

THE INLAND ARCHITECT AND NEWS RECORD

Vol. XXVI.

SEPTEMBER, 1895.

No. 2



A Monthly Journal Devoted to
ARCHITECTURE,
CONSTRUCTION, DECORATION AND FURNISHING
IN THE WEST.

PUBLISHED BY THE INLAND PUBLISHING CO.,
 19 Tribune Building, Chicago, Ill.

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TERMS: Regular number, \$5 a year; Photogravure edition, \$10 a year. Single copies, Regular number, 50c.; Photogravure edition (including 7 photogravures), \$1. Advance payment required.

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NOTE.—Officers elected enter upon their term of office January 1, and continue until December 31, unless reelected, except in the case of Directors for two and three years.

A Month of Building Disasters.

The month of August was a famous one in the annals of building disasters. In this age of rush, hurry and carelessness, to say nothing of scamping, we are quite accustomed to hear of the collapse of speculation buildings and flimsy structures erected only to sell to the first gullible customer. The name of Buddenseik will never be forgotten among the builders of New York city, and the just punishment awarded to that prince of building swindlers, after a long-continued fight in the criminal courts of that city, has not been without its terrors to those of similar ilk. His was the first authentic case of conviction for criminal carelessness for the owner of a building. As a result there have been few cases of late years of similar calamities. But now disaster has fallen upon new structures supposed to be of the best and most substantial construction. The most notable of those of the past month (for several others of minor importance were reported), were the collapse of the new fireproof warehouse of John B. Ireland, at South Fifth avenue and West Third street, in the city of New York, and the new Coliseum at Chicago. Not to be outdone by August, September leads off with another of the same nature. On the fourth instant the new brick tower at the southwest corner of the new Machinery Hall at Springfield, Illinois, suddenly collapsed, killing two men outright and injuring five others. This is a building on the Fair grounds, built by the state. No cause is evident yet except that it was too weak to stand alone. The brickwork had just been completed ready for the rafters.

The Ireland Warehouse at New York.

The Ireland warehouse was intended to be a double seven-story building with a row of five cast-iron columns through the center, and it was decided to increase the height to eight stories after the third story had been completed. The collapse occurred after the roof was on and while the plasterers were at work in the upper stories. The interior portion directly in the center fell in and sixteen innocent workmen were killed. The building was built with cast-iron columns, steel girders and beams, and hollow tile arches. Upon examination when the wreck had been cleared away it was discovered that the immediate cause of the accident was the failure of the foundation of the central iron column, notwithstanding that it was attempted to be shown before the coroner's jury that there were defects in the ironwork, and that the plasterer had dangerously overloaded the upper stories. The iron column had been forced directly through its foundation and six feet into the ground beneath. It was shown by the evidence of engineers and the admission of parties immediately interested that this foundation consisted of a course of concrete twelve inches thick, a dimension stone twelve inches thick and a cast-iron base plate. It does not appear from the voluminous evidence what was the composition or outside dimensions of the concrete, or what were the dimensions of the stone or base plate. But it appears that the stone was from Greenwich, Connecticut, and known as Hornblende Biotite Gneiss. It is a blue rock with a grain in one direction and slightly resembles granite, but its transverse strength

is not the same in both directions. It is generally used for dimension stones in New York, being superior to the Kip's bay stone so long used, but is inferior to granite. In the best work, when used for pier footings, in more than one course the direction of the grain is reversed. It is enough to know that they broke in two, and it is quite as likely that they were too large as too small. The base plate was also found to have been broken, but this may have occurred after the stone and concrete cracked. It was also shown that one edge, or about one-fourth of this concrete, rested on the curbing of an old cistern, the bottom of which was about eighteen inches below the foundation; that no attempt had been made to remove the remains of the cistern and carry the foundation down to the original ground, but that one side of the cistern had been filled with concrete which was incorporated with the concrete forming the foundation so that its curb wall actually cut into the concrete, reducing its thickness there to something less than a foot. This method will remind many architects of the expedients of old-fashioned builders and foremen to "make everything nice and solid." In this case the cistern floor was so solid that the weight of the column sheared off all the foundation outside of it. It was proved to be yielding ground, mixed clay and sand, but more solid a few feet lower down. This style of foundation was the joint work of an architect, a builder of reputation, and an inspector of the department of buildings, either of whom could have prevented it. But from either ignorance or neglect, or both on the part of all three, the foreman was allowed to build the most important foundation on the building about as he pleased, according to his own ideas of "a good job," which he conscientiously carried out in his own benighted way. But that is not all. The original plans and specifications filed with the department of buildings called for eighteen inches of concrete and a twelve-inch granite dimension stone, and the permit was issued accordingly. Another interesting feature of the case was that the bid of Parker, the general contractor, was \$66,745, but that the contract price was reduced to \$60,000; that he was induced to make a sub-contract of the ironwork to a firm that bid \$2,700 less than the price that he had estimated, but it does not appear how he was to receive the benefit of the other \$4,045. He undoubtedly did receive it in part through the reduction of the concrete under the five cellar piers. In the evidence given there was clearly an attempt on the part of the architect, the contractor, the contractor's foreman, the architect's clerk of works and building inspector to shift the responsibility from their own shoulders, and a decided inclination on the part of all the others to throw the blame upon the architect. So the jury found them all guilty. It would do no one any good to repeat the architect's name. By his own testimony he had spent three years at the architectural department of the School of Mines of Columbia College, had been employed as draftsman by a builder, and had practiced for himself only eighteen months. He had designed four new buildings and altered fifty old ones. But he had issued all the certificates for the contractor's payments and admitted that he had not seen the concrete put in. As far as his responsibility is concerned this seems to have been a case of youth and inexperience, and a practice too common in New York of placing reliance on masons and builders as expert constructors. But aside from all these considera-

tions it appears to us that on a compressible soil of part clay and part fine sand, such as this was described to be by an engineer witness, there is some doubt if the foundation would have supported the weight had the building been completed and loaded, even if the specifications had been carried out. This was not a case of too small a foundation, but of too thin foundation. It was only necessary that these foundations should be wide enough to split in the middle. No careful architect, in Chicago at least, would put a foundation under an iron column without more than one dimension stone or the preservation of the proper proportion of offset to thickness of the courses of concrete and stones.

**Fall of the
Roof of the
Coliseum
at Chicago.**

The collapse of the Coliseum at Chicago was fortunately not accompanied by any loss of life or injury to human beings. This is the largest building erected in America since the World's Fair, and is similar in character to its largest structures. Mr. Beman is one of the most successful and eminent architects in this country, and the cantilever roof which he designed for the Mines Building was one of the most interesting and successful pieces of construction on the grounds, the grand test of which was the fire which consumed the building and left the roof structure standing in skeleton, and only warped out of shape by heat. The roof of the Coliseum was not designed by him; the construction was guaranteed by the general contractor, and the sub-contractor, Carl Binder, who is both engineer and constructor. It is not a matter of architectural interest, but a pure question of engineering. The cause of the collapse has not yet been definitely ascertained, and it would be unfair and useless to theorize about it at the present time. Mr. Beman's reputation is a guarantee that before it is reërected he will have completed an exhaustive investigation on his own account, and whatever is done in rebuilding will have to be backed up by the best expert opinion that engineering science can supply. At a future time we may be able to publish these demonstrations and detail illustrations of the old and new construction.

**A New Lien
Law for the
State of
Illinois.**

The state of Illinois now has an entirely new lien law, which went into effect on the first of July. It is the result of the labors of Julius A. Coleman, a Chicago lawyer whose valuable book on the lien laws of Illinois was recently reviewed in *THE INLAND ARCHITECT*. It was through writing this treatise that he became convinced of the necessity of revising all the lien laws of the state. This he has done single-handed, and it is remarkable that he was enabled to carry his measure through a legislature whose acts have demonstrated it to have been remarkably deficient in public spirit, and largely devoted to the personal interests of a majority of its members. The public spirit shown by Mr. Coleman is most remarkable when it is considered that the passage of the new law decreases the value of his book, which relates only to the old one, and by preventing litigation may impair his already large practice in this specialty. We have not space to discuss any of the provisions of the new lien law, but will take this occasion to say that Mr. Coleman has prepared an annotated pocket edition with full explanation of its provisions and forms, and a complete index for ready reference.

CONVENTION HALLS.

BY DANKMAR ADLER, ARCHITECT.

THE Presidential campaign, and with it a demand for great convention halls, will soon be upon us. Intense rivalry between cities competing for the honor of harboring the national conventions of the great political parties will, as usual, manifest itself, and the various national committees will be overwhelmed with laudations of halls already built and of others existing as yet only on paper; and among the claims which will be made by the advocates of the various proposed convention cities, the alleged merits of the halls intended to shelter the convention will be quite prominent.

Having had charge of the fitting up of four of these halls, namely, those used by the Republican National Conventions of 1884, 1888 and 1892, and that of the Democracy in 1884,* I may be able to give the readers of *THE INLAND ARCHITECT* some interesting and perhaps useful information. In taking charge of the arrangement and construction of these halls I found it necessary to constitute myself part of the management of the conventions and to assume responsibilities and duties which nominally devolved upon many members of committees and which should have been discharged by badge-bedecked and pompously titled political magnates.

For it is not an easy task to care for the safety and comfort of audiences numbering from 8,000 to 12,000 people, assembled under one roof, in hot summer weather, during a period of great mental excitement which is often wrought up to fever heat by the proceedings of the convention, and at the same time to take care of the delegates, of the representatives of the press, and to cater to an innumerable and distracting variety of wants and necessities which must be disposed of positively and promptly only to make way for a host of others still more aggressive and exasperating, and yet so logically sequent of the prevailing conditions that one cannot ignore them, but must juggle with time and space and men and things in a manner which would be absurdly beyond one's ability under ordinary conditions.

In reality it ought to be an extremely simple matter to house a national convention. About nine hundred delegates, their officers, forty or fifty reporters and correspondents, about as many pages, also room for about the same number of telegraph operators and their instruments—these are the essentially constituent parts of a national convention. Every large city in the United States has at least one hall or theater with main floor and stage together large enough for the accommodation of the actual convention and for the transaction of its business, while the galleries would afford seating room for the alternates. And there are many among the great party leaders who, if the matter were left to themselves, would be well satisfied with a convention hall of these moderate dimensions, excluding altogether visitors and spectators, and relying upon the press to acquaint the people of the country with its proceedings.

But the American people will have none of this. From East and West, from North and South they come, intent upon seeing and hearing the great and honored leaders of their parties, eager to shout and to cheer as their political idols give utterance to their campaign cries and watchwords. And among the party bosses and managers there are many who know the value of the shouts of a monster audience in influencing the action of a convention, and who do all in their power to pack the hall with vociferous admirers of their respective candidates. But this kind of thing has been overdone, and the efforts of the friends of the leading candidates have generally neutralized each other, and the delegates themselves have learned to fear the influence which the cries of the spectators try to exert upon them.

While, therefore, the monster convention hall is no longer the ideal of all the leaders in the game of national politics, the American people still love big things, and builders of convention halls will for some time longer have occasion to act upon instructions like those given me by Mr. Barnum in 1882, when it was proposed to greatly increase the size of the convention hall which was being fitted up in the Exposition Building at Chicago: "We are going to win, I tell you. The Democrats are coming here as winners—and every good Democrat who comes here from Maine or California, or from Oregon or Florida, doesn't come to see Chicago, but to be part of the great Democratic convention that's going to nominate the winner in this campaign. And you say the

audience won't be able to hear the delegates, nor the delegates each other in so big a hall. You just get all the Democrats your old building will hold into that hall and I'll warrant they'll be able to see and hear each other and make the delegates hear and see them, and when they get back to their homes, even if they have only just squeezed into the convention hall but once, and for a few moments only, they'll brag through the whole campaign how they helped to make the platform and nominate the candidates. You just make it big—you can't make it too big. No convention hall you can build is as big as the Democracy of the United States. You just make it big—no matter at what cost—I'll see you through with your local committee."

I do not know whom of my confrères will be charged with the duty of carrying out, next year, old Senator Barnum's instructions, which will surely be reiterated in some form or another by the chairmen of the national committees of the coming campaign, but I trust it will not appear presumptuous if I undertake to tell him or them how I have gone to work in building convention halls.

I soon learned that the national committees outrank the local committees. No matter how potent in ordinary civic affairs the members of the local committees may have been, and no matter how great my desire to follow to the letter the wishes of those who immediately represented the donors of the money which I was spending, all had to yield to the overwhelming power of the national committee, composed of men accustomed to command and conscious of a superior knowledge of the requirements of a great party convention, the fruition of long experience. Then the gentlemen of the national committee were always endowed with good memories and had clear recollection of the earlier promises of the local committee, and were quite insistent upon literal fulfillment of these pledges.

But however aggressively self-willed the national committees might be in their intercourse with local committees, my relations to them were always of the pleasantest. They knew what were the essentials of a good convention hall and were willing to delegate the work of creating such a hall to anyone who appeared possessed of sufficient intelligence to recognize these requirements, and whose conduct gave promise of enough energy and zeal to assure the application of that knowledge to the work in hand.

Whenever I was called upon to fit up a convention hall, I found the general housing already provided. In 1884 the old Exposition Building at Chicago, in 1888 the Auditorium, and in 1892 the Exposition Building at Minneapolis. It was left to me to provide seats for the members of the convention, for the press reporters and correspondents, and for telegraph companies' employes, and to place and arrange these in the manner best adapted to the requirements of the business of the convention.

The delegates who really form the convention naturally must be cared for and suitably seated before anything else could be considered. Their seats are generally grouped by states, with a certain degree of regard to the relative importance of different delegations, and to certain traditional affiliations. Owing to the possibility of wearying, protracted sessions, it was necessary to make the spacing and seating for this part of the hall exceedingly roomy and comfortable. To facilitate the passage of messengers and pages among the delegates, and also to allow of easy communication between delegations, it was found necessary to establish many and broad aisles in this part of the hall. The platform upon which sat the chairman and secretary of the convention had to be high enough to permit these officials to see the face of every delegate. This was also an indispensable requirement of the official stenographer, and was greatly desired by the many press reporters and correspondents, while it was also necessary to provide a dignified and prominent seating for the members of the national committee. Therefore it became necessary to construct a series of platforms of varying heights adjusted with regard to the relative dignity and importance of their occupants. In allotting space to delegates and to press reporters and correspondents, it was found necessary to make an allowance of about $7\frac{1}{2}$ square feet to each person. This, however, was inclusive of aisles. This allowance includes tables for about 300 newspaper correspondents, for which place must be found upon an elevated platform. For the alternates and for all spectators an allowance of $5\frac{1}{2}$ square feet per person (aisles included) was found sufficient. The quarters of the Western Union Telegraph Company, and of the Associated Press, also those of the Postal Telegraph Company, and the United Press,

* In this case assisted by Mr. Warren R. Hayes, of Minneapolis.

must be near the platform, easy of access to reporters and delegates, ample in size, directly connected with the street, and so arranged as to be entirely under the control of their respective chief officials. When I say ample in size, I mean with space sufficient for sixty to eighty telegraph instruments, and at least twenty or thirty typewriting machines. There must be space for lunchrooms, also for coat and retiring rooms, as telegraph operators and typewriters are on duty for many hours, and are compelled to work very hard. The service of the convention also demands an office of each of the two great telegraph companies in the body of the space occupied by the delegates, which offices must have easy and direct communication with their respective operating rooms. It has always been found necessary to establish pneumatic tube conveyors from the platform to operating rooms of the telegraph companies, in order to avoid the confusion and delay incident to the carriage of press and telegraph matter by messengers.

The seats for the alternates must be near those of the delegates, and the aisles adjusted in such manner as to readily permit communication. But otherwise these seats may be treated like those of the spectators.

"The distinguished guests" are a bugaboo to the managers of every convention. They are governors and ex-governors of states, judges of United States courts, members and ex-members of both houses of congress, distinguished military and naval officers, ex-members of the national committee, and of course their wives and possibly even their sisters, cousins and aunts. There are always several thousand applicants for seats under this category. As far as the architect is concerned he need not treat them better than the remainder of the audience.

But the treatment of that audience is not at all an easy matter. Every member wants to see every delegate and all the officers and to hear their every word. In banking up seats and laying out isacoustic curves and determining sight lines one may never lose sight of the fact that the delegates occupy a space of from 6,000 to 7,000 square feet, and that a speaker in whom the entire audience is interested may stand up anywhere within that area and may face in almost any direction. In the absence of walls immediately surrounding the delegates, it becomes necessary, as far as this can be done, to utilize the audience itself as a sound conservator and deflector, and with this end in view the steepings should be quite high and should follow Scott Russell's isacoustic curve as nearly as possible with the crude systems of construction which must generally be used. The great success of the republican convention hall of 1888 was due to the isacoustic lines of the permanent steel framework of the Auditorium, which of course was carried to a greater degree of refinement than was possible in the temporary wooden structures which served the purposes of other conventions.

(To be continued.)

ARCHITECTURAL INDIVIDUALITY.

BY CONRAD N. B. SCHAEFER.

THE prominence of a city as an architectural center depends upon its individuality. Individuality is developed by improvement upon self, through foreign addition. What is, is the basis. What may be agreeably procured for pleasing addition thereto is the legitimate conquest.

The wave of foreign architectural style has carried many of Chicago's most individual designers off their feet. The establishment of a few traveling scholarships will soon make matters worse, no doubt, for the architectural beginner. It is hard for him to realize that that which is acquired by learning is only an embellishment of that invaluable knowledge acquired by experience.

The pre-Columbian Exposition architecture contains the elements of Chicago individuality of style. The improvement of those examples by a restrained addition of classic ideas is progress in individuality. The subservience of first results to foreign influence, nativity to classicism, is the beginning of effacement.

The designer who labors for the individuality of a locality, studies the resources of a place, the work of those who are native to its environment, seeks for originality in others and then helps them multiply it, improving it the while and adding something from himself to it. He searches for the *root* of things before taking them up in order that superficial influences may be avoided. That is individuality; fealty to first ideas.

There are many emulators of Andrea Palladio, but I cannot find that they begin their studies as he did, under the direction of

a poet. The principle of embellishment is embodied in poetry and music. When that knowledge is mastered anything can be idealized in a practical manner. That is beauty; systematic expression of the imagination.

Appreciation for local tendencies and mastery of harmonic system is the modern need — and patience.

SEWAGE DISPOSAL FOR COUNTRY HOUSES.

WILLIAM F. MACHARG, C.E.

THE disposal of sewage or the wastes from isolated buildings, as country houses, is a question which often confronts the architect, and it is one which it is desirable should be solved in a manner not only so as not to endanger the health of the occupants but also so as not to create a nuisance or produce discomfort or inconvenience.

The conveniences of city life, and especially the free use of water, become so much an ordinary habit that those who can pass a considerable portion of the summer in country residences of their own, or who prefer to live the year through at easy distance from the city, insist upon the provision of the appliances in the new home which have become necessities from city habits. This involves the use of large quantities of water which must be disposed of readily.

The use of a cesspool leaking sufficiently to permit the escape of water into the subsoil, which satisfies most dwellers in small country villages, is condemned as unsanitary even where the

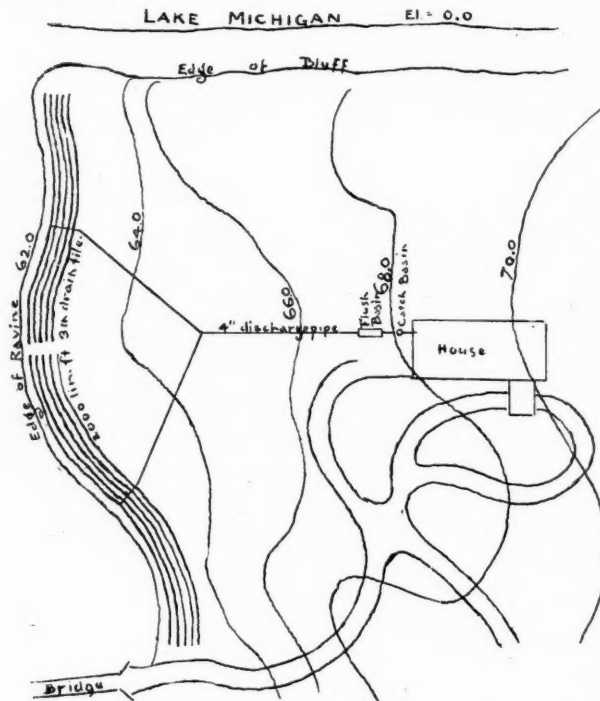


FIG. 1.

Elevation of contour lines, in feet, above lake. Scale, 1 inch to 125 feet.

domestic water supply is not taken from adjacent wells, and as the solids which are held in it must be removed and carried away it becomes periodically a very disagreeable inconvenience. The tight cesspool from which both water and solids must be removed is impracticable from the large quantity of water used, amounting to thirty to fifty gallons for each individual each day.

In a recent periodical devoted to sanitary work, a plumber in a neighborhood cut up with gullies and ravines describes an apparatus put in by him which both he and the editor expect to work satisfactorily, but which will surely cause a nuisance. It consists of two cesspools, or more properly catch-basins, the entire waste from water closets, sinks, etc., in the house discharging into the first catch-basin, overflowing from this to the second basin, and from the second overflowing into the ravine. It is proposed to use occasionally, say weekly, a dose of quicklime in one basin which it is supposed will prevent disagreeable consequences. Applied in this way the lime will have little effect other than to assist perhaps in sedimentation in the basins and to deter putrefaction, but the latter will occur later in the ravine. Further, from

the apparently large size of the basins there will be but little current to dissolve or carry away in suspension fine particles of matter, so that most of the solids will be held and must be removed and carried away when in a state of high decomposition.

This description is given to illustrate the evils of all methods of storage of solids and of constant discharge of liquids upon the surface of the ground, and to introduce to attention a system diametrically opposite in which all waste is dissolved or carried forward in finely divided particles in suspension, and is finally disposed of beneath the surface of the ground; final disposition

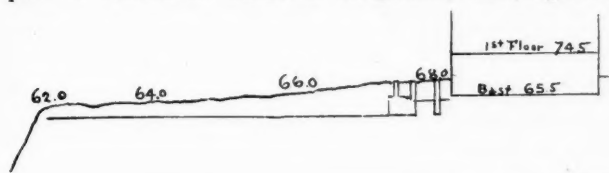


FIG. 2.
Section showing relation of house, basins and absorption area.

meaning that the effete material is destroyed and never appears in any form disagreeable to eye or nose, nor can it contaminate the source of water supply. This system, which is technically known as Intermittent Sub-Surface Irrigation, has been applied by engineers and sanitarians for twenty years and more, but still remains unknown to people generally. By it the waste from a dwelling may be disposed of under a lawn of less area than that occupied by the house, and this may be done immediately below the windows without ever becoming apparent.

The conditions which must be observed in the application of the system are that the sewage must be collected in a water-tight

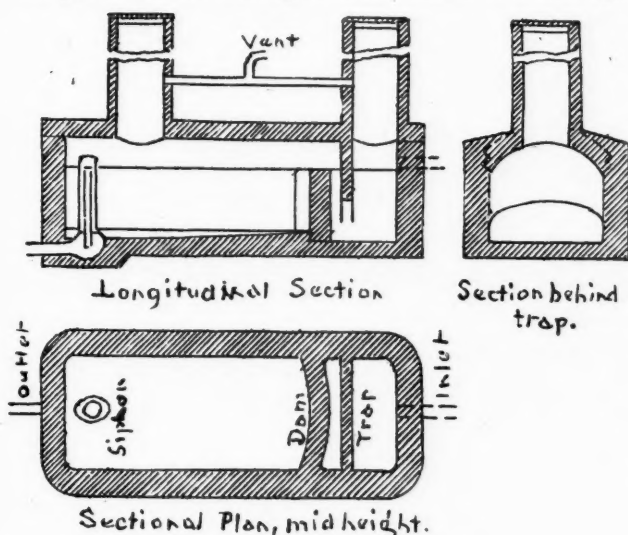


FIG. 3.
Flushing Basin. Scale, 1 inch to 6 1/2 feet.

receiving basin fitted with an automatic siphon by which it is discharged periodically into tile drains laid with open joints at a depth of from nine to twelve inches below the surface of the ground. The sewage so discharged is the food of certain bacteria which may exist at a slight depth under the surface of the ground and which will grow and live upon the sewage, provided the flow is intermittent so that the soil may become aerated between the doses in order that the bacteria may have the air necessary to their existence. This process is complete, and where applied in a different manner to the sewage of towns the water which flows from the works is innocuous, the organic matter having been reduced to nitrites and nitrates.

In the application of this system to country houses it is desirable to select a plot of ground lying sufficiently low so that the flow line in the receiving basin may be below the basement floor, as this will admit the use of plumbing fixtures in the basement. If no land available lies sufficiently low, of course fixtures can only be used on and above the ground floor. Preferably the earth used for the disposal area should be sand, or light and porous earth; the black earth used under the grass of the lawn, if a foot deep, is sufficient; however, satisfactory results have been obtained in the clay soil north of Chicago, as the surface soil is somewhat open, but in this case gravel should be freely used around the tile.

A general plan of this system as recently applied near this city is shown in Fig. 1. A section showing relative elevations in the house and lawn is given in Fig. 2. Details of the flushing basin are given in Fig. 3.

In the receiving compartment of the flushing basin it will be noticed that the space is reduced to the minimum which will permit a person to get in in case of necessity. This gives reasonable assurance that inflowing water, as from bath or laundry tub, will agitate all contained in the chamber and assist in dissolving or breaking up solids, and it is found that it is never necessary to remove or carry away matter from the basin. The water from all fixtures except the kitchen sink is admitted directly to the basin; on the sink connection a catch basin is built or a grease interceptor may be set, as the grease if carried through would make it necessary to clean the tile much more frequently. The catch-basin is not essential, but as it is customary to use it on house drains in this city its use is continued on disposal systems.

The trap and dam which form the front of the receiving chamber serve to screen the sewage, floating matter being held by the trap and heavier by the dam until dissolved or finely divided and held in suspension. Toilet paper should be provided in all water closets where disposal is used, as it readily disintegrates in the water.

The automatic siphon shown is the Rhoads-Williams, but any siphon of the Rogers Fields type which starts by overflow is as well adapted to this use.

The sewer from the flushing area to the disposal area should be small; ordinarily a four-inch pipe is ample, and should have a fall of not more than two inches in one hundred feet, as it should run full for flushing purposes. It should be laid with tight joints and should be proved tight.

At the disposal area the tile must be laid with joints open one-quarter inch, preferably set on a bed of gutter tile or brick, each joint covered with a small section of half-round tile and the tile covered with gravel to allow free discharge. The tile may be disposed in rows or branching from the main, and should be two or three inch hard-burned tile, laid nearly level and sufficient in quantity to take at once the entire contents of the discharge side of the flushing basin.

A vent of four-inch iron pipe should be carried from the man-holes on the flushing basin above the roof if the basin is near the house, or on a tree or post to a sufficient height to be inoffensive.

An apparatus of this kind set in operation will work both summer and winter, as the decomposition of the sewage will prevent freezing, and no particular attention need be given it; no disinfectants or chemical should be used in it, as they would probably be destructive to the bacteria. After ten or a dozen years it may become necessary to lift and clean the tile, but with good material no other repairs or maintenance should be required.

It must not be supposed from the foregoing that a system of drain tile laid to take the overflow of a cesspool just below the ground surface will operate in a similar manner. The efficacy of this system depends wholly on the intermittency of its action, allowing aeration of the soil, and upon the complete filling of the tile by the full flush from the basin. A trickling stream from a cesspool, whether upon the surface of the ground or in the tile immediately under the surface, means a clogged soil, which will become sour with offensive decomposition, and the tile when so used will soon clog at the point where the trickling stream leaves them, producing a wet spot in the soil above.

A COMMITTEE ON FIREPROOFING TESTS.

THE important subject of the practical value of fireproofing is about to be investigated in a scientific manner by a committee appointed for that purpose; and it is expected that the results obtained will prove a valuable addition to our present knowledge.

Until now, all tests made have been undertaken in a more or less contracted manner, and, in most cases, simply to determine some special result. It is now proposed to carry out experiments on a large scale, and, among other things, to test the effect of an intense fire on the structural iron and steel so universally employed at the present time, and the effect that the different fireproofing materials may have in protecting the same.

The committee has been jointly selected by the fire insurance companies, the architects, and the engineers, and consists of Mr. S. A. Reed, representing the Tariff Association of New York; Mr. George L. Heins, the Architectural League of New York, and Messrs. H. de B. Parsons and Thomas F. Rowland, Jr., the American Society of Mechanical Engineers. It may be stated in

advance that the report of the committee is expected to contain some very valuable information. It is, therefore, hoped that not only the manufacturers of fireproofing materials, but also the public in general, will offer their assistance, as the committee's expenses are to be met entirely by voluntary contributions.

The manufacturers of fireproofing materials are, however, not allowed to subscribe, but are asked simply to defray the expenses of erecting and removing their materials to be tested.

The Carnegie Steel Company, through their agent, Mr. Whitney, have kindly offered to give the committee all the iron and steel that may be required, and the Continental Iron Works have consented to give the ground necessary for the erection of the furnaces.

The time of the members of the committee is freely given to the advancement of scientific knowledge, and their names are sufficient to assure thoroughly impartial tests.

The committee has organized, and has commenced to build the required plant. There will be a gas producer to supply the fuel gas, so arranged to receive a spray of petroleum in case higher temperatures may be required than those obtained from the combustion of the gas alone.

Furnaces for testing full-sized columns and floors will be erected. The foundations of these furnaces will consist of side walls with an arch between them, thus making a safe place for the introduction of the gas pipes and for the hydraulic cylinder. On the top of this foundation will be erected a room built of the materials to be tested. The columns will be loaded by pressure from the hydraulic cylinder, and during the tests a safe load, such as is prescribed by the building laws of this city, will be put upon it. The arches for the floors will be loaded by dead weight. Every precaution will be taken by the committee to make the tests uniform as regards temperature, draft, cooling by water streams, etc., so that the results may be comparable.

The committee will take minute notes of all details and publish them, together with the results, in its final report. The committee would be pleased to communicate with anyone who may be interested in this matter. Its address is room 106, 22 William street, New York.

OBITUARY.

HENRY G. ISAACS, architect, of St. Louis, died suddenly from blood poisoning at Montreal, Canada, on the 8th ult. He had left home with his wife but a short time before on a summer tour apparently in perfect health. By his death the city of St. Louis loses one of its most upright citizens, and the architectural profession, one of its most responsible and most reputable members.

From his late partner, Mr. Albert Knell, a few items of interest have been obtained concerning Mr. Isaacs' early career. He was born in Philadelphia in 1835. His parents removing soon to New York city, their son attended Trinity school where he graduated. He then entered the office of Mr. Richard Upjohn, architect. In 1855 young Isaacs came to St. Louis, and after a short service with Mr. George I. Barnett, then one of the most prominent architects of St. Louis, he rose to the position of partner under the firm name of Barnett & Isaacs. This firm designed the original Southern Hotel, then one of the finest buildings of its class in the United States.

Subsequently Mr. Isaacs withdrew from this partnership and conducted a large practice in his own name. Among the more notable of his buildings in St. Louis are the large wholesale store of Samuel C. Davis & Co., northwest corner of Broadway and Washington avenue, the Bank of Commerce Block on Broadway and Olive street, the Mercantile Library on Broadway and Locust street and the Odd Fellows' Building on Olive and Ninth streets.

NEW PUBLICATIONS.

THE INNS OF COURT AND CHANCERY. By W. J. Loftie, B.A., F.S.A. With many illustrations by Herbert Railton. London, Seeley & Co.; New York, Macmillan & Co.; Chicago, A. C. McClurg & Co.; 1895. Price, \$2.

It is pleasant to read from the pen of W. J. Loftie, so ably seconded by the illustrations of Herbert Railton, a work in which he has so little opportunity to fling his anathemas at modern English architects. This book is perhaps more interesting to the antiquary or archaeologist than to the architect. It will be especially interesting to the legal profession. The historical parts and personal reminiscences of the great men who have at some time had their home in the great aggregation of ancient buildings known as The Temple, Lincoln's Inn, Gray's Inn, and many others comprised under the general name Inns of Chancery, will be interesting to everybody. These groups of buildings still comprise a large part of the antiquities of London, some of which are even now disappearing before the march of modern improvements. The oldest are the remains of the original establishment in England of the Knights of the Holy Sepulchre. It is not generally known that the lawyers are the legitimate successors of the knights. Some of their titles, now abolished, were derived from those used by the knights. For instance, the name "Sergeant-at-Law," the author says, was derived from "Servant." Many of the customs of the knights were preserved, and even some of the surviving knights continued to occupy the Temple after the lawyers were in possession. In the time of Chaucer there were besides the lawyers a number of survivors of the retainers and servants of the old Templars. In the reign of Edward III., the year 1333, judges were first knighted, and about the same time an

order was formed by the professors of the common law, who had the exclusive privilege of practicing in the Court of Common Pleas. These practitioners initiated the second degree of the old Templars. The new order was "the king's servants-at-law," *servientes domini Regis ad legem*. Under the old Knights Templars their *fratres servientes* were *armigeris* or esquires. This is the origin of the use of "Esq.," which was then only written after the names of lawyers. Even some of the chaplains of the Knights Templars were continued in office, and the institution of chaplains in the inns continues to the present day. The origin and history of the Temple are the most interesting part of this treatise, especially to the architect. The author has ransacked every attainable source of information, and can find no evidence of any relation of the Templars to modern Freemasonry. The various changes to which the old buildings have been subjected are minutely described, and the new buildings are criticised without stint. The only one that meets his approbation is the new Gothic hall of Lincoln's Inn by Philip Hardwick, which satisfies his omnivorous demand for "proportion."

P. B. W.

SACHS AND WOODROW'S "MODERN OPERA HOUSES AND THEATERS."

Mr. Ernest A. E. Woodrow, A. R. I. B. A., of Cairnryan, Woodside Lane, North Finchley, N. England, has sent us advance sheets and illustrations and the prospectus of his forthcoming work on "Modern Opera Houses and Theaters," to be issued by B. T. Batsford, publisher, 94 High Holborn, London. It will be in three volumes folio, and the subscription price in the United States will be \$48, half to be paid on the issue of the first volume and the remainder on completion of the work. As the prospectus states, it will contain examples selected from playhouses recently erected in Europe, with a short descriptive text and a treatise on theater planning and construction; with supplements on stage machinery, theater fires and protective legislation. In preparing this work he will be associated with Edwin O. Sachs, F.S.S. It will be illustrated by a series of two hundred and twenty plates, reproduced in the best manner by photo-lithography, from line drawings specially prepared for the work, and some hundreds of diagrams in the text, reproduced from original working drawings, with plans and sections drawn to a uniform scale. The three volumes will be published at intervals, the first appearing this summer, and the second during the winter, the work reaching its completion next year. Mr. Woodrow will be remembered by our readers as the contributor of several papers on theater construction to THE INLAND ARCHITECT in 1890.

THE FUNK & WAGNALLS STANDARD DICTIONARY OF THE ENGLISH LANGUAGE. Funk & Wagnalls Company, New York.

The publication of the "Standard Dictionary" places before the reading world a work that, for many reasons, is deserving of more than a passing mention. In the first place, it is the very latest publication in a field in which we have already the "Century," "Webster's," "Worcester's," the "Imperial," and "Stormonth," not to mention smaller and more special works. Being the latest, it has of course had the advantage of the work that has been done by its predecessors. In the next place, a book of this kind, in the very nature of the case, must have claims to serious consideration, or its publishers would not have ventured to risk a million dollars in its production. A careful examination of the book, and a comparison of it page by page and at different points of test with the "Century" and "Webster's," its two principal competitors, proves in the most conclusive and convincing manner that its merits amply justify its entrance into a field that to an uninformed observer might seem to be already filled. Special points wherein this book clearly excels are here given. The "Standard" has a vocabulary of more than 300,000 words, by actual count, as against 225,000 in the "Century," 125,000 in the "International" (Webster's), 105,000 in "Worcester's," and 50,000 in "Stormonth's," an increase of 75,000 words over a dictionary published so recently as the first named of these. In electricity alone something like 4,000 new terms have been entered and described. The science of Buddhism, with its little-understood beliefs and system of worship, has been unfolded by Max Müller himself. From such valuable and not always accessible sources as these, and the kindred lines of recent scientific investigation and economic study, have come these 75,000 words. They represent the onward march of science, literature, art and labor in the last decade—in a word, the progress of the human race itself. The book is a striking example of what may be done by judicious condensation and system. The idea of grouping of related words and terms is not altogether new, but in no other book of the kind has the plan been carried so far, or so carefully systematized, and with such excellent results in the way of clearness of presentation and breadth of scope, as in the "Standard." The word *architecture* may serve as an illustration of a group of this kind. Under this single word the reader is referred to twenty other words, representing the leading types or groups into which architecture is historically divided, as Byzantine, Chinese, English, Greek, Renaissance, etc. Turning to any one of these words we find there the subdivisions of the subject explained and still further distributed—the word *English*, for instance, opening up thirteen more minor branches. Thus, from the single word *architecture*, to which heading the reader in search of information on this point would naturally turn, the whole field, taking in every country, period, and style, is revealed at a glance. Similar distributions (at the main word giving the key-words to the entire subject) are found under the other arts and sciences—the word *science* itself broadly grouping all the sciences. This is more than mere

dictionary-making—it is instruction, and of a kind that indicates on the part of someone remarkable learning and scholarship, as well as a breadth that takes in everything, and for which nothing is too small to be considered unworthy of some helpful word of explanation. After all is said, however, concerning special features, nine times out of ten when a reader consults a dictionary in connection with one of the common words it is for one of three things—its spelling, its preferred pronunciation, or for its everyday or most common meaning. The test, to the average reader, of a dictionary's efficiency will be the manner in which it meets such demands. The general definitions of the "Standard," from a careful comparison of many of them with the other dictionaries, excel in the points of clearness, sententiousness, and brief comprehensiveness. The matter of correct pronunciation was referred to an advisory committee of fifty persons, composed of representative scholars in all parts of the world. This committee was selected to aid in their work, thus giving the editor in charge of the department the advantage of the widest possible consensus of opinion. Only after an examination of the opinion of each of these persons was any pronunciation decided upon. In the case of disputed words, by an ingenious system of numbering, the preference of every member of the committee is indicated; so that the reader has first the decision of the editor, after a consideration of all the fifty opinions, and if that should prove unacceptable to him, he is able to determine at a glance the precise weight of authority attached to any other pronunciation that seems to him preferable. The book is illustrated with a number of colored plates—a novel feature—executed in Prang & Co's best style. The plate of gems and precious stones is one of the most beautiful specimens of the lithographer's art ever turned out. The two volumes of the work contain altogether about 5,000 illustrations, including a number of full-page pictures. Those at *horse, dog, fowl, seals, sheep and swine*, and like words are practical and valuable. An important feature for the scientific reader in this connection is the exact definition of the six primary colors of the spectrum, containing the analysis of several hundred shades and tints. The places of quotations used to verify or illustrate the meanings of words have been so indicated that they can be found easily—the name of the author and the title of the work, volume, chapter, and page, and the name of the publisher and date of publication being given. This is a decided gain over other dictionaries and will be very helpful to the student. Nearly 100,000 volumes were read, by more than 500 persons, in the course of the selection of these quotations, representing a search through practically all English literature, from Chaucer down to the present time. The treatment of synonyms and antonyms is a characteristic feature. This department is much fuller, even, than that of the "Century," and the introduction of the antonyms is a step in advance of any dictionary. Professor Sayce, of Oxford University, is quoted as saying: "The Standard Dictionary is truly magnificent, and worthy of the great continent which produced it. It is more than complete, and the amount of labor that has been bestowed upon it, and more especially upon the settlement of the pronunciation, must have been enormous. It is certain to supersede all other existing dictionaries in the English language."

OUR ILLUSTRATIONS.

Houses, Washington, D. C.
 Foreign Sketch, by C. E. Birge, Chicago.
 Sketches in Angers, by William Jean Beasley, Joliet, Illinois.
 New High School, St. Joseph, Missouri. E. J. Eckel, architect.
 House for W. M. LeMoine. E. D. Heinemann, architect, Chicago.
 University Club Building, Denver, Colorado. William Cowe, architect.
 Residence for William Church, Denver, Colorado. Lang & Pugh, architects.
 Residence for Edgar S. Dean, Detroit, Michigan. Edward C. Van Leyen, architect.
 Residence of A. McLeish, Glencoe, Illinois. Flanders & Zimmerman, architects, Chicago.
 Residence of George C. Smith, Larchmont, New York. E. G. W. Dietrich, architect, New York.
 Y. M. C. A. Building, Broadway Branch, Cleveland, Ohio. Coburn, Barnum & Benes, architects.
 Staircase in Residence of W. J. Tingle, Rochester, New York. E. G. W. Dietrich, architect, New York.
Photogravure Plate: Residence of J. W. McClymonds, Massillon, Ohio. C. F. Schweinfurth, architect, Cleveland.

PHOTOGRAVURE PLATES.

Issued only with the Photogravure Edition.

West End Hotel, St. Louis, Missouri. Beinke & Wees, architects.
 Yale Stylo-Chisel, produced by The Yale & Towne Manufacturing Company.
 Residence of J. W. McClymonds, Massillon, Ohio. C. F. Schweinfurth, architect, Cleveland. Two full-page views are given, as follows: View in Dining Room, View in Billiard Room.
 Residence of George B. Dexter, Brookline, Massachusetts. Peabody & Stearns, architects, Boston. Four full-page views are given, as follows: Exterior, View in Hall, View in Dining Room, View in Library.

ASSOCIATION NOTES.

AMERICAN INSTITUTE OF ARCHITECTS.

CIRCULAR OF INFORMATION NO. 1.

The twenty-ninth annual convention of the American Institute of Architects is to be held at St. Louis, on Tuesday, Wednesday and Thursday, October 15, 16 and 17, 1895, with headquarters at the St. Nicholas Hotel.

There will be a session on the forenoon of each day, followed by a lunch at the hotel as guests of the St. Louis Chapter.

On Tuesday evening there will be a formal reception at the Museum of Fine Arts as guests of the St. Louis Architectural Club, and an address of welcome by the mayor of the city. On the afternoon of Wednesday, there will be a carriage drive through the residence portion of the city and the parks, and a luncheon at the Columbian Club, or an excursion on the river. On Thursday afternoon the Institute will visit the Anheuser-Busch Brewery, or prominent buildings completed or in course of erection, and in the evening will attend the theater or exposition.

The committee has arranged for rooms at the St. Nicholas Hotel—without bath, for from \$1.50 to \$2 per day for each person, and with bath, from \$2.50 to \$4 per day for each person, according to location; double rooms for two with bath, \$1.50 to \$2 extra.

The Institute has never met as far west as St. Louis, and the Chapter has made an especial effort to prepare to entertain its guests, and it is therefore hoped that you will be present, and that you will extend an invitation to any practicing architects of your acquaintance, not members of the Institute, to attend its meetings.

If persons who propose to attend the convention from Philadelphia, New York or Boston and the intermediate cities and towns, will notify the secretary before September 28, he will, if enough desire it, endeavor to obtain a special through car by a route which will accommodate the largest number and at the minimum cost.

COMMITTEE OF ARRANGEMENTS:

GEORGE B. POST,	From the A. I. A.	A. F. ROSENHEIM,	From the St. Louis Chapter.
CASS GILBERT,		CHARLES K. RAMSEY,	
W. W. CLAY,		THOMAS C. YOUNG,	
		W. B. ITTNER, E. A. MANNY,	

Per order of the Committee,

ALFRED STONE, *Secretary A. I. A.*

PROVIDENCE, August 24, 1895.

RECENT LEGAL DECISIONS.

RIGHT OF MORTGAGEE TO BUILDING REMOVED FROM MORTGAGED LOT.

Where the owner of a lot and building thereon mortgaged the same, the mortgagor subsequently sold the said premises subject to such mortgage. Afterward, the purchaser, without the knowledge or consent of the mortgagee, removed the building to another lot, owned by his wife. Neither the severance of the building nor its annexation to another lot destroyed the right of the mortgagee to enforce his claim against it, the lot mortgaged being first exhausted. After its removal to her lot, the wife made certain additions to and improvements upon the building. The improvements and additions so made in this case did not destroy the identity of the mortgaged building, or defeat the mortgagee's right to subject it to the payment of so much of his mortgage debt as remained unpaid after exhausting the mortgaged lot.—*Dakota Loan & Trust Company vs. Parmelee*, Supreme Court of South Dakota, 58 N. W. Rep., 811.

BREACH OF BUILDING RESTRICTIONS.

A roofed porch, built on brick foundations, and permanently attached to the whole front width of a house, though uninclosed, is within the prohibition of a building restriction in a deed that all buildings shall be erected not less than a certain number of feet back from the fence line. *Ogontz Land & Improvement Company vs. Johnson*, Supreme Court of Pennsylvania, 31 At. Rep. 1008.

LIABILITY OF MINOR FOR REPAIRS ON DWELLING HOUSE.

A married woman is not liable for materials furnished and labor done while she was a minor and unmarried, in repairing a dwelling house of which she was part owner, though the repairs were necessary to prevent immediate and serious injury to the house.—*Phillips vs. Lloyd*, Supreme Court, of Rhode Island, 25 At. Rep., 909.

EFFECT OF WRONGFUL WITHHOLDING OF ARCHITECT'S CERTIFICATE.

Where, by the terms of a building contract, the production by the builder of the architect's certificate of the completion of the building in accordance with the terms of the contract is a condition precedent to the recovery of the contract price from the owner, the fraudulent withholding of such certificate by the architect will dispense the builder from its production. Proof that the architect, upon an inspection of the building, stated that it was completed according to the contract, and that he would give the requisite certificate to the builder, coupled with proof of his arbitrary refusal to do so, are, if unexplained, competent proof from which a jury might find that the certificate was fraudulently withheld by the architect. In this connection, proof that the

building was in point of fact completed in accordance with the terms of the contract at the time of its inspection by the architect is admissible. A charge that "it would be prima facie evidence of fraud if the architect withheld his certificate without any substantial reason for so doing," guarded by a reference to the testimony, was held not to be erroneous. — *Bradner vs. Roffsell*, Supreme Court of New Jersey, 29 At. Rep., 316.

RELEASE OF SURETIES ON CONTRACTOR'S BOND.

Sureties on a bond conditioned for the erection, in accordance with certain plans and specifications, and keeping in repair, of bridge abutments, are released from liability by a substantial change in the plans of the work, made by the principal, and accepted by the obligee of the bond, without their knowledge or consent. — *Morgan County vs. McRae*, Supreme Court of Kansas, 36 Pac. Rep., 717.

BUILDING OUTLOOK.

OFFICE OF INLAND ARCHITECT,
SEPTEMBER 10, 1895.

The rather unexpected and sudden expansion in the volume of business has carried values and prices up to a fairly remunerative level. According to all indications a higher level will probably be reached before long. The reaction from the depression is deep, general and will continue until there is an equalization of economic factors. Building is prosperous, though there is a tendency to overdo, and to anticipate demand in several cities and a great many towns. Capital is quick to seek permanent employment in this direction, especially now when most building material is cheap and a higher range of values is probable. Material men are expanding productive facilities, and in some lines, as lumber, glass and iron, are effecting arrangements looking to the future control of production and the securing of better prices. Labor is very generally employed and is receiving increased compensation in nearly all avenues — sufficient to give assurances of industrial quiet for the season at least. The iron trade has not experienced such activity for years, and furnace output by the close of the present month will probably reach the figures of production of the phenomenal year of 1892. Furnace and mill capacity is being steadily expanded. Textile mills are crowded. Factories producing agricultural requirements are oversold. The stimulus is penetrating every nerve and fiber of the body politic. The people's necessities became imperative. Good crops have given confidence. General employment at good wages has greatly strengthened consumptive capacity. The year 1896 now promises to be one of extraordinary activity in all directions, and fair prices for the incentive to greater production will protect consumers. New factors are appearing in the world. Electricity is affording employment to capital and labor. New machinery, disemploying labor on one hand, is reemploying it to greater advantage on the other. Reports from many cities and towns, east, west and south, show a most hopeful condition of affairs. Industry is organizing for great accomplishments. Under it all is visible a solid conservatism. The errors of the past are recognized. The possible dangers of the future are understood. Business men feel they have more elbow room. Railroad construction will soon open up a vast field for unemployed capital. The country is on the eve of a genuine revival. But with it there will not be an era of speculation and inflated values and rash enterprise to lay the foundations for another reverse. While there are dangers ahead, while overproduction may soon again vex and tax our efforts, there is assured an era of activity that will, under provident management of individuals, firms, corporations and congresses, enable the people to rapidly accumulate a comfortable competence and add vastly to the general wealth.

SYNOPSIS OF BUILDING NEWS.

Architects are invited to furnish for publication in this department monthly or occasional reports of their new work before the letting of contracts. Reports of buildings costing less than \$5,000 are not published.

Buffalo, N. Y.—Architects Green & Wicks: For the Buffalo Cement Company, Limited, a three-story yellow brick and terra cotta apartment house and business block; 220 feet frontage and 172 feet depth; to be built at the corner of Main street and Parker avenue; estimated cost about \$100,000; style classical; ground floor will be divided into ten stores; building will be equipped with speaking tubes, electric bells, hot-water heating apparatus, sanitary plumbing and all modern conveniences.

Architect Frederic W. Brown has prepared plans for a People's Hall, to be built for the use of conventions; it will be capable of holding 25,000 people; to be located on Prospect Park; construction of steel; it will have a large tower; vestibules 20 feet wide will be located at each end; they will be overlaid with terra cotta; estimated cost of structure \$300,000.

Architect J. H. Coxhead: For the Elmwood Club, a two-story brick and frame family clubhouse; to be built on Elmwood avenue, near Ferry street; dimensions 118 by 35 feet; interior will be finished in quartered oak; cost \$20,000.

Architects Swan & Falkner: For Bert Jones, a Colonial house; to be built on the west side of Linwood avenue above Ferry street; cost about \$10,000.

Architect William Schenck: For John H. Eckhardt, a two-story brick store and apartment house; to be built on the northwest corner of Broadway and Fillmore avenue; the dimensions will be 69 by 100 feet; cost \$12,000.

Architect F. S. Husted: For Douglass R. Clarkson, a two-story frame dwelling; to be built at No. 611 West Ferry street; cost \$12,000.

Architects Green & Wicks: For C. G. Putnam, a three-story brick dwelling with terra cotta trimmings; to be built at Nos. 525 and 527 Delaware avenue; cost \$15,000.

Architect Henry L. Campbell: For Park Commissioners, a one-story cream brick and cut-stone zoological building; to be built in the deer paddock at the North Park; dimensions 100 feet long, 45 feet wide; cost about \$10,000.

The Spalding Machine Screw Company will build a three-story brick building for use as a factory on Liberty avenue, near Kensington avenue; to cost \$30,000. The plans were prepared by the company's architect. They provide for a structure 165 by 60 feet.

Architects Babb Cook & Wallard, of New York, have completed plans, and they have been filed at the Bureau of Building, for a handsome two-story brick dwelling, to be built for Henry Ware Sprague, at No. 53 Oakland place; cost \$18,000.

The Jacob Dold Packing Company will build a three-story brick packing house, with a frontage of 65 feet and depth of 100 feet, at No. 745 William street; cost \$8,000.

Several months ago Architect H. H. Little prepared plans for three six-story connecting stores to be used for a drug, oil, paint and glass business of

considerable magnitude. An effort is now being made to capitalize a company to build the stores and launch the business. If the promoters are successful, the stores will be erected on Swan street near Ellicott.

Chicago, Ill.—Architects Curtis & McDonald: For Pleasant Amick, a five-story warehouse, 50 by 100 feet in size; to be erected at 126 to 128 Jefferson street; the front will be of pressed brick with stone trimmings; will put in the necessary plumbing, steam heating, elevators, etc.

Architects Cowles & Ohrenstein: For Messrs. Barry & Fallows, a five-story apartment house, to be erected at Thirty-ninth street, between Cottage Grove and Ellis avenues; the first story will be of stone and above this will be of red pressed brick with terra cotta trimmings; the interior to be finished in hardwoods, have mantels, consoles, sideboards, the best of modern sanitary arrangements, gas and electric fixtures, elevators, steam heating, electric bells, speaking tubes, etc.

Architect John P. Hettinger: For Peter Heid, a three-story store and flat building, 25 by 65 feet in size; to be erected at Graceland avenue and Robey street; pressed brick, stone front, the modern sanitary improvements, mantels, gas fixtures, laundry fixtures, speaking tubes, etc.

Architect J. N. Emmons: For M. A. & J. J. Carberry, a three-story flat building, 27 by 65 feet in size; to be built at Greenwood avenue south of Fifty-fifth street; to have a pressed brick and stone front, hardwood interior finish, the modern plumbing, mantels, gas fixtures, electric bells, speaking tubes, steam heating.

Architects Diethelm & Mau: For John Hanberg, a two-story residence, 24 by 76 feet in size; to be built at South Chicago; will put in all the sanitary improvements, mantels, gas fixtures, furnace, etc.

Architect T. C. Gondie: Making plans for a two-story flat building, 48 by 52 feet in size; to be erected at the corner of Ireland avenue and West Ravenswood Park; it will have a buff Bedford stone front, hardwood interior finish, the modern sanitary improvements, gas fixtures, mantels, steam heating, etc.

Architect J. I. McCauley: For M. Hoskins, at Austin, six two-story houses, to have pressed brick and stone fronts, the sanitary improvements, mantels, gas fixtures, furnaces, etc.

Architect Harold Flower: For J. J. Miller, two three-story residences; to be erected at Washington avenue between Fifty-fourth and Fifty-fifth streets; they will have stone fronts, hardwood finish and mantels, gas fixtures, etc.

Architect L. T. Shipley: For R. S. Martin, a two-story flat building, 30 by 50 feet in size; to be erected at West Pullman; it will be of pressed brick, stone front, have the sanitary plumbing, mantels, gas fixtures, etc.

Architect Paul Gerhardt: For James Besey, a four-story and basement apartment house, 25 by 125 feet in size; to be erected at Mohawk and Center streets; it will have a pressed brick and stone front, the sanitary improvements, gas fixtures, mantels, etc.; also made plans for a two-story residence, 25 by 54 feet in size; to be erected at 1248 Ashland avenue, for Ernst Pomeroy; it will have a pressed brick and stone front, the modern sanitary improvements, gas fixtures, mantels, furnace, etc.

For Henry Arens, a two-story store and flat building, at Koscoe boulevard and Adelaide avenue.

Architect O. L. McMurray: For John Wisnom, a two-story flat building, 25 by 60 feet in size; to be built at Sixty-fourth street and Greenwood avenue; it will have a buff Bedford stone front, the sanitary improvements, gas fixtures, mantels, furnaces, etc. For Edward Palmer, a two-story, basement and attic residence, 33 by 42 feet in size; to be built at 7027 Seipp avenue; it will be of stone foundation and frame above, have quarter-sawn oak finish, open plumbing, mantels, gas fixtures, furnace, etc. For J. F. Newson, a two-story, basement and attic residence, 32 by 50 feet in size; to be erected at Elizabeth, Indiana; it will be of frame, with stone basement, have oak interior finish, mantels, gas fixtures, furnace, etc.

Architect J. H. Moore: For C. O. Bishop, a two-story residence, 40 by 50 feet in size; to be erected at Charles City, Iowa; it will be of granite, first story, and frame above, have hardwood interior finish, the best of modern sanitary improvements, gas fixtures, mantels, steam heating, etc.

Architect J. H. Huber: For Adolph Schoeninger, a five-story factory, 60 by 63 feet in size; to be erected at Sigel street near Wells; it will be of stone and terra cotta front, have plumbing, elevators, steam heating, electric light, etc. For McGuire Manufacturing Company, remodeling factory and one-story addition at 122 Sangamon street. For J. L. Cochrane, a handsome two-story residence, to be erected at Norwood avenue, Edgewater; to be of brick basement and frame above, have hardwood finish and mantels, gas fixtures, the sanitary plumbing, laundry fixtures, furnace, etc.

Architect Henry Hildinger: For A. Krueger, a three-story store and flat building, 24 by 100 feet in size; to be erected at Twenty second street near California avenue; to be of stone front, have the modern plumbing, gas fixtures, mantels, etc.

Architect C. R. Adams: For W. Christoph, a two-story, basement and attic residence; to be erected at Rogers Park; it will be of frame with stone basement, have the modern sanitary improvements, gas fixtures, mantels, steam heating, etc. For John Horn, remodeling residence at Rogers Park; will put in new plumbing, electric light, steam heating, etc. Also for Mrs. Wynne, at Rogers Park, a two-story flat building, 22 by 50 feet in size; to be of frame with stone basement, have the modern sanitary improvements, mantels, furnaces, etc. Also made plans for a four-story apartment house, 60 by 74 feet in size; to be erected at; to be of pressed brick and stone front, have copper cornice and bay windows, hardwood interior finish and mantels, gas and electric fixtures, electric light, steam heating, etc.

Architects Hallstrom & Ockerland: For A. J. Anderson, a three-story flat building, 24 by 58 feet in size; to be built at 1278 Wilton avenue; to be of stone front, have the modern sanitary improvements, mantels, gas fixtures, furnaces, etc. Also for A. G. Gustavson, a four-story and basement flat building, 23 by 52 feet in size; to be erected at 208 Sedgwick street; it will have a pressed brick and stone front, the modern sanitary improvements, gas fixtures, heating, etc.

Architect Richard B. Powell: Making plans for three two-story residences, to be erected at Emerald avenue and Sixty-eighth street; to have buff Bedford stone fronts, hardwood finish, mantels, gas fixtures, electric light, etc. Also made plans for a three-story flat building, to be built at Fifty-ninth and La Salle streets; it will have a pressed brick and stone front, the sanitary improvements, gas and electric fixtures, mantels, steam heating, etc.

Architect J. M. Van Osdel: For Dr. W. E. Putnam, a four-story store and flat building, 25 by 90 feet in size; to be erected at Whiting, Indiana; to be of pressed brick and stone front, have copper cornice and bay windows, hardwood finish, the modern sanitary improvements, mantels, gas and electric fixtures, steam heating, etc.

Architects Finkler & Niess: For A. Finkler, a two-story, basement and attic residence, 35 by 57 feet in size; to be erected at Paulina street near Sunnyside avenue, Ravenswood; it will be of frame construction with stone basement, have hardwood interior finish, mantels and sideboards and consoles, gas and electric fixtures, furnace, etc. Also, for Hayden Brothers, a two-story and basement factory, 50 by 60 feet in size; to be built at Wallace and Thirtieth streets; to be of common brick with pressed brick and stone trimmings; will put in the necessary plumbing, gas fixtures, steam heating, etc.

Architect C. W. Nothnagel: Made plans for a three-story store and flat building, 50 by 88 feet in size; to be erected at Sixty-ninth street and Ashland avenue; it will have a buff Bedford stone front, hardwood finish, mantels, sideboards, gas fixtures, etc.

Architect S. S. Beman: For President Draper, of the University of Champaign, Illinois, a handsome three-story residence, 50 by 61 feet in size; to be of frame with brick basement, have hardwood finish throughout, the best of modern open nickel-plated plumbing, mantels, sideboards, consoles, electric light, steam heating, etc. It is in the Colonial style of architecture and presents a fine appearance.

Architect Charles S. Frost: For Harry and Max Hart, two three-story residences, 38 by 66 feet each, to be erected at 4639 to 4643 Drexel boulevard; they will have handsome Connecticut brown stone fronts, with Spanish tile roofs; the interior to be finished throughout in hardwoods and have mantels, sideboards and consoles of special design, the best of open nickel-plated plumbing, electric light, steam heating, etc.

Architect M. H. Vail: For R. J. Bennett, a handsome three-story and basement apartment house, 74 by 85 feet in size; to be erected at the corner of Sunnyside avenue and Paulina street, Ravenswood; it will have a stone basement and pressed brick with stone trimmings for the balance, also stone porch;

the interior will be finished in hardwoods throughout, have mantels, sideboards and consoles, gas and electric fixtures, the best of open nickel-plated plumbing, steam heating, etc. Also for same owner, on Sunnyside avenue near Paulina street, a double three-story and basement apartment house, 54 feet front; to be of pressed brick with buff Bedford stone trimmings, have the interior elegantly finished up in oak, also will put in electric light, steam heating, etc.

Architect H. L. Page: For Charles G. Harvey, a two-story residence, 52 by 42 feet in size; to be erected at Oak Park; it will be of brick foundation and frame above, have hardwood interior, mantels, sideboards, etc., the modern sanitary conveniences, electric light, etc.

Architect F. Knudson: For O. Knudson, a four-story and basement store and hall building, 48 by 126 feet in size; to be erected at 851 to 855 West North avenue; it will be of stone front, hardwood finish, the modern sanitary improvements, have electric light, steam heating, etc.

Architect J. A. Miller: For J. Lodeski, a two-story flat building, to be built at Adams street near West Forty-first; it will have a stone front, the sanitary improvements, gas fixtures, etc.

Architect William Youmans: For George Brandenburg, three two-story flat buildings, to contain 14 suites of apartments; to be erected at Sixty-sixth street and Drexel avenue; they will have stone fronts, hardwood finish, the modern sanitary improvements, gas and electric fixtures, mantels, sideboards, steam heating, etc. For John L. Van Dermak, two two-story flat buildings, at Prairie avenue and Seventy-first street; they will have buff Bedford stone fronts, the modern conveniences, heating, etc. Also two two-story flats, to be built on Emerald avenue near Sixty-ninth street; stone fronts, hardwood finish, the best of plumbing, mantels, gas fixtures, etc.

Architect C. M. Palmer: For C. C. Landt, two three-story residences, 52 by 64 feet in size; to be erected at Greenwood avenue south of Forty-fifth street; they will have handsome buff Bedford stone fronts, hardwood interior finish, mantels, sideboards and consoles, the best of modern sanitary improvements, heating, etc. For J. M. Fannin, a two-story flat building, 25 by 76 feet in size; to be erected at Central Park avenue between Colorado avenue and Jackson street; it will have a stone front, hardwood finish, modern plumbing, gas fixtures, mantels, electric bells, etc.

Architect A. G. Ferree: For M. Kuhn, two two-story houses, 40 by 50 feet in size; to be erected at Auburn Park; they will have pressed brick and stone fronts, and stone porches, the modern sanitary improvements, gas fixtures, mantels, sideboards, furnaces, etc. For C. M. Staples, a three-story flat building, 50 by 50 feet in size; to be erected at Melrose Park; it will have a pressed brick and stone front, the modern plumbing, gas fixtures, mantels, steam heating, etc. For Smith & Johnson, five two-story houses, to be erected at Melrose Park; they will have pressed brick and stone fronts, the modern sanitary plumbing, gas fixtures, mantels, etc. Also a three-story flat building, to be erected at same location; size, 50 by 50 feet; to be of stone and pressed brick, have Georgia pine interior finish, the modern plumbing, gas fixtures, mantels, heating, etc. Also for M. Durbin, four two-story houses, to be erected near Gross Park; they will have pressed brick and stone fronts, the best of sanitary plumbing, furnaces, etc.

Architect Oscar Lieverahl: For Ole Westin, a two-story flat building, 22 by 63 feet in size; to be built at 7409 Evans avenue. It will have a front of pressed brick with Bedford stone trimmings, pine finish, gas fixtures, modern sanitary plumbing, etc.

Architect Albert S. Hecht: For Wm. M. Oriet, a two-story residence, 25 by 51 feet; to be built at Forty-seventh and Monroe avenue; it will have a stone front, hardwood finish, mantels, gas fixtures, heating, etc. Also making drawings for a Methodist Episcopal church, 70 by 70 feet in size; to be erected at the corner of Sheffield avenue and George street; to be constructed of pressed brick with Bedford stone trimmings and slate roof, have hardwood finish, gas fixtures, stained glass windows, steam heating, plumbing, etc. Also in connection with the church a three-story parsonage, 24 by 50 feet in size; to be of pressed brick and stone front. Also on a piece of property belonging to the church and adjoining same will erect a three-story apartment house; 50 feet front and 60 feet deep. This will be of buff pressed brick front with Bedford stone trimmings, have the interior finished in oak and Georgia pine, the best of modern sanitary improvements, gas and electric fixtures, mantels, sideboards, and steam heating; the total cost will be about \$80,000. Also for O. W. Moody, a two-story flat building, 50 by 75 feet in size; to be erected at Woolcott street and Lawrence avenue, Ravenswood. It will have a buff Bedford stone front, Georgia pine interior finish, the modern sanitary improvements, gas fixtures, electric bells, steam heating, etc.

Architect William Kleider: Making plans for the German Evangelical Lutheran church, 45 by 92 feet in size; to be erected at Roscoe and Anna streets; it will be of frame with stone basement, have gas fixtures, steam heating, etc. Also making plans for a four-story store and flat building, 25 by 85 feet in size; to be erected at Halsted street near Webster avenue; it will have a fine buff Bedford stone front, hardwood interior finish, mantels and sideboards, gas fixtures, electric bells, speaking tubes, cement floors, steam heating, etc.

Architects Church & Jobson: For J. L. Cochrane, a two-story, basement and attic residence, 36 by 57 feet in size; to be erected at Edgewater; it will be constructed of buff Roman pressed brick with Bedford stone trimmings, have interior finished throughout in hardwoods, the best of modern sanitary improvements, gas and electric fixtures, electric light, steam heating, etc.

Architect Alfred Smith: Made plans for an iron foundry, 50 by 125 feet in size; to be erected at Carroll avenue near Robey street; it will be of common brick.

Architect Frank O. Demoney: For A. Kalstadt, a two-story flat building, 24 by 58 feet in size; to be built at Division street near California avenue; it will be of stone front, have hardwood finish, mantels, modern plumbing, gas fixtures; also two-story flat, 25 by 60 feet; to be built at Perry street near Berteau, Ravenswood; mantels, gas fixtures, furnaces, etc.

Architect Hugh G. Jones: For E. J. Camp, at One Hundred and Nineteenth street and Wallace, a three-story store and flat building, 104 by 56 feet in size; to be of pressed brick front with Bedford stone trimmings, have the modern plumbing, gas fixtures, mantels, steam heating, etc. Also making drawings for a school, 75 by 70 feet in size, to be erected at Blue Island; to be of pressed brick and stone front, have the necessary plumbing, heating, etc. Also making drawings for the First Congregational Church Society of West Pullman, for an edifice, 40 by 90 feet. Also getting out plans for a frame church, 40 by 65 feet in size; to be built at Chicago Heights.

Architects Huehl & Schmid: For Simon Goldstein, a two-story store and flat; to be built at Twenty-fifth street and Oakley avenue; pressed brick and stone front, plumbing, mantels, etc. Also for Philip Emrath, at 32 Gault place, a two-story and basement flat; to have a stone front, mantels, gas fixtures, etc.

Architects Morrison & Torrance: For B. Forsythe, a two-story and basement store and flat building, 50 by 108 feet in size; to be erected at Rensselaer, Indiana; to be of pressed brick, stone front, have the modern plumbing, electric light, steam heating, etc. Also making drawings for a four-story and basement apartment house, 50 by 107 feet in size; to be erected at Sixty-fourth street and Drexel avenue; it will be of pressed brick and stone front, have the best of modern conveniences, and steam heating.

Architects Jenney & Mundie: Made drawings for a twelve-story office building, 50 by 60 feet in size; to be erected at Dearborn street, south of Van Buren, for Thomas A. Davies; it will be of pressed brick, stone and terra cotta front, have plumbing, elevators, electric light, etc.

Architect J. M. Hoskins: For John M. Griffith, a three-story store and flat building, 48 by 60 by 75 feet in size; to be erected at the corner of Grand and Harding avenues; it will be of pressed brick and stone front, and have all improvements.

Architect Franklin P. Burnham: For E. P. Prickett, a two-story residence, 31 by 40 feet in size; to be erected at Evanston; to be of frame, with pressed brick basement, have oak interior finish, plumbing, heating, etc. Also for F. S. Davis, a residence, 31 by 40 feet in size; to be erected at Evanston; to be of frame, with brick basement, have all the modern conveniences, furnace, etc.

Cincinnati, Ohio.—Reported by Lawrence Mendenhall:

It is hard to describe accurately the state of business, as conversations with both architect and contractor are decidedly, at times, at variance. It is my individual opinion, as I view the situation conservatively, that the season,

when it closes, will be found to be a fairly successful one. The building has been largely confined to the suburbs, which grow more beautiful daily, as the genius of the architect is shown in comely structures.

Architects Samuel Hannaford & Sons report as follows: For the Cincinnati Music Hall Association, an extensive remodeling of and alterations in the Music Hall; the change will partake of the nature of an opera house and complete accessories, and when completed cost \$100,000. They are also preparing plans for a residence for Mrs. Catherine Pedretti, Clifton (Cincinnati, Ohio); materials: frame, slate roof, furnace, stained glass, hardwood, grates, mantels, gas, plumbing, etc.; cost not stated.

Architect James W. McLaughlin has drawn plans for a large office building, 91 by 66 feet in size, ten stories in height; materials: stone, granite, terra cotta, steel construction, elevators, steam heat, gas, plumbing, etc.; the upper floor is designed for artists' studios, and the entire building will be thoroughly modern as to improvements; cost, \$125,000.

Architect S. S. Godley reports as follows: For Sportman Shot Company, a warehouse, 55 by 57 feet, three stories high; materials: brick, tin roof, elevators, gas, and all conveniences; cost not given. For Dr. C. F. Judkins, Cincinnati (Sixth and Park), a residence in Avondale; materials: pressed brick, slate roof, gas, furnace, hardwood, stained glass, plumbing, grates, mantels, etc.; cost \$10,000. For Mr. Patterson, Delhi, Ohio, a residence; materials: frame, shingle roof, plumbing, grates, mantels, stained glass, etc.; cost \$3,500.

Architects Crapsey & Brown have drawn plans for the Hyde Park Presbyterian church, Hyde Park, Ohio; materials: brick, slate roof, pews, furnace, organ, stained glass, etc.; cost \$5,000.

Architect H. E. Siter has prepared plans for a schoolhouse, for the Board of Education of Cincinnati; materials: pressed brick, slate roof, furnace, blackboards, gas, plumbing, etc.; size 74 by 168 feet 10 inches; three stories, and containing sixteen rooms; cost \$85,000.

Architect A. O. Elzner has prepared plans for a depot for C. & O. R'y at Huntington, West Virginia; materials: brick, slate roof, stained glass, furnace, furnishing, etc.; cost not given.

Architects Gianinni & Moorman report the following: For Cincinnati Milling Machine Company, a factory building; materials: brick, tin roof, machinery, etc.; cost \$10,000; size 64 by 130 feet. Residence for G. Gest, Fifth and Race streets; materials: pressed brick, slate roof, gas plumbing, grates, mantels, stained glass; cost \$5,000.

Contract for Newport, Kentucky, racecourse has been let to Branham & Gest, Fifth and Race streets, Cincinnati; cost \$35,000. Residence for Elliot Marfield, Cincinnati, Ohio; materials: frame, shingle roof, gas, plumbing, grates, mantels, stained glass, etc.; cost \$7,500.

Architect Charles G. Rubenstein reports a residence for Thomas C. McGrath, Cincinnati, Ohio; materials: stone, tile roof, gas, furnace, grates, mantels, plumbing, stained glass, etc.; cost \$10,000.

Architects John H. Boll & Co. are engaged on plans for a building for Mr. Henry Verhage, Cincinnati; it will probably be fitted up for a hotel; materials: pressed brick, gas, plumbing, grates, mantels, steam heat, etc.; the building will be ten stories high; cost not given. They are also remodeling the residence of Guy W. Mallon, Esq., Cincinnati, Ohio; the alteration will be general, and cost \$3,800.

Architects Des Jardins & Hayward have drawn plans for Mr. Albert Mayer, Cincinnati, Ohio; materials: stone, concrete, slate roof, gas, plumbing, furnace, grates, mantels, stained glass, etc.; cost not stated. Also plans for a residence for Mrs. Emma Fischer, Westwood, Ohio; materials: frame, shingle roof, furnace, grates, mantels, stained glass, plumbing, etc.; cost \$10,000. The same firm is engaged in plans for two pressed brick dwellings for Mr. James Duff on Burnet and West Ridgeway avenues, Avondale, to cost about \$6,000 each; also plans for a brick and iron store and flat building at Sixth and Smith streets for the Universalist Church. This building will be four stories in height, contain four stores and twelve flats and will cost in the neighborhood of \$25,000.

Architects Dittoe & Wisenall have drawn plans for a residence for Mr. Drausin Wulsin; materials: brick, slate roof, gas, plumbing, grates, mantels, furnace, etc.; cost \$7,000.

Detroit, Mich.—Architects Donaldson & Meier: For Dr. Stanley G. Miller, a two-story brick business block, to be erected at the corner of Cadillac Square and Randolph streets; size 65 by 110 feet; cost \$10,000.

Architects Stratton & Baldwin: For St. Mary's P. E. Mission, a brick church with stone trimmings, to be erected on Canfield avenue; cost \$6,500. For J. L. & J. V. Gearing, a two-and-a-half story limestone residence, to be erected near Cass and Putnam avenues; size 40 by 76 feet; cost \$15,500.

Architects Malcombson & Higginbotham: For State Board of Education, Ypsilanti, Michigan, a two-story brick and stone school building; Blower system heating; size 90 by 170 feet; cost \$25,000. For Board of Education, Detroit, a two-story brick and stone school building, to have eight classrooms; size 94 by 100 feet; cost \$20,000.

Architect John W. Coughlin: For F. X. St. Armour, three two-story frame residences, to be erected on the north side of Kircheval avenue near Sheridan; size 26 by 50; cost \$6,500.

Architects Mason & Rice: For Dr. John W. Fay, a two-story pressed brick residence, cut stone trimmings, slate roof, etc.; to be erected on Hancock avenue near Second street; cost \$7,000.

Architect R. E. Raseman: For Western Hay Market, a brick and stone office building and weighhouse, to be erected at corner of Michigan and Trumbull avenues; cost \$7,500.

Architects Rogers & McFarlane: For Harper Hospital, a two-story brick and stone stable; size 35 by 50 feet; cost \$5,000.

Architect Peter Dederichs: For Jacob Platz, a three-story brick residence, to be erected at corner Monroe and Russell streets; cost \$5,500.

Architect Joseph Mills: For Charles Seidel, a two-story frame double residence, to be erected on Avery avenue; cost \$5,000. For W. G. Perkins, a two-story brick double store building, to be erected on east side of Greenwood avenue near Kirby street; cost \$6,000.

Architect Edw. C. Van Leyen: For Mrs. Henry Schaefer, enlarging and remodeling residence, brick and cut stone, on Park street near Sproot street; cost \$5,000. For Lincoln Abraham, a two-story brick residence, to be erected on Seward avenue; cost \$5,500. For Mrs. George Hubbard, a three-story hotel building; to be of field stone and frame; size 60 by 110; cost \$17,000.

Milwaukee, Wis.—Architects Schnetzky & Liebert have completed plans for the West Side High School building; 187 feet frontage.

Architects Ferry & Clas: For Knights Templars, No. 1, a six-story pressed brick, stone and terra cotta building, to be erected at corner of Oneida and Jefferson streets; size 21 by 120 feet; cost \$80,000.

Minneapolis, Minn.—Architect Warren H. Hayes has plans completed for the Union Square Baptist Church, at Boston, Massachusetts; size 77 by 120 feet; cost \$35,000. Also plans for a stone church to be built at Jasper, Minnesota; size 50 by 72 feet; cost \$5,000.

Peoria, Ill.—Architect W. H. Miller: For H. Sandmeyer, Jr., a three and one-half story stone and brick residence, to be erected at 318 Perry street; size 28 by 68 feet; cost \$10,000.

Pittsburg, Pa.—Architect U. J. L. Peoples has prepared plans for a school building in the Italian Renaissance style, to be erected at Larimer avenue and Winslow street; size 175 by 90 feet; cost \$35,000. Also a school building to cost \$20,000.

Architects Boyd & Long: For the Pittsburg division of the B. & O. R. R., a brick and stone passenger depot; to have observation signal tower.

South Evanston, Ill.—Architect J. T. W. Jennings: For the city, a two and one-half story and basement pressed brick school building; size 87 by 120 feet; cost \$40,000.

St. Louis, Mo.—Architects Link, Rosenheim & Ittner: For the Shaare Emeth congregation, a three-story pressed brick church; to have slate roof, mosaic tiling, cathedral glass, etc.; size 80 by 45 feet; cost \$100,000.

Architect Isaac Taylor: For W. H. Thompson, reconstructing Masonic Temple; cost \$100,000.

Architect J. L. Wees: For L. D. Dozier, a three-story brick, marble and terra cotta residence, to be erected on Sixtieth and Morgan streets; size 67.10 by 70.1 feet; cost \$50,000.

HISTORY OF THE YALE LOCK.

THE discovery of new mechanical principles and their application to the everyday needs of the multitude is the distinguishing characteristic of the present century, and especially of the last half of it, now about drawing to a close. There is no better instance of the entire revolution in everyday practicalities than that furnished by the development of that absolute necessity, security from intrusion, in the invention of the Yale lock by Linus Yale, Jr., and its subsequent extension and application to all the known uses of a lock by Henry R. Towne.

Mr. Yale had the inventive genius, as shown by the application of two entirely new principles to the ordinary door lock, and Mr. Towne had the complementary genius, so often wanting in the development of inventions, of skill in the designing of mechanical methods and details; insight into the demands of the people which made possible the application of the Yale lock to every practical use; and the progressive idea so to improve and apply the invention that it has become not only the standard in itself, but the model for all American makers of locks.

Prior to the invention of Mr. Yale, it was the thickness of the door and the size of the lock that defined the size of the round key, then in universal use. Locks were largely fastened to the inner surface of the door, and if the door was two inches thick, for instance, the shank of the key must be equally long; and added to this, it must be enough longer to reach into the lock and be able to engage with the bolt. This combination of round key and old style rim lock was formidable in looks, but beyond—in the matters of actual safety and security, it cut but a poor figure.

Linus Yale, Jr., who had been in business with his father, Linus Yale, Sr., at Newport, Herkimer county, New York, manufacturing bank locks, in which field he possessed extraordinary ability and won a leading place, conceived the idea that the key mechanism of a door lock could be separated from the bolt mechanism, thus enabling him to use a uniform size of key, regardless of the thickness of the door. He was the first to separate the key mechanism of a lock from the case containing the bolting mechanism, and to inclose the former in a separate "cylinder" or key escutcheon. This fundamental invention has since passed into universal acceptance for all fine locks, and has revolutionized the lock industry of the United States. Having accomplished this, Mr. Yale further improved his lock by adapting it to receive a key of thin flat metal. He did this by providing a small cylindrical plug, containing a slot to receive the key and forming the axis or bearing in which the key revolved to operate the bolt. These two inventions were equally fundamental—the first in its effect upon lock construction, and the second, in its substitution of a flat key for the cylindrical keys previously in universal use.

The key-plug of the Yale lock contains a series, usually five or more, of pin tumblers, each contained in a hole or recess, and each having above it a secondary pin or "driver," which prevents the rotation of the plug by intersecting the joint between it and the surrounding tumbler case or escutcheon. The insertion of the proper key raises the tumblers, so that the joints between them and the drivers coincide exactly with the joint between the key-plug and the surrounding escutcheon. A variation of one-fiftieth of an inch in any tumbler, or in the fitting of the key beneath it, destroys the adjustment and prevents the operation of the lock. This fact accounts for the unrivaled capacity of the Yale lock for permutations or key changes, and enables its makers to produce 50,000 or more locks without duplicating a single key, whereas the key changes of common locks are usually limited to less than one hundred permutations, and more frequently to only twenty-four or even twelve changes.

Mr. Yale had adapted his inventions to only eight different types of locks, and (in curious contrast to the high mechanical quality of his work relating to bank locks) had made these adaptations in crude and somewhat unmechanical forms, when he met Henry R. Towne, then of Philadelphia, who, perceiving the possibility of creating a large industry out of Mr. Yale's inventions, proposed that they should unite their interests. As a result, the two formed a partnership in October, 1868, under the name of "The Yale Lock Manufacturing Company," and bought land in Stamford for the erection of a plant. Mr. Yale continued his business in Shelburne Falls, while Mr. Towne undertook the designing and erection of new buildings in Stamford. In December, 1868, Mr. Yale died suddenly, in New York city, of heart disease, before the new plant at Stamford had been erected. Undaunted by this catastrophe, Mr. Towne, however, pushed the enterprise forward, assisted for a short time by John B. Yale, a son of the inventor, and in March, 1869, the new buildings were completed, the machinery and business removed from Shelburne Falls to Stamford, and business begun at the new location with about thirty employees. In June of that year Mr. Towne was chosen president, which position he has held continuously since, and in 1870 the entire Yale interest was disposed of and he became ultimately the sole owner.

Mr. Towne had seen his partner but a few times in the course of the two short months of their business connection, and the story of the development of the enterprise from a small workshop employing less than thirty men, endeavoring to introduce a new and special product upon the market, to the great industry of today, employing over 1,400 persons and leading the trade of the world in its line, which has revolutionized previous practice and set the standard for all American lockmakers, is largely the story of Mr. Towne's personal endeavor and influence, as a thoroughly trained mechanical engineer, guided by an abiding conviction

that in lockmaking as well as in larger engineering work, high-class workmanship and design, unhampered by traditional usage, would in due time command the public approval and a large market.

The further advance in security was developed by the introduction of the corrugated key instead of the flat key. The key-slot was also changed from a straight to an irregular formation. Some years later the invention of the paracentric key was made, and this key is now applied to all the genuine Yale locks.

Here the improvement is entirely in the key-way and the key, the bolt and pin tumbler mechanism remaining the same as in the flat and in the corrugated forms. The form of this key is such that it admits of being made sufficiently thick and strong, and the key-way is of such irregular shape that it would appear to be absolutely impossible for a surreptitious entrance to the pin tumblers in the cylinder to be made, without which it is absolutely impossible to operate the bolt mechanism. The development of the paracentric key, with its accompanying peculiar slot, is a great step in the direction of absolute security.

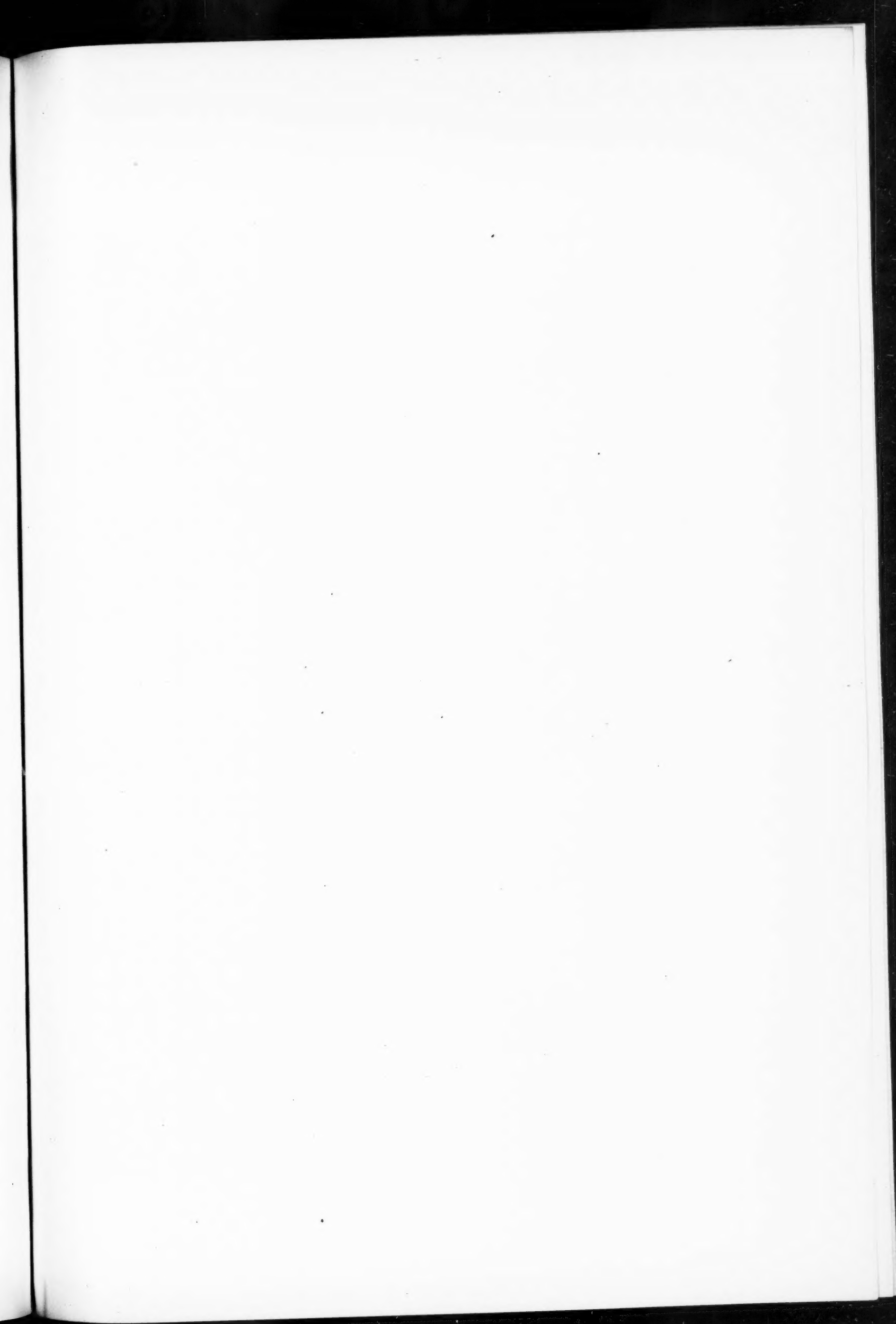
The Yale paracentric front door lock of the latest model is perhaps the highest piece of work of the kind in the world. It is of exceptional strength, having both a night latch and a dead bolt, both operated by a single small key, the same size as any other Yale key. The bolt mechanism of this lock is double, one section for the dead bolt and one for the night latch. A single complete turn of the key in the cylinder serves to operate the mechanism of the dead bolt if it should be locked, and thus unlock the bolt. This same motion also moves the dead bolt mechanism into such connection with the night latch mechanism that a half turn more of the key unlocks the night latch, and the householder is thus entirely removed from the danger of being locked out of his own house. This feature of operating two bolts by means of a single key and its escutcheon or cylinder was invented by Mr. Towne within a month of Mr. Yale's death and was his first contribution to the art. Access to the key cylinder is only by means of removing the screw fastenings from the front of the lock, but this is protected by an unmovable armor, or front, which entirely protects the lock from any access when the door may be accidentally open for a brief period. It is in many respects the best development of mechanical application to a door lock in the world, and it is capable of any sort of ornamentation on the knob, escutcheon or armor plate, that may harmonize with the general workmanship of the interior finish of the house, in wood or in hardware.

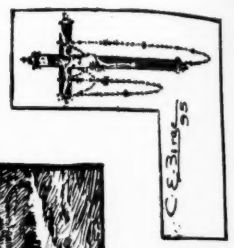
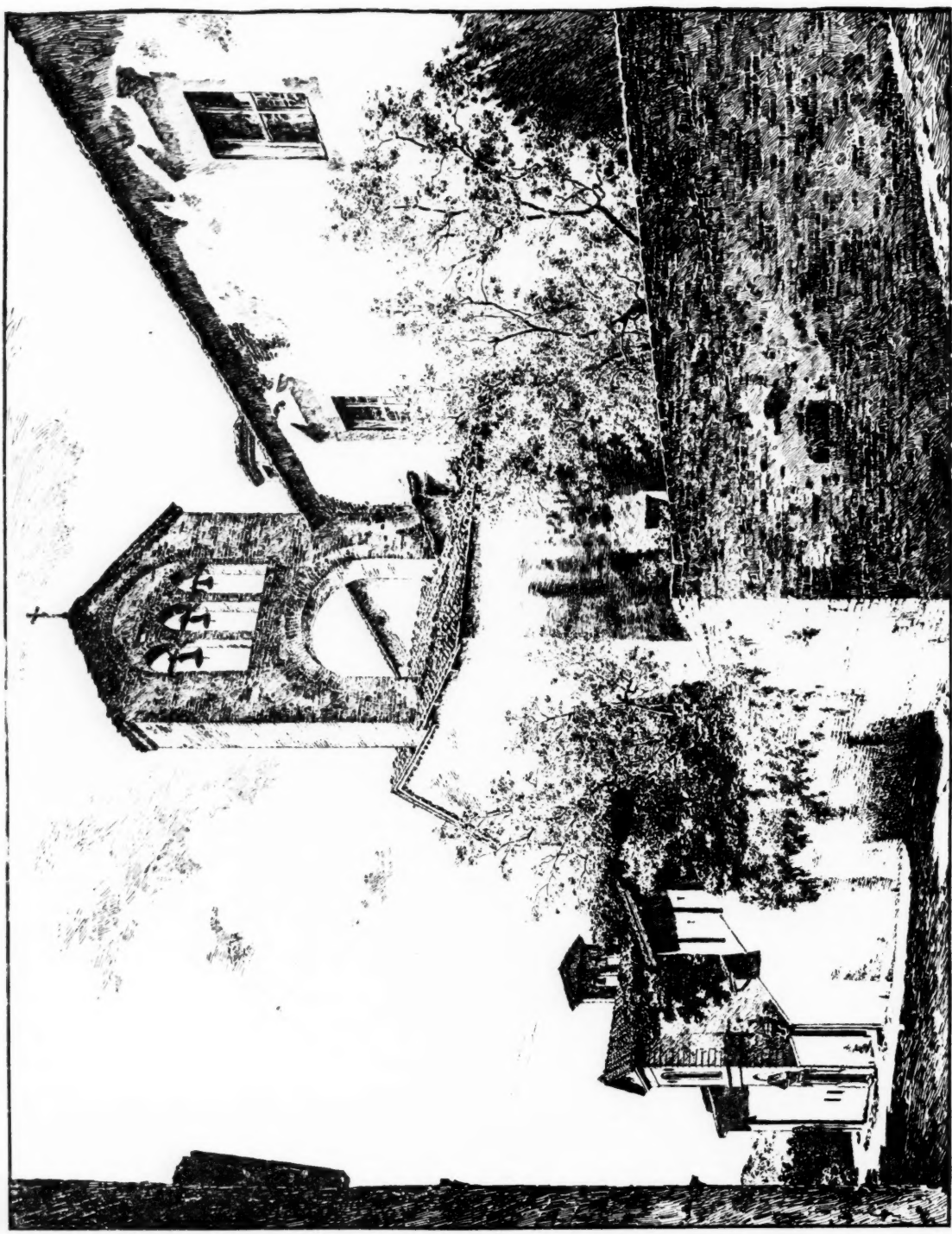
Early in the manufacture of door locks with their accompanying knobs and ornamented escutcheons, he perceived the opportunity for a new and better line of work, and the application of trained artistic talent to the ornamentation of builders' hardware was begun by him. Many of the best examples having been designed by the late John W. Root, and in conjunction with Mr. Donovan and Oswald W. Lockett, of the Orr & Lockett Hardware Company, the latter being largely active in the distribution of Yale locks and products in the West.

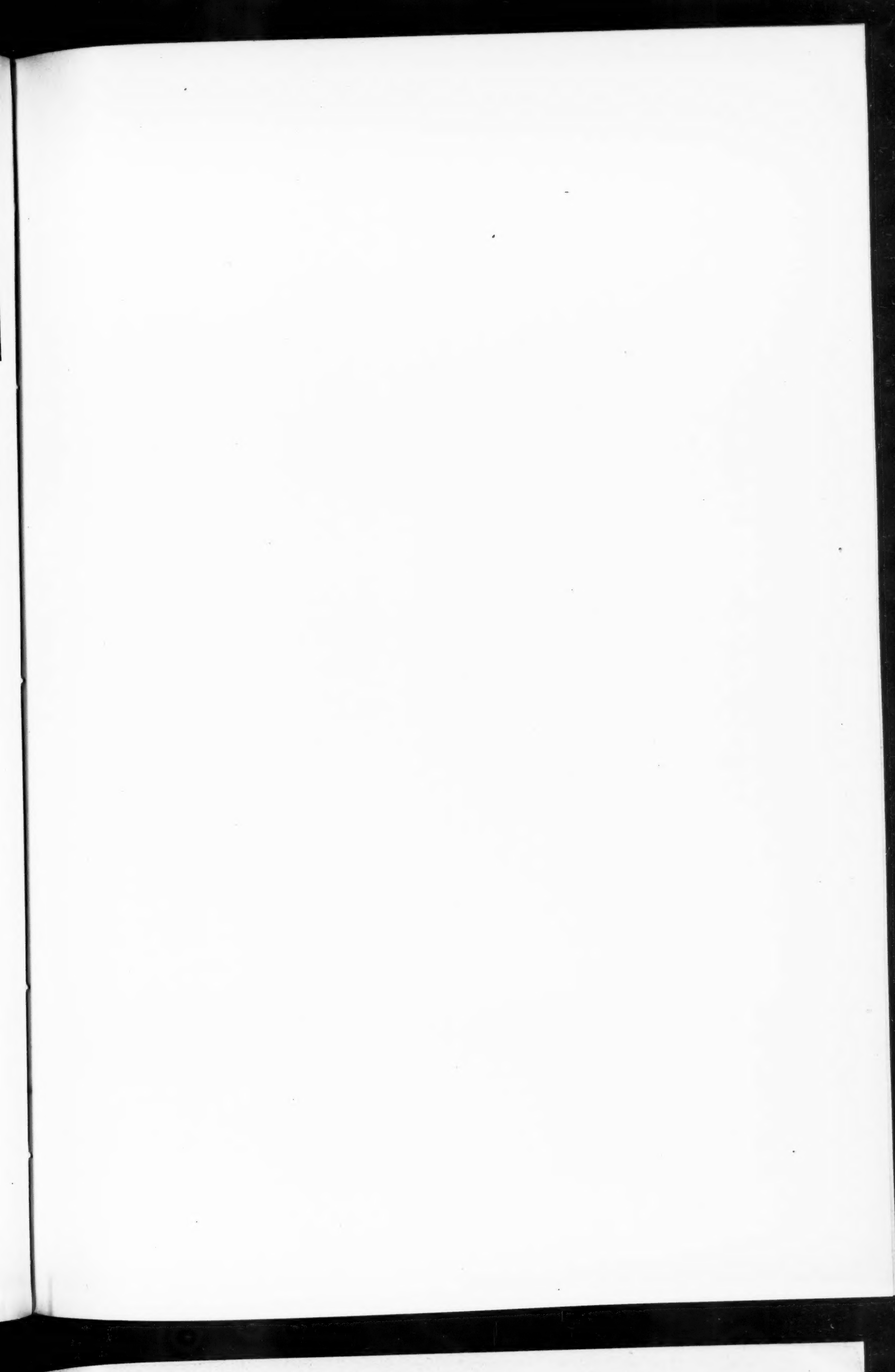
A glance through the long series of these reproductions of beautiful art work shows to what extent the demands of architects and the people have already responded to the movement inaugurated by Mr. Towne, greatly aided, during recent years, by the artistic taste and knowledge of Mr. Donovan, the vice-president of the company, long an enthusiastic advocate of higher art in this field, in which these earlier efforts have of late been supplemented by those of competitors who have in this, as in other matters, accepted the leadership of the Yale & Towne Manufacturing Company, and followed in the paths it has opened.

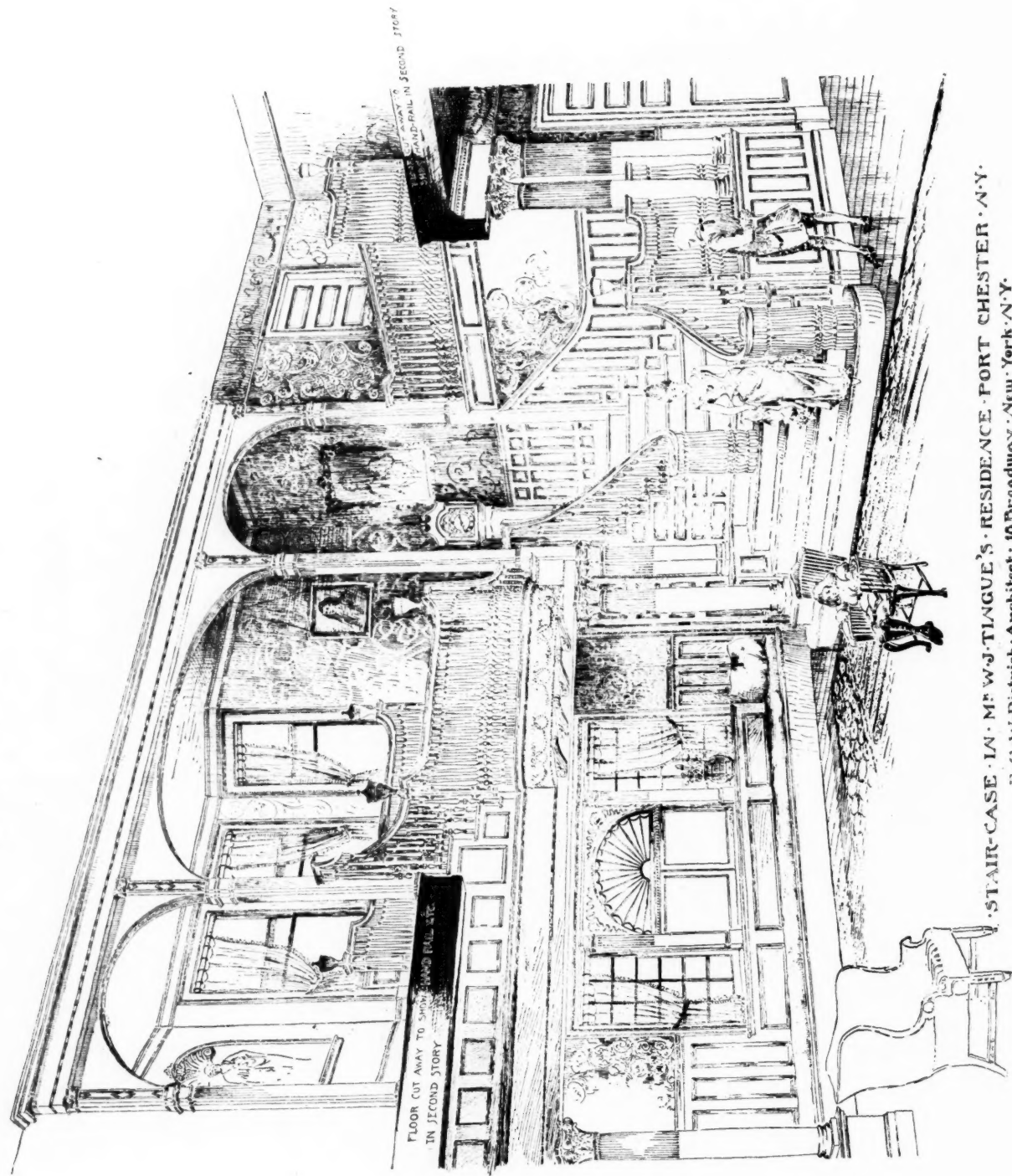
The design goes from the hands of the artist to the model room, where it is reproduced in plaster. This work is second only to that of the original designer and is in itself an artistic process. When the design is complete in the plaster it is taken to the brass or bronze foundry, where it is first cast in bronze. It is then returned to the model room, where it is carefully finished, the chasing of the background made perfect and all the lines made clear and sharp. This bronze model, or pattern, is to be used henceforth for casting the article which goes into the market. So delicately is it made and so smoothly cast that as the product comes from the sand of the mold, the chasing, the finest tracery which may make up the design, is exactly reproduced, showing that art casting has been brought to a fine art in this foundry.

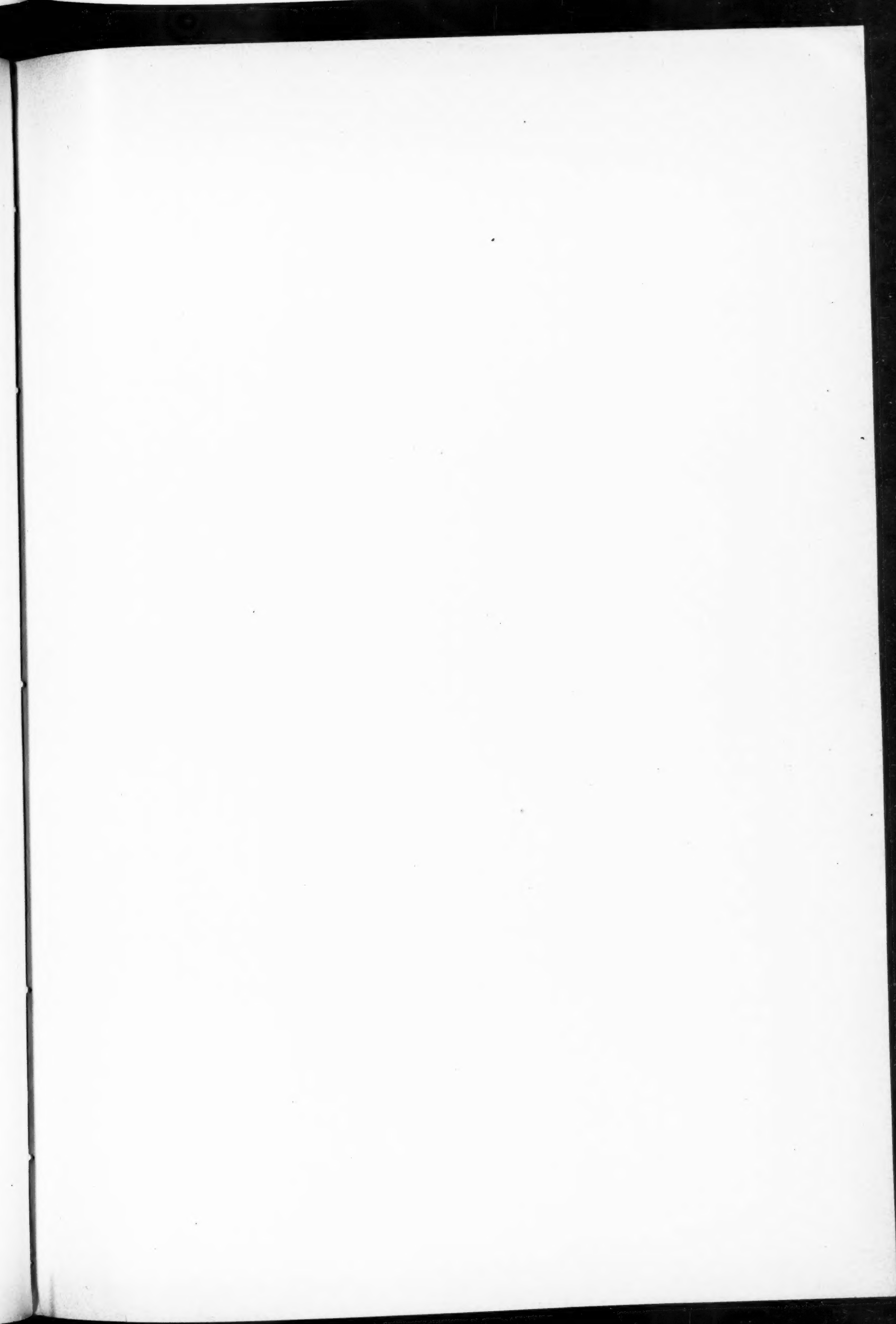
Henry Robinson Towne, the founder and promoter of the great industries of the Yale & Towne Manufacturing Company, was born in Philadelphia, August 28, 1844. He was educated at private schools and in the University of Pennsylvania. He entered the Port Richmond Iron Works in 1862 as a mechanical draftsman, leaving college for that purpose. He was engaged for four years in general engineering work, especially heavy marine engines for the monitors and other war vessels, the erection of which he superintended at the Boston, Portsmouth and Philadelphia navy yards. In 1866 he made an extensive tour of the engineering establishments of England, Belgium and France, spending six months in France, where he studied at the Sorbonne. His partnership with Mr. Yale, as has been seen, was formed in 1868, and his subsequent work in creating a great industry has been fully set forth in the sketch of its growth and productions. Mr. Towne has been an active member of the American Society of Mechanical Engineers from its formation, a member of its council and its president in 1888 and 1889. He is a member of the Century, University, Hardware and Engineers' clubs in the city of New York, a director of the Institute of Mechanical Engineers of London, and of several other scientific organizations. He has two sons, both of whom are now associated with him in the business.

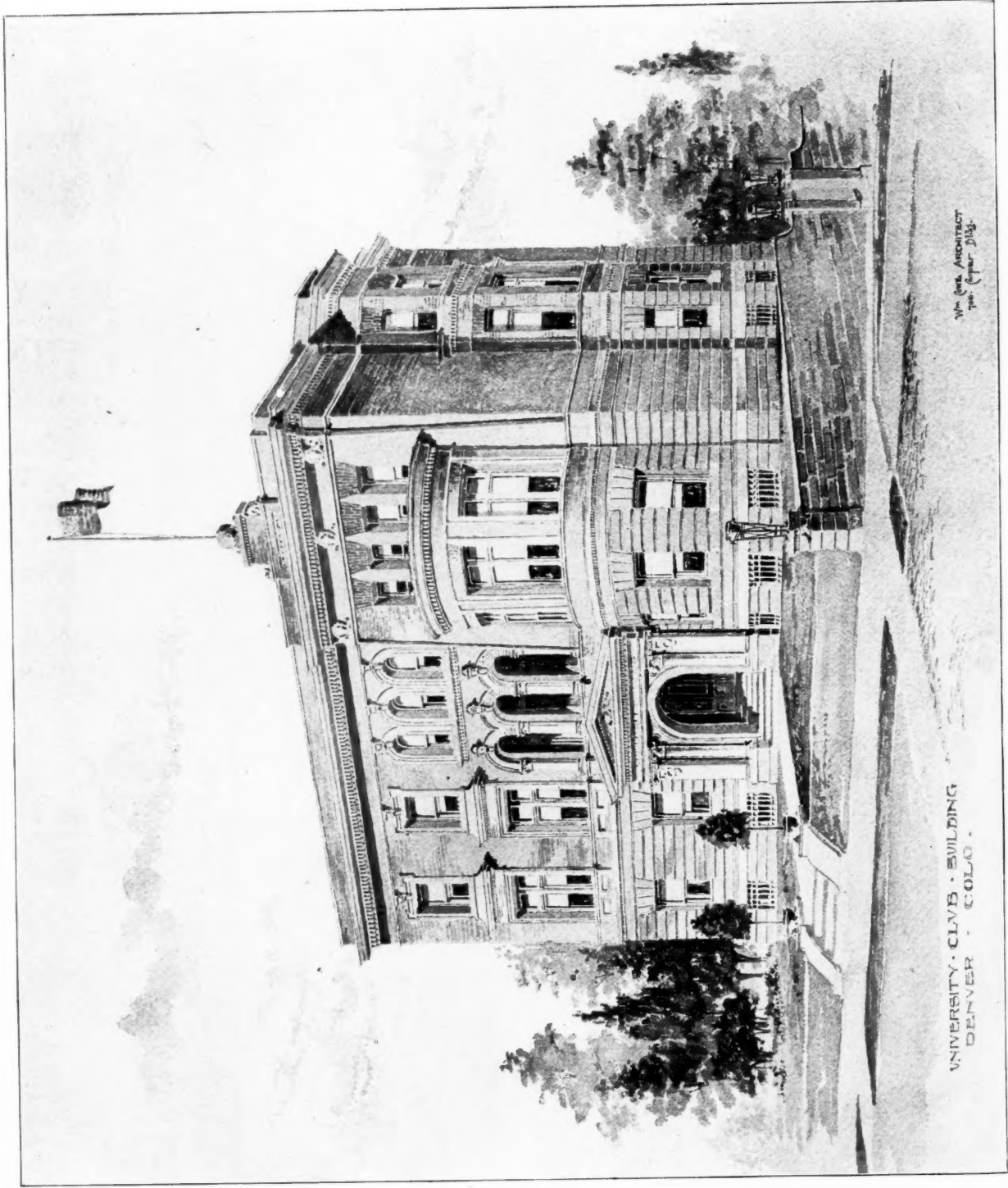


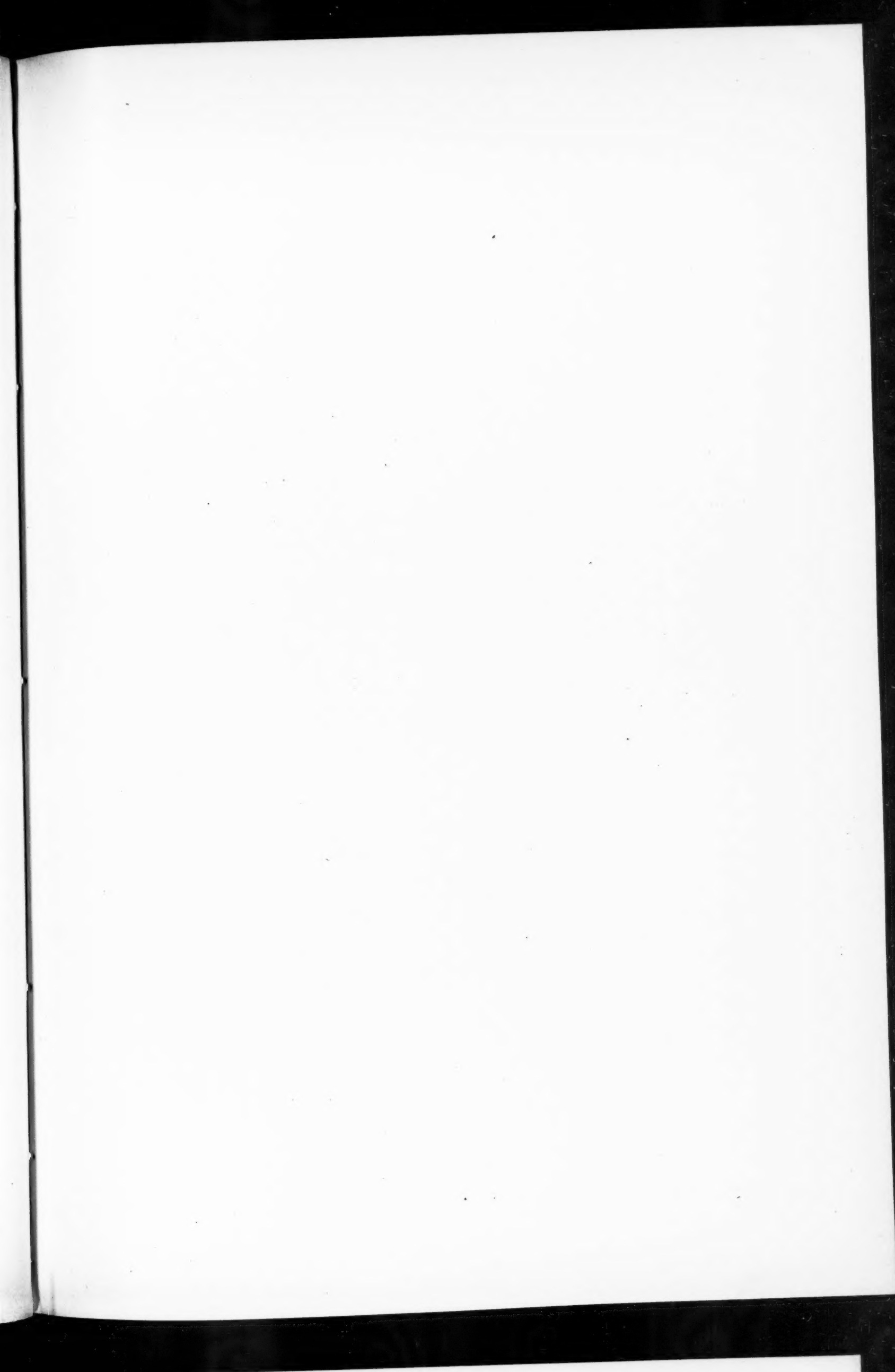


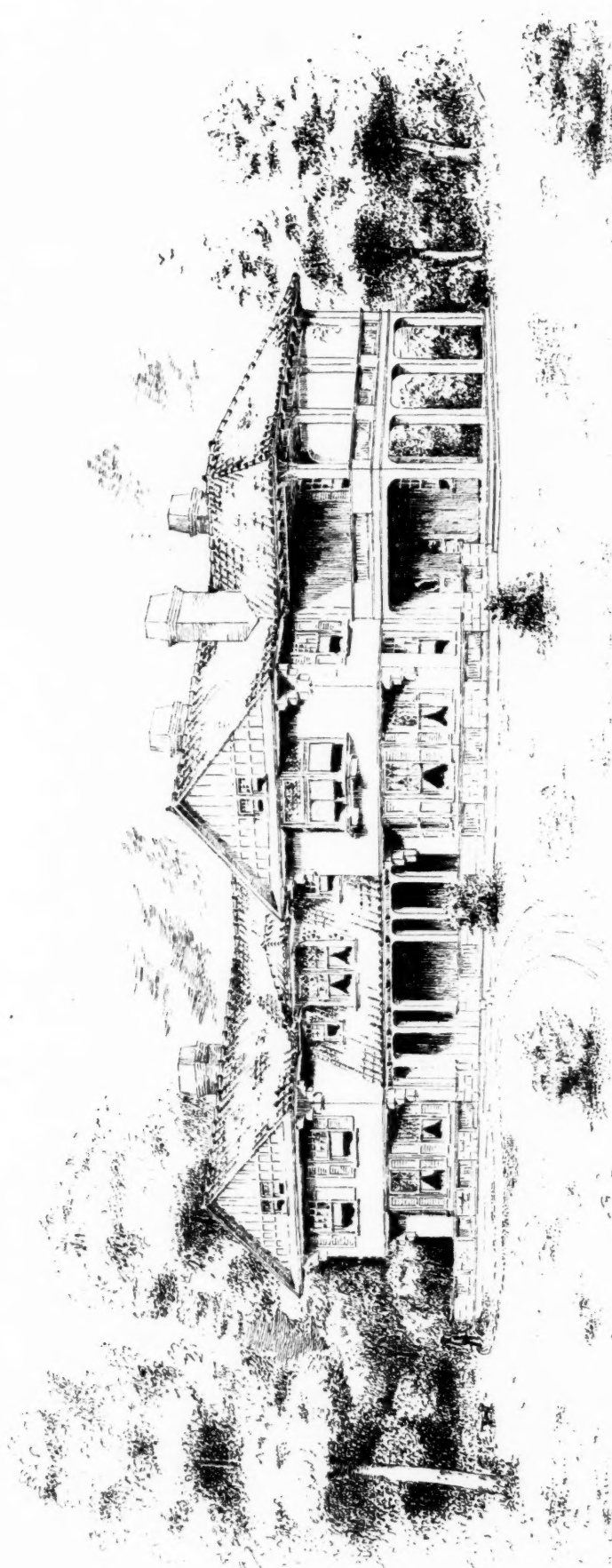
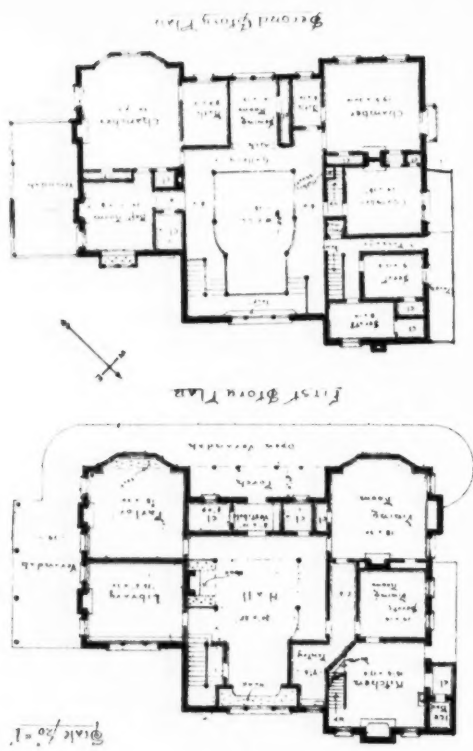






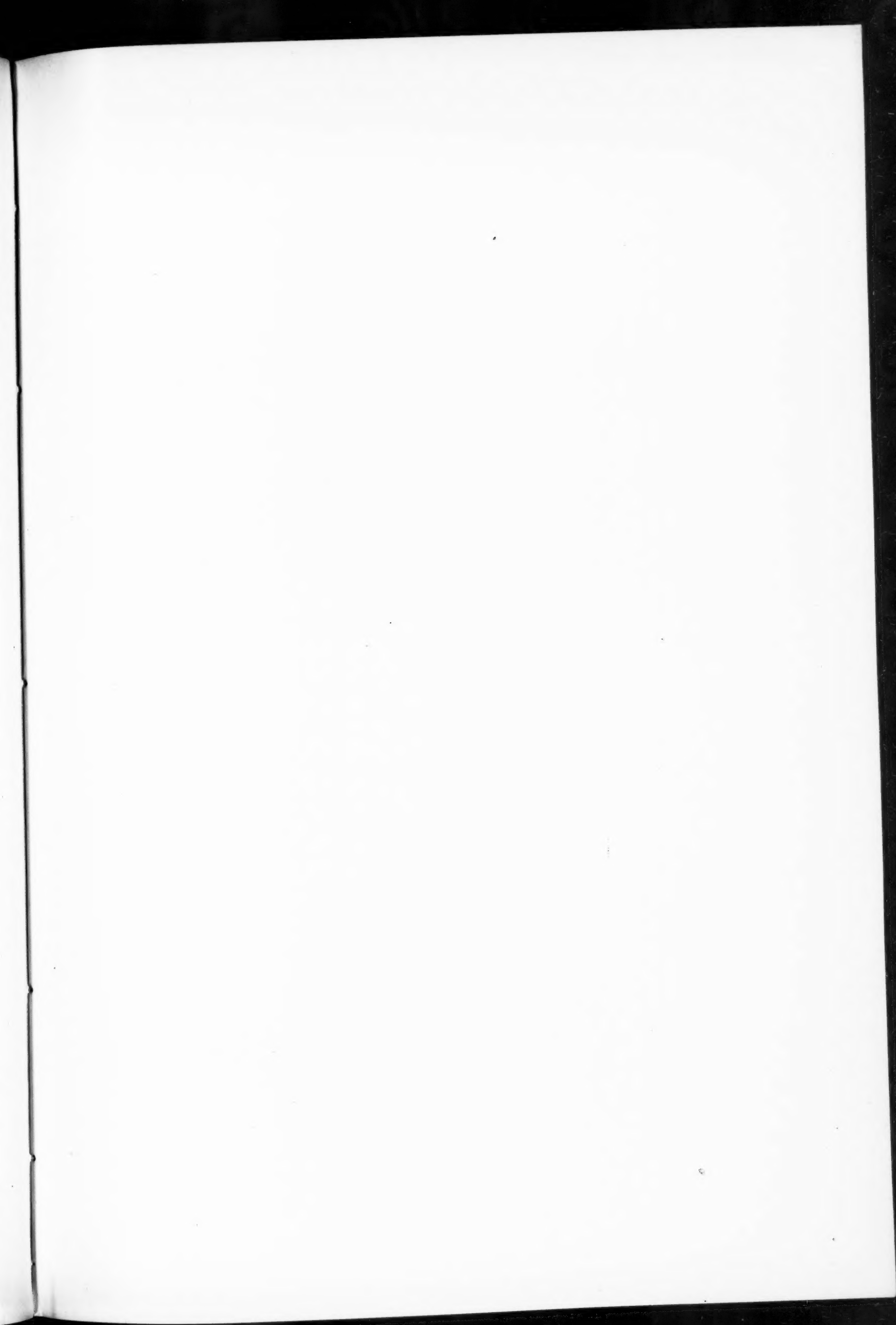


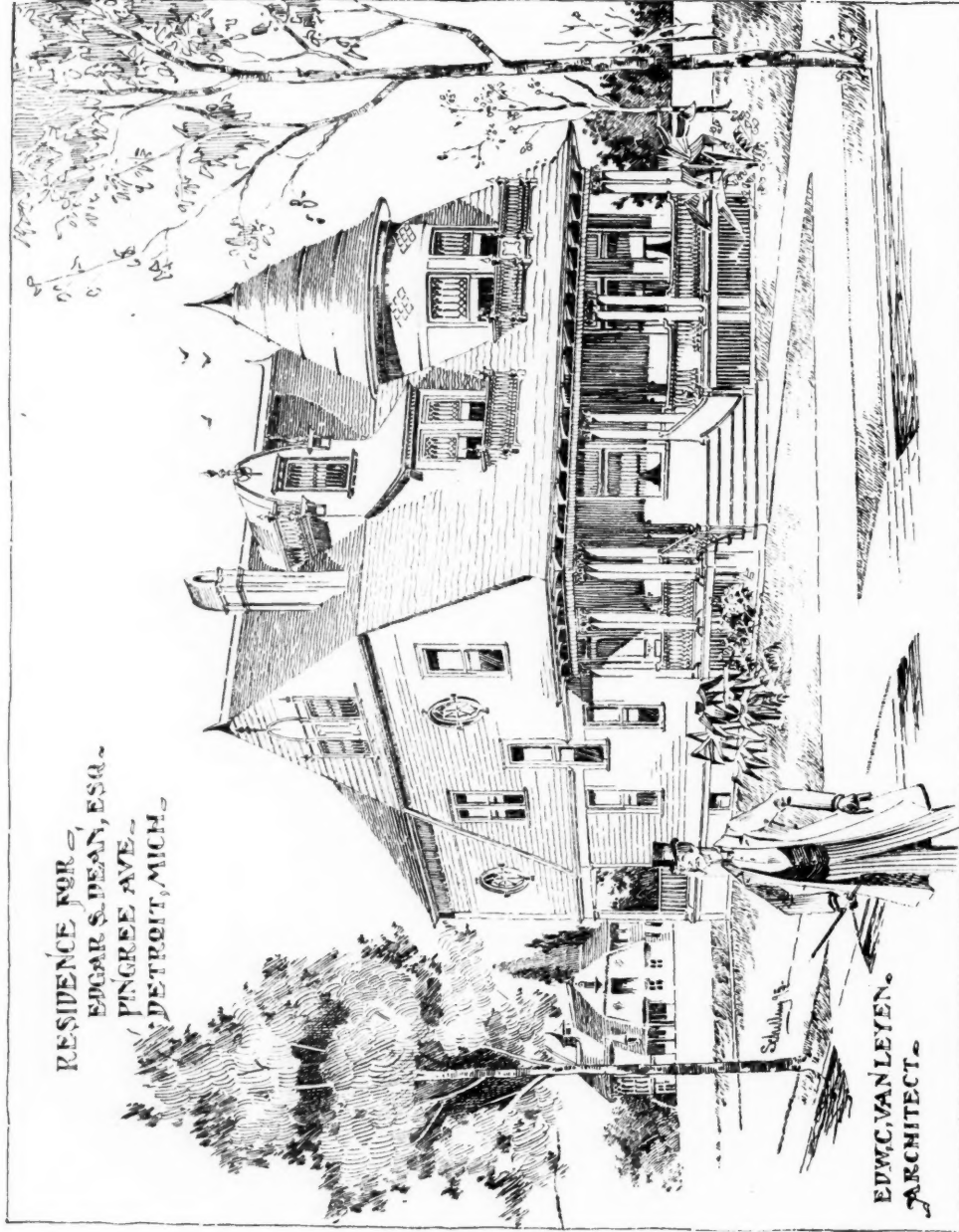


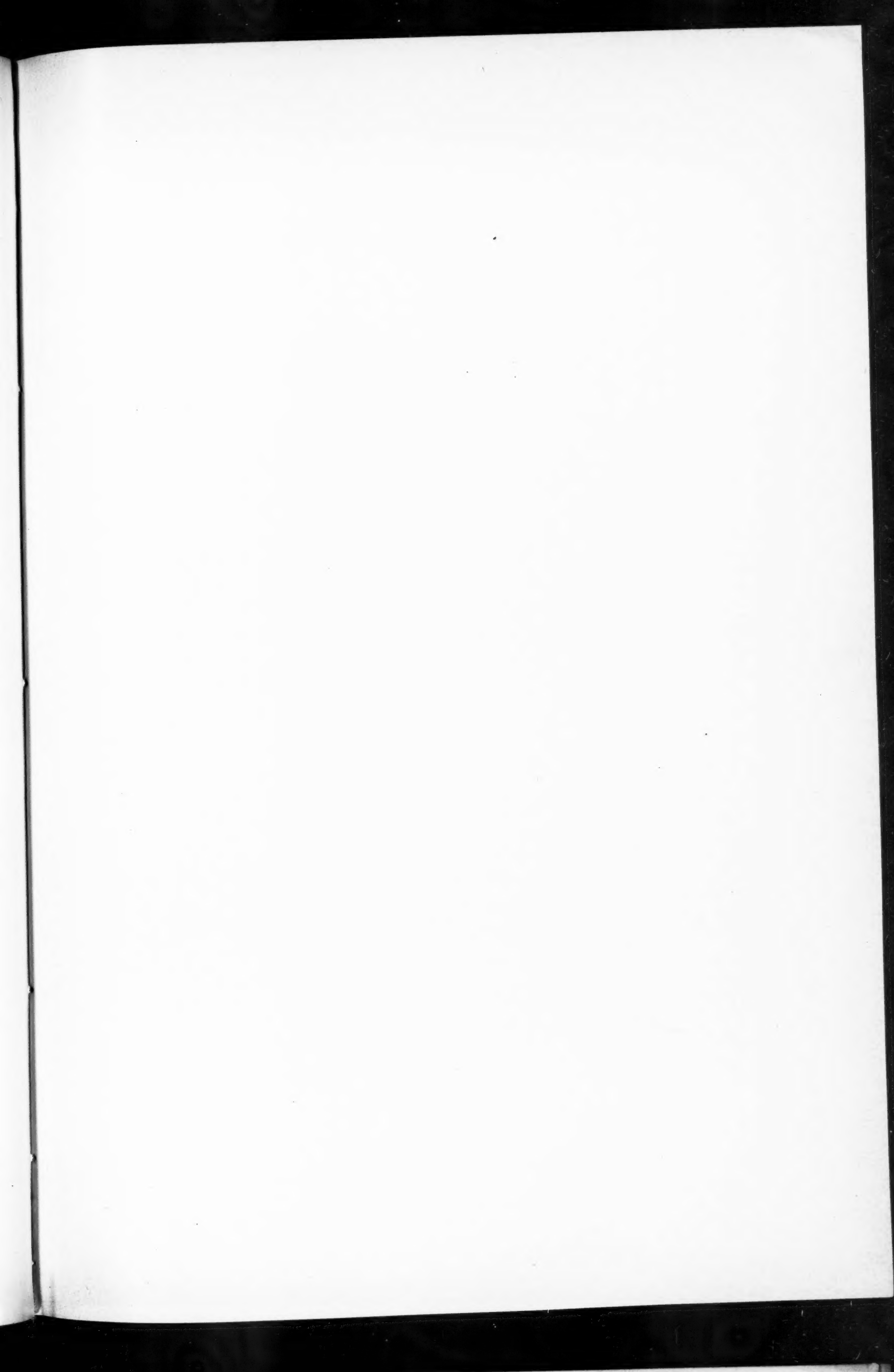


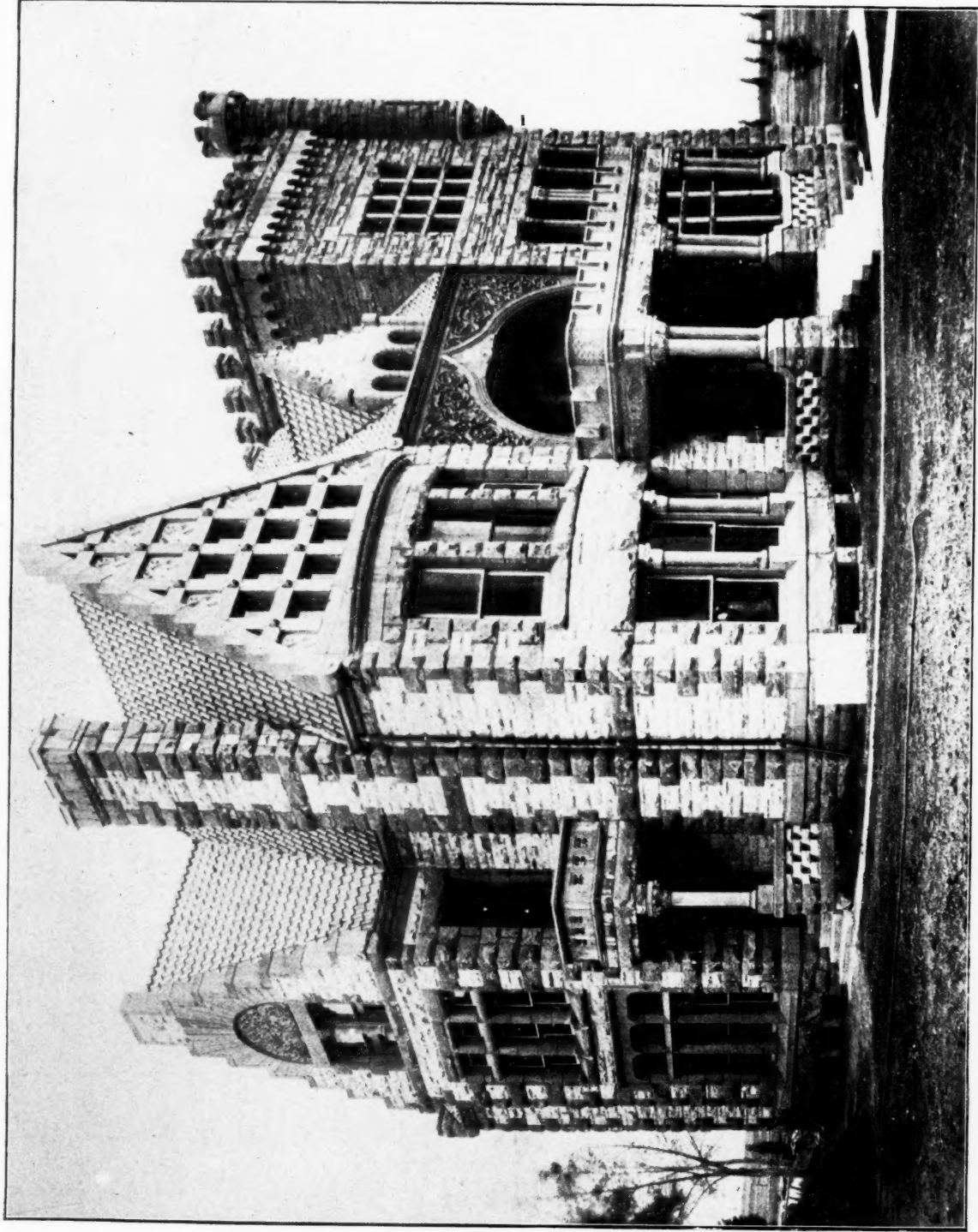
E. J. Minnamann
Architect

Plans for W. A. Le Moyne

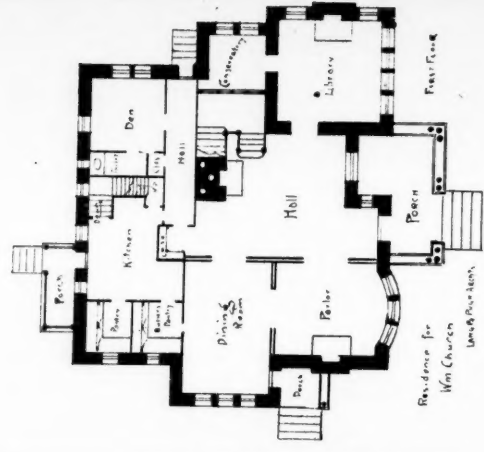




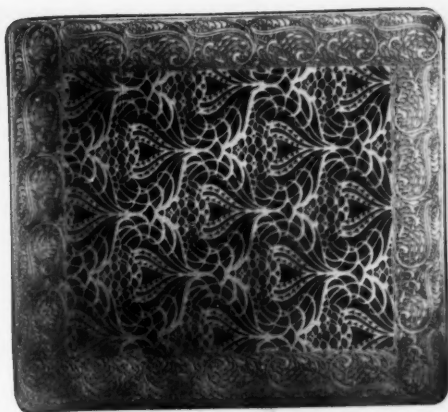
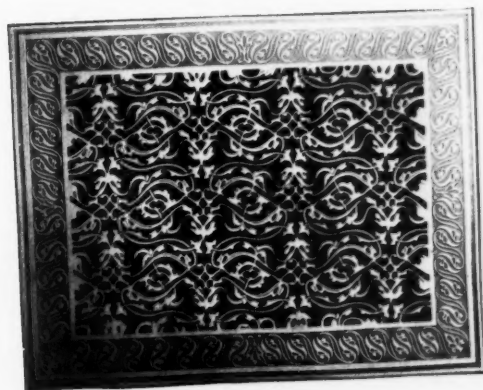




RESIDENCE FOR WILLIAM CHURCH.
LANG & PUGH, ARCHITECTS, DENVER, COLORADO.



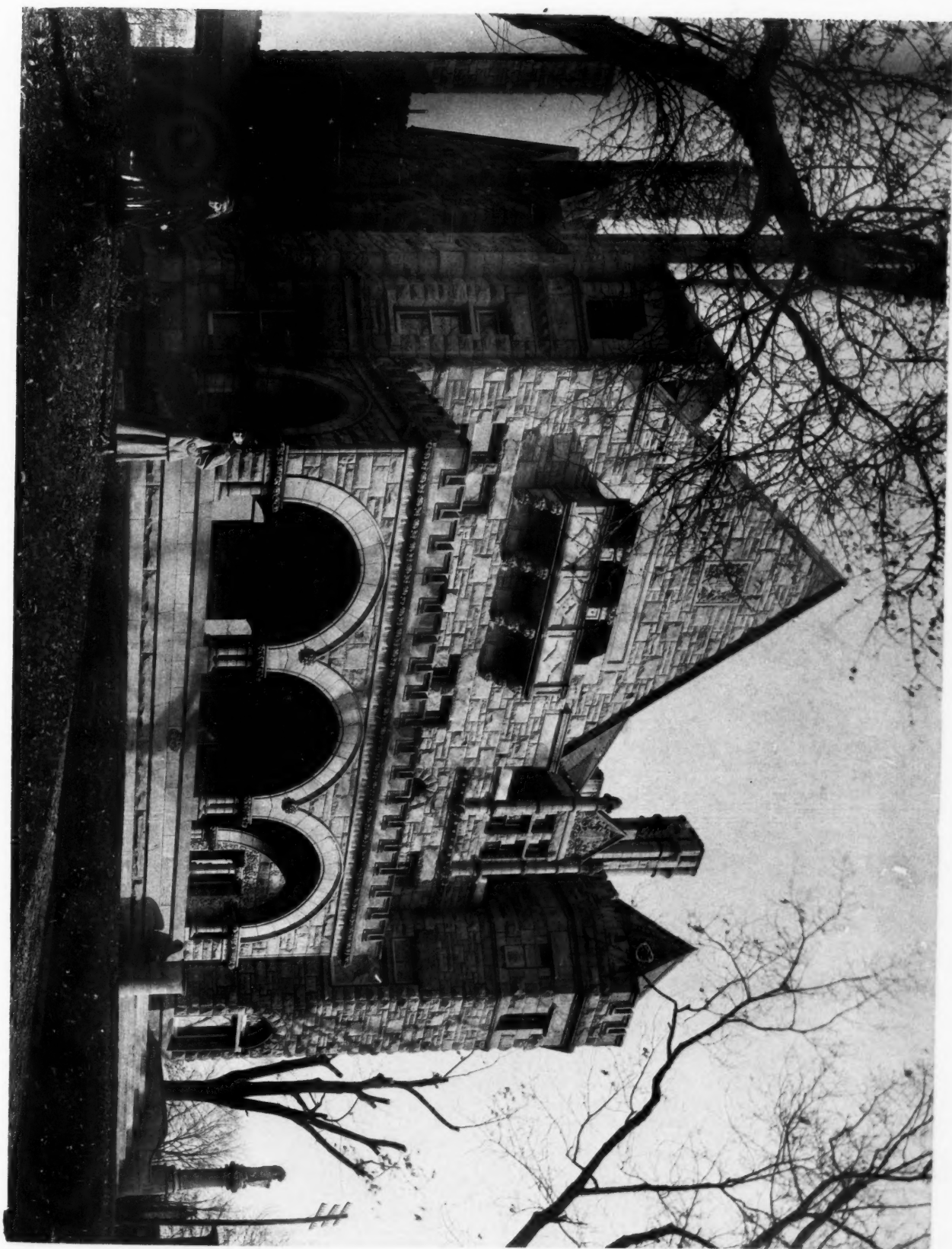
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EXAMPLES OF YALE STYLO-CHISELRY.

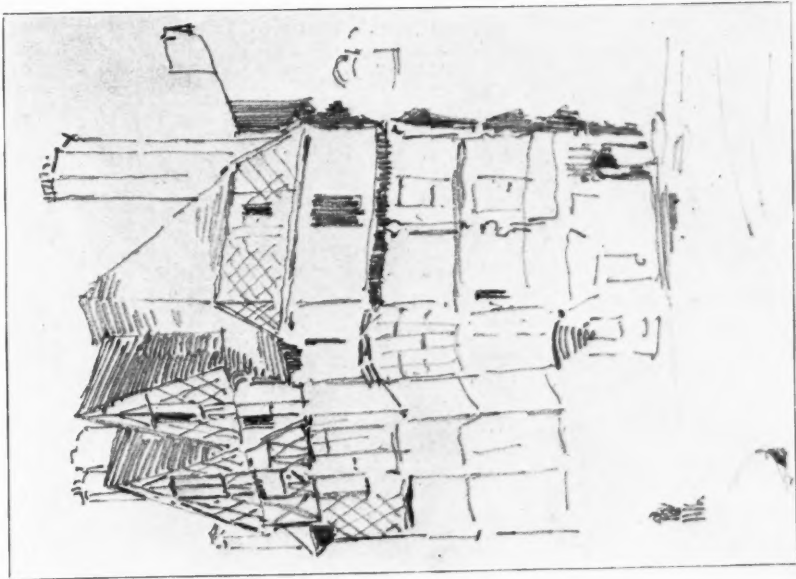
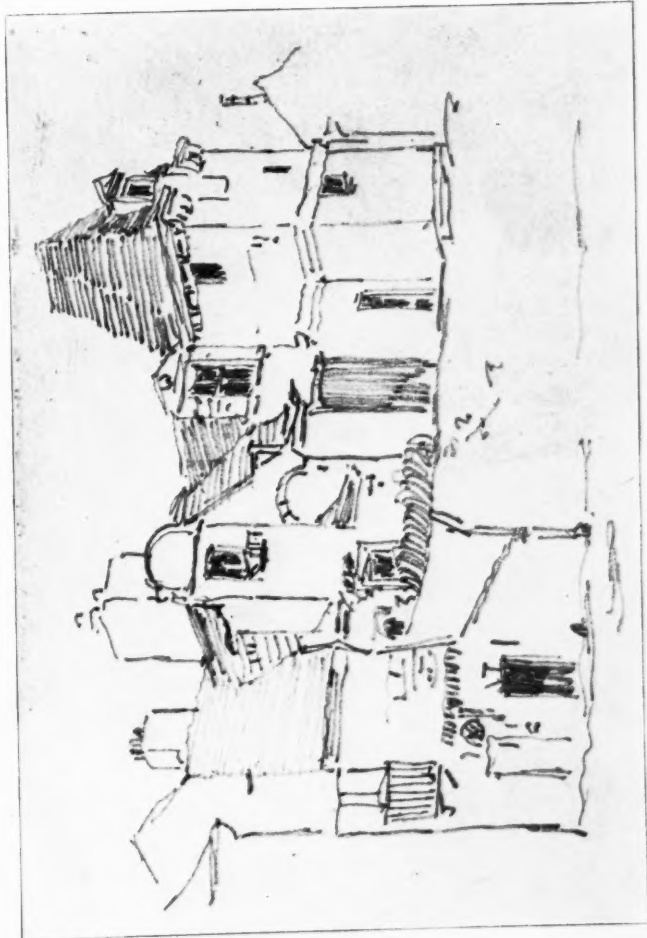
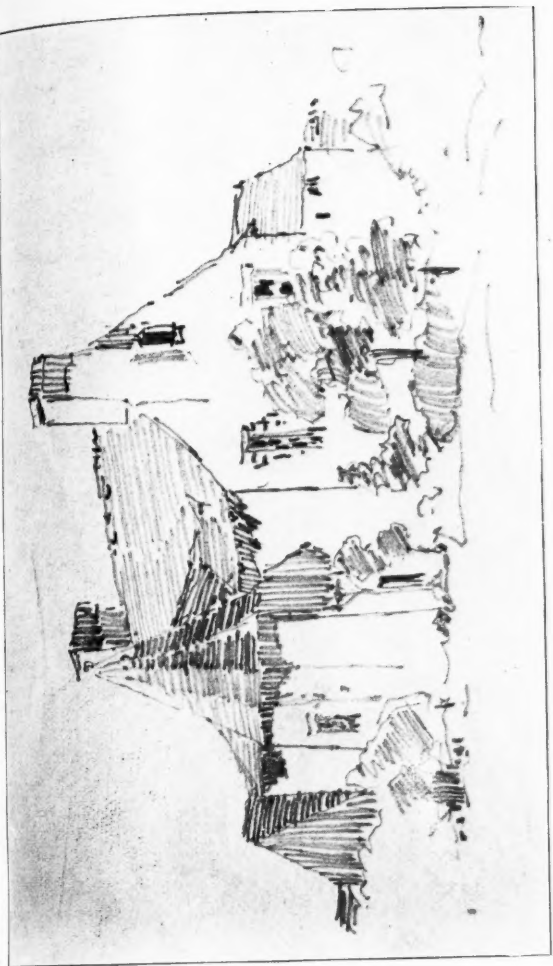
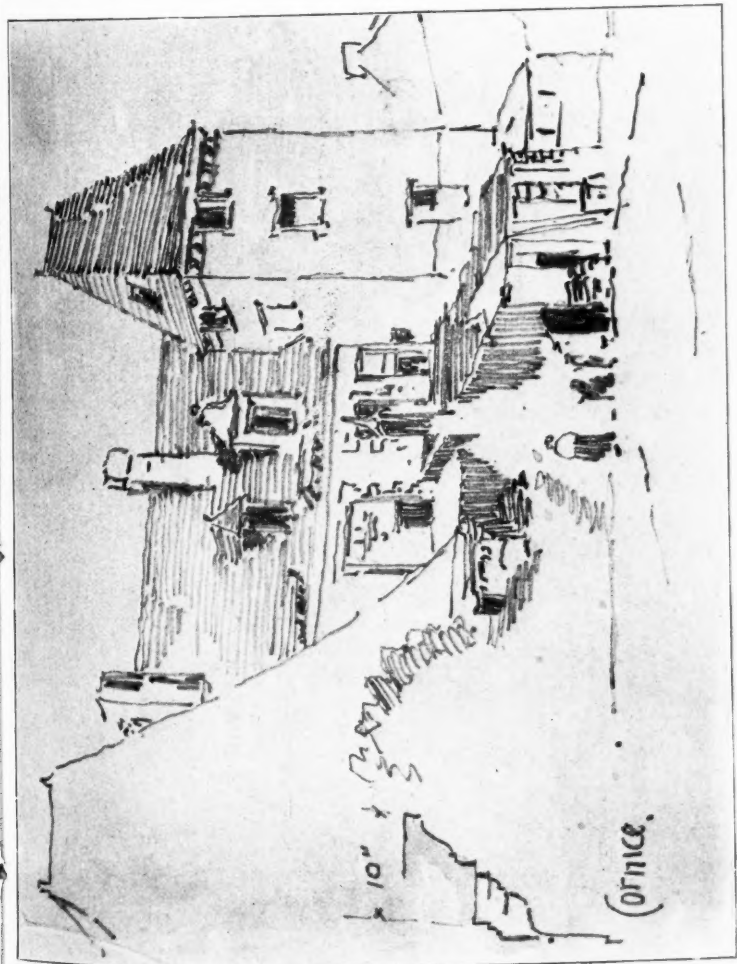
PRODUCED BY THE YALE & TOWNE MANUFACTURING COMPANY.

INLAND ARCHITECT PRESS.



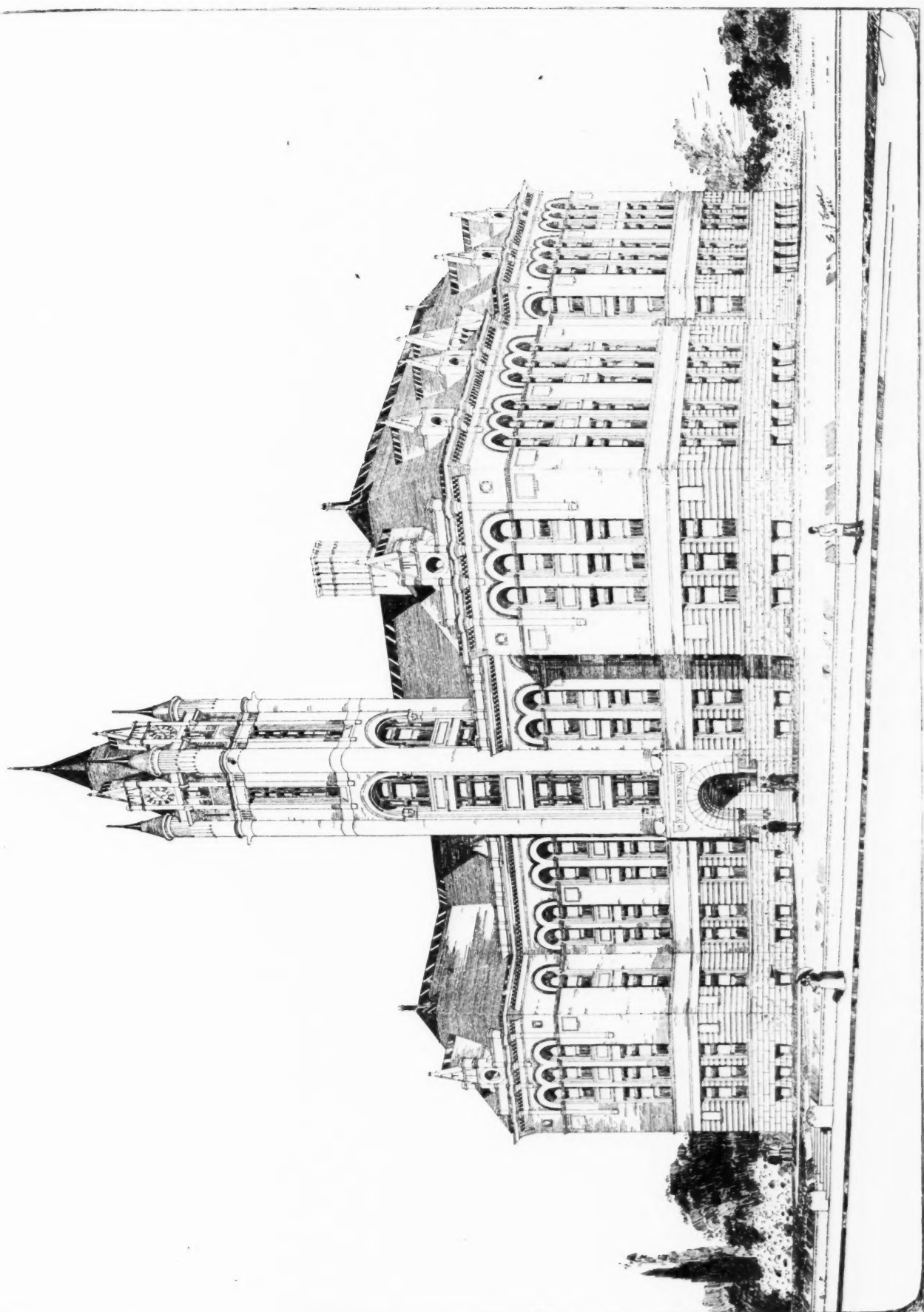
RESIDENCE OF J. W. McCLYMONDS, MASSILLON, OHIO.
C. F. SCHWEINFURTH, ARCHITECT, CLEVELAND.

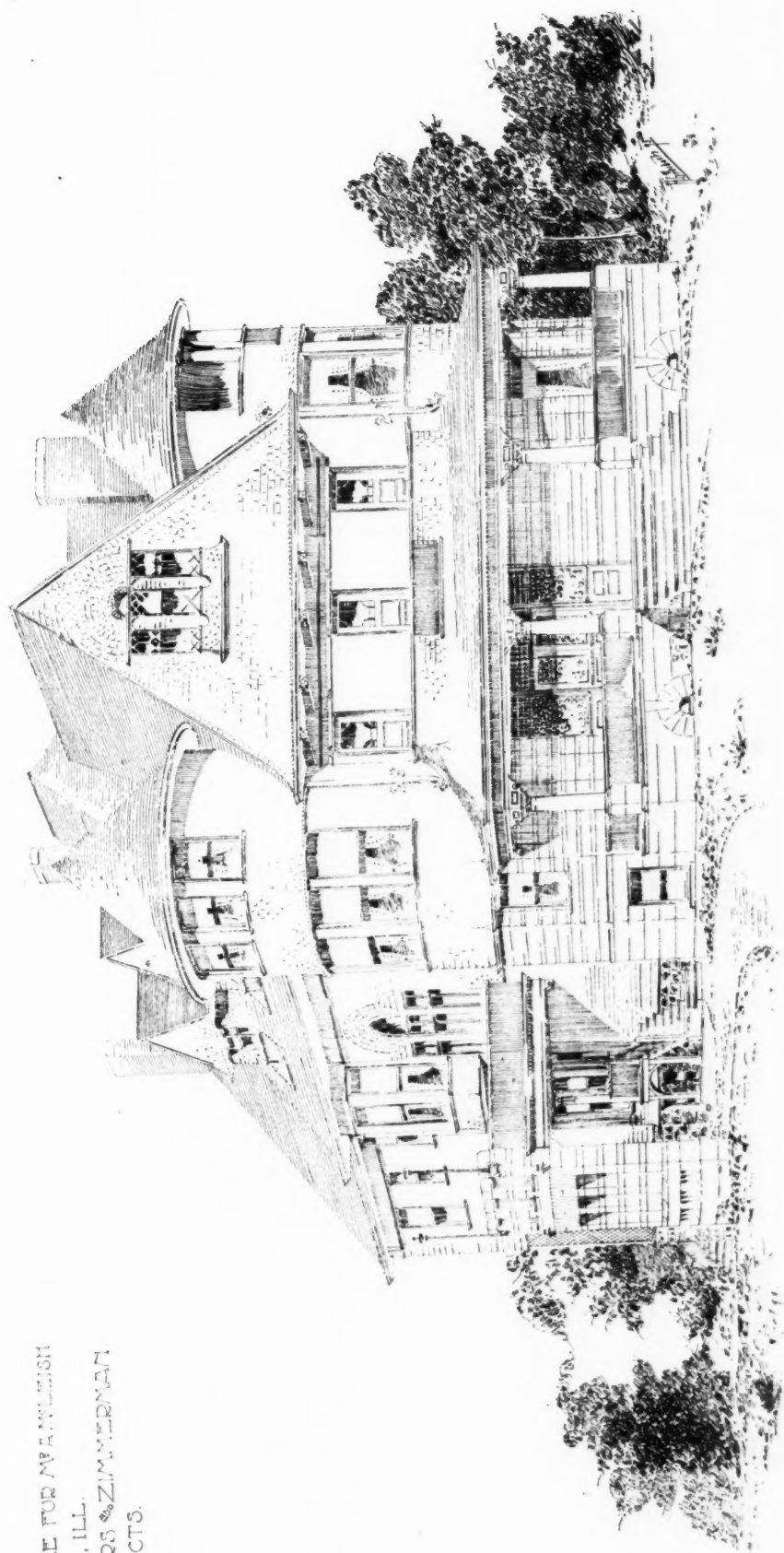
INLAND ARCHITECT PRESS.



SKETCHES IN ANGERS BY WILLIAM JEAN BEAULEY, JOLIET, ILLINOIS.

NEW HIGH SCHOOL
ST. JOSEPH Mo.
E. J. ECKEL ARCHITECT.

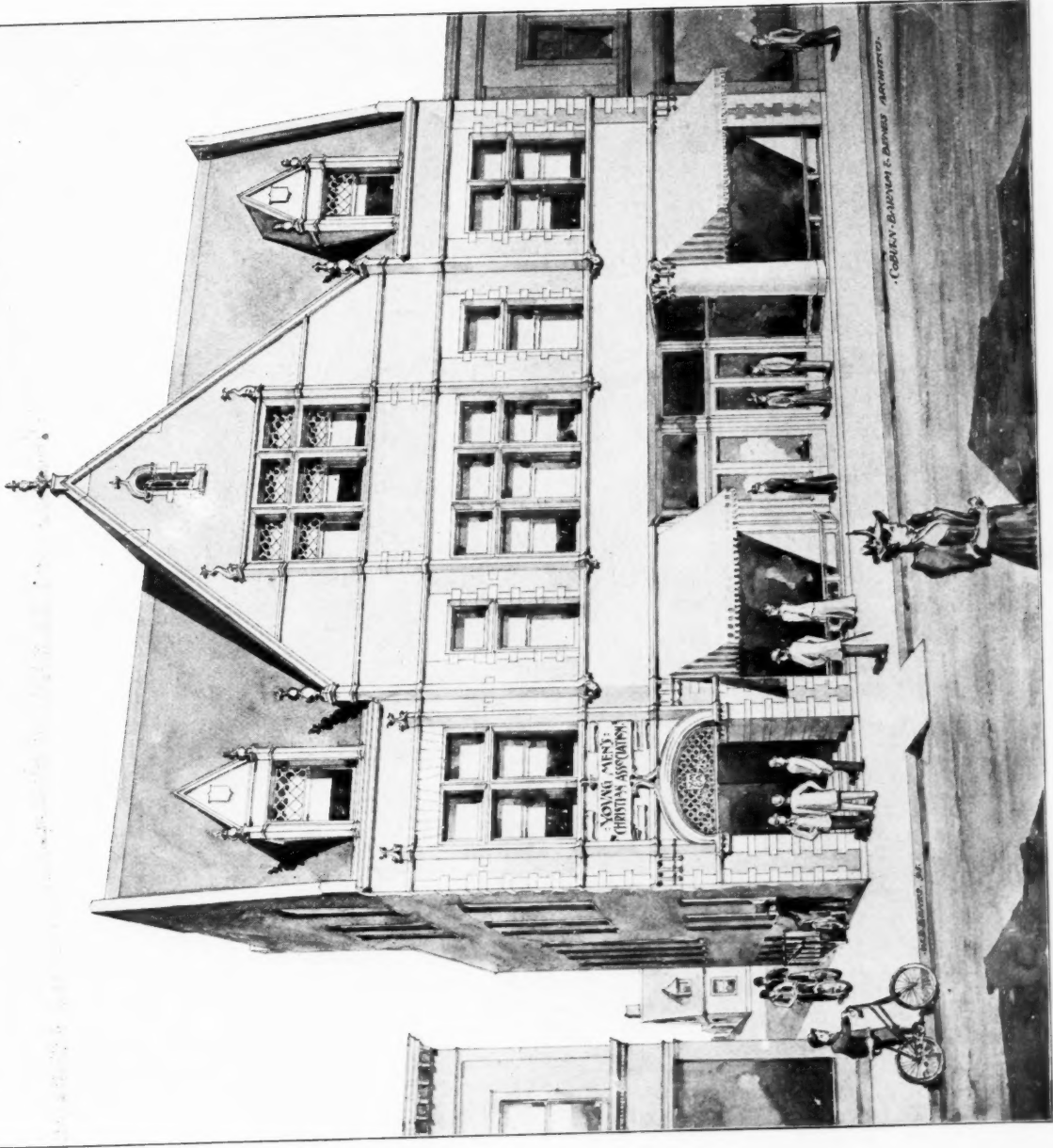




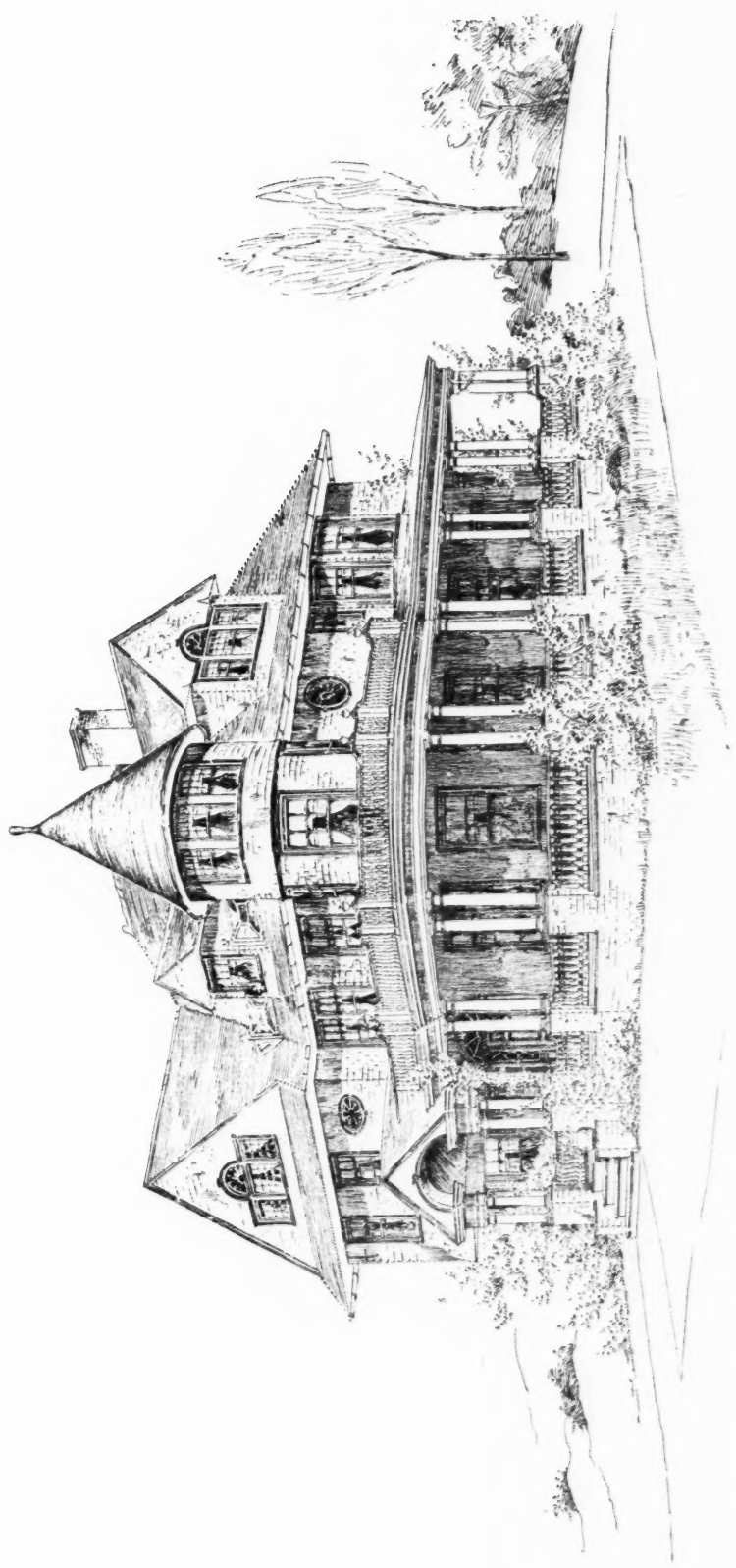
RESIDENCE FOR MR. A. W. L. LUSH
GLENCOE, ILL.
FLANDERS & ZIMMERMAN
ARCHITECTS.

GENERAL LIBRARY
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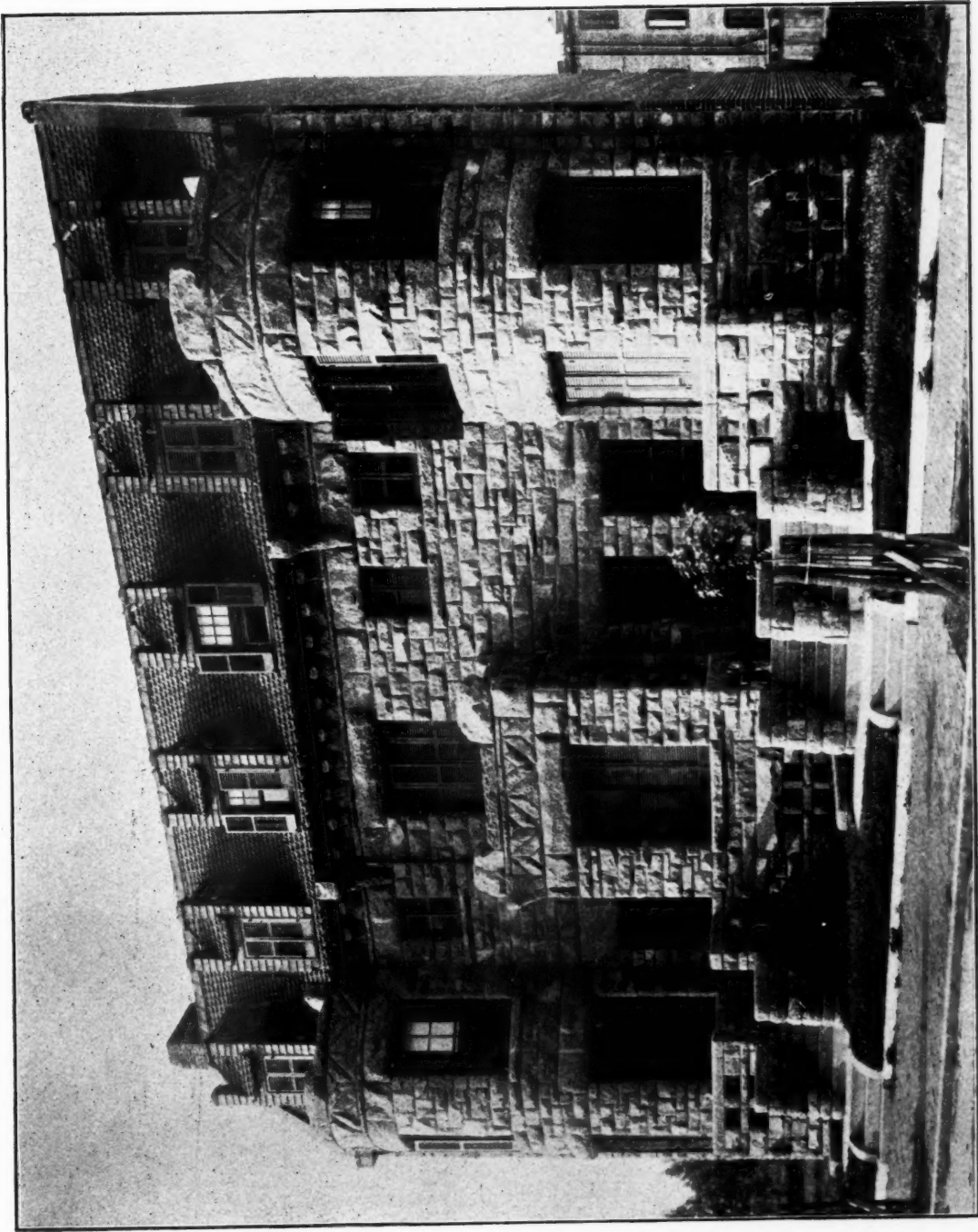
Y.M.C.A. BUILDING
BROADWAY - BRANCH
CLEVELAND - OHIO
CUBURN - BARNUM & BELNES
ARCHITECTS



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RESIDENCE OF GEO. C. SMITH ESQ.
LARCHMOUNT NY E. GW. DIETRICH
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HOUSES IN WASHINGTON, D. C.