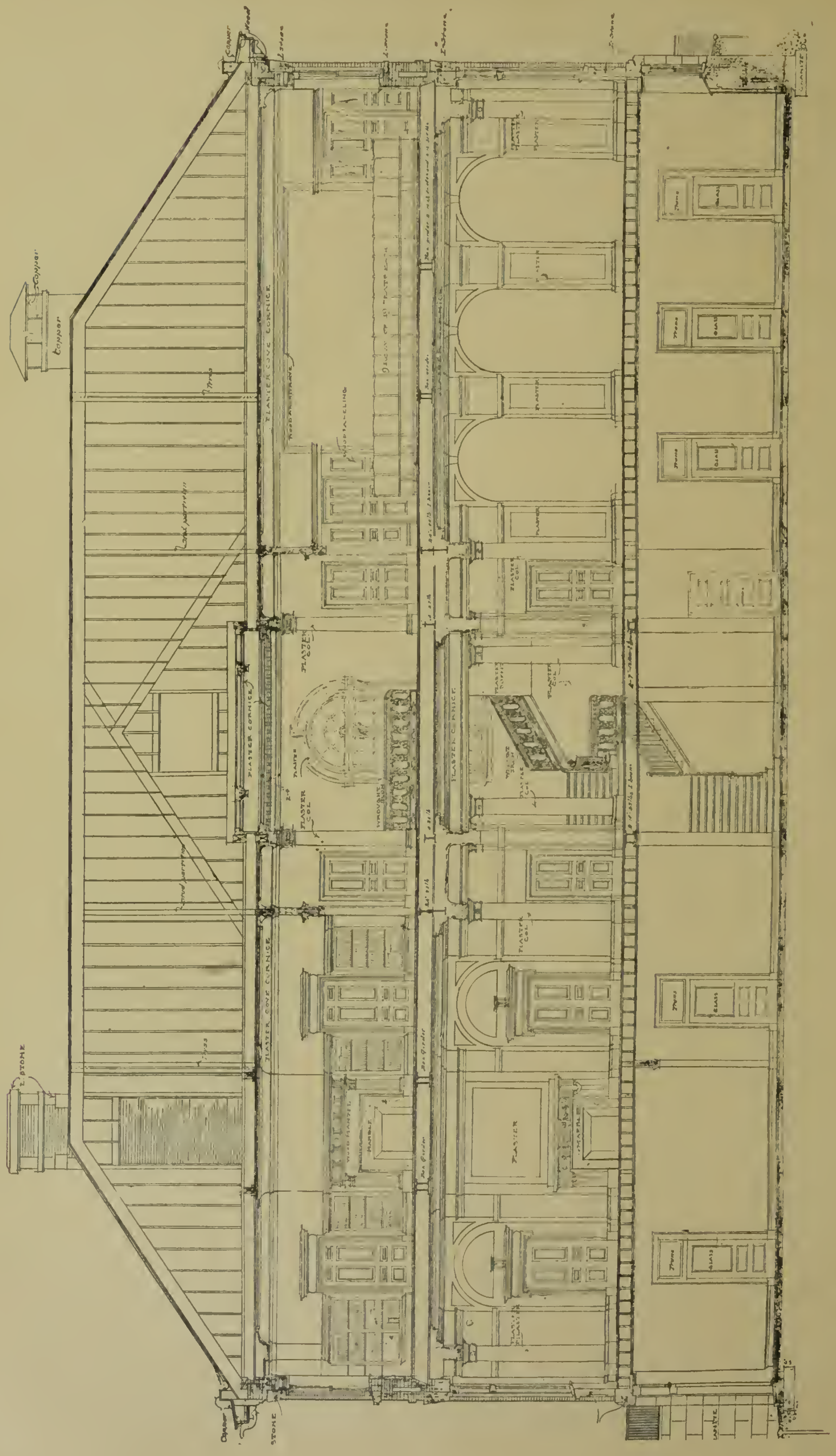
36 FIRST FLOOR PLAN.



35 REAR ELEVATION.

KITCHEN BUILDING, NATIONAL HOME FOR DISABLED VOLUNTEER SOLDIERS, JOHNSON CITY, TENN.

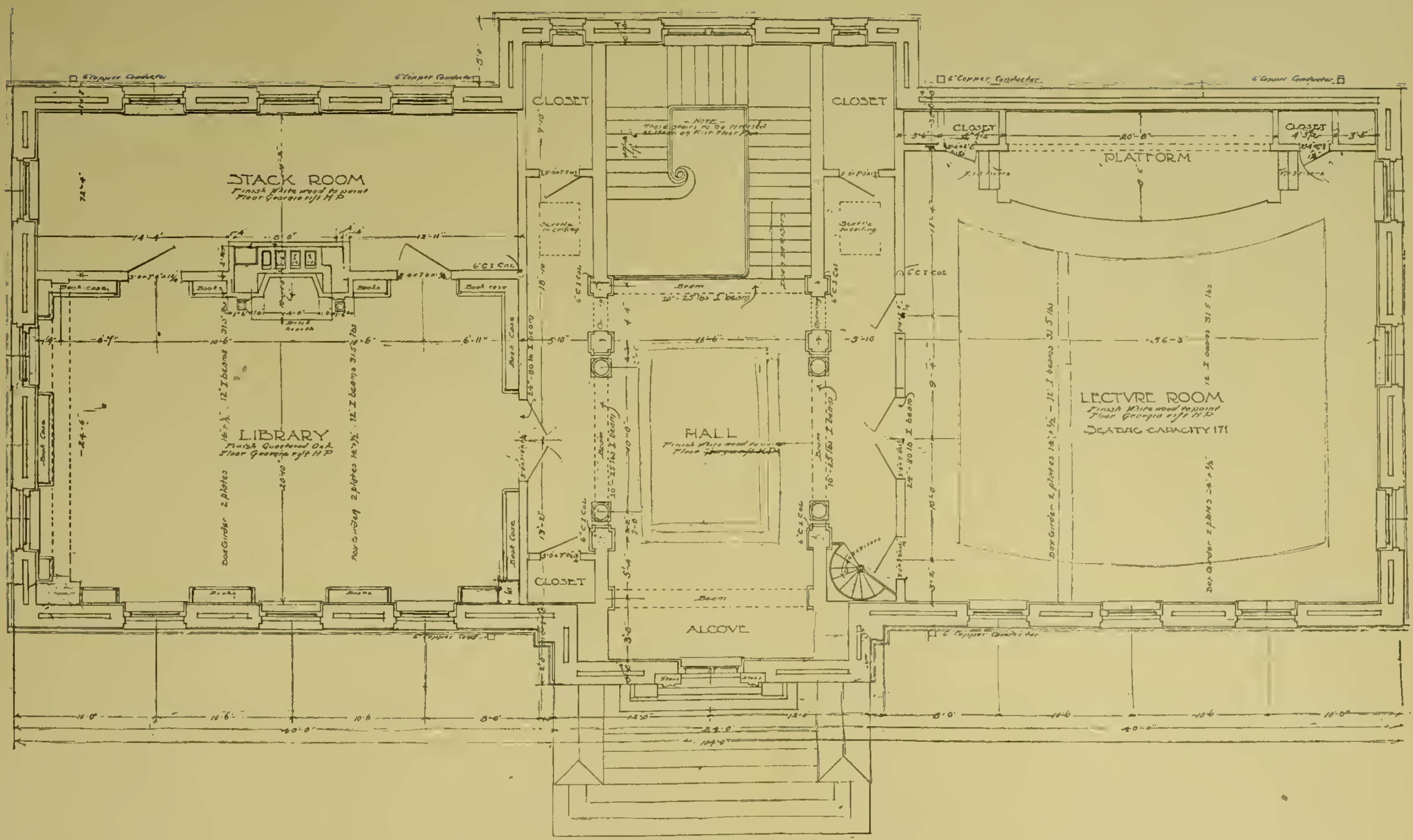
J. H. FREEDLANDER, ARCHITECT.



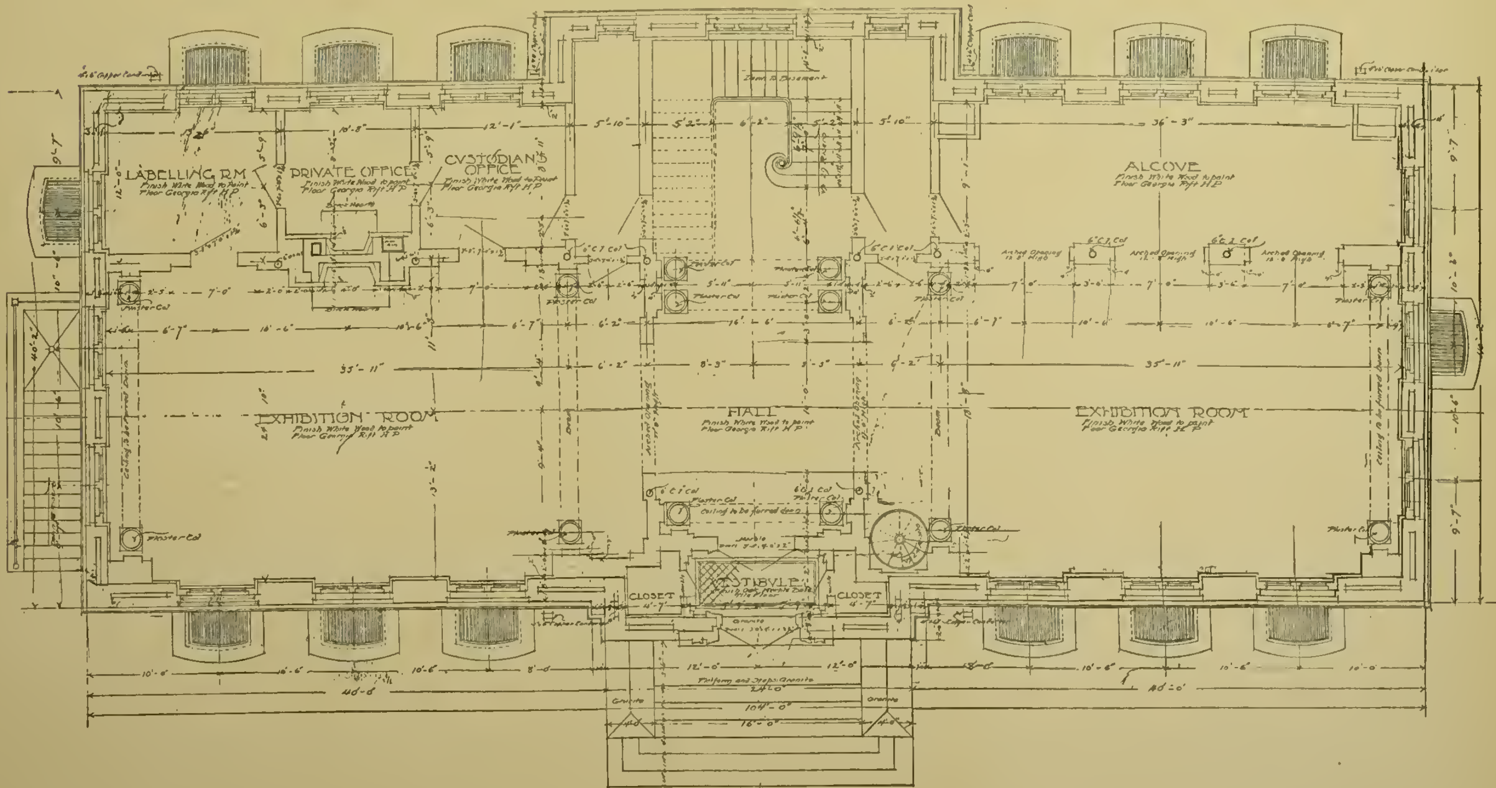
LONGITUDINAL SECTION

BUILDING FOR DEPARTMENT OF ARCHÆOLOGY, PHILLIPS ACADEMY, ANDOVER, MASS.

GUY LOWELL, ARCHITECT.



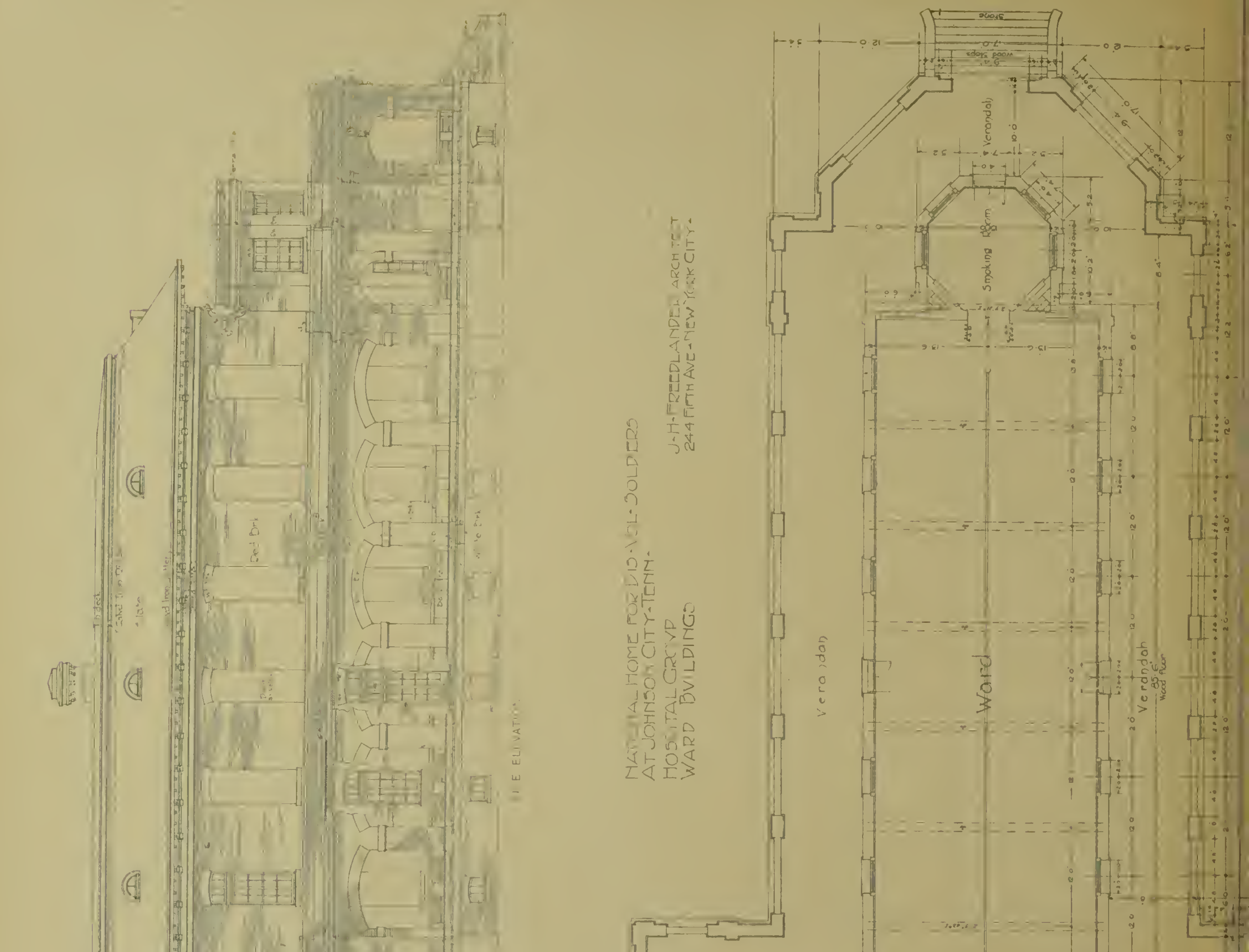
SECOND FLOOR PLAN.

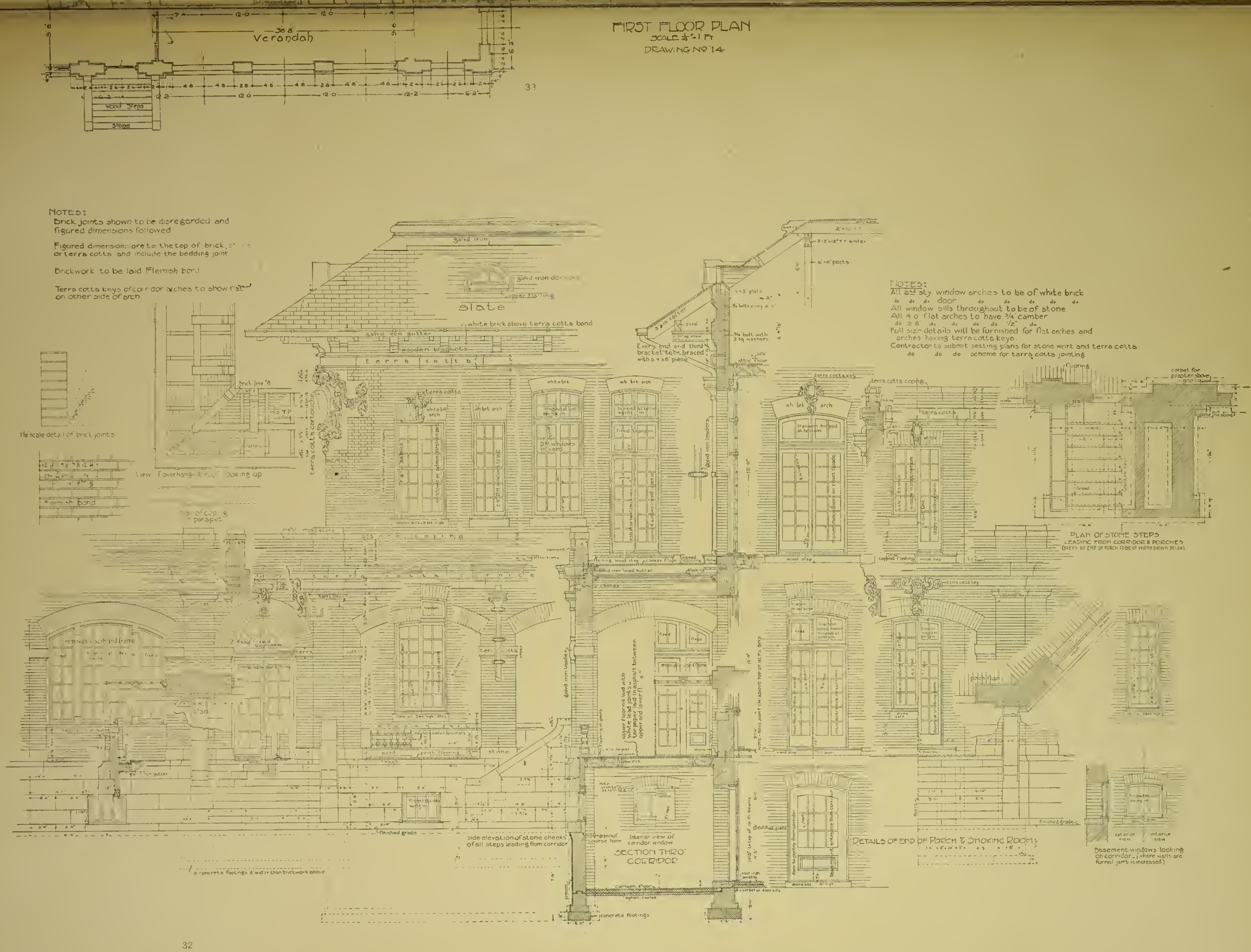


FIRST FLOOR PLAN.

PLANS, BUILDING FOR DEPARTMENT OF ARCHÆOLOGY, PHILLIPS ACADEMY, ANDOVER, MASS.

GUY LOWELL, ARCHITECT.

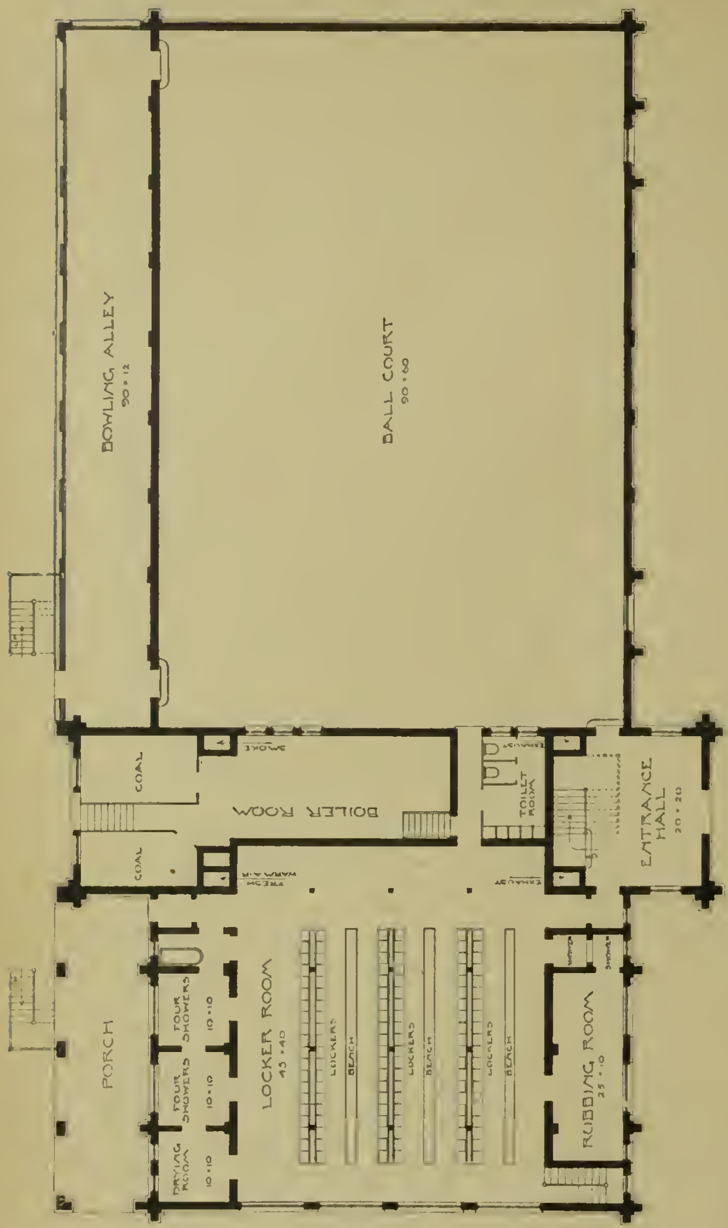

NATIONAL HOME FOR DIS-VOL-SOLDIERS
AT JOHNSON CITY-TENN-
HOSPITAL GROUP
WARD BUILDINGS
J-H-FREEDLANDER ARCHITECT
244 FIFTH AVE-NEW YORK CITY-
Verandah
Ward
Smoking Room
Corridor
Dining Room
Stair Hall
Elevator
Passage
Special Ward
Wardrobes
Pantry
Bath Room



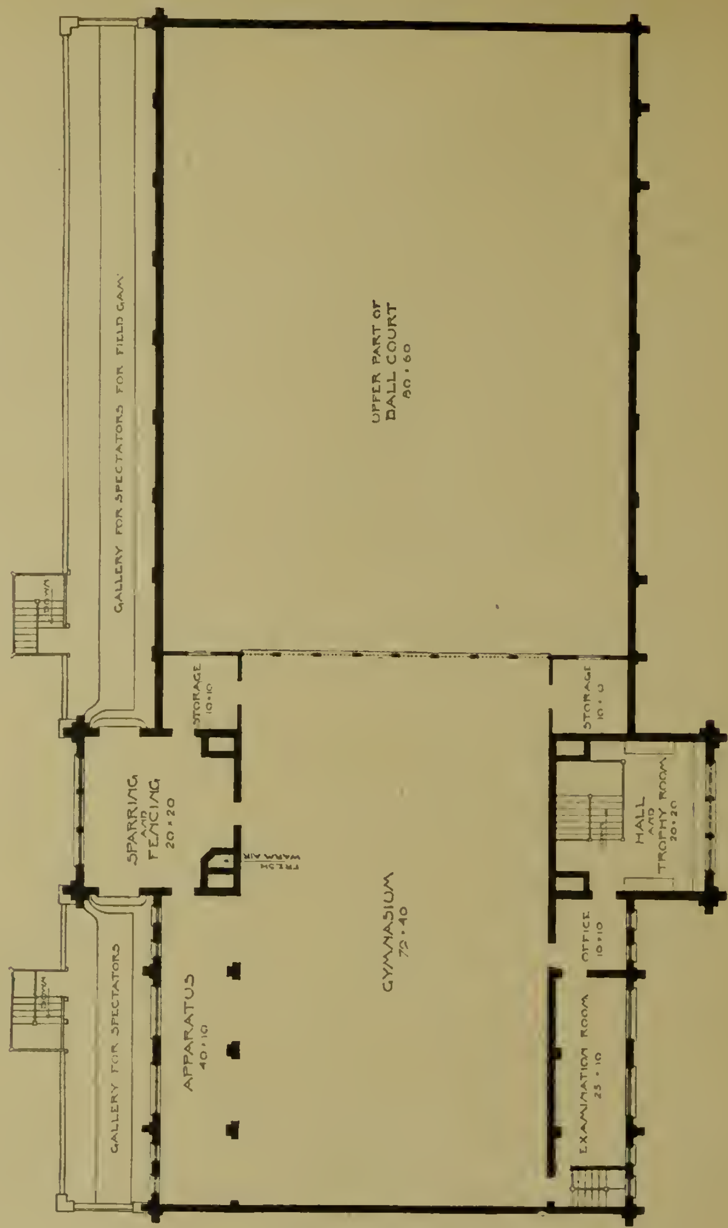
EXTERIOR DETAILS.

WARD BUILDING NATIONAL HOME FOR DISABLED VOLUNTEER SOLDIERS, JOHNSON CITY. TENN.

J. H. FREEDLANDER ARCHITECT.



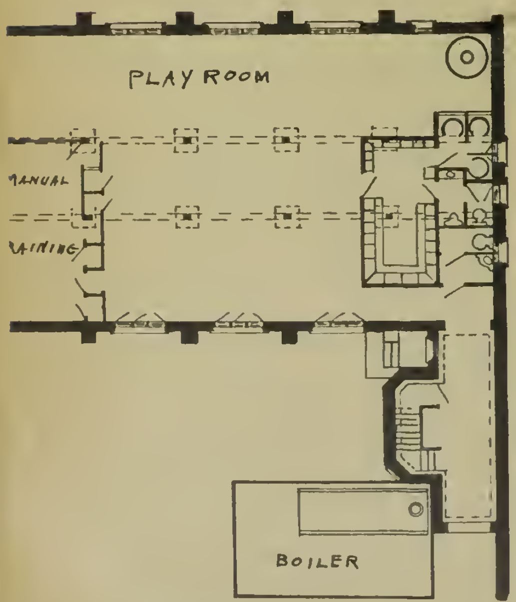
MAIN FLOOR.



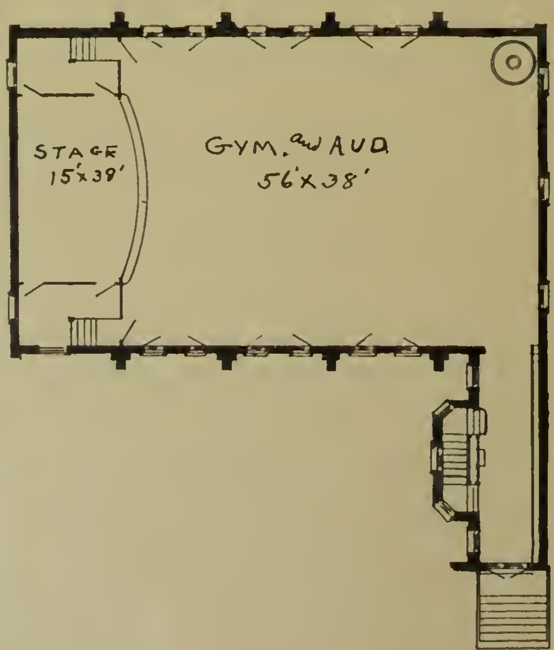
SECOND FLOOR.

PLANS, MORGAN PARK GYMNASIUM, UNIVERSITY OF CHICAGO, CHICAGO.

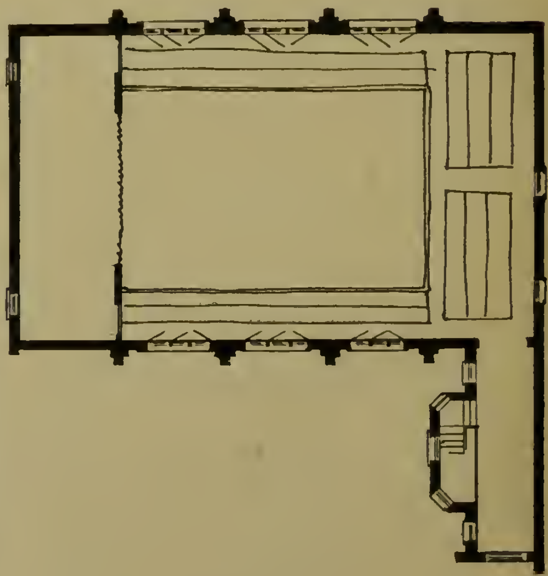
DWIGHT H. PERKINS, ARCHITECT.



BASEMENT FLOOR.



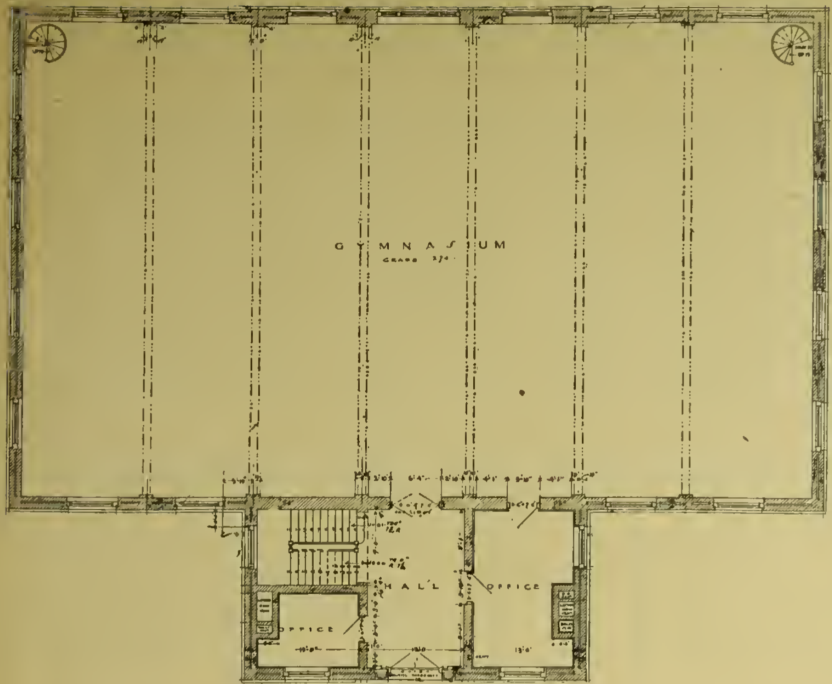
MAIN FLOOR.



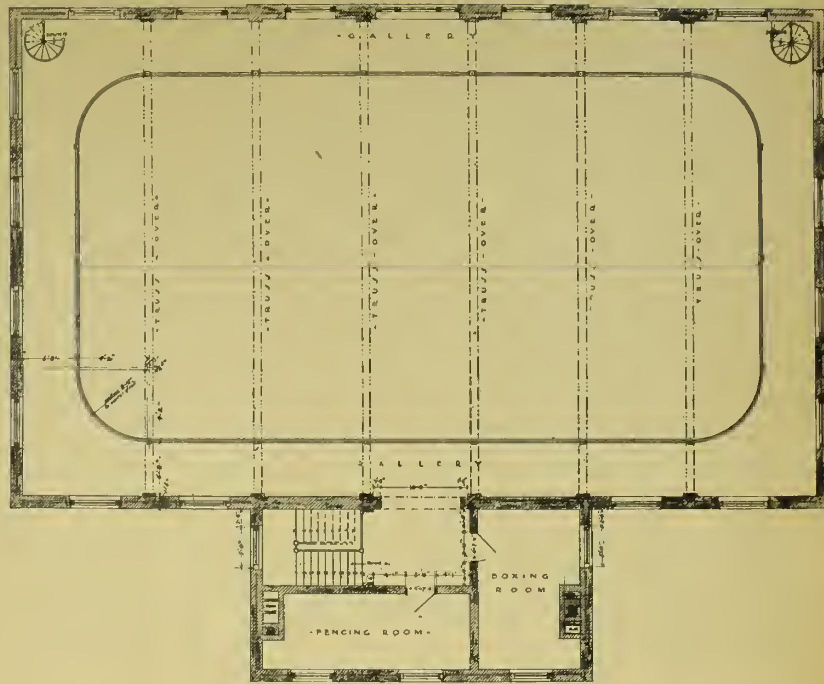
SECOND FLOOR

PLANS, GYMNASIUM AND AUDITORIUM FOR UNIVERSITY OF CHICAGO SETTLEMENT, CHICAGO.

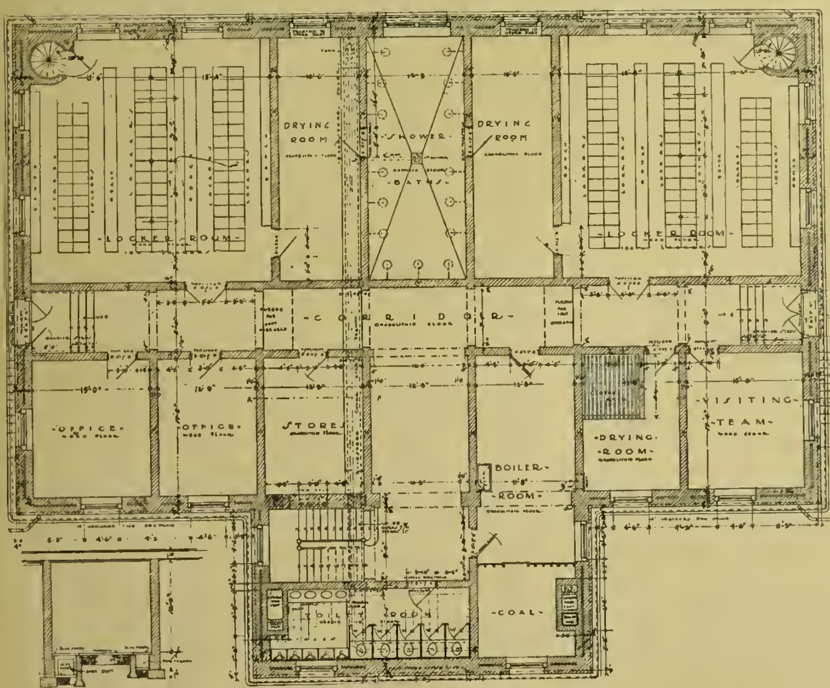
DWIGHT H. PERKINS, ARCHITECT.



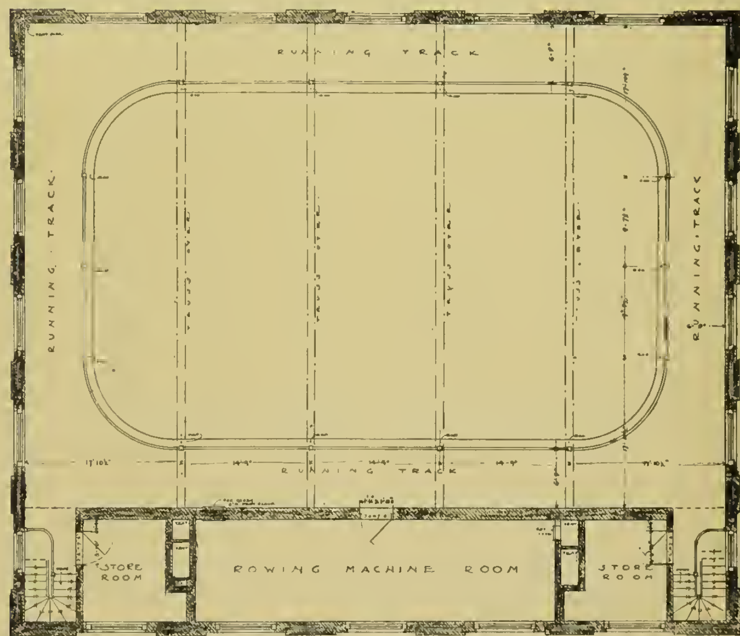
FIRST FLOOR PLAN, GROTON SCHOOL.



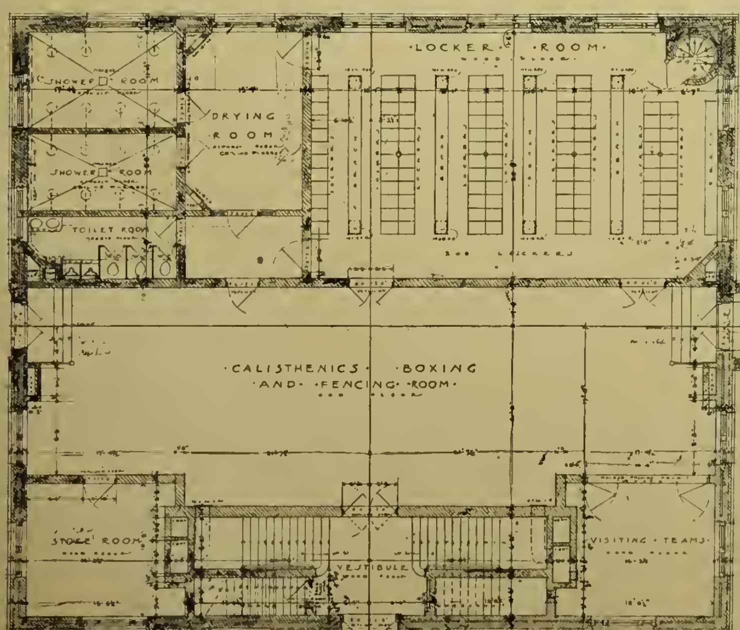
SECOND FLOOR PLAN, GROTON SCHOOL.



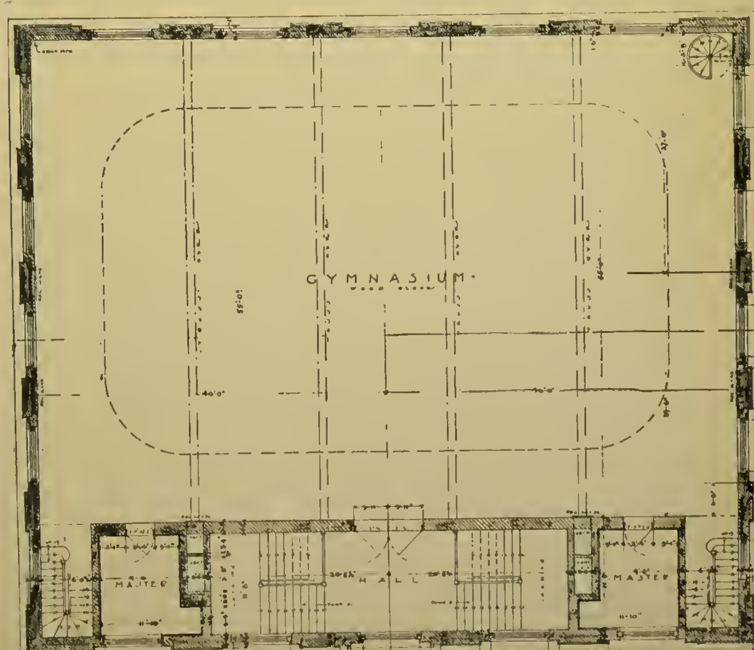
BASEMENT PLAN, GROTON SCHOOL.



GALLERY FLOOR PLAN, PHILLIPS ACADEMY.

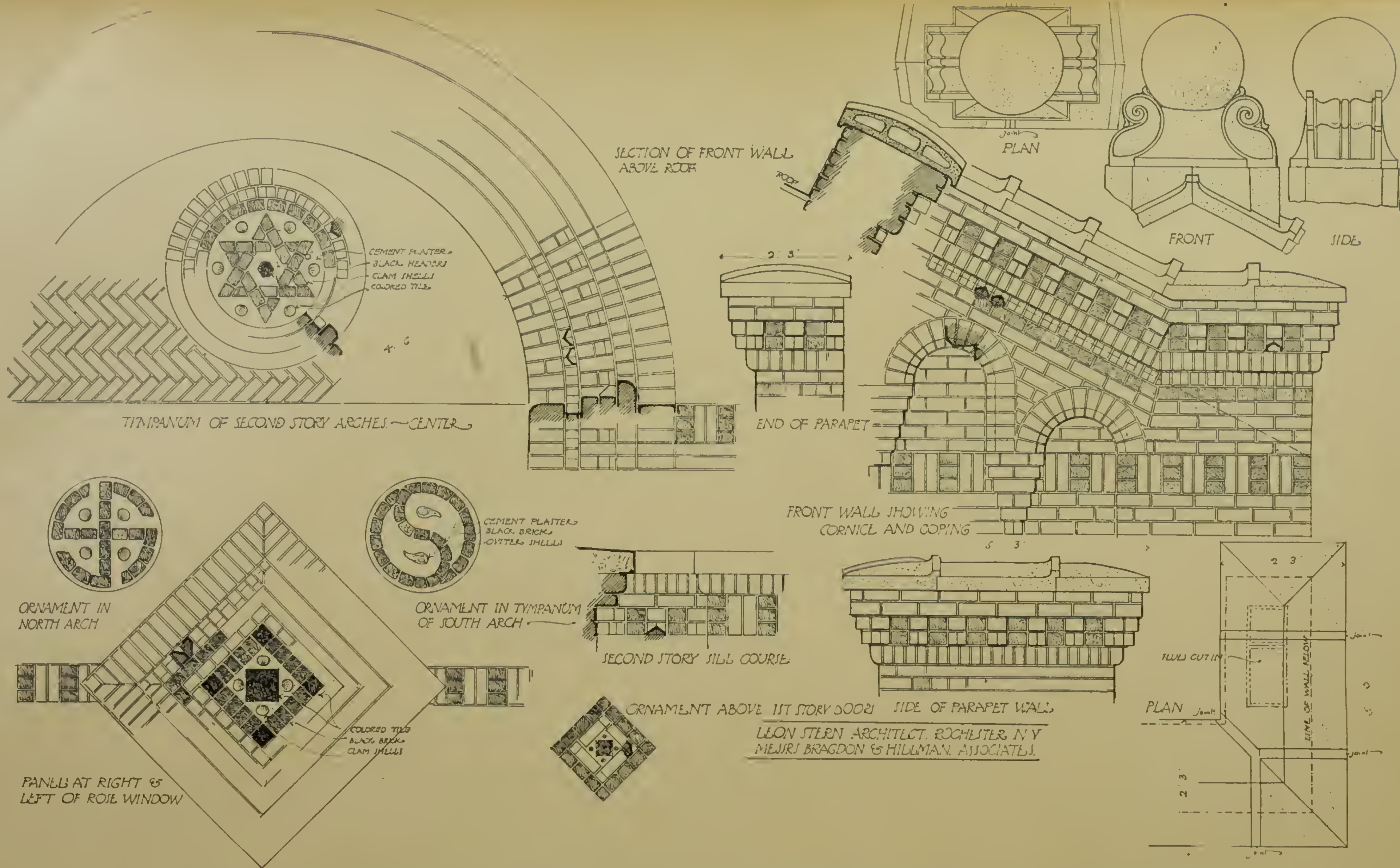


FIRST FLOOR PLAN, PHILLIPS ACADEMY.



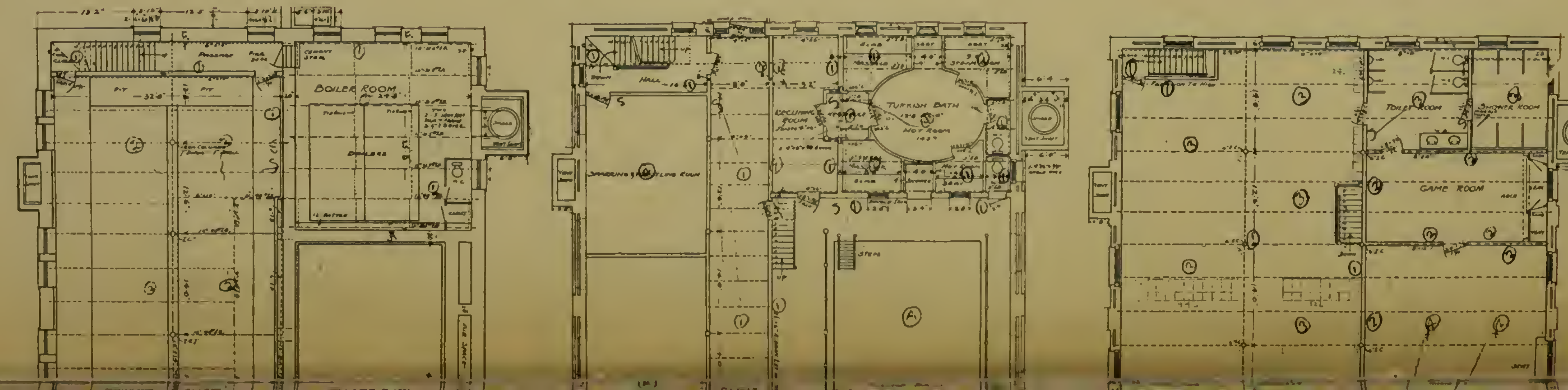
SECOND FLOOR PLAN, PHILLIPS ACADEMY.

PLANS, GYMNASIUMS AT GROTON SCHOOL, GROTON, MASS., AND PHILLIPS ACADEMY, ANDOVER, MASS.

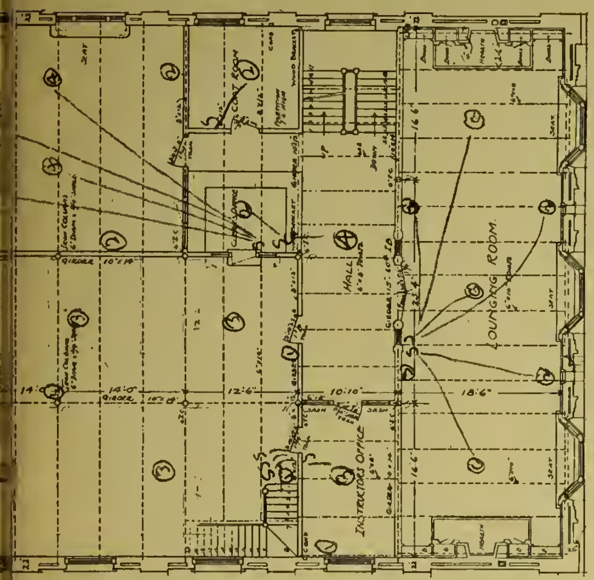


DETAIL OF ORNAMENTAL BRICKWORK AND TERRA-COTTA, ROCHESTER ATHLETIC CLUB, ROCHESTER, N. Y

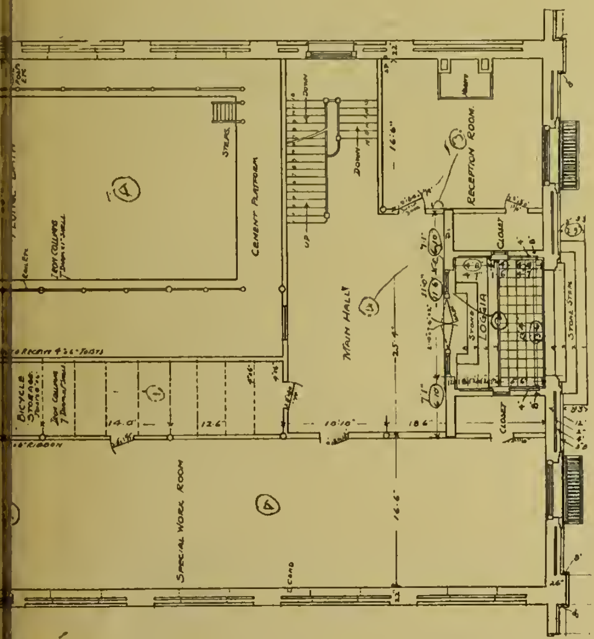
LEON STERN AND BRAGDON & HILLMAN, ASSOCIATE ARCHITECTS.



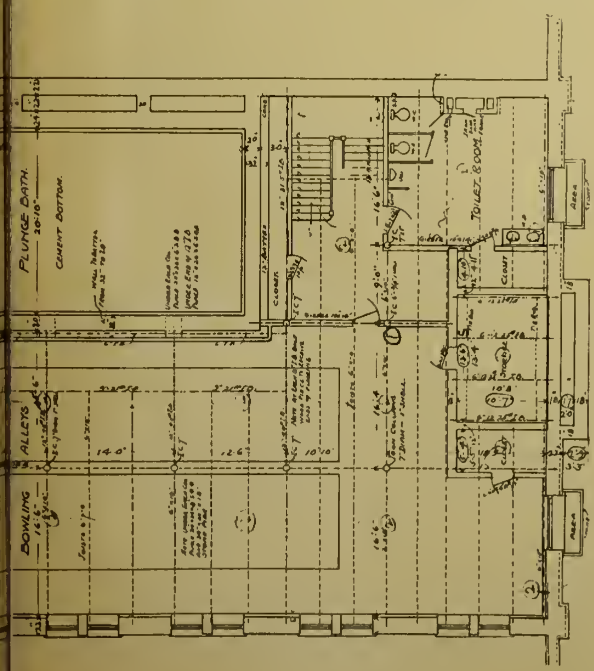
PLATES 34 and 39.



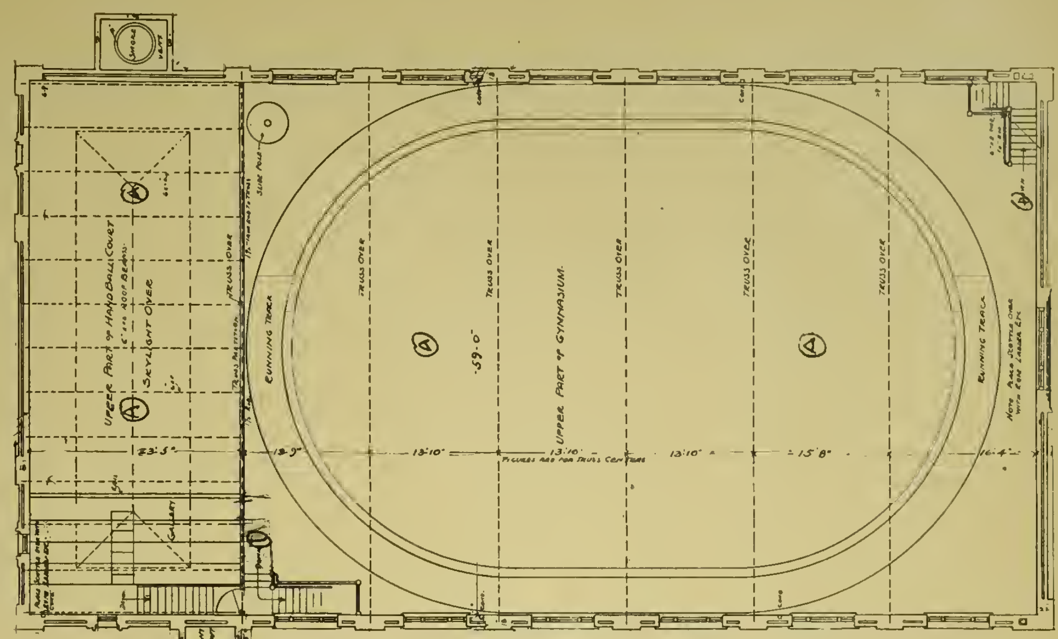
PLAN OF SECOND FLOOR.



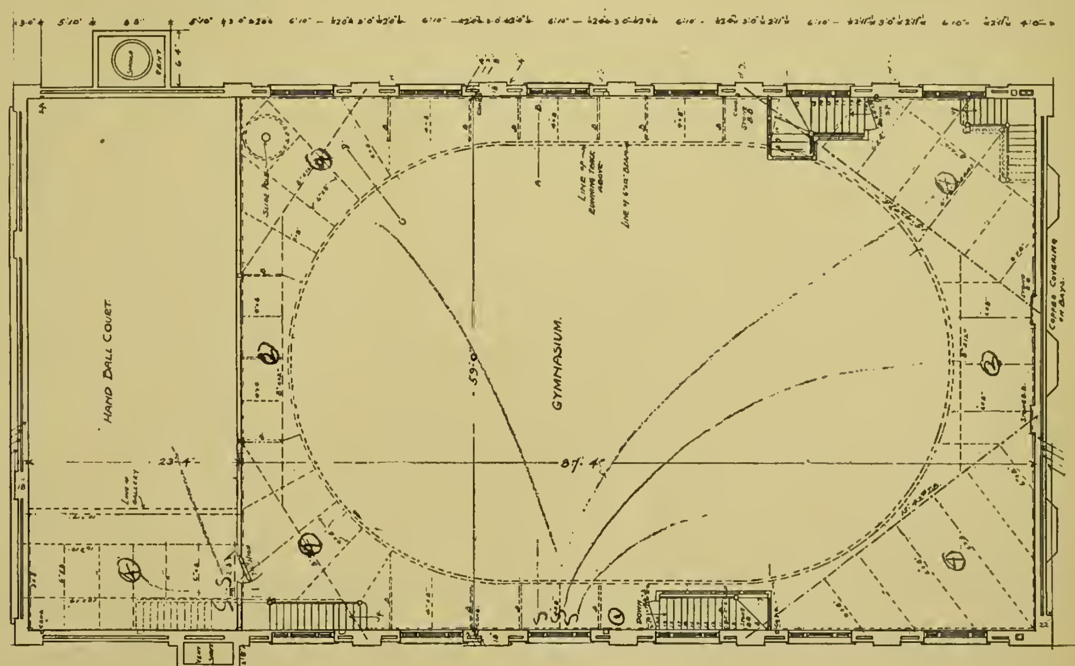
PLAN OF FIRST FLOOR.



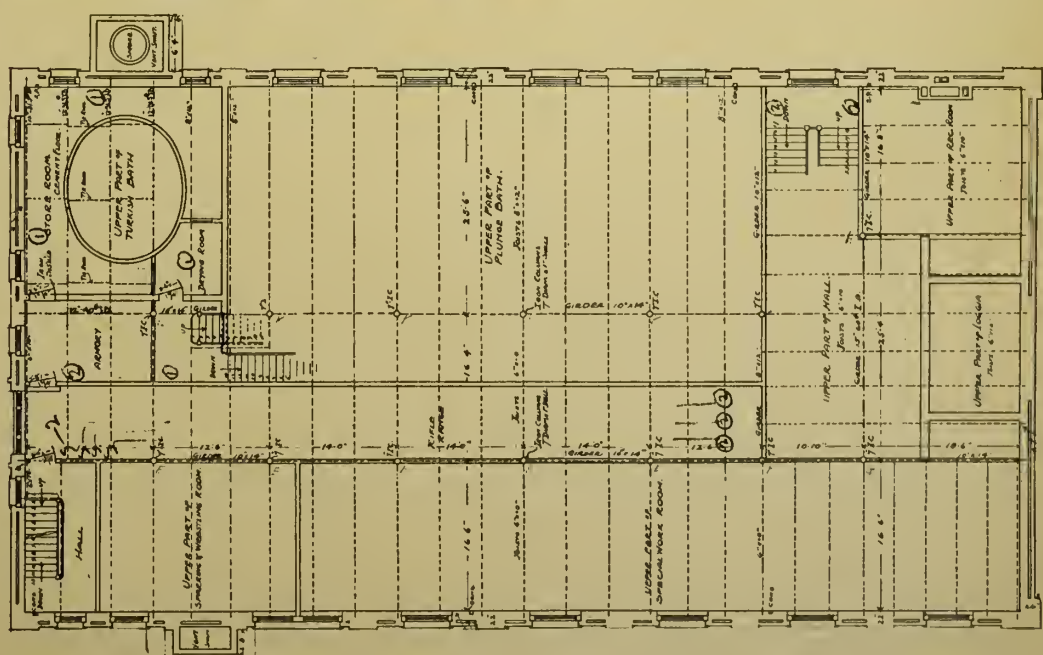
PLAN OF BASEMENT.



PLAN OF RUNNING TRACK.



PLAN OF GYMNASIUM.



PLAN OF MEZZANINE FLOOR.

PLANS, ROCHESTER ATHLETIC CLUB, ROCHESTER, N. Y.

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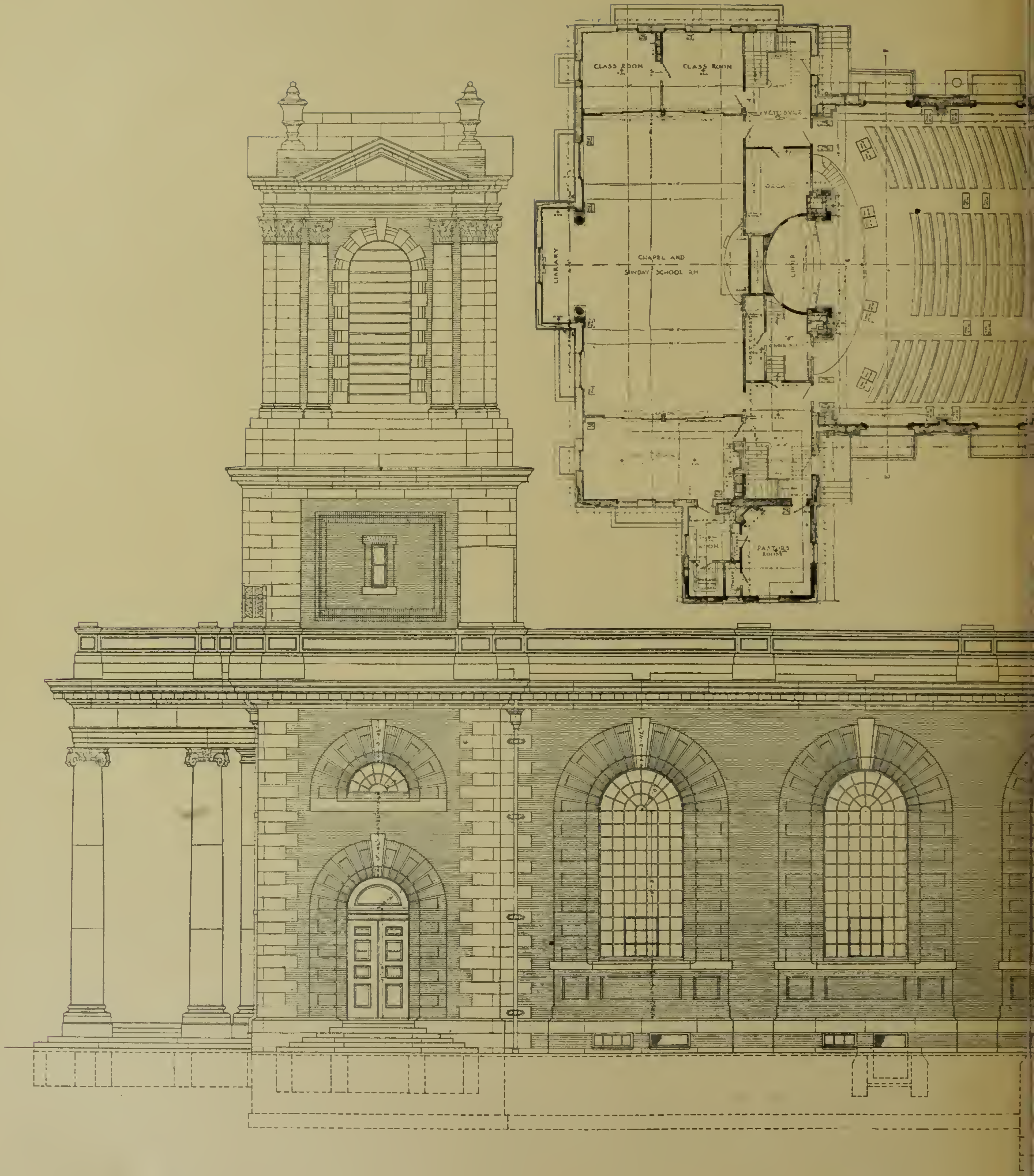
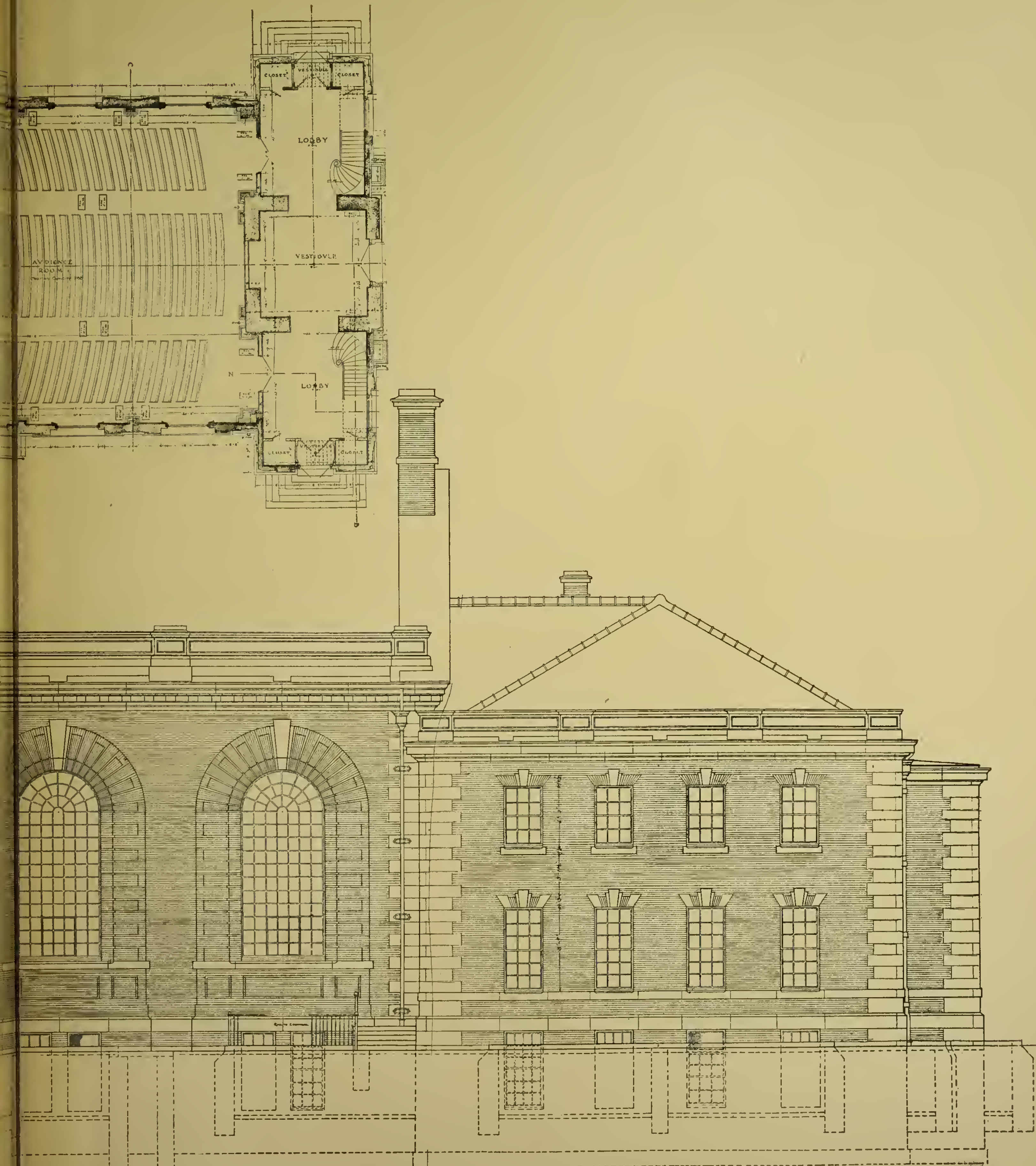


DESIGN FOR A CHURCH

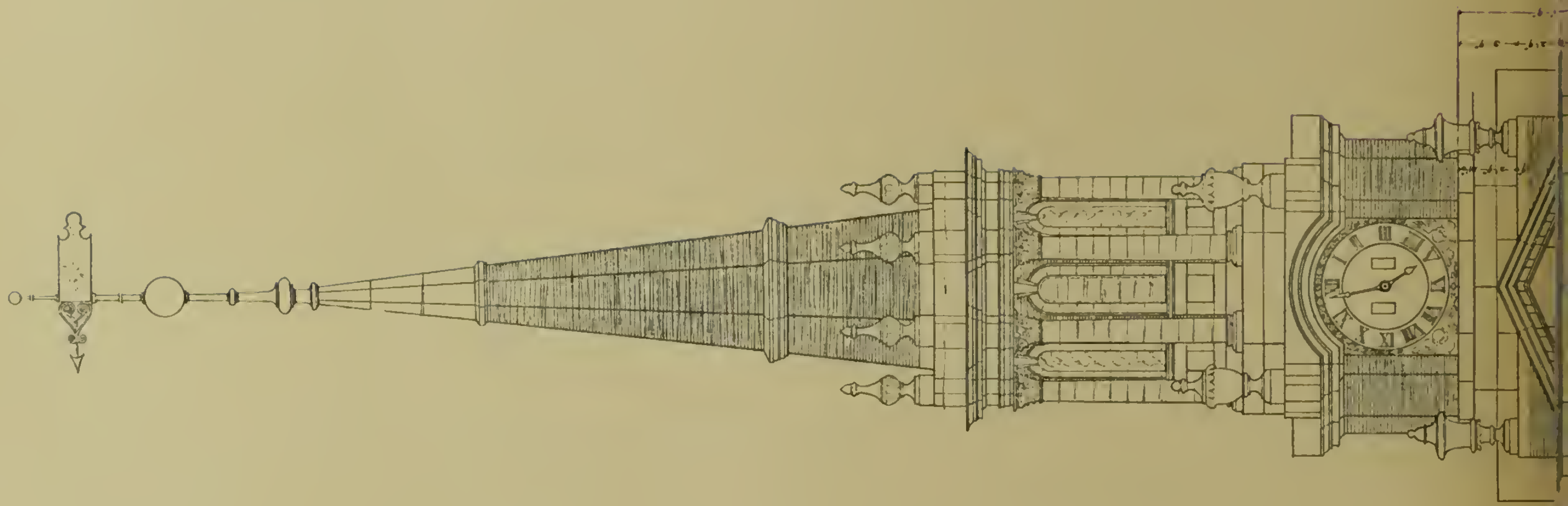
SHEPLEY, RUTAN & C

PLATES 35 and 38.

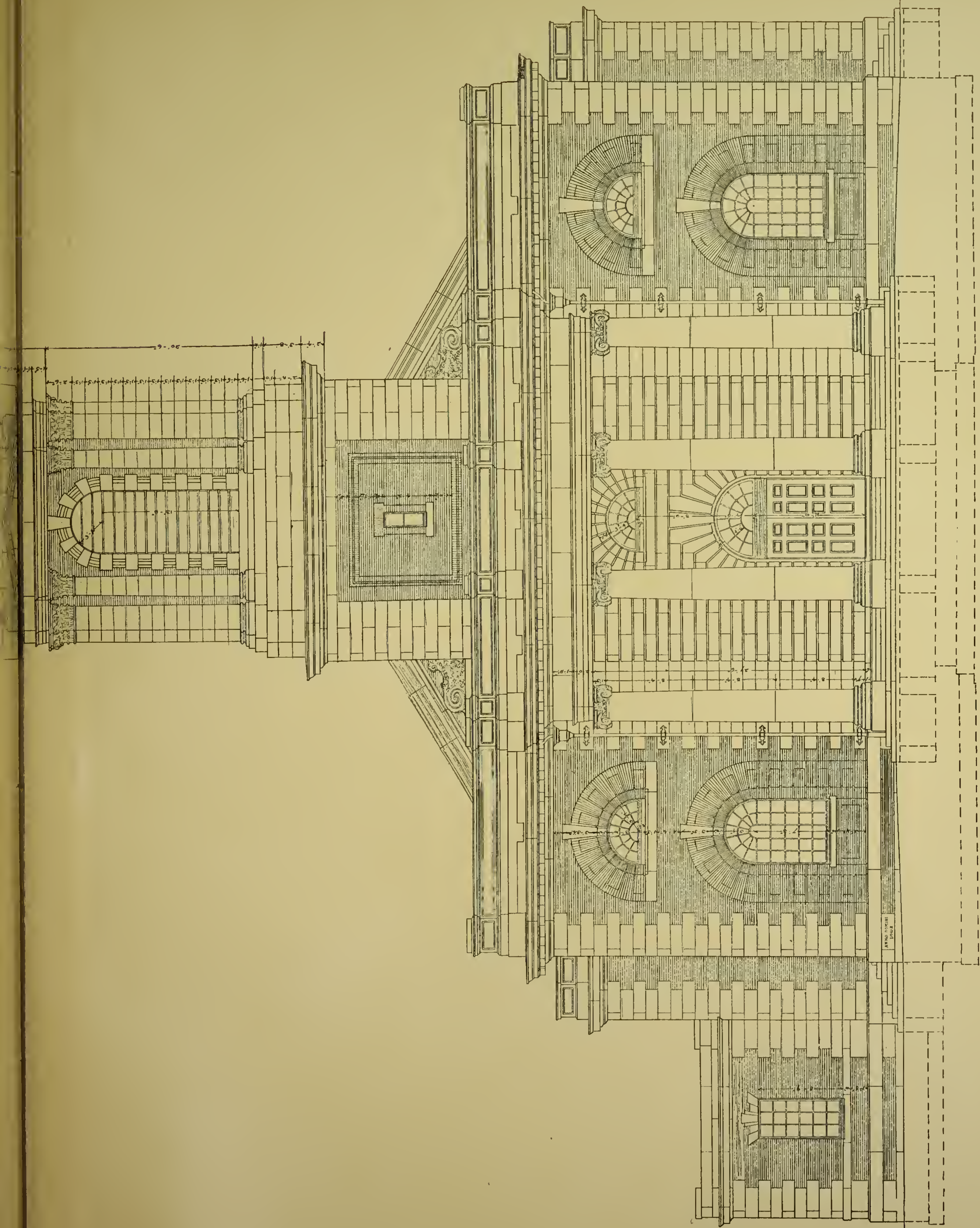


OR A BOSTON SUBURB.

LIDGE, ARCHITECTS.

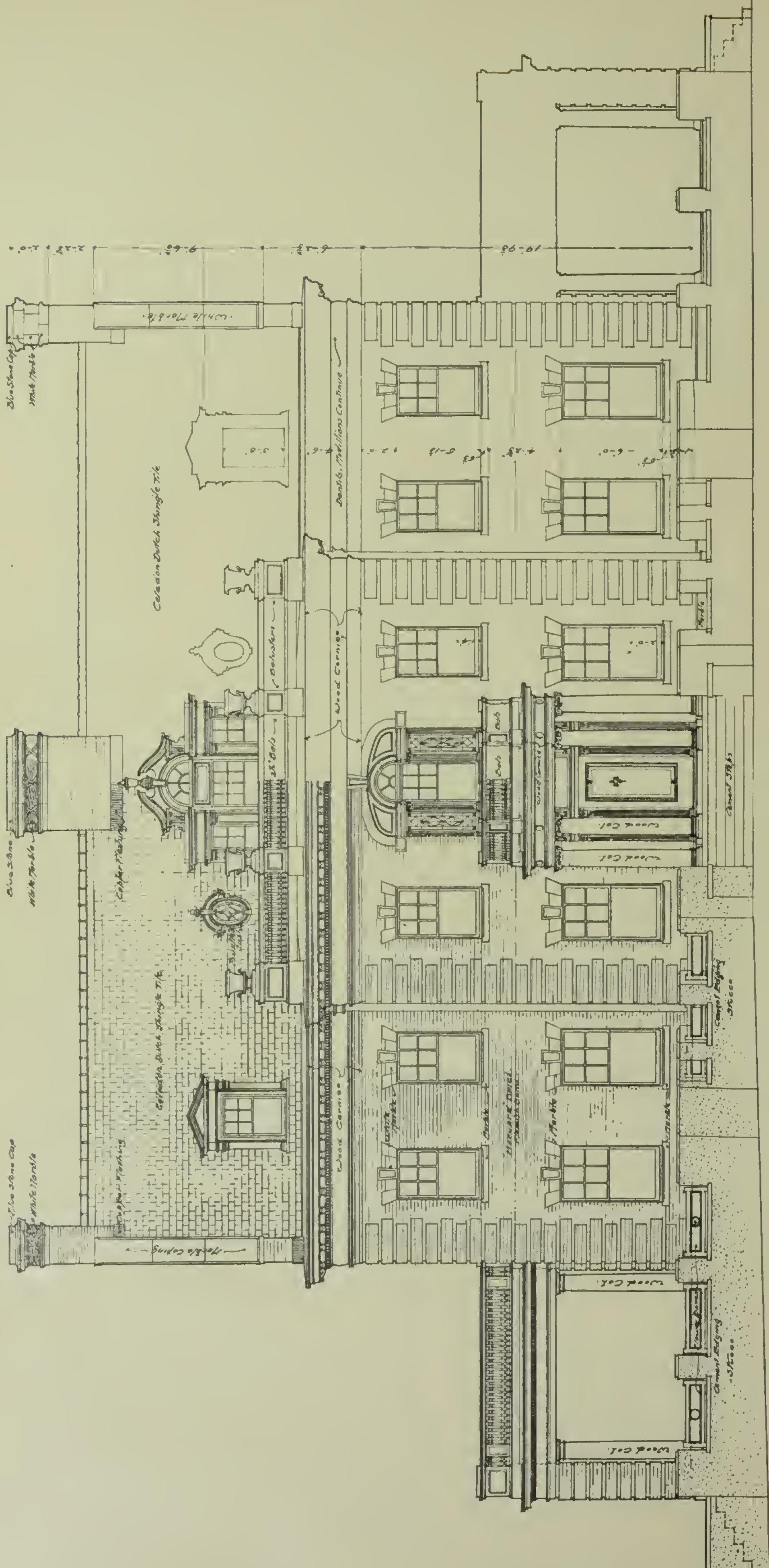


PLATES 36 and 37.

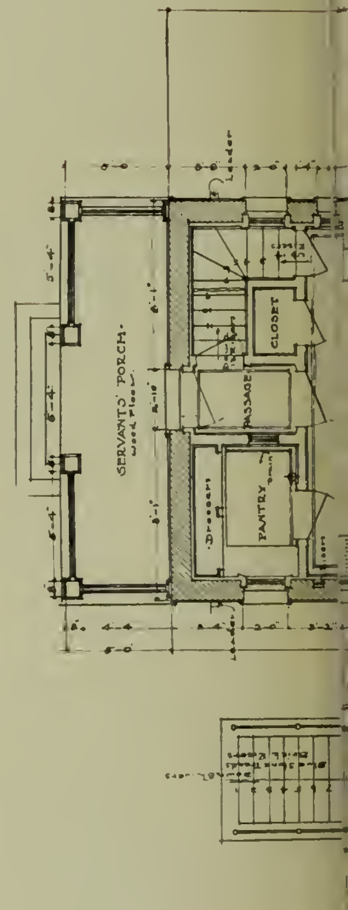


DESIGN FOR A CHURCH FOR A BOSTON SUBURB.

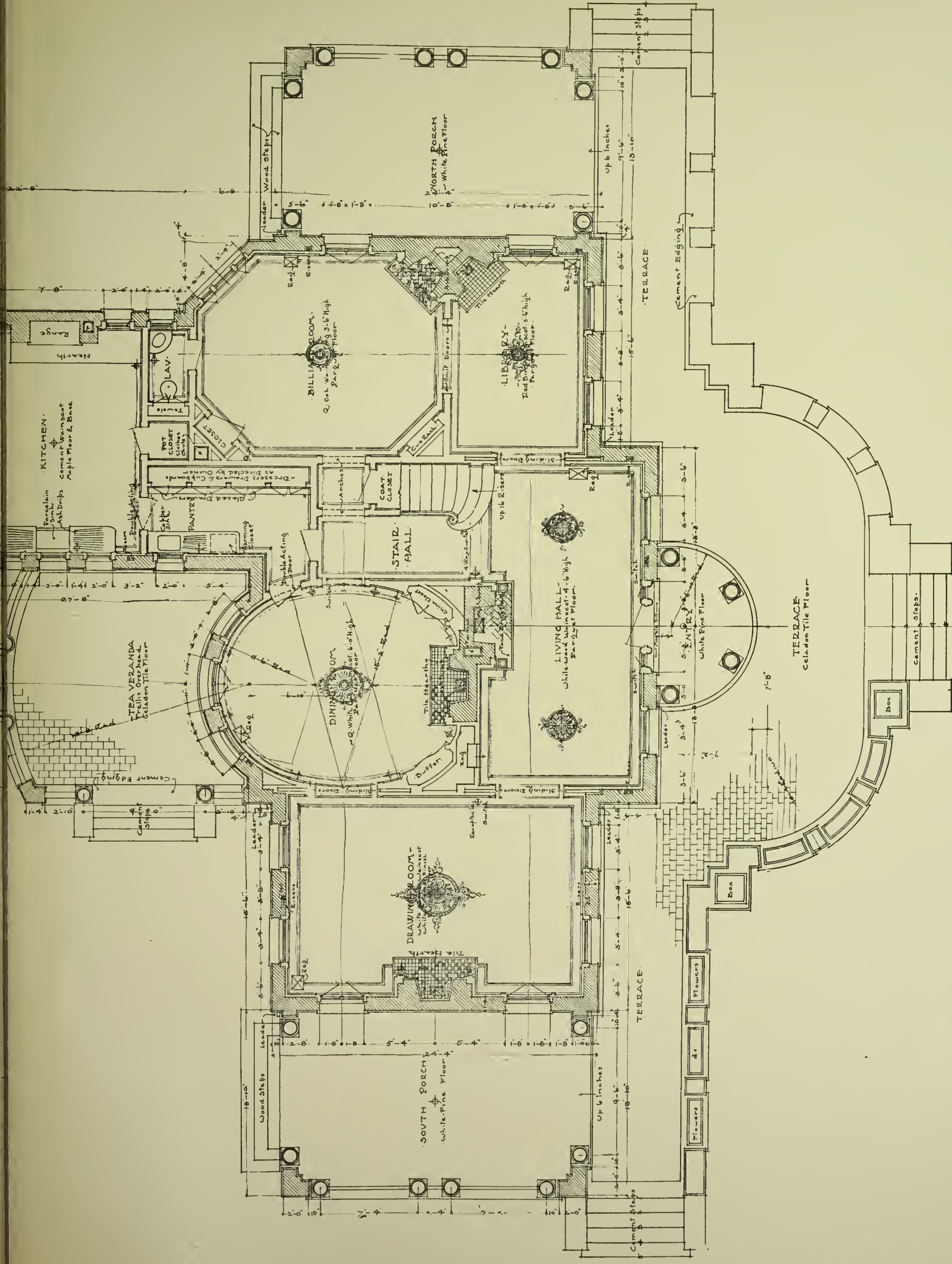
SHEPLEY, RUTAN & COOLIDGE, ARCHITECTS.



FRONT ELEVATION.



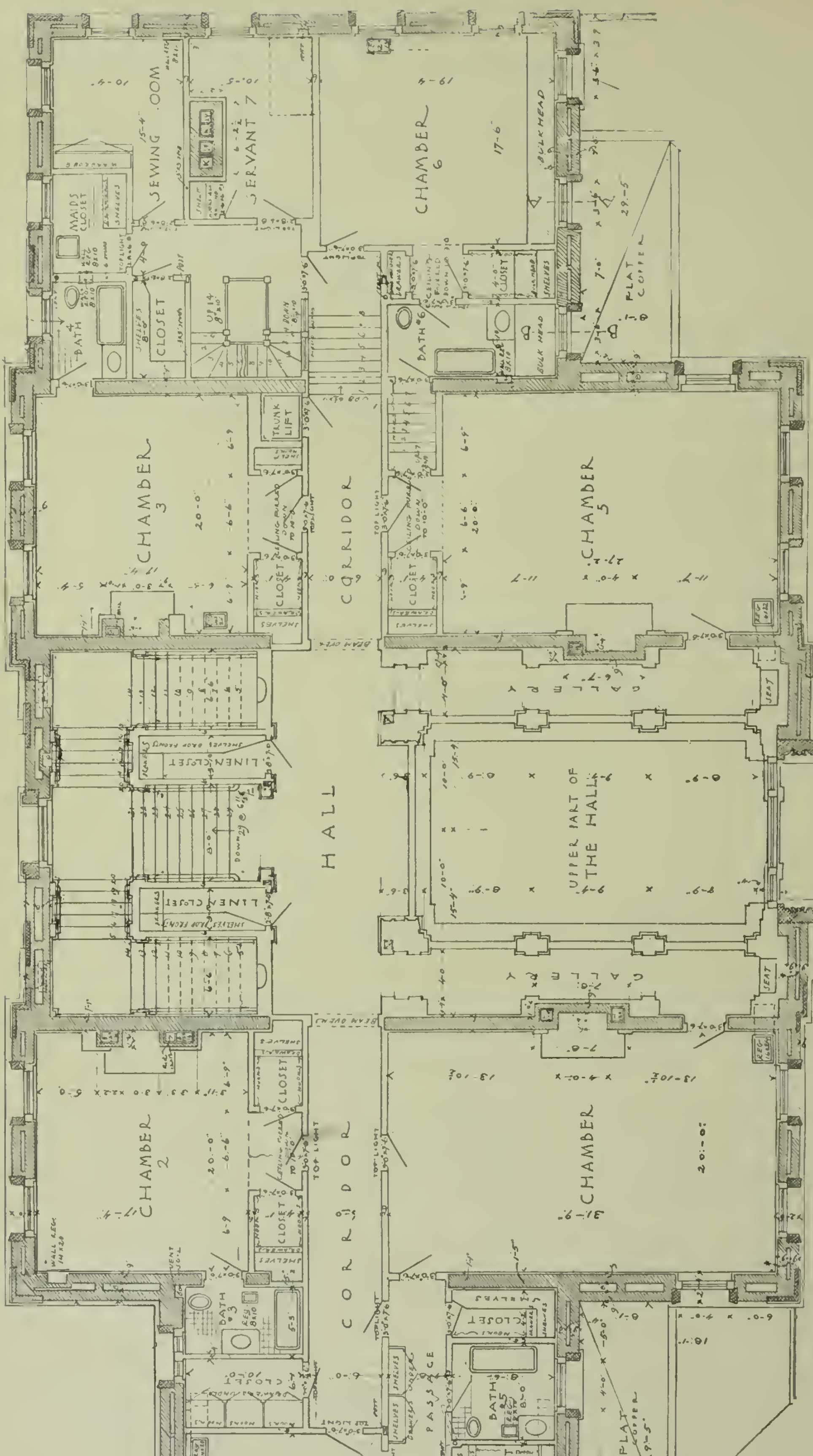
PLATES 41 and 48.



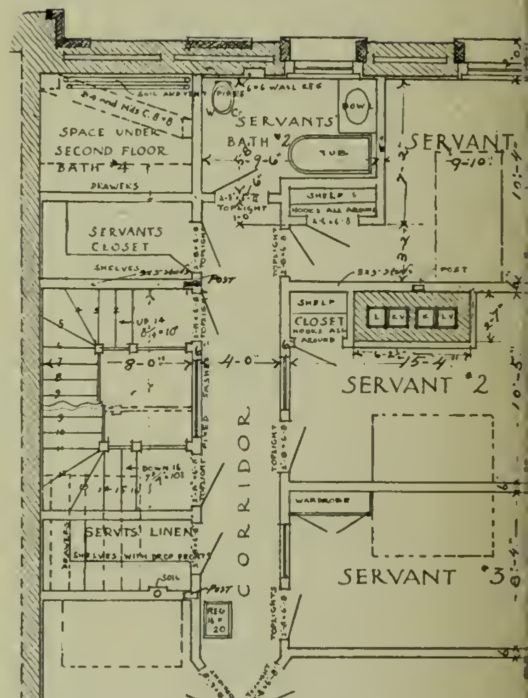
-FIRST-FLOOR-PLAN-

HOUSE AT LARCHMONT MANOR, N. Y

WARD W. WARD, ARCHITECT.

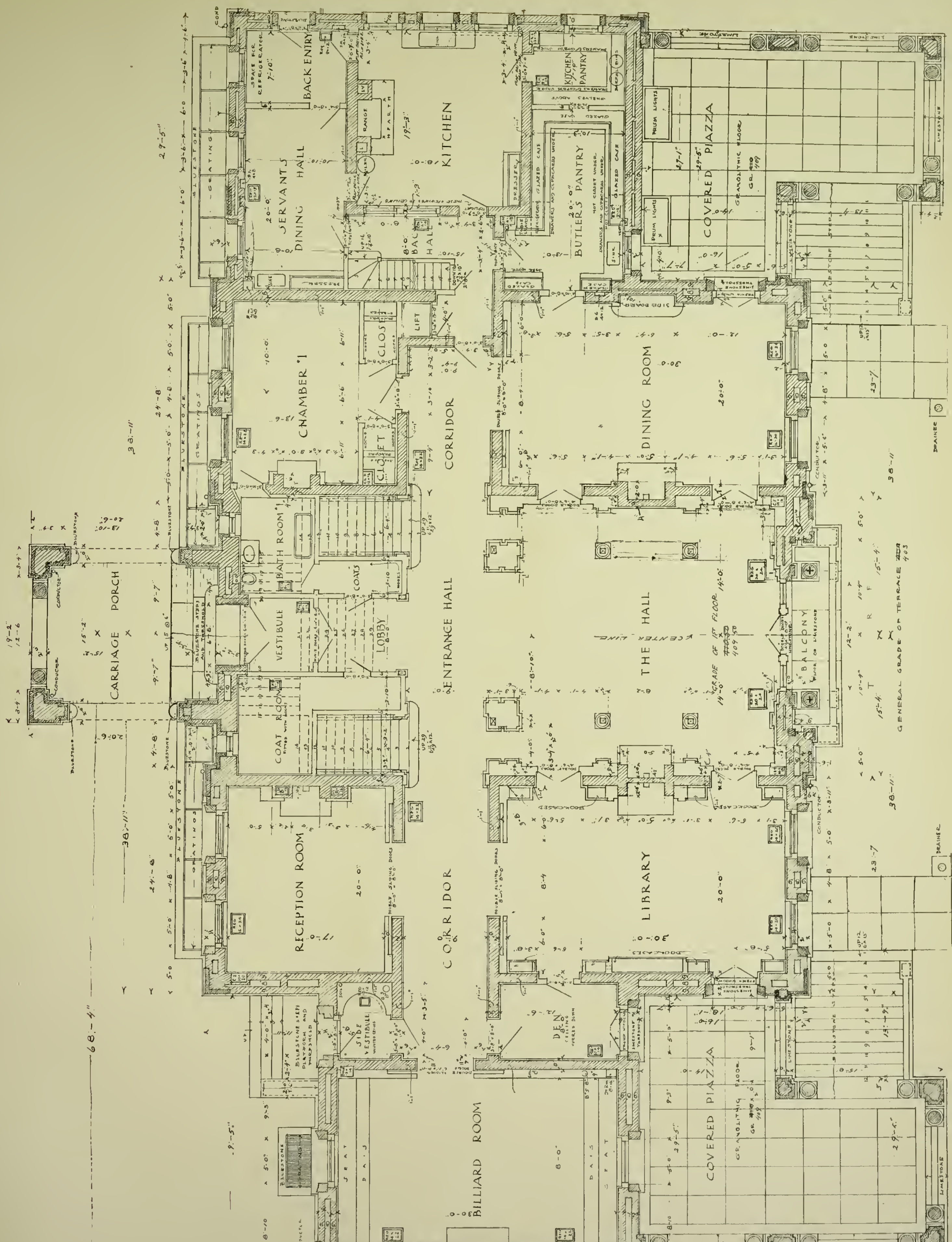


SECOND FLOOR PLAN.



MEZZANINE, SERVANTS' WING.

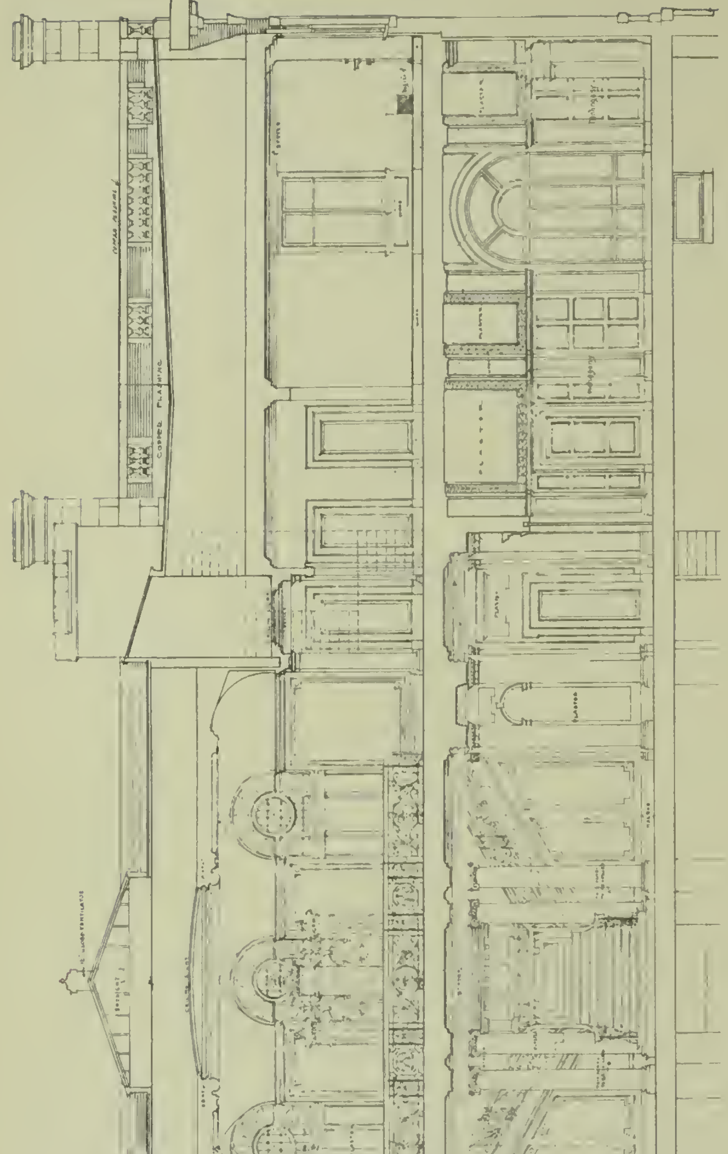
PLATES 42 and 47.



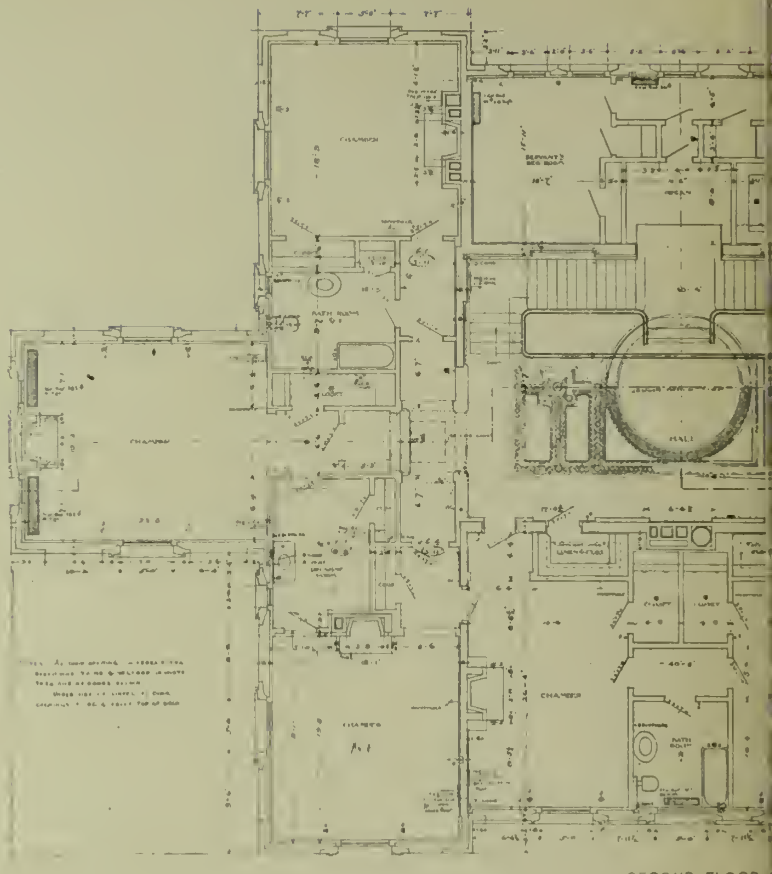
FIRST FLOOR PLAN.

PLANS, HOUSE AT RADNOR, PA.

PEABODY & STEARNS, ARCHITECTS.



LONGITUDINAL SECTION.

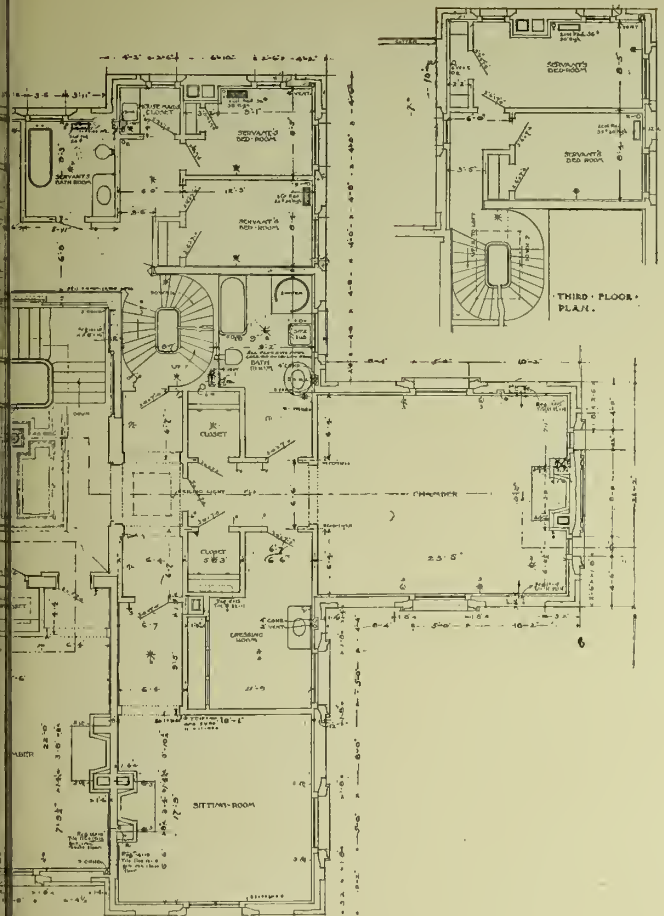


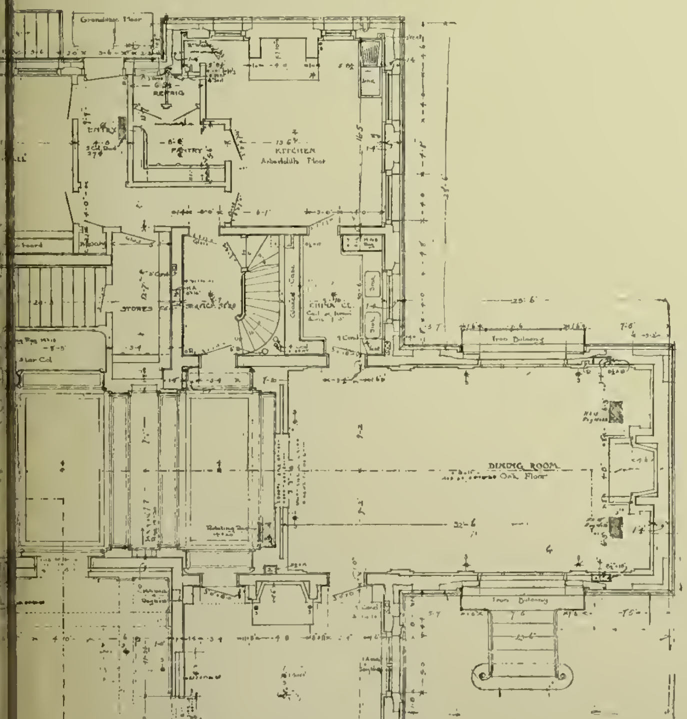
SECOND FLOOR

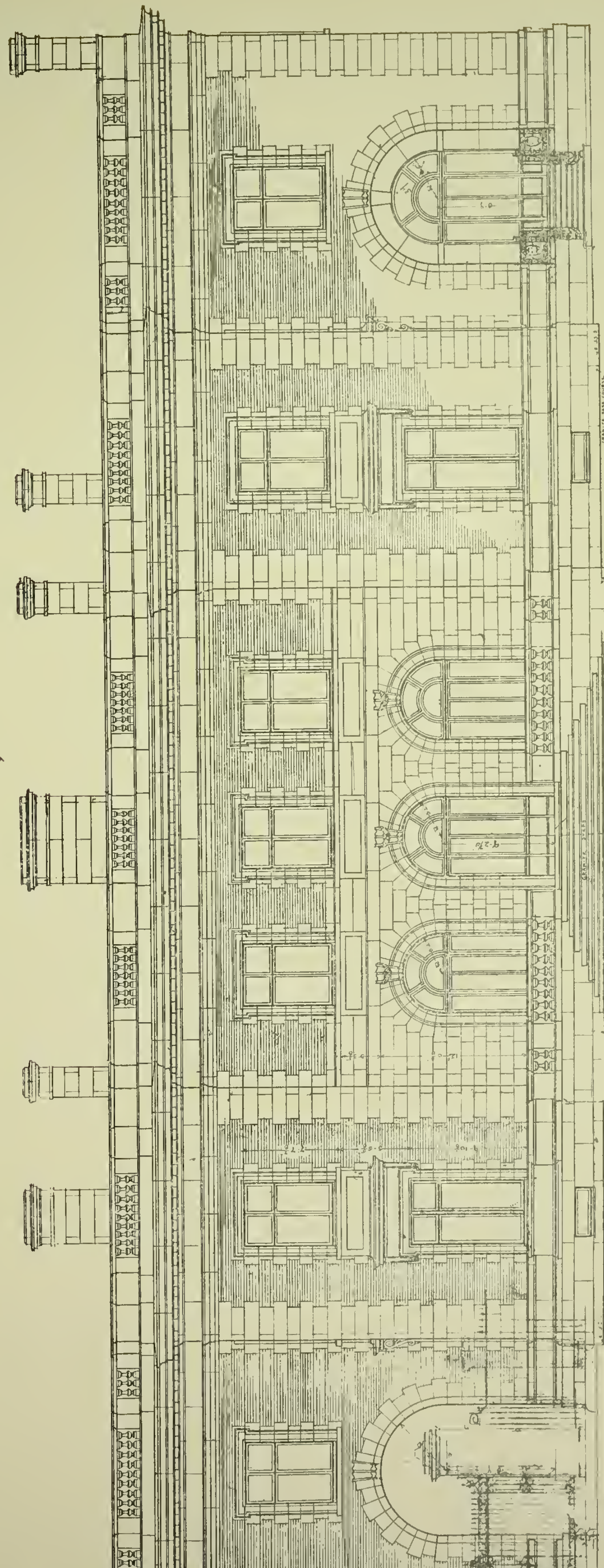
FIRST FLOOR

BUILDER.

PLATES 43 and 46.







FRONT ELEVATION.

HOUSE AT BROOKLINE, MASS.

SHEPLEY, RUTAN & COOLIDGE, ARCHITECTS.

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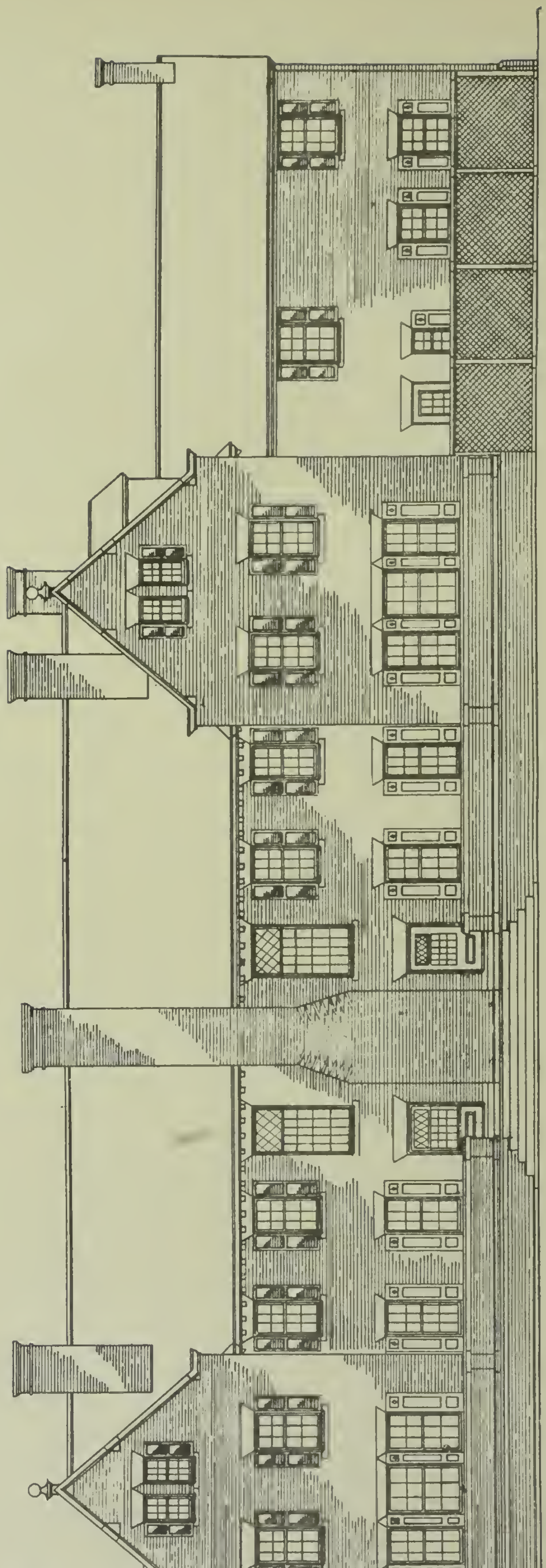
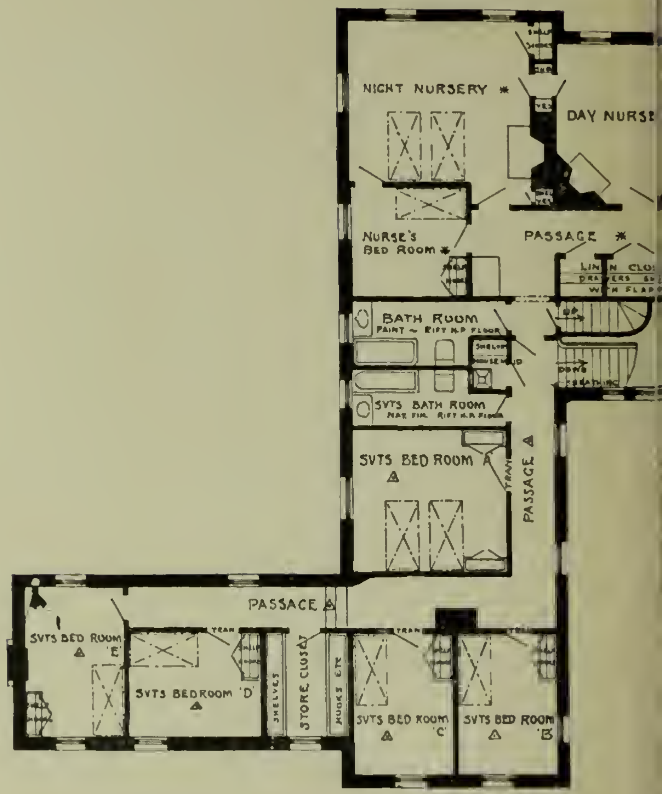
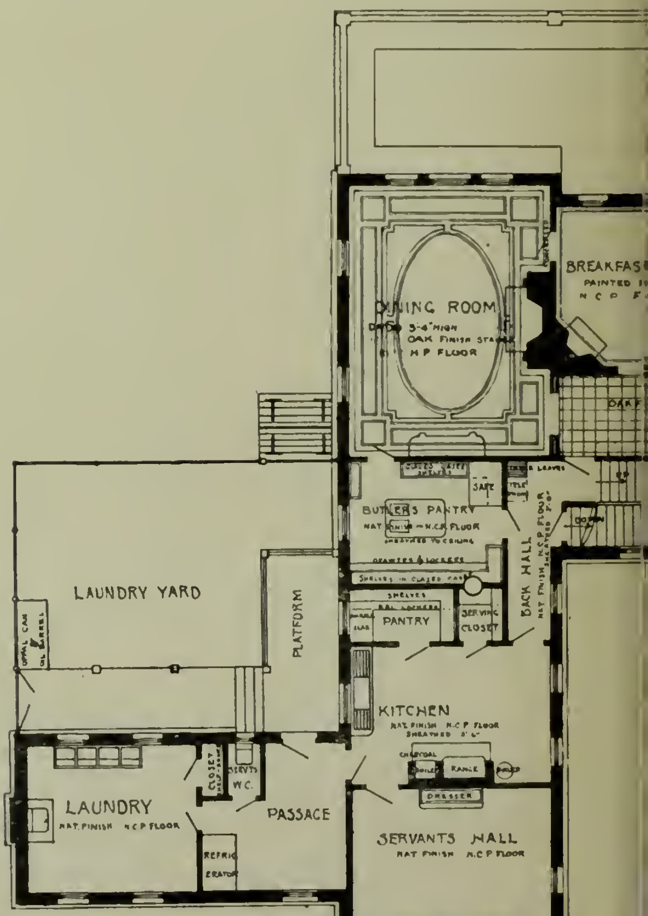
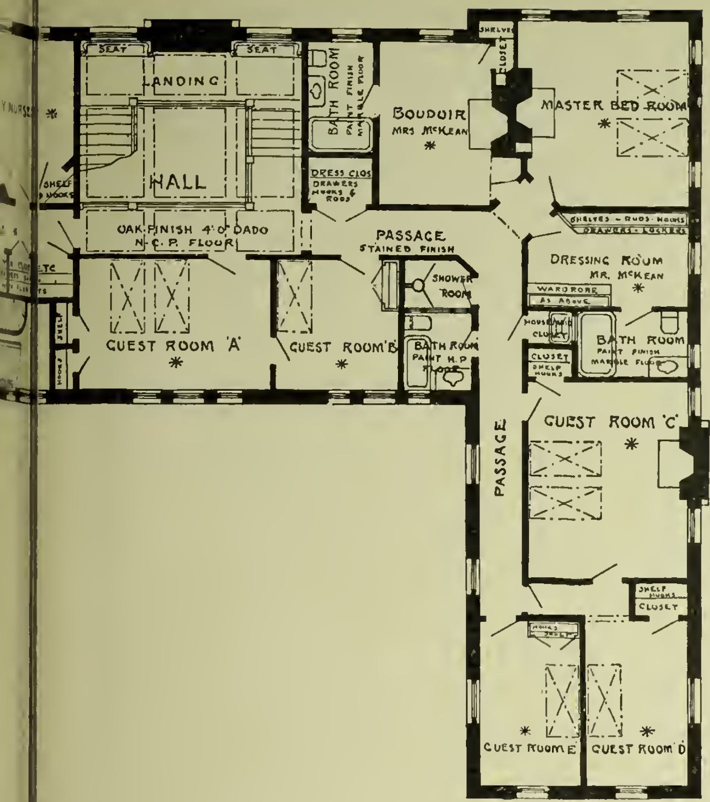


REAR ELEVATION.

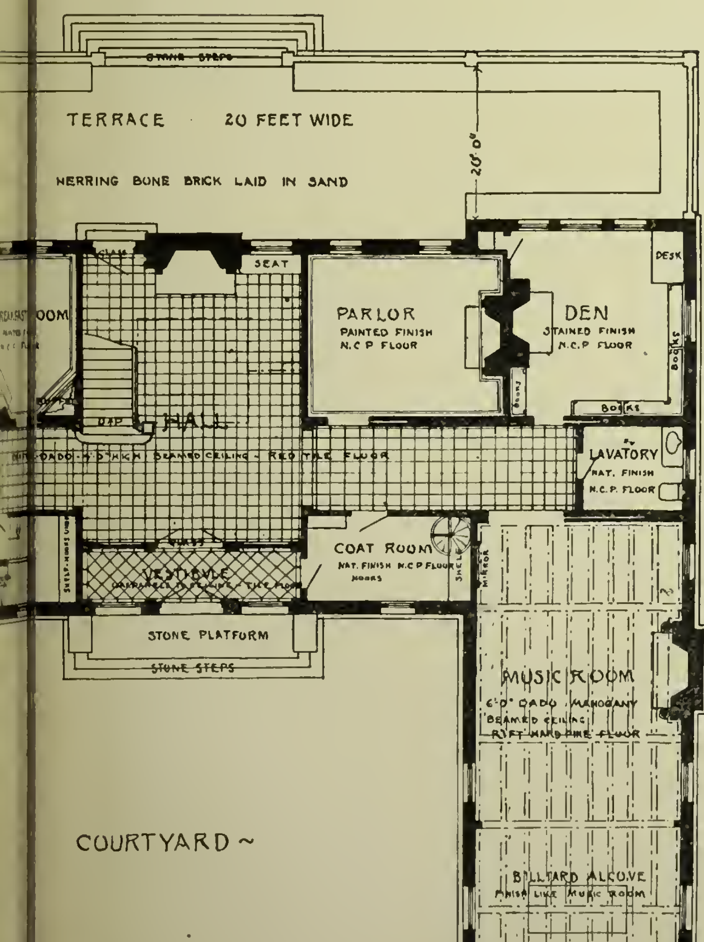




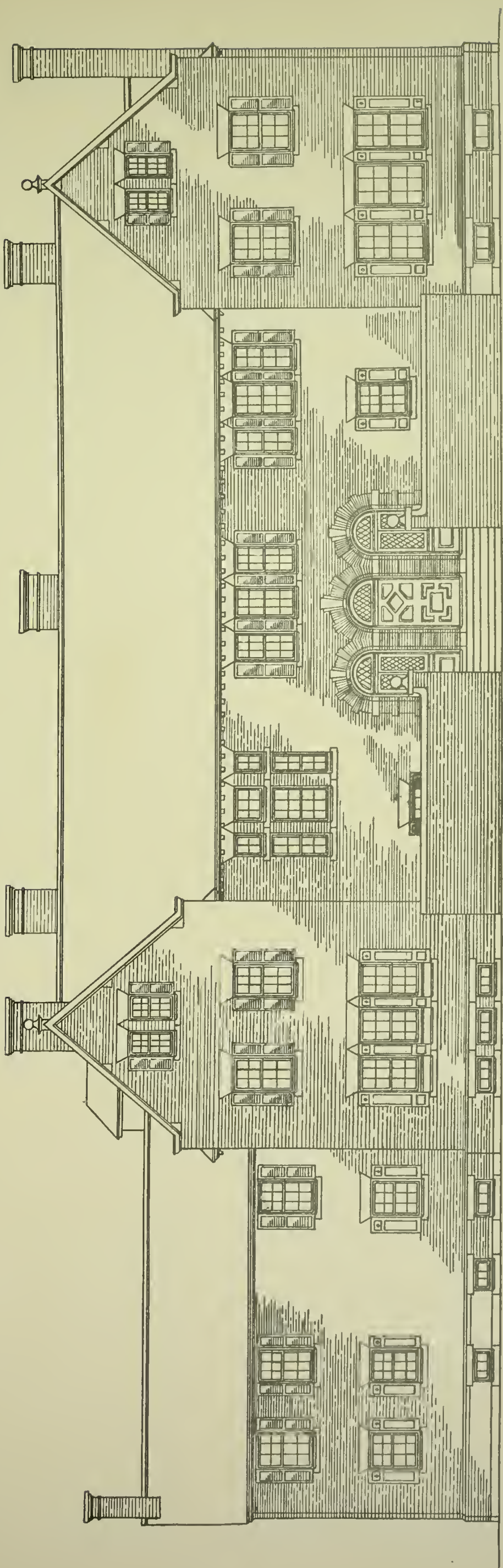
PLATES 44 and 45.



SECOND FLOOR PLAN.



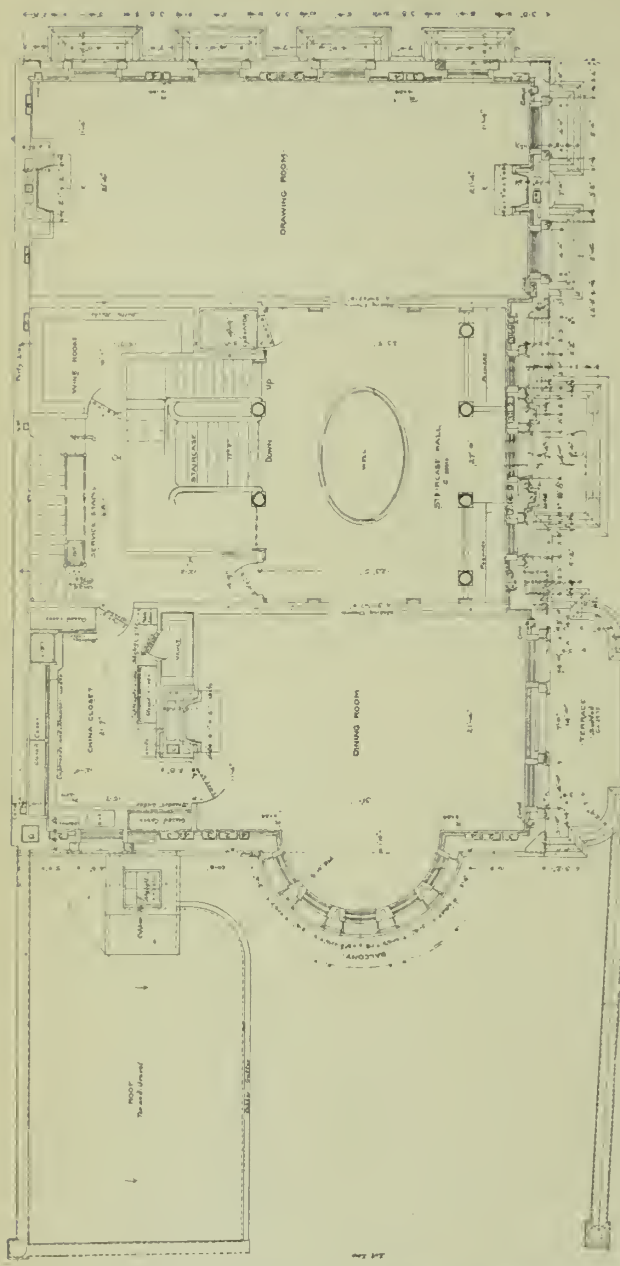
FIRST FLOOR PLAN.



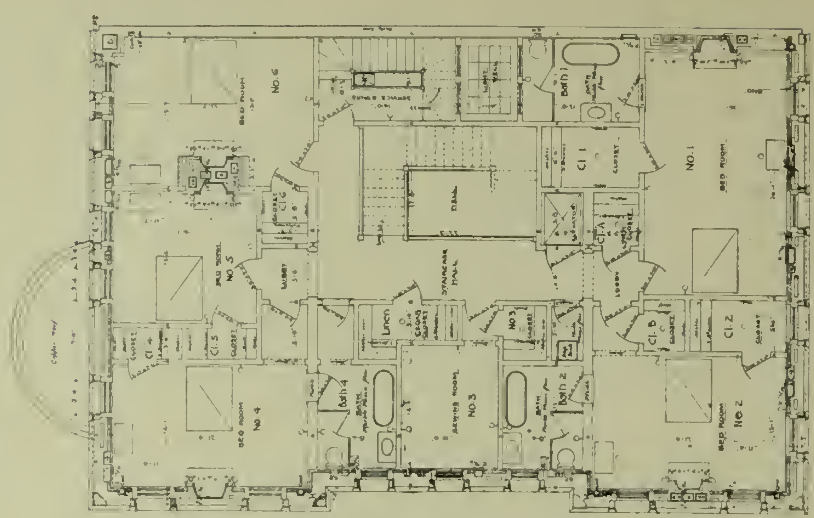
FRONT ELEVATION.

HOUSE AT PENLLYN, PA

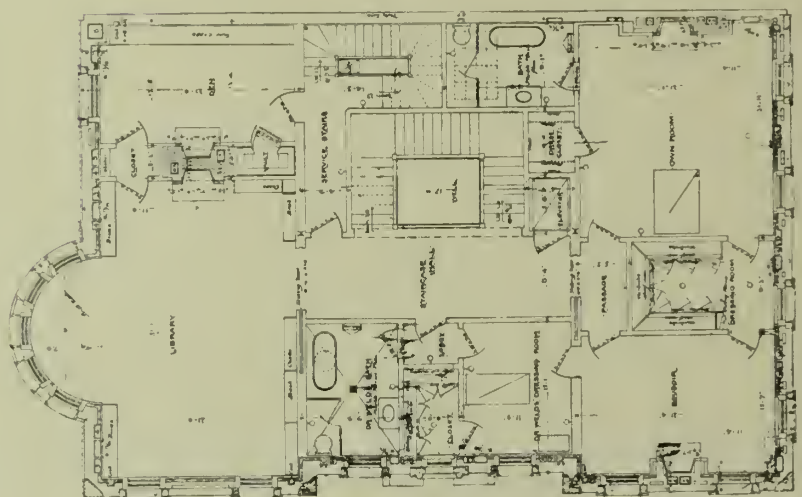
A. W. LONGLELLOW, ARCHITECT.



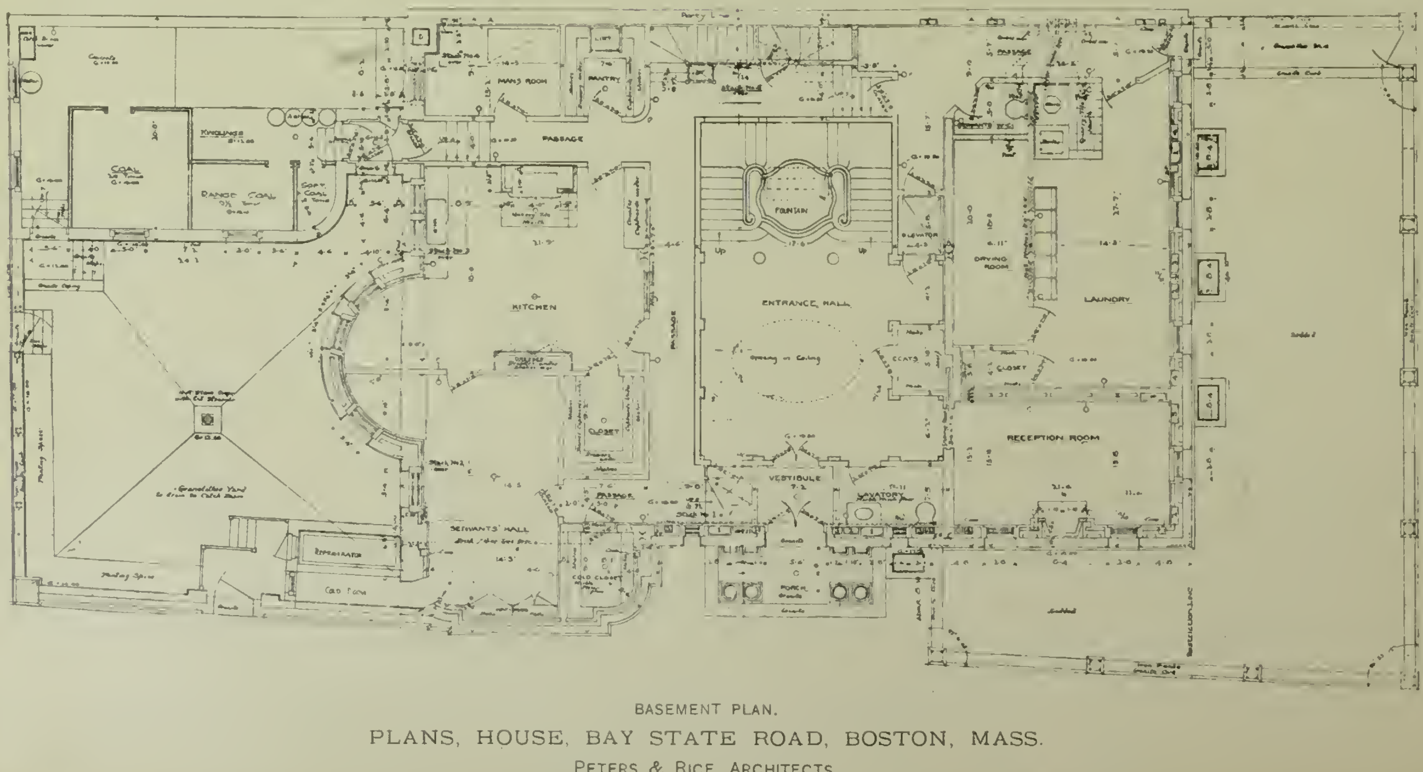
FIRST FLOOR PLAN.



THIRD FLOOR PLAN.



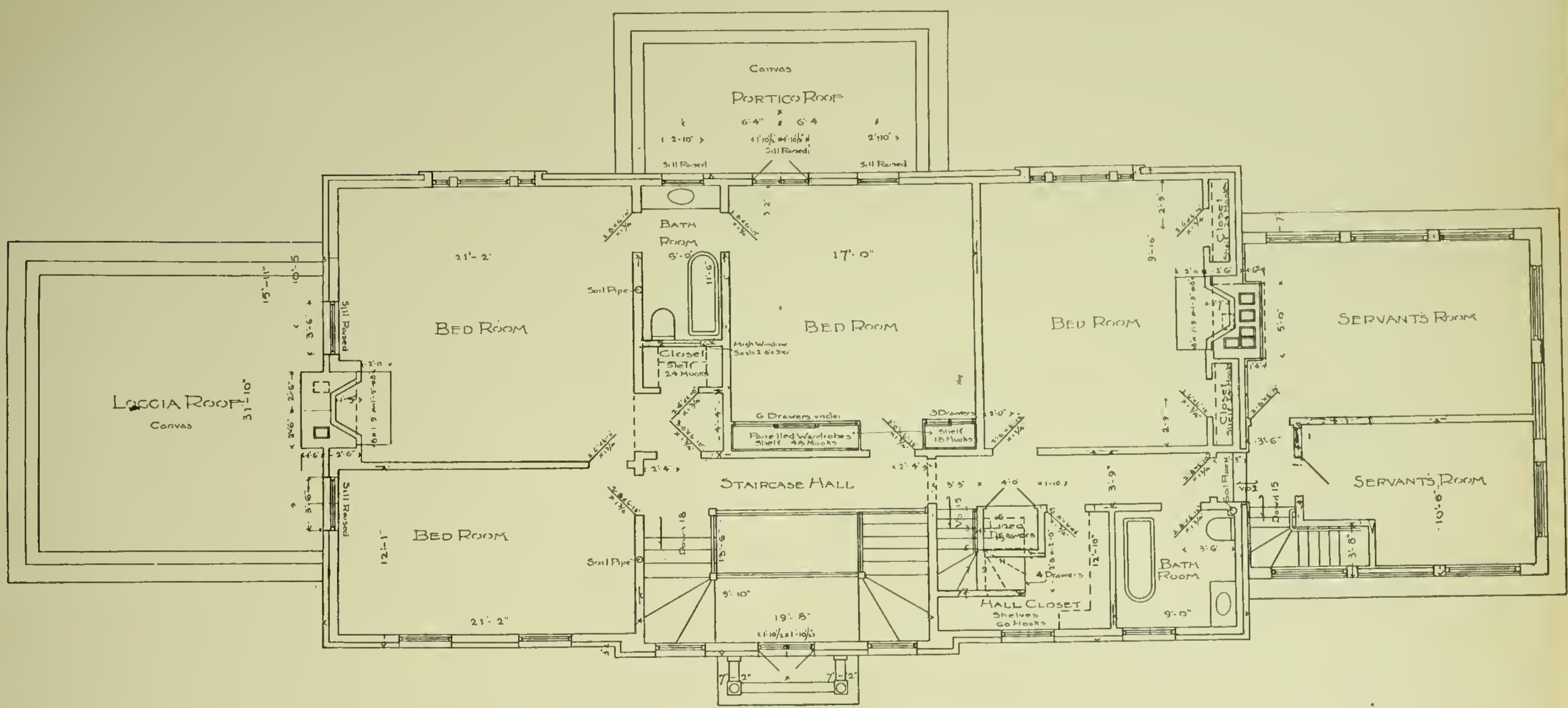
SECOND FLOOR PLAN.



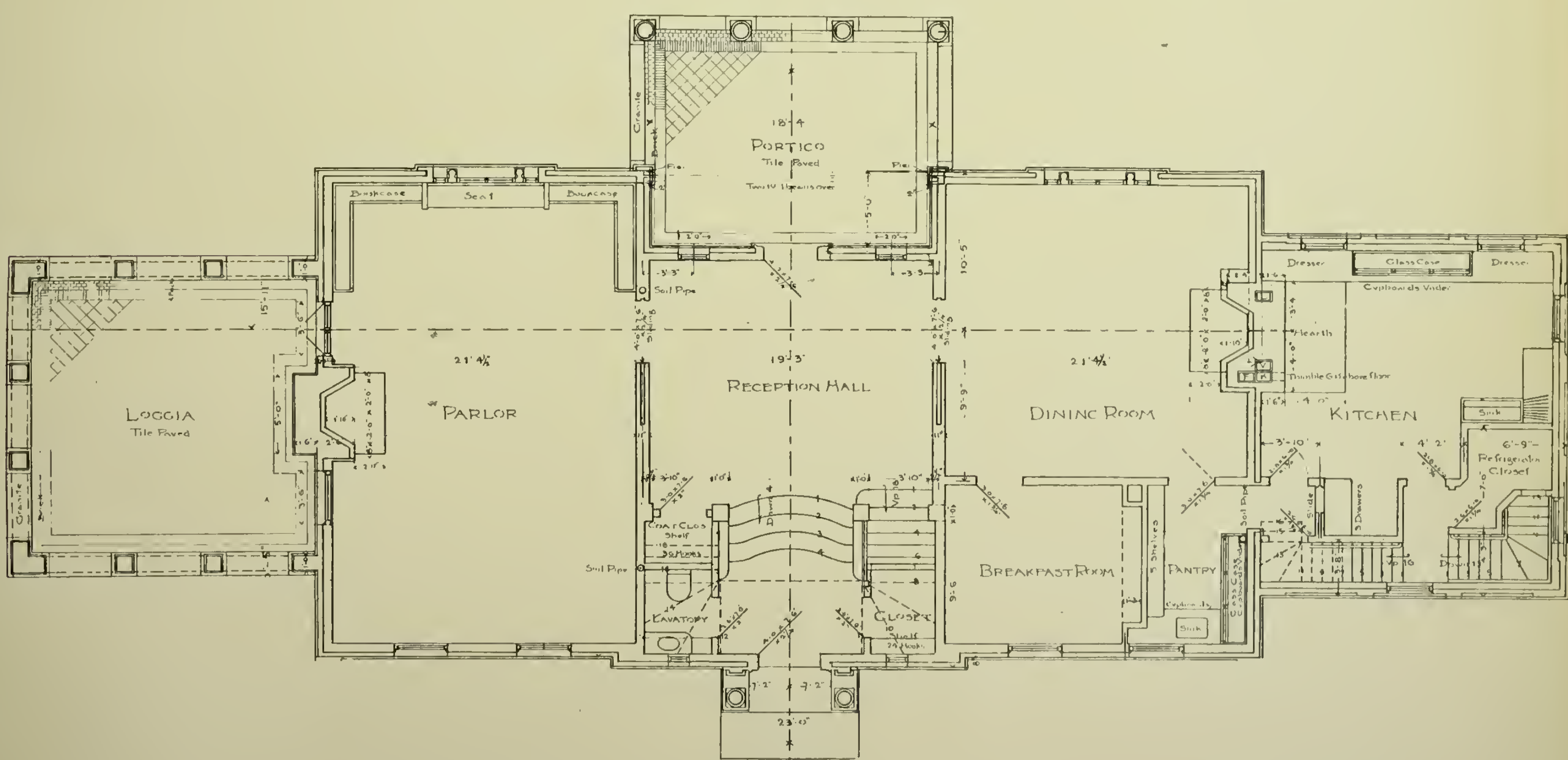
BASEMENT PLAN.

PLANS, HOUSE, BAY STATE ROAD, BOSTON, MASS.

PETERS & RICE, ARCHITECTS.



SECOND FLOOR PLAN

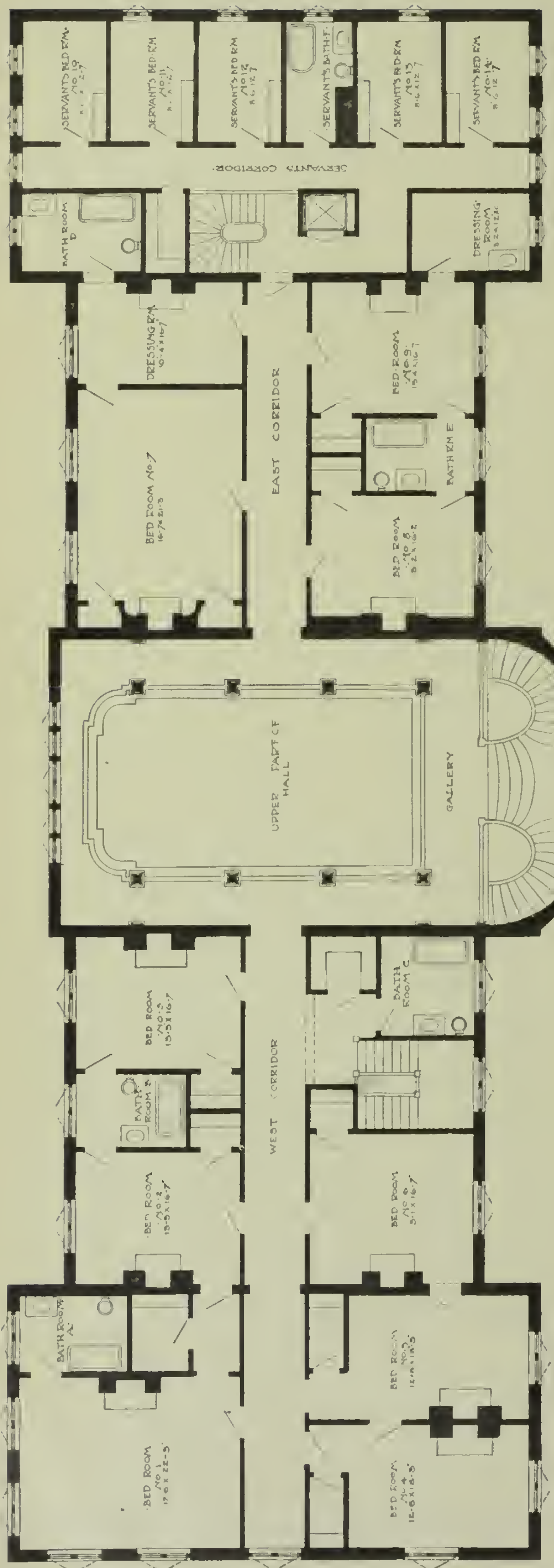


FIRST FLOOR PLAN.

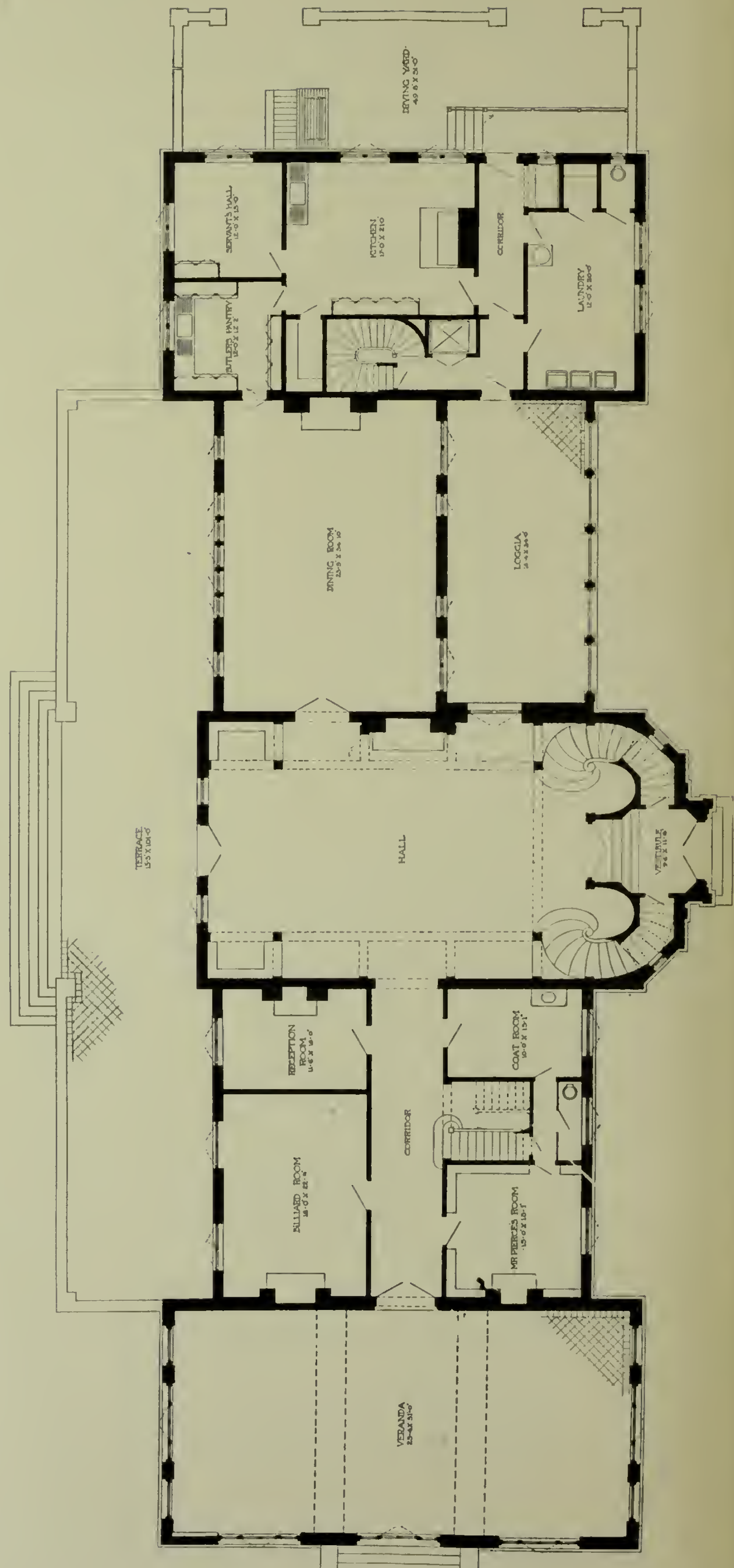
PLANS, HOUSE AT WARREN, R. I.

CHARLES A. PLATT, ARCHITECT.

VOL. 12. NO. 7.

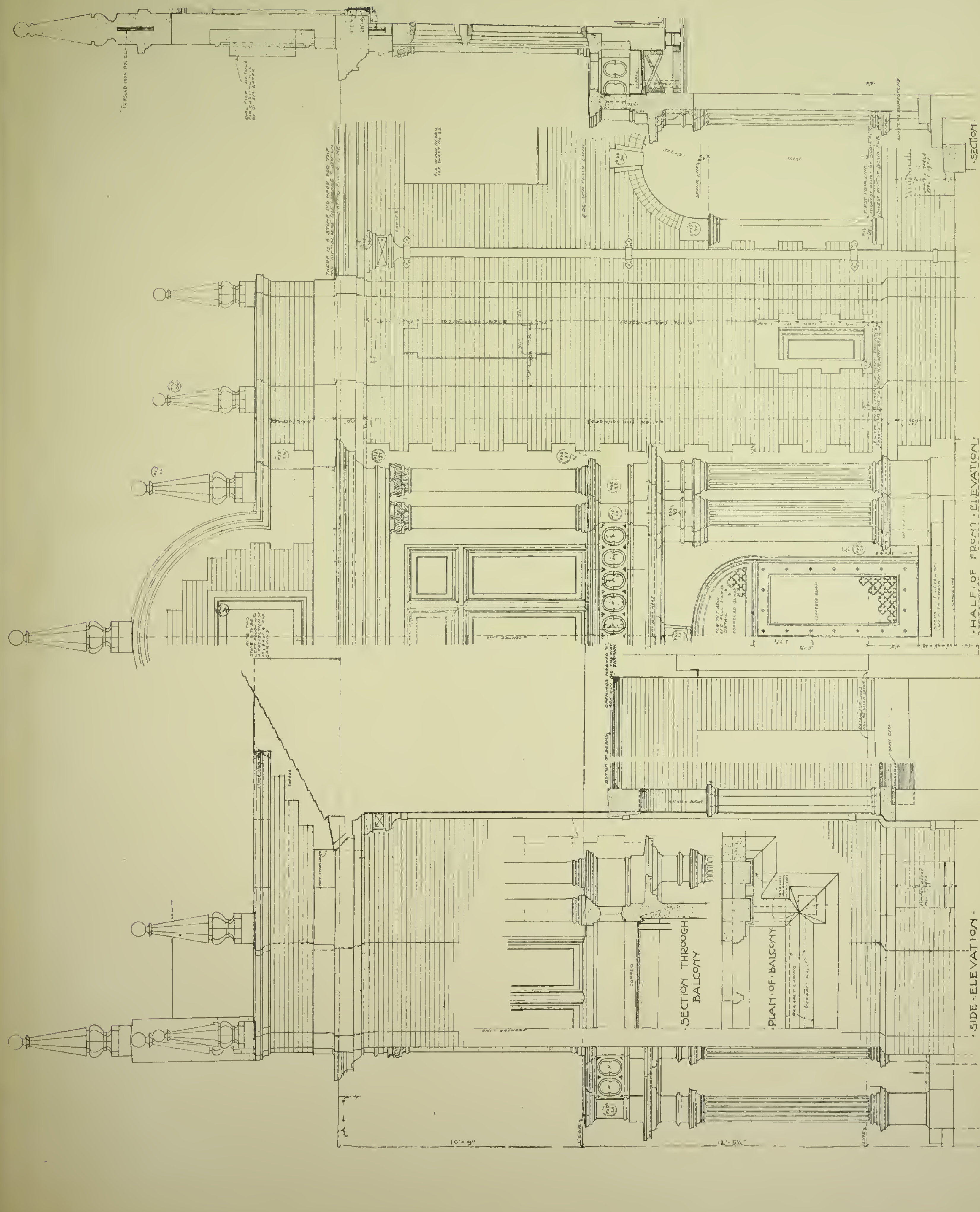


SECOND FLOOR · PLAN



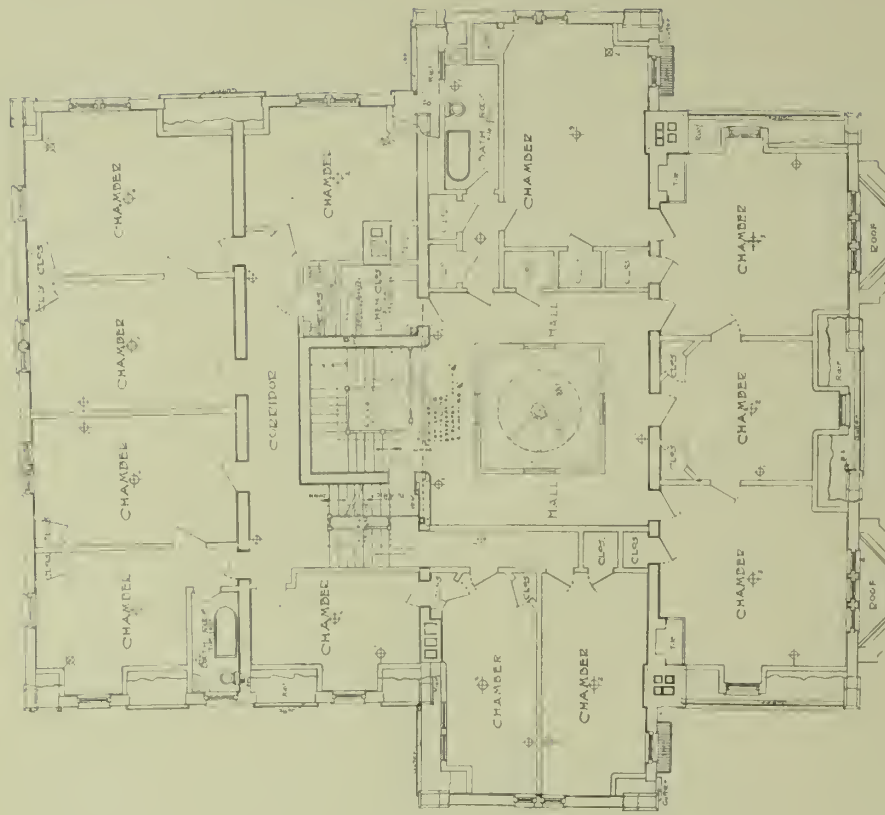
·FIRST FLOOR PLAN·

PLATES 50 and 55.

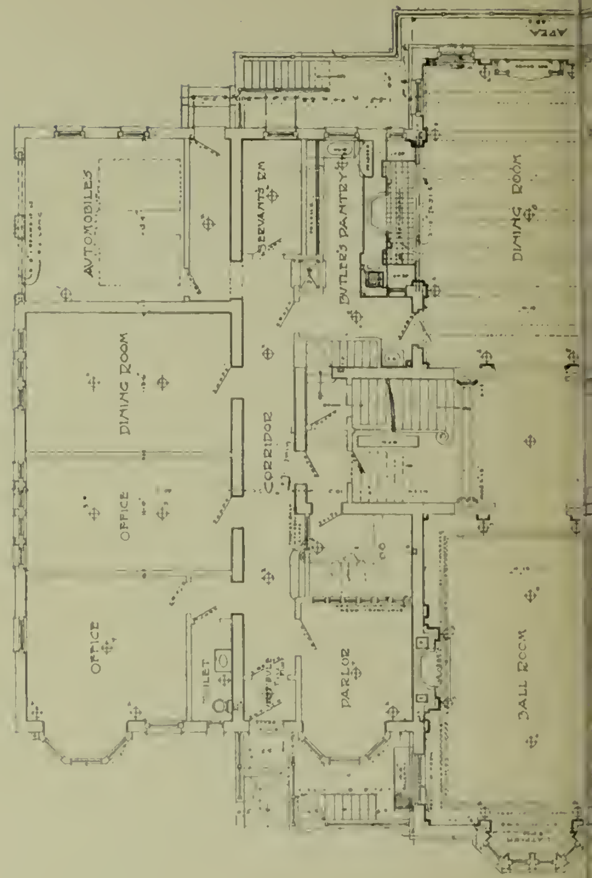


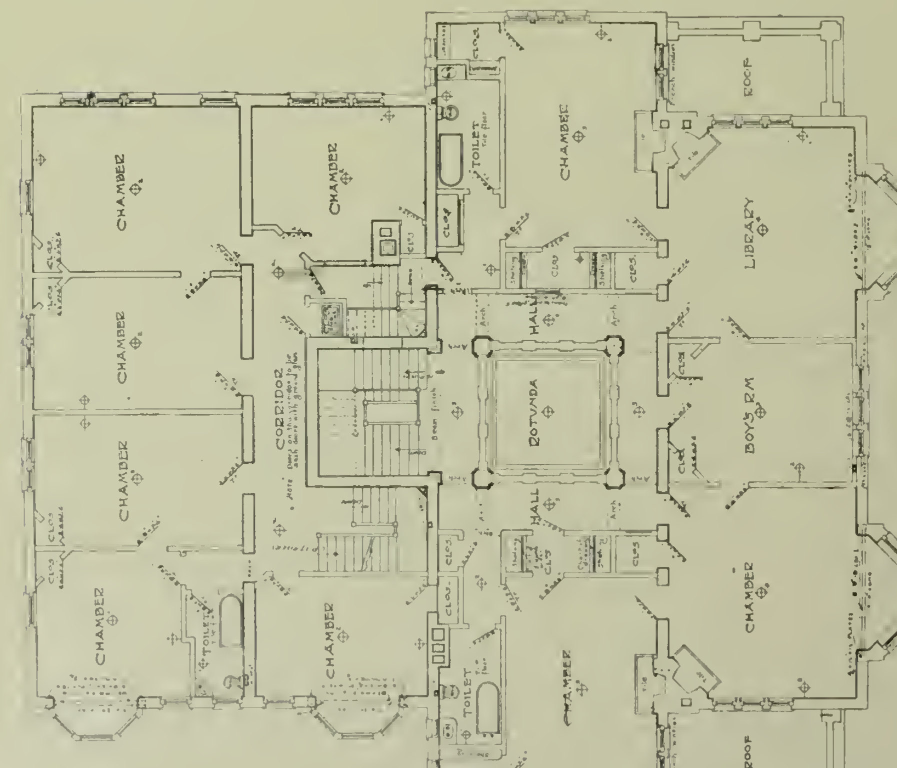
HOUSE AT BAYVILLE, L. I.

BABB, COOK & WILLARD, ARCHITECTS.

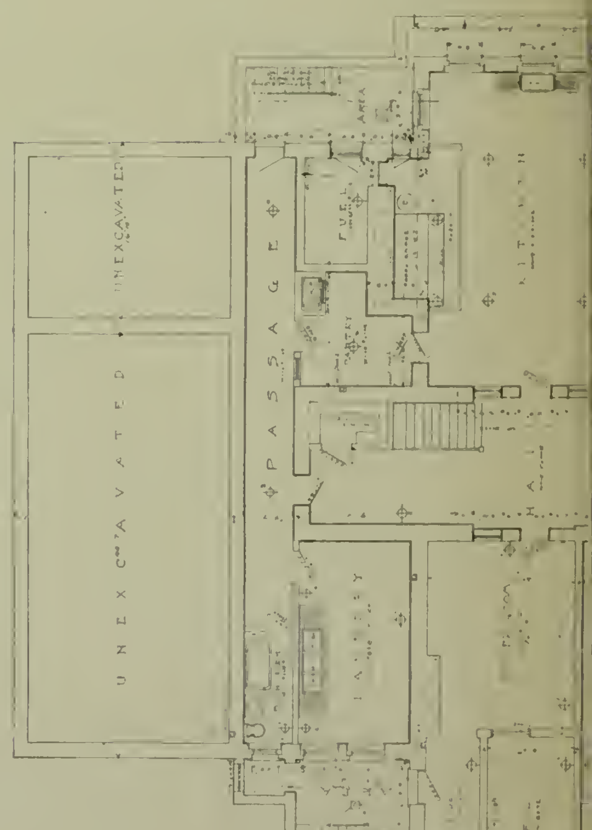


·THIRD FLOOR PLAN·

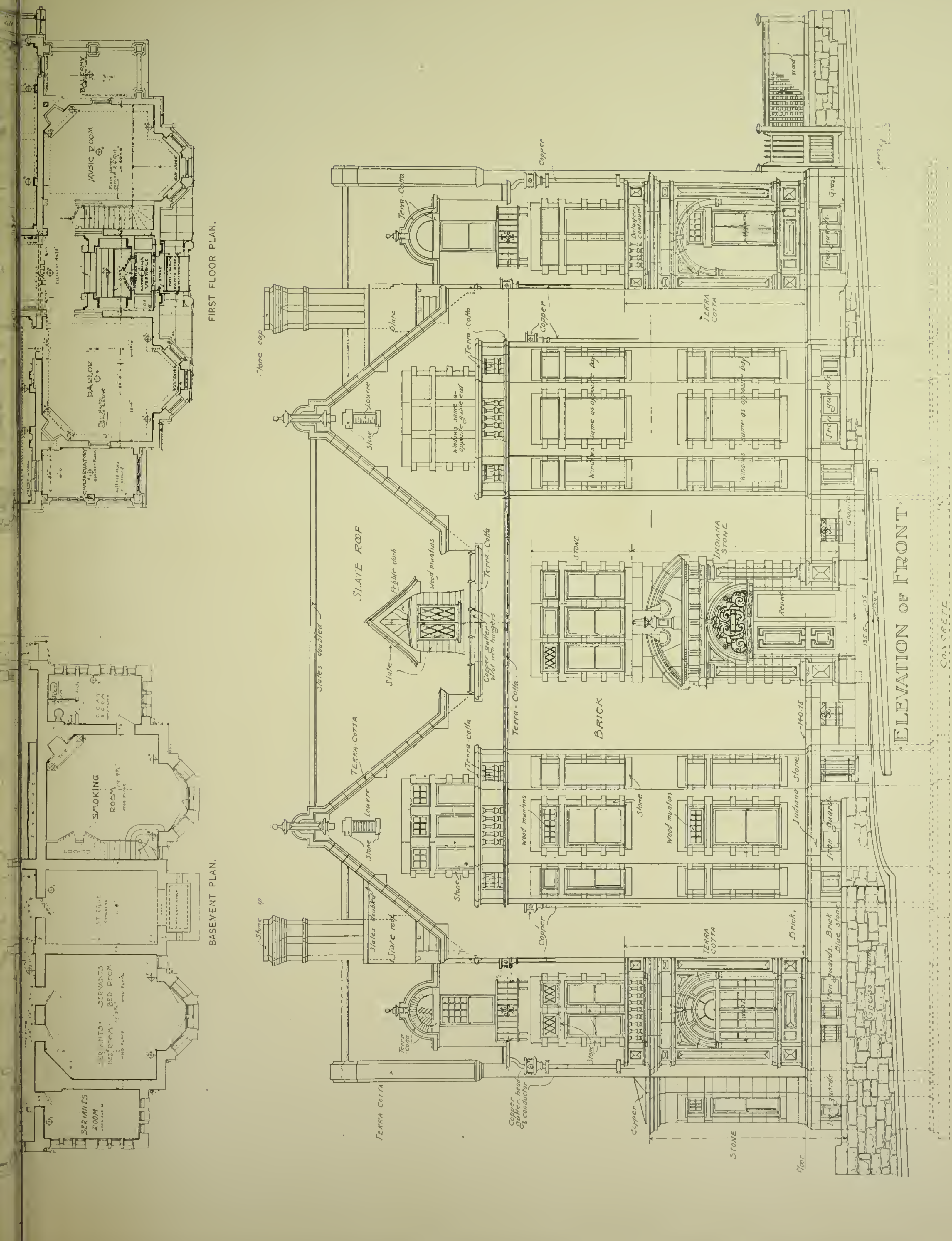




·SECOND FLOOR PLAN·



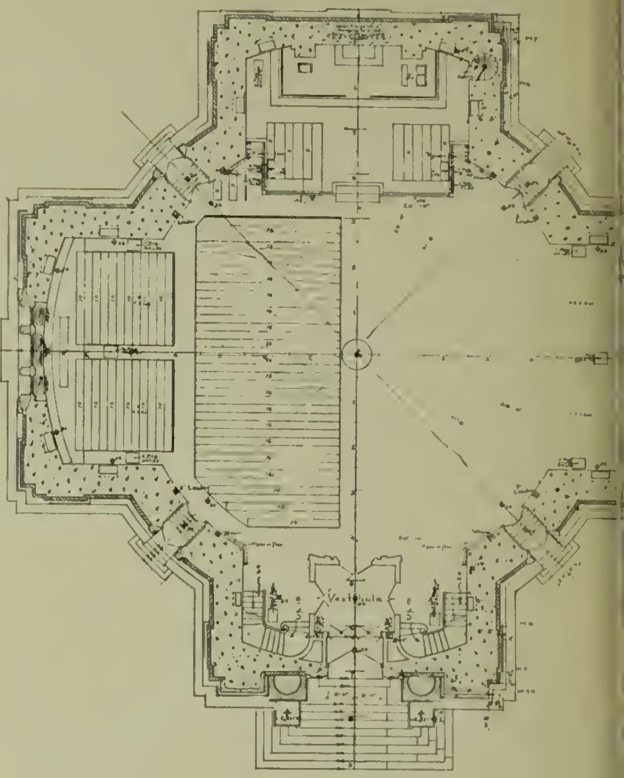
PLATES 51 and 54.



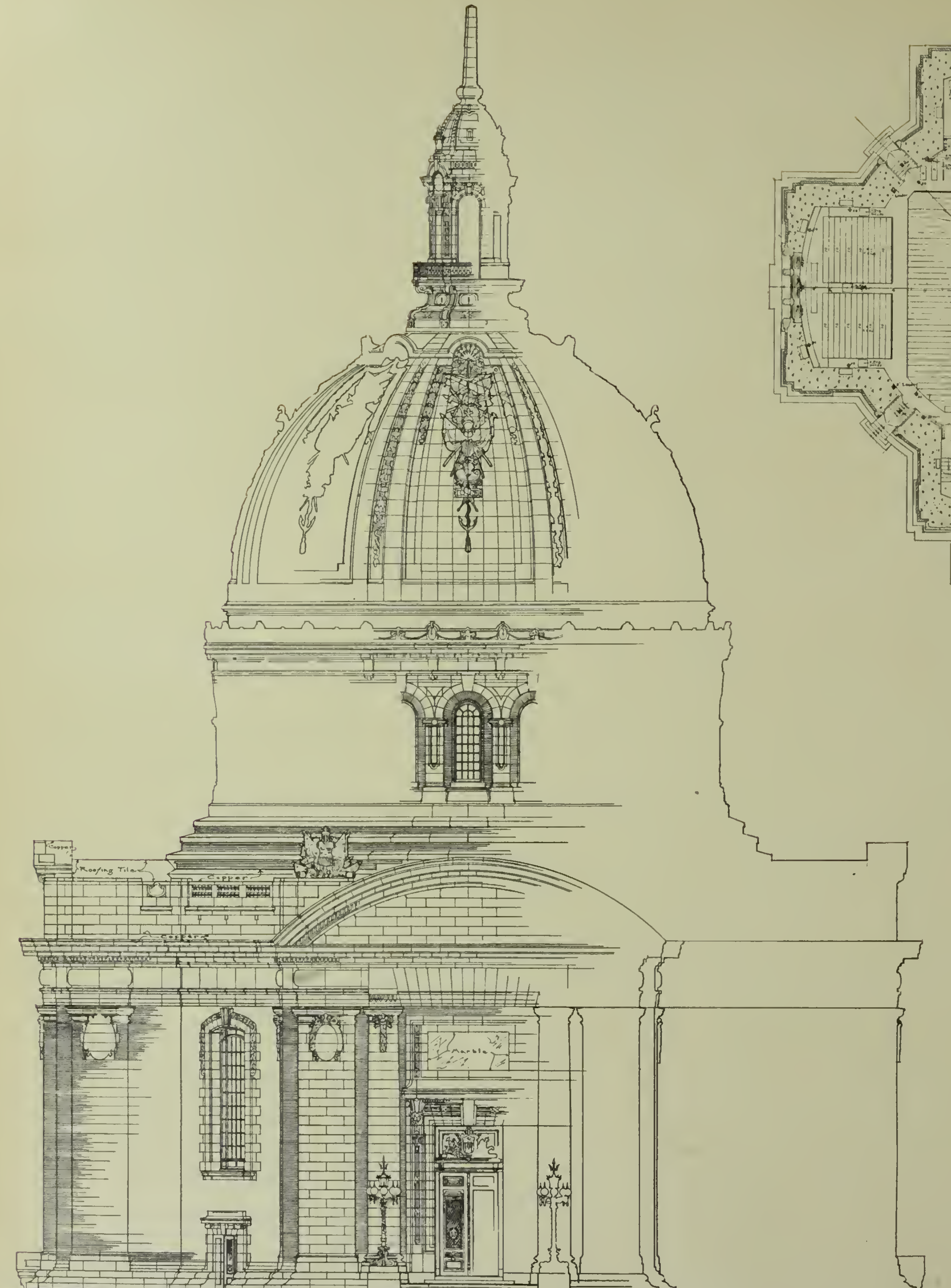
CHINESE LEGATION, WASHINGTON, D. C

WOOD, DONN & DEMING, ARCHITECTS.

VOL. 12. NO. 7.



FIRST FLOOR PLAN.

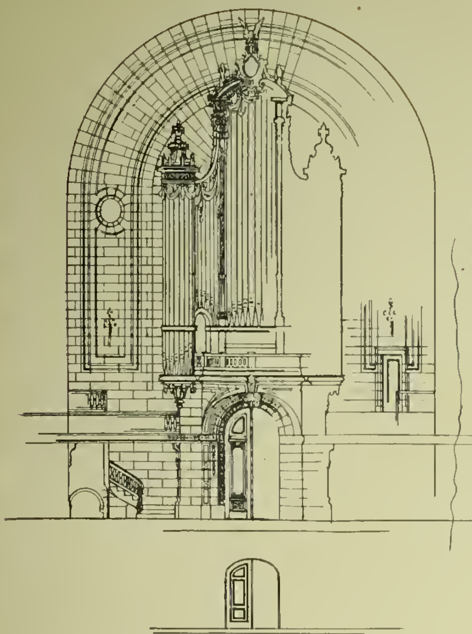


FRONT ELEVATION.

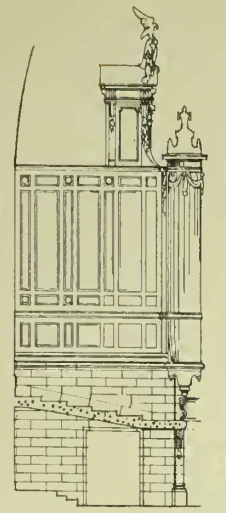
CHAPEL, UNITED STATES NAVAL ACADEMY, ANNAPOLIS, MD.

ERNEST FLAGG, ARCHITECT.

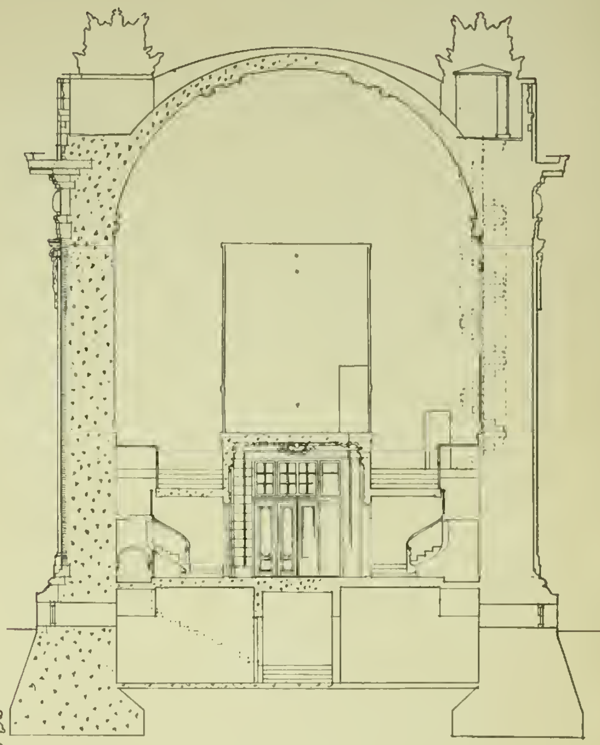
PLATES 52 and 53.



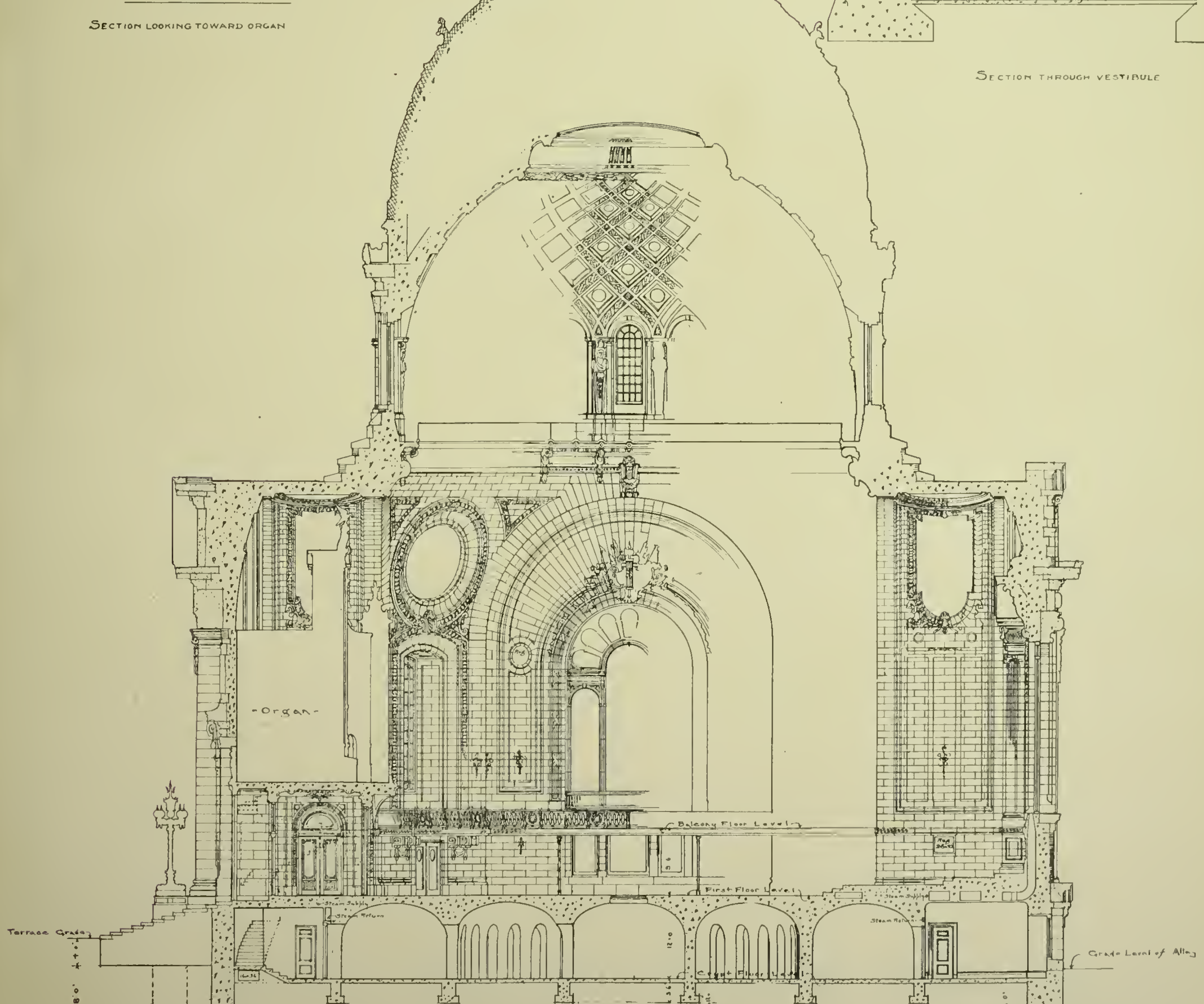
SECTION LOOKING TOWARD ORGAN



SIDE ELEVATION OF ORGAN



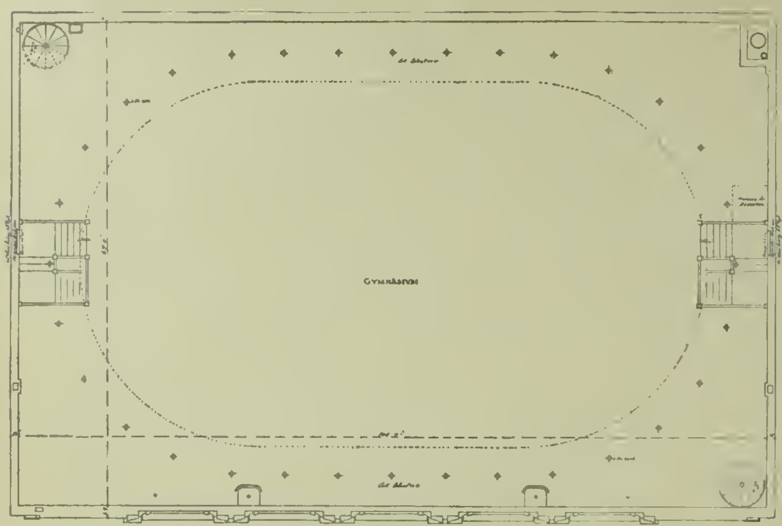
SECTION THROUGH VESTIBULE



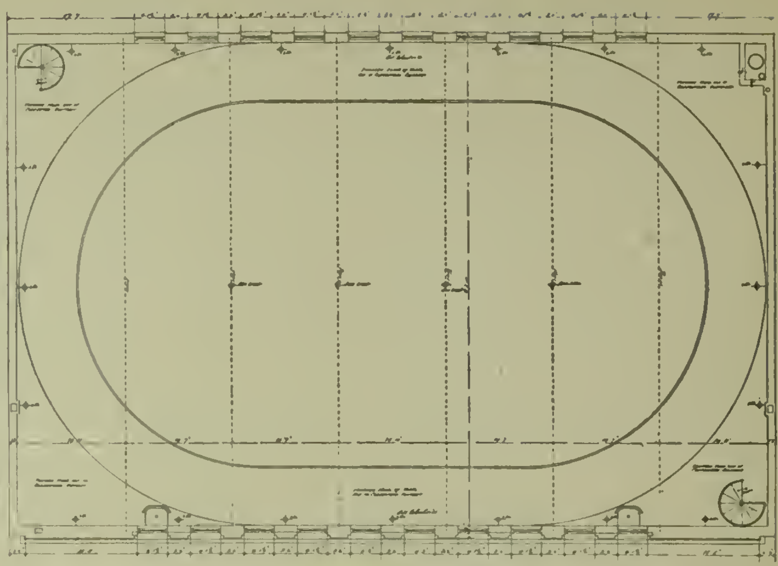
LONGITUDINAL SECTION.

CHAPEL, UNITED STATES NAVAL ACADEMY, ANNAPOLIS, MD

ERNEST FLAGG, ARCHITECT.

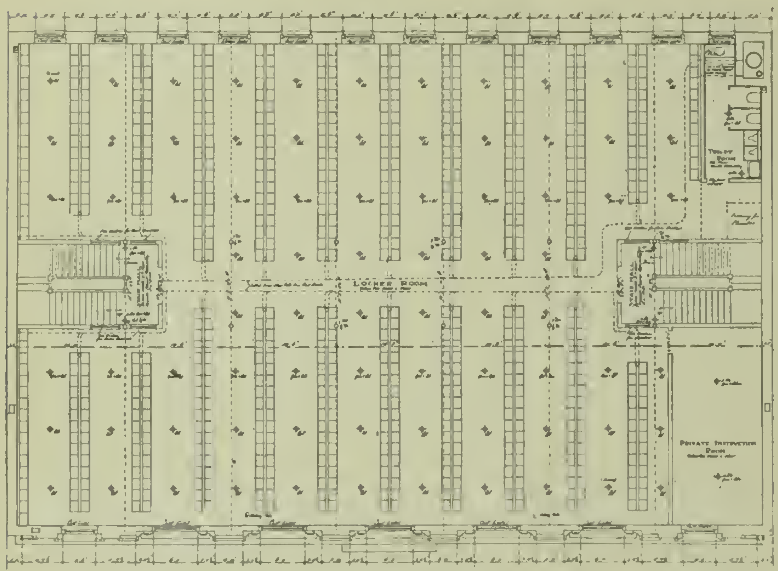


GYMNASIUM FLOOR.

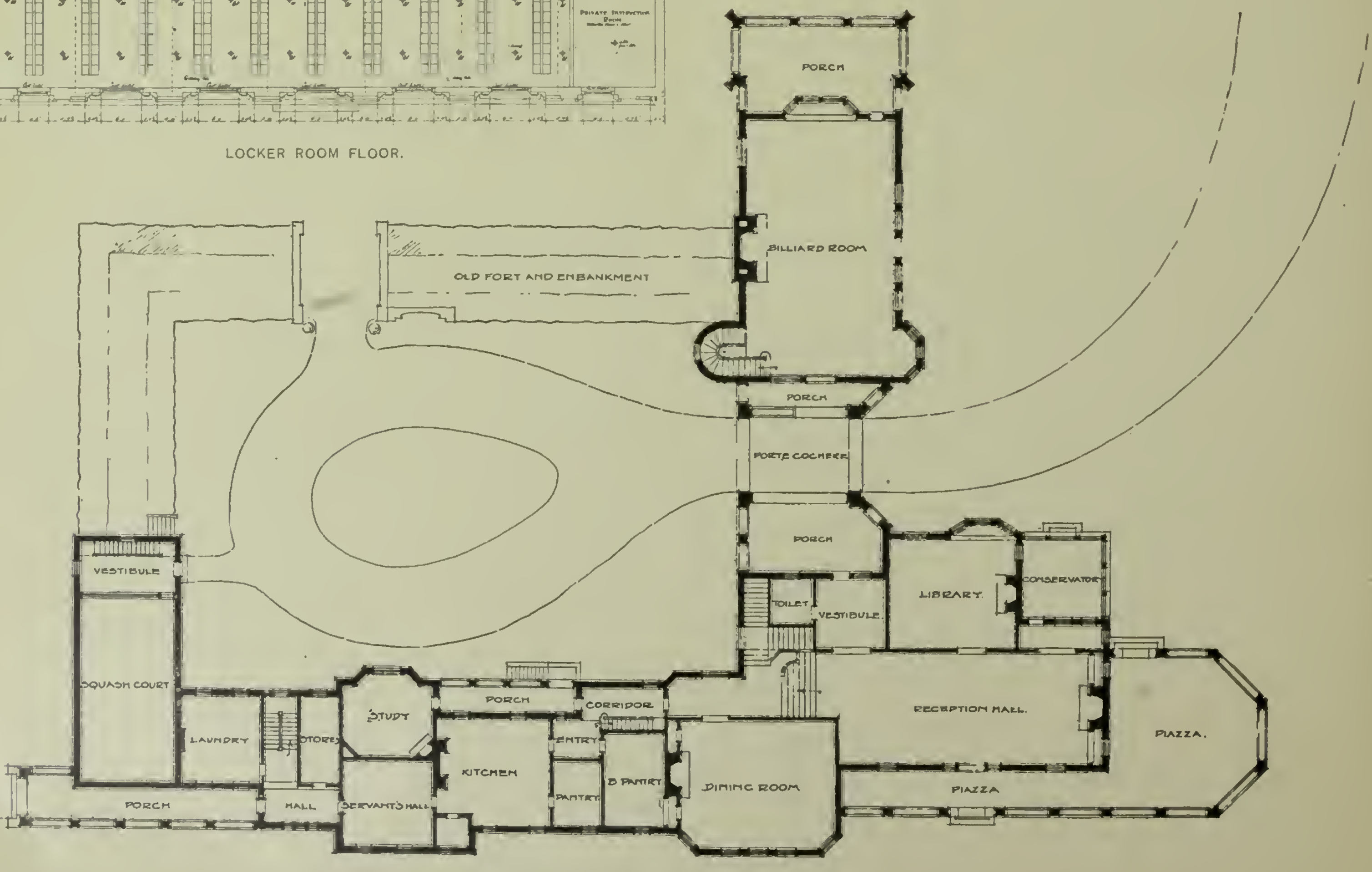


RUNNING TRACK LEVEL.

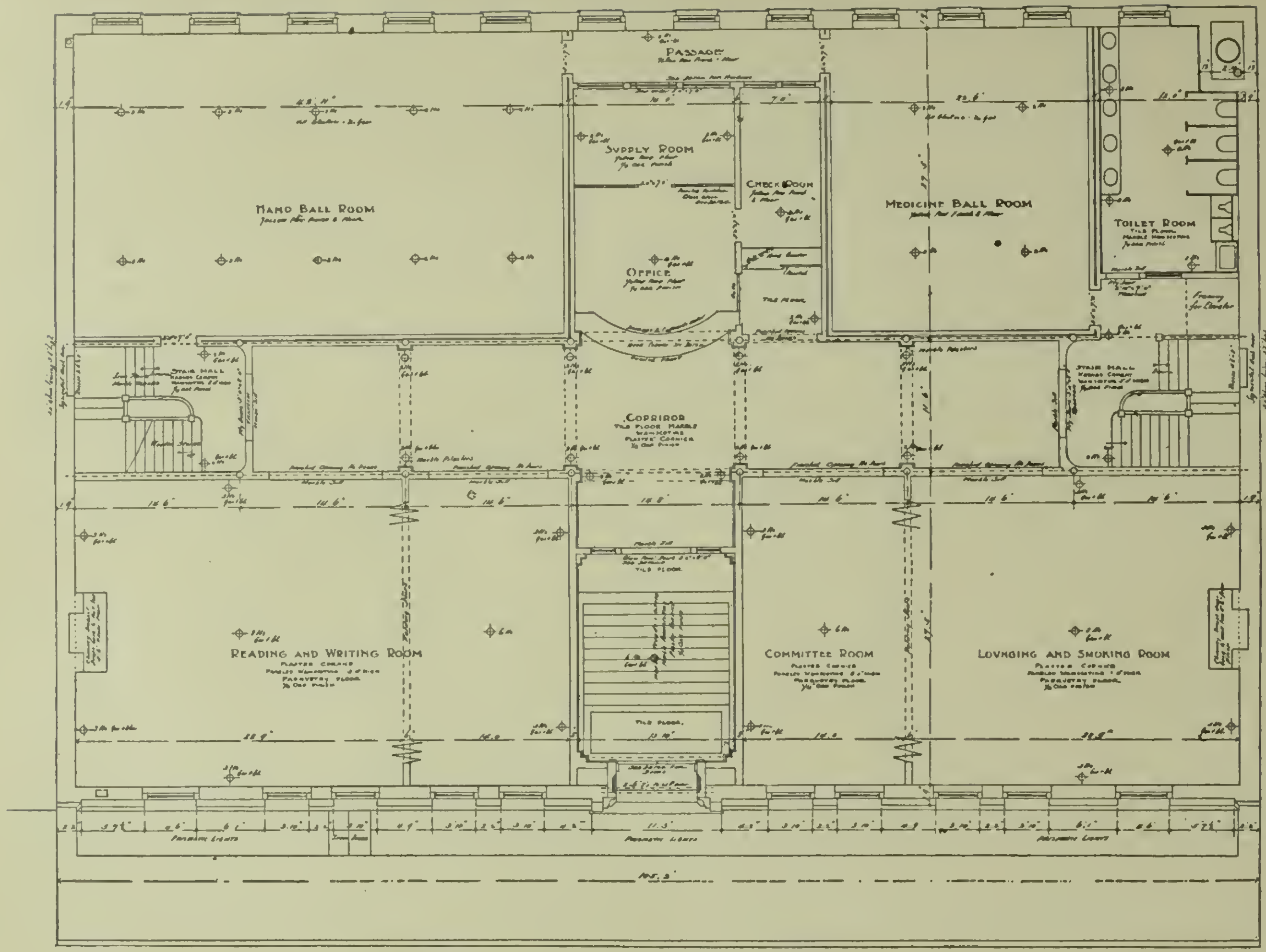
PLANS,
CINCINNATI GYMNASIUM AND ATHLETIC CLUB,
CINCINNATI, OHIO.
WERNER & ADKINS, ARCHITECTS.



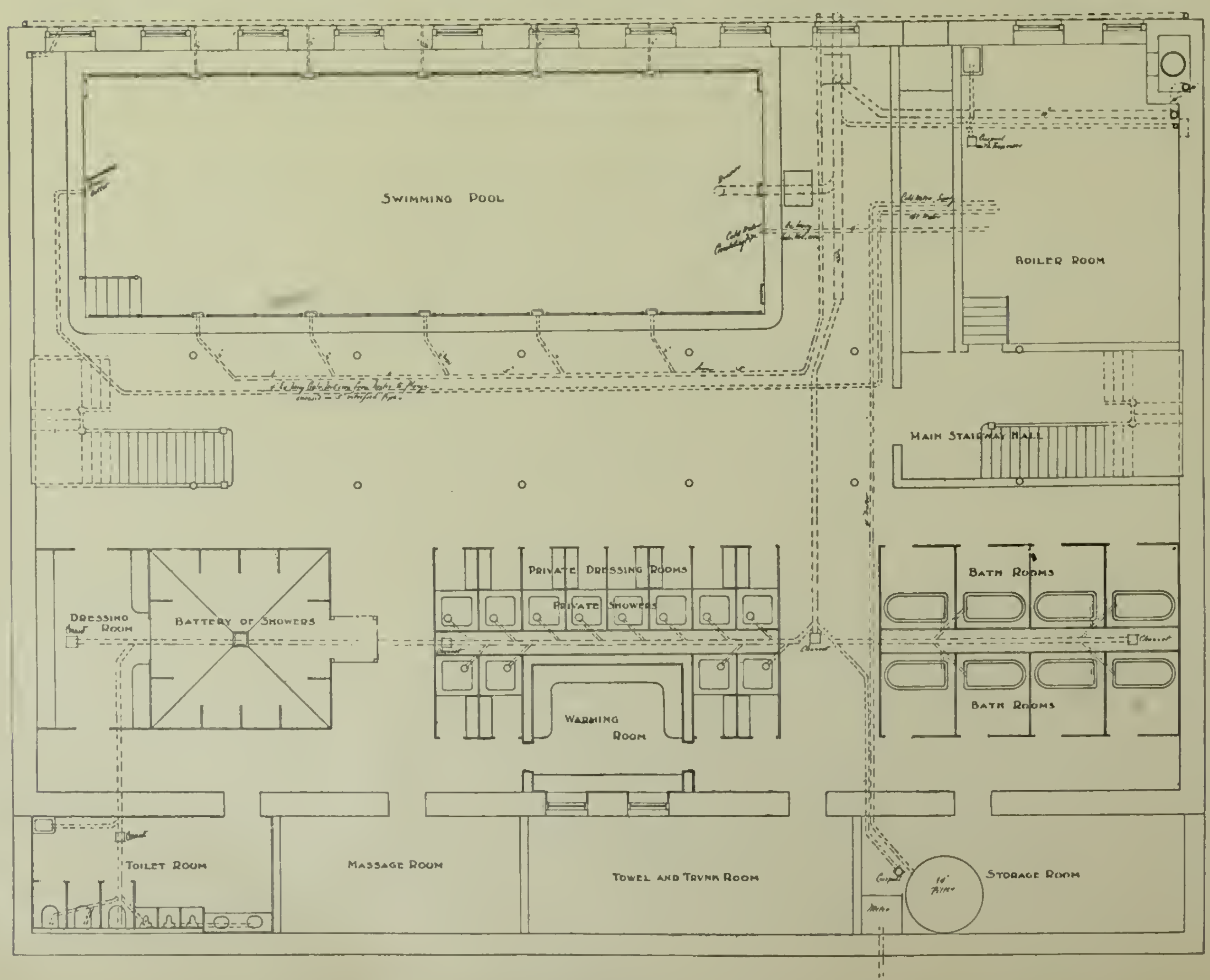
LOCKER ROOM FLOOR.



PLAN, HOUSE, LLOYD'S NECK, L. I. BORING & TILTON, ARCHITECTS.

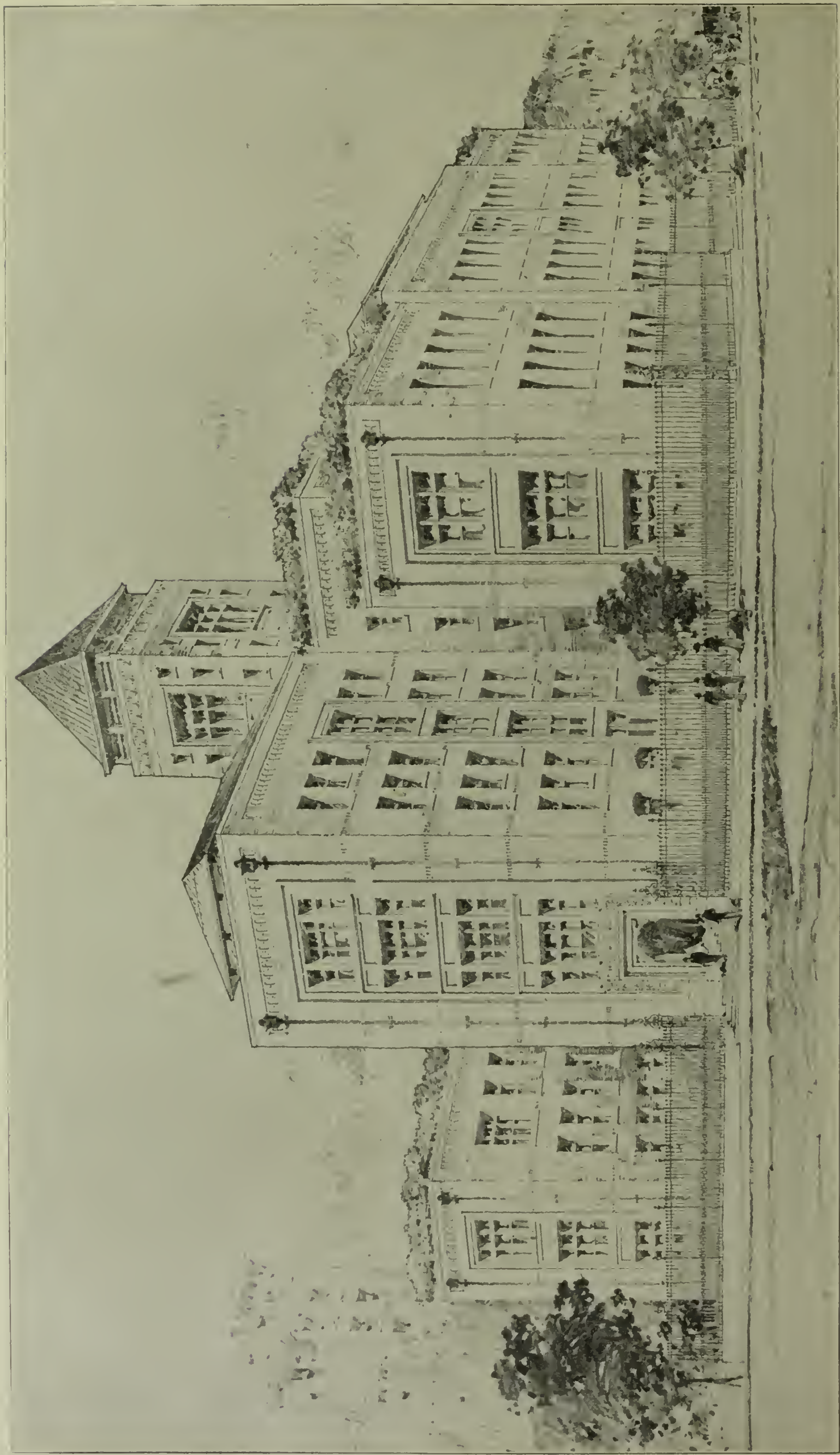


FIRST FLOOR PLAN.



BASEMENT PLAN.

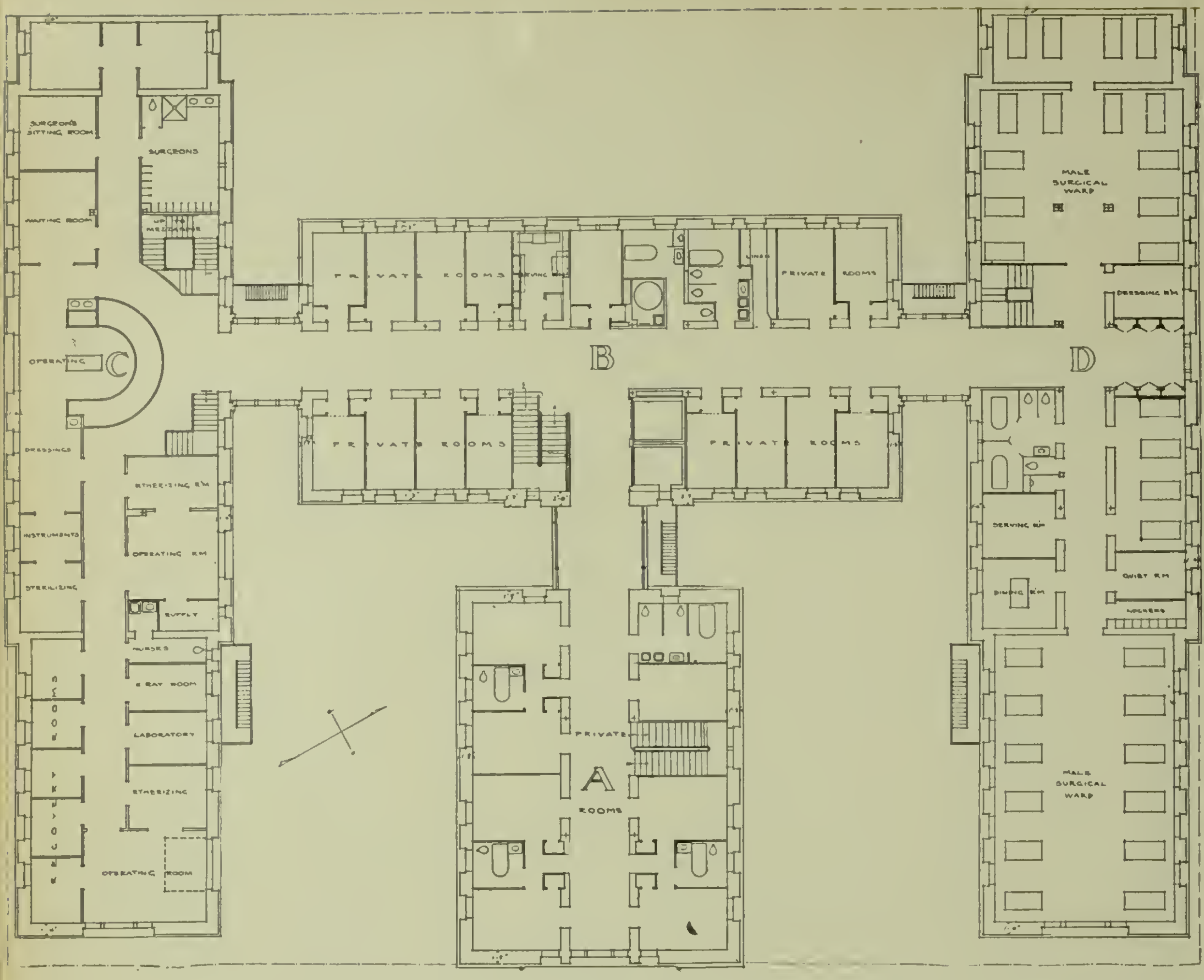
CINCINNATI GYMNASIUM AND ATHLETIC CLUB, CINCINNATI, OHIO.



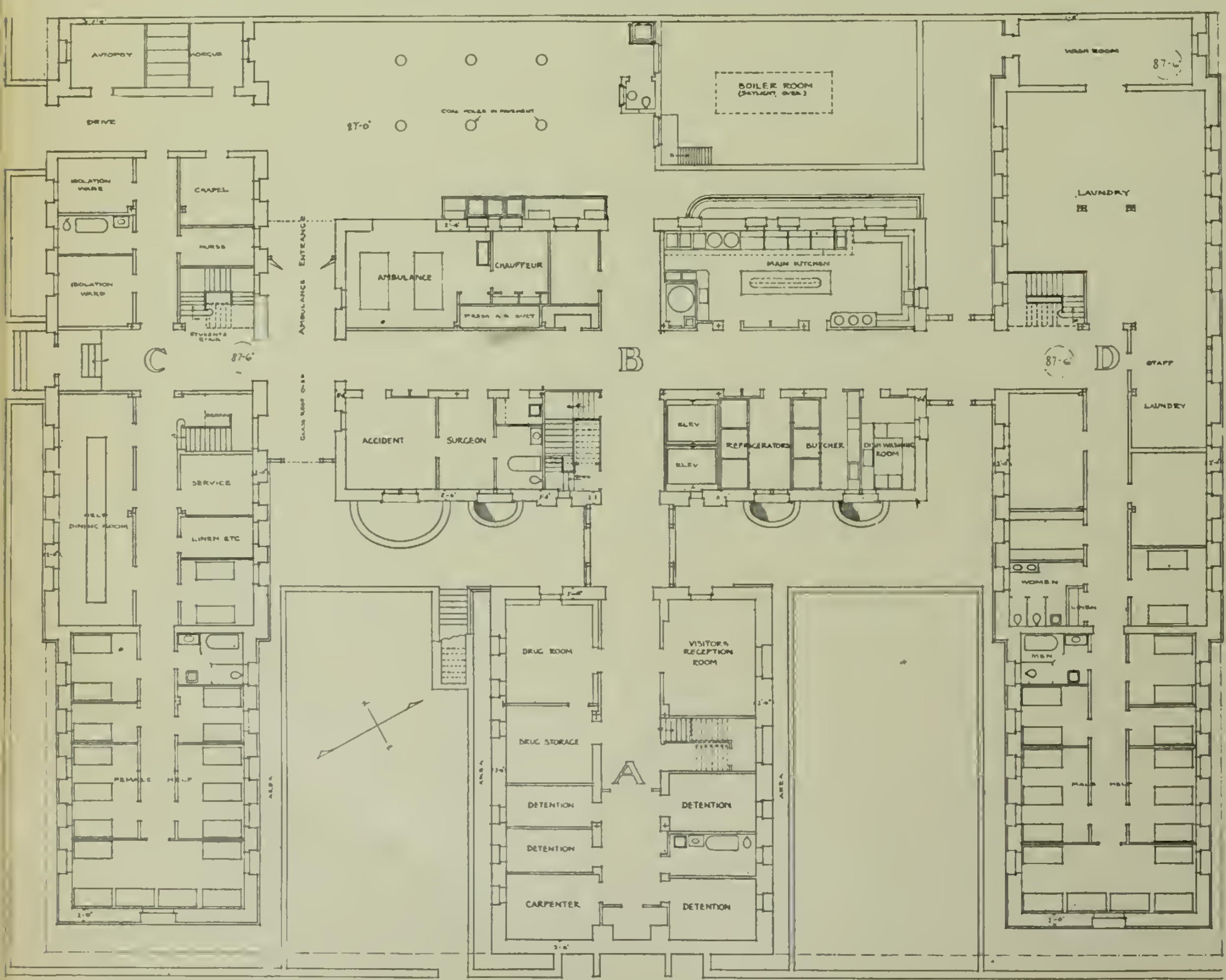
NEW BUILDING FOR THE LONG ISLAND COLLEGE HOSPITAL, BROOKLYN, N. Y.

JOHN GALEN HOWARD AND D. EVERETT WAID, ARCHITECTS.

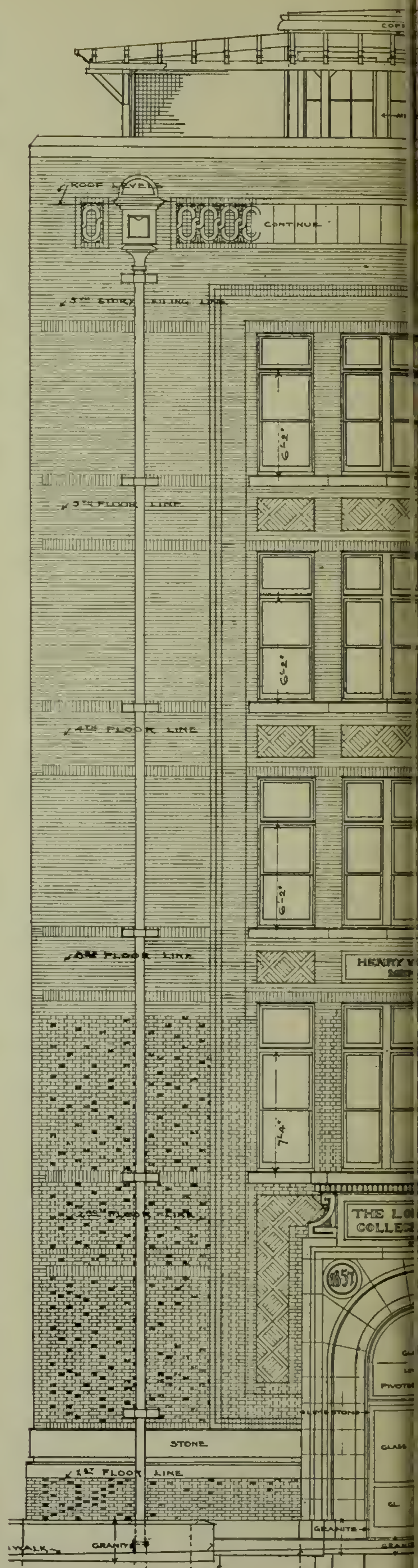
VOL. 12. NO. 8.



THIRD FLOOR PLAN.



BASEMENT PLAN.

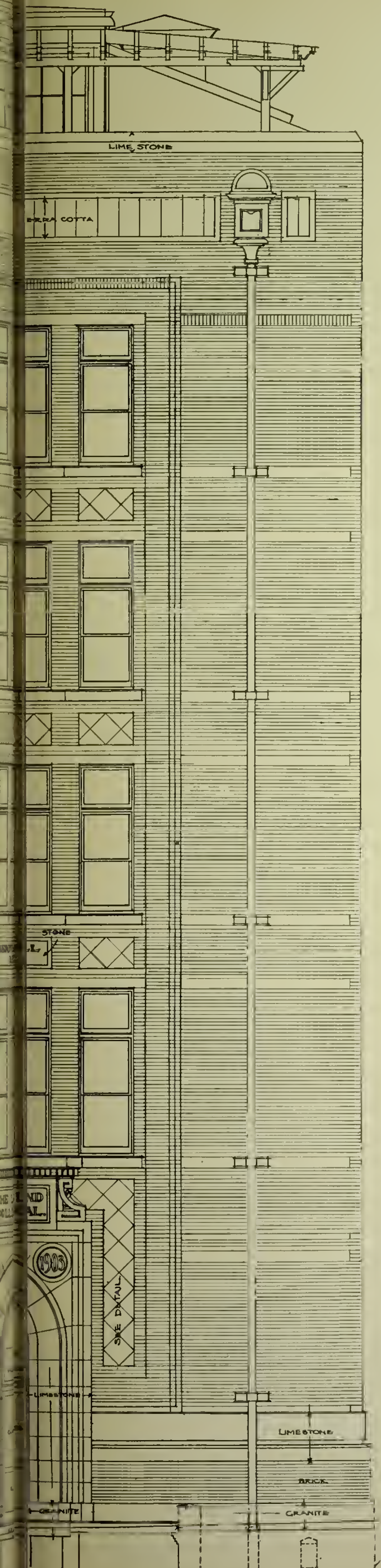


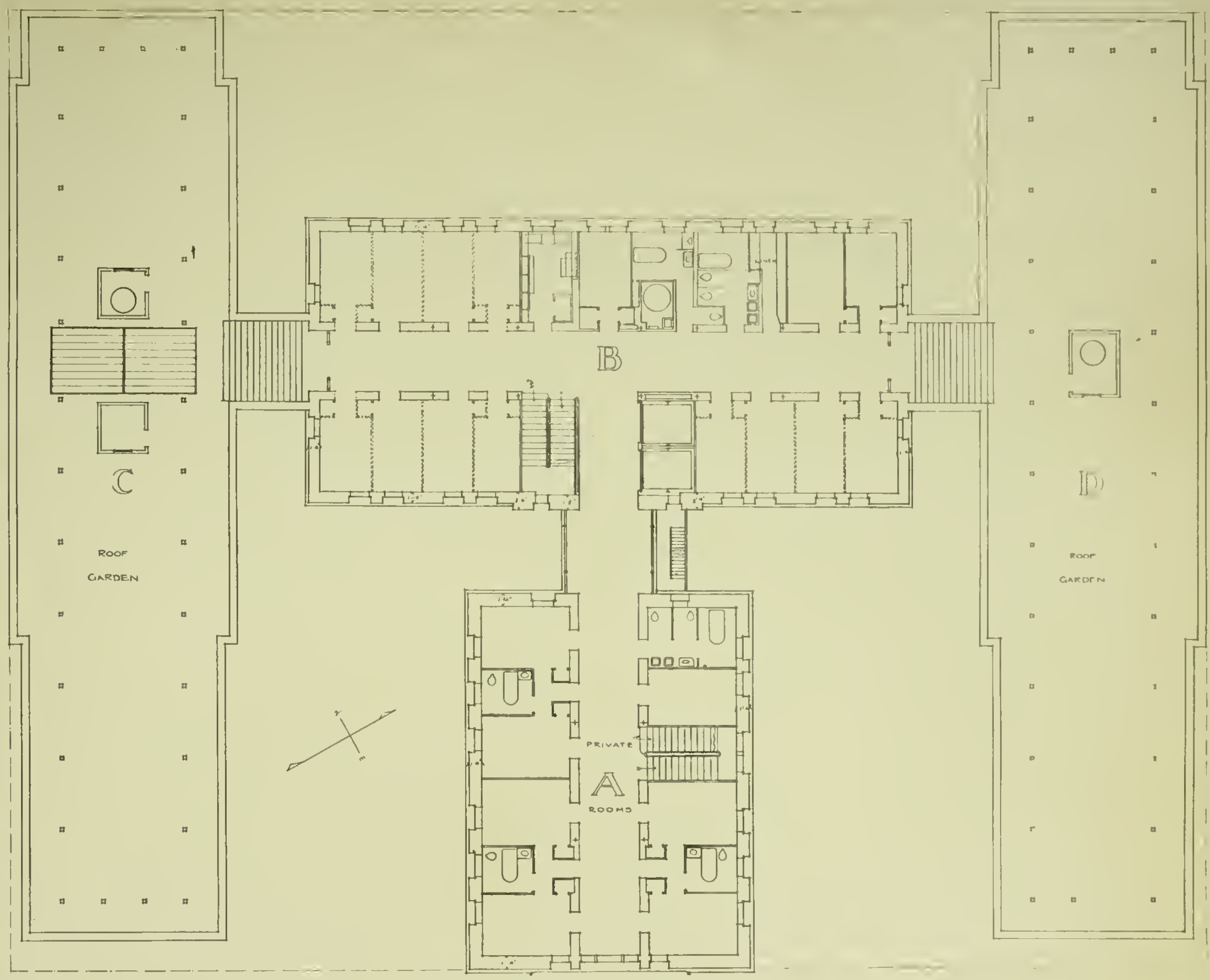
EAST EL

NEW BUILDING FOR THE LONG ISLAN

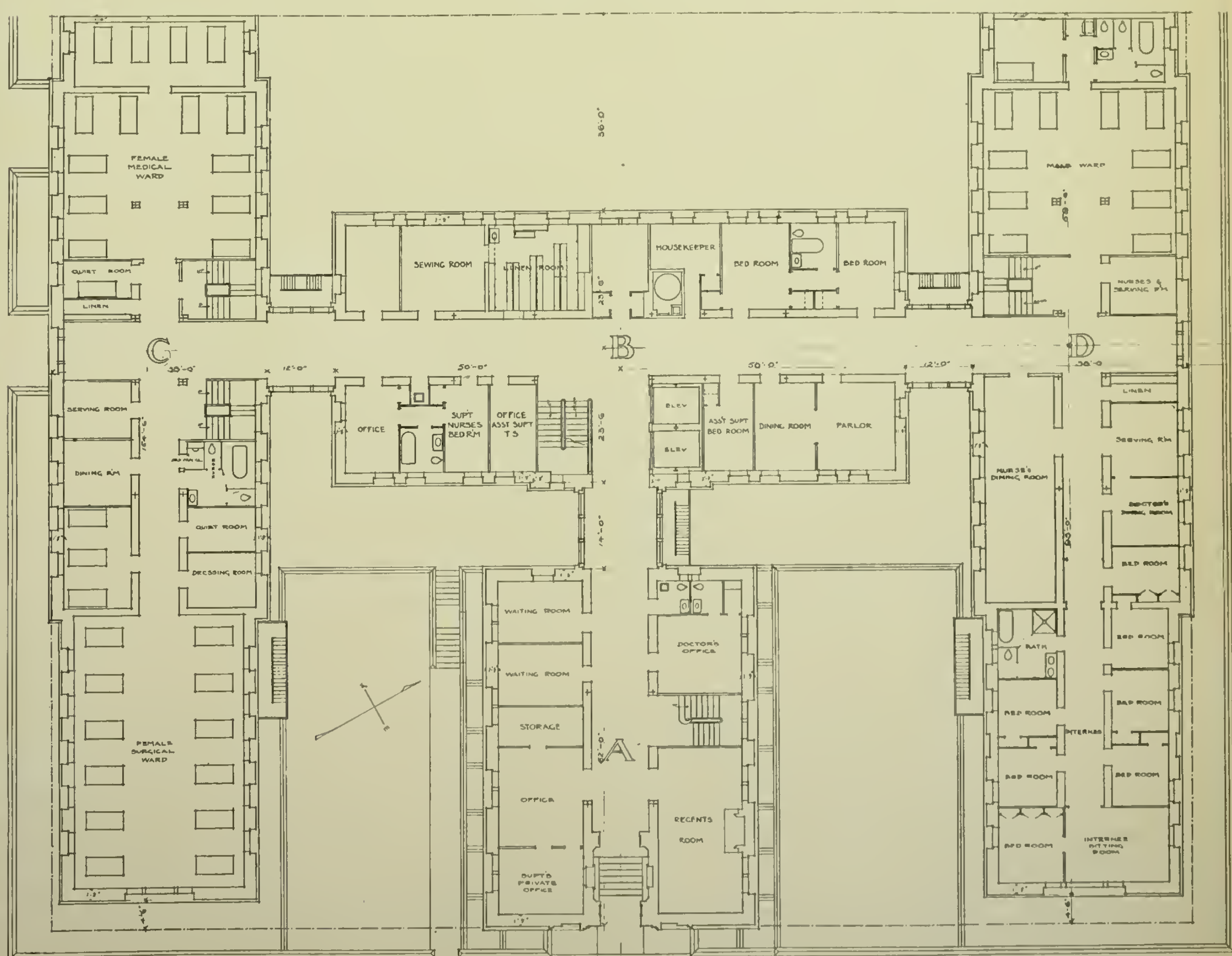
JOHN GALEN HOWARD AND

PLATES 60 and 61.





FOURTH FLOOR PLAN.

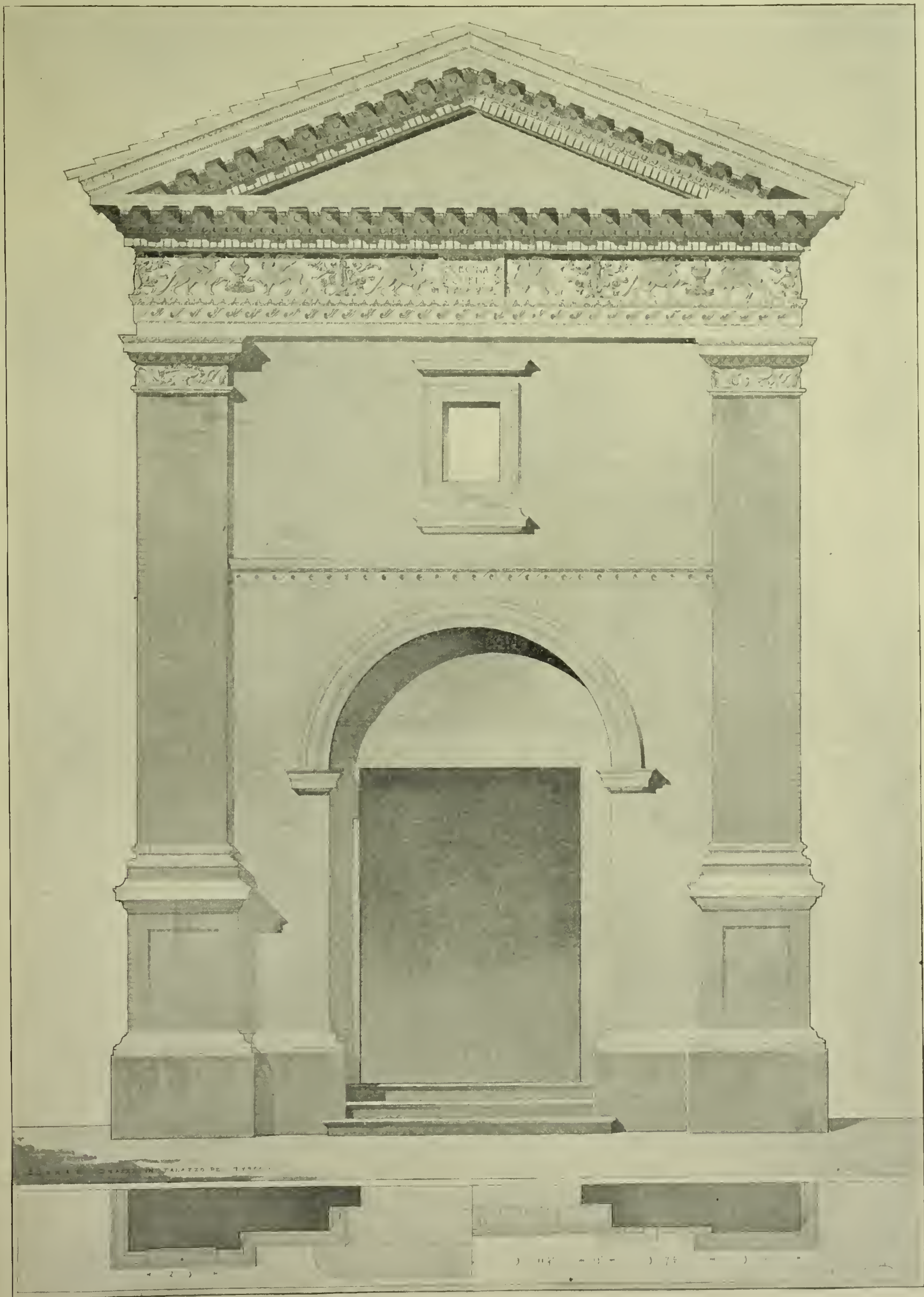


FIRST FLOOR PLAN.

LEGE HOSPITAL, BROOKLYN, N. Y.

T WAID, ARCHITECTS.

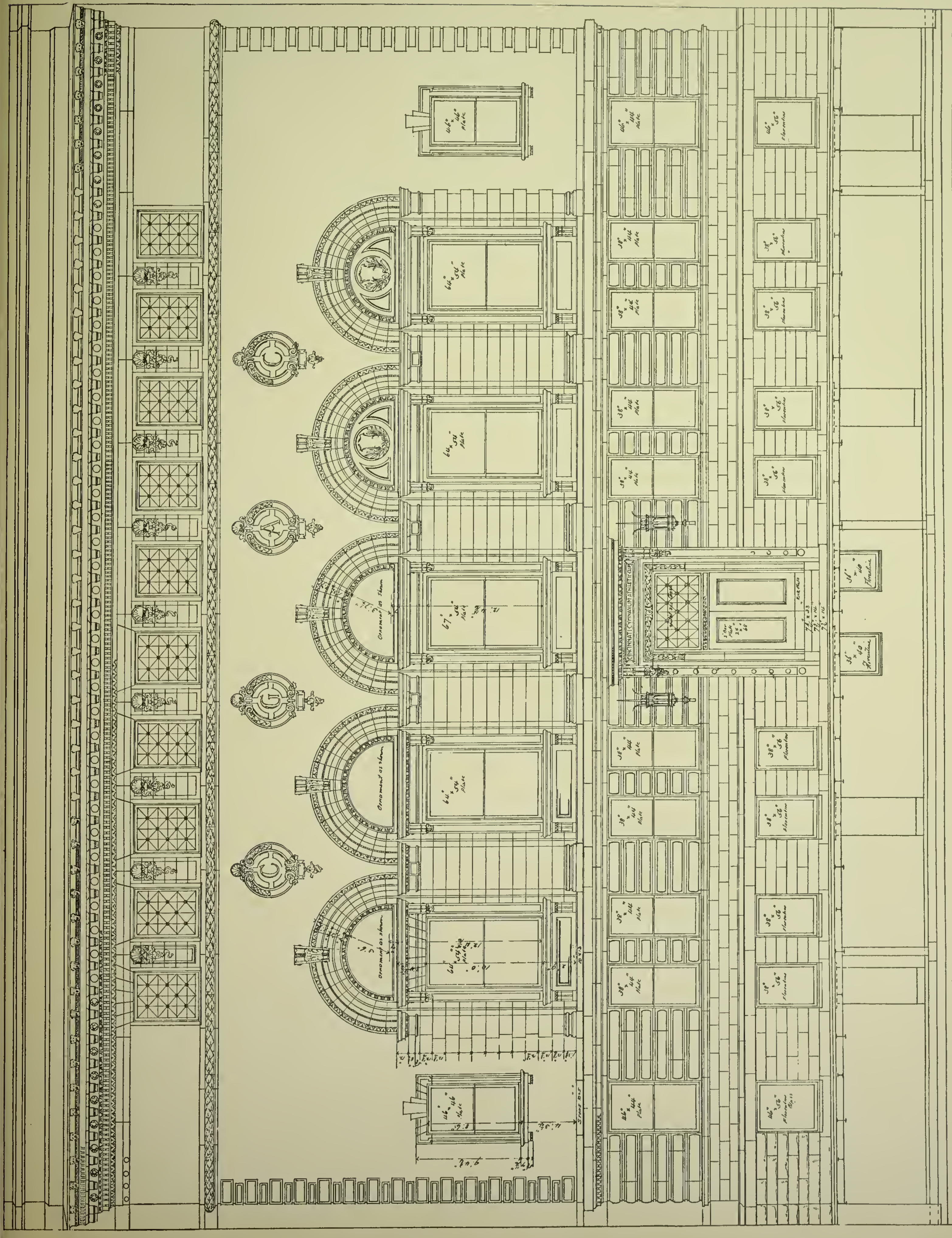
VOL. 12. NO. 8. PLATE 62.



CHAPEL IN PALAZZO DEL TYRCO, SIENA, ITALY.

MEASURED AND DRAWN BY WILLIAM L. WELTON, ROTCH TRAVELING SCHOLAR.

PLATES 58 and 63.

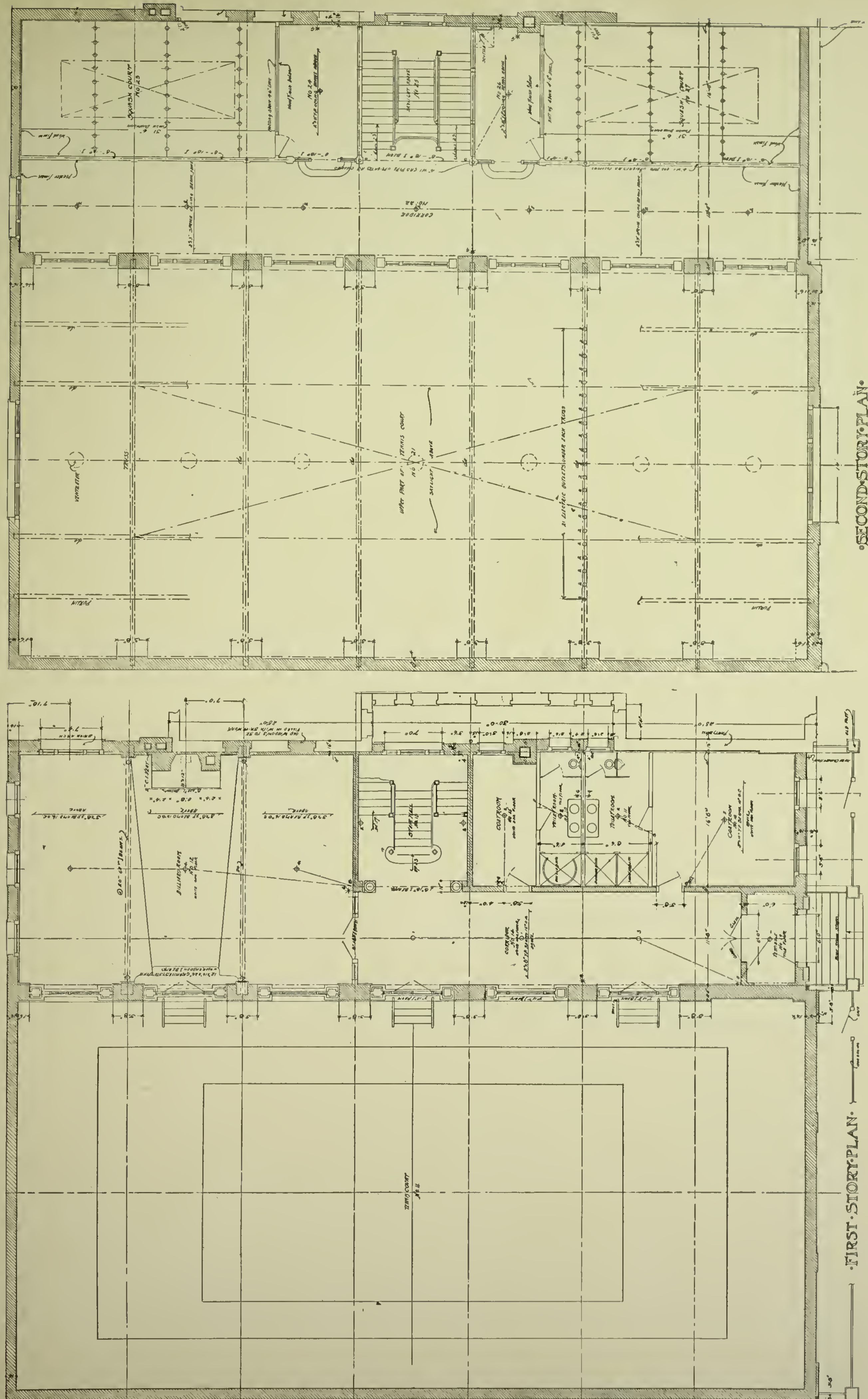


FRONT ELEVATION.

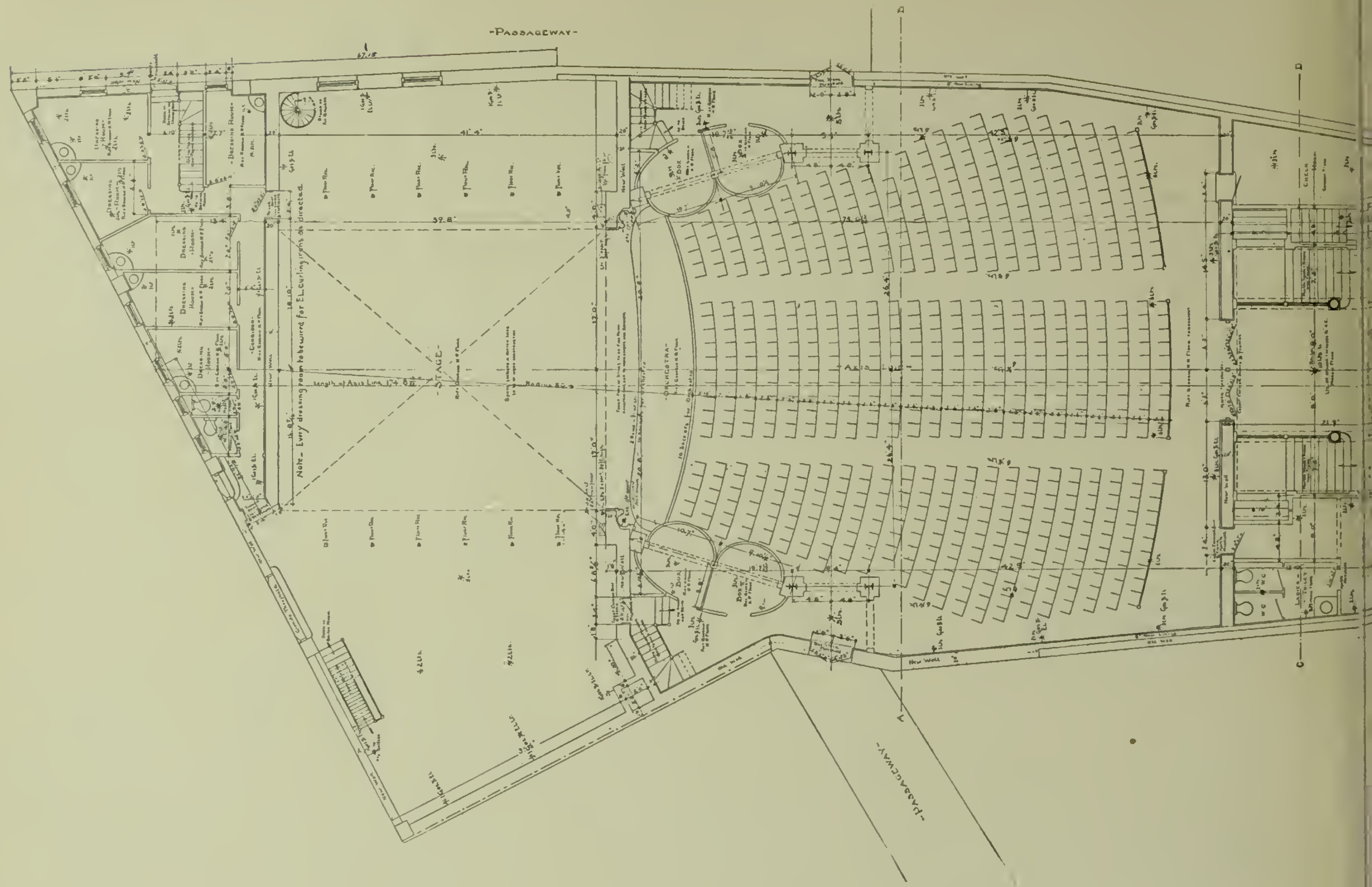
CINCINNATI GYMNASIUM AND ATHLETIC CLUB, CINCINNATI, OHIO.

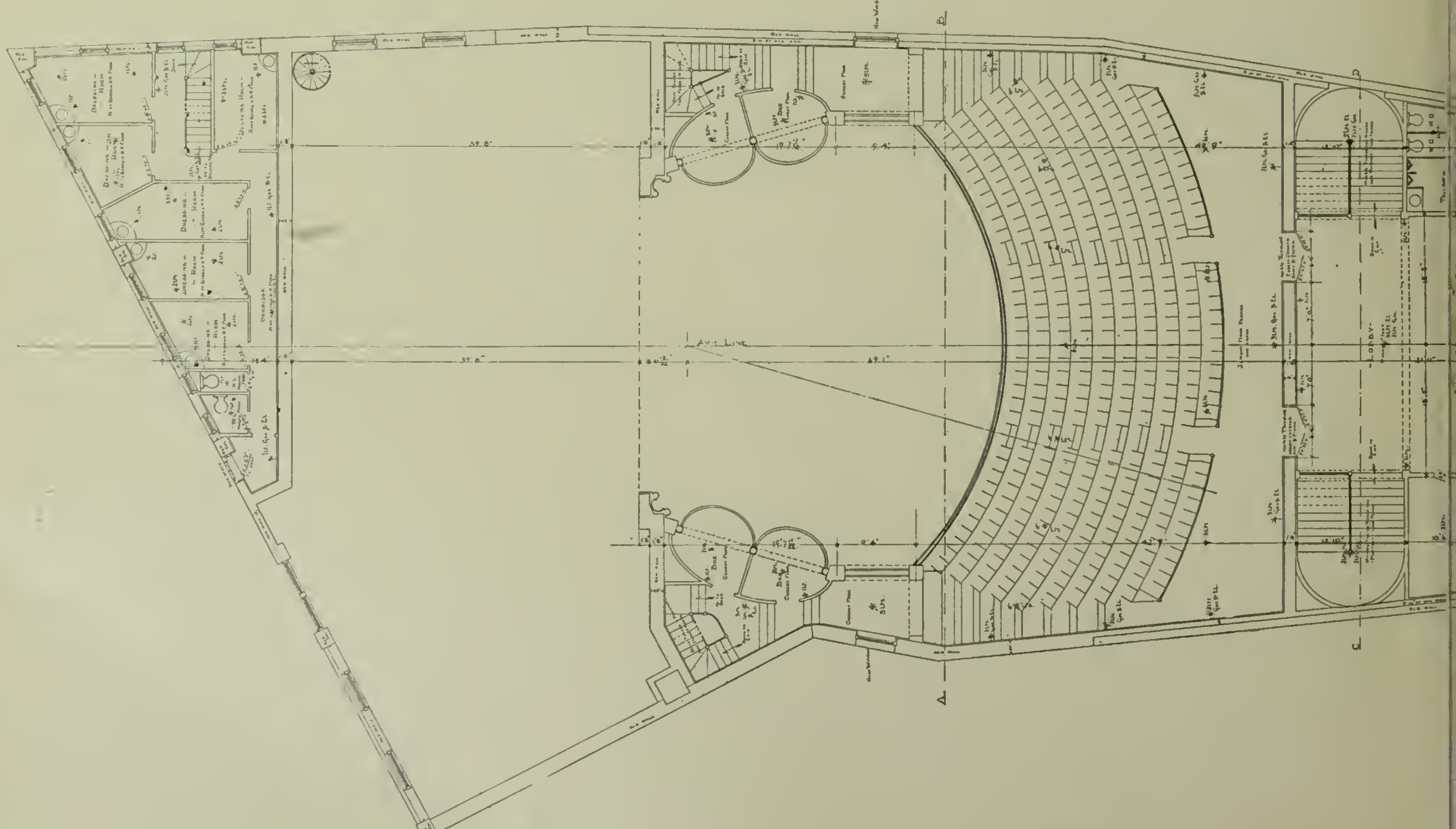
WERNER & ADKINS, ARCHITECTS.

VOL. 12. NO. 8. PLATE 64.

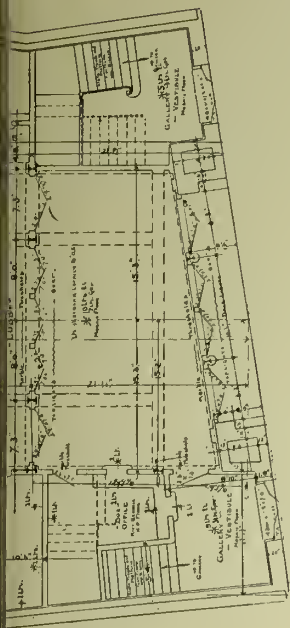


PLANS, PRIVATE CASINO, BROOKLYN, N. Y.
BORING & TILTON, ARCHITECTS.

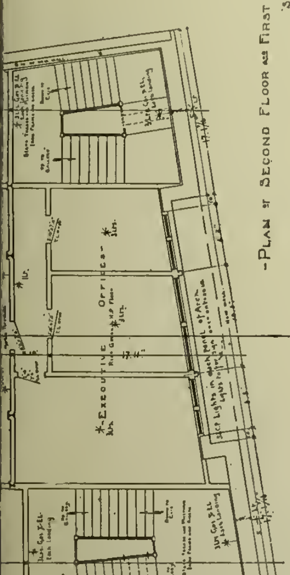

-PASSAGEWAY-
-STAGE-
-ORCHESTRA-
NOTE – Every dressing room to be wired for El. Lighting as directed.
-PASSAGEWAY-


AXIS LINE
LOBBY

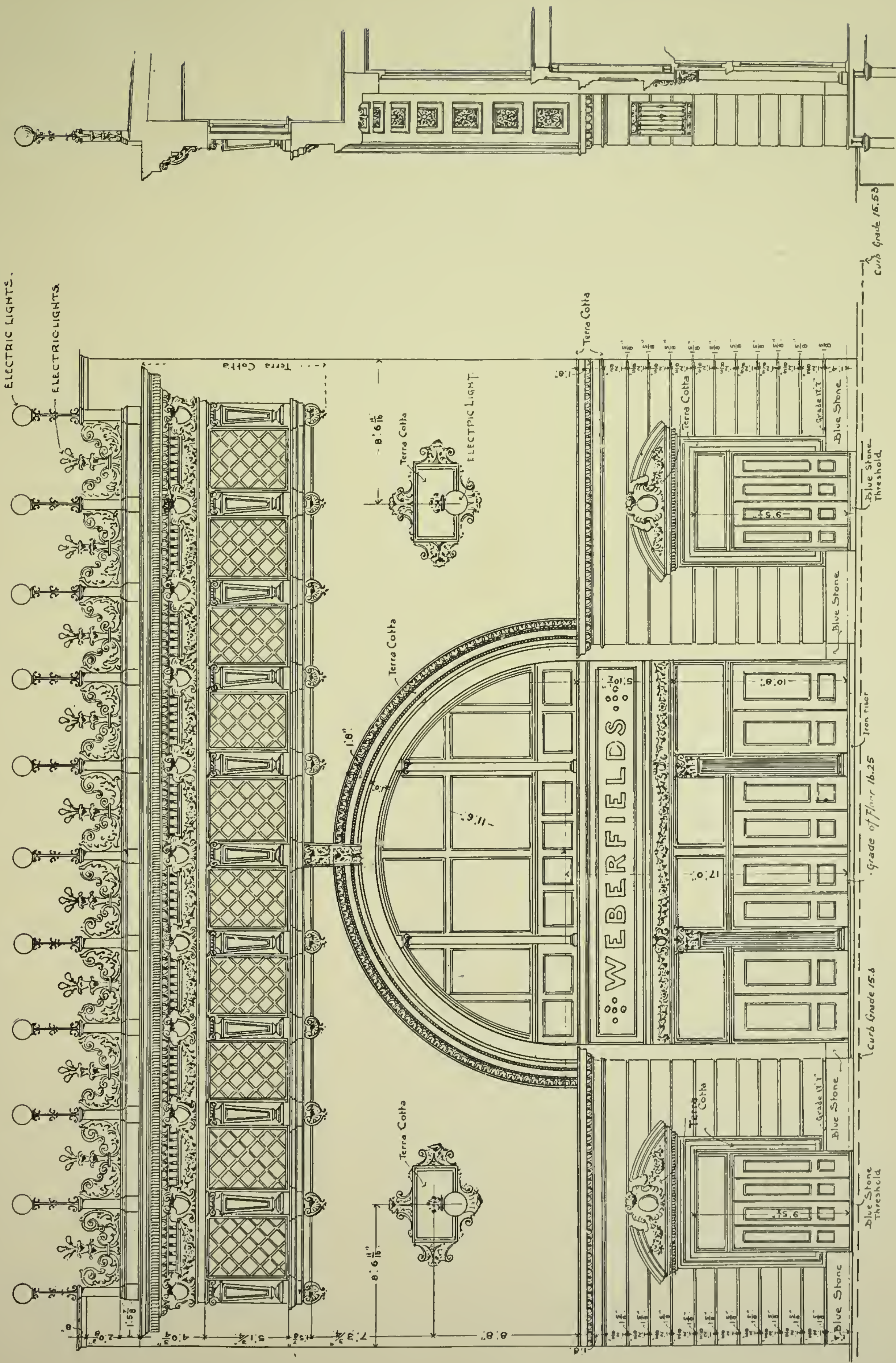
PLATES 65 and 72.



FIRST FLOOR PLAN.



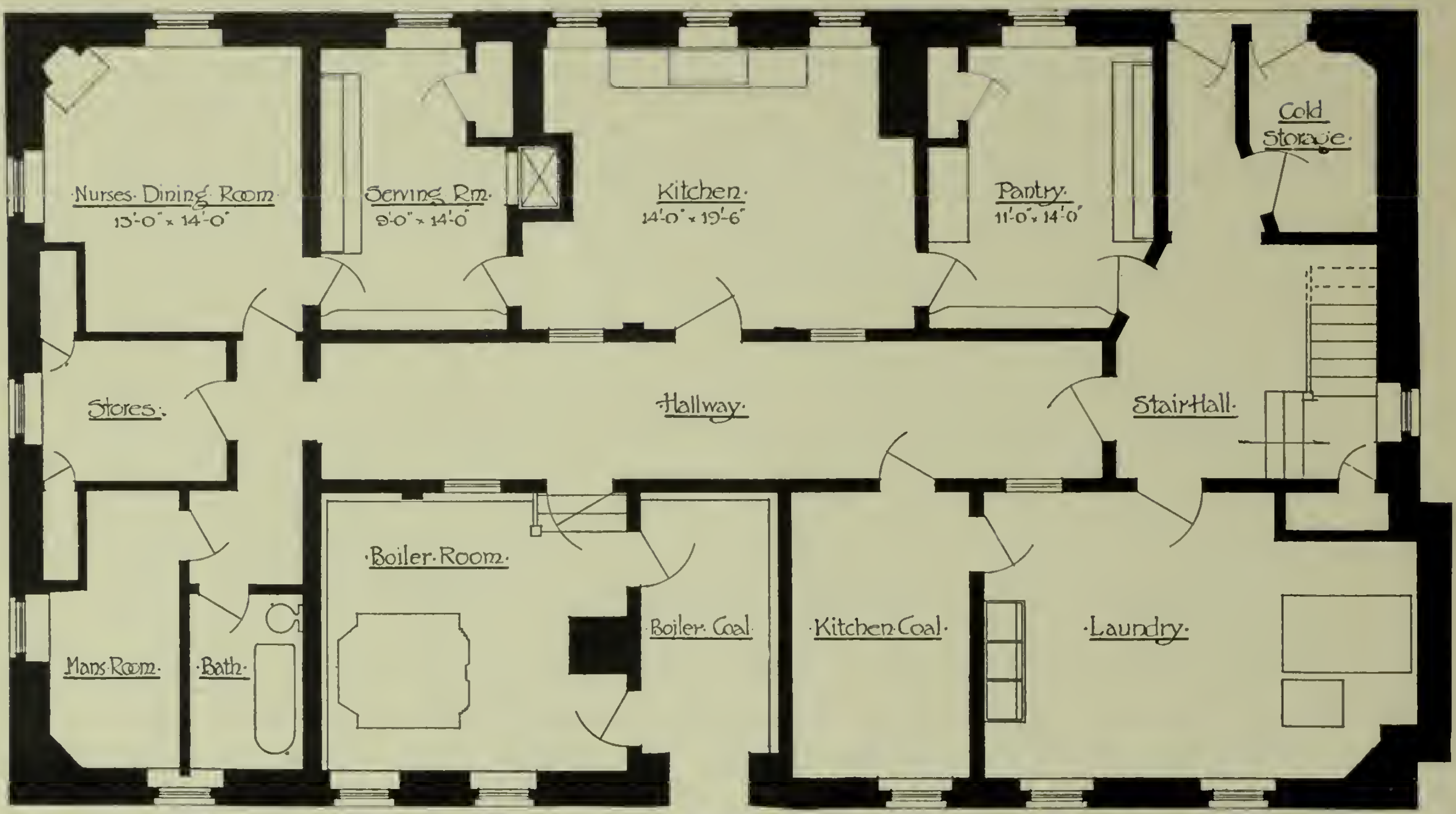
SECOND FLOOR AND FIRST BALCONY PLAN.



FRONT ELEVATION.

NEW GLOBE THEATRE, BOSTON, MASS.

ARTHUR H. VINAL, ARCHITECT.

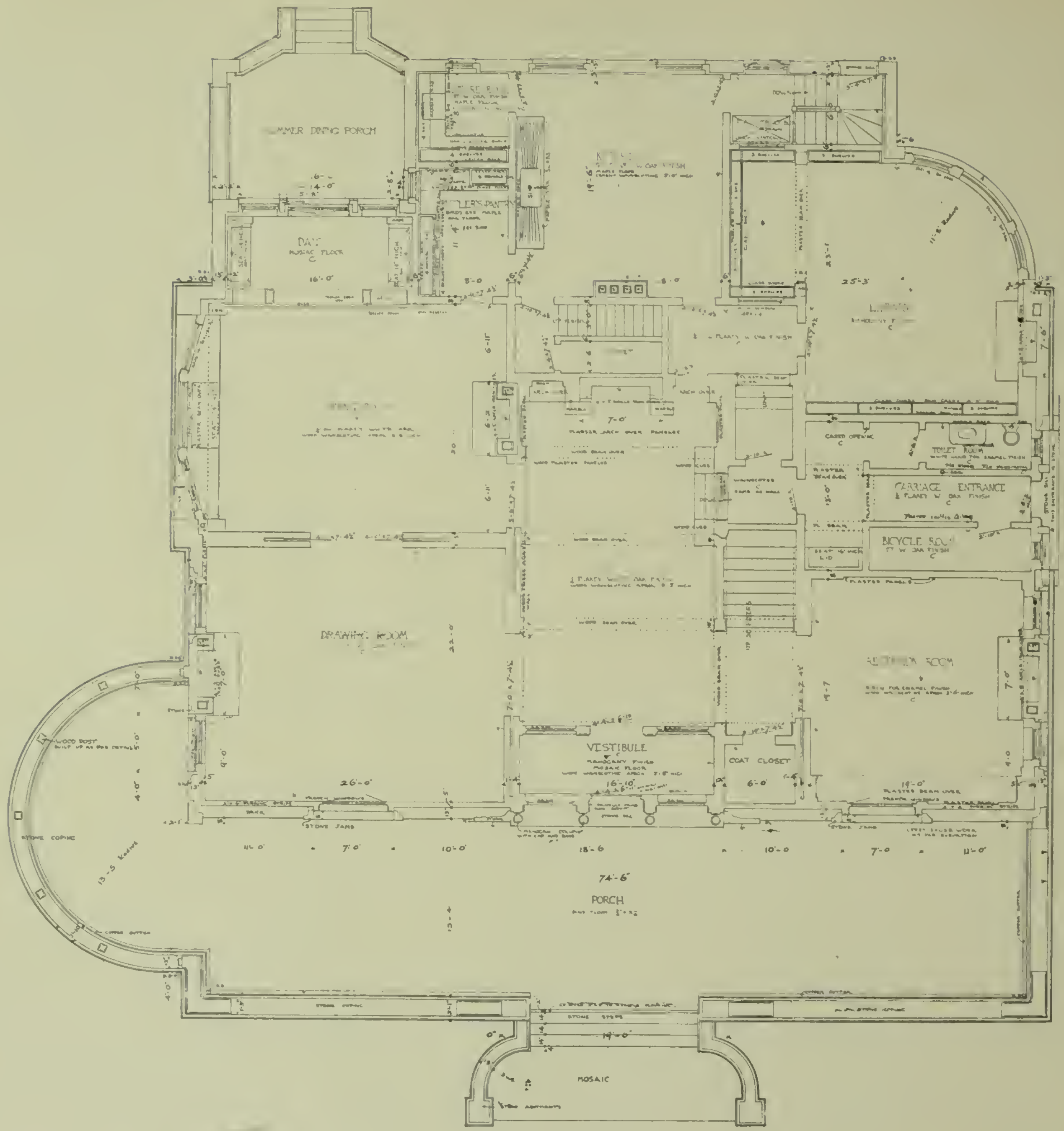


BASEMENT PLAN.

FRONT ELEVATION.

HOSPITAL AT PLYMOUTH, MASS.

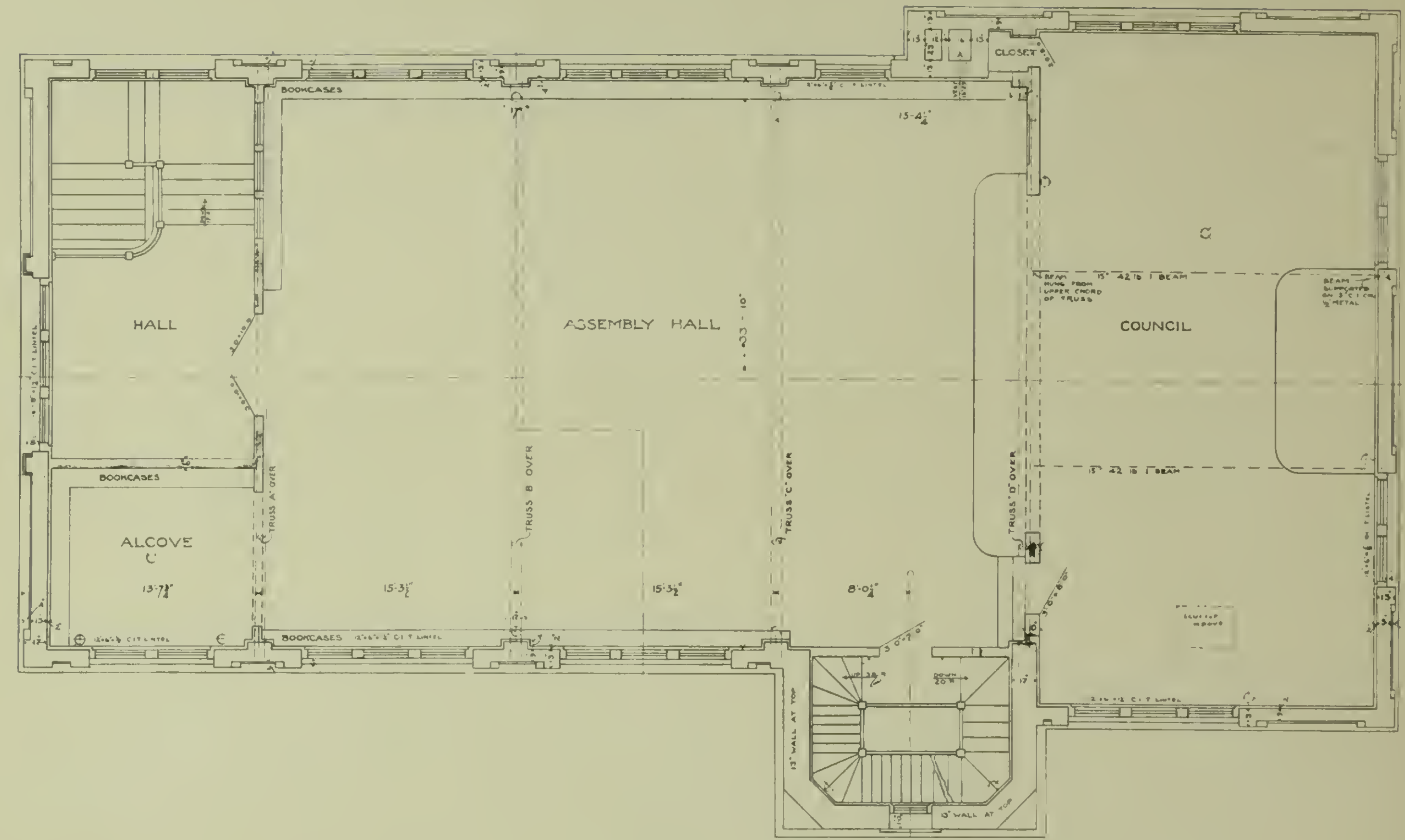
WILLIAM ATKINSON, ARCHITECT.



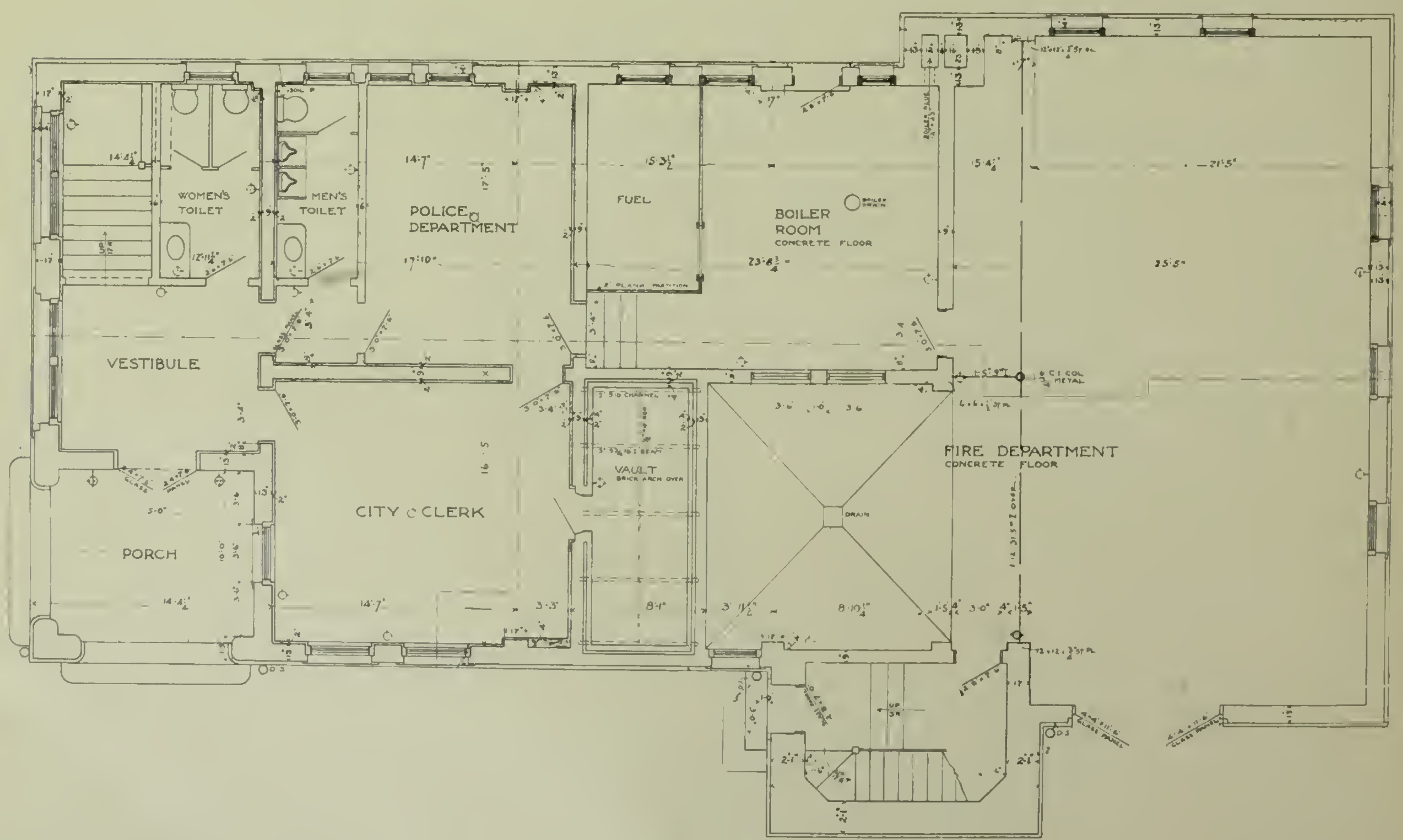
FIRST FLOOR PLAN.

FRONT ELEVATION, HOUSE, OAK PARK, ILL.

GEORGE W. MAHER, ARCHITECT.

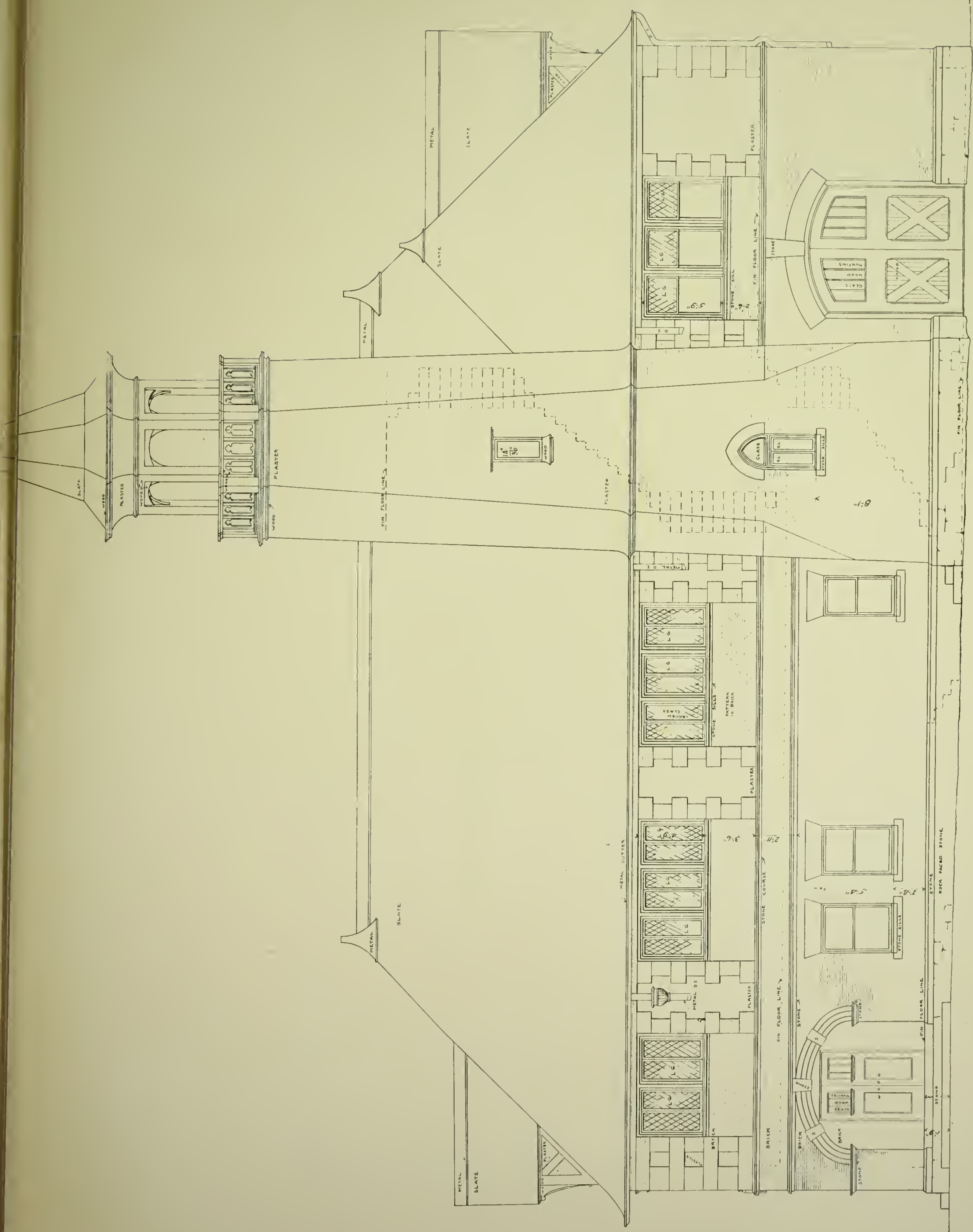


SECOND FLOOR PLAN.

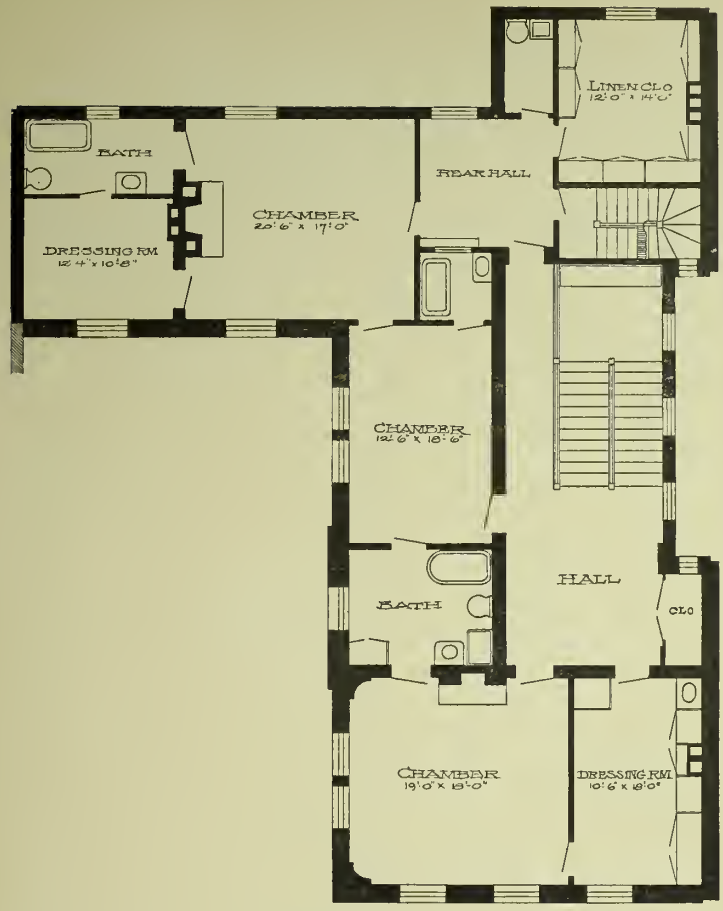


FIRST FLOOR PLAN.

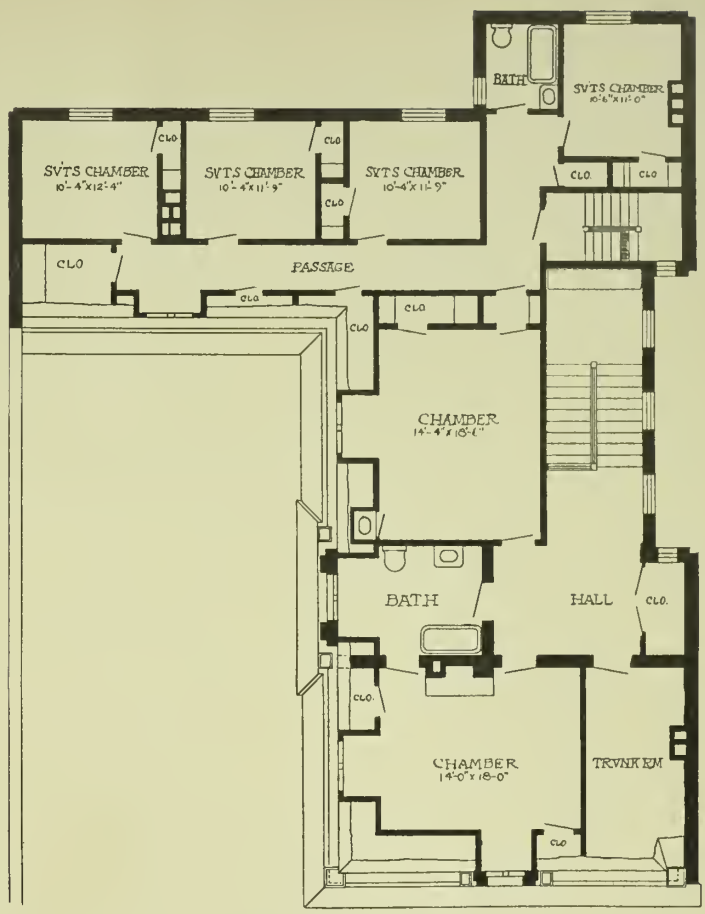
PLATES 68 and 69.



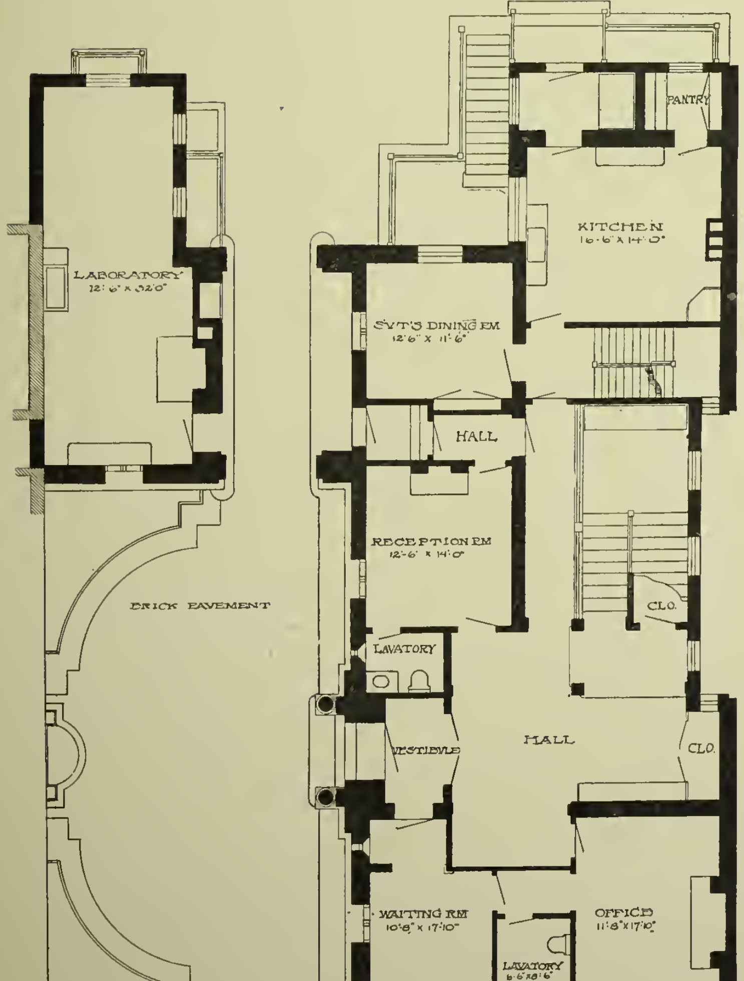
CITY HALL, LAKE FOREST, ILL.
FROST & GRANGER, ARCHITECTS.



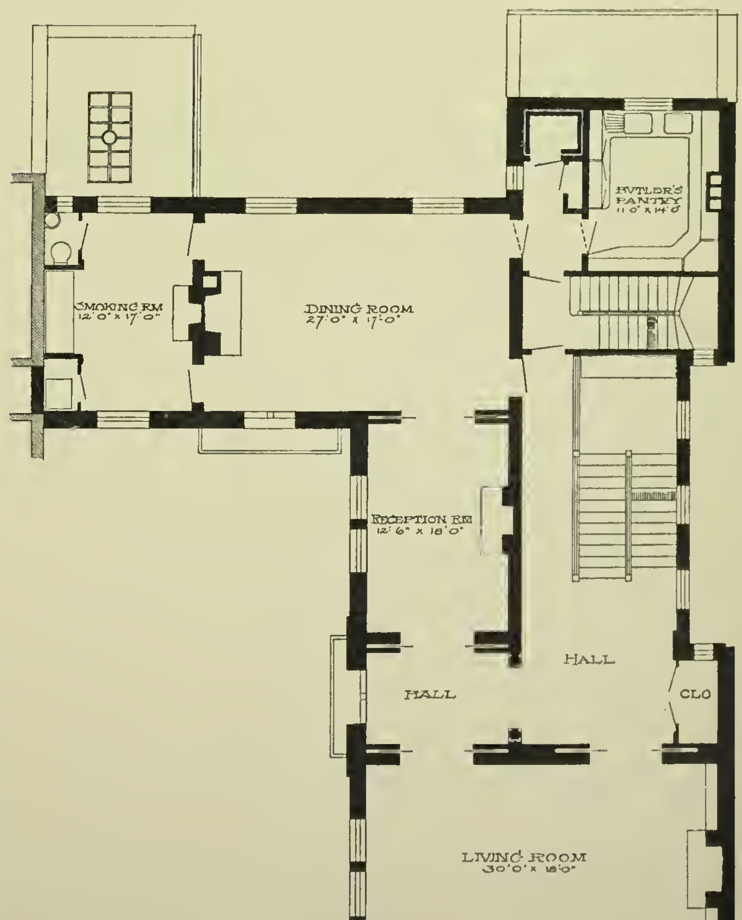
SECOND FLOOR PLAN



THIRD FLOOR PLAN.



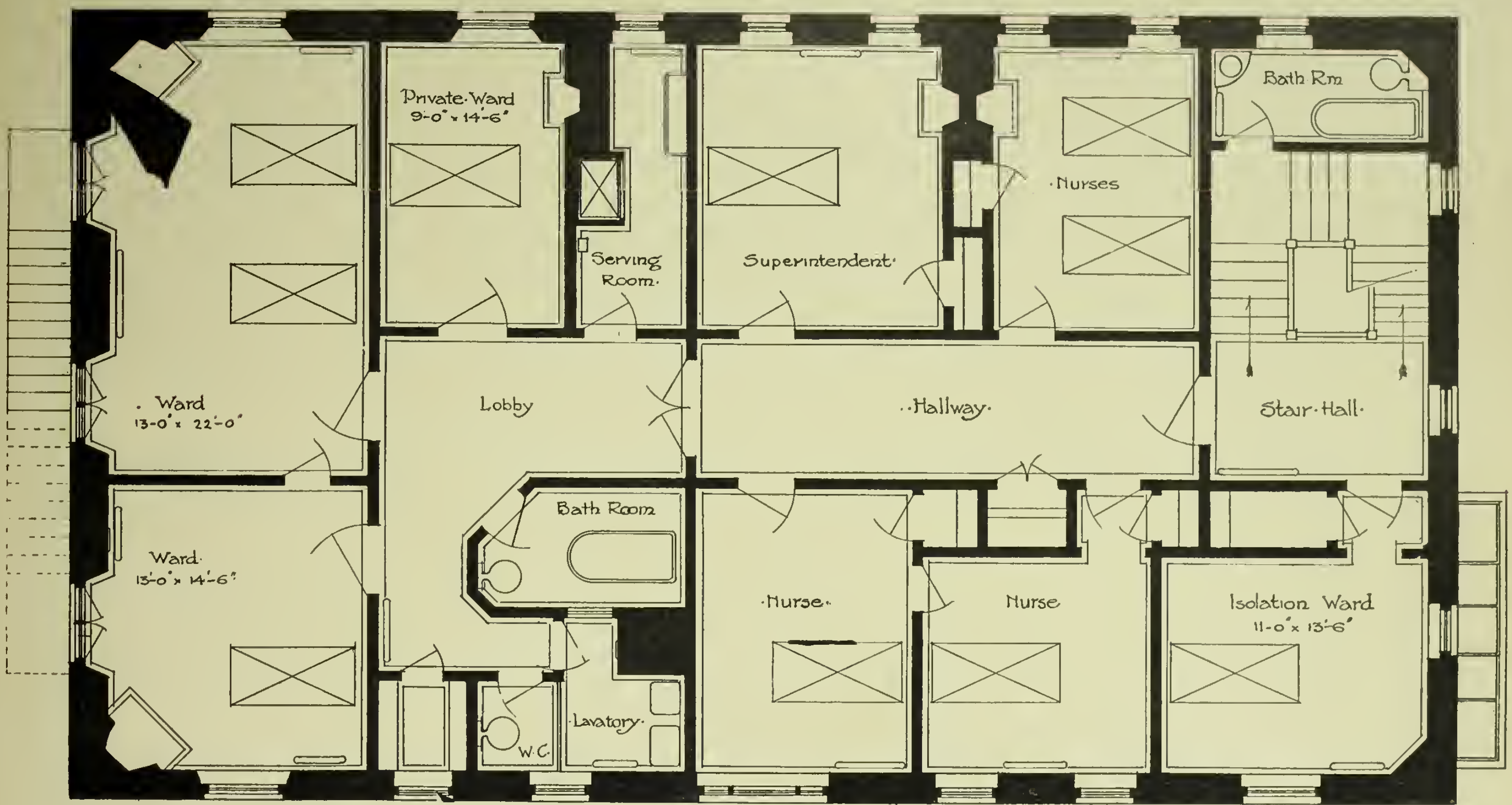
GROUND FLOOR PLAN.



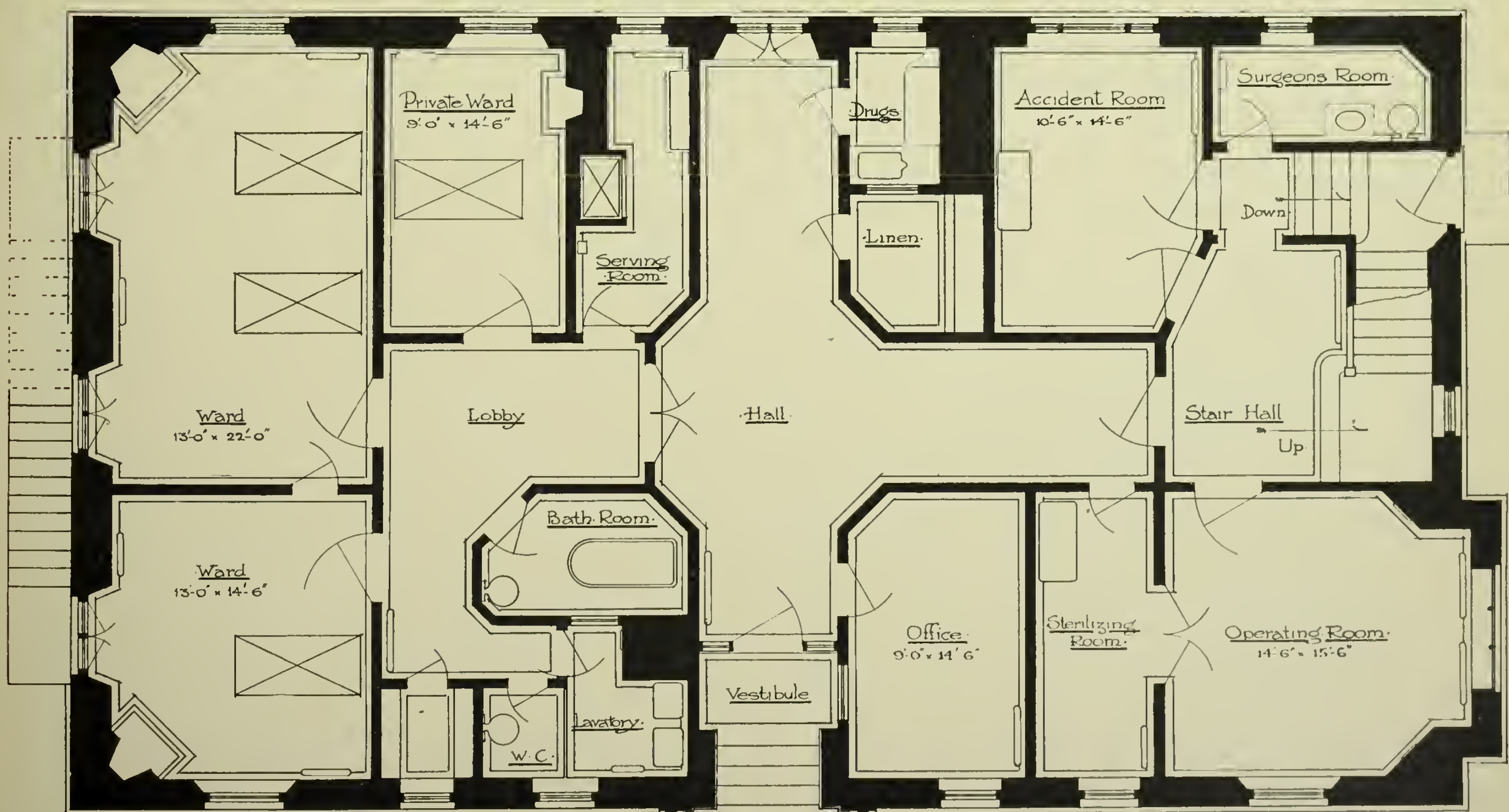
FIRST FLOOR PLAN.

PLANS, HOUSE FOR DR. GEORGE S. ISHAM, CHICAGO, ILL.

JAMES GAMBLE ROGERS, ARCHITECT.



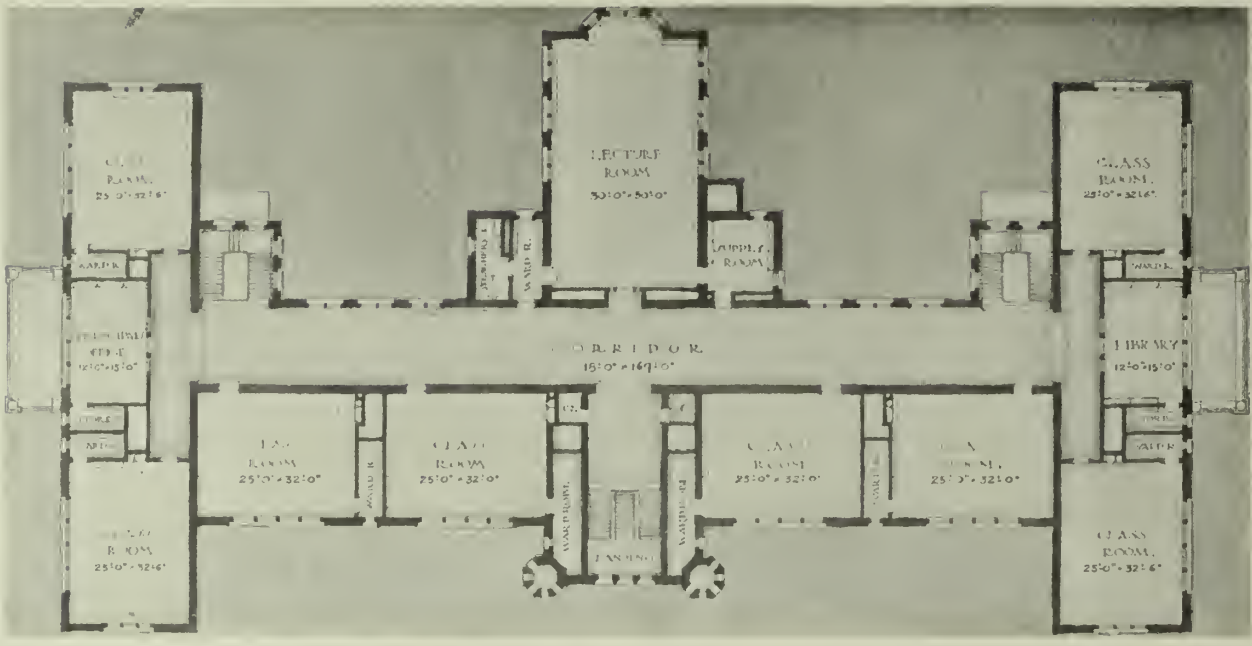
SECOND FLOOR PLAN.



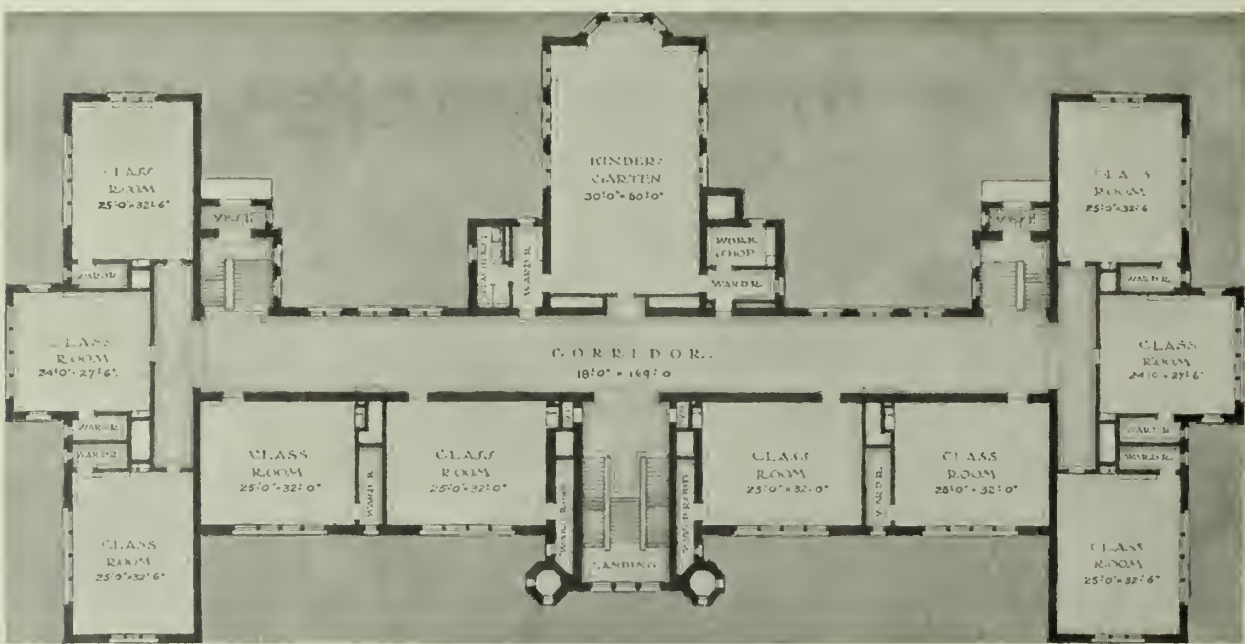
FIRST FLOOR PLAN.

HOSPITAL AT PLYMOUTH, MASS.

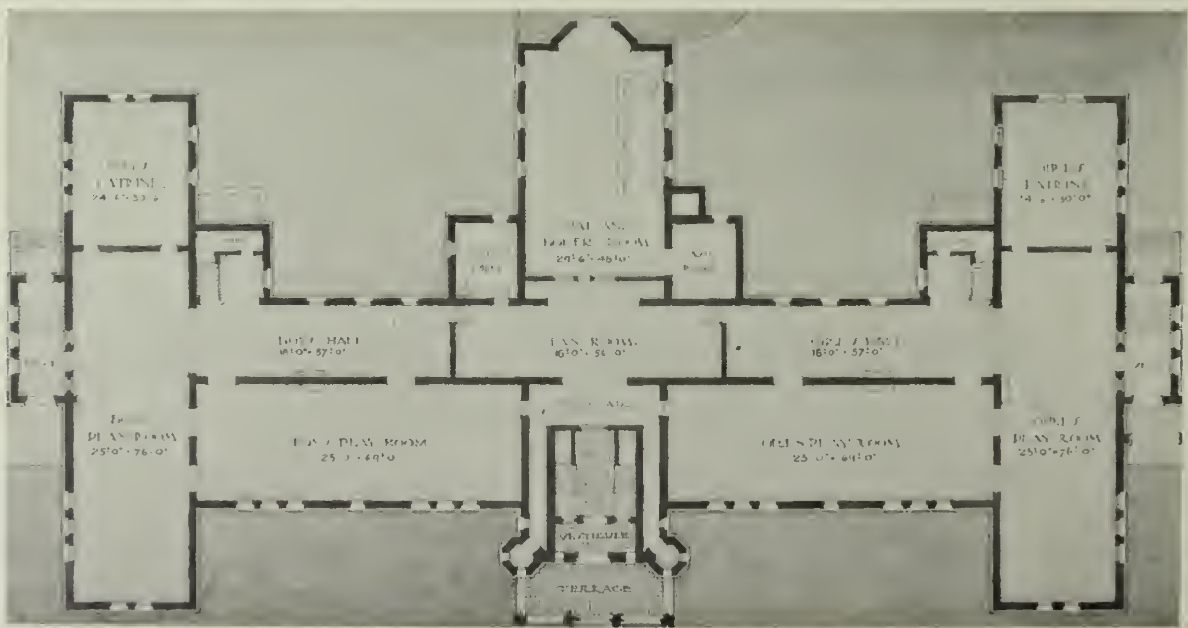
WILLIAM ATKINSON, ARCHITECT.



SECOND FLOOR PLAN.



FIRST FLOOR PLAN.



BASEMENT PLAN.

PLANS, EDWARD WYMAN SCHOOL, ST. LOUIS, MO.

WILLIAM B. ITTNER, ARCHITECT.

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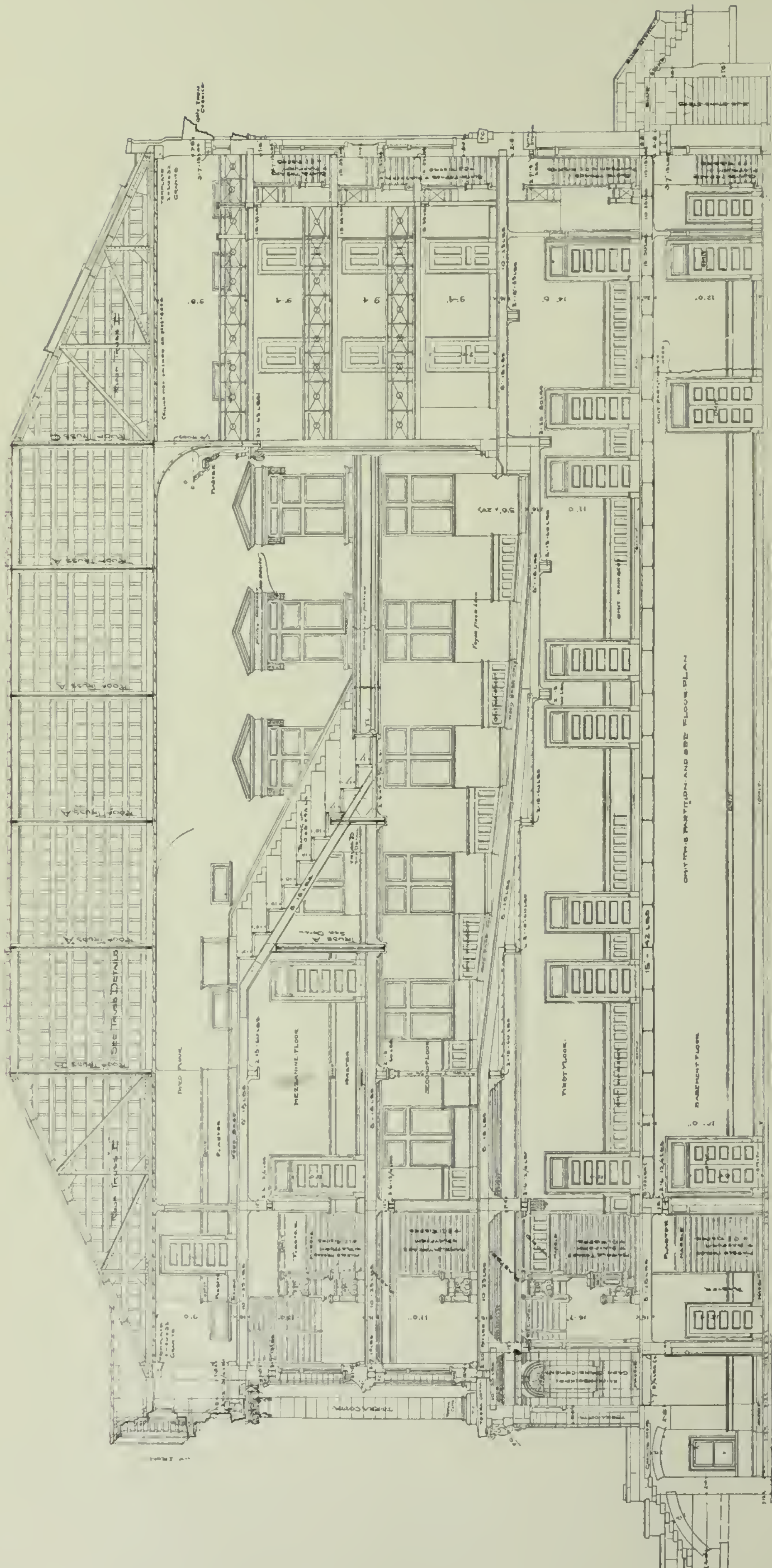
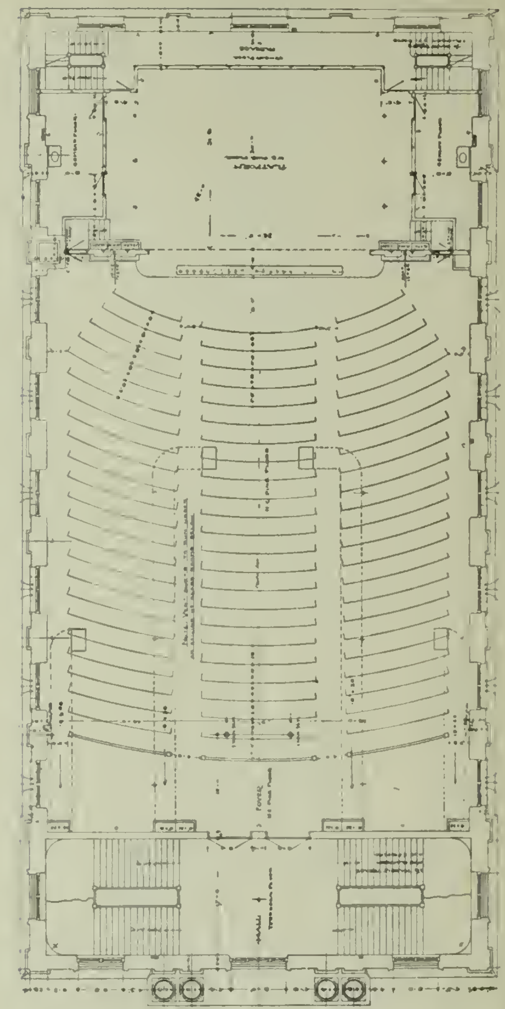
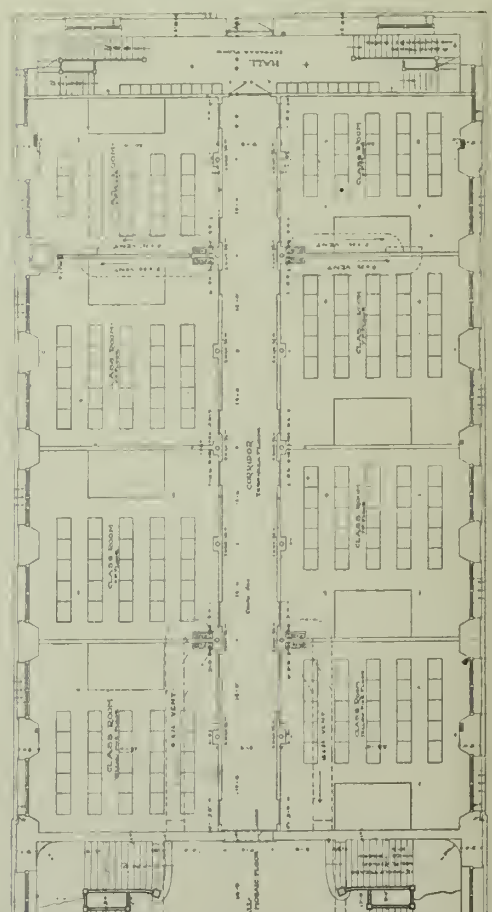


LONGITUDINAL SECTION.



SECOND FLOOR PLAN.

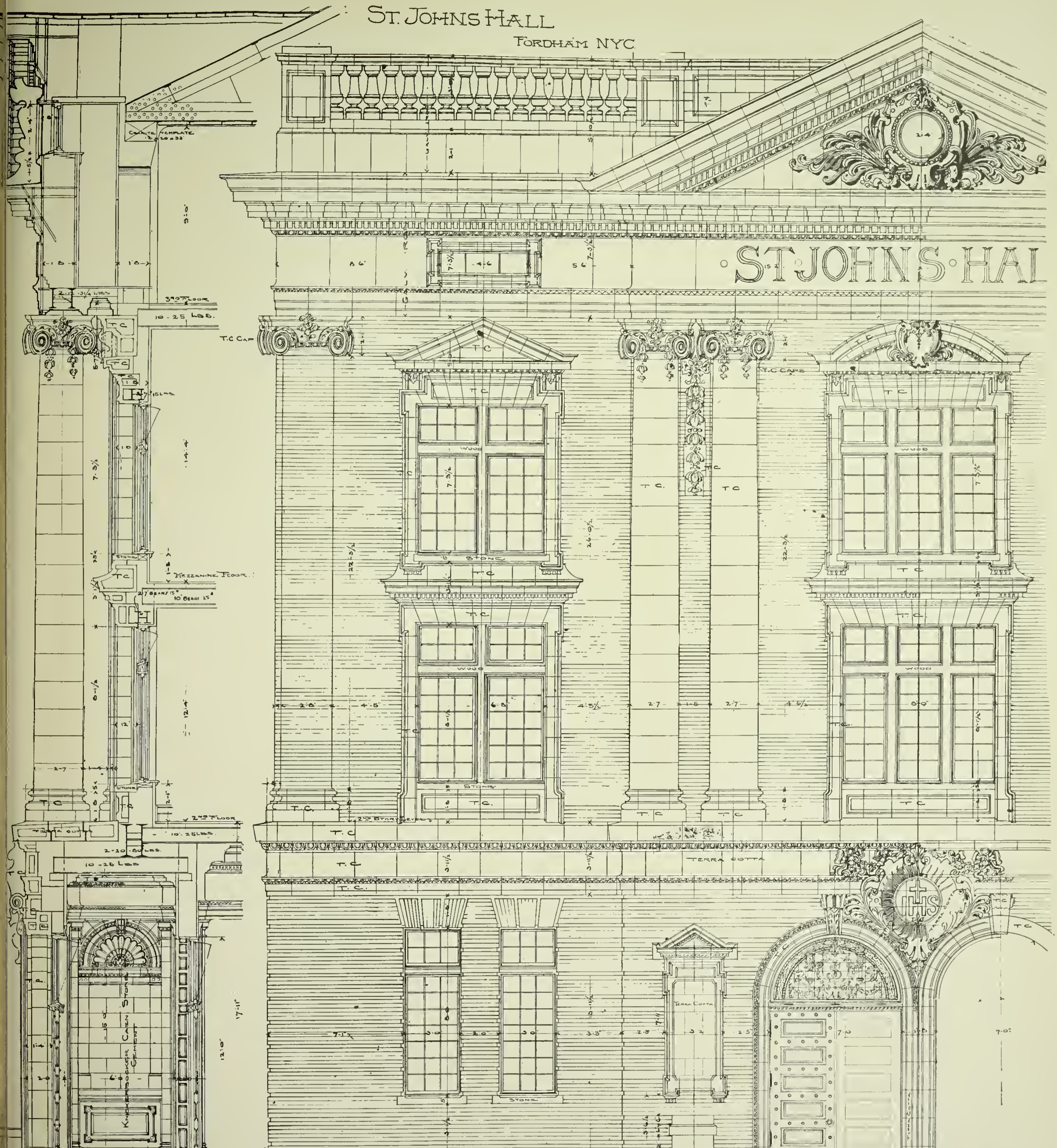


FIRST FLOOR PLAN.

ST. JOHNS HALL (FOR EDUCATION OF

JOHN E

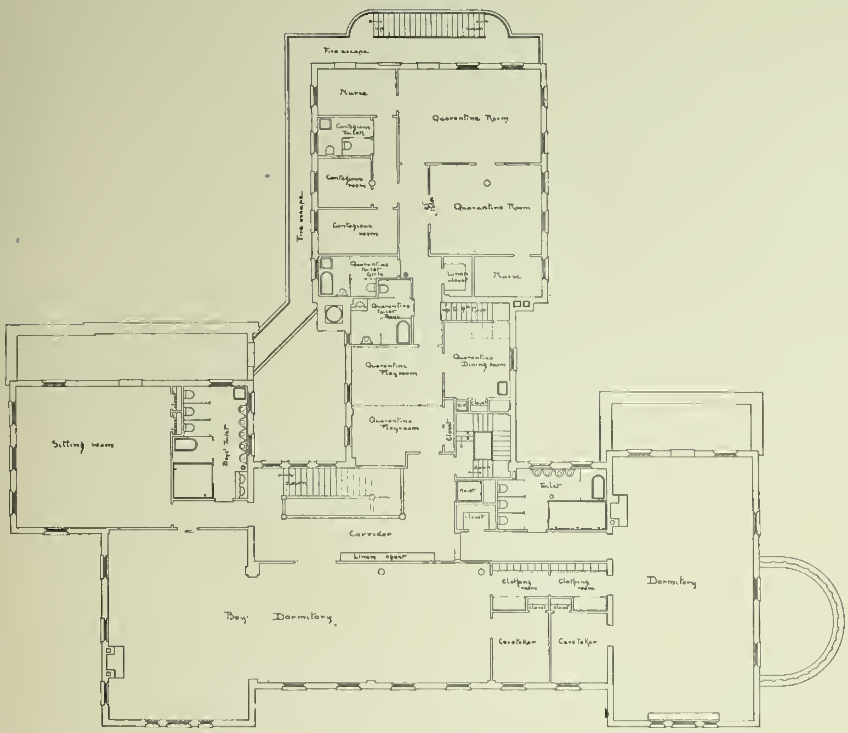
PLATES 74 and 79.



DETAIL OF FRONT ELEVATION.

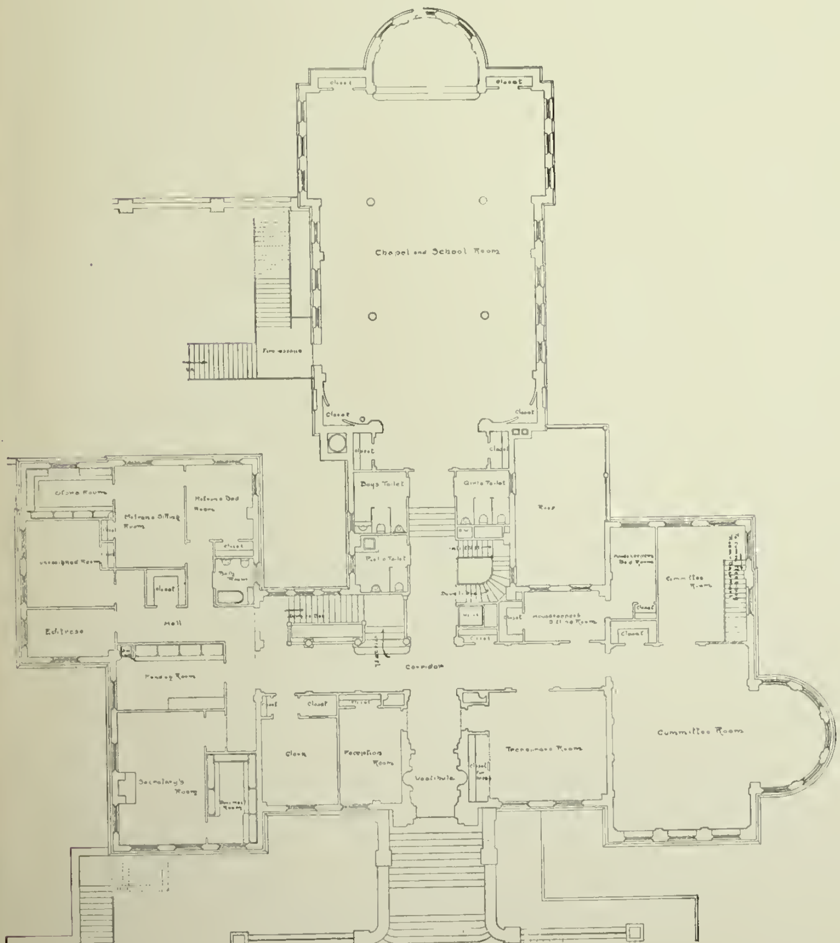
G PRIESTS), FORDHAM, NEW YORK CITY.

Y, RCHITECT.

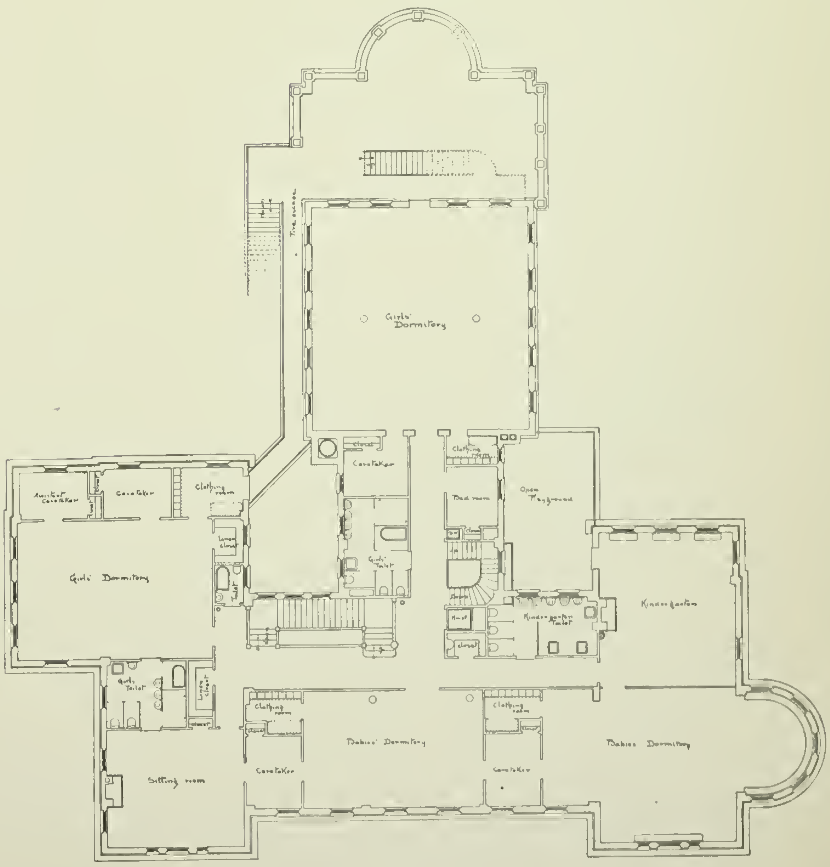


THIRD FLOOR PLAN.

FOURTH FLOOR PLAN.



FIRST FLOOR PLAN.



SECOND FLOOR PLAN.

PLANS, HOME FOR THE FRIENDLESS AND FEMALE GUARDIAN SOCIETY, NEW YORK CITY.

WILLIAM BURNET TUTHILL, ARCHITECT.

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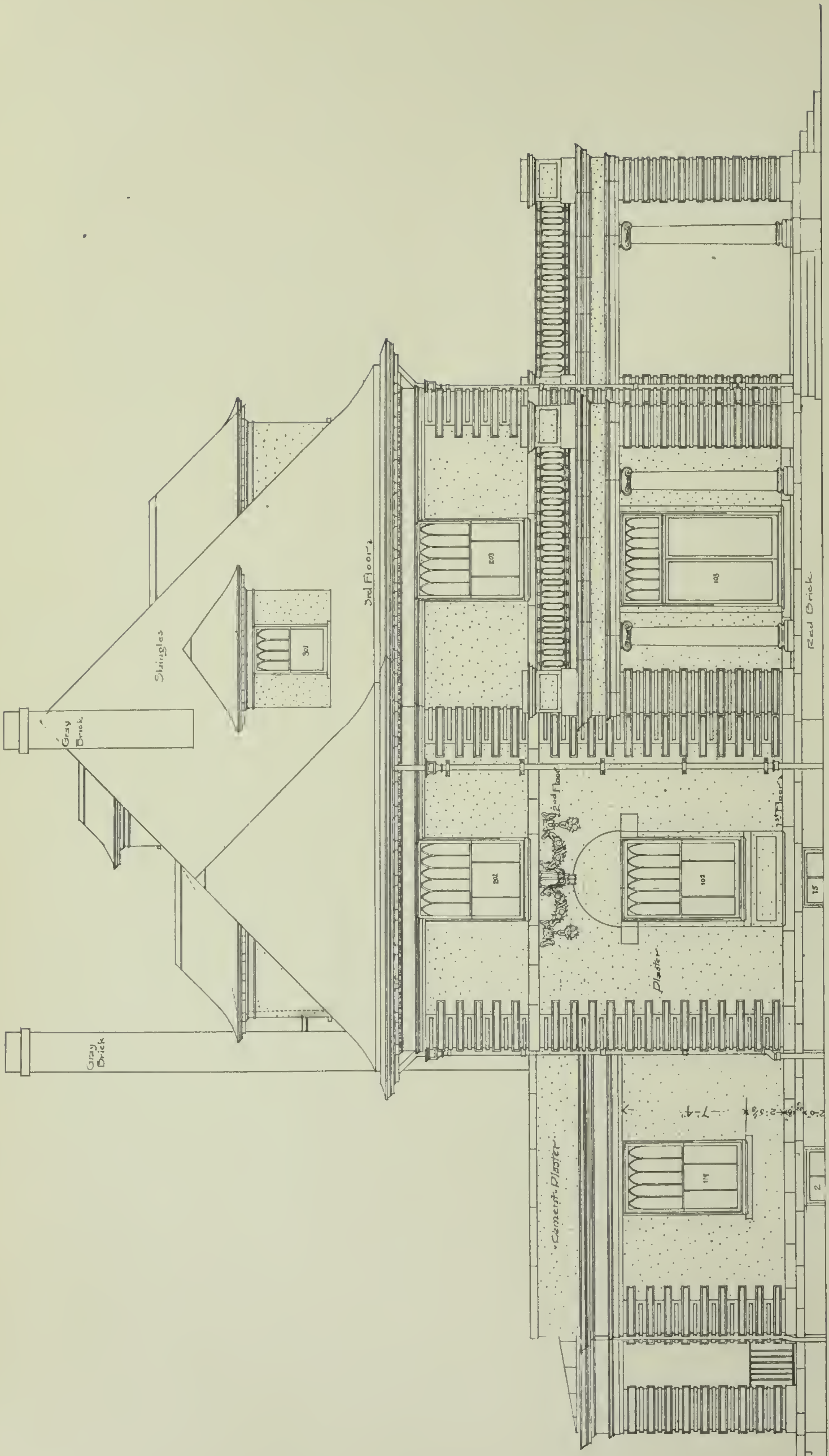
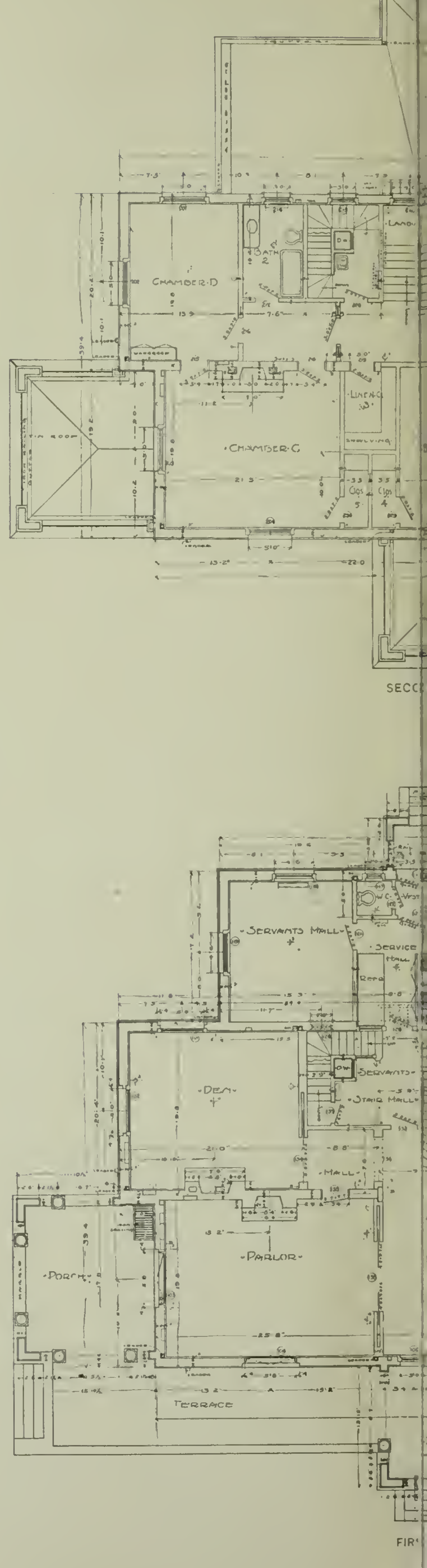
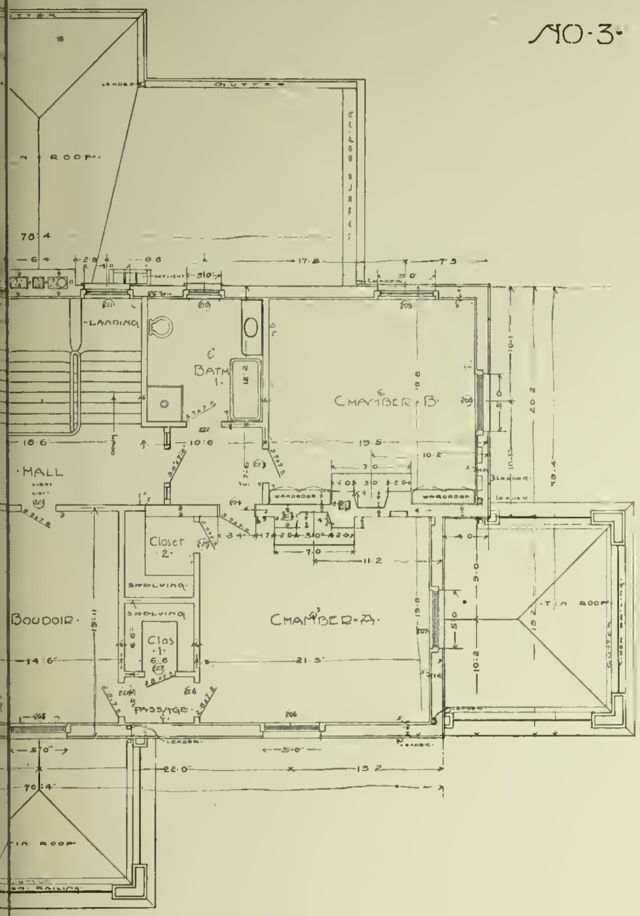


SIDE ELEVATION.

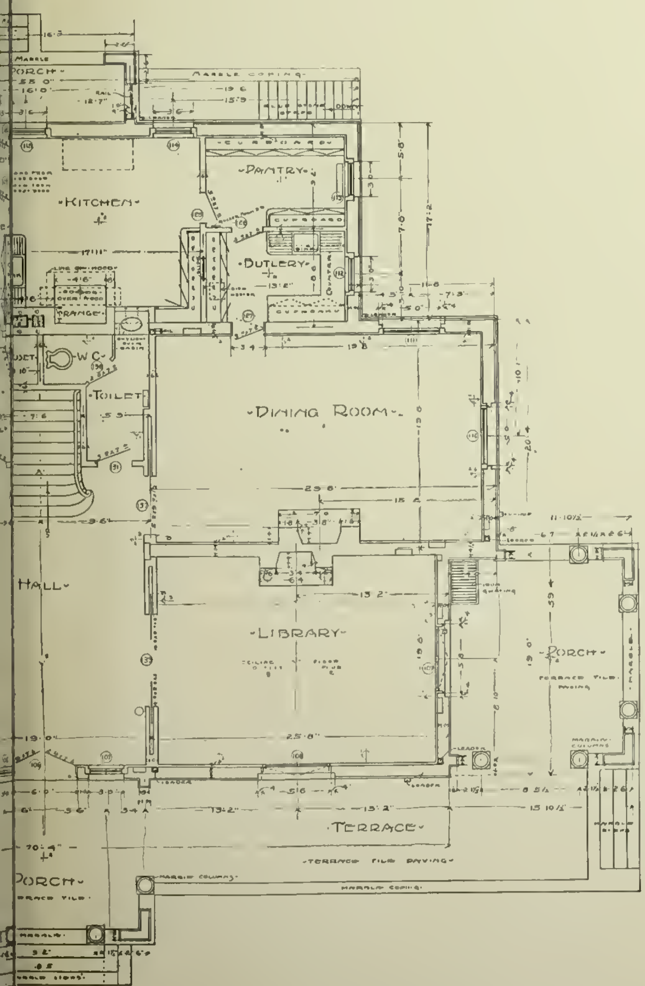


PLATES 75 and 78.

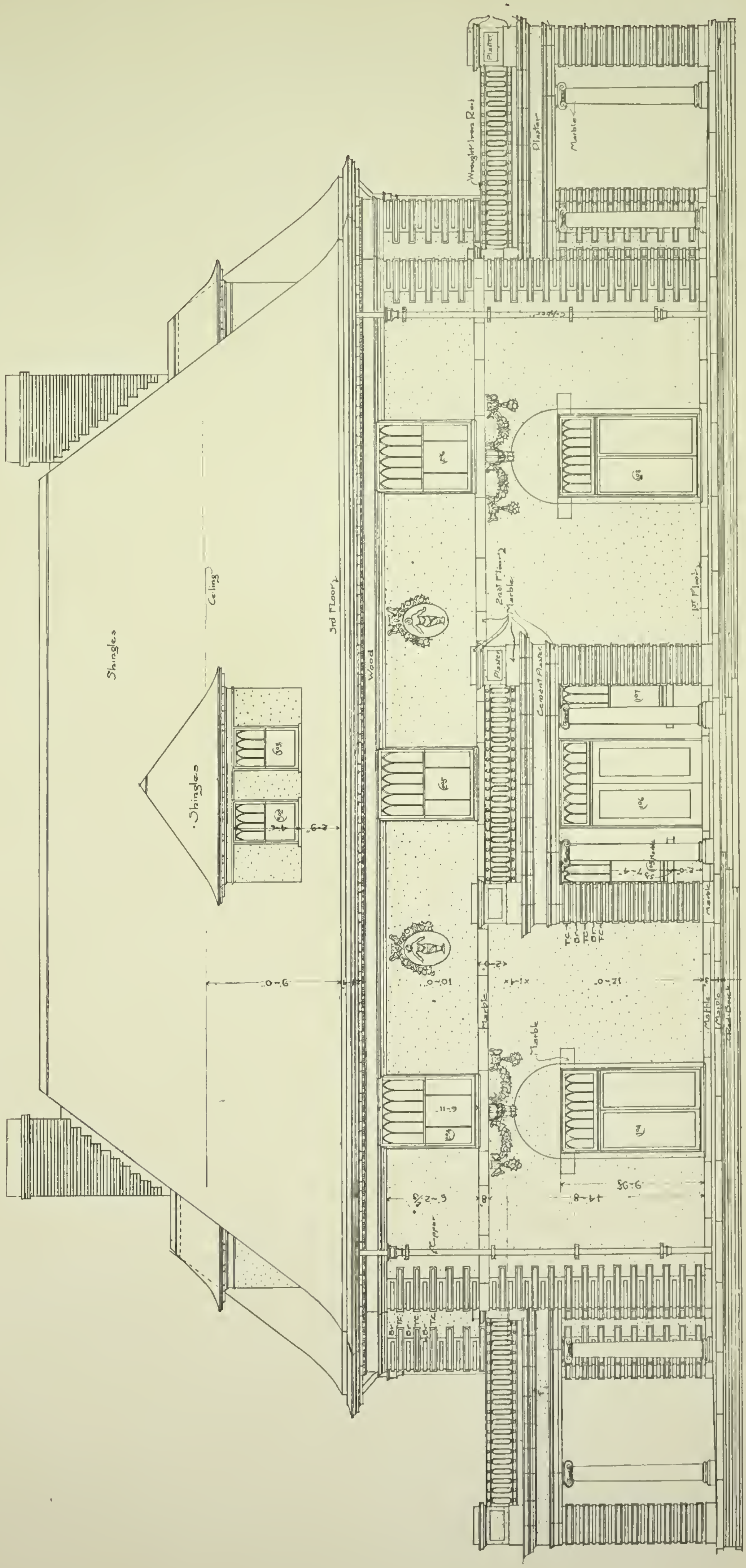
NO·3·



FLOOR PLAN.



FLOOR PLAN.

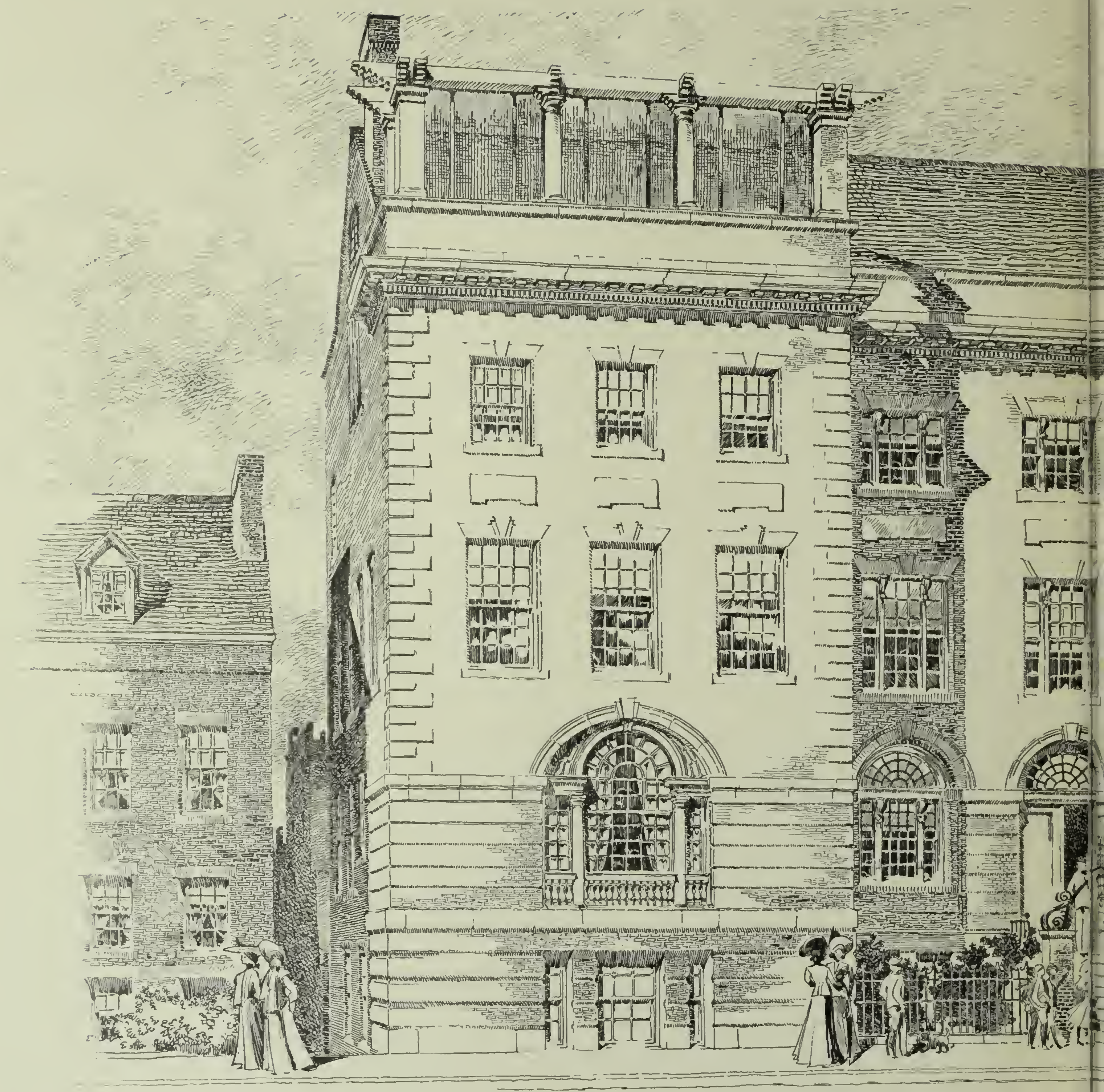


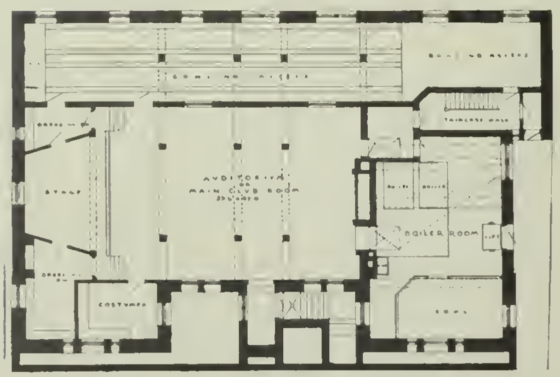
FRONT ELEVATION.

HOUSE AT LAKEWOOD, N. J.

BRUCE, PRICE & DE SIBOUR, ARCHITECTS.

VOL. 12. NO. 10.



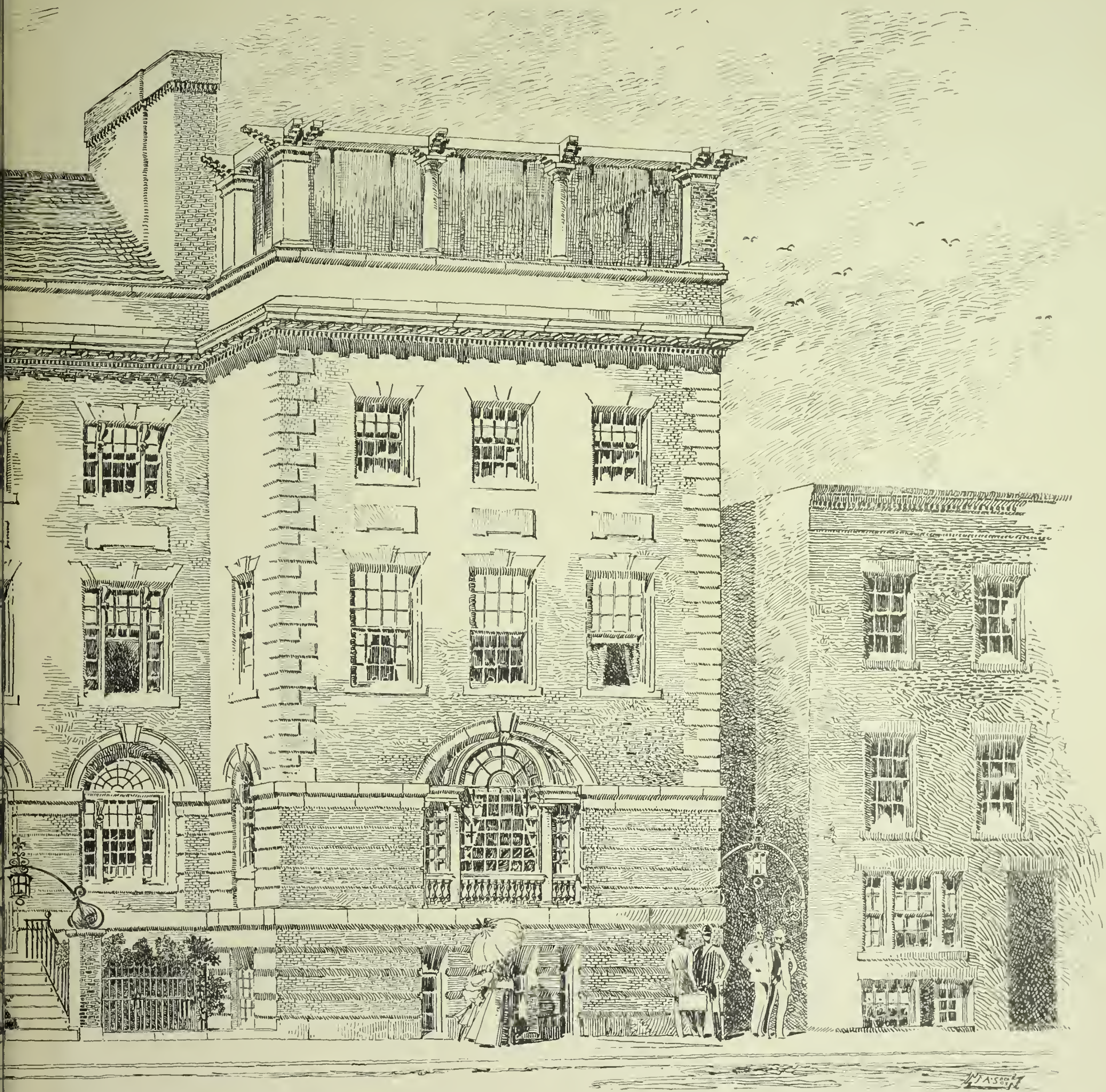


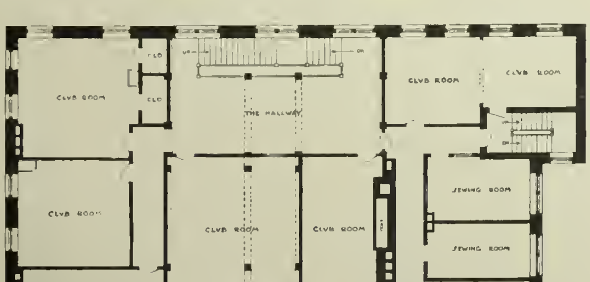
BASEMENT PLAN.

FIRST FLOOR PLAN.

CLUBHOUSE FOR THE LINCOLN HOUSE ASSC

PLATES 76 and 77.

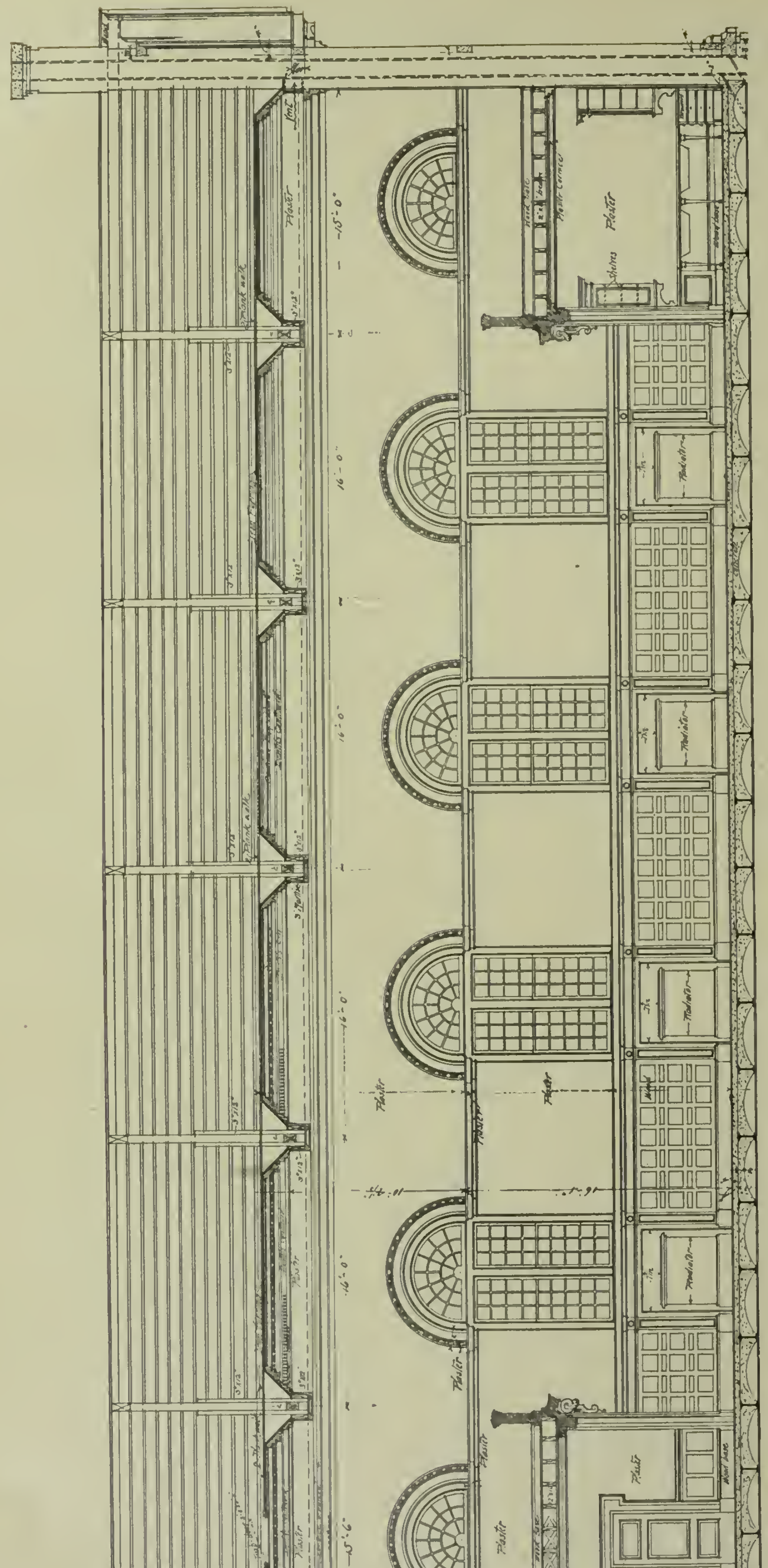




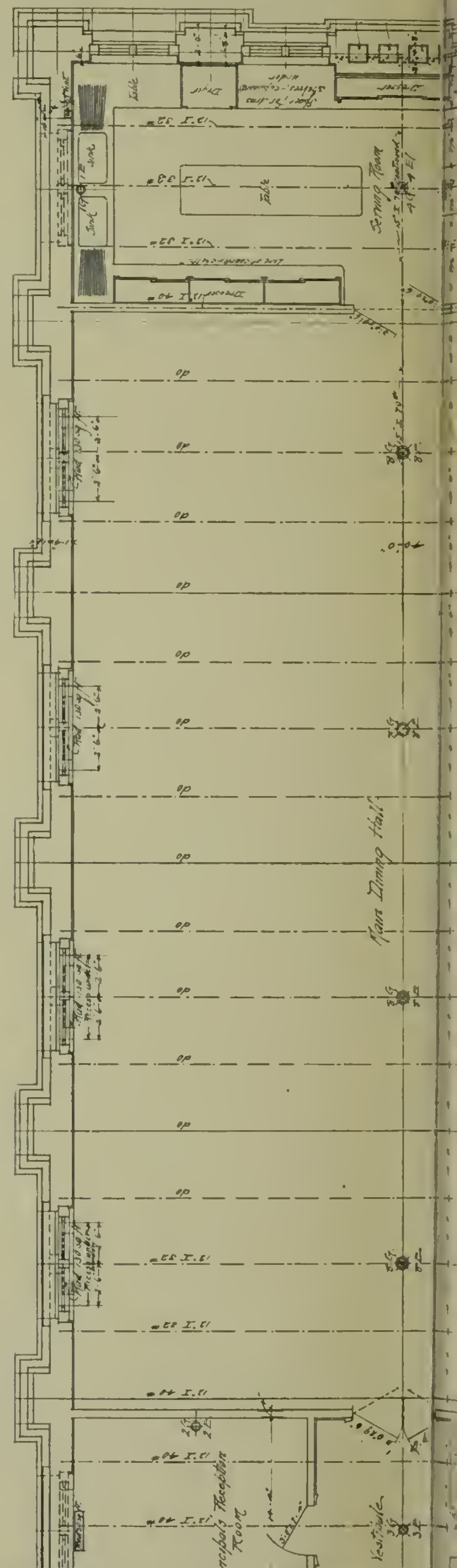
SECOND FLOOR PLAN.

THIRD FLOOR PLAN.

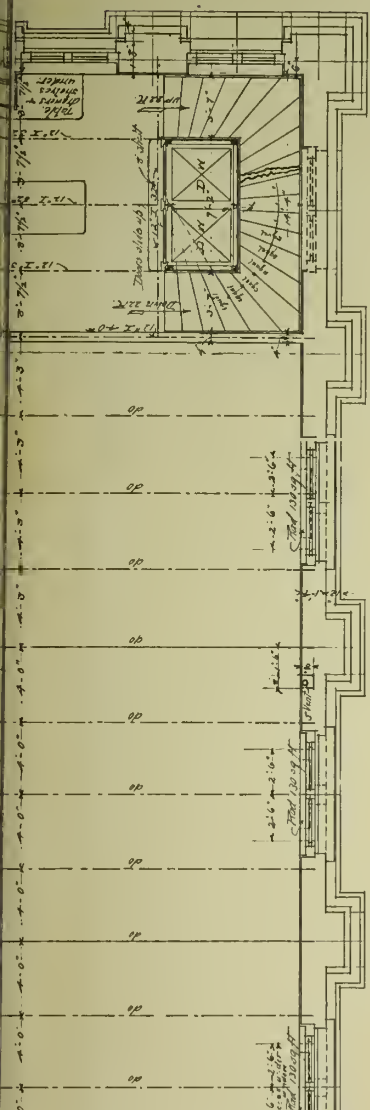
ATION, BOSTON. J. A. SCHWEINFURTH, ARCHITECT.



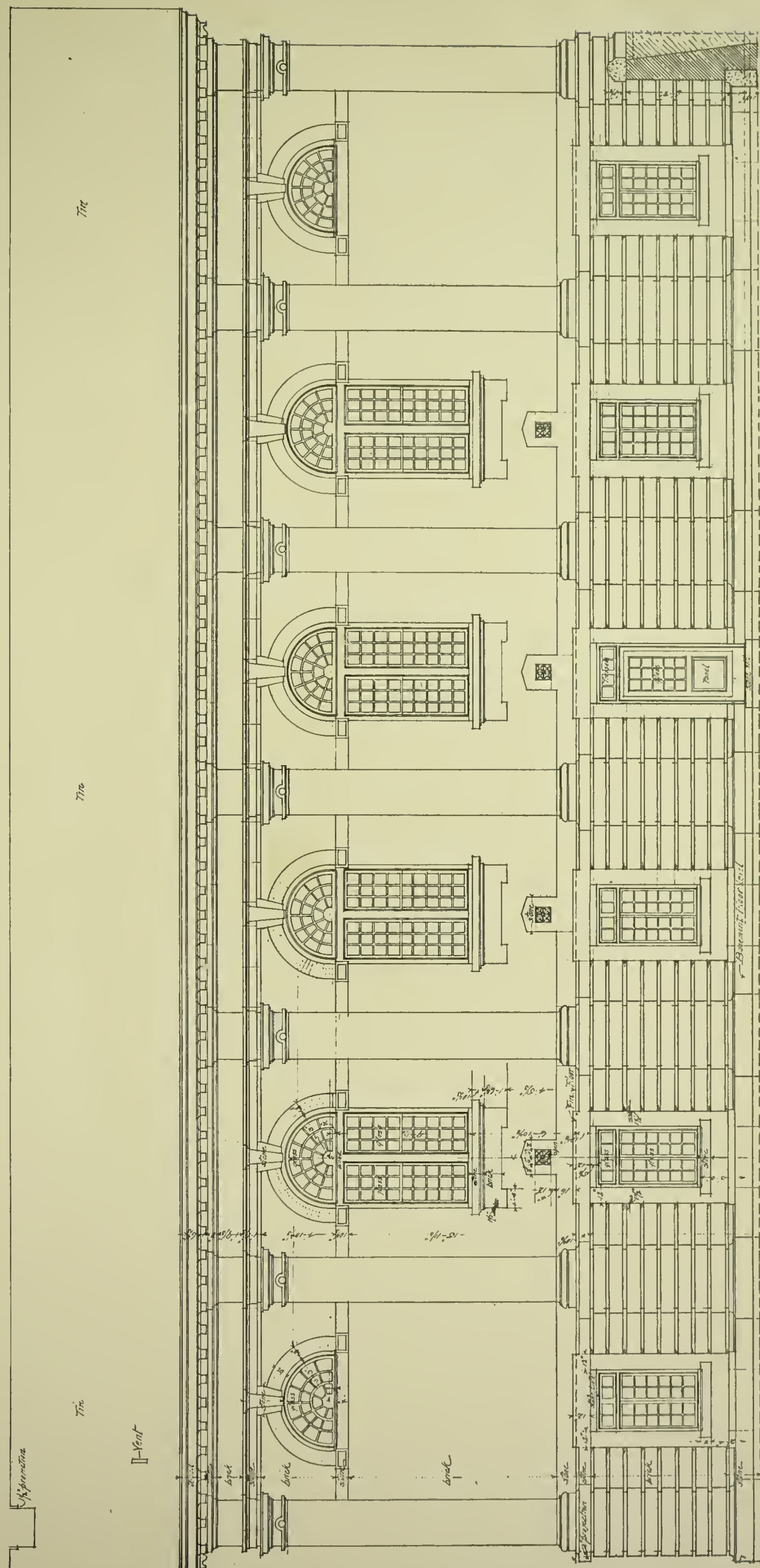
LONGITUDINAL SECTION.



PLATES 81 and 88.



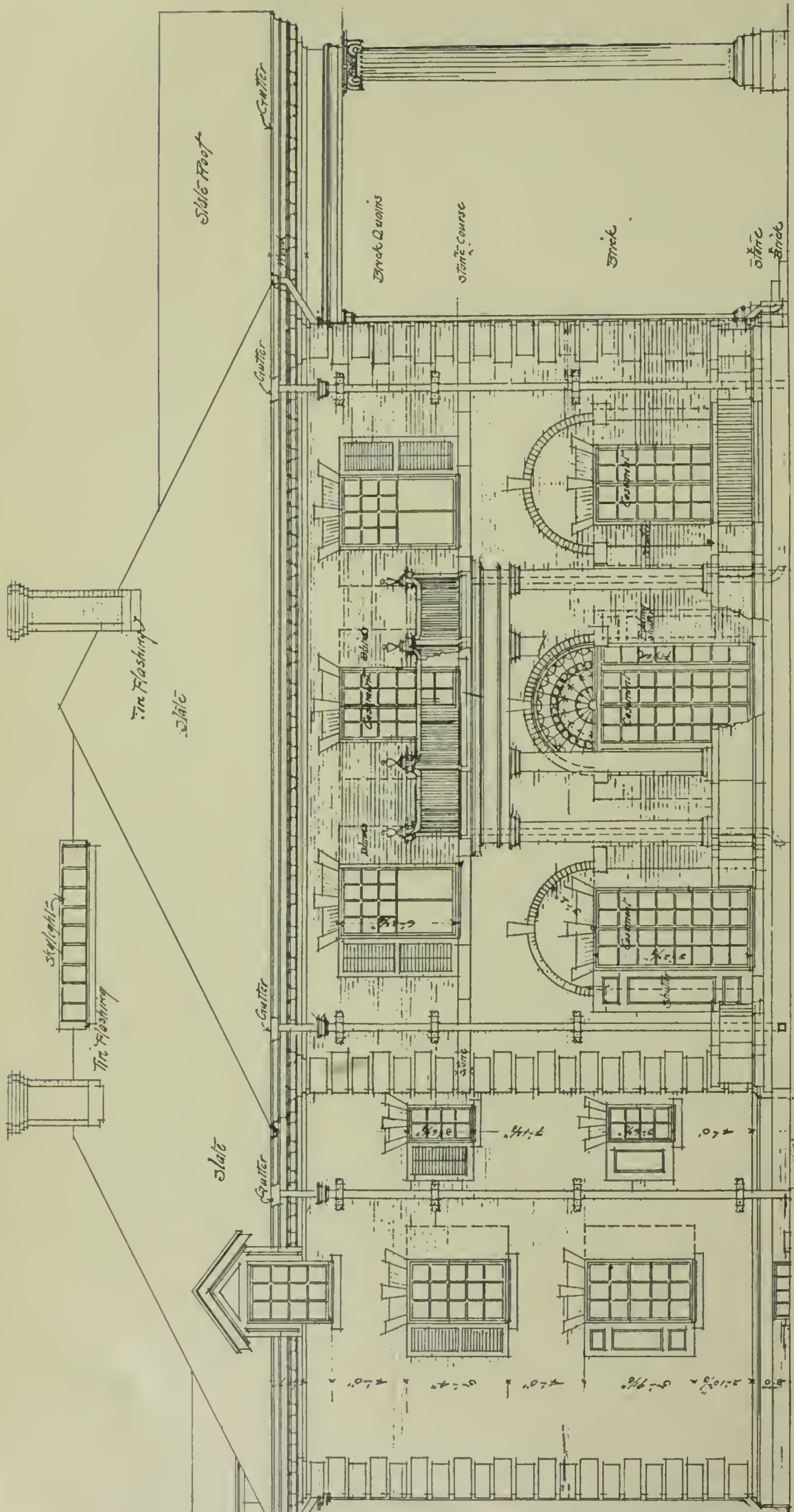
FIRST FLOOR PLAN.



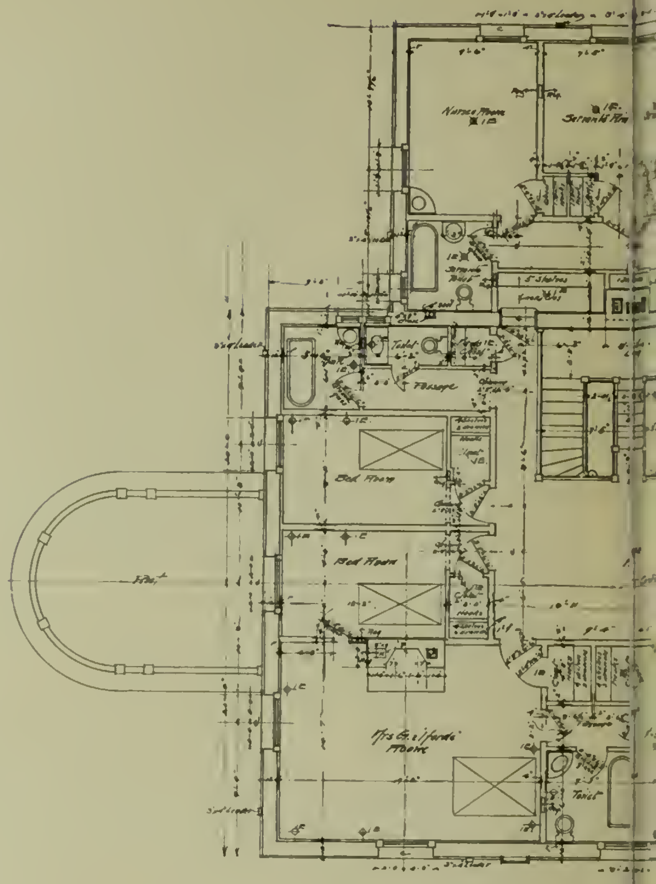
SIDE ELEVATION.

DINING HALL, PHILLIPS EXETER ACADEMY, EXETER, N. H.

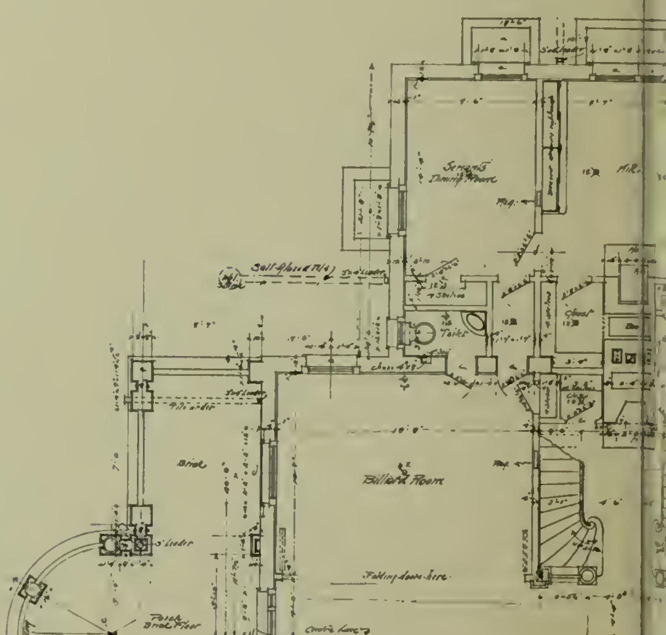
EDWARD PEARCE CASEY, ARCHITECT.



SIDE ELEVATION.

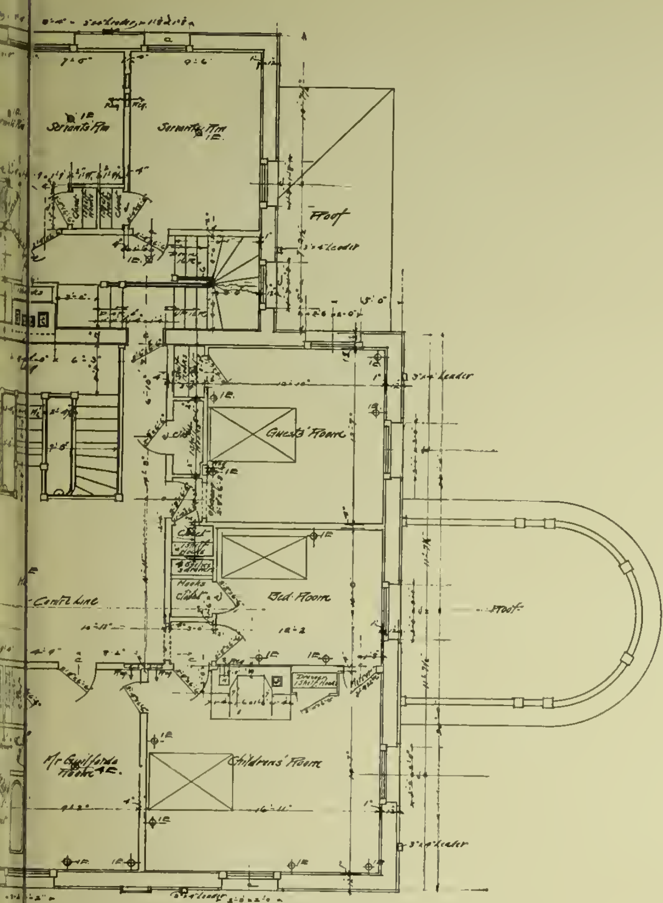


SECOND FLO

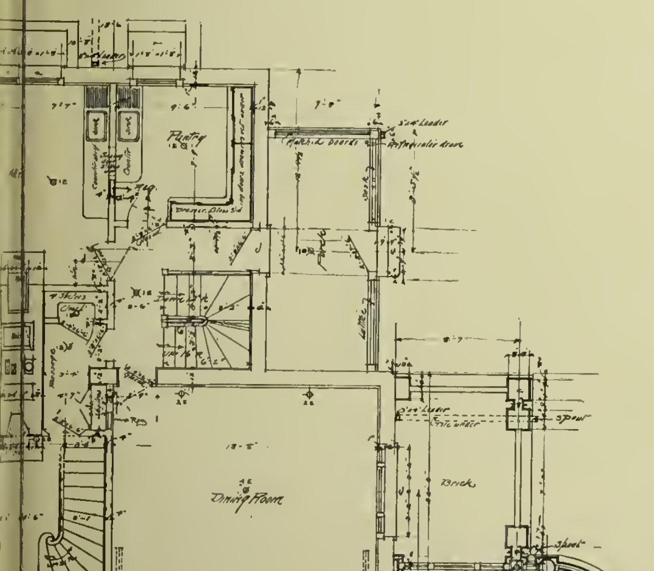


FIRST FLO

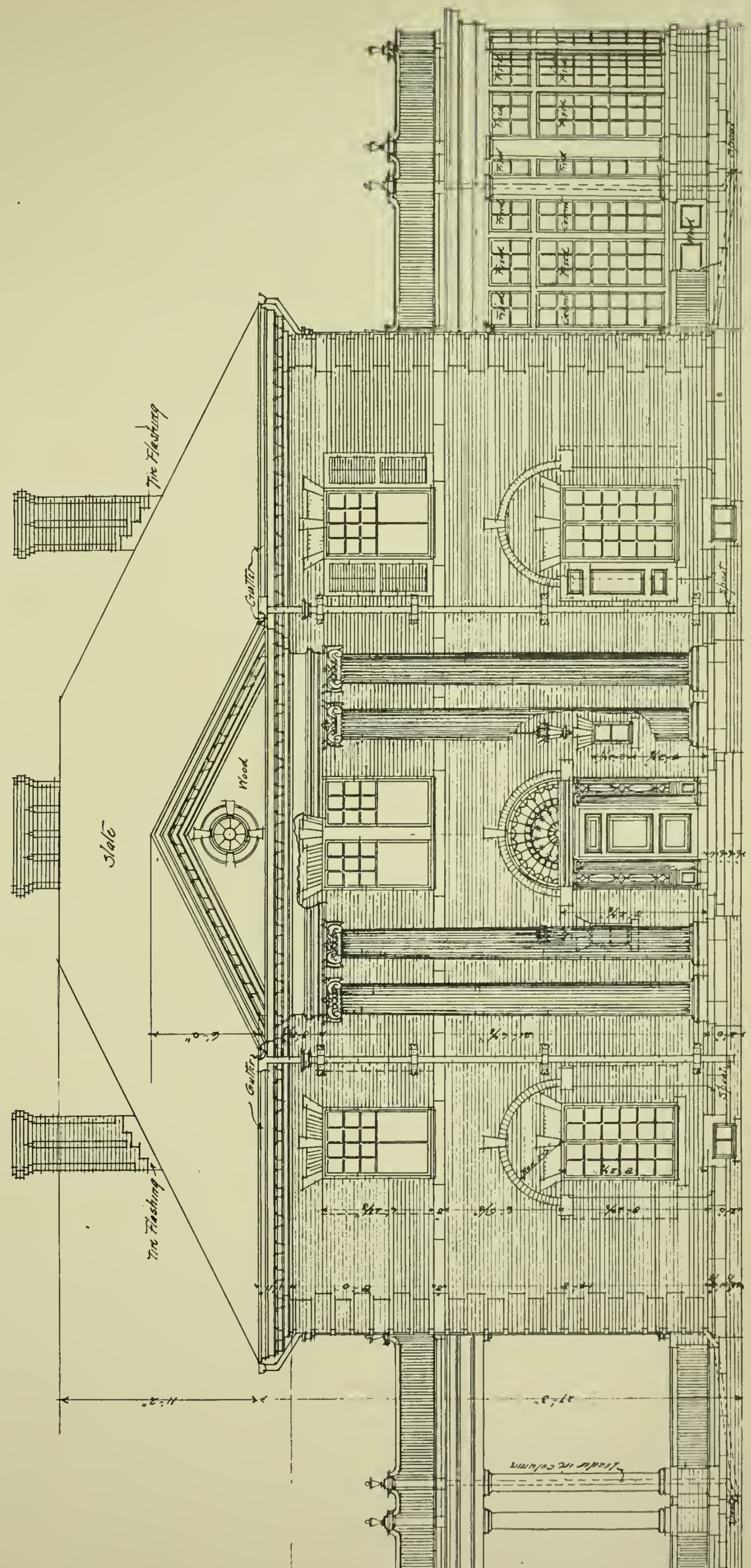
PLATES 82 and 87.



PLAN.



PLAN.



FRONT ELEVATION.

HOUSE AT LAKEWOOD N. J. EDWARD PEARCE CASEY, ARCHITECT.

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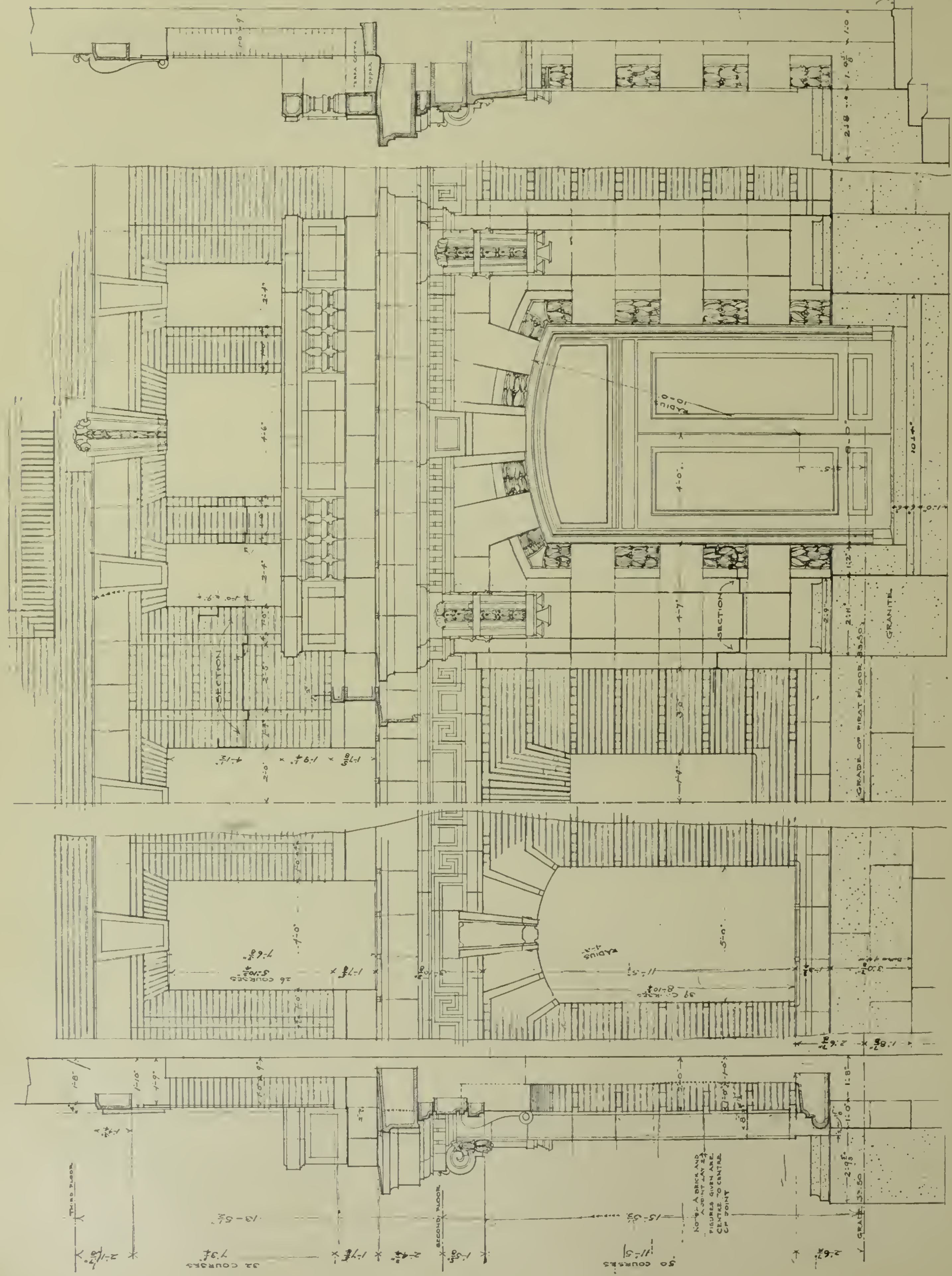


SECTION THROUGH ENTRANCE AND BALCONY.

MAIN ENTRANCE.

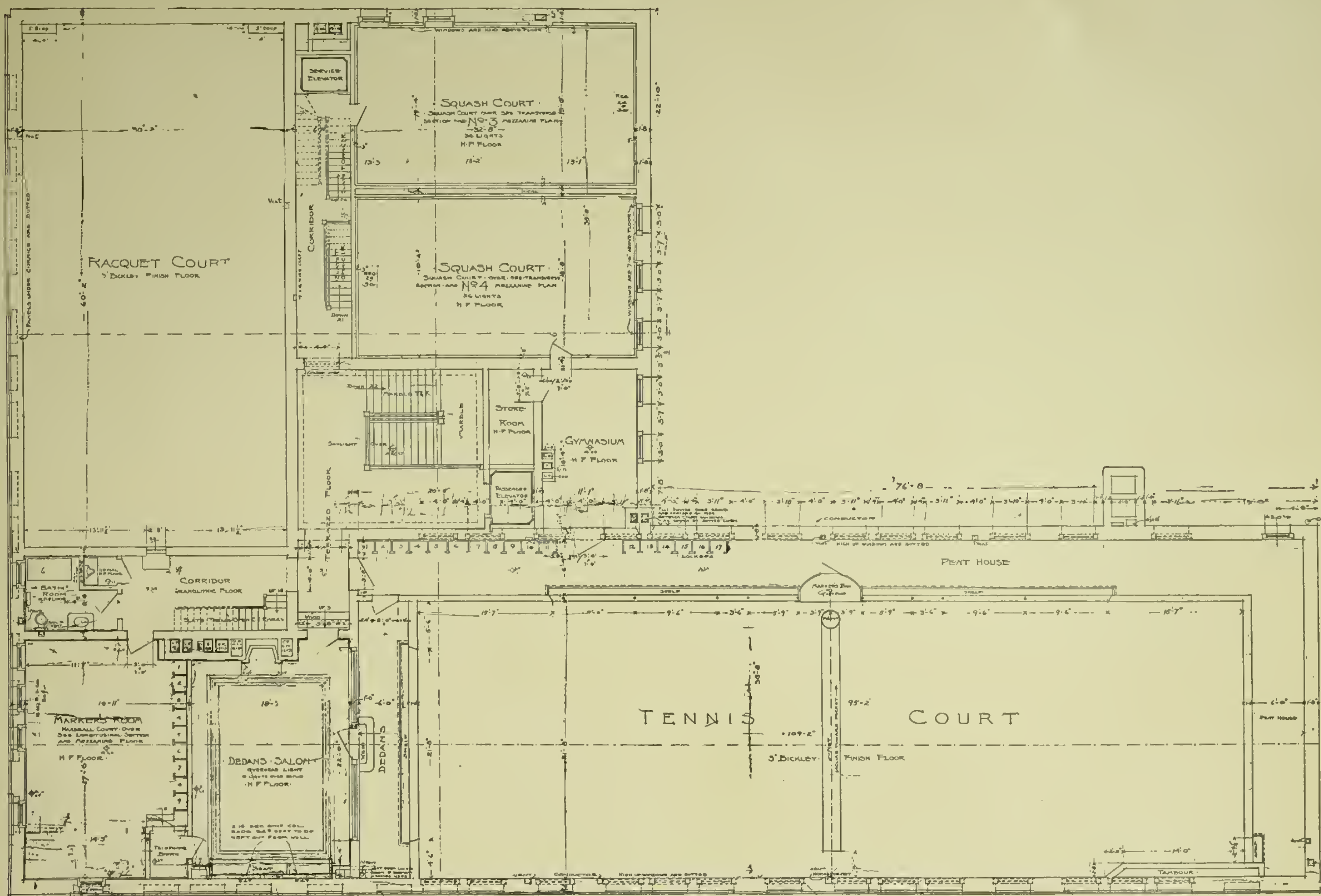
ELEVATION OF WINDOWS.

SECTION THROUGH WINDOWS AND SIDE OF MAIN ENTRANCE.

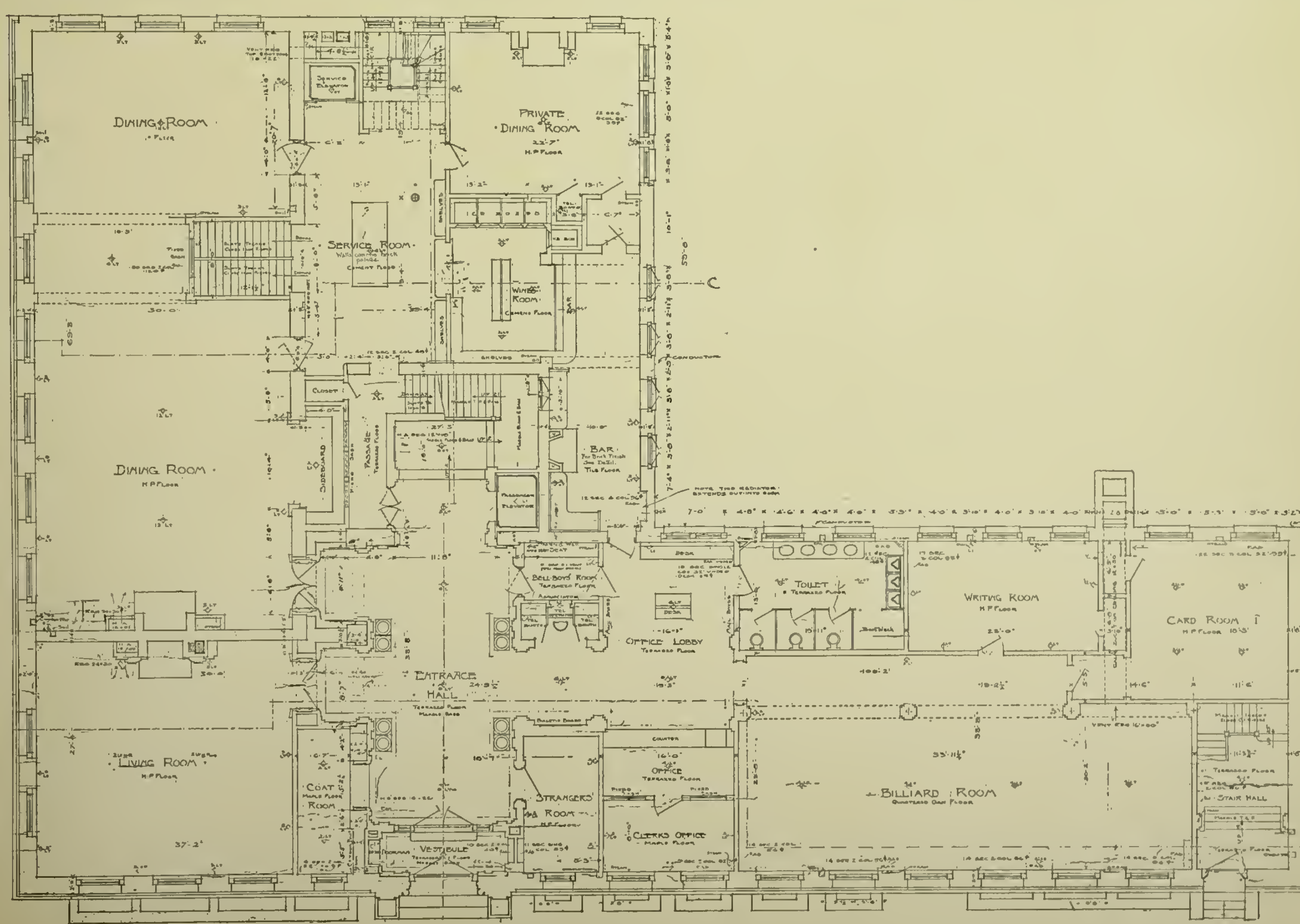
TENNIS AND RACQUET CLUB, BOYLSTON STREET BOSTON, MASS

PLATES 83 and 86.

TENNIS AND RACQUET CLUB, BOYLSTON STREET, BOSTON, MASS.



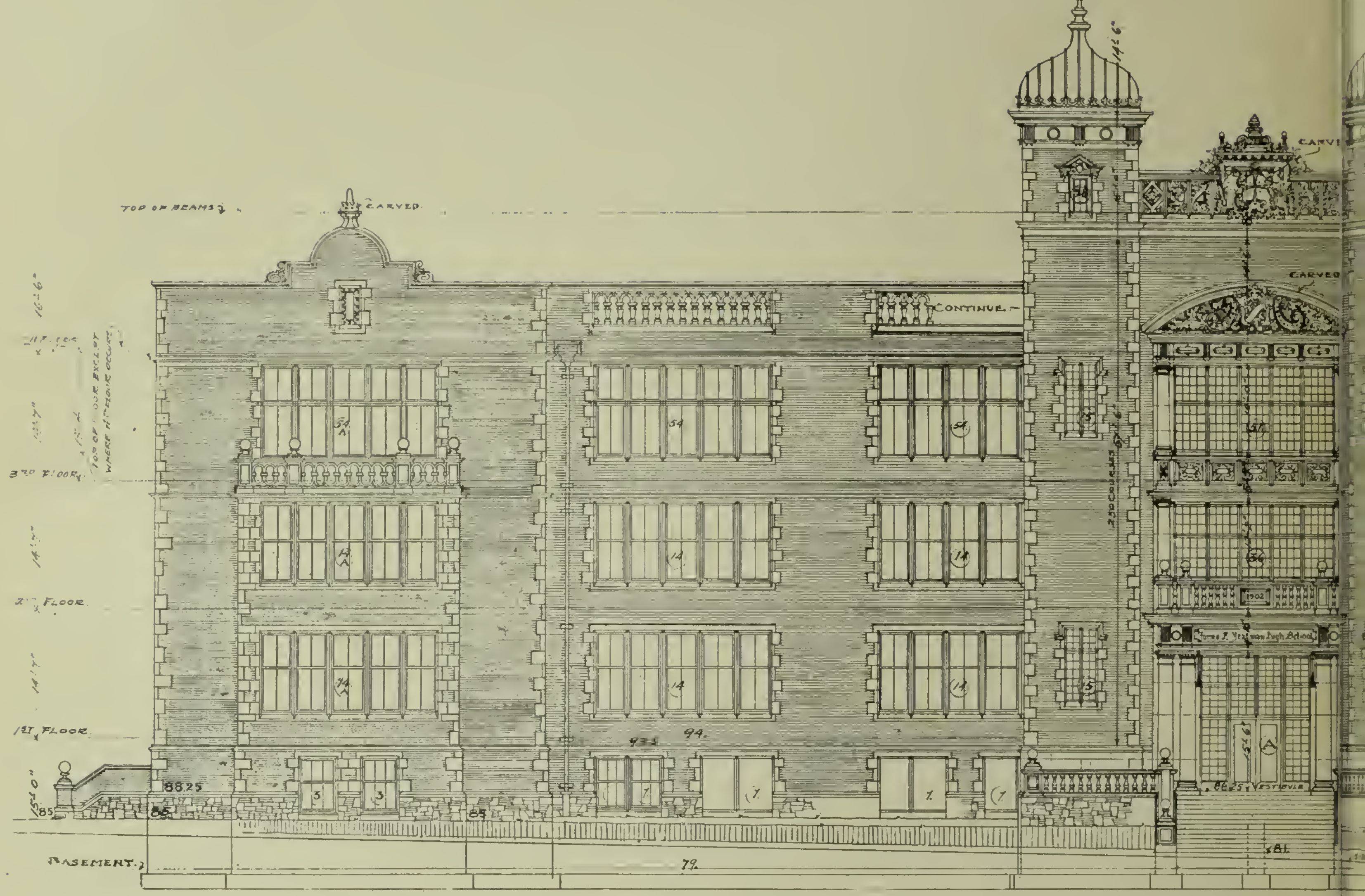
THIRD FLOOR PLAN.



FIRST FLOOR PLAN.

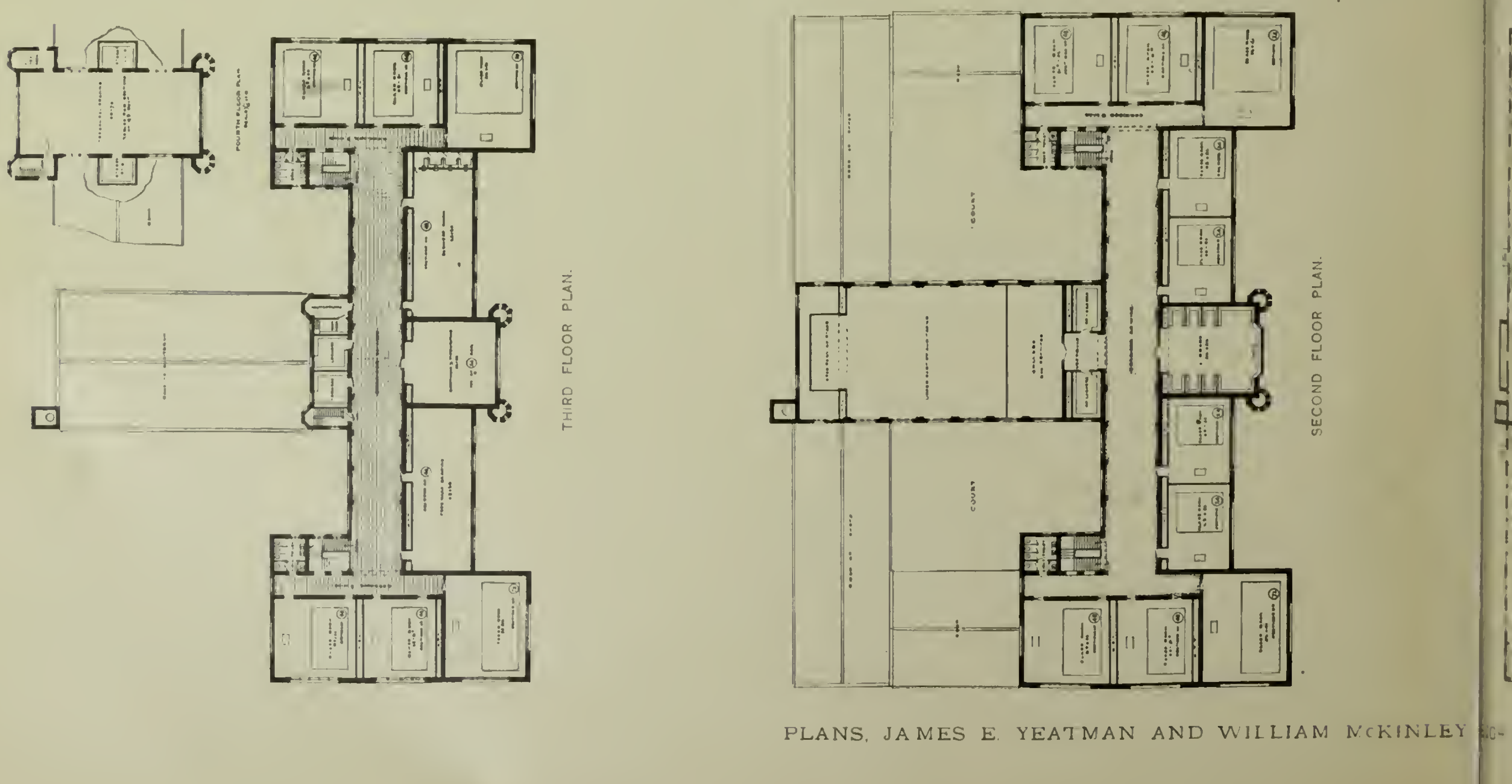
(SECOND FLOOR GIVEN OVER TO LOUNGING, LOCKER AND BED ROOMS.)

VOL. 12. NO. 11.



FRONT E

JAMES E. YEATMAN SCHOOL, ST

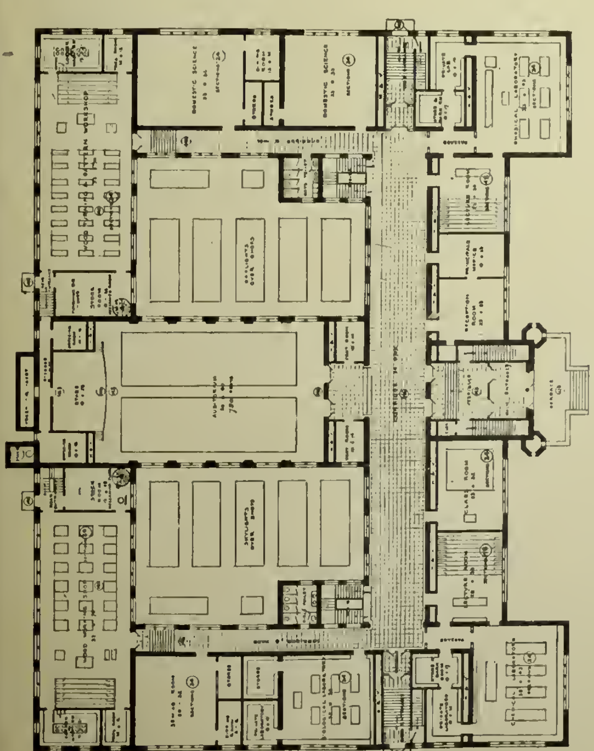


PLANS, JAMES E. YEATMAN AND WILLIAM McKINLEY

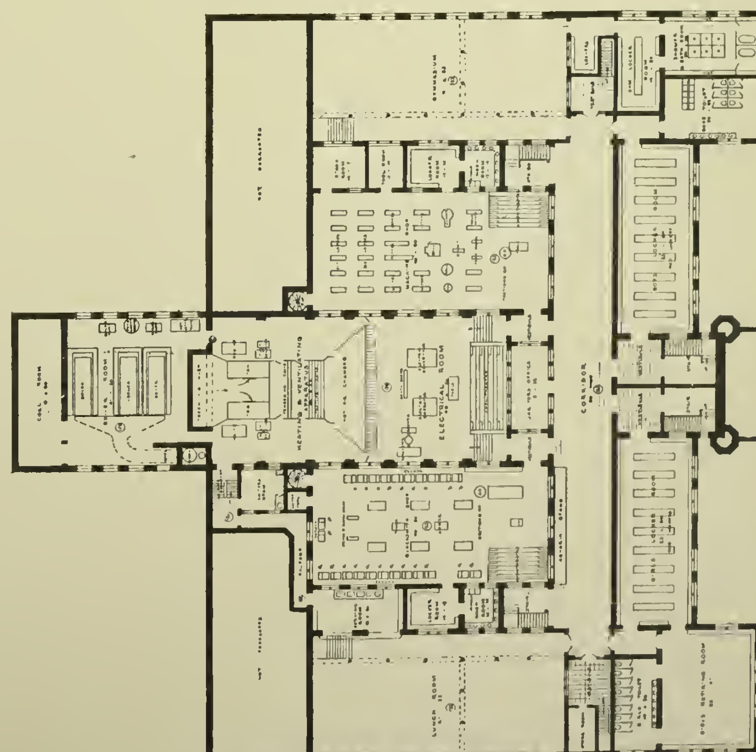
PLATES 84 and 85.

ATION.

T. LOUIS, MO. WILLIAM B. ITTNER, ARCHITECT.

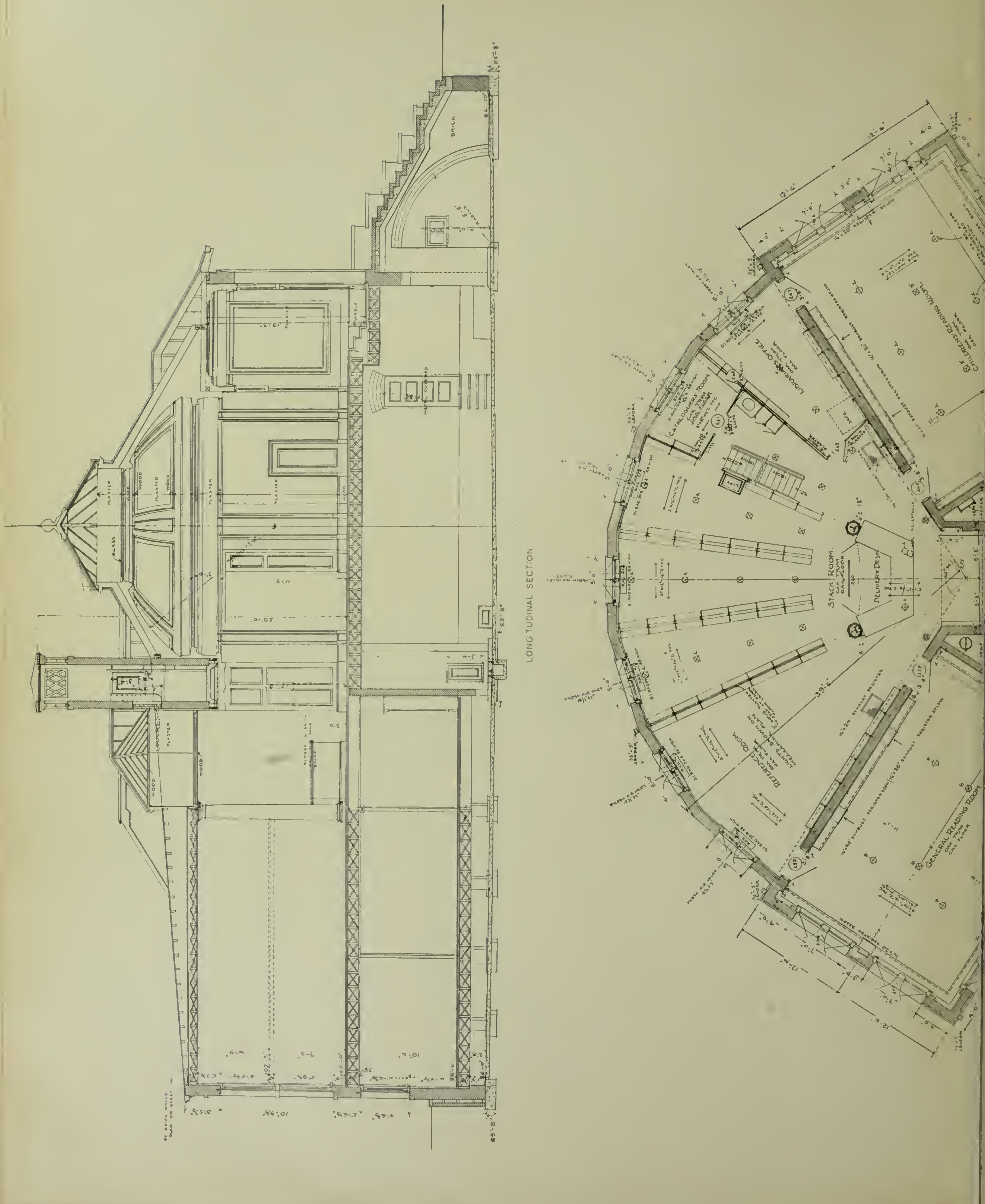


FIRST FLOOR PLAN.

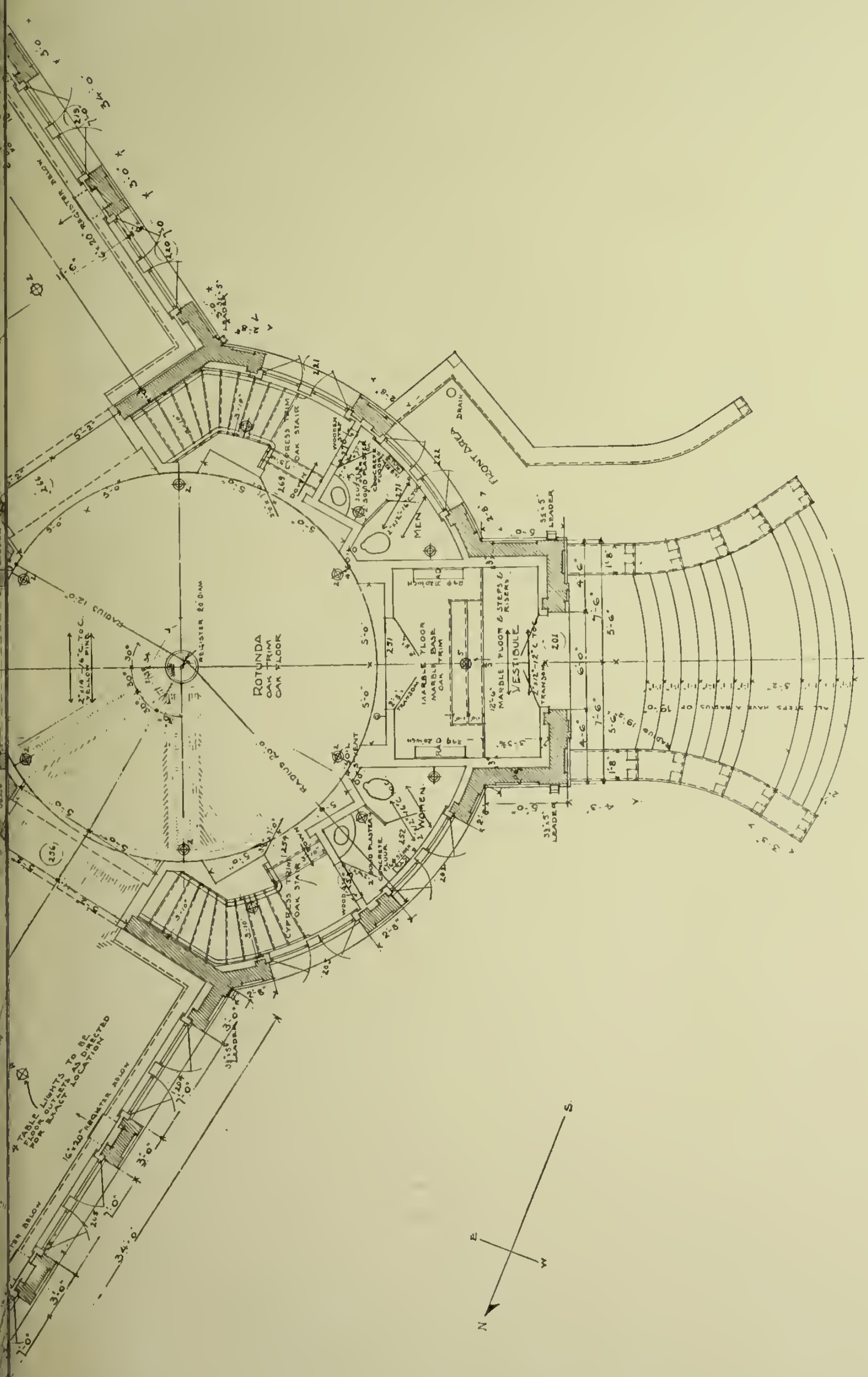


BASEMENT PLAN.

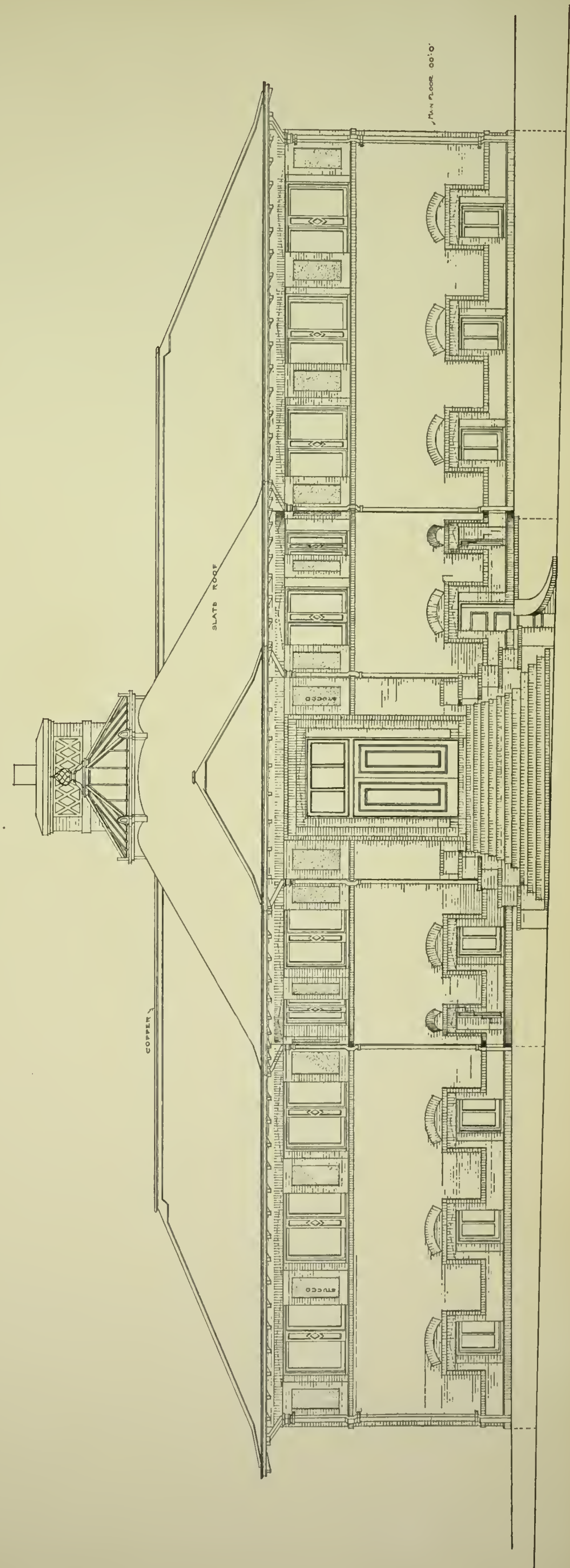
IGH SCHOOLS, ST. LOUIS, MO. WILLIAM B. ITTNER, ARCHITECT.


LONGTUDINAL SECTION.
STACK ROOM
DELIVERY DESK
REFERENCE ROOM
GENERAL READING ROOM
CHILDREN'S READING ROOM
LIBRARIAN'S OFFICE
CATALOGUE'S ROOM
BRICK
PLASTER
WOOD
GLASS
LOUVRES

PLATES 89 and 96.

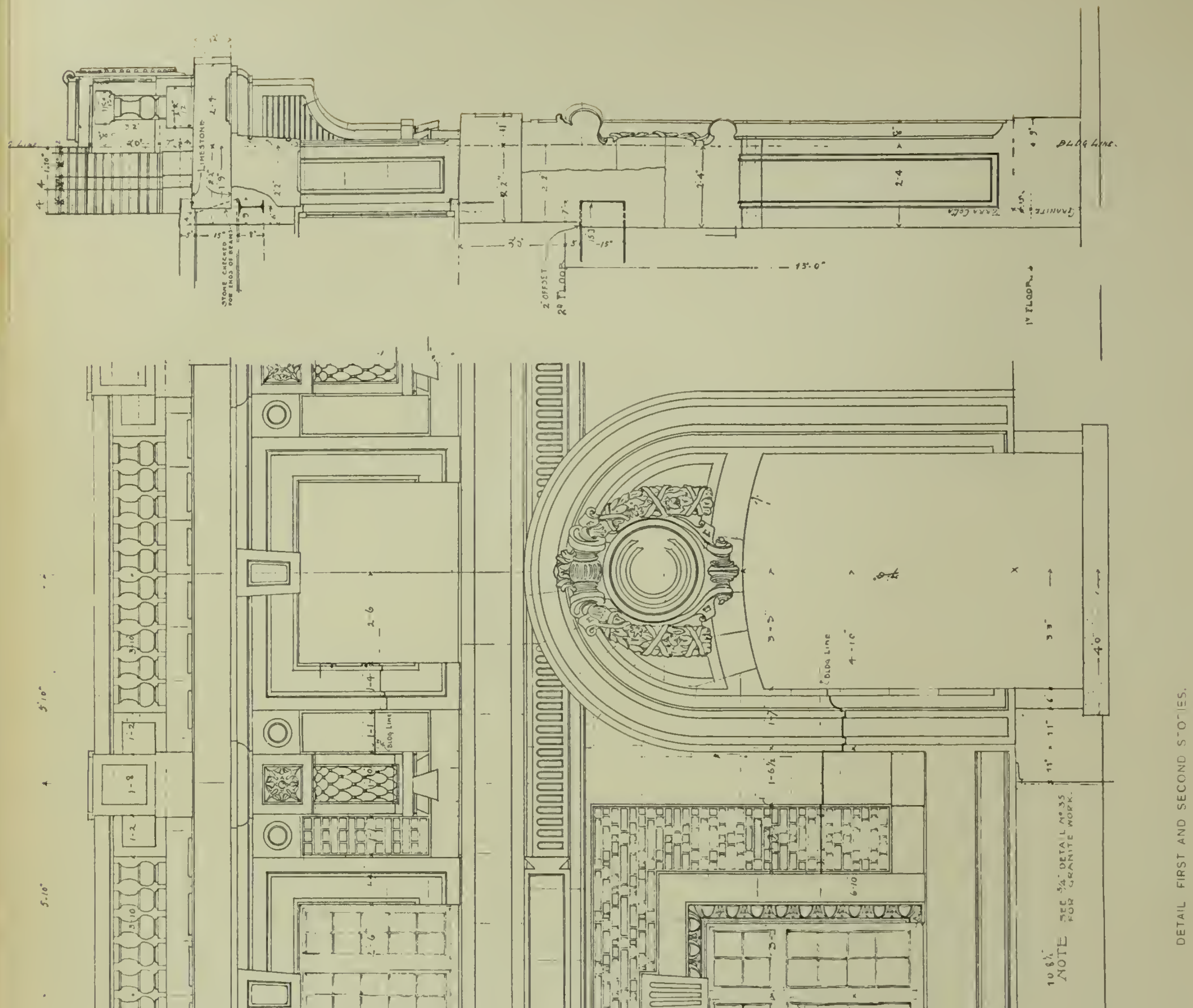


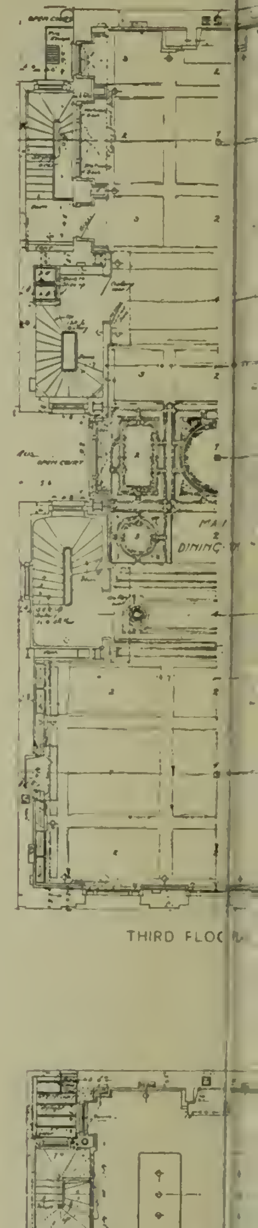
FIRST FLOOR PLAN.



FRONT ELEVATION.

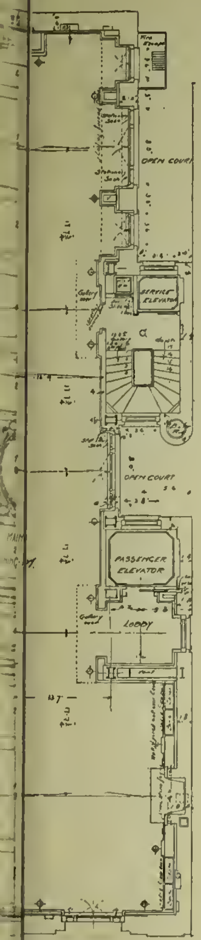
PUBLIC LIBRARY, MONTCLAIR, N. J. JOHN GALEN HOWARD AND D. EVERETT WAID, ARCHITECTS.



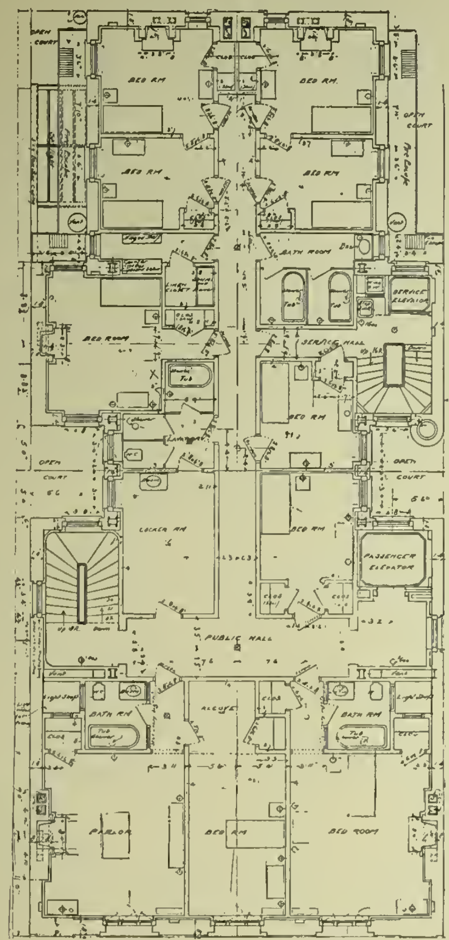


CITY CLUB, 55 AND 57 WEST 44TH STREET

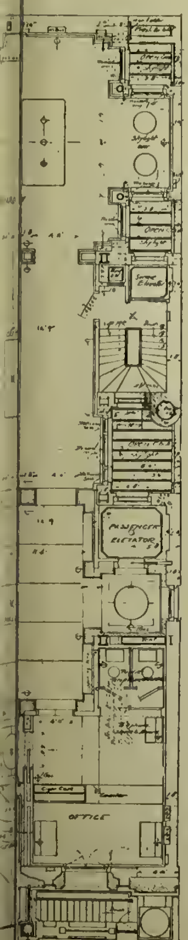
PLATES 91 and 94.



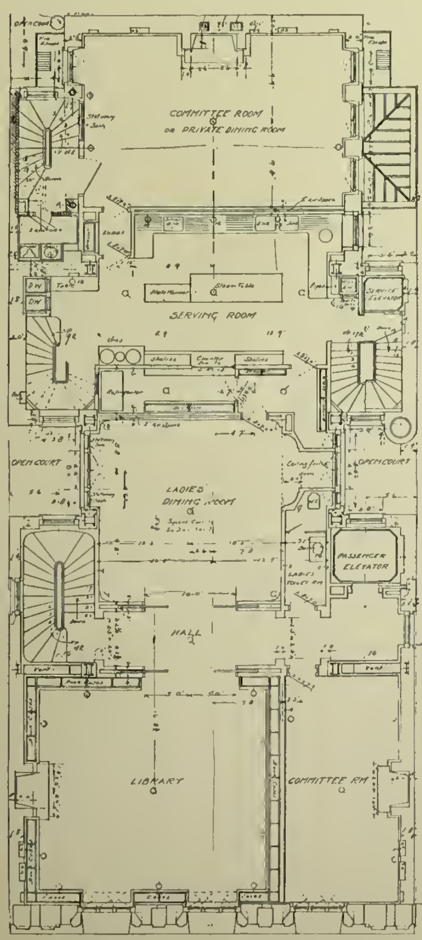
PLAN.



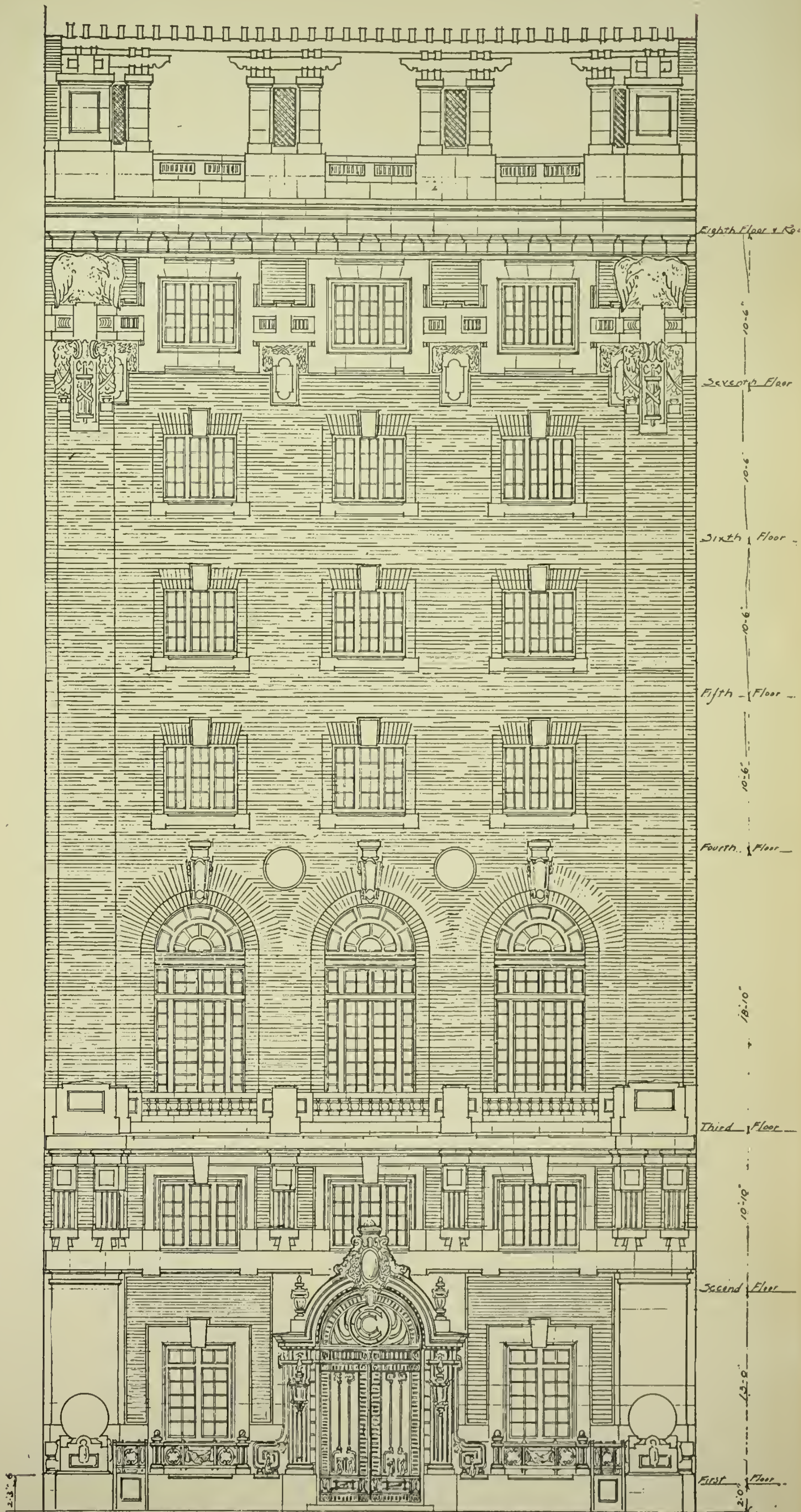
FOURTH FLOOR PLAN.



PLAN.



SECOND FLOOR PLAN.



FRONT ELEVATION.

NEW YORK CITY. LORD & HEWLETT, ARCHITECTS.

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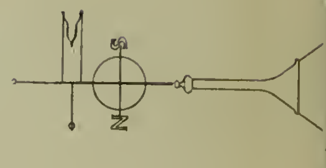
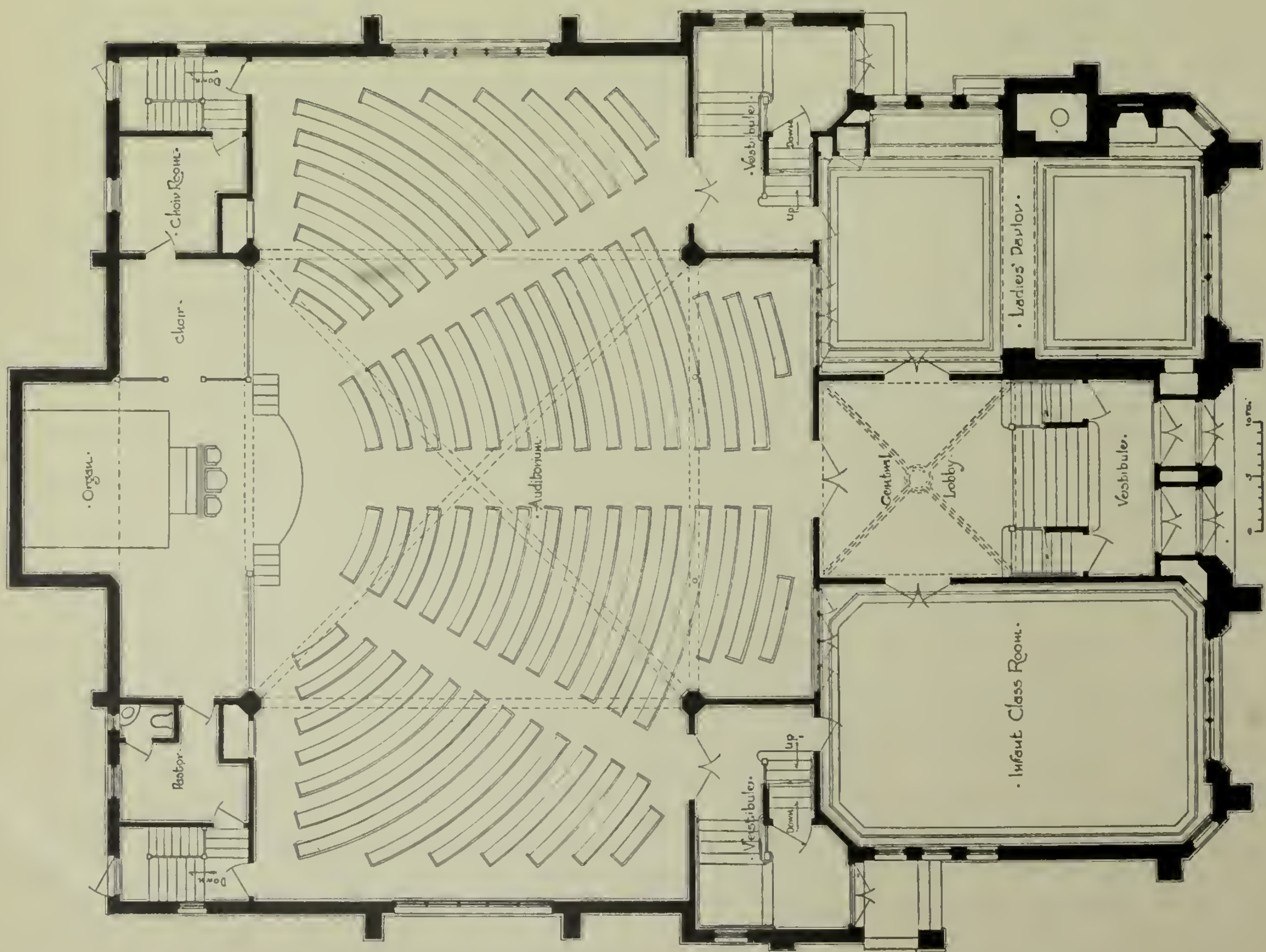
SECOND FLOOR PLAN.





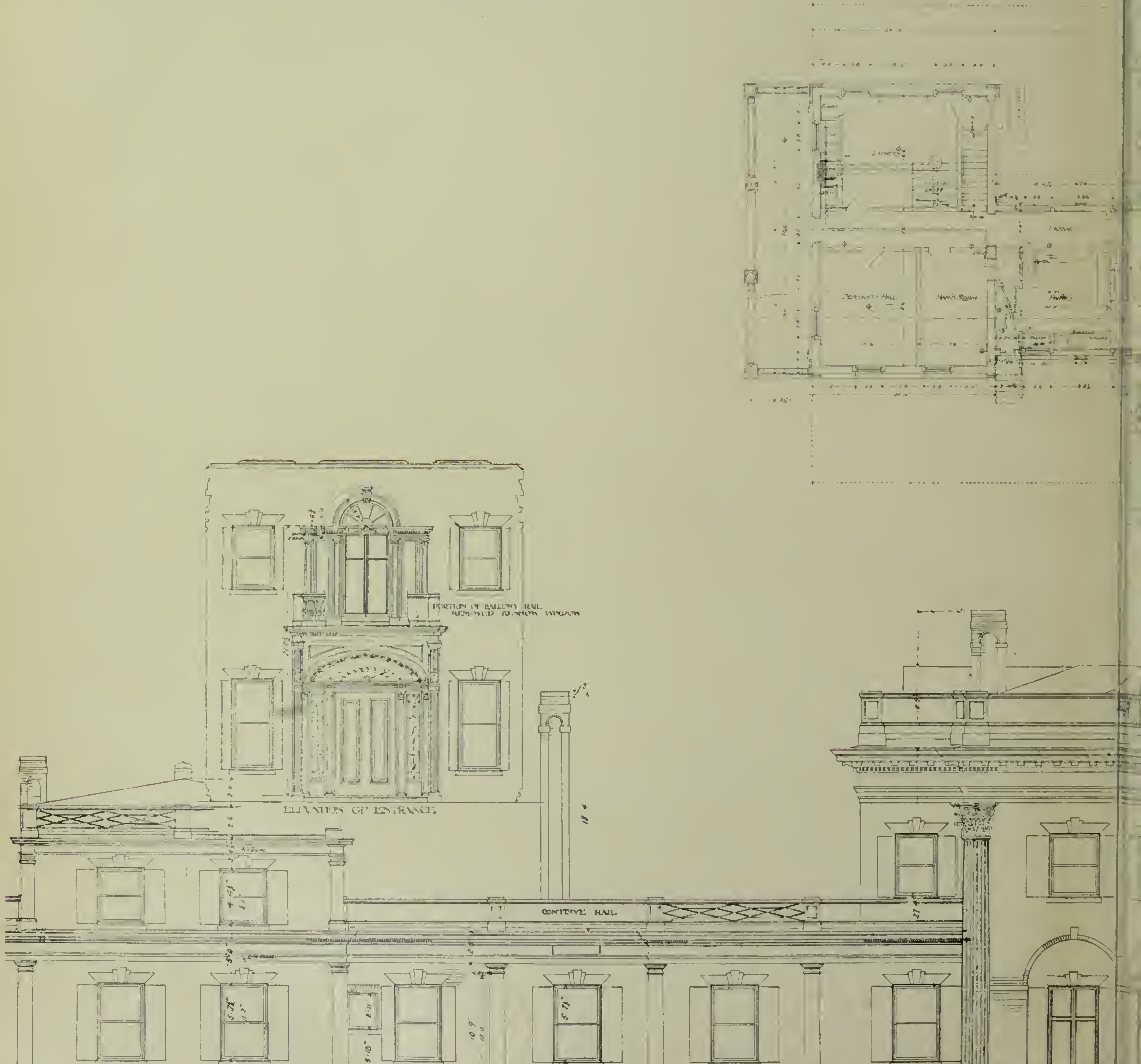
FIRST FLOOR PLAN.

PLATES 92 and 93.

SECOND CONGREGATIONAL CHURCH, ATTLEBORO, MASS.

GEORGE F. NEWTON, ARCHITECT.

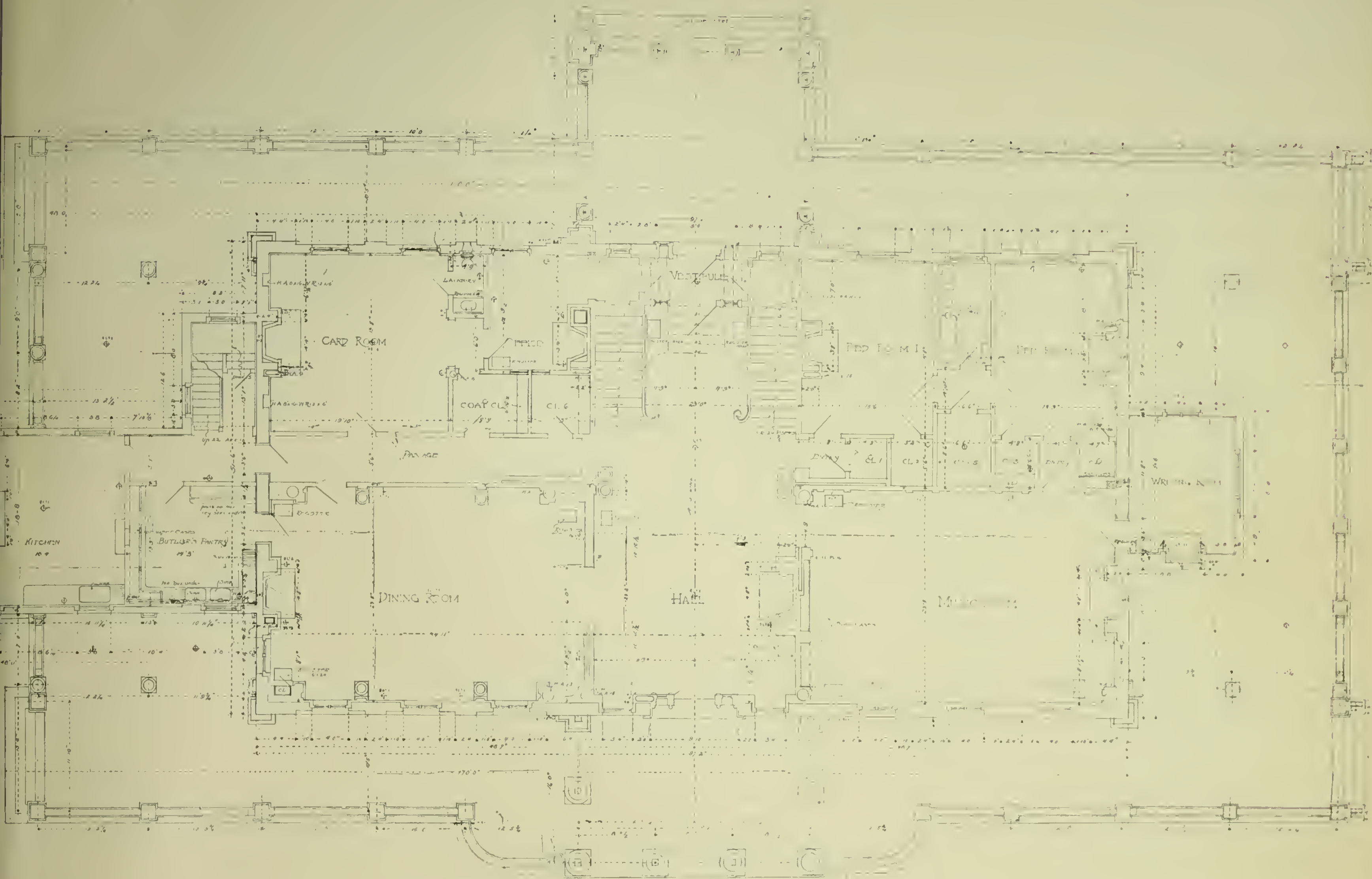
THE AUDITORIUM IS PLACED IN THE REAR, WITH THE SOCIAL AND SUNDAY SCHOOL ROOM IN FRONT, TO FORM A BARRIER AGAINST THE NOISE OF PASSING RAILWAY TRAINS.



FRONT ELEVATION AND PLA

SHEPLEY, RUTAN &

PLATES 90 and 95.



FIRST FLOOR PLAN.

HOUSE AT THOMPSON, CONN.

OLIDGE, ARCHITECTS.