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### PLANNING *the* SMALL CITY

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**T**OPSY, if we may take that estimable lady's word for it, "just grew." But Topsy was mistaken. The placing of every nerve cell and of every muscular fibre in her somewhat ugly little body was regulated by a law as immutable as anything of which the world has knowledge. Function ruled, every organ grew true to its function, till even poor Topsy was as accurately constructed as the most favored of women.

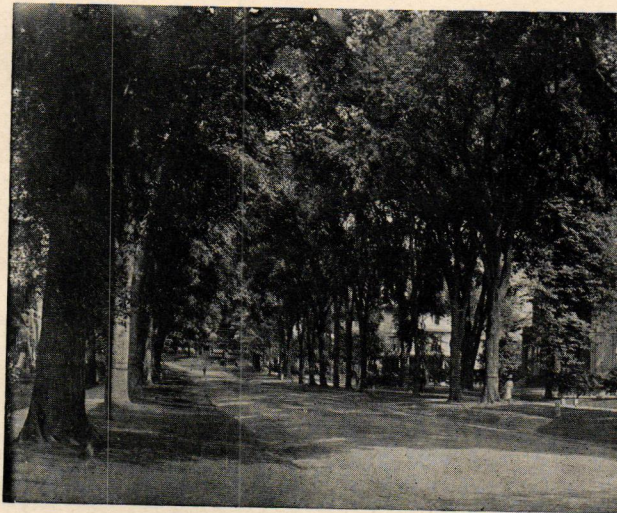
Towns should grow even as Topsy grew. Each organ in the future functional life of the town should be insisted upon at the very outset—the town's points of entrance and of exit, its highways and byways, its civic center, its educational centers, its lung-like parks, playgrounds and public squares.

This I said in 1907. I repeat it here, not only because we must continue to emphasize function, but because the evolution of city life is outstrip-

ping planning and the development of the functional features. Our life and the functional needs of our cities evolve with startling rapidity. Our cities are more or less static. This indicates clearly the need for imagination and broad ideals in city development.

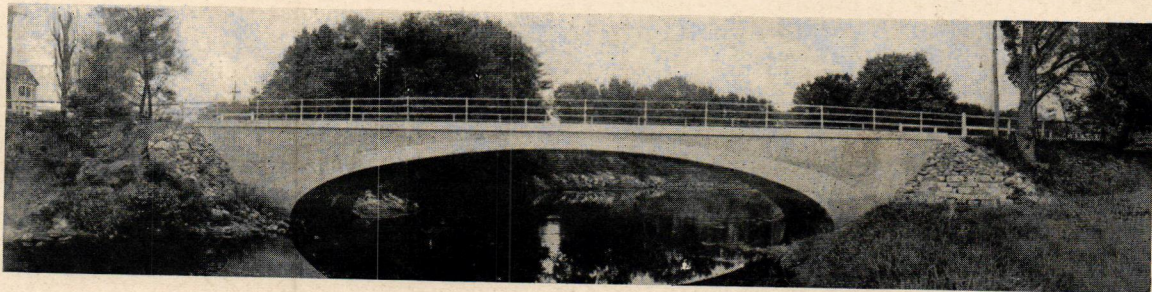
The organs of the body evolve through the ages in response to change of environment, both changes coming, as a rule, so slowly as to be imperceptible except at periods widely separated. It is not so with cities. A new invention will overnight place demands upon our cities which, if placed upon our bodies, would require ages of evolutionary readjustment. This alone makes of city planning a difficult and an exacting science demanding the most skillful expression.

Picture an early American town. A few pedestrians, an occasional cart or wagon with home products, rarely a carriage,—these all made streets a matter of minor importance. Then



MAIN STREET, GREENFIELD, MASS.

There are but few streets like it. Every city could have miles of it



BRIDGE OVER THE ASSABET, IN CONCORD, MASS.

Built by the State Highway Commission. Nature will, in time, greatly enhance its beauty

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A CONTRAST IN ELEVATED RAILROAD DESIGN

BOSTON AND BERLIN

Why the one—why not the other?

came the stagecoach, a highflyer, a killer and mutilator of its often unlucky occupants (See *The Heart of Mid-Lothian*, Chapter 1, for the Scottish counterpart). Then came the steamboat and the railroad, needing new ways of approach, adapted to the carrying of many pedestrians, carriages with passengers and trucks with freight. Then the automobile, the most exacting and revolutionary of all. It is needless to say that the town in its evolution has not kept pace with the demands placed upon it. As well demand of the six-year-old that he overnight adjust himself to the accommodation of the organs of the adult man. What travel by air will demand of city planners no one knows.

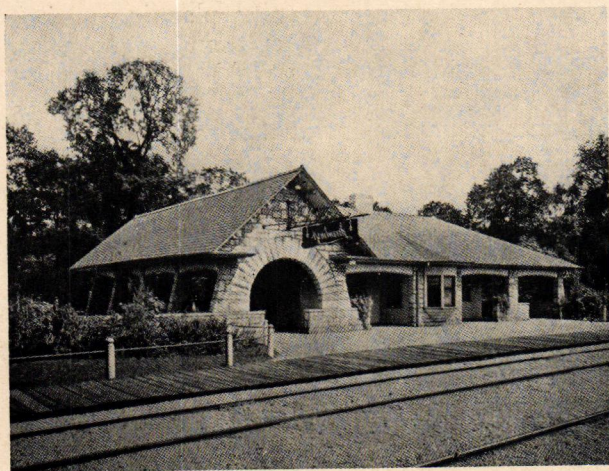
Not only do these rapid changes through invention demand new ideas, and ideas evolve slowly, but they demand new technicians and

these technicians are only in the beginnings of their development. We are in the midst of the neotechnic age while our neotechnicians are only being born. The automobile was in full blast upon our streets when the first elementary schools of city planning were established in our colleges.



A FREIGHT STATION, BOURNVILLE, ENGLAND

Here cars are loaded. It shows that the handling of freight need not damage the vicinity



KENILWORTH, A STATION ON THE C. N. W. RAILROAD  
It is possible to load passengers as well as freight in a satisfactory environment

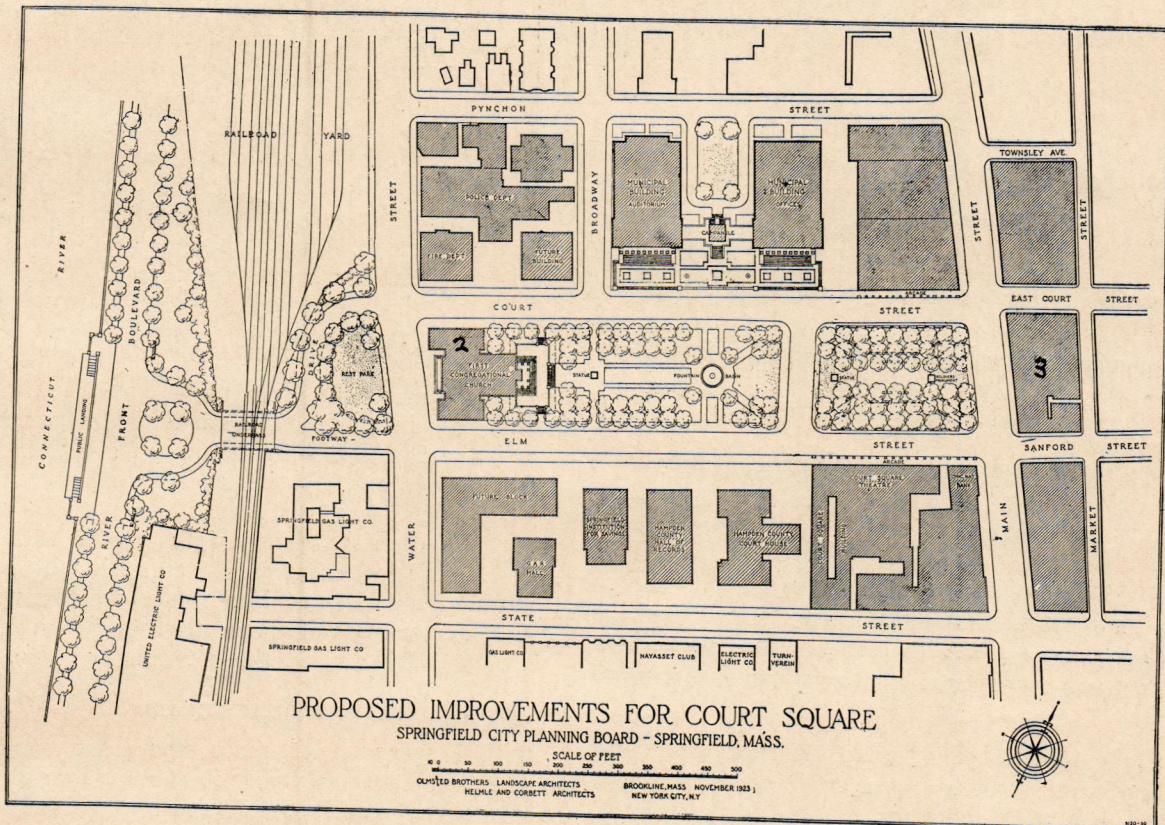
Overnight our engineers and landscape designers and architects and practical workers in related fields have had to become city planners, no one of them having the exactly essential background, all having to do the best their training and their native ability made possible.

The results have not been disappointing. Ideas have crystallized with a most gratifying speed, but the practical difficulties, especially the expense of meeting the new conditions, still stagger us and will continue to do so till we learn to go about the work more promptly, for delay increases the

cost by leaps and bounds, and until we learn to use for making the improvements the very values, enormous in almost every instance, which the improvements themselves create. And right here is perhaps the chief obstacle to effective city development. Every property owner wants the values created in his own case, even opposing the paying of taxes on the values created and given to him; while the general public naturally and justly opposes the paying of taxes to create values for private individuals, even though at the same time the functional efficiency of the city is promoted.

and give them Daniel H. Burnham's conception and city planning will come into its own. Burnham said:—"Make no little plans; they have no magic to stir men's blood, and probably themselves will not be realized. Make big plans, aim high in hope and work, remembering that a noble, logical diagram once recorded will never die, but long after we are gone will be a living thing, asserting itself with ever growing insistency. Remember that our sons and grandsons are going to do things that would stagger us. Let your watchword be order and your beacon beauty."

What are the elements of planning, as the sub-



COURT SQUARE, SPRINGFIELD, MASS.

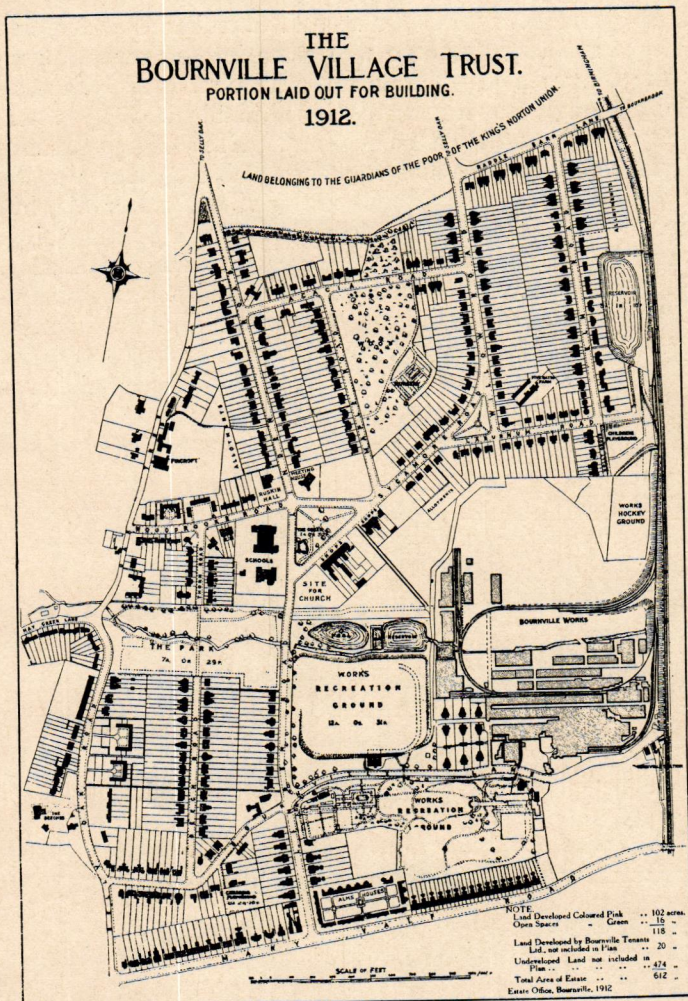
The municipal buildings and campanile, one of the finest anywhere, needed a better setting. The old square is shown to the right of the center. Since then all property has been removed from the larger portion except the historic old First Church, which stands at the point marked "1." To improve the site further, it is proposed to move the church to point "2" and to erect a proper terminal building at point "3"

Most improvements will create values which will pay for their cost. The next big step in city planning, the one which will do more than all else to make real city planning and city development possible, the one which will at once advance the public mind to the point of supporting all that may reasonably be done, is to make a wider application of the method of using the values created in paying the expense of what is done. All other methods are retarding rather than progressive, they are unjust, corrupting and inefficient.

Give the people justice in regard to the expense

ject presents itself to us today? In the major sense they are function, permanency and beauty. The various organs of the city must function; they should be so located and designed that they will not have to be abandoned, they must permanently function; they must be beautiful, they must voice the sentiments and the aspirations of the people, they must satisfy. In function and permanency and beauty they must promote the evolution of higher ideals, of a better race.

Concretely, and it may be said in a minor sense, the elements of planning are, to name only the main ones, the skeleton plan upon which are



The plan of Bournville is unique. It is ideal for home sites and does not encourage through traffic. There are beauty, comfort and convenience for everything but speeding

hung the functional organs; transportation, including water, rail and trolley systems, through ways, main thoroughfares, intimate platting of residential areas; building lines, to protect the amenities and to make possible the permanency of street systems through possible widenings at reasonable expense; zoning, to aid the city plan, to promote permanency, to protect health and to provide amenities; the securing of right locations and right sizes of sites for public offices, schools, churches and similar uses, where function, permanency and beauty are greatly essential; and open spaces for convenience, for playgrounds and for parks.

The city ideally developed in these respects could have but little to embarrass it and it could face the future without fear. The smaller the city, the more effectively and economically may it engage in such work. Looking at the results of the last twenty-five years one dares not predict the fate of New York City one hundred years hence, much less one thousand years. Let the

smaller places learn by the experience of our larger cities. Much will be made clear to them.

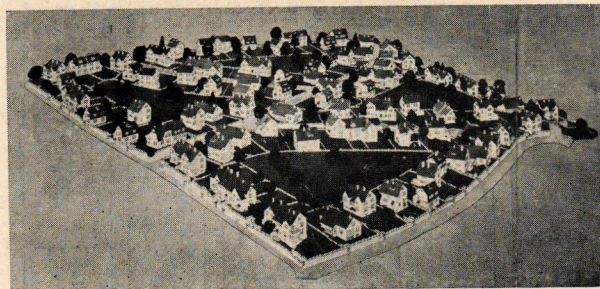
It is trite to discuss the elements of the plan. But such discussions will have to continue till the lesson is better learned than it is today. In spite of all example most small places seem to learn only by going over the same weary grind of experience as have the larger places before them.

#### THROUGH WAYS

With the enormous increase of automobile traffic distance travel has become a commonplace affair. Without thinking of using it, I noticed automobiles from fourteen states on the streets of Boston recently. Twice as many states were probably represented. These cars came through numerous small places, their only reason being that these places lay in their way. To get through was the ambition of their owners. They had no desire to buy land or houses or suits of clothes or anything but gasoline when they needed it and occasionally a little food or a bottle of pop. In spite of this the average merchant desires all through traffic to pass his place of business. He overlooks the fact that his real buyers are the local people and if his street is congested with through traffic the real buyers will avoid his district. The by-passing of through traffic is coming into use and it will come more and more into use as we learn the convenience of the method to the through traveler and to the community alike.

#### MAIN THOROUGHFARES

Within every small place there are various centers between which there is more or less traffic. From these main ways radiate subordinate ways which care for the residential districts. Such main ways should be laid out with care. Grades are important, for these ways will get the heavy



"LIGHT AND VIEW" PLAN OF COTTAGE DEVELOPMENT IN ZURICH, SWITZERLAND

The houses present to each other their corners instead of their sides



THIS IS AN ILLUSTRATION OF A GOOD METHOD OF SHOWING PRESENT AND PROPOSED CONDITIONS. PROPOSALS UNDERSTANDABLE BY THE PUBLIC ARE ESPECIALLY DESIRABLE.

traffic and heavy grades are expensive of power and of upkeep. These main ways too much carry the through traffic, they carry the heavy traffic of the region and they carry the lighter traffic on its way to the supplementary streets. Along these ways will develop mercantile centers. They may ultimately be lined with stores, offices and even factories. Their grades, their width and their construction are matters of importance.

THE PLATTING OF RESIDENCE DISTRICTS

Within a given area people will at first live along the main ways but they will ultimately live entirely in the space between the main ways. If such residential areas are to be permanently satisfactory too much attention cannot be given to their design. They should be quiet, as free as possible from traffic, with its hazards, its noise and dust and fumes. They should be safe, for there the children must grow up, and children must use the streets. Such streets must be designed so as



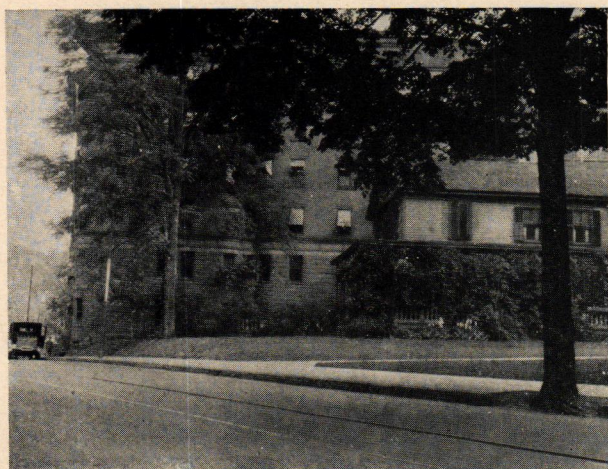
WISSAHICKON TRAIL, PHILADELPHIA, PA.

Running for about six and one-half miles through the picturesque Wissahickon Gorge, entirely within the city limits, this trail is an outstanding feature

actually to repel through traffic or through traffic must be barred. The planning of these streets with their attendant schools and playgrounds is a matter of major importance and it is in the main left to the speculative land developer. When we come to appraise the modern city's crimes against the child we will find that they center largely around the development of the areas where the children are born and where they have to grow up. But the effects are felt by adults too, and the health, efficiency, happiness and civic values of citizens are largely made or unmade by the planning of the regions in which they work and live.

BUILDING LINES

Building lines protect the amenities and make permanency possible. A city with narrow streets and with all buildings on the lot line is in for a hectic career. Building lines should be of uniform depth, according to the needs of each street, and



SPRINGFIELD, MASS., BEFORE ZONING

This attractive private residence is marooned by an enormous apartment house on the lot line. Property values are thus being destroyed by the millions annually



BRIDGE OVER CANAL, MAGDEBURGER STRASSE, BERLIN

A bridge such as this one, may serve its purpose, if properly constructed, and last for centuries, and at the same time be an artistic product of the highest quality

they should not be decided by any system of averages between intersecting street lines or by any other process which makes developed streets look like jig-saw puzzles or the skyline of the Rocky Mountains. Beauty and future usefulness require uniform lines throughout the length of every block and for all blocks on the street, and the same applies where the streets are not yet cut into



PATHWAY NEAR CHENIES, ENGLAND

England gives more consideration to pedestrians than any other country

blocks by intersecting streets. Many building lines are now being established by zoning ordinances that will be long regretted by the cities establishing them.

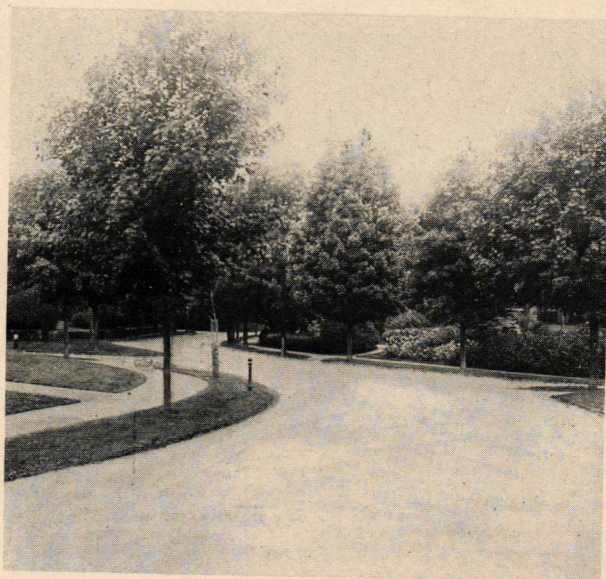
Considering their values as promoting permanency of the city plan, also health, comfort and beauty, there is no device more valuable than building lines. They work effectively from the start, whether in the open country or on built-up streets. They will undo bad conditions and they will promote good conditions. The quickest and easiest way to get them is through zoning, under the police power. The next best way is through securing signatures to a waiver of damages from all abutters and a subsequent establishing of the lines. The poorest way is through a direct application of the principles of eminent domain. This way is slow and expensive, but the courts are gradually coming to see that building lines are essential and that the betterments to property usually equal or surpass the damages. In this automobile age wider streets are imperative everywhere. Wider streets help in many other ways. It is unjust to give any man the benefits and pay him damages besides.

#### ZONING

Comprehensive zoning, since it first began to be practiced in New York City in 1916, has spread

so rapidly that it already affects the lives and property of twenty-three millions of people. It is used in our largest cities and in places as small as Idlewood, Ohio, with one hundred and twenty-one inhabitants.

Zoning is the most distinctive device in aid of city living and city planning it has ever been our fortune to develop. While it is of European origin it had its beginnings in this country with the village improvement societies in 1852, before it was actually practiced in Europe. The improvement societies sought to develop better ordered communities. Zoning provides the technique, a better technique than the improvement societies were able to conceive. It promotes harmony and order and adds to the efficiency and permanency of the city plan. It protects property values, promotes health, safety and the public welfare and will soon be in effect in every live city and town. Its supporters grow rapidly in number, including all



STREET SCENE, BROOKLINE, MASS.

Showing the beauty and restfulness of curves, grass margins, shrubbery and trees in a residential district

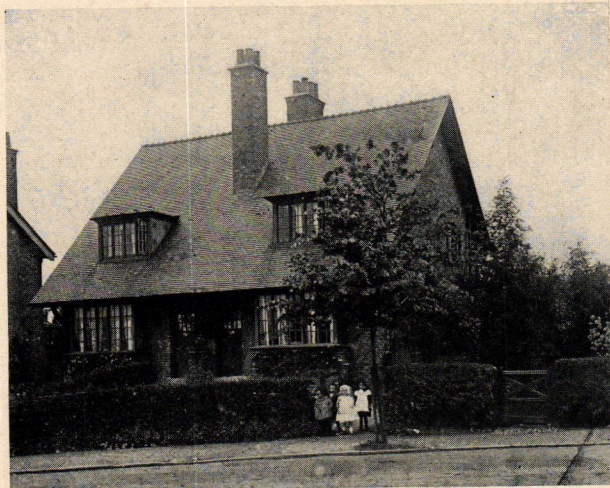
civic, social and economic interests. American cities are going to be infinitely better as a result of the adoption of zoning.

#### SITES FOR PUBLIC BUILDINGS

This is an important part of city planning and affects all public buildings, but we will here speak only of schools. Properly planned cities provide elementary schools within reasonable distance of all children and so located that no main thoroughfare has to be crossed in going to and from school. Schools should be kept away from heavy traffic and from factories, garages and mercantile centers. These are all hazardous to life and limb, the store adding to these dangers in a marked way by danger to health, primarily

through the prevailing use of candy. Candy is a problem in city planning. It is doing more damage to health than alcohol ever did and it is a crime to locate schools and candy stores in close proximity.

With the rapid growth of our cities school sites should be selected and taken ahead of time, before buildings have rendered their price prohibitive and when enough land may be secured to serve future needs. Buildings should be designed so that they may be doubled or even quadrupled in size with-



A BOURNVILLE, ENGLAND, COTTAGE

A small two family cottage is here a most satisfactory center of the street picture

out injuring the architectural design. This alone requires the taking of land in generous quantities. But there is the additional need of space for playgrounds, which should always be associated with the schools, and schools should have about them enough of grass and flowers and trees and birds so that the children do not have to get all their ideas of nature from the covers of a book.

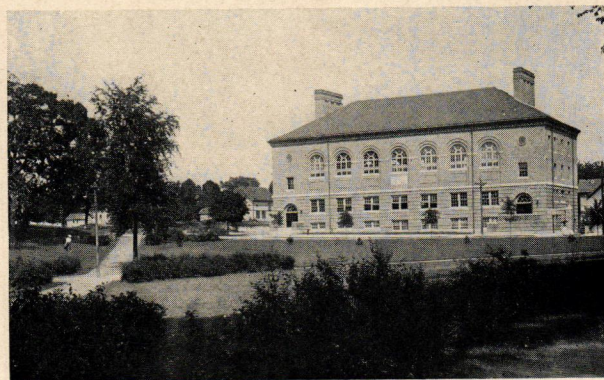
There is probably but one city where school sites and conscious planning have developed hand in hand and that is Gary. But Gary is a young city and it has had unusual advantages. It has pointed the way and all cities should profit from its example, both in planning new areas and in replanning old ones. Gary has never taken less than ten acres and she has taken as high as thirty-four acres for a school. One may readily see the advantages of such a scheme, for permanency, efficiency and economy. It is a hopeful sign to note that many planning boards are beginning to give this school question the attention it deserves.

#### PLAYGROUNDS AND PARKS

While every school must have its playground, the needs of pre-school children and of those who have finished school and of adults must be considered. The pre-school period is recognized as

“the neglected period of childhood.” We have learned to reach down into the school period to prepare our future citizens. But because of neglect of both the pre-natal and pre-school periods much of the school period is of necessity devoted to curing defects, or it is wasted by children who are not free to learn. Every pre-school child should have play space within a quarter of a mile of its home. Except for proper nutrition there is no other one thing that will do more for the health and education of children than good playgrounds in the pre-school period.

We must look to the city planners of the future to develop a broader conception of function and to the citizens and young people to develop the habit of use before our recreation fields and parks can come into maturity. They must be used, much used, by all the people if they are to act effectively as a foil to the deteriorating effects of city life.



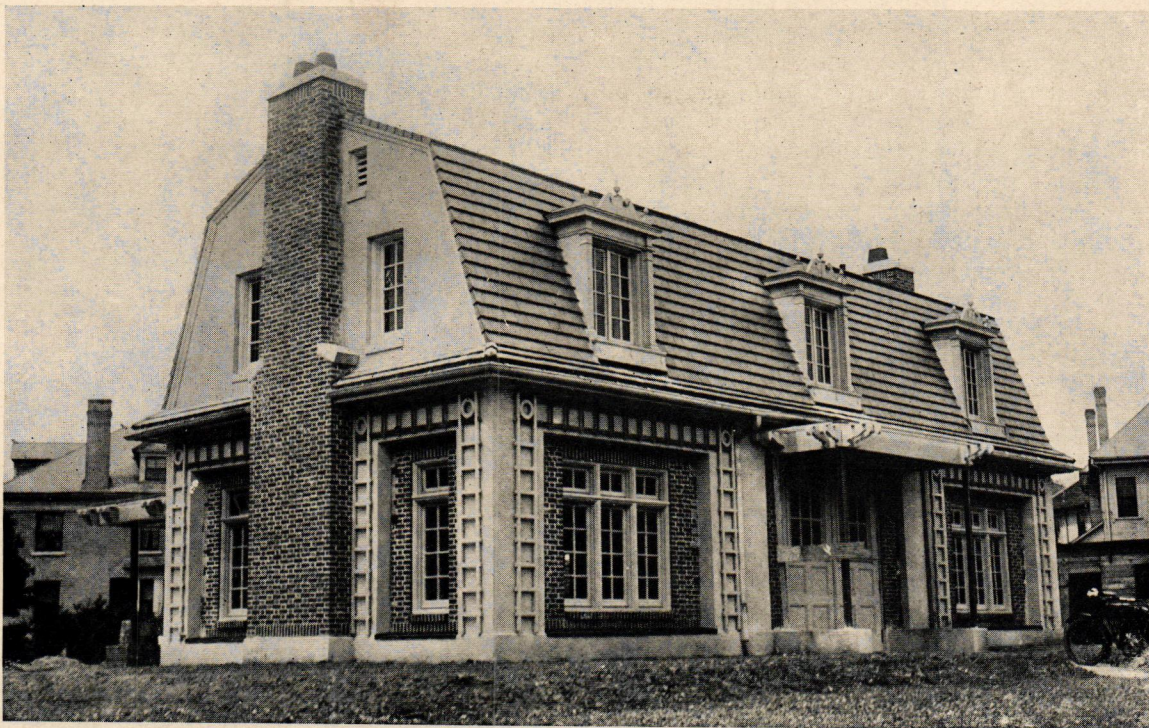
STEVENS MEMORIAL BUILDING, LUDLOW, MASS.

Setting and design both satisfactory. The cordage works start from where the camera stood and extend to the right on a line parallel to the end of the memorial. Unskilled labor, largely of Polish origin, beautiful flowers, shrubs and lawns in close juxtaposition, show that such a combination is not impossible

#### A WORD TO ARCHITECTS

Because of their training architects are in a position greatly to aid in the planning and development of our cities. They can see the advantages of the crowning height, of the slope, the plateau, the ravine, the waterfront; and they can aid in weaving into these the various elements of the street system and the other organs of city life. They can interpret the value of proper locations for public buildings so that they may be seen, and they can design them so that they may be worth seeing. They can and should add their powers of interpretation to those of other trained men to give the city the widest possible range of experience and—the citizens should use the architects, keeping them ever to the front at the spots where they may be most effective.





A MODERN FIRE ENGINE HOUSE DESIGNED TO HARMONIZE WITH ITS SURROUNDINGS AND TO BE AS INCONSPICUOUS AS POSSIBLE

## FIRE PROTECTION *in* SMALL CITIES

BY ENGINEERS of the NATIONAL BOARD of FIRE UNDERWRITERS

**T**HE extent of the fire protection needed in American cities is determined by the structural conditions existing therein. Thorough and analytical studies have been made of many hundreds of communities, ranging from the smallest village to that of the metropolitan cities of the United States; and on these studies definite requirements have been put forward as to the fire protection necessary for the average American city. It has been found that general conditions as to congestion, height and area of buildings, street widths and like features tend to increase or decrease the conflagration hazard very fairly uniformly with the size of the city as expressed by population. This basis of population therefore is the general one on which the fire protection needs of the city are calculated. In all studies, however, of individual cities, consideration is given to topography, structural conditions and the general class of occupancy.

Obviously a city of a given population which is a suburb of a larger city is usually lacking in extensive mercantile establishments and sometimes is purely residential. Such a city requires less fire protection than one of equal population located in the heart of an extensive agricultural

section where the rural trade is a large factor and the mercantile district is of considerable magnitude. In like manner cities built on a series of hills or sub-divided by rivers, deep ravines or other breaks in the topography cannot obtain the concentration of fire apparatus nor can they lay out their water system with the same degree of perfection that is possible in a community of similar size located in a flat prairie section.

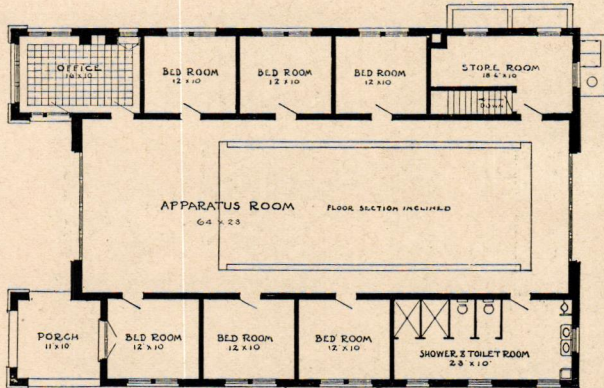
Practically any building requiring fire protection is in need of at least two streams of water. In other words, a fire must be attacked from two sides. The capacity or size of these streams varies with the class of buildings. A simple bungalow may be effectively protected by two streams from  $\frac{3}{4}$ " or 1" nozzles delivering 100 to 200 gallons each. For larger buildings these streams must be increased to  $1\frac{1}{8}$  to  $1\frac{1}{4}$  inch, with deliveries of 200 to 300 gallons a minute each. As the floor area of individual buildings becomes larger the fire protection requirements increase rapidly. This matter of area is of more importance than any other feature of fire protection. As the dimensions increase, the interior of the building becomes less and less accessible and therefore a fire is harder to control and is more apt to gain

great headway with the evolution of an enormous volume of heat. With large area buildings there is always a possibility of the heat from burning contents becoming so great as to drive the firemen before it, thus allowing other buildings to become involved. The point is finally reached where it is recognized that further increase in area makes it probable that the fire department will not be able to control the fire and therefore it is considered extremely unwise to permit extensive areas, particularly with highly combustible

openings in the building, such as elevators and dumb waiter shafts, etc., to be enclosed in such a manner that fire cannot spread from the lower floors to the upper floors at which point the fire department cannot extinguish the flames.

In the individual plant the character of the occupancy may affect the fire demand but for the average city this is not of material consideration, since practically each class of occupancy will be found in some one of the buildings.

One of the outstanding features tending to increase the fire demands of American cities is the prevalence of wooden shingle roofs. Since the earliest days of the settlement of America there have been repeated conflagrations by which a large part of a city or town was wiped out, and which have been due almost entirely to the ignition of wooden shingle roofs by flying sparks and brands from burning buildings. It is unnecessary in this article to mention the numerous cases



FLOOR PLAN OF A BUNGALOW TYPE FIRE ENGINE HOUSE, WITH PRIVATE SLEEPING ROOMS, BUILT IN THE RESIDENTIAL SECTION OF A SOUTHERN CITY

contents, unless the building is equipped with automatic sprinklers.

The congestion brought about by the growth of a city also results in buildings of increased height. With each added story to a building there is a greater demand for fire protection and for special appliances to combat fires in the upper floors. The limit of fire-fighting by means of ground streams is three or four stories and any height above this requires water towers or special appliances to be used from aerial ladders or other means to get water on the upper floors. It is obvious also that the adverse effect of this increase in height of buildings can be offset by requiring all vertical



LOOKING INTO THE LOUNGE OF A MODERN FIRE ENGINE HOUSE FROM THE APPARATUS ROOM

which have occurred in recent years, except to state that there is no section of the country which is free from this hazard. Such shingle roof conflagrations have occurred in New England, as at Salem, Mass., in the Southern States, as in Atlanta, Ga., and on the Pacific Coast, as in Berkeley, Cal.

Adequate fire protection is costly. The percentage of cost of water supply for fire protection as compared to that necessary to meet the domestic demands of the community is very high in the small places and becomes of small moment in cities of metropolitan size. As an example, the domestic requirements for a place of 10,000 population would call for a flow of water of 700 to 1,000 gallons a minute, while for fire protection needs a flow of 3,000 gallons a minute is necessary.

For cities of 10,000 to 20,000 population the average conditions as found in the mercantile

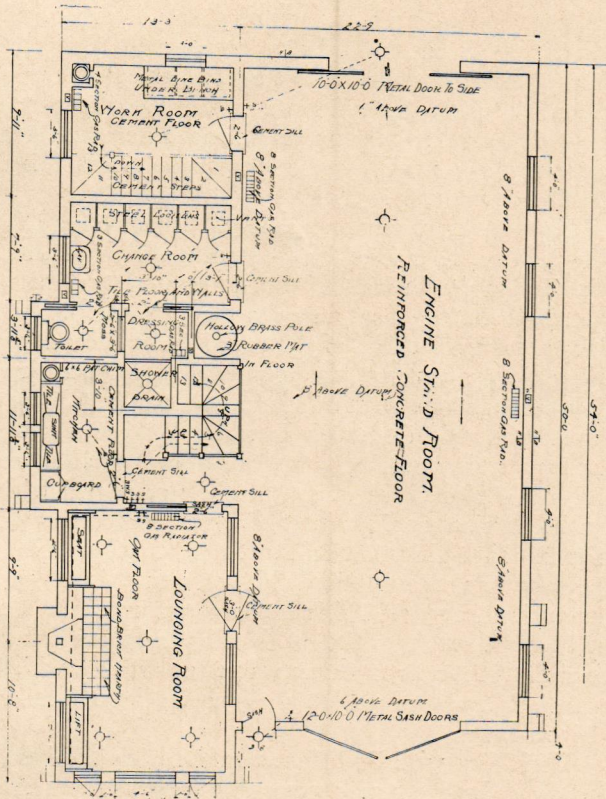


A BUNGALOW TYPE OF FIRE ENGINE HOUSE WHICH CONFORMS WITH THE SURROUNDING IMPROVEMENTS

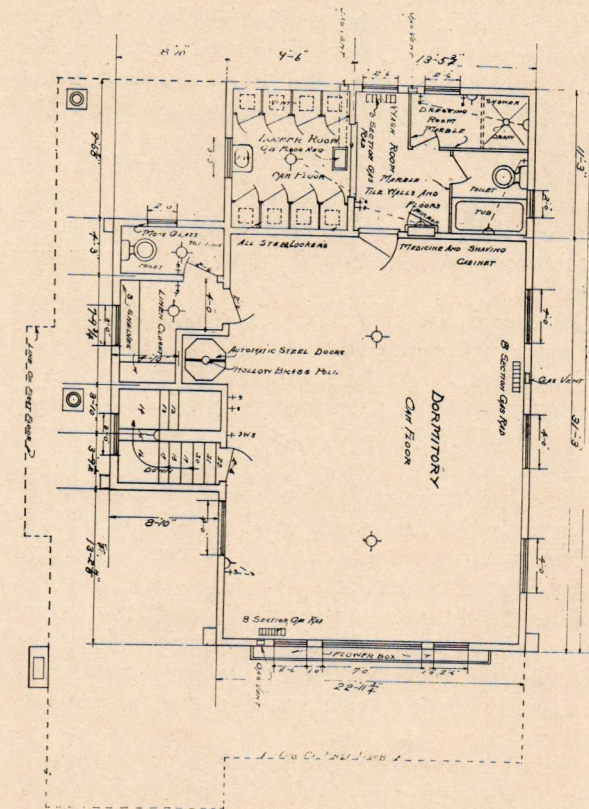
district are such as to require a fire flow demand ranging from 3,000 gallons a minute in a 10,000 population city to 4,500 gallons a minute for the larger city. To be considered adequate, a water supply system should be able to deliver these quantities of water at time of maximum consumption demands.

The item of reliability is also an important one in water supply. Breakdown of pumps, broken mains, interruptions by flood, storms, earthquakes, and severe cold weather, and the possible destruction of the pumping station by

There are a few fundamentals in regard to the distribution system. No pipe smaller than 6-inch should ever be used as a means of distributing water for fire protection. In fact 8-inch is the recommended minimum size of pipe except in the smaller places. Numerous well maintained gate valves are necessary to give proper flexibility and it is essential for proper concentration of streams to have one hydrant to each 40,000 to 70,000 square feet of area in the mercantile district and one to each 110,000 square feet in residential districts.



FIRST FLOOR PLAN OF A CALIFORNIA FIRE ENGINE HOUSE, WITH A MODERN LOUNGING ROOM



SECOND FLOOR PLAN OF A CALIFORNIA FIRE ENGINE HOUSE USING THE DORMITORY

fire are all items which must be taken into consideration in providing for adequate and reliable systems. In general it may be stated that any water supply to be considered reliable must be able to maintain the required fire flow at such time as one of the mains or the largest pump or boiler, or some other vital part of the system, is out of commission. Each type of system introduces certain items of unreliability which require partial or complete duplication. The simplest form of water supply is one delivering water by gravity from a large storage reservoir. As mechanical features are added, such as pumps, electric transmission lines, generators, air compressors, wells, etc., greater attention to duplication is necessary to assure uninterrupted supply of water for fire protection.

Few places of 10,000 to 20,000 population can afford to appropriate sufficient money for a full paid fire department of adequate size and suitably equipped. On a full paid basis a city of 10,000 population can obtain effective fire department operation by providing two engine companies and one ladder company. For a place of 20,000 population three or four engine companies and one or two ladder companies are necessary. The total capacity of engines should equal two-thirds of the required fire supply which the water system should deliver. This means, in the smaller place, at least 2,000 gallons total pumping capacity in the fire department and in the larger place about 3,000 gallons a minute total pumping capacity. In addition, of course, reserve equipment is necessary to take the place of any needing

repairs. The man power of such a fire department assuming that a two-platoon system is in operation, would consist of forty to fifty men for the smaller place with about twenty additional men for the city of 20,000 population.

An adequately manned full paid department would require an annual appropriation for salaries and maintenance of over \$5.00 per capita. Many cities seek to lessen this cost by maintaining volunteer organizations. The service of volunteer firemen in the past has been remarkably effective in numerous cities, and in the small community, consisting largely of residences, volunteer fire-fighting still may be considered as sufficiently effective to justify its continuation. The diversity of industries in American cities, the greater concentration of values in manufacturing and industrial plants, and in department stores, the increase in values which are exposed not only to fire but to water and smoke damage, result in a condition where fire-fighting must be classed among the professions and as such must be carried out by trained men.

A casual inspection of the equipment carried by modern fire departments indicates that the day of the simple hose line manned by willing hands has passed and that training and schooling in the use of appliances is necessary for effective operation. Drills are recognized today as being of utmost importance, and these drills which are necessary for teamwork and also for individual efficiency, cannot be carried out with a large unwieldy organization. It is, therefore, considered preferable for a city to maintain a well equipped, well organized and properly drilled paid fire department, even though undermanned, than to attempt fire protection with a volunteer organization.

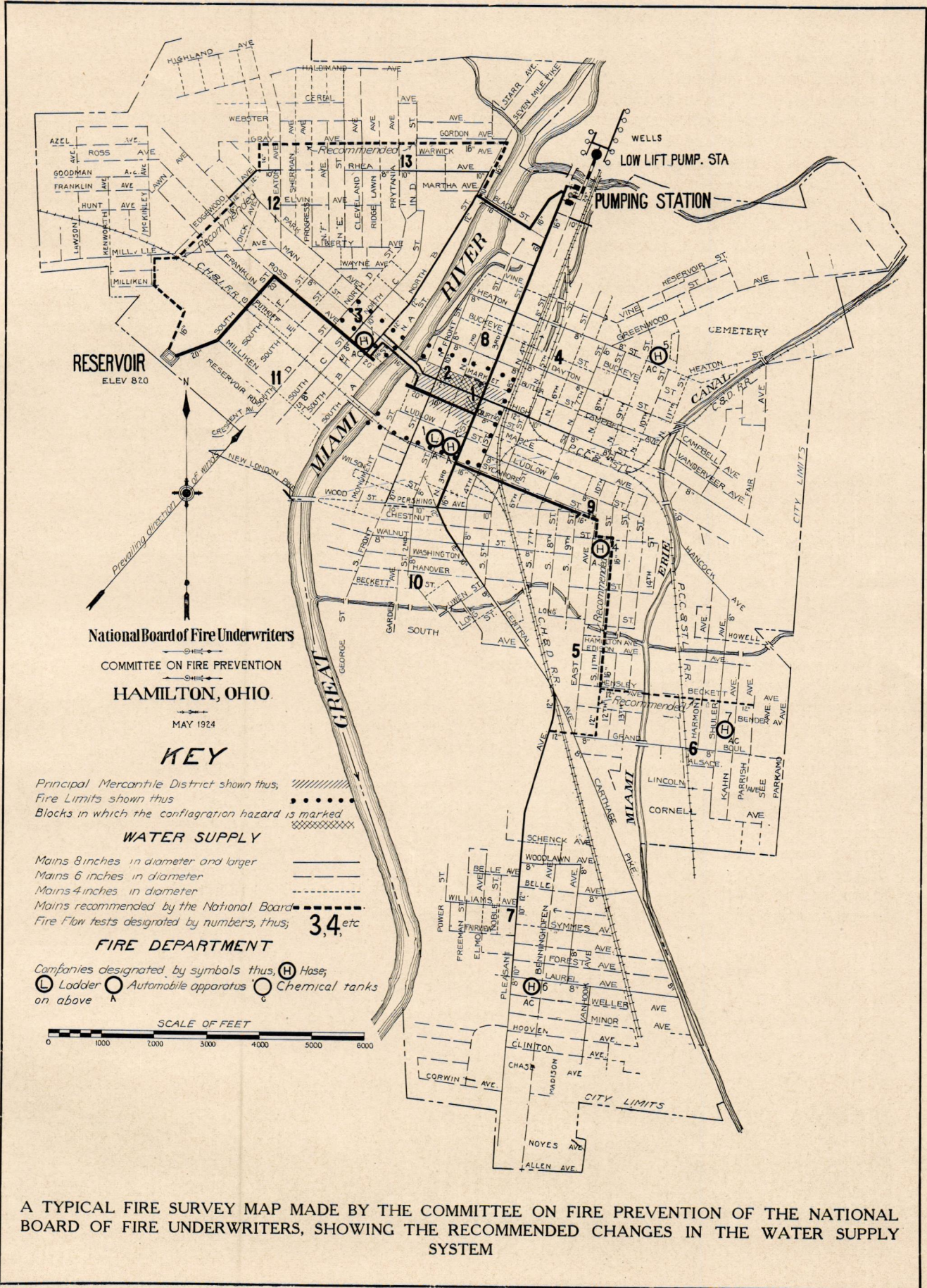
Mention was made in a previous paragraph of fire engine capacity and the installation of a ladder company. In addition to the pumps carried on the fire engines, the equipment must include at least 1,000 feet of hose, of which some should be 3 inches in diameter because of the greater carrying capacity and the remainder 2½ inches in diameter. The usual grade of hose for fire department purposes is a double-jacketed cotton fabric lined with a high grade of rubber. Every conflagration, and in fact most large individual fires, has emphasized that the supply of hose carried on the apparatus is not sufficient in itself and that at least an equal amount must be provided in reserve for each company. This hose can be brought into use for large fires and also enables the department properly to clean and dry the hose used at fires, replacing it on the wagon from the spare shift. The most desirable size of fire engine is one having a capacity of at least 700 gallons a minute. Capacities of fire engines range from 300 gallons a minute to as high as 1500 gallons. The smaller place with only two

or three fire engines will be able to meet the standard requirements for total capacity if they purchase machines of at least 1,000 gallons capacity. The cost of such machines is high, at the present time running from \$12,000 to \$15,000 each, and many places must satisfy themselves with machines of less capacity. It is recognized today that every piece of apparatus carrying hose should be equipped with some pumping capacity, since conditions will exist in some part of every city where the water supply is at too low pressure to deliver streams to high buildings or through long lines of hose. The small pumper of 300 to 500 gallons capacity is extensively used in many villages and small towns because of the low initial cost. It has a limited field in cities, machines of this capacity being suitable for residential sections, provided a sufficient number of machines of larger capacity are used by the companies responding in the downtown section.

For the incipient or small fire, particularly in residences, the use of small streams from ½-inch tips is highly desirable. Such streams have been obtained in the past largely through the use of large chemical tanks of 30 to 60 gallons capacity where the pressure was obtained by generating gas through the action of sulphuric acid on bicarbonate of soda dissolved in water. Hose wagons and pumping engines, and also the smaller or service ladder trucks, should all be equipped with such chemical engines or other arrangements made for the obtaining of small streams of water. The present practice in many departments is to use extension lines of 1½-inch hose connected to the shut-off nozzle of the 2½-inch lines for such incipient fires, or to carry water tanks from which water is pumped through a special hose line of 1-inch hose.

Each city with buildings three stories or higher needs a ladder truck carrying long ladders for rescue work and to permit the firemen to enter the upper floors of the buildings. When the city reaches such size that a number of buildings are four stories or higher, some means of raising the long main ladder are necessary. A ladder truck so equipped is known as an aerial ladder and usually carries an extension ladder of 65 to 85 feet in length. These aerials are raised by various mechanical devices to permit quick service to the higher stories of the buildings.

Much equipment is carried by various pieces of apparatus in the fire department. It must include all types of forcible entry tools, appliances for getting into concealed spaces, nozzles of different sizes, and special appliances for throwing water in large volume or into places which cannot be readily reached; these last consist of various devices for throwing water into cellars or through holes in the floor or ceiling, and also special nozzles attached to hose wagons or ladder trucks into which several hose lines can be connected and



a powerful stream delivered to the interior or to the upper floors of the building.

The fire departments of metropolitan cities have recognized for a number of years that perfect physical condition of the firemen, company teamwork, and increased efficiency of the individual members were necessary to combat serious fires and prevent conflagrations. Improvements in these conditions have been brought about by the erection of drill towers and the carrying out of systematic drills at the towers and in company quarters. The smaller fire department is just as much in need of such drills as those of the metropolitan cities. This condition has been recognized by many American cities and similar drills have been instituted after one or more officers have been sent to some larger department to undergo a period of training.

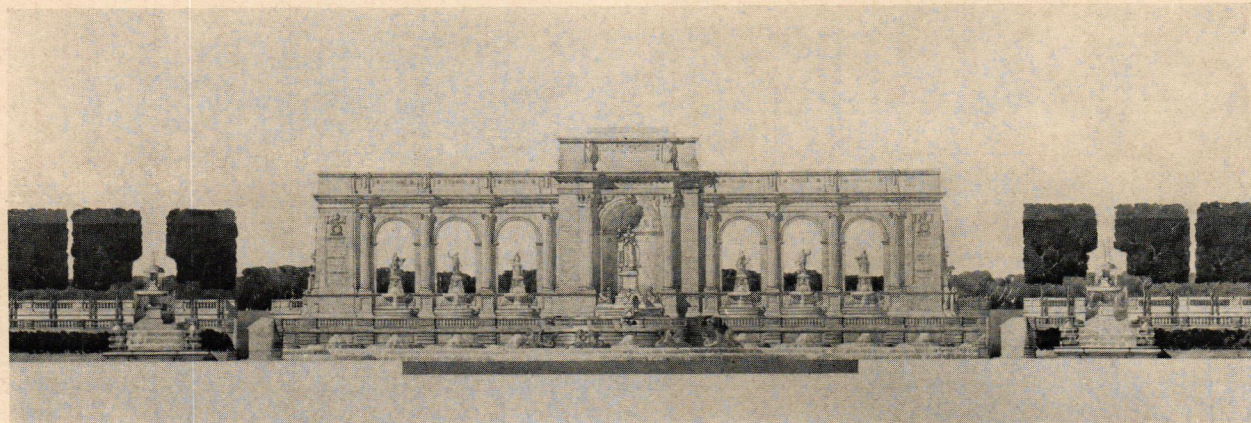
Of equal value to fire-fighting is the fire prevention work which the modern fire department should undertake and carry through. This should consist of regular, thorough inspections of all buildings in the city by the officers and men of the fire companies, supplemented by special inspection of particularly hazardous places or occupancies using material of a specially hazardous character, by one or more men employed for their knowledge of such hazards. Such a man is usually known as Fire Prevention Inspector and should be a technical graduate with knowledge of chemistry.

It is recognized in all warfare that adequate lines of communication are necessary. This is equally true in the warfare against destruction by fire and it is therefore essential that each city be provided with a complete system by which the citizens can notify the department of a fire and the fire department can call for additional aid when the fire reaches such a proportion as to make it necessary. For this purpose a municipal fire alarm system is needed. This consists essentially of street boxes by which code signals can be transmitted to the fire department, indicating the general location of the fire. The technical details

of such a system are covered by regulations on Municipal Fire Alarm Systems issued by the National Board of Fire Underwriters. The points of greatest interest to the citizens are the number and distribution of street boxes and the location of circuits and headquarters equipment. Few American cities have a sufficient number of street fire alarm boxes. In mercantile and high value districts it is considered necessary to have boxes so placed that anyone leaving a building should be able to see a fire alarm box within a distance of 500 feet. In residential districts this distance may be increased to 800 feet without materially decreasing the fire protection afforded. To increase visibility the use of red lights above the box and of a distinctive red color for the box and supporting poles is advisable. The matter of installing fire alarm circuits is of the greatest importance. Each year instances appear in the public press of partial or total derangement of the fire alarm system due to wind or sleet storms throwing down the fire alarm circuits. It is therefore essential for reliable fire alarm service to install all wires in underground ducts.

The reliability of the fire department can be affected by the nature of the headquarters building. There have been numerous instances in the past of the destruction of the headquarters building by fire. To offset this, most of the larger cities and a considerable number of the smaller ones have erected isolated fireproof structures to house the equipment necessary to maintain connection with the fire companies.

Attempts have been made in a great many cities, including some of large size, to obtain notification of fires to the fire department through the usual telephone service furnished the citizens. Commercial telephone systems are not designed with that degree of dependability which is necessary for fire alarm service. This and other shortcomings in the service make it essential that every city furnish direct means for the citizens to notify the fire department of the presence of a fire.



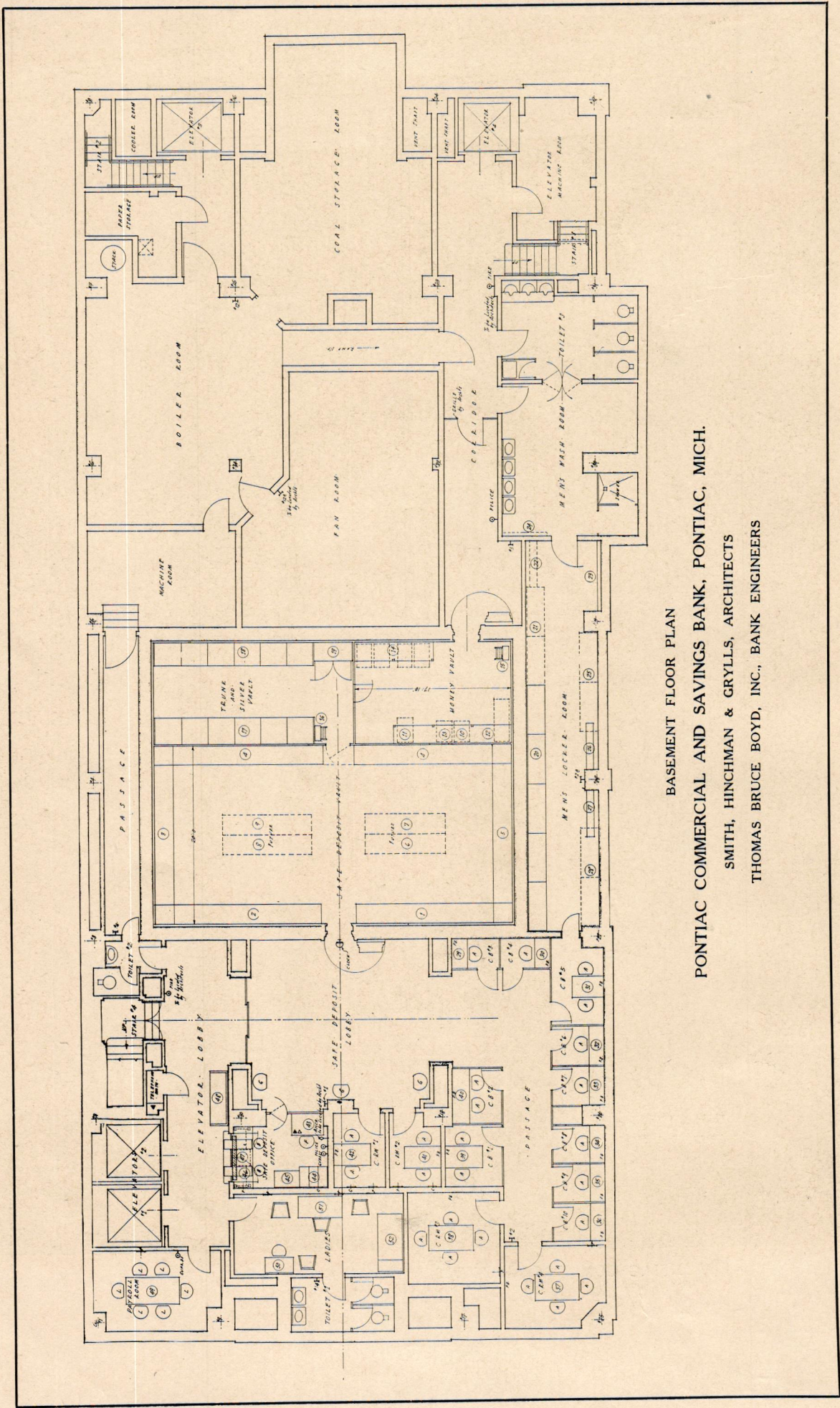


PONTIAC COMMERCIAL AND SAVINGS BANK, PONTIAC, MICH.

SMITH, HINCHMAN & GRYLLS, ARCHITECTS

THOMAS BRUCE BOYD, INC., BANK ENGINEERS

*(See plan on other side)*



BASEMENT FLOOR PLAN  
**PONTIAC COMMERCIAL AND SAVINGS BANK, PONTIAC, MICH.**  
 SMITH, HINCHMAN & GRYLLS, ARCHITECTS  
 THOMAS BRUCE BOYD, INC., BANK ENGINEERS



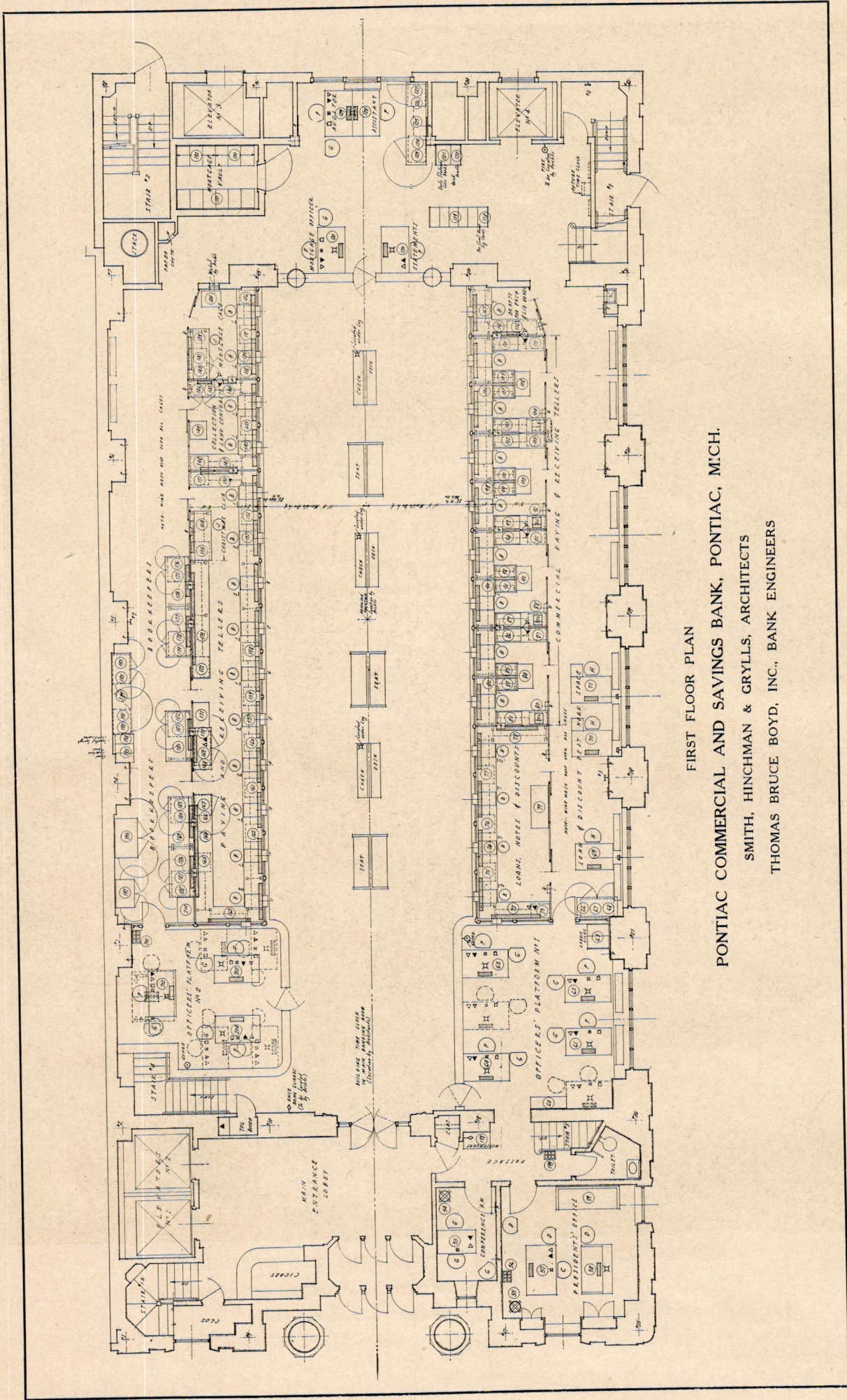


PONTIAC COMMERCIAL AND SAVINGS BANK, PONTIAC, MICH.

SMITH, HINCHMAN & GRYLLS, ARCHITECTS

THOMAS BRUCE BOYD, INC., BANK ENGINEERS

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FIRST FLOOR PLAN  
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 SMITH, HINCHMAN & GRYLLS, ARCHITECTS  
 THOMAS BRUCE BOYD, INC., BANK ENGINEERS

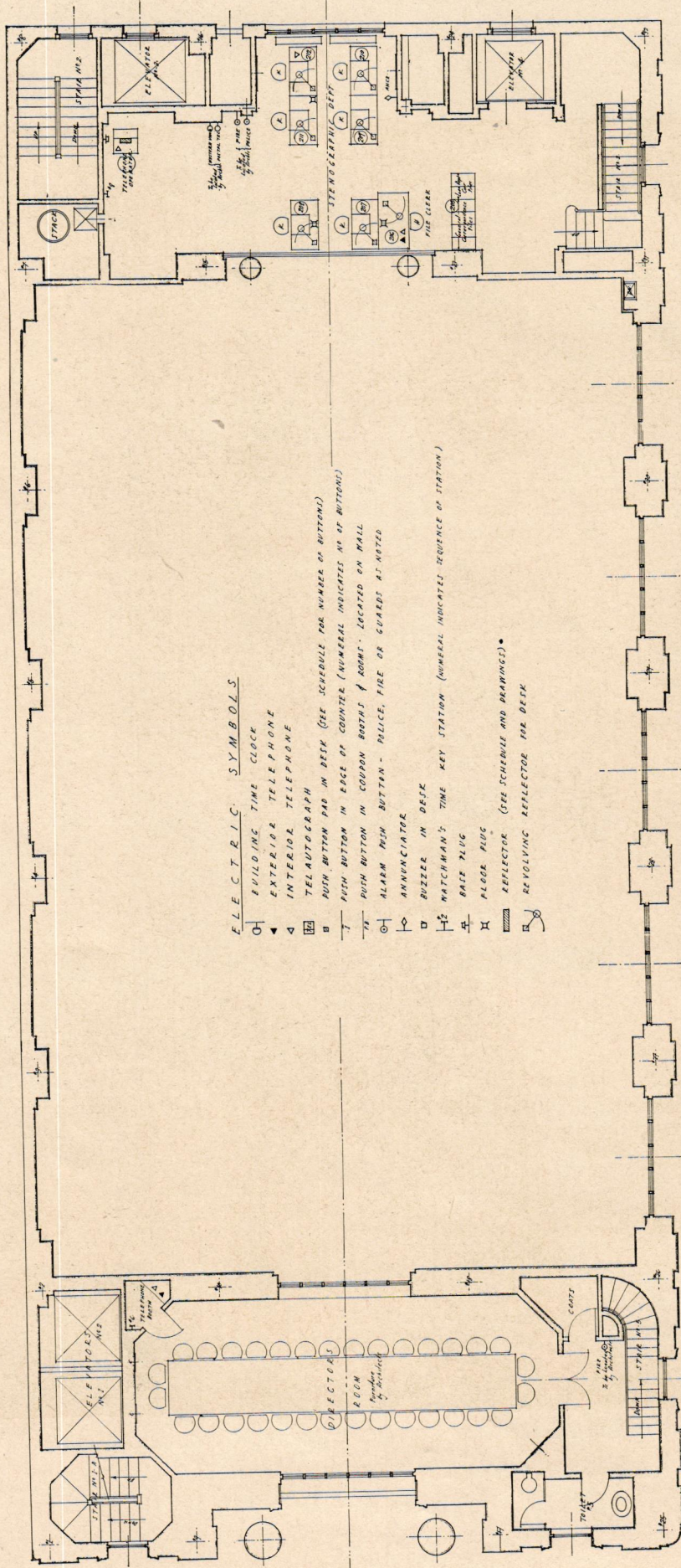


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ELECTRIC SYMBOLS

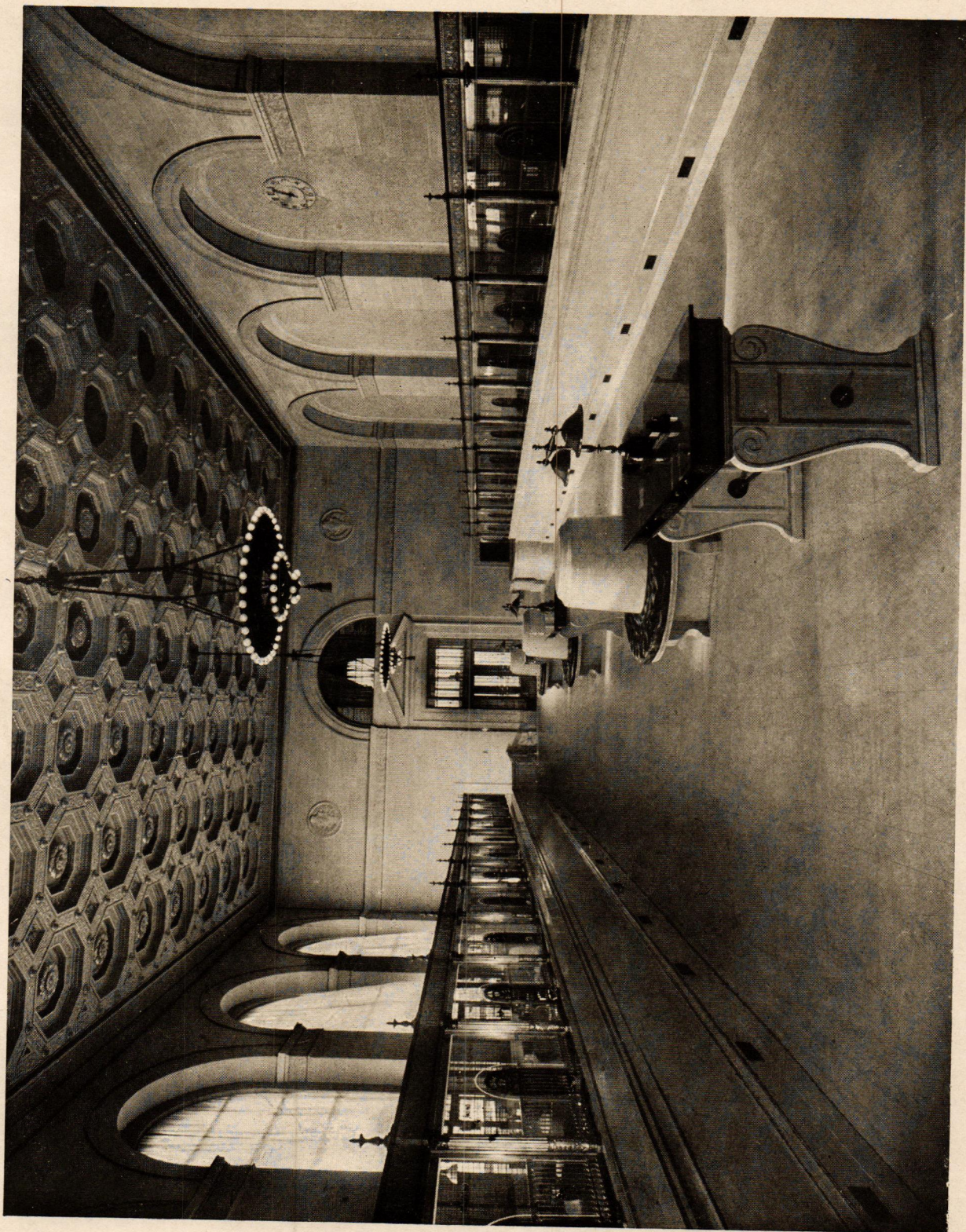
- BUILDING TIME CLOCK
- ◀ EXTERIOR TELEPHONE
- ◻ INTERIOR TELEPHONE
- ⊞ TELEAUTOGRAPH
- ⊞ PUSH BUTTON PAD IN DESK (SEE SCHEDULE FOR NUMBER OF BUTTONS)
- ⊞ PUSH BUTTON IN EDGE OF COUNTER (NUMERAL INDICATED BY NUMBER)
- ⊞ PUSH BUTTON IN COUPOIN BOOTH (ADMT. LOCATED ON WALL)
- ⊞ ALARM PUSH BUTTON - POLICE, FIRE OR GUARDS AS NOTED
- ⊞ ANNUNCIATOR
- ⊞ BUZZER IN DESK
- ⊞ WATCHMAN'S TIME KEY STATION (NUMERAL INDICATED SEQUENCE OF STATION)
- ⊞ RACE PLUG
- ⊞ FLOOR PLUG
- ⊞ REFLECTOR (SEE SCHEDULE AND DRAWINGS) \*
- ⊞ REVOLVING REFLECTOR FOR DESK

MEZZANINE FLOOR PLAN

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SMITH, HINCHMAN & GRYLLS, ARCHITECTS

THOMAS BRUCE BOYD, INC., BANK ENGINEERS

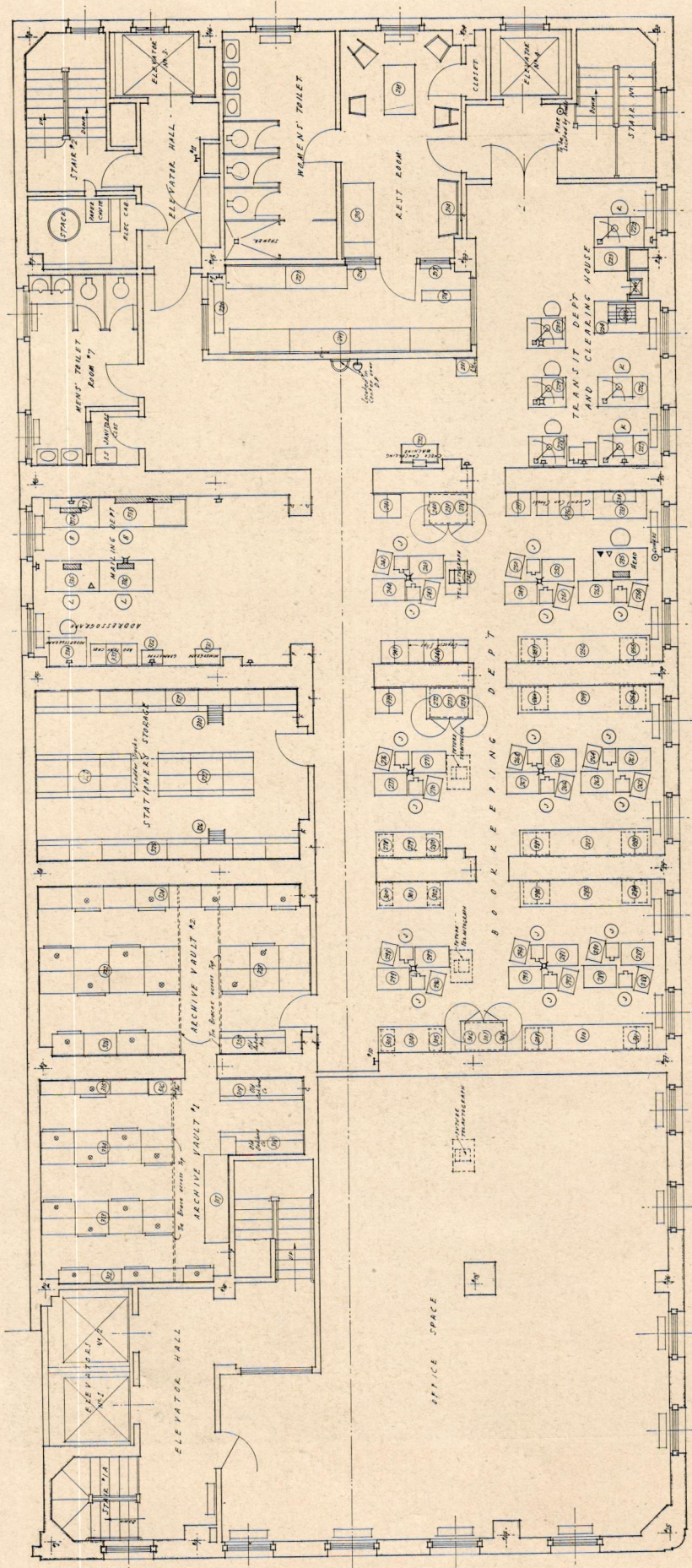


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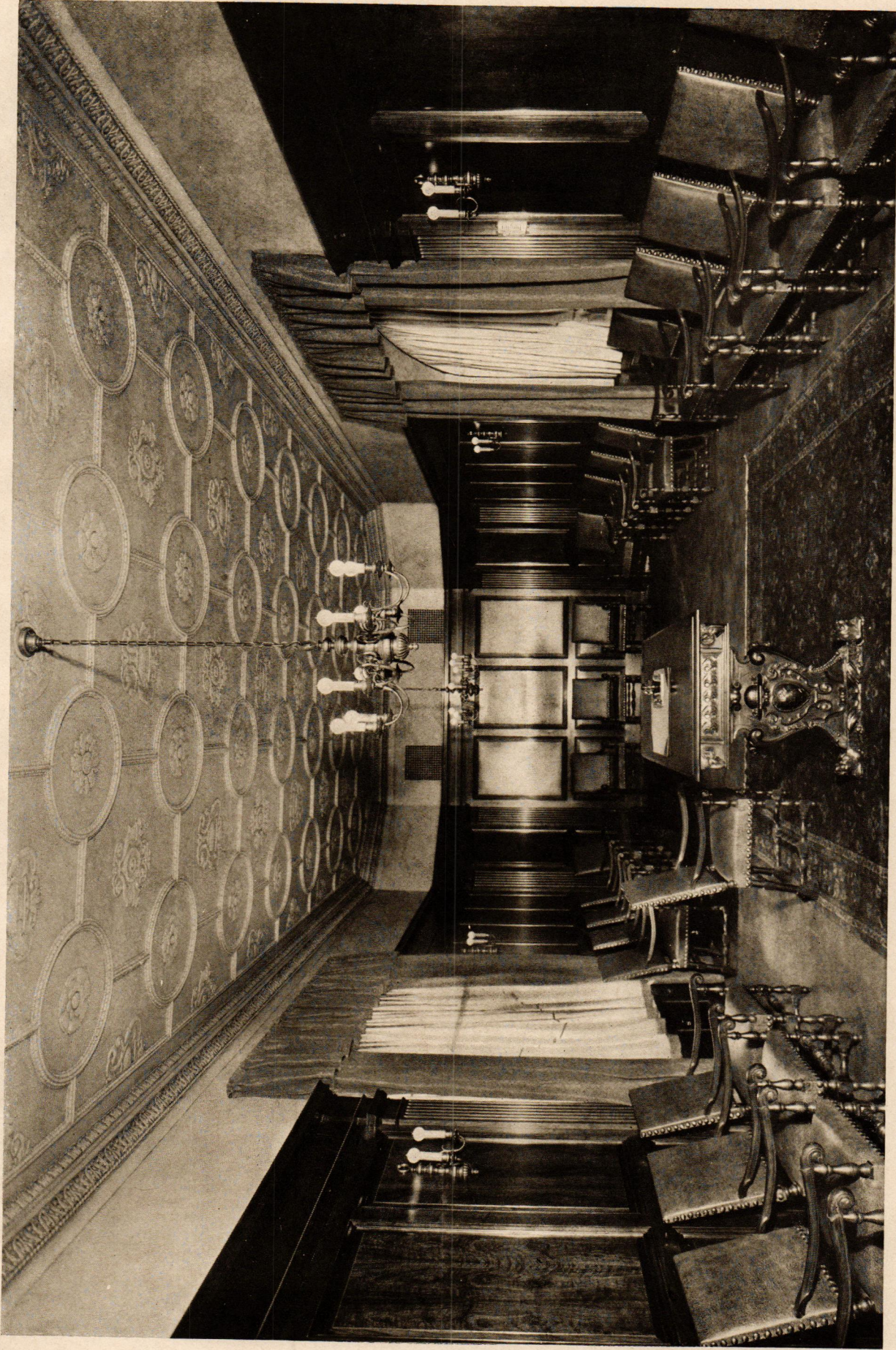
SMITH, HINCHMAN & GRYLLS, ARCHITECTS

THOMAS BRUCE BOYD, INC., BANK ENGINEERS

*(See plan on other side)*



SECOND FLOOR PLAN  
**PONTIAC COMMERCIAL AND SAVINGS BANK, PONTIAC, MICH.**  
 SMITH, HINCHMAN & GRYLLS, ARCHITECTS  
 THOMAS BRUCE BOYD, INC., BANK ENGINEERS

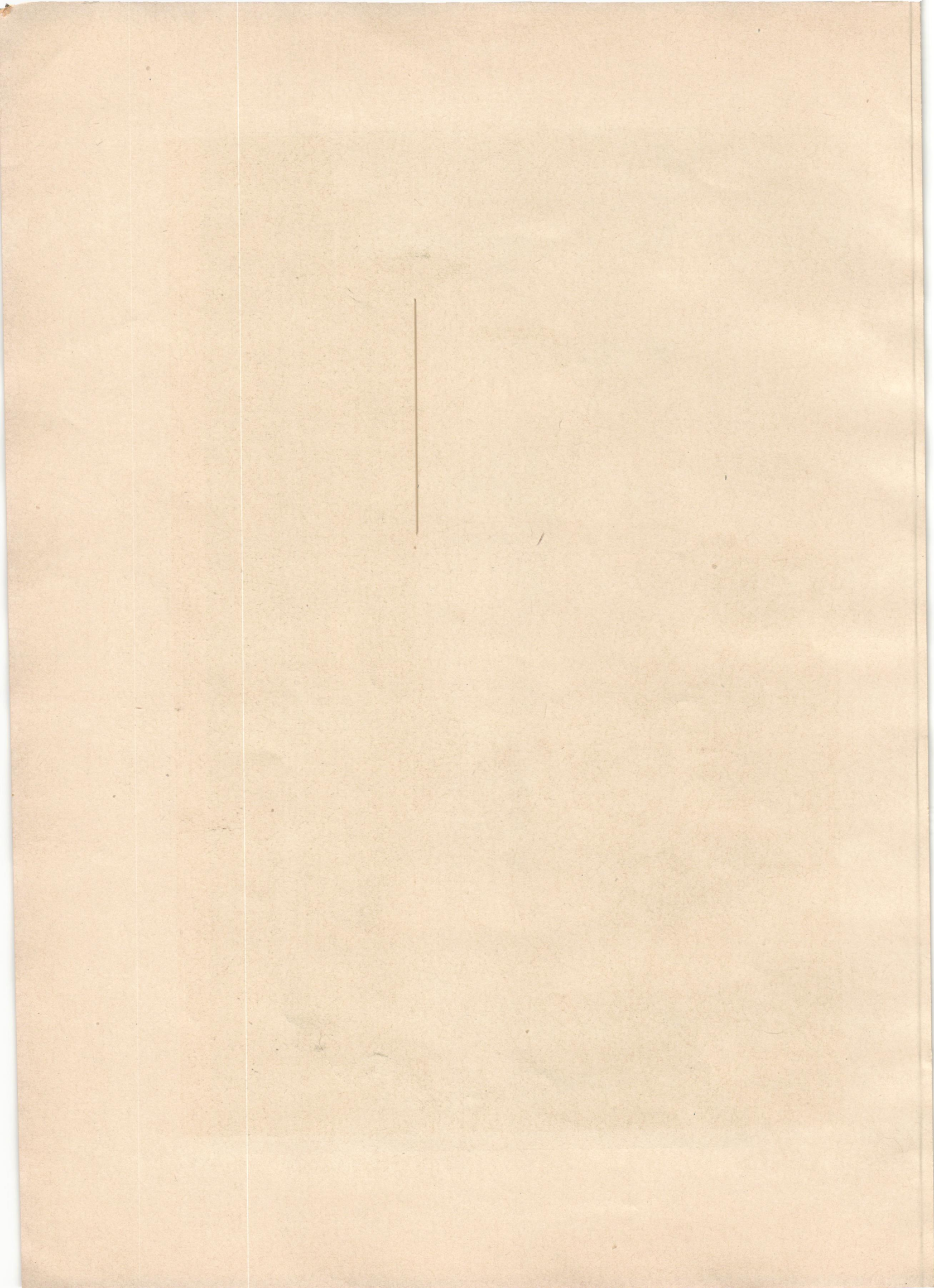


DIRECTORS' ROOM

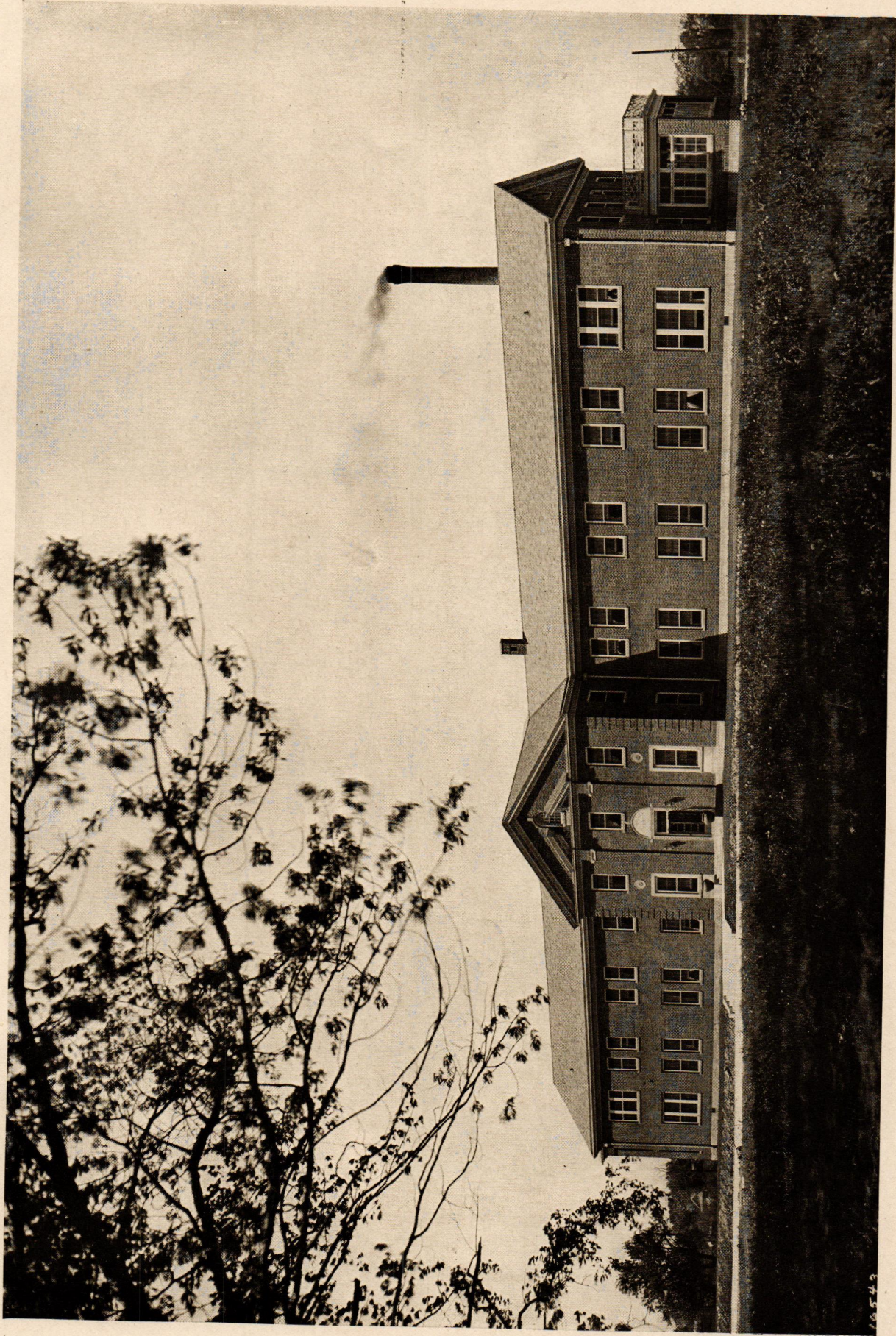
PONTIAC COMMERCIAL AND SAVINGS BANK, PONTIAC, MICH.

SMITH, HINCHMAN & GRYLLS, ARCHITECTS

THOMAS BRUCE BOYD, INC., BANK ENGINEERS

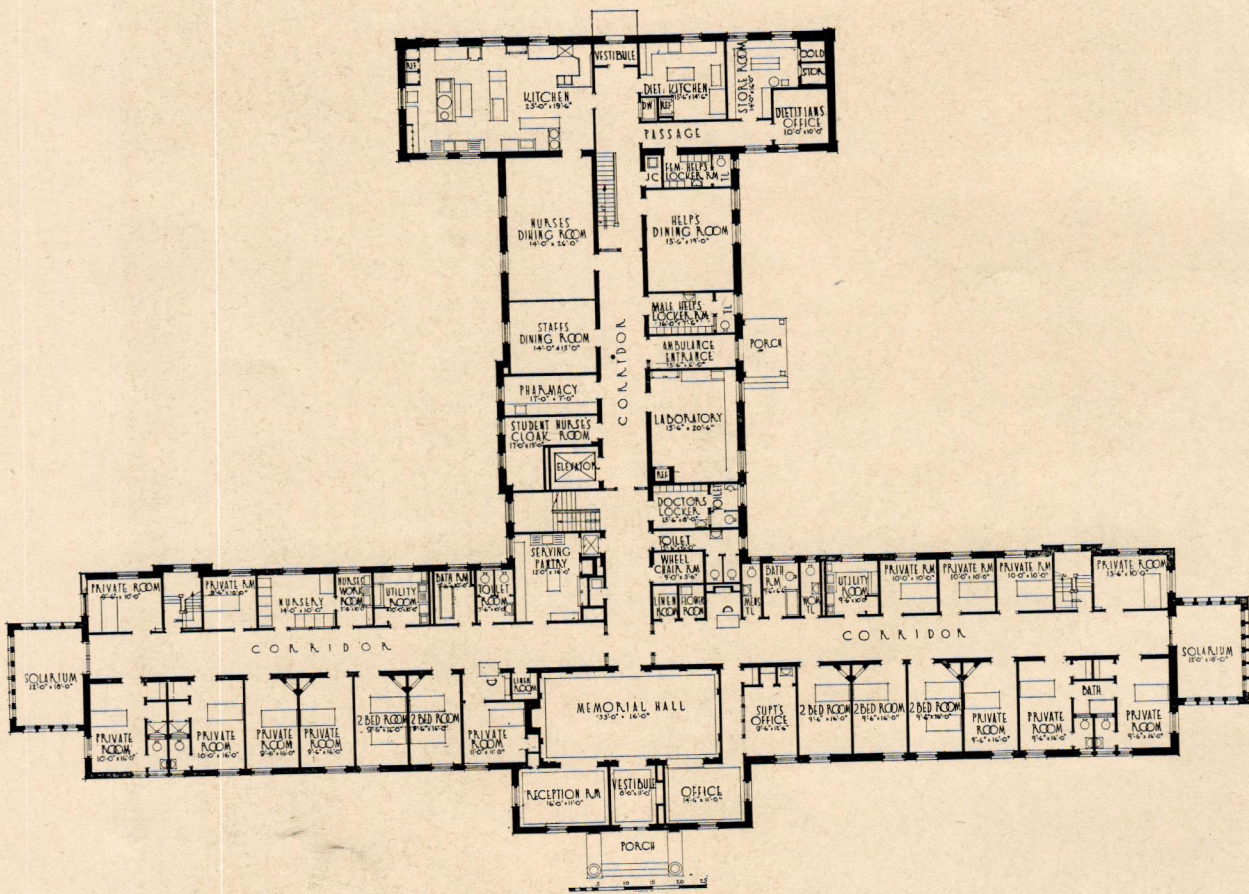
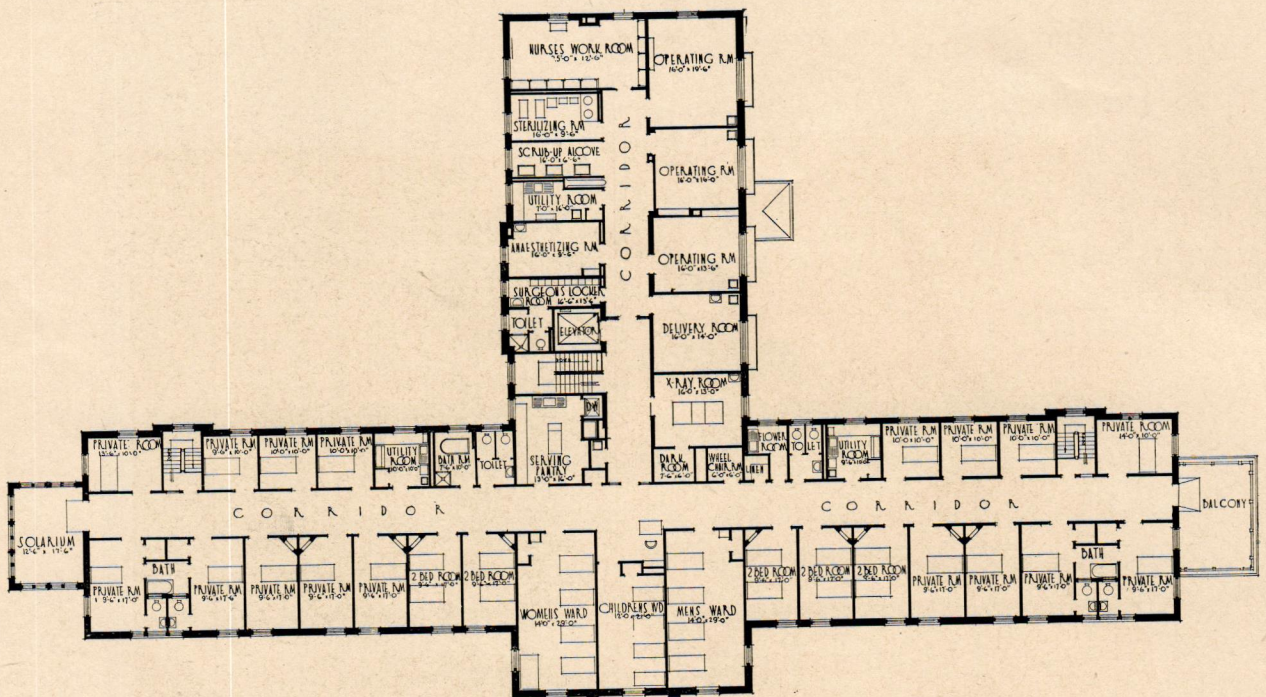




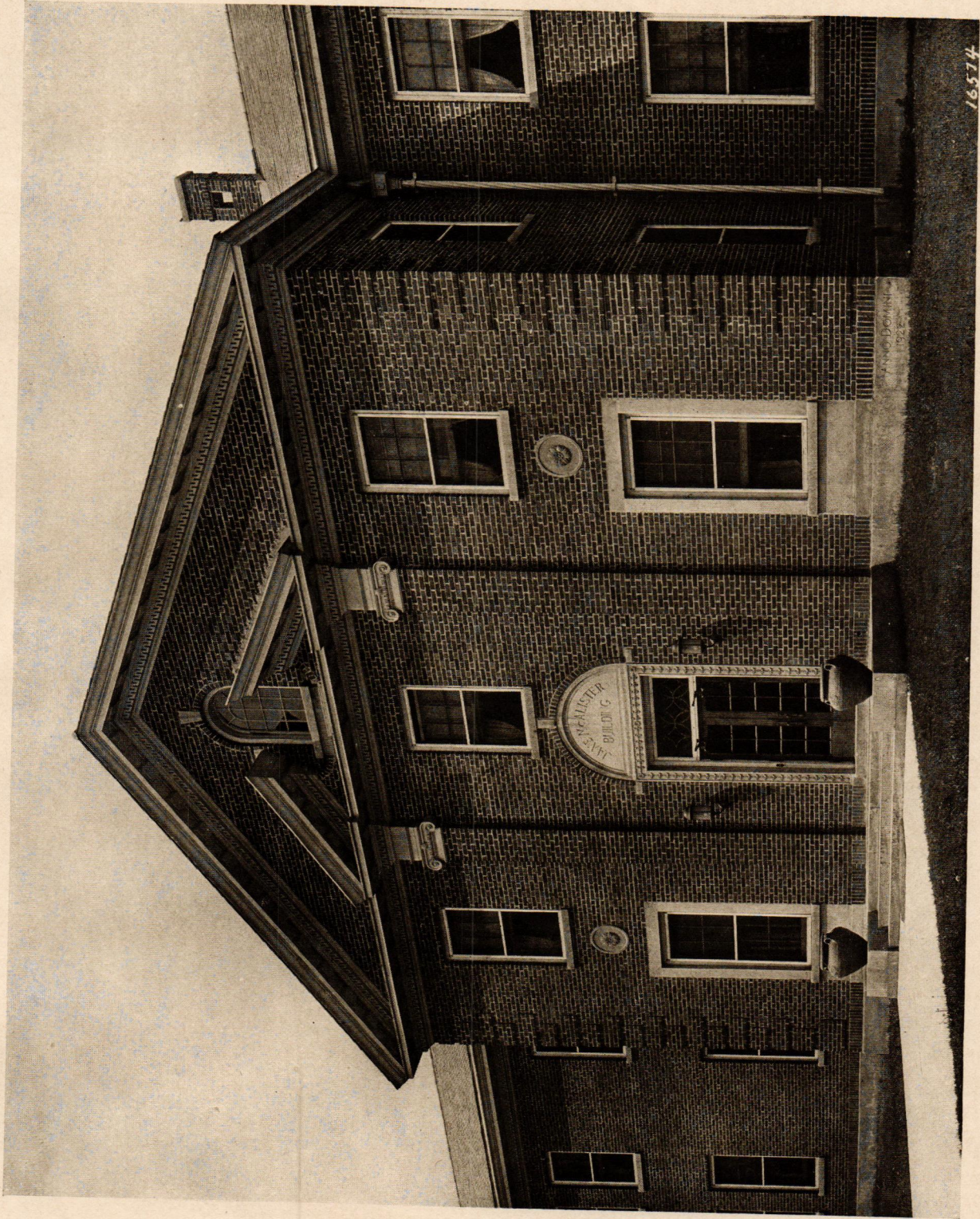


VICTORY MEMORIAL HOSPITAL, WAUKEGAN, ILL.  
RICHARD E. SCHMIDT, GARDEN & MARTIN, ARCHITECTS  
*(See plans on other side)*

THE AMERICAN ARCHITECT  
July 30, 1924. Plate 38

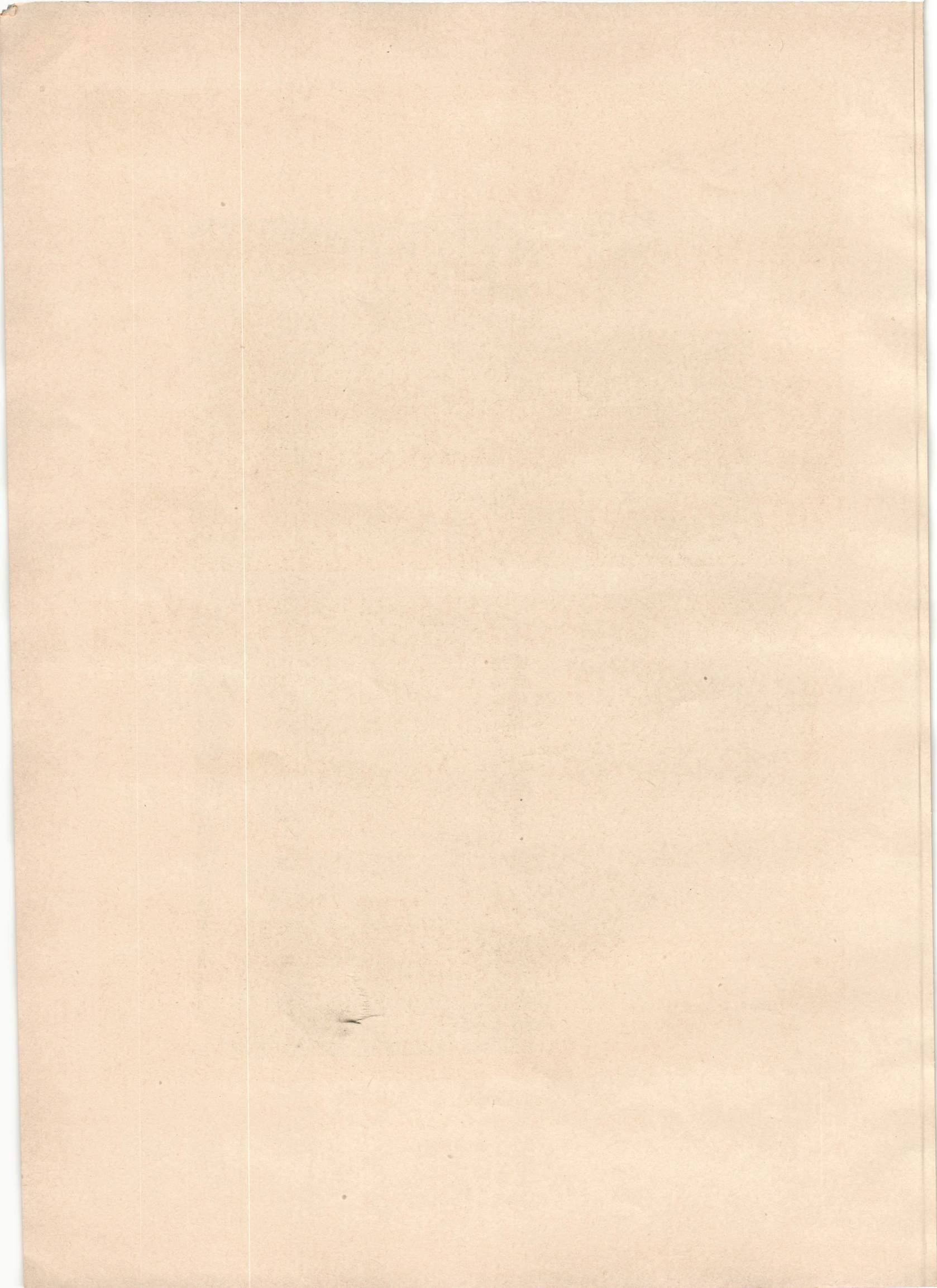


VICTORY MEMORIAL HOSPITAL, WAUKEGAN, ILL.  
 RICHARD E. SCHMIDT, GARDEN & MARTIN, ARCHITECTS



DETAIL OF MAIN ENTRANCE  
VICTORY MEMORIAL HOSPITAL, WAUKEGAN, ILL.  
RICHARD E. SCHMIDT, GARDEN & MARTIN, ARCHITECTS

THE AMERICAN ARCHITECT  
July 30, 1924. Plate 39





VICTORY MEMORIAL HOSPITAL, WAUKEGAN, ILL.  
RICHARD E. SCHMIDT, GARDEN & MARTIN, ARCHITECTS

*THE AMERICAN ARCHITECT*  
July 30, 1924. Plate 40

# BUILDING UP A SMALL CITY PRACTICE

BY WALTER O. KRUSE, A. I. A.

**I**N maintaining and building up a practice in an average community some fundamental requirements on the part of the individual architect or firm must be recognized. It may not be true that lacking these fundamentals, a practice cannot be built up, nevertheless, possession of them will assist materially and will produce an ever increasing practice of a permanent nature. There are booms in the practice of architecture as there are in retail business, and some ride the rising tide of prosperity and know not why, except that things are surely coming their way. The day comes when they find their prosperity waning, they curse their luck and wonder why.

We must recognize, therefore, as of primary importance in building up a practice the following fundamental requisites. The architect must know the business of his profession and how to conduct it. He must be either technically trained or possess sufficient training gained through early experience in other large offices. A combination of both is today essential. The character and integrity of the architect must be of the highest, so as to command the respect of his fellow citizens. An architect is his client's agent and as such, must have the confidence of his client, absolutely. The average client has a remote suspicion that the architect could profit otherwise than by the commission he receives. Such misgivings on the part of the client may be a hereditary weakness and the architect in his dealings with him should dispel any such symptoms by administering the work, through all its intricate phases, beyond the question of a doubt.

The average small town architect finds his practice composed of a greater variety of work, relatively, than his brother in the larger city. His opportunity at specialization does not exist, due to a lack of repetition, and he is compelled to be informed on most any type of work. Along specialized work he is at a disadvantage many times because the client becomes his only advisor and the work is too often the thought of the client. Upon receiving a commission he may not know much about the particular business the client wants to house, and gaining the confidence of his client is not an easy task.

As a member of a small community, in which he is bound to be conspicuous, he becomes known by the quality of his work. Words of praise or condemnation, from which he cannot escape, are spoken of him by his fellow citizens for whom he either designed a house, remodelled a store front,

built a garage or added a sleeping porch. The opportunities for architectural composition may have been very limited but the opportunity for demonstrating his business judgment, his integrity and his capability of handling men in supervising the work, were not lacking. The performance of these duties, satisfactory to his client, perhaps gives him his first real job. And the man for whom he built a sleeping porch may be the director of the bank, who spoke so highly of his qualities as an architect before the board of directors, that he was awarded the commission for their new building.

He may also see the advantages of joining the Chamber of Commerce, the Country Club and perhaps some fraternal organizations, but he should never use his memberships directly as a means for gaining favor. Such memberships can best be used to make business and social acquaintances. The ability to get a commission must depend upon his reputation, initiative and record of past accomplishments and an attitude of faith in his profession that begets confidence and in turn business. It is well to remember that the public is ever ready to comment upon and exaggerate his shortcomings but words of praise of work well done are sparingly given. A limited interest displayed in civic service is valuable in that, besides broadening his acquaintance, it keeps him actively engaged in civic progress. As an architect, he should have an interest in the beauty of his city and as a member of a City Planning Commission he will have an opportunity for service. If none exists he should try to organize one.

With all these virtues we find our architect well established in his community and enjoying an enviable practice with a reputation for honesty, integrity and business ability. His work also shows evidence of a thorough knowledge of architectural design, combined with a pleasing distinctiveness that gives to his buildings character and individuality. He has an organization, is prosperous and justly proud. It will be well at this time for him to give serious thought to his future. It is at this point that many will lose the guiding spirit of their profession. The love they had for it early in life, evidenced by the sacrifices of time and energy, the ambitions they cherished of independent practice, the desire to serve their clients unstintingly, their high ideals, their unlimited enthusiasm, all these admirable attributes must ever and always remain with them and be practiced continually. As soon as a feeling of self

satisfaction, of indifference to a client's problems, or a desire to shift work and responsibility to subordinates appears, decay sets in.

It is strange that in business life today, if we stand still our next move is backward. We must, therefore, in order to be progressive, expand in the size of our organization, the amount of our business and in the services we render. What is true of business is true of architectural business. Architects perform personal services and the firm whose service excels in quality and quantity is bound to prosper. What is quality and quantity of service? Every one claims to be giving service today, including gas filling stations, department stores and banks. Most of this service, however, is doing something for nothing to please the customer and finds its justification in furnishing leads which bring buyers of gas to the station, shoppers to the store and depositors to the bank. Architects are also confronted today with innumerable propositions fostered by ready-cut mail order houses, material supply concerns for lumber, brick, concrete and other things to furnish free plan service as leads for material orders. Many contractors will cheerfully furnish the owner all the plans or blueprints necessary for his building project, whether for remodelling a store front, building a house or erecting a large building. The owner is led to believe that plans are easy to make and can be secured for the asking; that the architect can be dispensed with and that his connection with the work only tends to increase the cost, due to a lot of pet ideas, materials and methods he insists on incorporating in the work, which are needless, out of date and expensive. And many owners believe it the first time and time again.

The sad part of these accusations is that many of them are true and some architects, by failing in their services, make them true. It becomes the duty therefore of every architect practicing in average communities actively to engage himself in this problem and seek a solution for the misunderstanding and lack of information on the part of the building public. He should also take a walk around himself and survey his own shortcomings. As a designer his work may be beyond criticism, but when it comes to sensing the pulse of his client and trying to solve some of his difficulties, he thinks too often entirely of appearance, composition of plans, exterior elevations and details. His client, however, sees only unjustified expense and loss of income. The mental attitudes of the two do not dovetail. The client is not convinced of the economic necessity of the architect.

The architect can improve his case and regain his prestige in the estimation of the building public if he will face these conditions squarely and talk in a language that the public understands. If the public can get a service that combines financing, architecture and building, tries it and

likes it, there must be something about it that appeals, of which the architect is not aware. If the architect in his own opinion can offer a service that is more just, more efficient and protects the interests of both the owner and the builder effectively, let him proclaim it and in no uncertain terms. Instead of submitting sketches gratis to promote and build up a practice, which is a source of evil in a small community, he might try to sell himself, his organization and his services by a well studied sales talk that a client can comprehend. By presenting an outline of the value of architectural advice, both technical and artistic, an architect can make his appeal so conclusive that the client will find such services indispensable. A few lessons in salesmanship would be very beneficial. After trying this out several times and taking note of what line of arguments produced the best results, a series of bulletins or pamphlets can be prepared. These should be distributed in proper sequence in personal letter form, and should cover all the items that an owner should be acquainted with, when he contemplates selecting architectural services.

The architect should be able to advise the average speculative builder (and I use the term in the sense of an owner building for resale or for income producing property) on some matters concerning which he would be glad to have information. He would like to know, besides the cost of his building, the probable rentals that he could expect, the cost of operation, the amount of taxes, insurance rates and the like. He might appreciate the architect's assistance in making financial arrangements through the banks or a bonding house. A prospectus of a building project can be easily prepared, giving a brief description of the proposed building with floor plans and a perspective. Such an outline is particularly desirable if the building is for any organization depending upon its membership or the public for support. In other words, the small town architect can take an interest in the legitimate promotion of such enterprises without jeopardizing his standing as a professional man.

After a job is completed it is well to keep a point of contact with his client. A visit by the architect or his superintendent going through the building, inviting suggestions or criticisms, will show the owner that the architect has a continued interest in his particular job. The old clients are the best advertisers the architect has. How they advertise him depends usually on how successfully the architect has served them. And in this no distinction can be made in the size of the job. All operations are equally important to the client and to let anyone feel that he is bothering the office with a small job does not build good will.

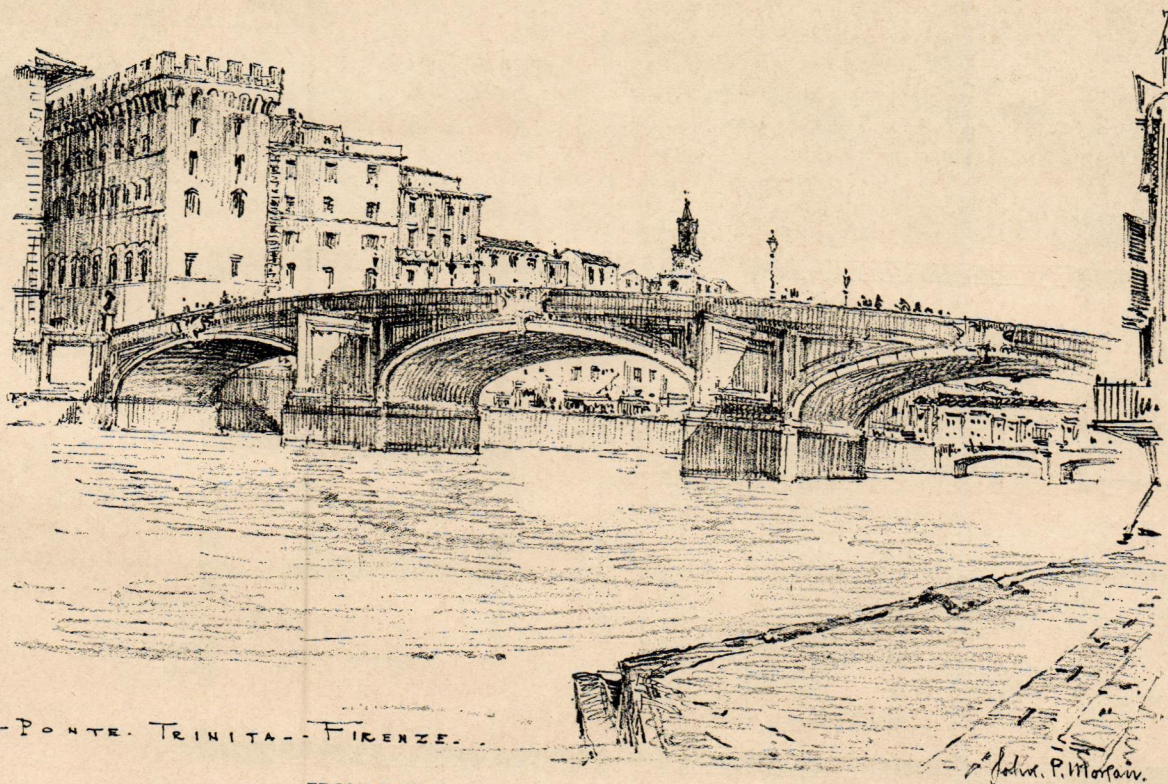
Every client expects the architect to give his particular job personal attention. He likes to know that the architect is doing this or that him-

self and not delegating too much of his duties to his assistants. To delegate some one in the office to meet Mr. or Mrs. Client is apparently accepted gracefully but the client's feeling of importance is offended. He expects personal service and it is on this point that the architect must use and practice all the diplomacy and tact at his command. Naturally, if his practice is of average size he cannot meet all of his clients on every occasion, much less make all of the drawings and do all of the superintending. Here again, after he has the confidence of his client, he must in turn take the different men in his organization and have them sit in on conferences to obtain the different aspects of the job, saying nothing at first but usually a great deal after the job is under way. And in building up his organization he should surround himself with men of ability and competence, whose reward for loyalty should be justly compensated.

In a small city, in particular, the architect must not confuse his obligations to his client with outside activities. The client's claims on him should be paramount. This may not be true in larger cities but it is difficult and may be disastrous to ignore in the small city. The point of view of the average client is that the architect should adjust his time to suit the convenience of his client. This may call for conferences in the evenings, Sundays and holidays. A golf game, a family outing, or an evening dinner engagement cannot be offered as excuses. This demand of time is justifiable for preliminary and urgent conferences until the client can be brought around

to see the wisdom of holding them at the architect's offices during regular hours. Meetings with building committees, however, are often difficult to arrange for except at their convenience.

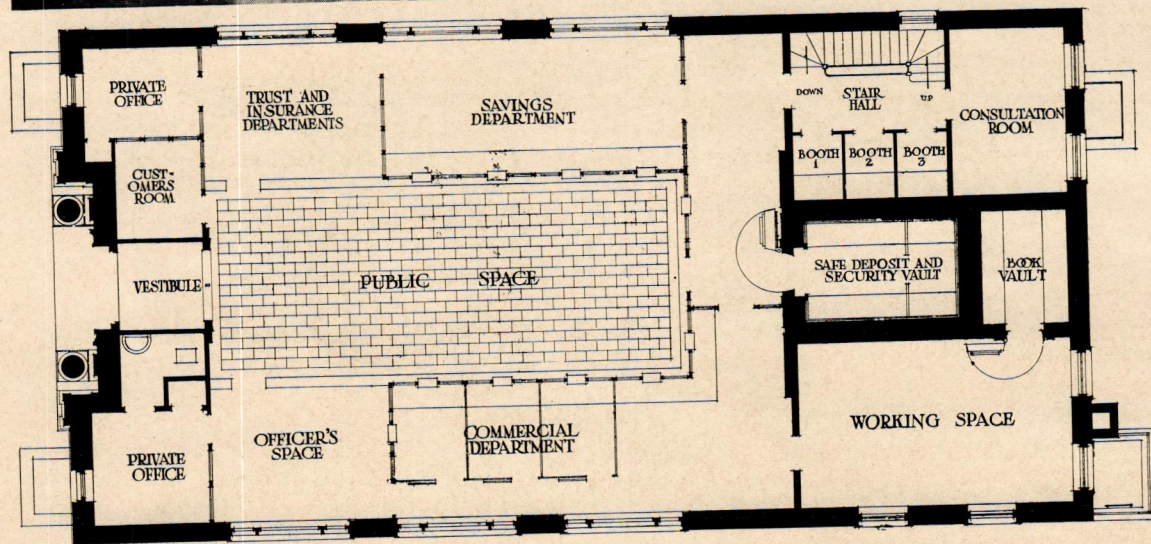
In conclusion, a word should be added regarding the architect's relations with the building crafts. No matter how perfect the drawings may be or how complete the specifications, in the last analysis the success of the building is in a large measure dependent upon the builder. His organization must rise to the occasion. Wisdom in the selection of bidders for particular work is important. A reputation among the builders for fairness and honesty in administering the work is a factor that builds up a practice, because it makes for successful operations. An architect who uses his power in a purely arbitrary manner, is dictatorial and functions with self-assumed authority at the contractor's expense will not fare well. Plans and specifications should be complete with no uncertainties. Then demand of the builder the execution of the contract according to the terms imposed. Any discretion the architect may have in placing an interpretation on uncertainties should be settled justly to both parties. The builders realize their responsibility to society and are trying to conduct their business to render perfect service, and in this effort the architect should give them unqualified support. Such co-operation will assist and build up the business of both, and the public, which always pays in the end, will also benefit.



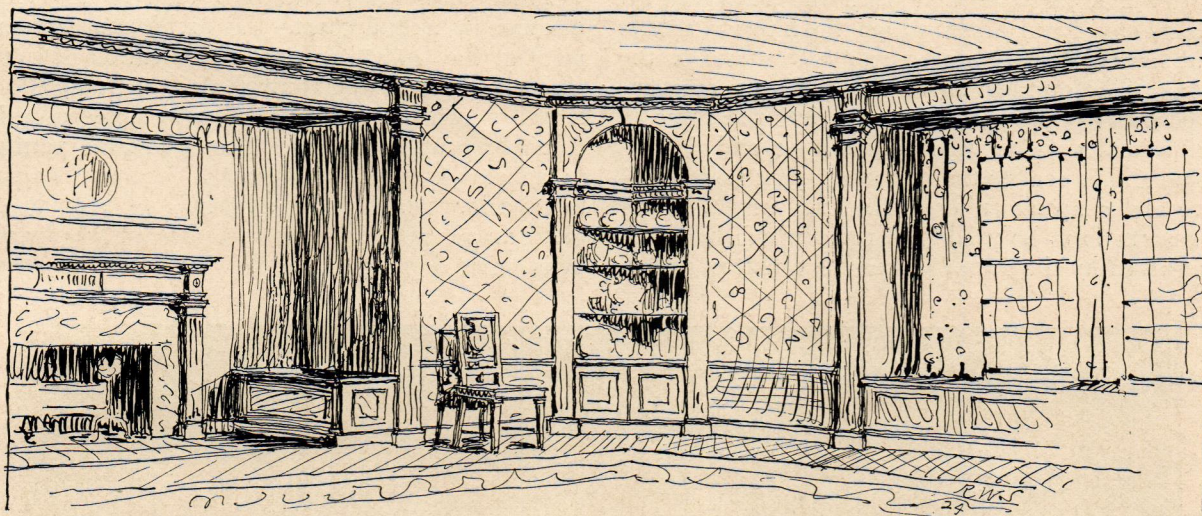
-PONTE TRINITA--FIRENZE-

FROM THE ORIGINAL SKETCH BY JOHN P. MORGAN





SEYMOUR TRUST COMPANY, SEYMOUR, CONN.  
THOMAS M. JAMES COMPANY, ARCHITECTS AND ENGINEERS



SKETCH DEMONSTRATING THE VALUE OF BUILT-IN FURNITURE. THE CORNER CABINET IS DECORATIVE IN ANY ROOM, THE WOOD-BOX SERVES AS A FIREPLACE BENCH AND THE WINDOW SEAT GIVES VALUABLE SPACE FOR TENNIS RACKETS, ETC. THE UNITY WHICH PREVAILS THROUGHOUT THE DESIGN OF ALL IS OFTEN LACKING IN ODD PIECES OF FURNITURE

## PROBLEMS *of the* SMALL TOWN ARCHITECT *in* DESIGNING *the* DECORATIONS *of the* INTERIOR

**T**HROUGH use in connection with elaborate schemes of large and pretentious buildings, the term "interior decorations" has come to have a superlative meaning that prompts the owner of a small house, and, sometimes, even his architect, to shy at the mere mention of the words. This state of affairs is not as bad as might at first appear. In lacking the services of an expert to arrange the scheme of decoration and furnishing, a decorative importance is given to the architectural treatment, which, unfortunately, is, otherwise, often overlooked. While this creates an additional problem for the architect, it insures unity of design between architecture and decoration which is greatly to be desired. The solution of the problem requires certain extensions of the architect's powers, perhaps, continuing beyond the lines of ordinary or strict architectural work. With the proper use of line and color, the materials included in the architectural treatment may be easily given real decorative interest which would bear no suggestion of absence of decorative advice. As far as possible, the architect, however, should continue to act in an advisory capacity in the selection of the major items of the furnishings which the owner may desire to use or insist on purchasing direct himself.

Architecture of the interior, distinguished from the decorations, might be described as the construction of the interior of the building. Includ-

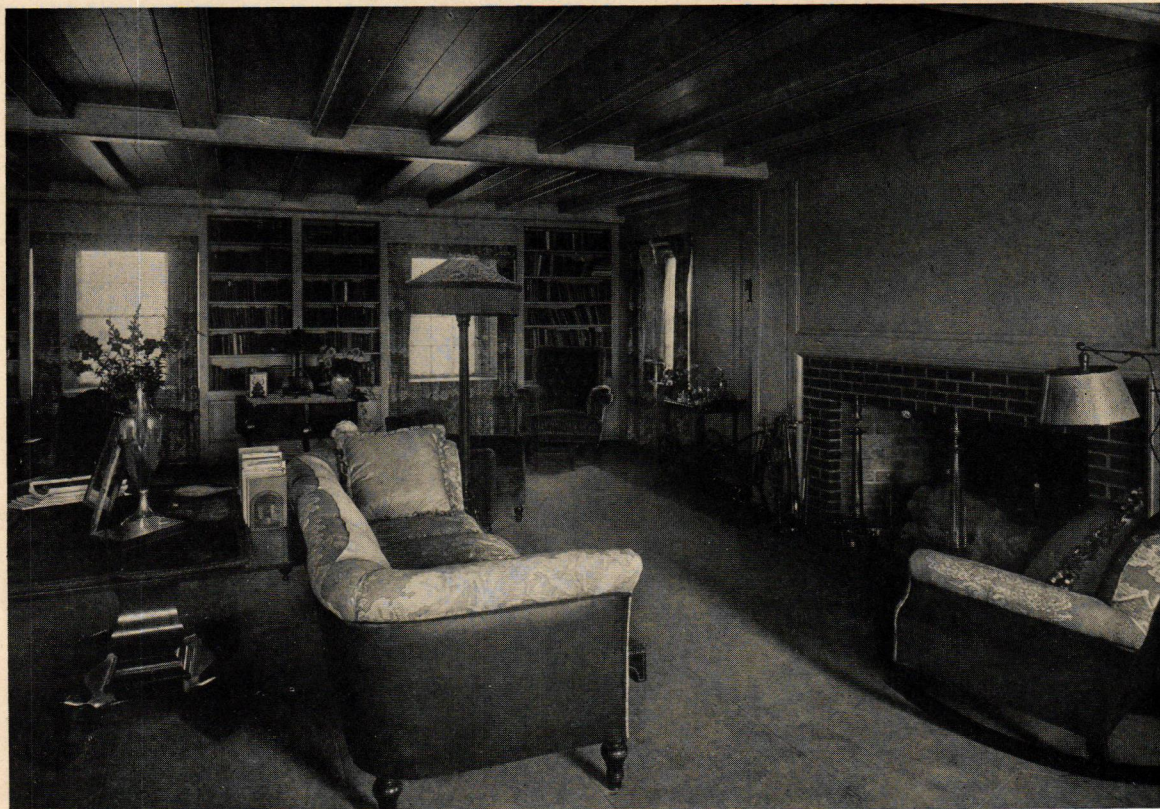
ing, as it does, the walls, floors, trim, mantels, painting and lighting fixtures, they seem to offer the architect sufficient opportunity to create decorative interest that will satisfy the most discerning, without going beyond the border of his own operations. Take the wall treatment, for instance. Many of the most attractive schemes of decoration, carefully thought out by experts in the line, include walls of rough plaster in one of the many different effects obtainable, tinted slightly, sometimes, under the painting contract, to harmonize better with the other decorations. And the mantel, always a vital part of the decorative scheme, is designed and put in place entirely under the architect's supervision. The painting contract, which, if properly specified to include colors and ornamentation which a decorative scheme might include, may not only bring the architectural treatment to a point of real interest, but may mean a saving of many dollars for the owner by avoiding additional coats. So, it seems, the problem of the architect in such cases, is really one of giving decorative value to architectural details and materials, the solution of which lies entirely within his own province and for which he is well trained.

The difficulty which the small town architect meets is not, then, in designing his architectural treatment or wording its specifications, but rather, handicapped by the lack of the services of a ca-

pable decorator with whom to co-operate, in the desire and even the insistence of the owner to ignore interior decorations—for such they are, no matter how meagre—and ruin the architectural scheme by furnishings which he himself selects that have no relation whatever to the rest of the room. The overcoming of this difficulty amounts to educating the owners to appreciate the value of unity in design between architecture and decorations, and to realize the important part that furniture and draperies play in the final result. When furniture is to be used in a room which has been purchased by the owner before the architect makes

confidence in his architect, in which case he will request the architect to act as his advisor, at least in the selection of furnishings for the room.

There is nothing that will tend so to create interest in and decorate the architectural treatment at the same time as the application of color. Painted plaster walls, finished in a stippled or glazed effect, are in many cases even more desirable than a wall covering. The wood trim, painted in a neutral shade with certain members striped in a color which it is advisable to emphasize, gives an unusual interest to the plain woodwork. This same idea may be carried into the panel



LIVING ROOM IN HOUSE OF MALCOLM S. MACKAY, TENAFLY, N. J.

FRANK J. FORSTER, ARCHITECT

Decorated and furnished in the simplest manner yet full of cordiality and interest. The built-in bookcases play no small part in the scheme

his final design, the problem of making it appear as an integral part of the scheme is put directly upon the shoulders of the architect, who is, or should be able to find the solution, no matter how difficult. The solution in some cases, although often a difficult one to execute, may be to convince the owner to discard the piece entirely. But, reversing the course, when the owner purchases the furnishings after the designs are made and the work even finished, without architect's or decorator's advice, the result is often bad,—lack of unity ruining both architectural and decorative schemes. Convinced of this, the owner will place all con-

mouldings of the wainscot (if there is one), and similarly into certain members of the mantel shelf and facing mouldings. Also, by using repeating stencil patterns, appropriate ornament may be added to the architectural scheme in the form of running borders, allover patterns or friezes. So in the selection of materials may the architectural treatment be greatly enriched and decorated. A colored tile base, a tile floor, marble fireplace facings and hearths, all are strictly under the architect's supervision, and yet have decided decorative value. And in the use of natural finished woods for wainscots, wall panels and floors, the

decorative interest which is offered by the grain and figure of mahogany, walnut, oak and maple greatly enhances any scheme, architectural or otherwise.

But when it comes to selecting furniture and drapery materials, what can best convince the owner that your opinion should be respected? Urge him to choose the fabrics, whether new or

used as a stencil for the frieze in the same character as the repeating pattern of the furniture covering, and apply it to the walls in colors taken from the two fabrics, furniture covering and drapery material.

Economizing wherever possible in the interest of his client, the architect of the small house must consider built-in furniture as a part of his design,



IN THE HOUSE OF CHARLES H. CUNO, MERIDEN, CONN.

FRANK J. FORSTER, ARCHITECT

Built in a recess on a platform one step above the floor level, these built-in benches, one on each side of a group of casement windows, make a feature in the room. The radiator under the windows is enclosed by continuing the wall treatment and forming a window sill

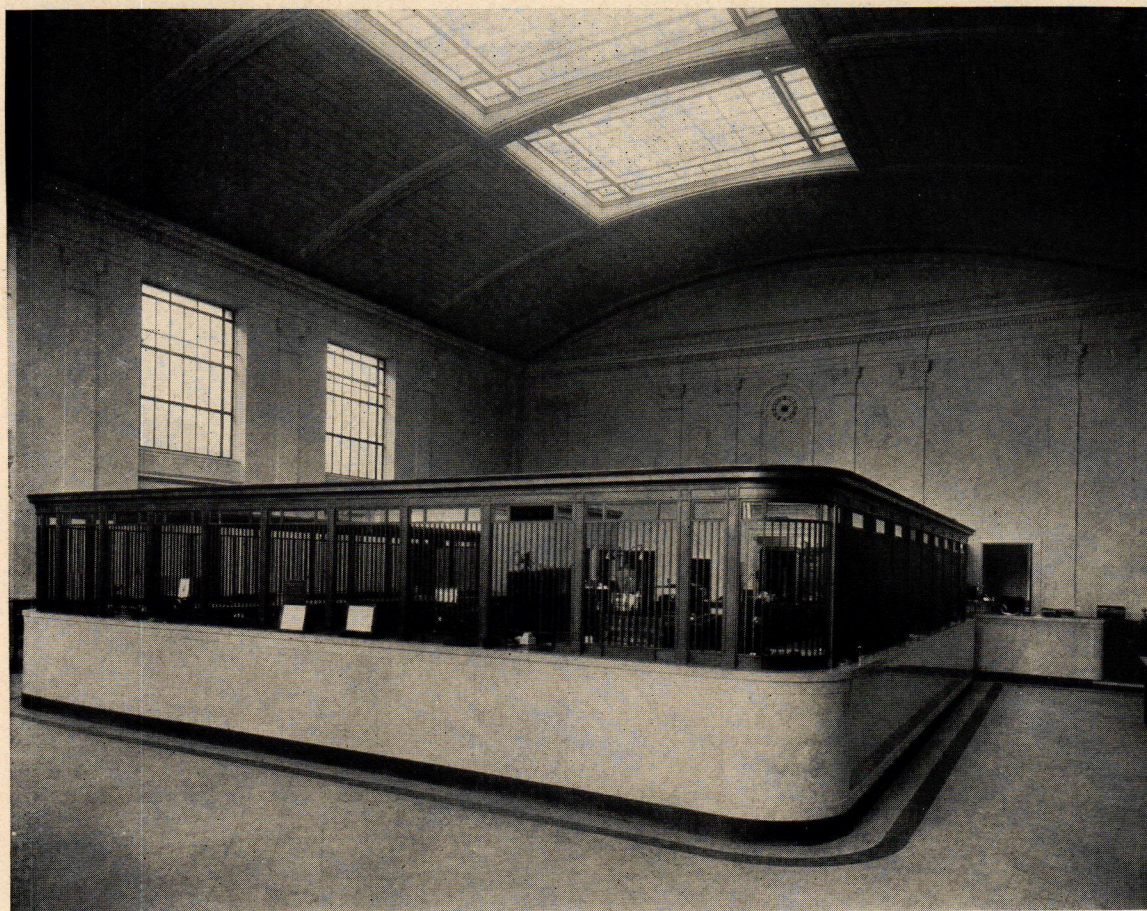
old, before you make your final design and scheme for painting. Then tie up your color scheme to the fabrics; stripe the mouldings of the trim in the principal color of the furniture covering; shade the neutral tint for the walls to match the neutral tint in the design of the material for the window draperies; design the repeating motive

both on account of its saving qualities and its practical advantages. In this way, if in no other, he is made to realize and appreciate the value of built-in furniture as a means of establishing unity throughout the entire scheme, for it allows the control of the architect to extend that much further toward its final completion. Well designed

built-in furniture, carefully placed on the plan, can make a room much more interesting than odd pieces poorly designed and selected with no apparent regard for each other or for the architectural decorations. Odd chairs and tables, even if poorly selected, cannot utterly ruin the scheme in which built-in furniture predominates. The built-in bookcase gives an air of comfort and coziness that is greatly to be desired; the built-in cabinet attracts the most discerning; the built-in window seat is always inviting, while the practical value of each is readily seen. Originality and individuality, so frightfully smothered in the market of stock goods, again make themselves known through built-in furniture.

A most unfortunate idea which has become associated with all architectural designs in this country, especially those pertaining to interior decoration, is that whereby every design must be classed under one of the historic styles or periods. Nothing could tend so to make our architecture stereotyped or our decorations conventional, and to lose all chance for originality in both. While

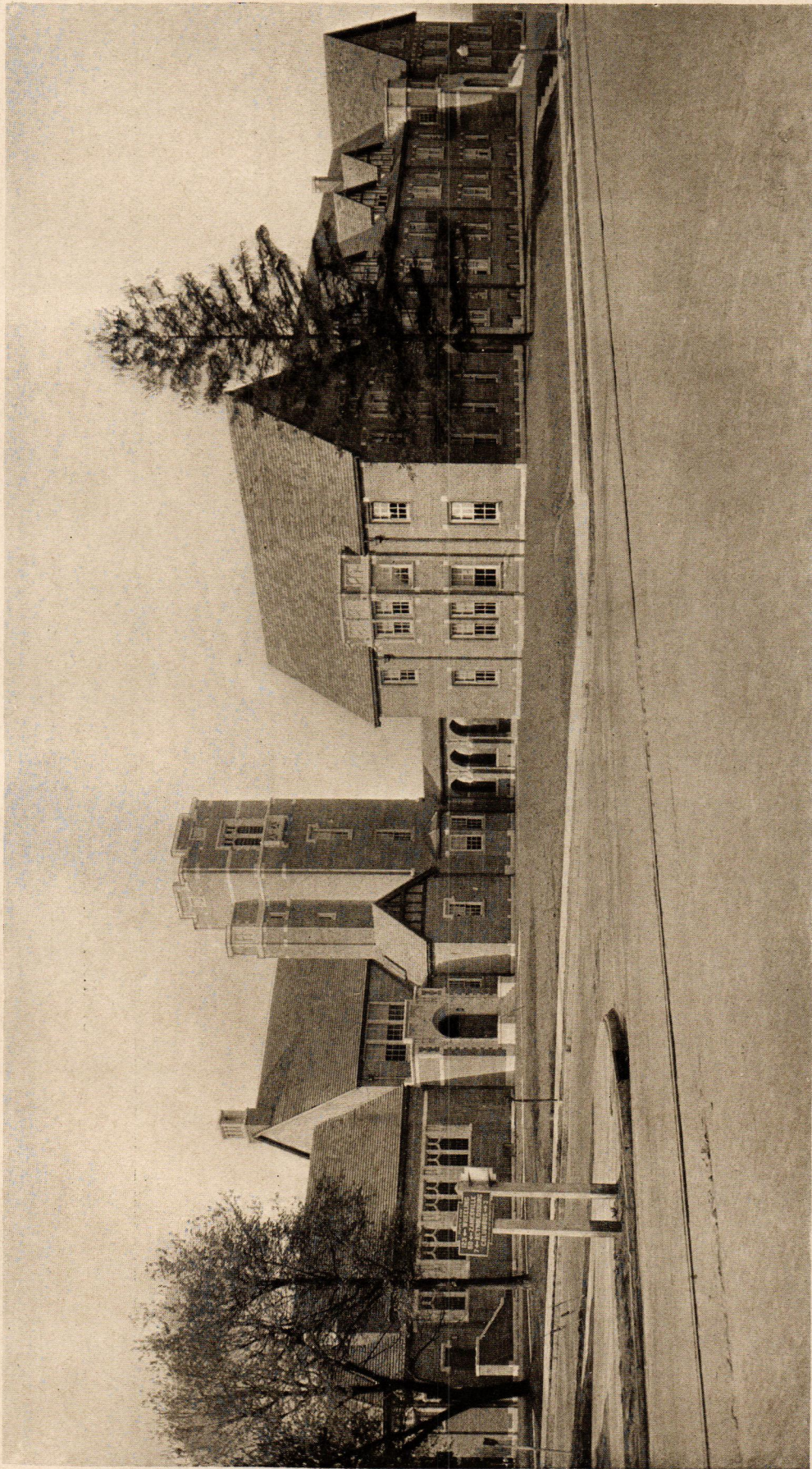
this idea is more commonly applied to the more elaborate schemes of decoration, it has had a bad effect on the simpler schemes by making them appear cheap, in that they could not afford the details called for by accurate period designs and are therefore not entitled to serious consideration. In all of the illustrations of interiors shown in this issue of *THE AMERICAN ARCHITECT*, there is a decided evidence of the inaccuracy of this idea. Good lines, good proportion and good color distribution only make a good design. An original interpretation of these three principles is much more to be sought than the application of elaborate details stolen from the designs of others. This is the big opportunity of the small town architect. We are on the verge of an era of originality in architectural design in this country which is to be marked by common sense and simplicity. These are compulsory in the problems of the small town architect, and thus he has been led nearer the goal than his big city brother, whose problems have not been confined within such fixed limits. All success to him, then!



MALDEN SAVINGS BANK, MALDEN, MASS.

MONKS & JOHNSON, ARCHITECTS

Dignity, expressed in terms of the utmost simplicity, still prevails in this bank interior. Good proportion, emphasized by an interesting combination of materials, is evident throughout

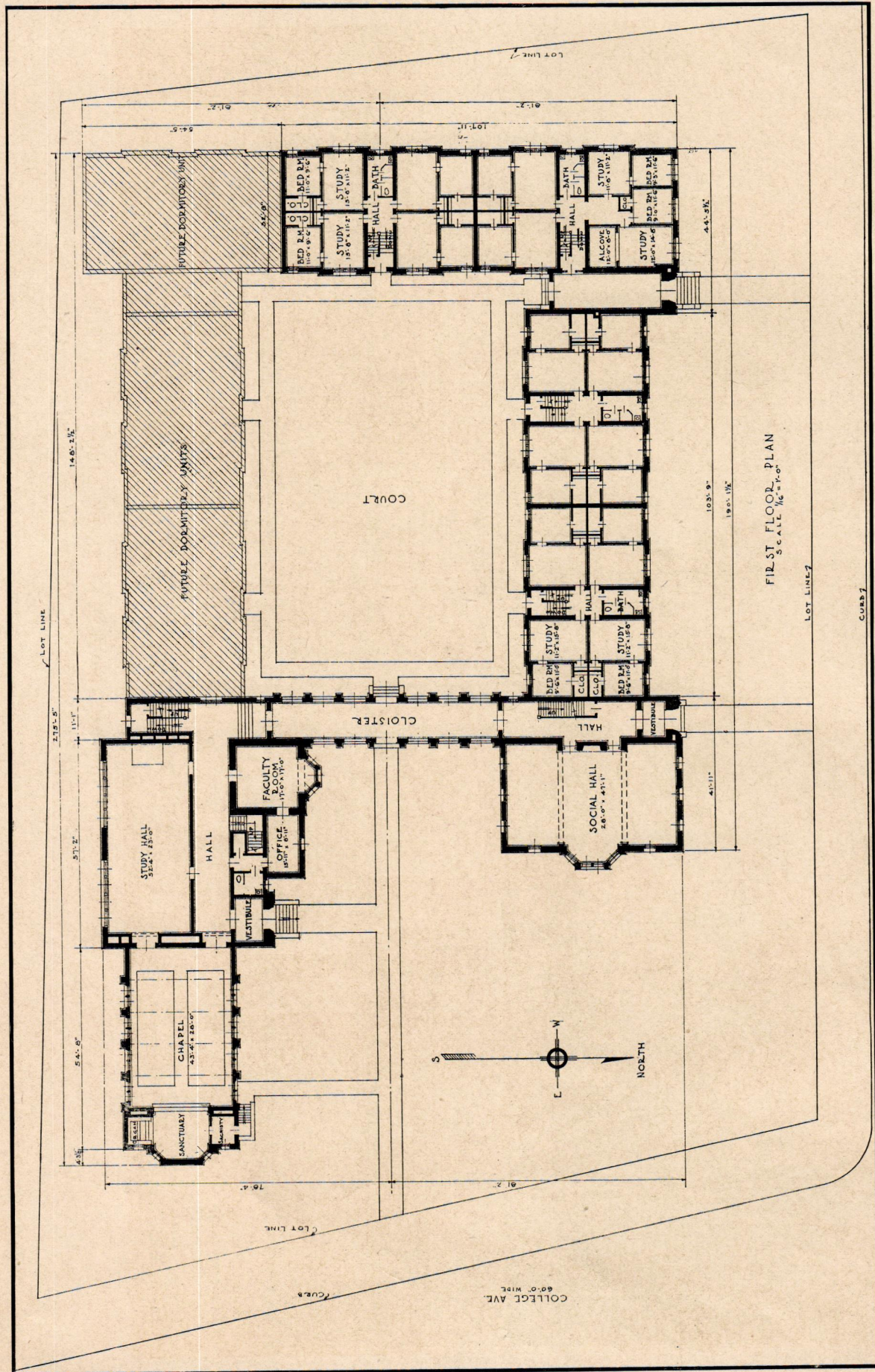


Capital University is a German Lutheran institution devoted first to education in general,—and second, after graduation, to the training of ministers in the Lutheran faith. This group is built for that purpose. Space is left for three future units for students which, when built, will accommodate sixty more occupants. The site is 210 x 300, bounded by streets on three sides, and is level. The shaded portions of the plan are now built; the southwest portion remains for the future. The exterior is of dark reddish brown pressed brick trimmed with buff terra cotta. The roof is of fire flashed red tile. The interior of the chapel has a Gothic timbered roof and masonry walls, all executed with elaborate detail and religious character. The library and social rooms are also finished with panelling and color,—the remainder is in dormitory and schoolhouse character. The cost was \$200,000.00

DIVINITY GROUP, CAPITAL UNIVERSITY, BEXLEY, OHIO

PERKINS, FELLOWS & HAMILTON, ARCHITECTS

(See plan on other side)



FIRST FLOOR PLAN  
SCALE 1/8" = 1'-0"

Curb 7

DIVINITY GROUP, CAPITAL UNIVERSITY, BEXLEY, OHIO  
PERKINS, FELLOWS & HAMILTON, ARCHITECTS

COLLEGE AVE.  
60'-0" WIDE

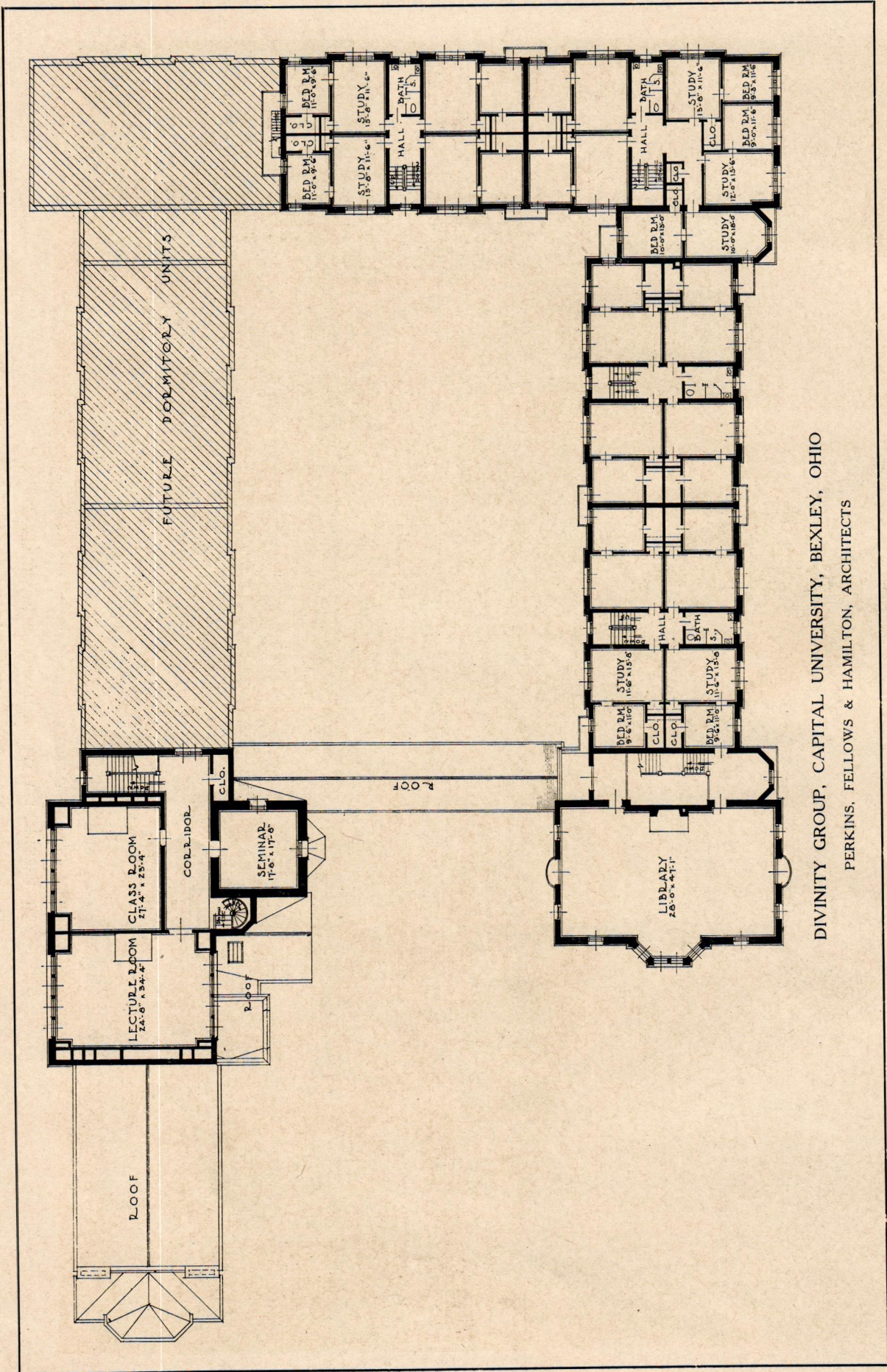


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PERKINS, FELLOWS & HAMILTON, ARCHITECTS

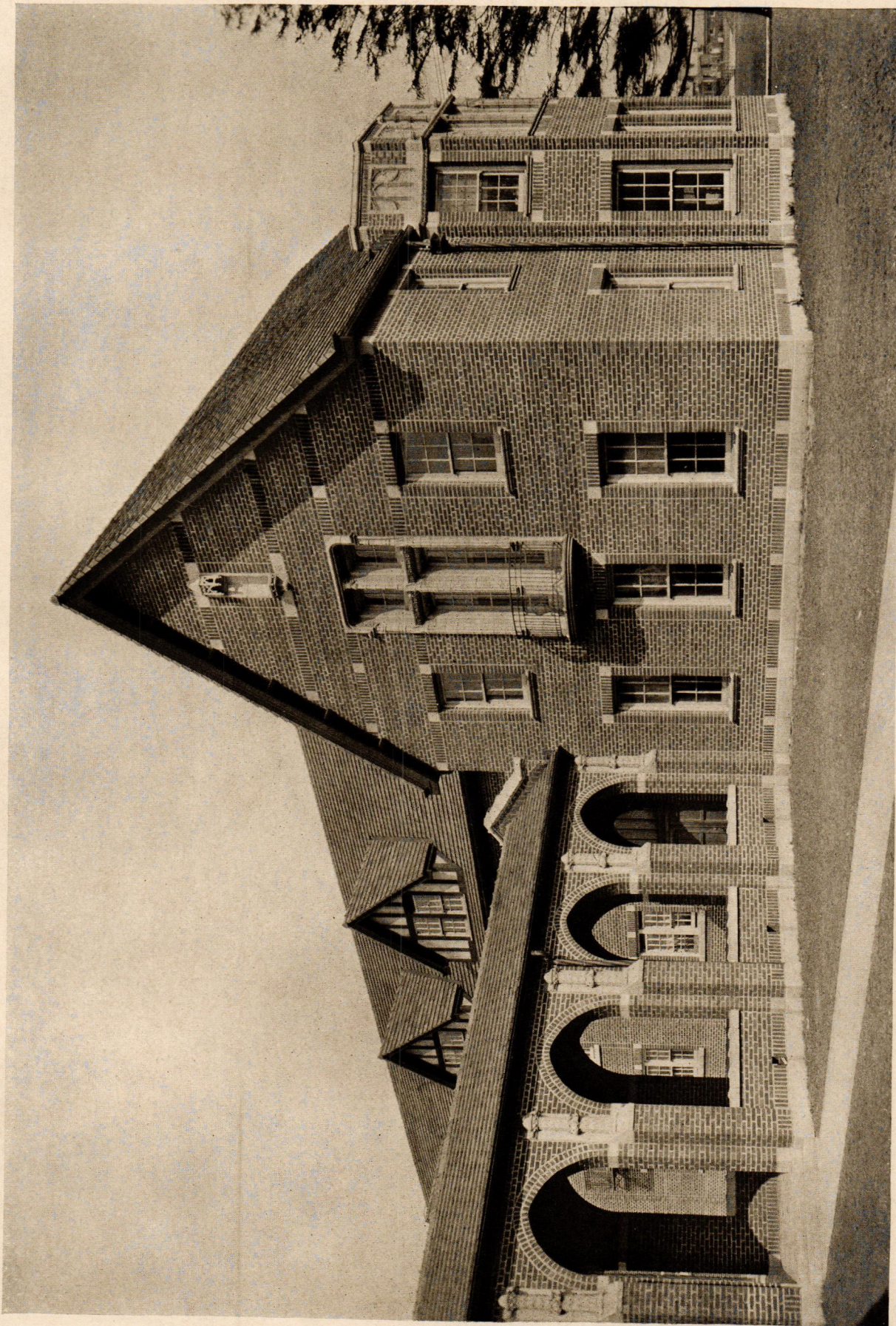
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THE AMERICAN ARCHITECT  
July 30, 1924. Plate 42

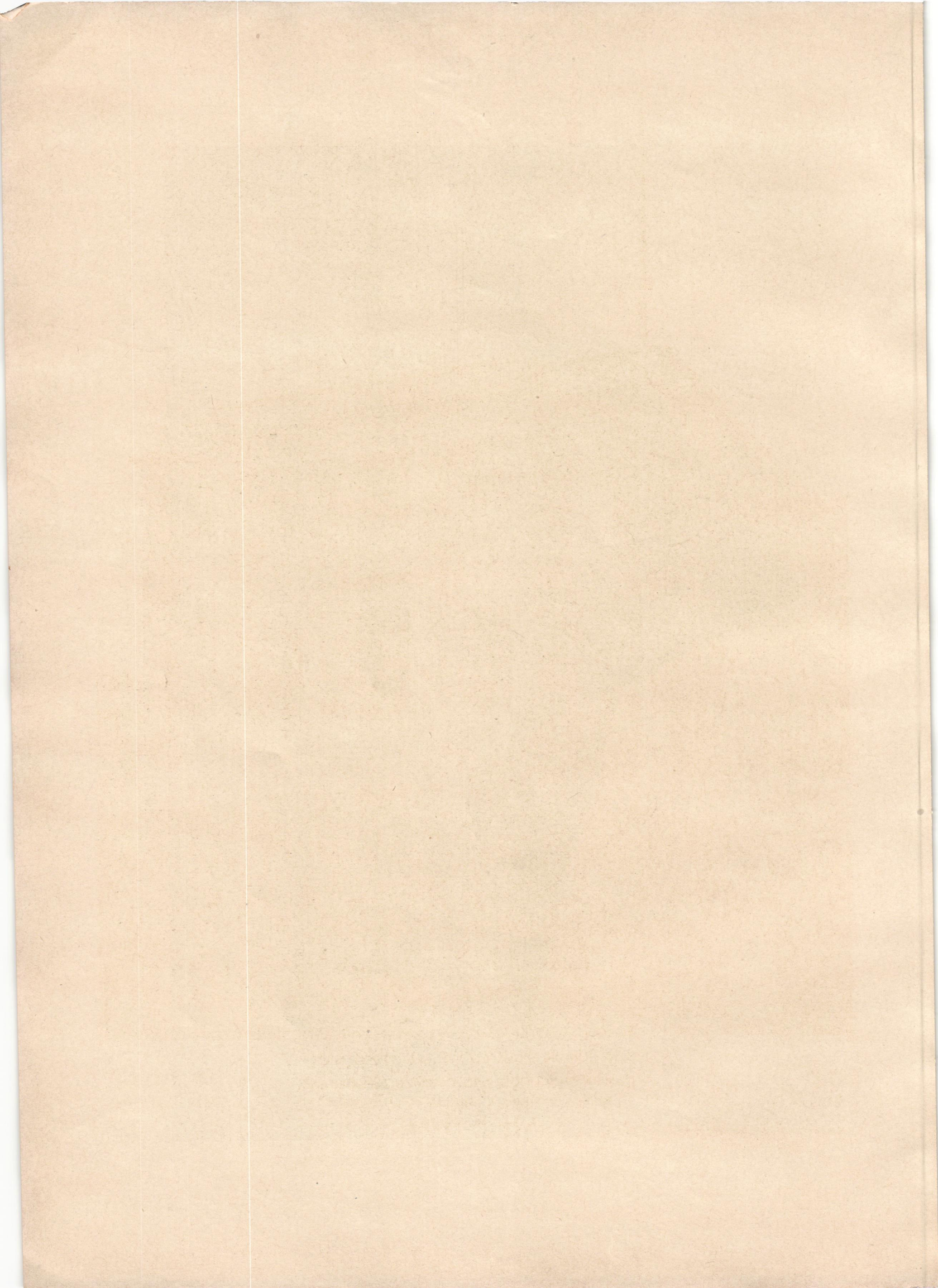




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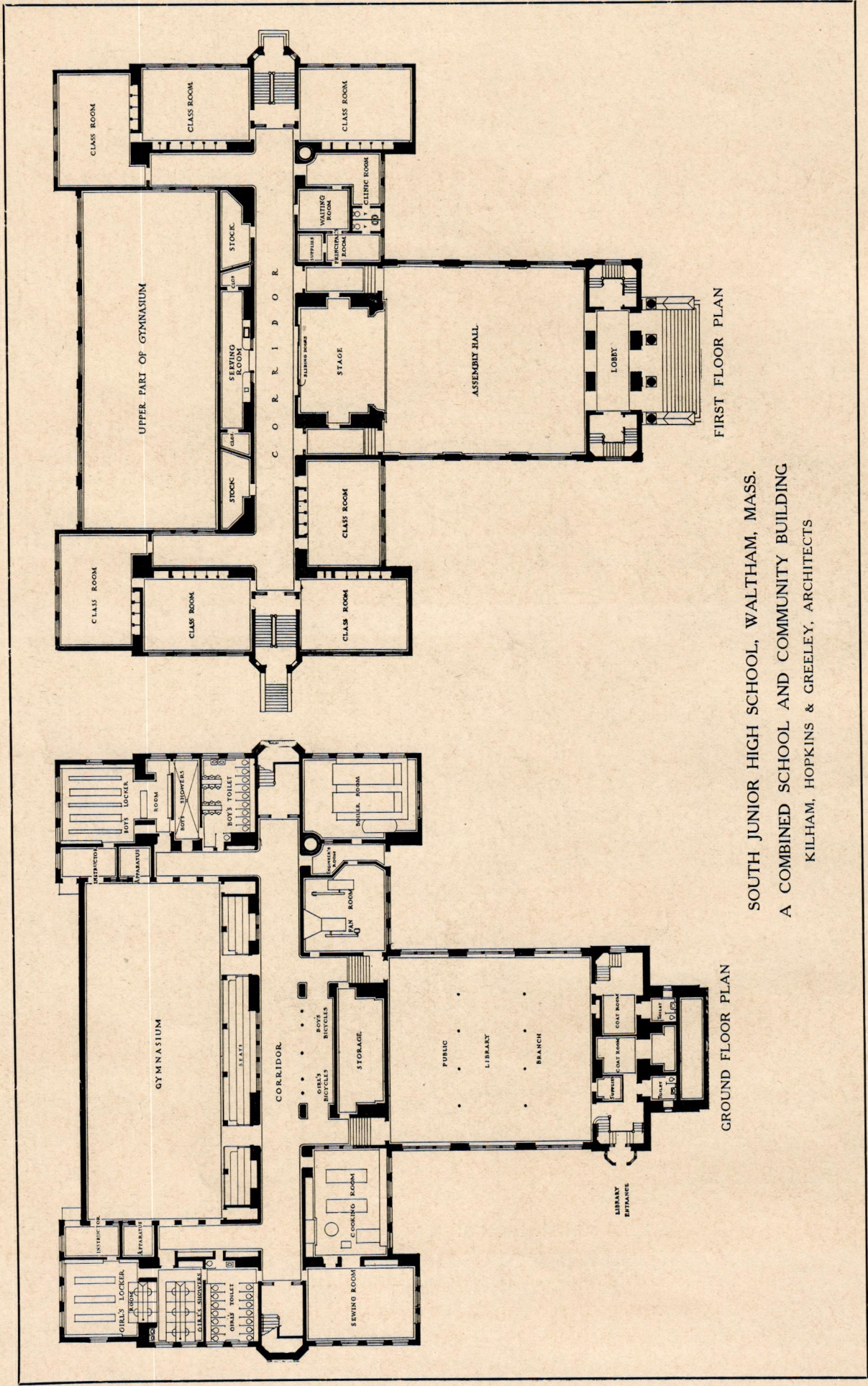
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PERKINS, FELLOWS & HAMILTON, ARCHITECTS





SOUTH JUNIOR HIGH SCHOOL, WALTHAM, MASS.  
A COMBINED SCHOOL AND COMMUNITY BUILDING  
KILHAM, HOPKINS & GREELEY, ARCHITECTS

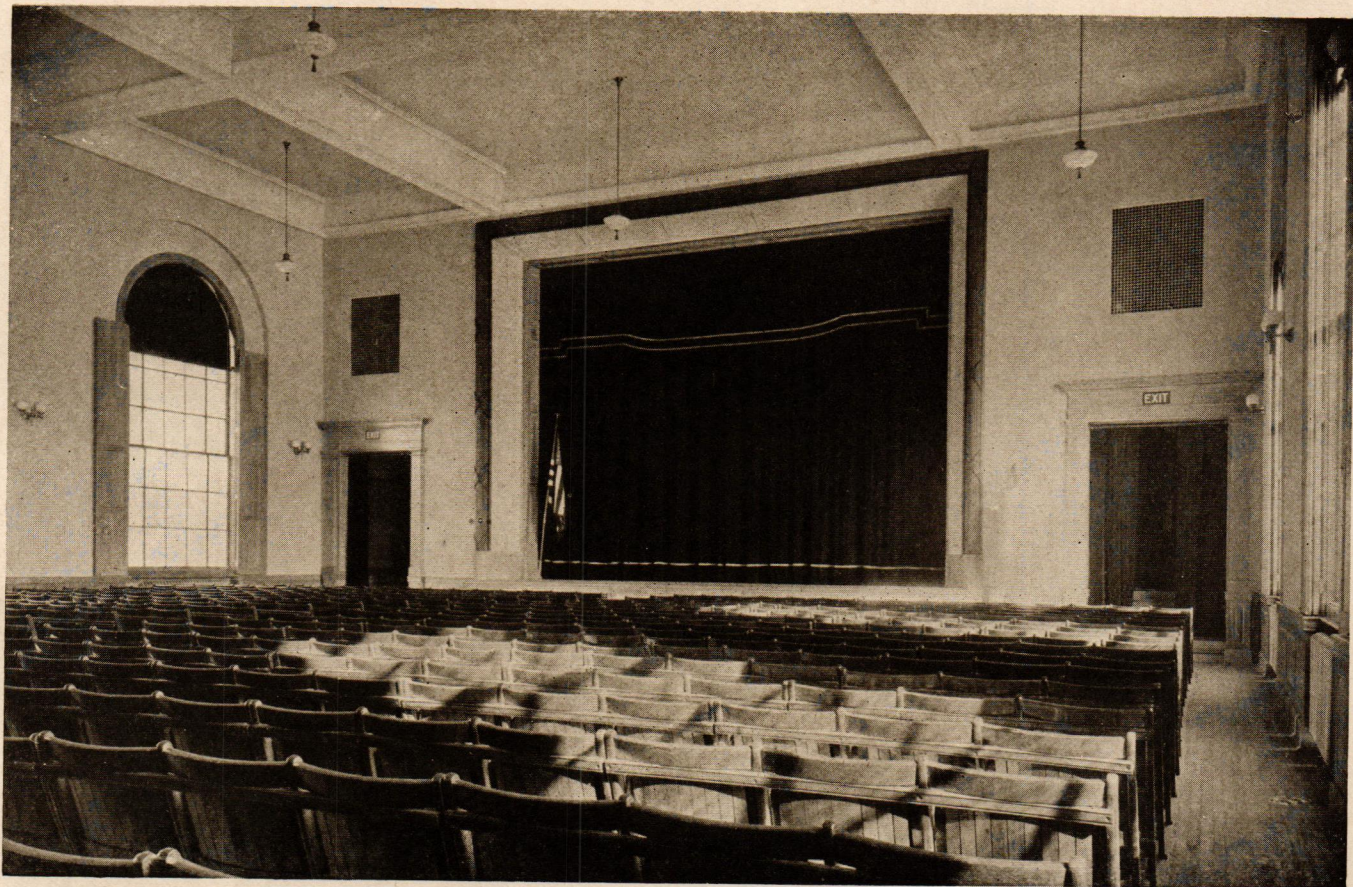
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FIRST FLOOR PLAN

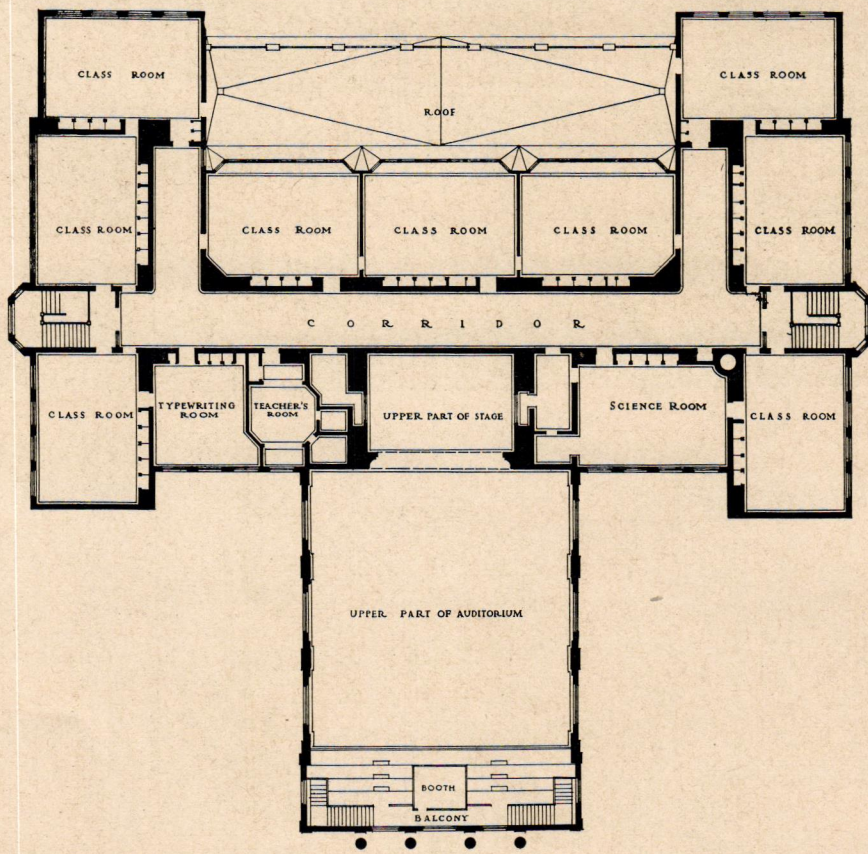
GROUND FLOOR PLAN

SOUTH JUNIOR HIGH SCHOOL, WALTHAM, MASS.  
 A COMBINED SCHOOL AND COMMUNITY BUILDING  
 KILHAM, HOPKINS & GREELEY, ARCHITECTS

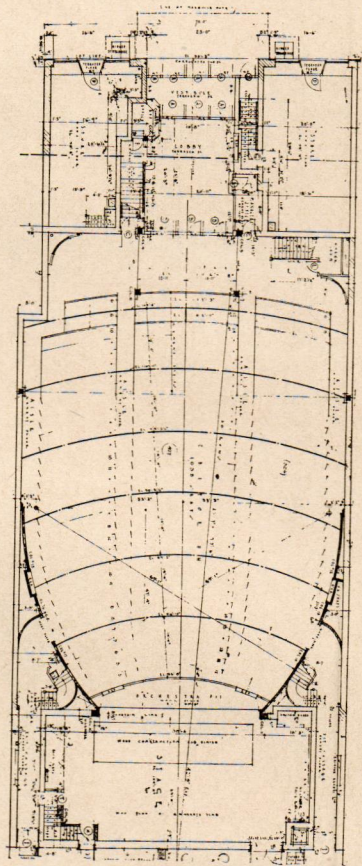


SOUTH JUNIOR HIGH SCHOOL, WALTHAM, MASS.  
A COMBINED SCHOOL AND COMMUNITY BUILDING  
KILHAM, HOPKINS & GREELEY, ARCHITECTS

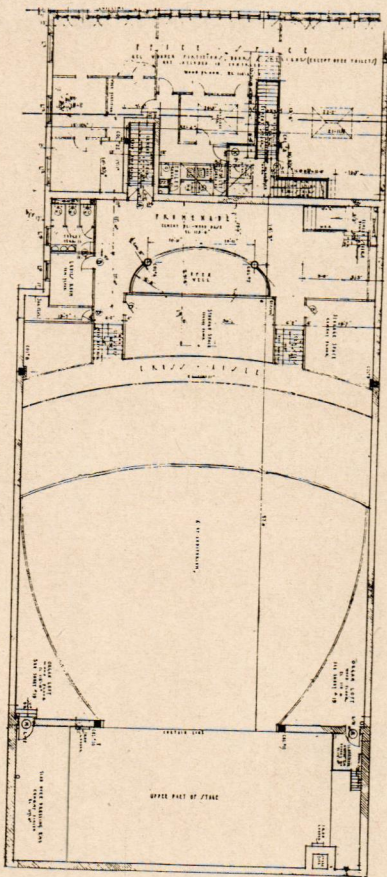
*(See plan on other side)*



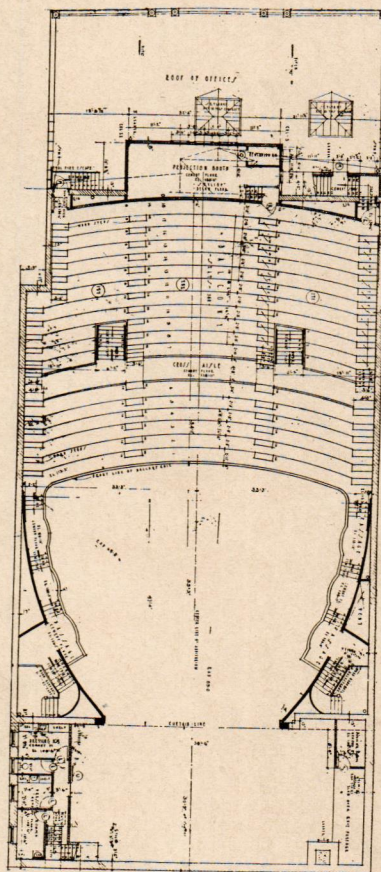
SECOND FLOOR PLAN  
 SOUTH JUNIOR HIGH SCHOOL, WALTHAM, MASS.  
 A COMBINED SCHOOL AND COMMUNITY BUILDING  
 KILHAM, HOPKINS & GREELEY, ARCHITECTS



MAIN FLOOR



MEZZANINE



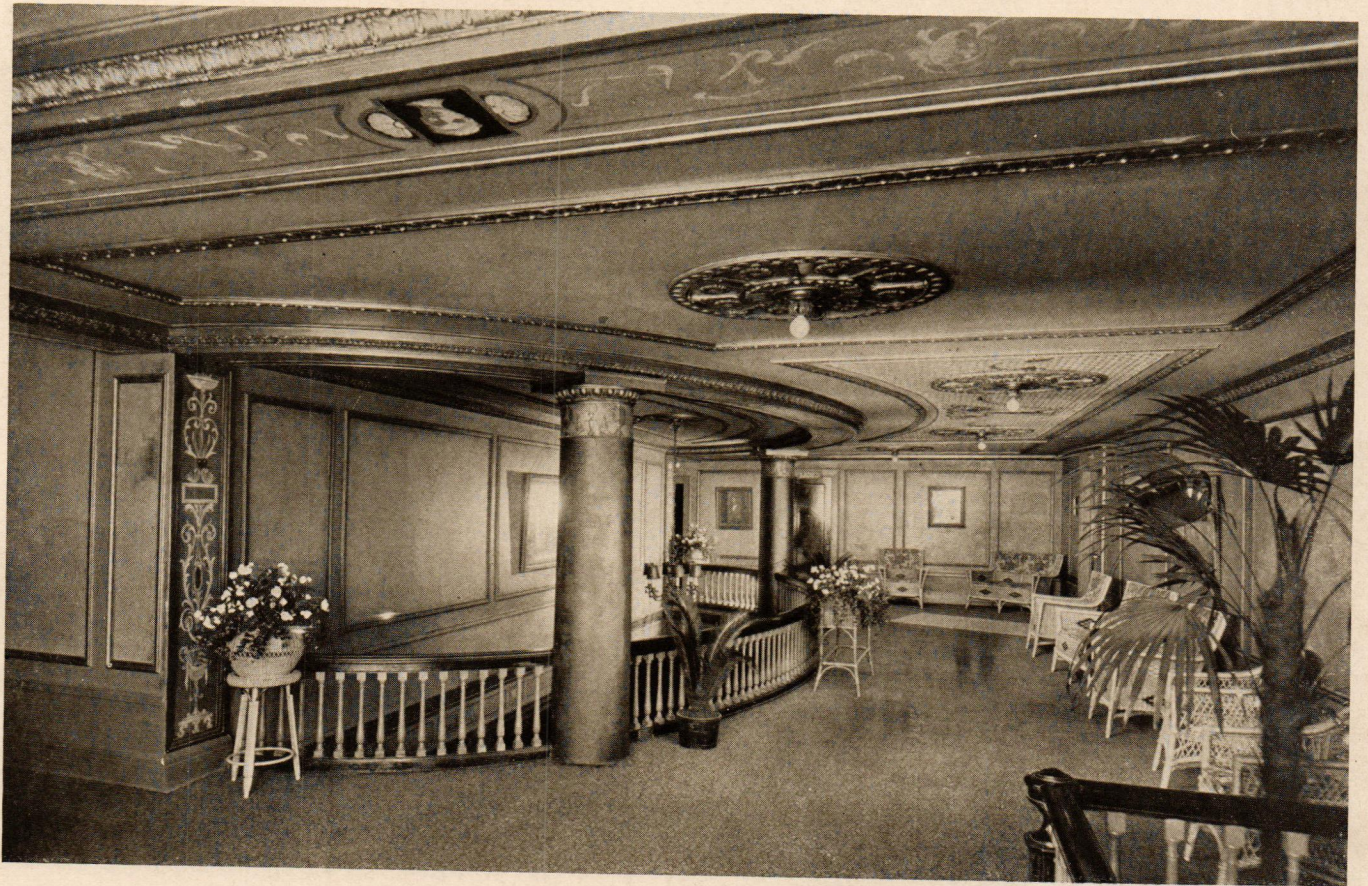
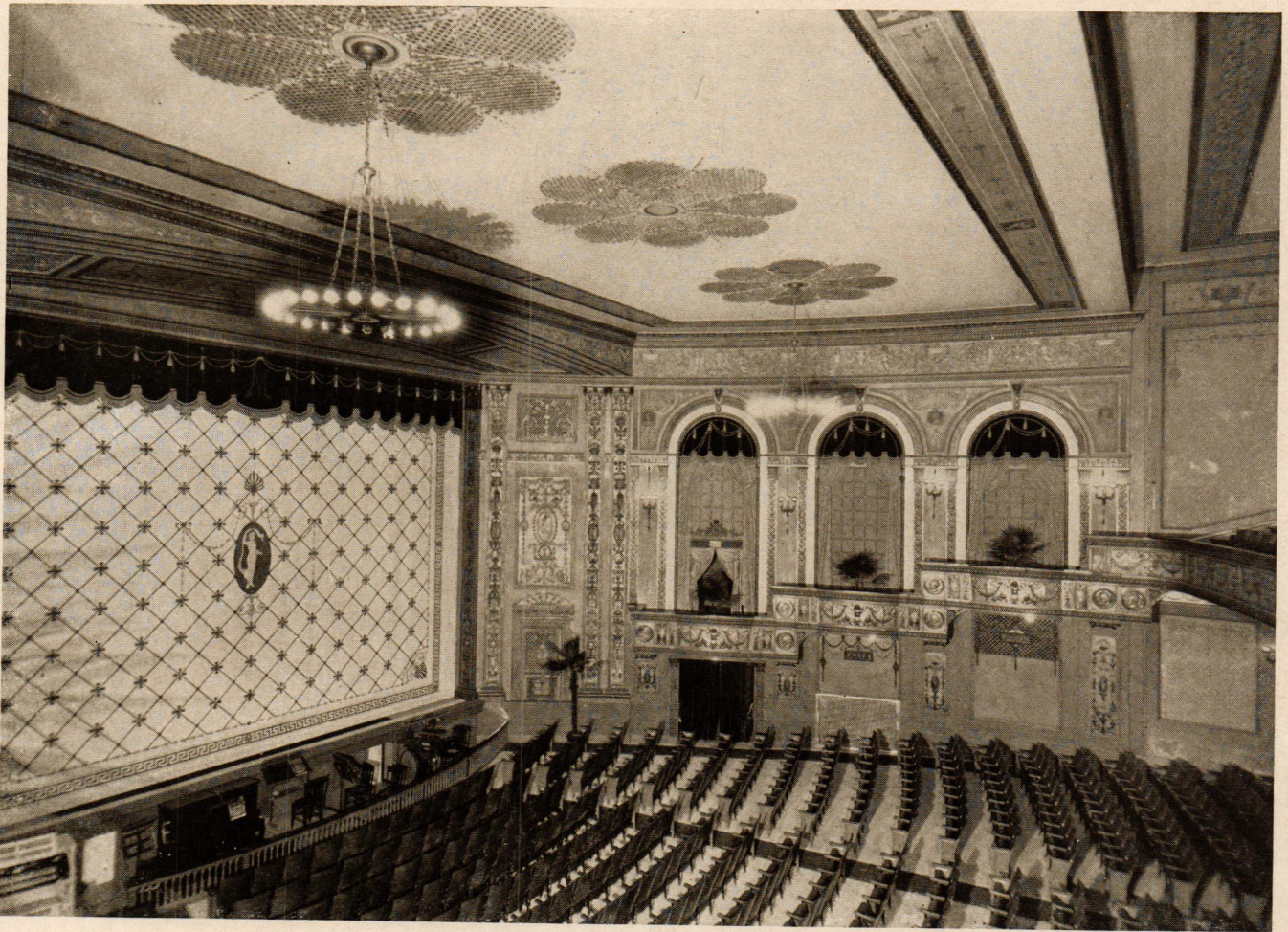
BALCONY

MACOMB THEATRE, MT. CLEMENS, MICH.

C. HOWARD CRANE, ARCHITECT—ELMER GEORGE KIEHLER, ASSOCIATE



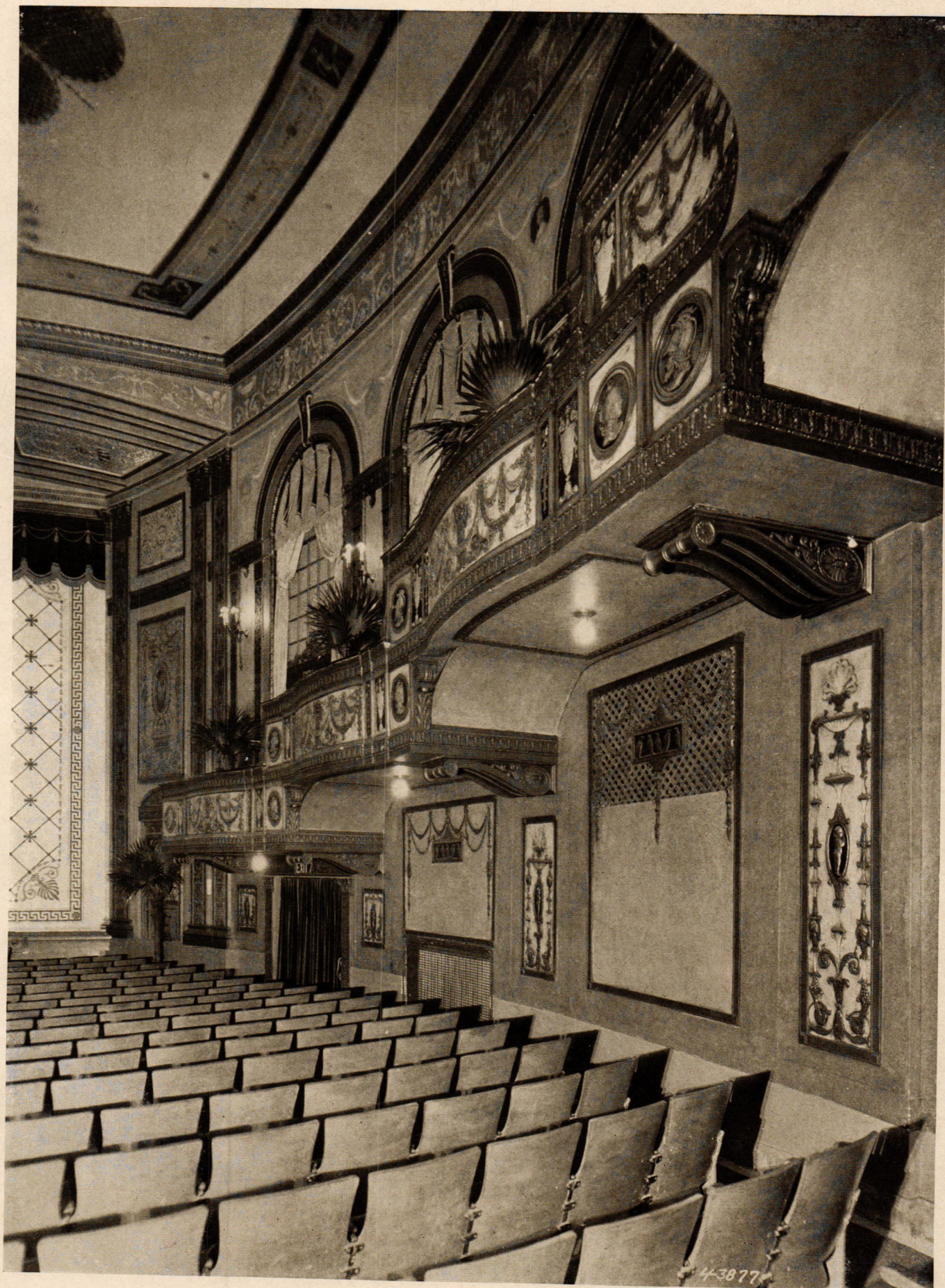




MACOMB THEATRE, MT. CLEMENS, MICH.

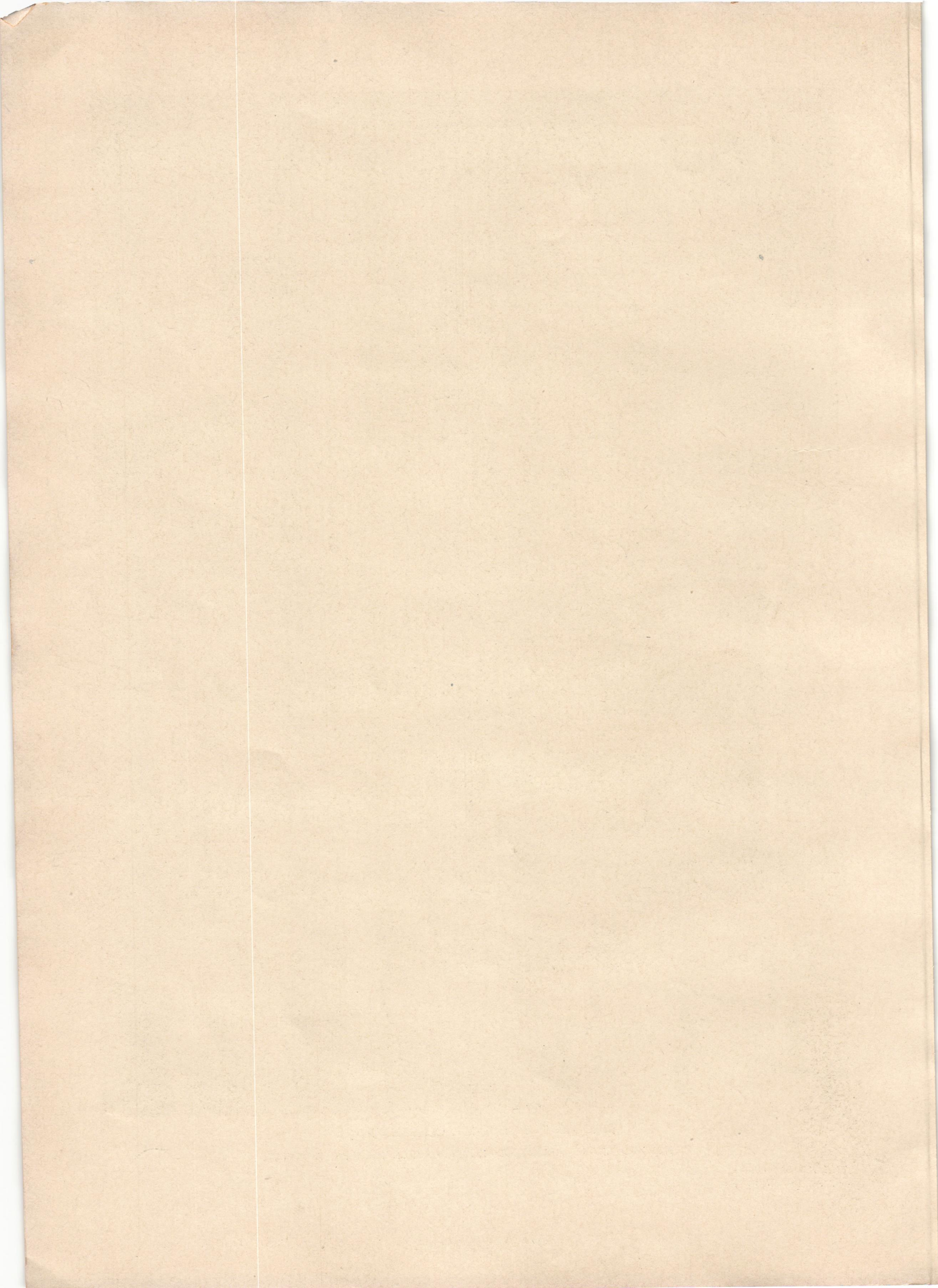
C. HOWARD CRANE, ARCHITECT—ELMER GEORGE KIEHLER, ASSOCIATE





MACOMB THEATRE, MT. CLEMENS, MICH.

C. HOWARD CRANE, ARCHITECT—ELMER GEORGE KIEHLER, ASSOCIATE



# STREET LIGHTING in the SMALL CITY

BY T. P. BROWN, Lighting Service Department, Edison Lamp Works, Harrison, N. J.

ONE of the most interesting things in connection with the growth of cities in the United States is their phenomenal expansion, during the past two decades, both in area and population. The concentration of industries in areas where labor is available, the attraction of additional labor to these areas, the upward tendency of the standard of living of the American people, the movement from the farms to the city—all have their share in this growth. According to the last census, there were almost 600 cities having a population from 10,000 to 50,000; and the total number of people living in these cities was approximately 12,120,000.

Cities generally are imbued with a spirit of confidence, civic pride, with the hope of expansion and with the desire to promote the welfare of their citizens. These thoughts take definite form in town planning, water supply, fire and police protection, sanitation, street cleaning, and lighting. In these various steps for the betterment of the community, there is a definite and scientific procedure. As in town planning, water supply, and the other subjects, street lighting must be considered—not in a haphazard manner, but in a way consistent with the results to be desired.

Cities can usually be divided into various zones, depending upon the character of the business, or upon the type of the residents within the area. For the small size cities, these can be classified under various headings.

## BUSINESS SECTION

Here are located the important retail stores and the larger wholesale houses. Usually this section is rather small—being limited to three or four streets. Of course, the main street of the city is the center of attraction of this section, because along this street are the principal stores. Parades and the like will usually be held on this street.

The lighting of the streets in this area is done for several reasons—protection against theft, reduction of traffic accidents, promotion of civic pride, and the advertising value of a well lighted business street. This latter reason has two very important effects—one upon the citizens of the city itself, and the other upon visitors. We all realize the psychological effect and the drawing power of light. Citizens will naturally choose those streets that are well lighted on which to do business. They shun the dark streets, unconsciously forming the opinion that merchants on dark streets do not handle as high quality articles as the merchants on well lighted streets, and that the service they render is not as efficient and courteous as that rendered by

the latter. As regards the effect of a well lighted business section upon out-of-town people, what visitor cannot help but be forcibly impressed by the modern spirit of progress that is prevalent among merchants along this well lighted business street?

What are the possibilities in lighting the busi-

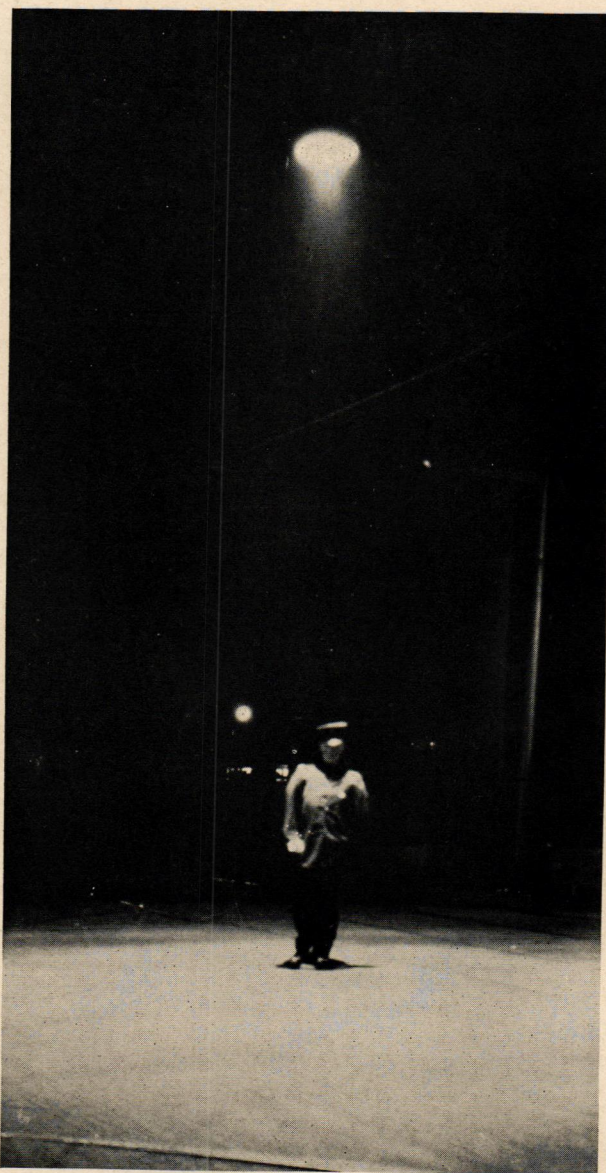


FIG. 7. NIGHT VIEW OF ILLUMINATION OF INTERSECTING STREETS AT MT. VERNON, N. Y.

ness section of a small city? What equipment is available? How should it be placed on the street?

In answer to the first question, it might be well to determine just how much light must be put on the business street. Should the small city try to emulate the larger city in this respect, or should it study the problem scientifically, bearing in mind the present needs and probable future requirements? Unquestionably, the latter course is by far the more sensible. Assuming that we may be allowed arbitrarily to sub-divide the cities under



FIG. 2. MAMARONECK, N. Y., HAS INSTALLED NOVALUX BRACKET ORNAMENTAL FIXTURES ON THE WOOD TROLLEY POLES. THE EFFECT IS QUITE PLEASING

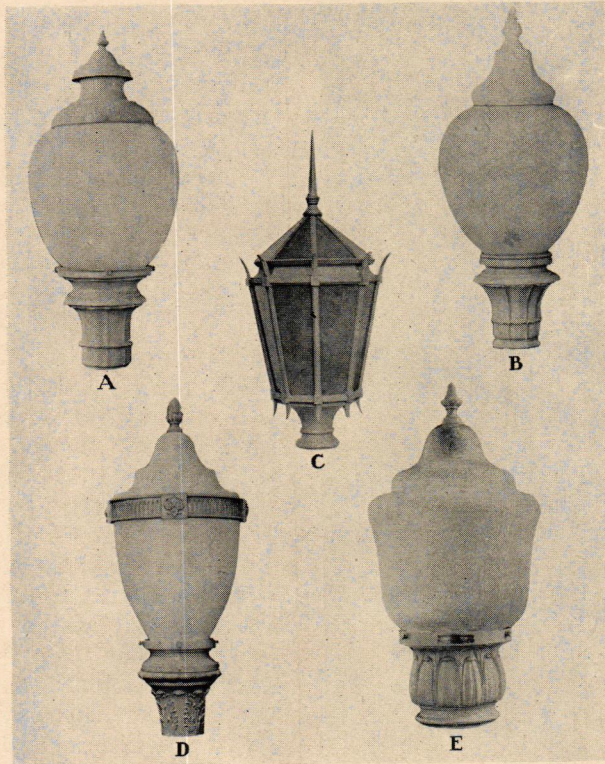


FIG. 1. TYPICAL ORNAMENTAL LUMINAIRES FOR WHITE WAY LIGHTING, AVAILABLE FOR USE WITH MAZDA C LAMPS OF THE 25,000—15,000—10,000—6,000—4,000—2,500 LUMEN RATING

- A—Form 16 Novalux, consisting of opalescent glass enclosing globe and metal canopy
- B—Form 13 Novalux, with opalescent glass enclosing globe and glass canopy
- C—Form 18 Novalux, ornamental lantern with diffusing panels of cathedral glass equipped with dome refractor
- D—Form 12 Novalux ornamental unit, consisting of an opalescent glass globe, glass canopy and decorative metal casing
- E—Form 9 Novalux ornamental unit, consisting of Alabaster rippled glass globe and canopy, equipped with dome refractor

discussion into two groups—one containing the cities having a range in population from 10,000 to 25,000, and the other from 25,000 to 50,000 we can say that the intensity of illumination in the group of the larger cities should be slightly better than that in the group of the smaller cities, and that the intensities that would be recommended for both of these classes of cities, based upon modern street lighting practice, should be about as follows:

|                          |               | SPACING      | LUMENS ALONG | PER CENTER | MOUNT- |
|--------------------------|---------------|--------------|--------------|------------|--------|
|                          |               | LUMENS ALONG | PER CENTER   | LINE OF    | ING    |
|                          |               | LINEAR       | LINE OF      | ING        |        |
|                          |               | FT.          | FT.          | STREET     | HEIGHT |
| Business Sec. Population | 25,000—50,000 | 100-300      | 50-100       | 14-18      |        |
| Business Sec. Population | 10,000—25,000 | 80-150       | 50-125       | 14-16      |        |

MINIMUM SIZE OF LIGHT SOURCE 1,000 LUMENS

In studying this table, the reader must bear in mind that lamps which are used in street lighting are rated by the manufacturers in lumens. Thus, if we have a lamp rated 6,000 lumens, we know that the total light output of the lamp is equal to 6,000 lumens. It is also well to note that lamps of the following sizes are made for street lighting purposes: 25,000—15,000—10,000—6,000—4,000—2,500—1,000. In explanation of this table, let us take the second line, reading: "Business Section—Population 10,000 to 25,000." It will be noted that the minimum lumens per linear foot is recommended as the figure 80, and that the maximum spacing along the center line

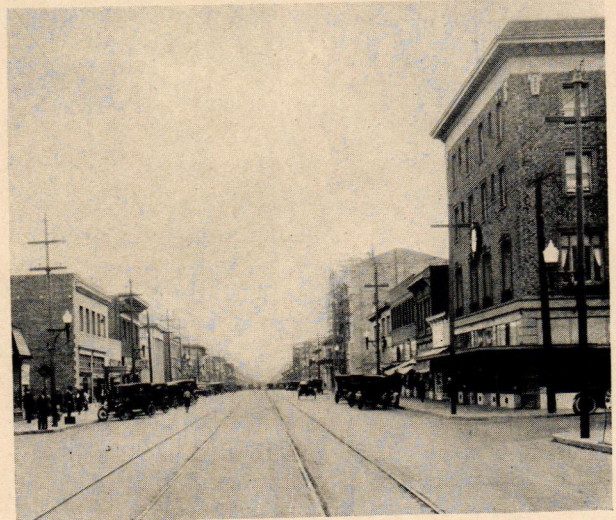


FIG. 4. RICHMOND, CAL., MOUNTS ORNAMENTAL NOVALUX UNITS ON ITS IRON TROLLEY POLES

of the street is recommended as 125 feet. Consequently, if we figure on using a certain size lamp we divide the lumen rating of the lamp by 80 to get the spacing in feet. Or, if we are limited to a certain spacing, we can multiply this spacing by 80, to get the size of lamp required.

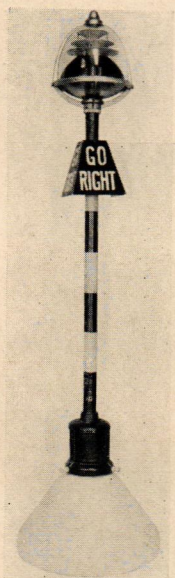


FIG. 8. TRAFFIC SIGNAL, FLASHING TYPE

Having determined the intensity required, the next step is to determine what type unit shall be used in the business section. WHITE WAY lighting for the business section (a system of lighting of high order resulting from the desire to utilize the advertising or attracting power of illumination) demands the use of the ornamental type of fixtures or luminaires. These units are provided with diffusing glass globes of various designs surrounding the light source to break up the light given out by the bare lamps. In this way glare, which would otherwise be present, is minimized. The entire globe becomes the apparent source of light, and because of its comparatively low brightness, makes for greater eye comfort, both for pedestrians and vehicular traffic, and helps beautify the streets. This diffusing glassware may be obtained in several varieties. Opalescent and rippled glassware are the most widely used. The opal glass affords a uniform brightness over the entire globe, while the rippled glass, because of its slight refracting properties, gives a certain sparkle of animation to the illumination and at the same time permits more or less

control of the distribution to meet particular conditions.

These ornamental units may be mounted upon the streets in several ways, depending upon local conditions. If it is necessary to use the wooden poles or cast iron trolley poles, which are in place, ornamental brackets can be utilized to good advantage. Photographs of actual installations of this nature are shown in Figures 2, 3, and 4. Of course, from the aesthetic and artistic point of view, it is desirable to mount the luminaires on ornamental poles, as is shown in Figure 5—but sometimes a community is not able, because of financial reasons, to take this step.

RESIDENTIAL DISTRICT

The main considerations in residential street lighting may be enumerated as follows—a

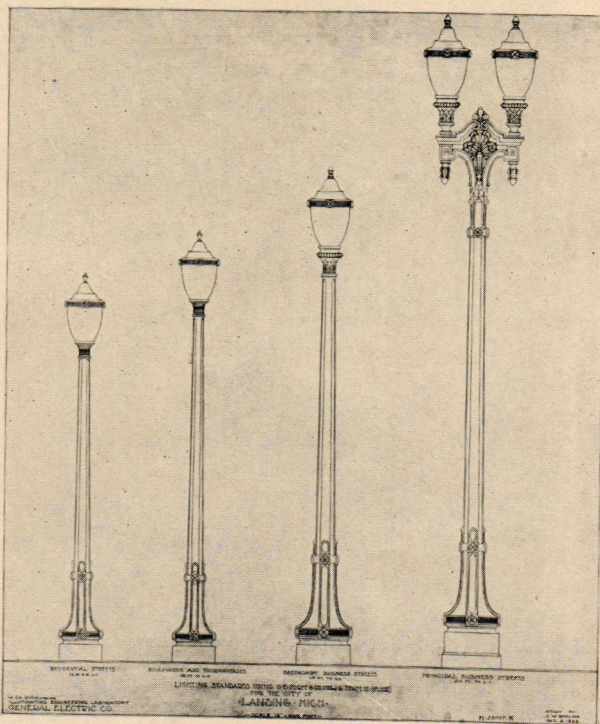


FIG. 6. FAMILY GROUP OF LIGHTING STANDARDS

- A—One 250 c. p. lamps, mounting height 11 ft. 6 in., spaced 100—150 ft.
- B—One 400 c. p. lamps, mounting height 13 ft., spaced 100—140 ft.
- C—One 1000 c. p. lamps, mounting height 15 ft., spaced about 80 ft. staggered
- D—Two 1000 c. p. lamps per standard, mounting height 20 ft., spaced about 125 ft. opposite



FIG. 5. HOLLYWOOD, CAL., USES AN ORNAMENTAL POLE ON WHICH ARE MOUNTED TWO ORNAMENTAL LANTERNS

sufficient intensity must be provided to discourage criminal activities; enough light should be furnished to enable passersby on the street to recognize each other conveniently; there should be adequate light to enable vehicular traffic to proceed with safety; and the units should be mounted so as to harmonize with the surroundings and with the units in other parts of the city. To obtain



these results, the light must be fairly uniformly distributed, and free from dense shadows. Another consideration in residential street lighting is that objectionable light must not be thrown upon the houses. Little annoyance will be caused, however, if the light is so distributed as to allow no illumination to strike higher than the first story of the houses on each side of street.

be directed to the building front, especially the upper stories of the building, will be intercepted, thus causing no inconvenience to the residents along the street.

The term "Residential District" is a rather inclusive phrase, and, from the street lighting point of view, it is possible to divide this district into several sections, each of which will be illumi-

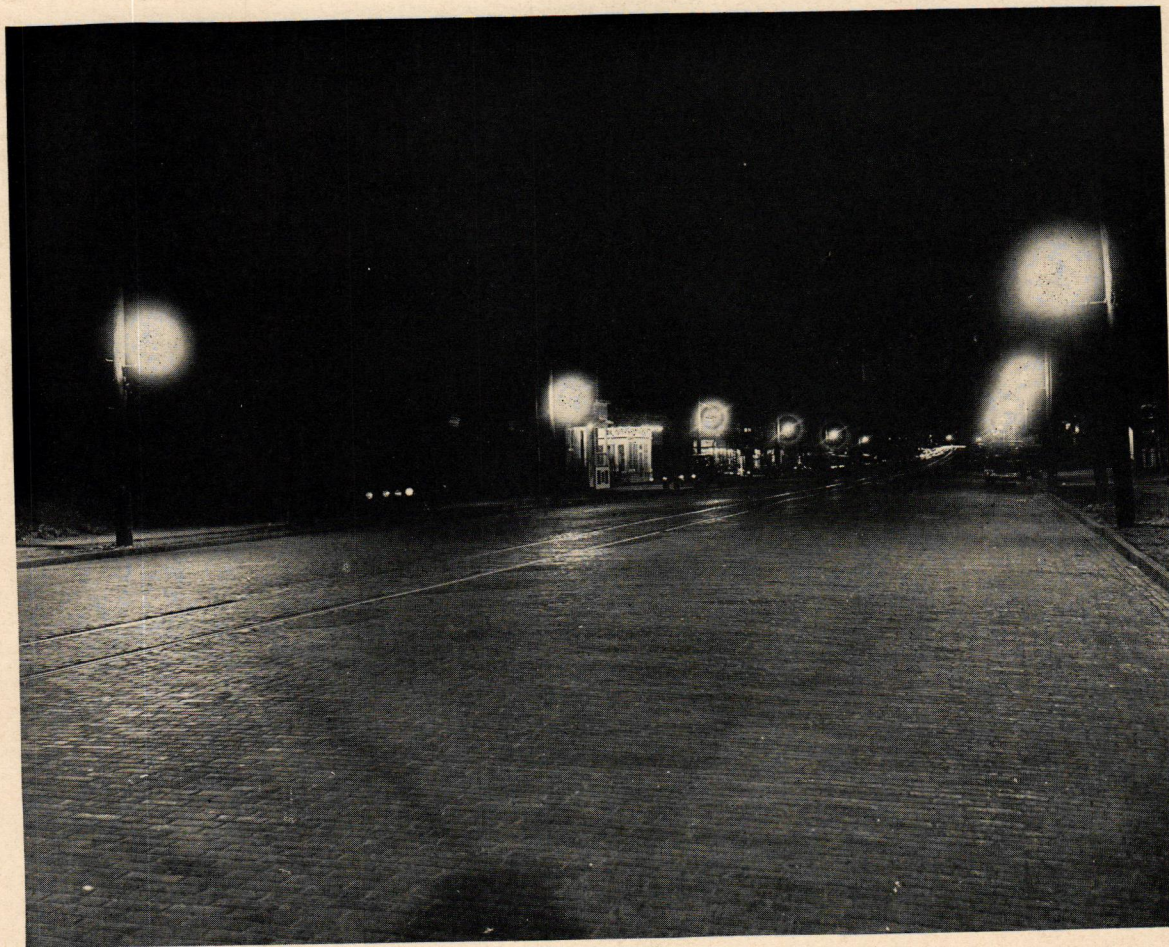


FIG. 3. NIGHT VIEW OF THE MAIN STREET OF MAMARONECK, N. Y. THE FIXTURES ARE EQUIPPED WITH 4,000 LUMEN LAMPS AND ARE SPACED ABOUT 100 FEET OPPOSITE

Practically all cities, in their residential districts, have planted trees along or near the curb. This element may cause some inconvenience to the person engaged in lighting a residential district. Naturally, if the lighting units are mounted in such a way, and at such a height that they will be entirely surrounded by the foliage of the trees, there will be very little light striking the street or the sidewalk. A very practical way of obviating this difficulty, would be to mount the lighting units at a lower height and to trim the trees to a higher level. This procedure will cause the lighting units to be mounted below the level of the foliage, then—the light which has been directed toward the street and the sidewalk will not be intercepted, whereas the light which ordinarily would

nated to its own particular intensity. A table showing the recommended standards of street lighting for each of these sections follows:

| MAIN THOROUGHFARE                    | SPACING                     |                       |                 |
|--------------------------------------|-----------------------------|-----------------------|-----------------|
|                                      | LUMENS ALONG PER LINEAR FT. | CENTER LINE OF STREET | MOUNTING HEIGHT |
| Fully Developed Residential District | 50-100                      | 60-125                | 14-15           |
| Fully Developed Residential District | 40-80                       | 50-150                | 12-15           |
| Outlying Residential District        | 20-50                       | 50-200                | 12-15           |

As regards the type of equipment to be used in these residential districts, it is well to note that there is an increasing tendency to plan the lighting layout of the city as a whole along well designed technical and artistic lines. Then, the lighting layout having been made, a type of unit is employed which will harmonize with the spirit

of the city. This "standard design," as we might call it, is used throughout the whole city, giving an appearance of completeness and symmetry which would be lacking were several different types of units to be employed. An outgrowth of this idea of uniformity is the "family group" that has been developed to meet this particular require-



FIG. 9. TRAFFIC TOWER, SCHENECTADY, N. Y.

ment. This so-called "family group" is a set of units of the same general line, but differing in size to allow for the use of different size lamps. A photograph of such a "family" is shown in Figure 6. For the WHITE WAY, the intensive lighting could be furnished by the standard shown in Figures 6-D or 6-C. For the main thoroughfare and the fully developed resident district, it would be possible to use the standard shown in Figure 6-B. Then, for the parks and for the resident districts that have not yet been fully developed, we can use a standard shown in Figure 6-A.

#### TRAFFIC CONTROL

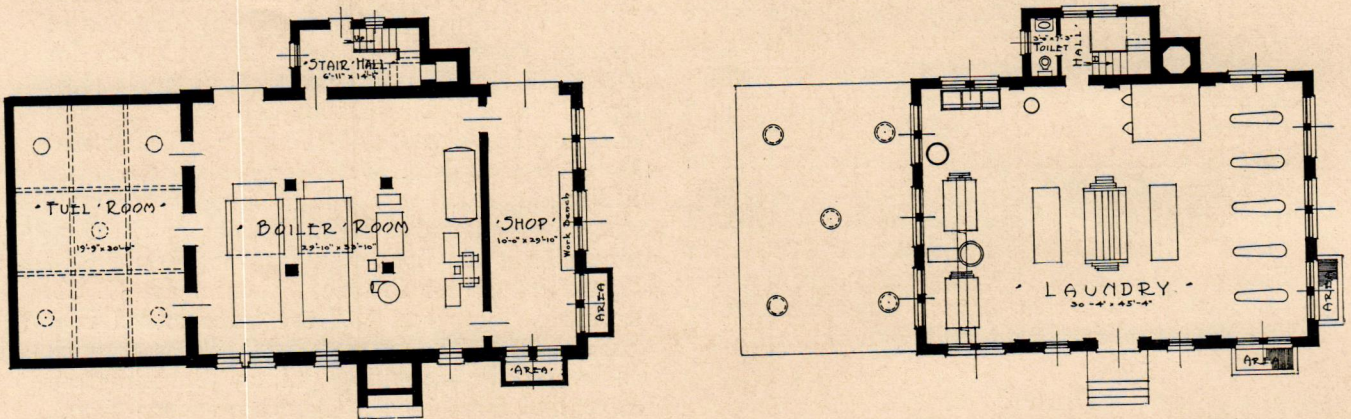
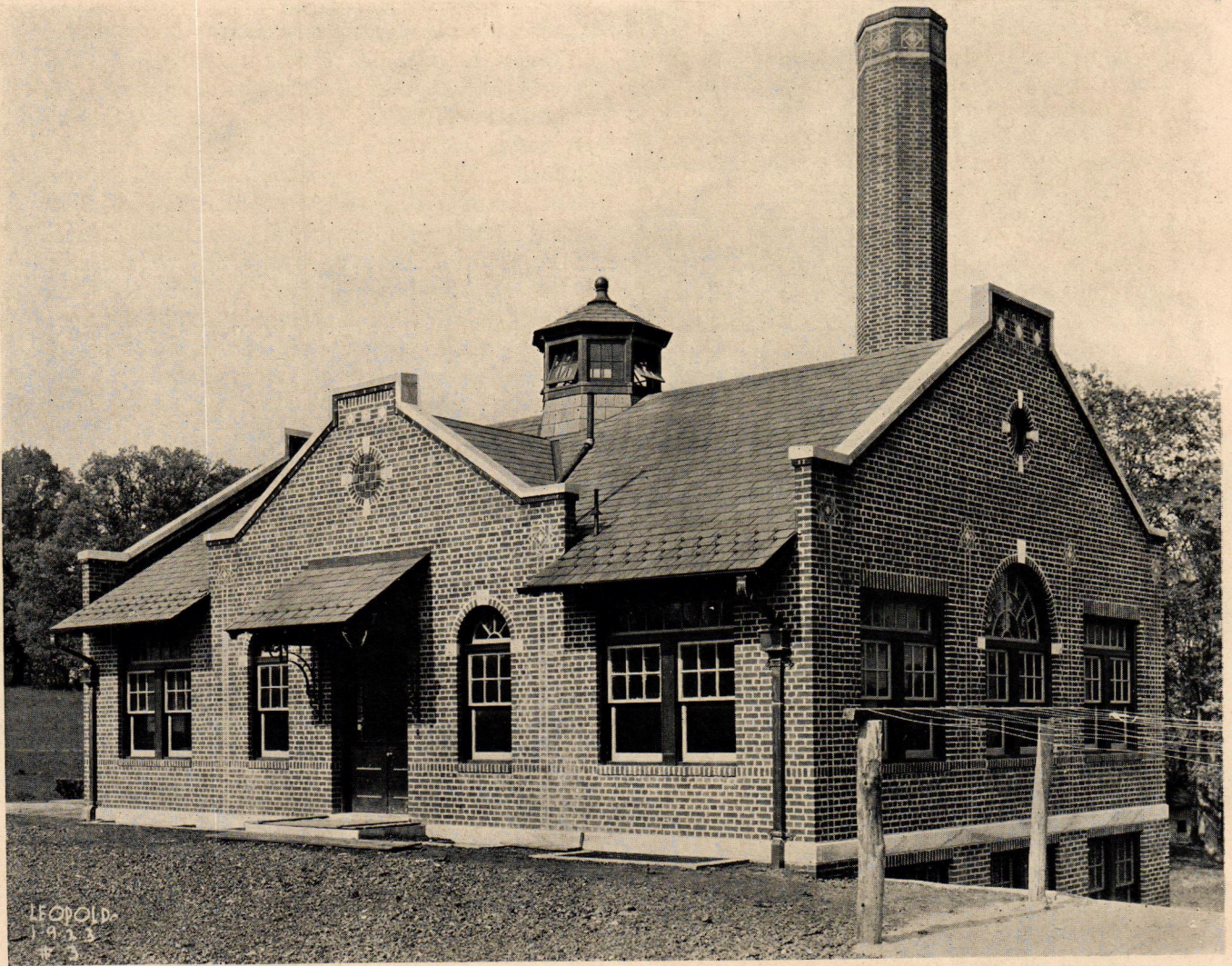
Traffic control at night is obviously impossible, unless some method employing light is utilized.

We all realize the futility of having a traffic officer at an important street intersection to direct traffic, unless he can be easily seen by the traffic. Several very excellent means have been employed to illuminate the officer—the use of a floodlighting projector, mounted high on a telephone post and located so that a strong beam of light is thrown down, illuminating the officer and the adjacent area. Center span fixtures have also been used. These fixtures are mounted directly over the area to be lighted, at a height from 15 to 25 feet, and are suspended from a guy-wire strung between poles or trees. These units are equipped with 100, 150, or 200 watt MAZDA C lamps.

Figure 7 shows a night view of a traffic officer illuminated by the use of a center span projector, mounted directly over the intersection of two streets. A rather interesting psychological effect is produced by these units mentioned above. Invariably, an oncoming auto when seeing the lighted area, will slow down and sound its horn before proceeding across the street intersection. The effect produced is exactly that desired, and accidents due to collision will be materially reduced in this vicinity.

As regards the question of traffic signals, the idea, of course, is to have a signalling unit or a directing unit that will compel the attention of the motorist. Such units have been designed and have been placed on the market. One of them is shown in Figure 8. It is, essentially, an automatic flasher, actuated by a small mercury switch located in the base.

As regards the question of traffic towers or traffic directing units, the fundamental idea underlying them is to have the traffic stop in one direction while it is proceeding in the other direction. This effect is usually produced by the use of different colored lights. In New York, for instance, a red light signifies that all traffic must stop; a green light signifies that east and west bound shall go ahead, and an amber light signifies that north and south bound traffic shall go ahead. In Newark, N. J., a red light signifies all traffic must stop; an amber light signifies "prepare to go" and a green light signifies "go ahead." In other cities, as for instance Schenectady, N. Y., the words "Stop and Go" are incorporated in a traffic tower. The word "Stop" shines through red lenses, the word "Go" shines through green lenses, and there is also an amber change signal. A picture of this Schenectady tower is shown in Figure 9.



CENTRAL HEATING PLANT AND LAUNDRY BUILDING  
GENERAL GERMAN ORPHAN ASYLUM, CATONSVILLE, MD.

WALTER M. GIESKE, ARCHITECT

# EDITORIAL COMMENT

**C**ONDITIONS SURROUNDING the practice of architecture in the smaller cities and larger towns differ in many essentials from those in large cities. The small city man comes in closer touch with social and political activities, and owing to the variety of demands on his professional experience and training must needs have a very well developed versatility.

While the small city man will scan with interest the work shown in architectural journals, and indulge the hope that "some day" he will have opportunity to design a monumental building, a large city or country house or any of the greater architectural undertakings that contemplate an expenditure of upward of a million dollars, what he will most prize and more carefully preserve is the illustration of work whose cost comes more nearly within the limits of his own practice. This issue of *THE AMERICAN ARCHITECT* has been prepared with the special purpose of giving the small city architect material that will be helpful and suggestive.

The economic value of architectural service was never better understood by laymen than it is today. Where at one time the architect and builder dominated the construction in small cities, the knowledge that good architecture is a fluid commercial asset is more widespread and the shrewd man will not proceed in his building operation without architectural assistance.

Good government is the result of good citizenship, and effective citizenship is the essential in any constructive effort. The more attractive the city, the higher its civic life. Beauty will not thrive amidst squallor, nor will bad citizenship seek a permanent home in well planned and governed cities. Beauty, like happiness, says John Ihlder, is best when secured as a by-product. An ugly thing is not made beautiful by ornamentation. Anything is truly beautiful that wholly meets the needs of its use.

No man in any community, large or small, has better opportunity to demonstrate these facts than has an architect. He is rightfully a leader in these matters. Whether it is in the evolution of a city plan, or the designing of every type of building that shall be erected, architects are justified in taking an important part in every discussion and in pressing the right to be heard. It is lukewarmness in these matters that is the reason for many professional failures. "Nothing ventured, nothing gained" is true in these matters, and while it is not suggested that an architect should become aggressively a nuisance or set himself up as the arbiter of every aesthetic phase

in his community, he should be closely identified with every going project.

Active citizenship is essential to architectural success. When architects learn that, they will be more securely set on the road to success.

\* \* \*

**A** HEALTHY SIGN of a better civic attitude is the growing tendency toward a better communal life. This is shown in large cities by the action of boards of education in setting apart, for evening use, certain rooms in schoolhouses in congested areas. There the adult population may congregate evenings and by carrying forward certain well devised programs greatly advance the Americanization of our large alien population. While these conditions do not so largely exist in the smaller cities and towns, the necessity for a closer communal relation is at all times evident.

At present there is a dearth of community houses in our small cities, and this fact became evident when an effort was made to find certain good types for illustration. Those that have been secured prove that in designing and planning these buildings, much professional skill is required and that the only success in plan and design is attained when the architect is thoroughly impressed with the importance of this subject and has learned the essentials of true community life.

Studies in communal life are not entirely confined to the social aspect, but of recent years there has been a tendency toward a reviving of old customs, in order that our alien born population may better know our early traditions as well as that the present generation of Americans may be led to keep in mind some of the essentials that led to our present development.

In an editorial, in *The Builder*, of London, discussing village associations, this question is very aptly put forth. It states, in substance, that there are certain pitfalls in the path of organized betterment, and that a certain fussiness about some so-called reformers confuses usefulness with the purely temporal and distraction with entertainment. It urges, and the point is a good one, that the work carried forward in communal centers should include a place for those personal crafts which the machine made product has banished. Further, the editorial states:

"Elaborate wood carving and fretwork, even the finest stitchery and lace, are not a waste of time. They contribute a personal value to life and the home for which nothing else can compensate. Many of us only recognize a great grand-

parent by an old sampler worked by a forgotten namesake 'aged ten.' In every village there are certain temperaments who like spending time on something that keeps. In fostering this spirit the new movement is doing work that will also keep. So much that we believe to be useful is merely waste of time, and the loss of village skill in art is the result of this delusion."

Architects may forward a deserving movement and find opportunity for professional activity in pressing to public attention the wide range of valuable service that surrounds the well conducted community house.

\* \* \*

**T**HE GENERAL TONE of appreciation of architecture as expressed in the daily press is fast improving. There is a better sense of the fitness of things architectural, and a proper expression of pride in our architectural progress. The proposed demolition of the Madison Square Garden, and along with it Stanford White's beautiful campanile, topped by Saint-Gaudens' Diana, is discussed in a recent issue of the *New York Herald-Tribune*. "Architecturally speaking," states this editorial, "the city of New York is cannibalistic. It devours its children of brick and stone." Continuing it is stated:

"In the sacred name of progress it tears down to build up, and in the tearing it destroys some of its most precious landmarks. Witness the fate of the old Parkhurst Church on Madison Square. That, when it passed, left in a sense some slight wreck behind. The superb pillars now adorn, we believe, the façade of a Hartford bank. But the building is gone and others are gone, too, so many that it is painful to enumerate them. We suppose it is only a question of time when the sounds of demolition will come from Herald Square and the lovely building which Fra Giocondo inspired Stanford White to design will disappear like the dream of grace that it is. Already they are scheduled to make themselves heard at the Madison Square Garden in 1925.

"Much has been said about the possible salvaging of part of that picturesque edifice, and it is earnestly to be hoped that a rising volume of interest in the subject may lead to some constructive action. The likeliest project is that which would move the tower to University Heights. When the

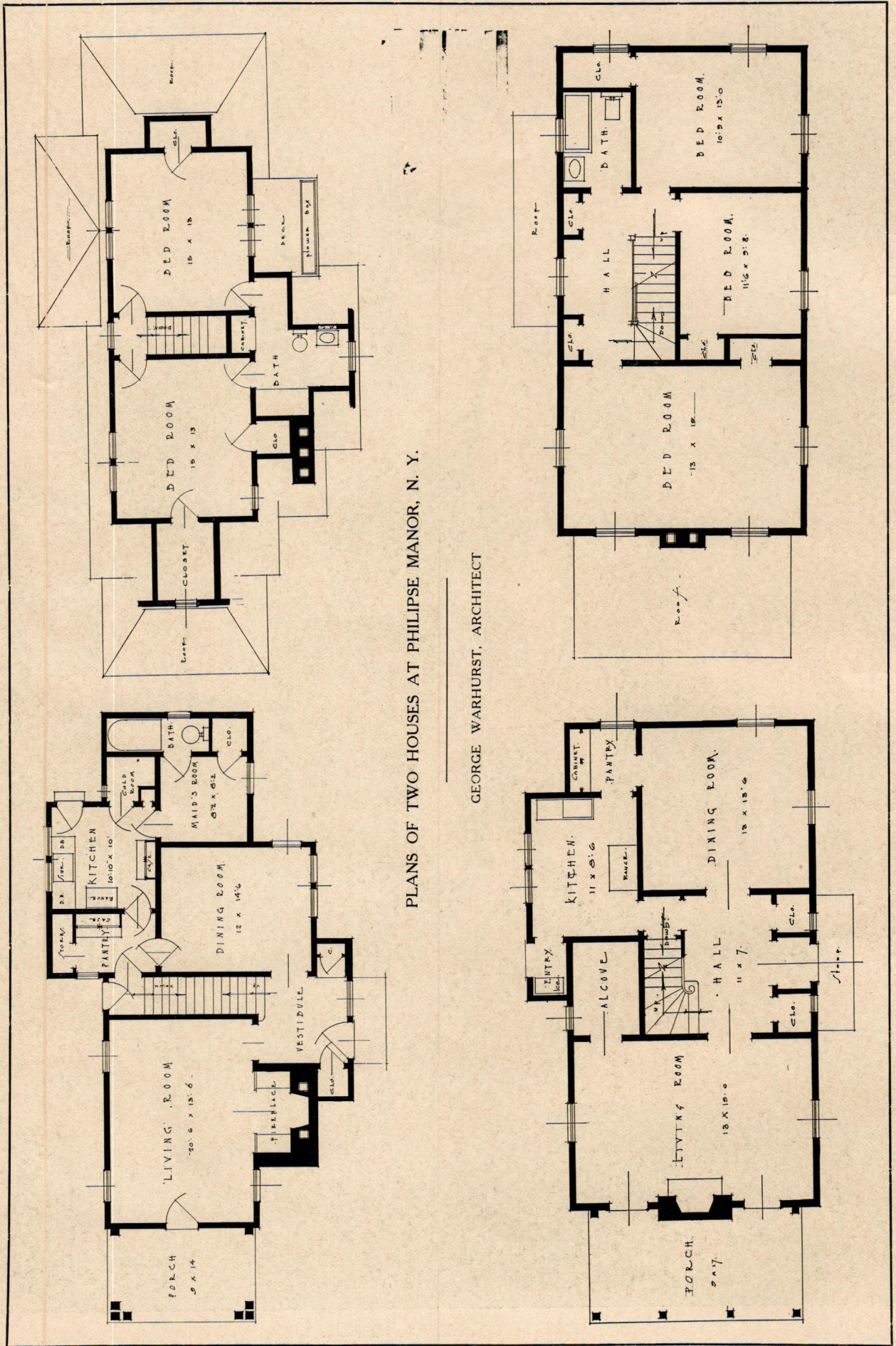
architects of New York University, McKim, Mead & White, made plans for its extension they contemplated a tower on the graduates' end of the development which would balance the scheme and form a pleasing contrast to the dome at the southern end. The Madison Square tower would go ideally into the ensemble. So thinks the chancellor of the university, and the architects of the country would surely confirm him. They would approve the idea for its own sake and for the assurance it gives of the preservation of a beautiful monument.

"Heavy expense would, of course, be involved, but that in a city like New York should not prove an insuperable obstacle. Probably if the architectural profession were to take up the idea public opinion might be enlisted on the side of some practical plan. In any case, if the tower must go, one more sacrifice to the city's growth and to the immutable laws of change, we trust that the Diana atop of it may be saved. The late Augustus Saint-Gaudens made that exquisite appurtenance to the building, its climax, its *panache*, a pure labor of love. It is, if we are not mistaken, the only nude he ever modeled, an incident in the evolution of his *œuvre* that is unique. He and White took immense pains with it. When the first figure in beaten copper was put in place and found to be unsatisfactory in scale they substituted the present image at their own expense. It is a characteristically beautiful example of the great sculptor's art, and it is besides a thing as familiar to New Yorkers as Saint-Gaudens' "Farragut" standing in the square below. If this exceptionally interesting work of art is not salvaged and given a new lease of life at some appropriate spot the city will have failed in a duty."

This advice is sound. We are too apt to disregard the value of our architectural heritage, to fail in its conservation. Moreover, do we too often ignore those traditions that should be sacred. It is, of course, unfortunate that the Madison Square Garden is to be razed. If it is to be, the suggestion of the *Herald-Tribune* is a good one. The beautiful porch of old St. Bartholomew's has a new and fitting place in the new church. The fine portico of the Madison Square Church is, as stated, preserved in another building. It is equally desirable that Stanford White's tower and Saint-Gaudens' Diana find equally safe harborage.



TWO HOUSES AT PHILIPSE MANOR, N. Y.  
GEORGE WARHURST, ARCHITECT



PLANS OF TWO HOUSES AT PHILIPSE MANOR, N. Y.

GEORGE WARHURST, ARCHITECT



HOUSE AT PHILIPSE MANOR, N. Y.

GEORGE WARHURST, ARCHITECT





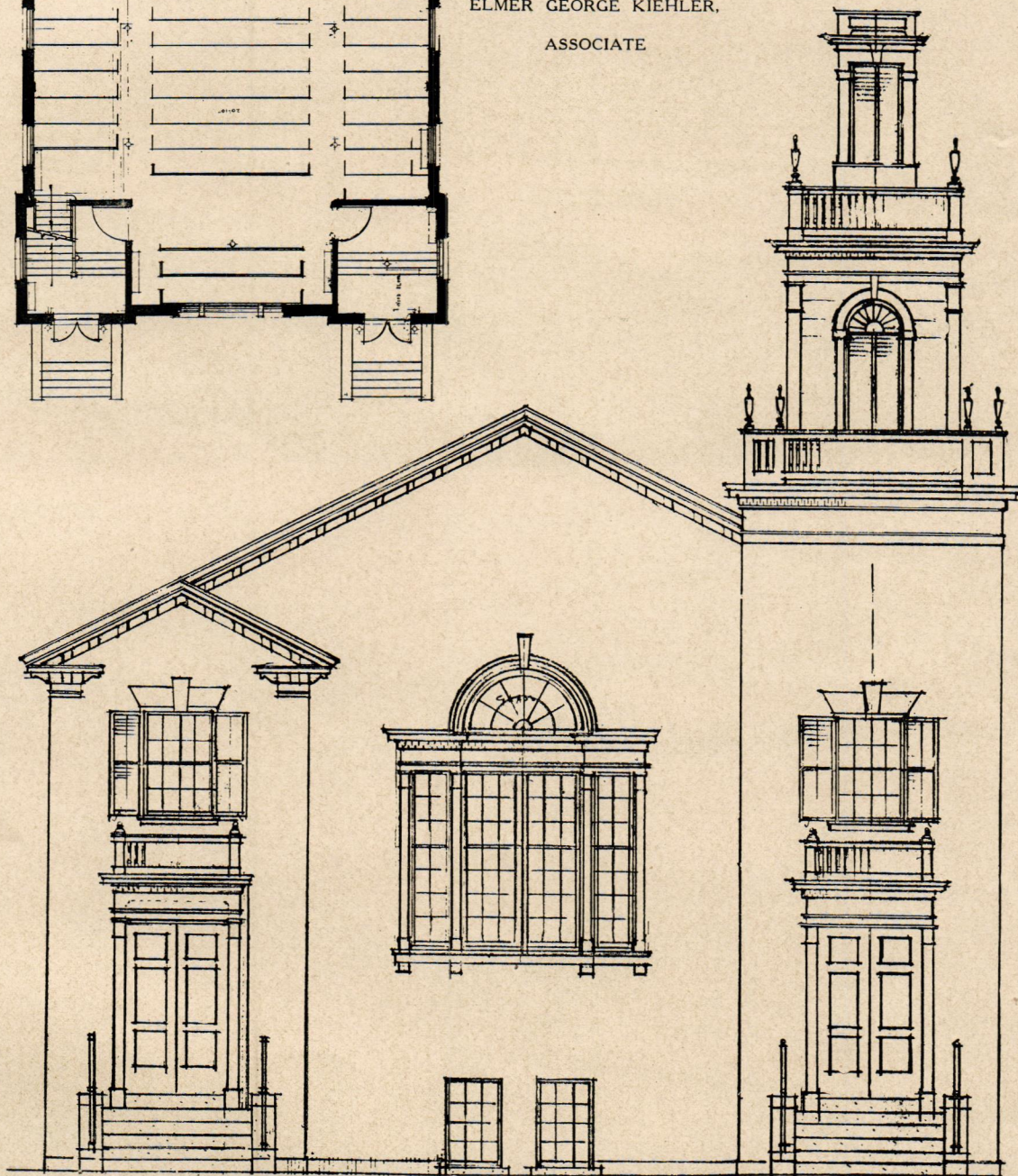
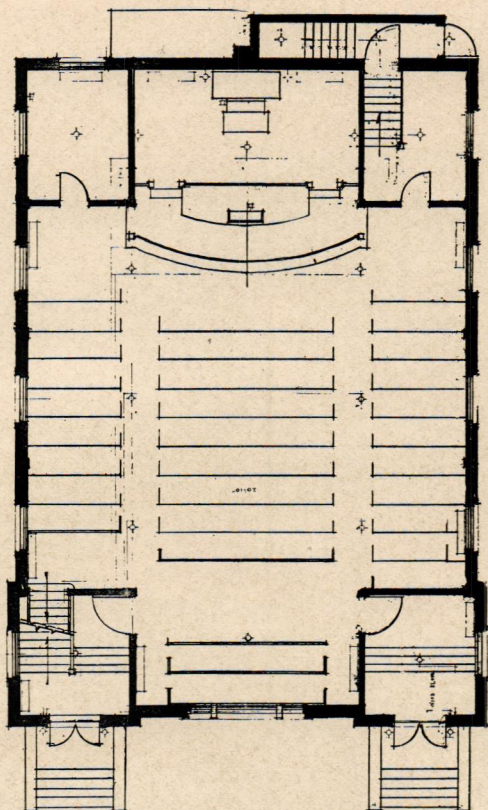
HOUSE AT PHILIPSE MANOR, N. Y.

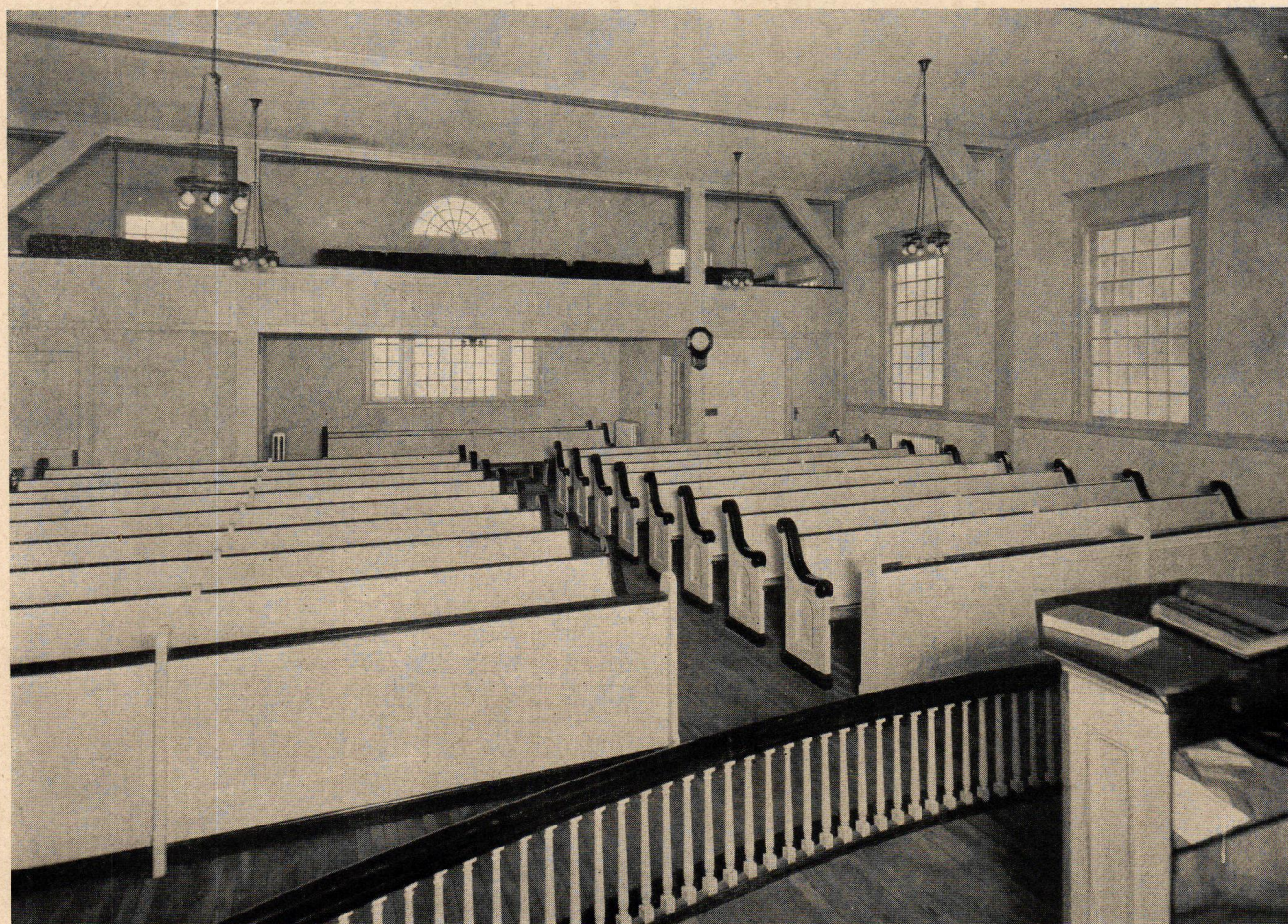
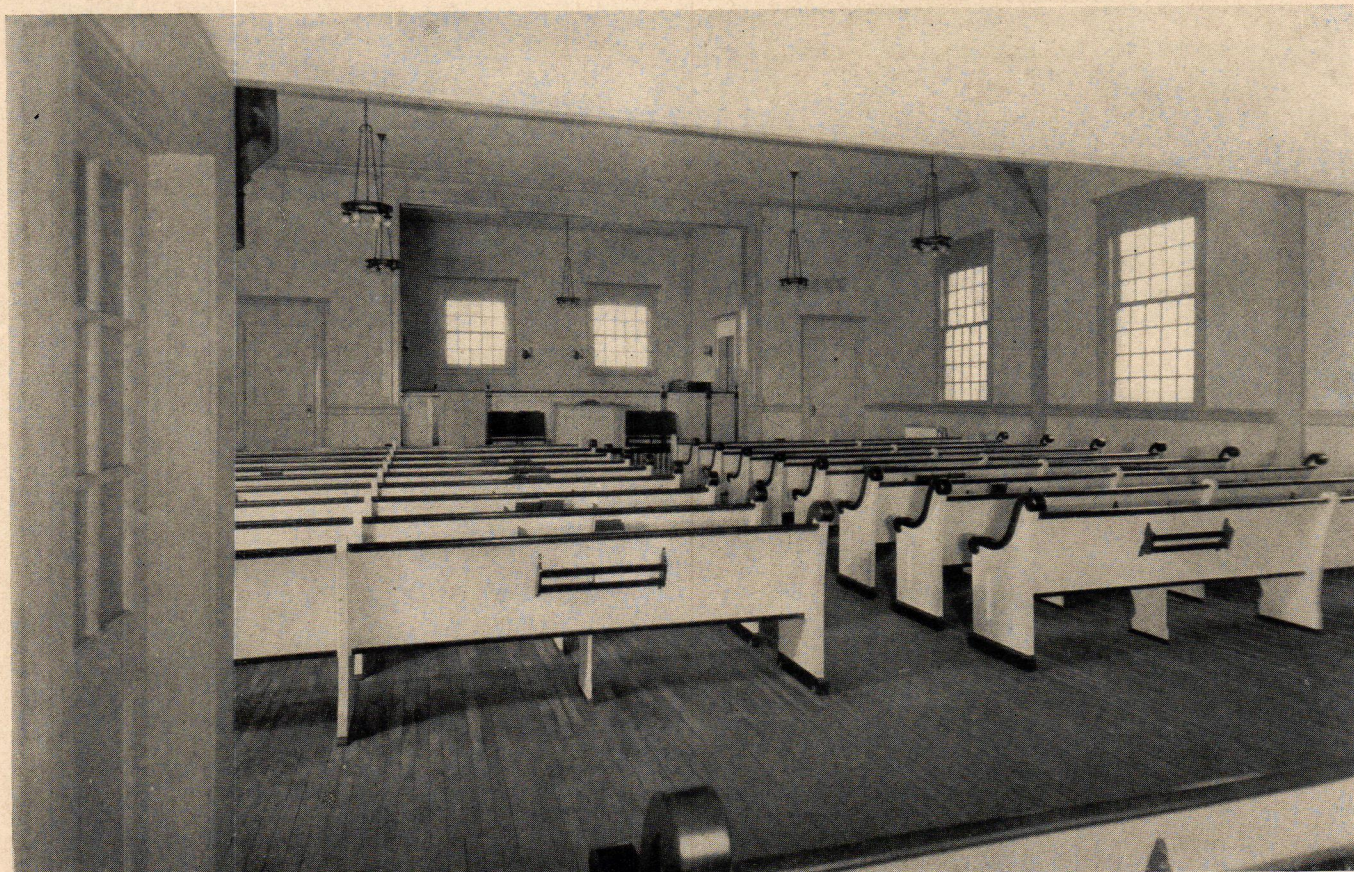
GEORGE WARHURST, ARCHITECT

FERNDALE (MICHIGAN) EVANGELICAL  
CHURCH

C. HOWARD CRANE,  
ARCHITECT

ELMER GEORGE KIEHLER,  
ASSOCIATE



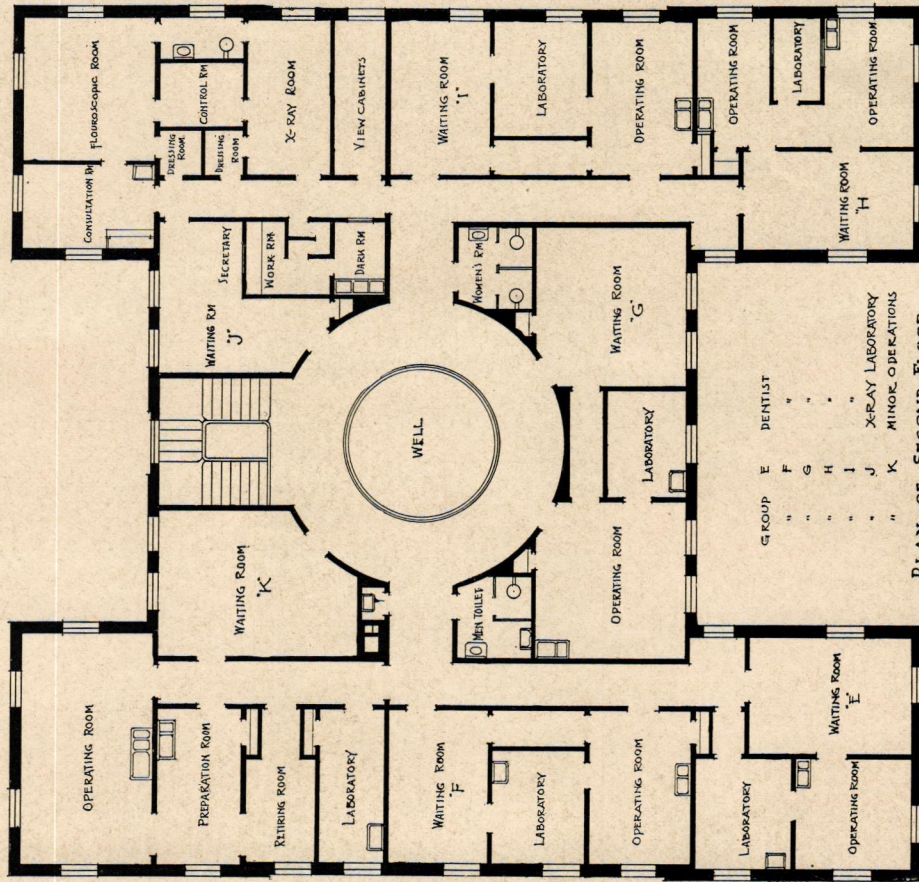


FERNDALE (MICHIGAN) EVANGELICAL CHURCH

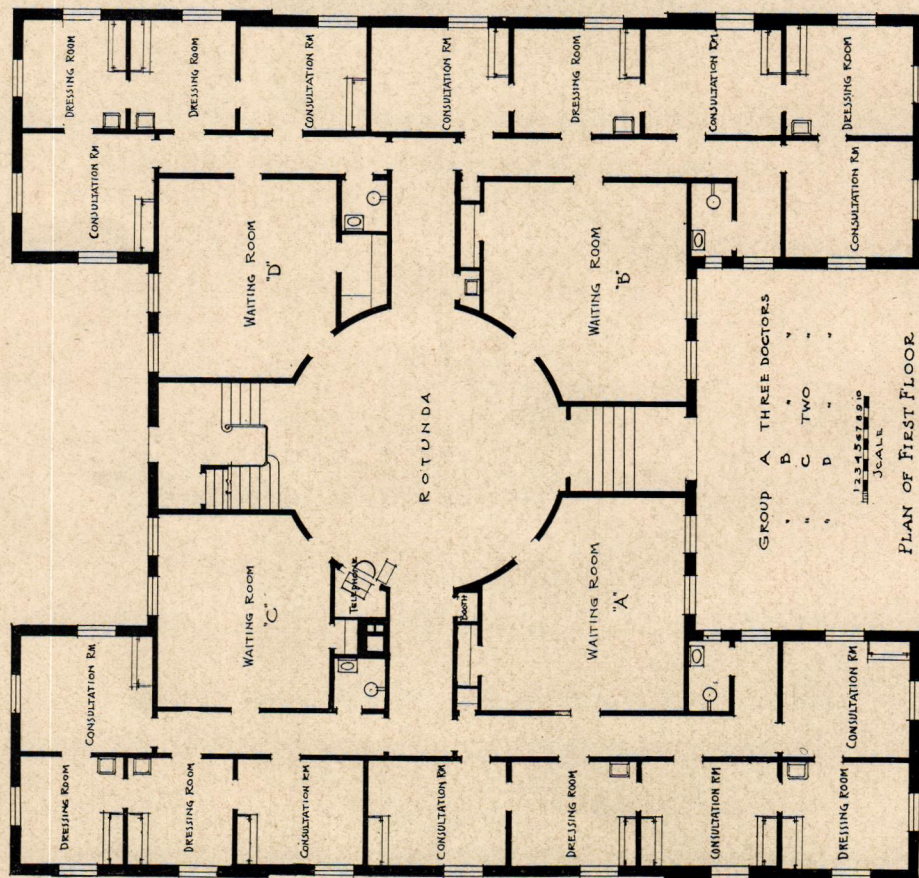
C. HOWARD CRANE, ARCHITECT—ELMER GEORGE KIEHLER, ASSOCIATE



PROFESSIONAL BUILDING, HEMPSTEAD, L. I., N. Y.  
W. F. McCULLOCH AND GODWIN & SULLIVAN, ARCHITECTS



PLAN OF SECOND FLOOR



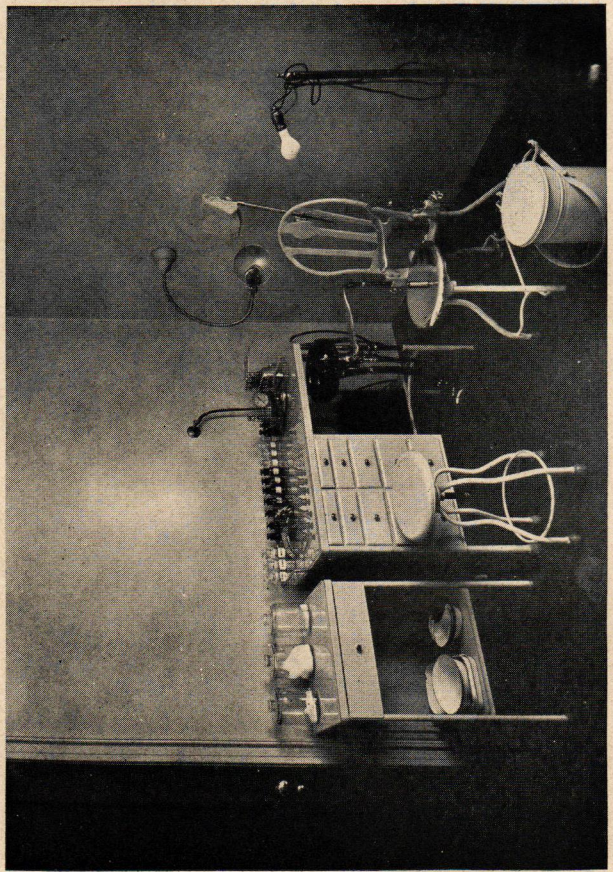
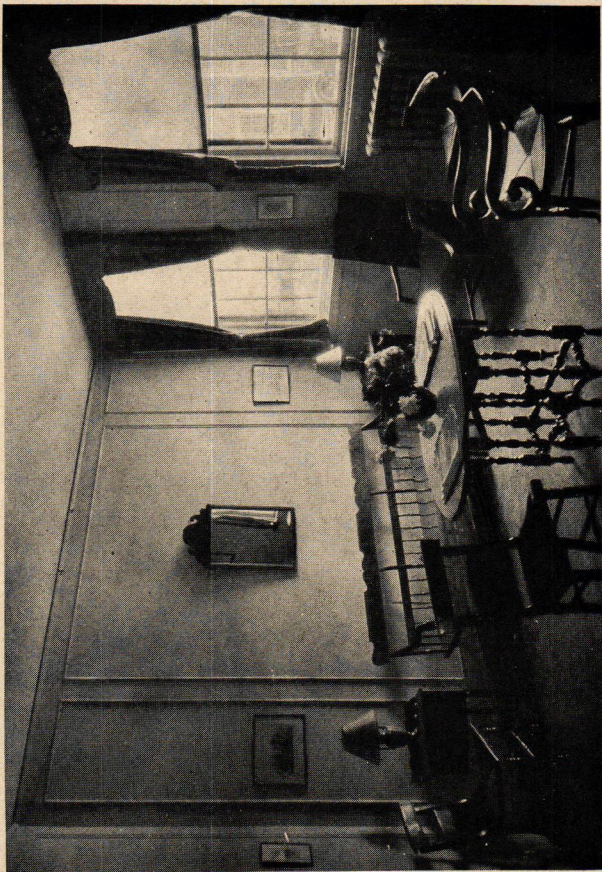
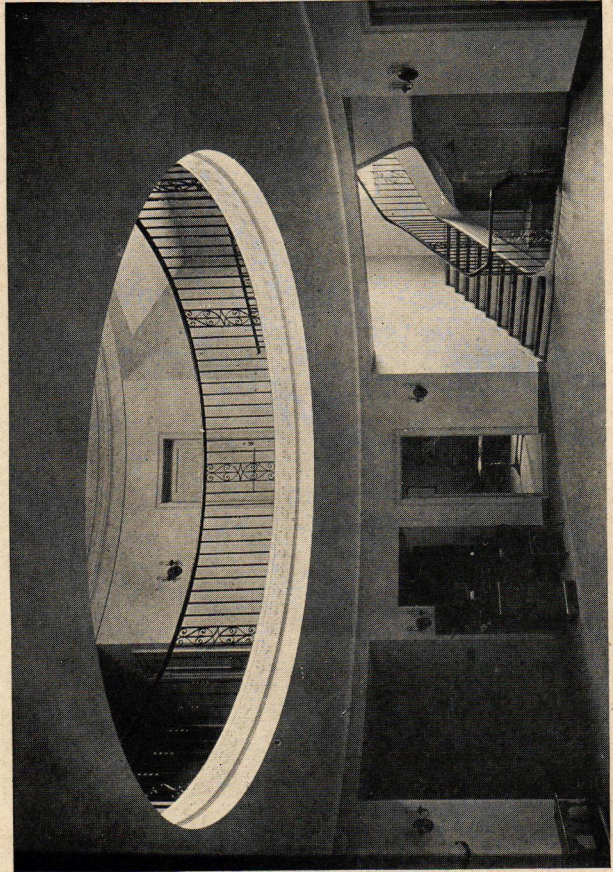
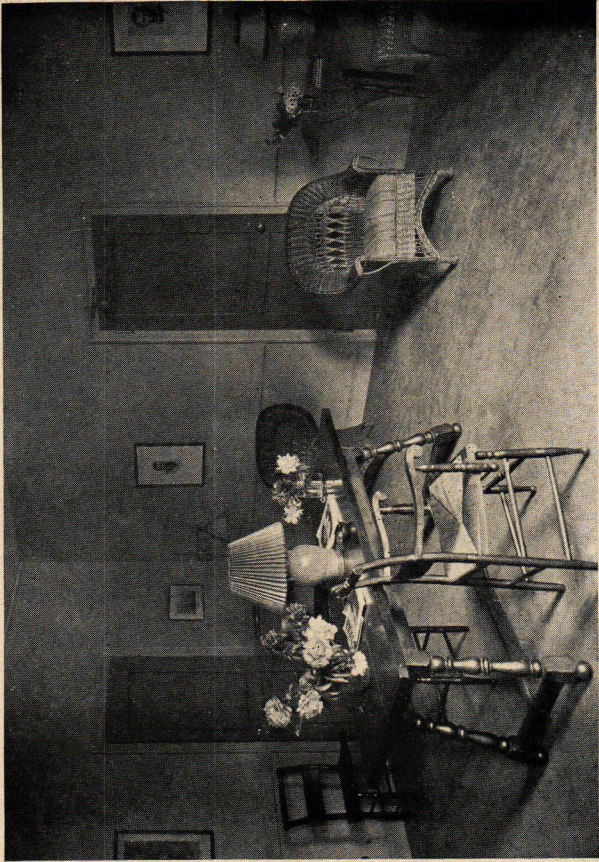
PLAN OF FIRST FLOOR

PROFESSIONAL BUILDING, HEMPSTEAD, L. I., N. Y.

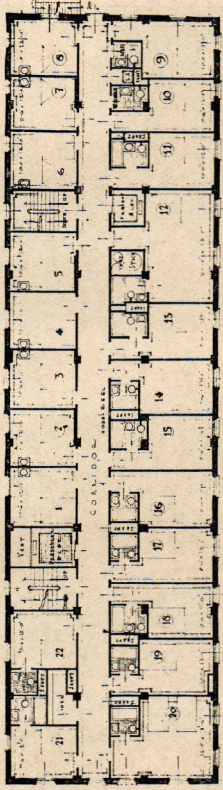
W. F. McCULLOCH AND GODWIN & SULLIVANT, ARCHITECTS



PROFESSIONAL BUILDING, HEMPSTEAD, L. I., N. Y.  
W. F. McCULLOCH AND GODWIN & SULLIVANT, ARCHITECTS



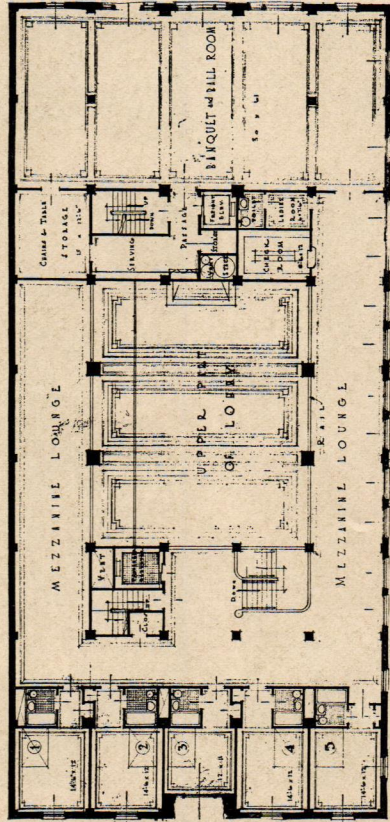
PROFESSIONAL BUILDING, HEMPSTEAD, L. I., N. Y.  
W. F. McCULLOCH AND GODWIN & SULLIVANT, ARCHITECTS



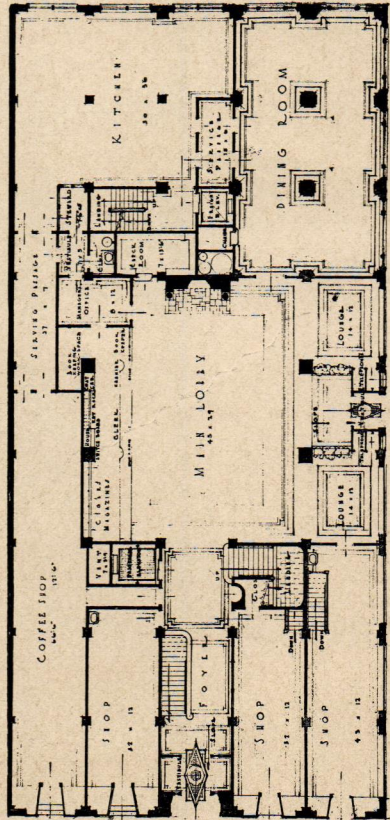
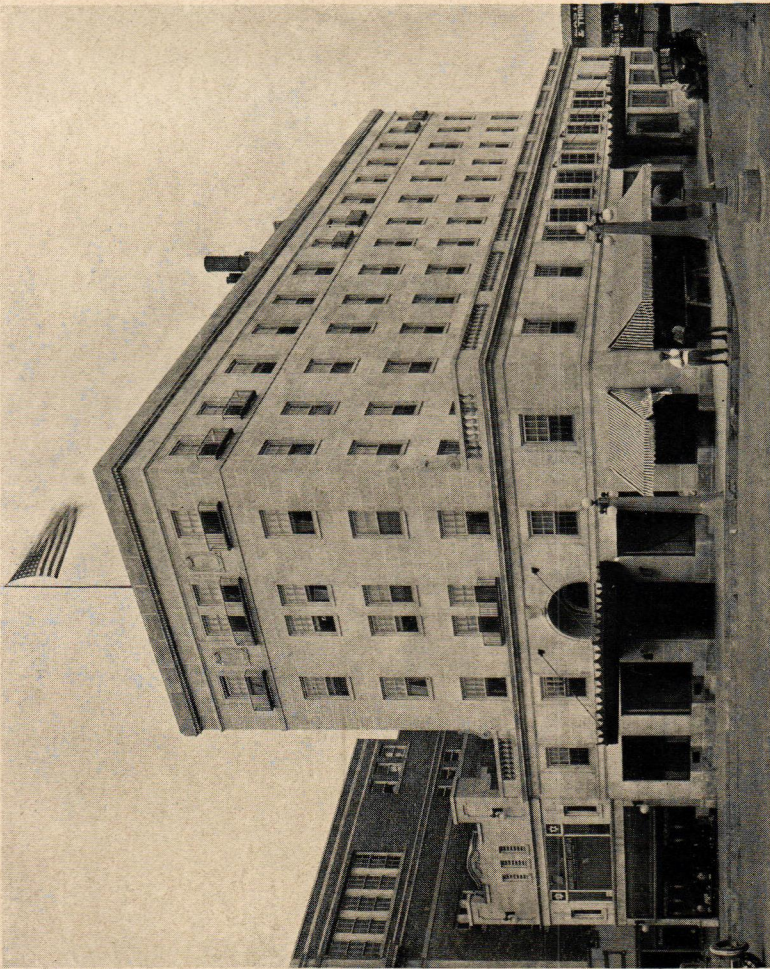
TYPICAL FLOOR PLAN

THE GREYSTONE, A HOTEL AT BEDFORD, IND.

NICOL, SCHOLER & HOFFMAN,  
ARCHITECTS

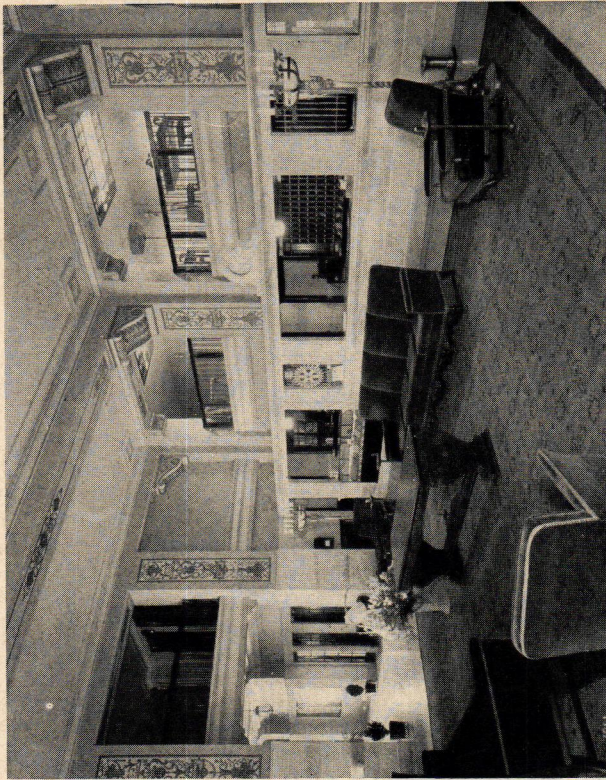


MEZZANINE FLOOR PLAN

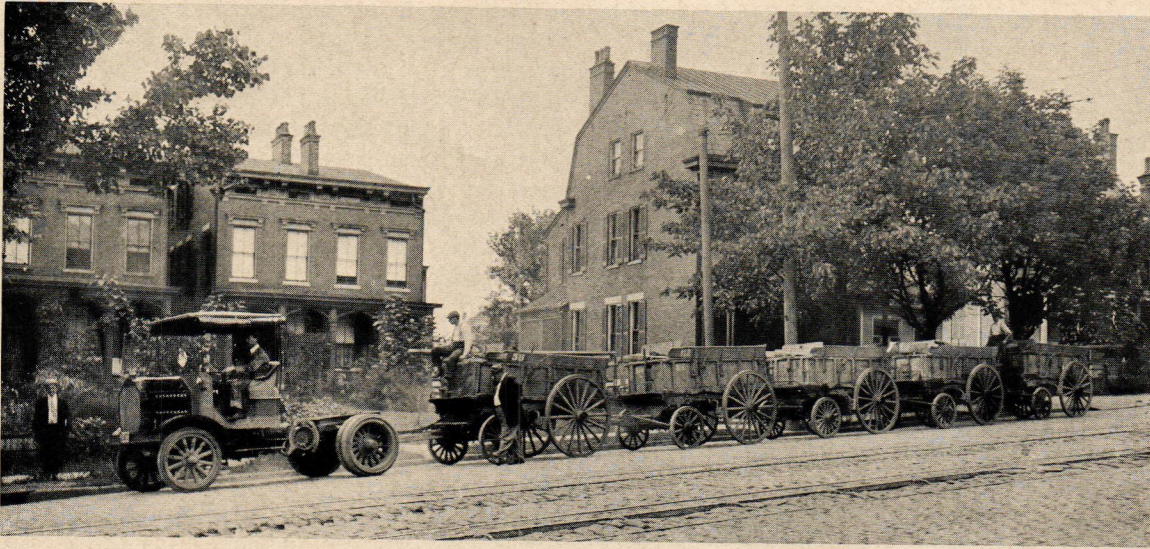


FIRST FLOOR PLAN





THE GREYSTONE, A HOTEL AT BEDFORD, IND.  
NICOL, SCHÖLER & HOFFMAN, ARCHITECTS



REFUSE HAULING BY TRACTOR AND TRAILERS

Each of these five trailers was drawn by a team of horses while collecting refuse. The five teams met at a designated place, the loaded wagons were coupled into a train to be drawn by tractor to the place of disposal, while the teams continued collecting with empty wagons brought to the rendezvous by the tractor

## MUNICIPAL HOUSE CLEANING—Part I

BY A. PRESCOTT FOLWELL, Sc. D.\*

### THE PROBLEM OF COMMUNITY WASTES

COMMUNITY life offers many advantages which increase with the size of the community, but these are partially offset by inherent disadvantages. Several could be mentioned such as congestion of traffic in streets, but special attention is given in this article to the problem of disposing of the waste products of human bodies and human activities.

The farmer, living a mile or more from his nearest neighbor, feeds his garbage to pigs, burns his rubbish or throws it in some out of the way place, and finds cesspools a satisfactory substitute for a sewerage system. If any of these disposal methods give rise to objectionable conditions, only himself and his family suffer thereby.

In a city of 50,000 population conditions are entirely different. The citizens in a year discharge as waste matter about 5,000 tons of garbage, from 5,000 to 40,000 of ashes, and about a quarter as much rubbish. There also is dirt collecting on the street pavements amounting to 15,000 or 20,000 cubic yards. In addition, there will be hundreds of dead animals and snow to be removed from the street, and market and manufacturing wastes from commercial establish-

ments. Cesspools are no longer permissible from the standpoint of either health or convenience, and the co-operative possibilities of community life make a sewerage system cheaper than individual cesspools.

A more definite realization of the significance of the above figures may be had by a simple calculation. These waste materials would, in a year, fill a 60-foot street for a length of 400 feet (about a city block) to a depth of 75 or 80 feet.

If these wastes are dumped on low lots, in old quarry holes, etc., all available places will be filled in a few years but the stuff will keep on coming, and in increasing quantities as the city grows. Moreover, it must be carried further and further beyond the outskirts (which are themselves moving outward) to find a place of deposit.

It is evident, therefore, that the problem is a real one and increases even much more rapidly than the population itself. Upon its satisfactory solution may depend the possibility of maintaining a pleasing appearance of city streets and unoccupied lots or even the health and lives of the citizens.

### DISPOSING OF REFUSE

Refuse is the general name applied to matters discarded as useless. They are further classified as garbage, ashes, rubbish (all household wastes

\*M. Am. Soc. C. E., P. P. Am. Soc. for Municipal Improvements. Author of "Sewerage," "Municipal Engineering Practice," etc. Editor of Public Works.

other than garbage and ashes), trade wastes, street sweepings, manure and dead animals.

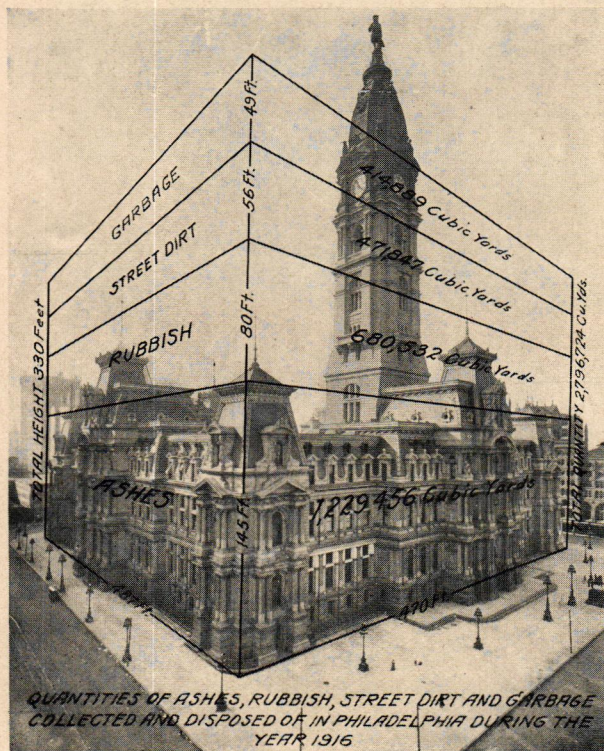
Some of these, though useless to the discarder, can be put to use by others. Garbage can be fed to pigs, or grease and fertilizer prepared from it; manure is valuable as a fertilizer; while there is a market for bottles, scrap metal, cloth, paper, etc. The paper trade of the United States alone

disposing of municipal waste will be considered in the following paragraphs.

Garbage is excellent food for pigs if fed to them while still fresh. This method of disposal is especially adapted to communities of 30,000 and under, but is practiced by several large cities such as Grand Rapids, Mich., and Newark, N. J. The objectionable odor of a pig farm necessitates locating it a mile or more from any built-up section, which involves long hauls in the case of large cities. This method is financially profitable when pork sells at a good price, but the fall in the market for hogs since the war has bankrupted a number of hog raisers. Some cities have themselves operated hog farms, but in the majority of cases the garbage is turned over to private parties.

Garbage solids contain about 6 to 9 per cent of grease and small amounts of phosphoric acid and other fertilizing constituents. Plants have for years been operated for extracting the grease and conditioning the remaining solids for use as fertilizer, and a sale is generally found for both of these, the grease making excellent soap. This process is called reduction. The plants are very elaborate and so expensive as to be uneconomical for any city of under 75,000 to 100,000 population.

Some farm land is benefited by having garbage plowed under. In some instances garbage has



ONE YEAR'S REFUSE COLLECTION

Philadelphia's city hall covers  $5\frac{1}{4}$  acres. If the refuse collected in this city in one year were piled with vertical sides upon this area, it would reach nearly two-thirds of the way to the top of William Penn's head. It would fill a train of two-yard trucks more than 1600 miles long

in one year paid \$50,000,000 for about 2,000,000 tons of waste paper and nearly \$25,000,000 for 600,000 tons of waste rags.

Most communities that have grown, in either size or refinement of taste, beyond the private pig-pen stage, make some provision for removing the garbage of their citizens. In the village or small city the individual, however, is required to dispose of his ashes and rubbish either on his own property, or by having them hauled away. However, even these small communities, if at all progressive, endeavor to make some adequate provision for avoiding any nuisance resulting to the community from the disposal of these or any other wastes. The methods that have been developed by engineers and sanitarians for satisfactorily



REMOVING GARBAGE IN THE CAN

Some cities avoid many of the objectionable features of garbage removal by taking can and all direct from house to place of disposal, instead of emptying it into an open wagon. This truck is carrying 80 garbage cans to the incinerator, where they will be emptied, cleaned and returned

been buried in trenches and covered with about a foot of earth, where it decomposes slowly without attracting flies or giving off odors. An elaboration of this idea is the "sanitary fill," consisting of alternate layers of garbage and either earth or ashes, each about a foot deep, spread in a low place to a depth of 10 feet or more. This makes good land for parks but not for buildings,

as it continues to settle slightly for many years as the garbage disintegrates.

Garbage, if dumped in large masses either alone or mixed with rubbish, attracts flies, rats and other animals, gives off offensive odors and is generally an intolerable nuisance. Ashes, however, can be used advantageously for filling in low land and, in fact, this is about the only disposal that can be made of them. Miscellaneous rubbish also is quite generally dumped in out of the way spots. Wood and other combustible matter in the rubbish is sometimes burned on the dump; if not, it will continue to decompose and the dump to settle for many years. Dumps containing wood, coal in ashes, etc., sometimes catch fire and burn for days or weeks—another advantage in burning the combustible matter before covering it up. In some cases garbage also is burned in the open air on the dumps, but the odor given off makes this method indefensible.

On the other hand, burning garbage in a proper plant is probably the best method of disposal yet available, although not always the cheapest. Garbage burned in an incinerator is in a few hours converted into an inoffensive, inert mass of much less volume than the original garbage. The process need not be offensive, incinerators having been placed in close proximity to residences, schools and business centers. Garbage will not generally burn without other fuel because of the large amount of moisture in it, and in any event, fuel will be needed to start the fire and heat the furnace. Coal may be used for this purpose, but rubbish is satisfactory and generally cheaper.

To prevent odors leaving the incinerator chimney, the fire must be hot enough to destroy all gases and odor-producing substances—about 1200 to 1500 degrees F. The material and construction of the incinerator must be those best adapted to withstanding these high temperatures without rapid deterioration. The incinerator should operate without any odors, dust or other nuisance

and at a minimum cost for labor and fuel.

While perhaps the best method of disposing of rubbish also is by incineration, especially if garbage is being incinerated, a part of the rubbish is incombustible, such as bottles and other glass, and metals, especially bedsprings, stoves and other large metallic objects. As already stated, some matters found in rubbish can be sold if sorted. (Buffalo received \$40,000 in one year for its sorted rubbish.) But the sorting must be done by hand and is expensive, the cost being greater than the returns in any except the largest cities. An interesting item in Cleveland's record is the sale in one year of 506 pounds of old alarm clocks sorted from the rubbish.

If all the combustible rubbish be burned, more heat will be available than is generally needed for incinerating the garbage and the surplus can be used for creating steam. However, not more than one or two cities in this country have found a use for the steam of sufficient commercial value to make a steam plant profitable. This is chiefly because the rate of steam production cannot be increased at will to meet peak load demands or even kept uniform. The amounts and relative combustibility of the rubbish vary from day to day and from month to month;

while if the garbage is unusually wet because of watermelon rinds, rainy weather or other causes, a large part of the heat may be needed for garbage incineration. However, a small amount of heat will generally be available and can be used to advantage in lighting the plant and operating blowers and other plant equipment.

Street sweepings can be burned, but perhaps use as fill is more satisfactory. They have little fertilizing value, now that horses are becoming scarce on city streets.

#### COLLECTING REFUSE

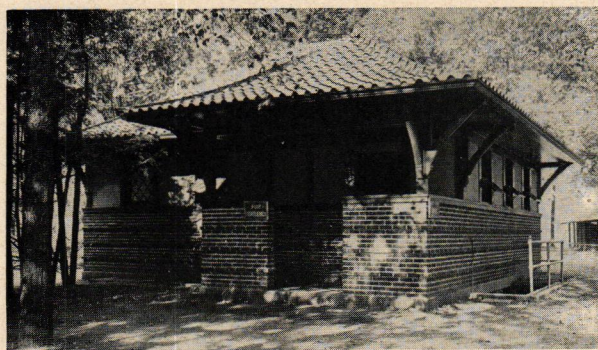
If garbage, ashes and rubbish are all to be dumped together, economy and convenience to both householders and collectors are served by



"WHITE WINGS" STREET CLEANER

With his regular equipment of broom and pan, and can resting in a can carrier. When a can has been filled with dirt, it is left at the curb to be removed by wagon, and is replaced with a new one. He patrols an assigned section of street many times a day

putting them all in one receptacle and collecting in one wagon. But if garbage is to be fed to hogs, treated in a reduction plant, or buried, it must be kept separate from the other materials. If garbage and rubbish are both burned, they may be mixed by the householder, although firing the incinerator is greatly facilitated if they be kept separate. A considerable number of cities do not collect rubbish at all, and quite a number do not collect ashes, so that garbage is collected separately in the great majority of cities.



COMFORT STATION IN A TRENTON, N. J., PARK

As a substitute for "Commit No Nuisance" signs, some cities erect comfort (?) stations which are a nuisance to refined tastes. This pleasing, well lighted and ventilated building is a demonstration of how unnecessary this is

Vehicles for collection most commonly are wagons drawn by horses or mules, although during the past few years motor trucks have been coming into use. A gasoline truck is not economical for collecting, where the vehicle must stop every 50 to 100 feet, but is economical for hauling the material to a distant point after it has been collected. A horse, on the other hand, in long distance hauling travels only about 2½ miles an hour and a motor truck about 10, while the truck will carry a load five to ten times as heavy as can a pair of horses.

The advantages of horse collection and truck hauling have been combined by a number of cities in the latest development. Special wagons are drawn by horses while collecting, and from three to six of these, when filled, are driven to a fixed meeting point where they are coupled up to form a train of trailers, which train is then drawn by motor tractor to the disposal plant or dump. In coming to get these wagons, the tractor has brought back a train of empty ones, and to these are hitched the horses that brought the filled ones to the rendezvous, and these teams and their collectors continue collecting. This requires careful timing and adjustment to insure that neither the tractor nor any wagon need waste time waiting for any of the others.

Wagons used for collecting garbage must be watertight and easily cleaned, containing no cracks, angles or offsets. Both garbage and ash

wagons should dump so as to discharge all their contents; reach not more than 4½ to 5 feet above the ground, so pails can be emptied into them readily; be provided with a cover which will conceal the contents and prevent the blowing about of ashes; be not noisy; and of the size best adapted to the particular service and mode of haul. A metal body with rounded angles makes a good garbage wagon. Some steel wagons have steel covers, but these are apt to be noisy and get bent out of shape, and canvas that can be rolled or turned back is preferred by some cities. Garbage wagons should be thoroughly cleaned and disinfected at least once a day.

There are objectionable features about emptying garbage cans into wagons and the cans are too seldom cleaned by the householder. Some small and medium size cities remove the can with its contents, the collecting wagon being built with racks for holding as many cans as possible. The collector leaves a clean can when removing a filled one. The cans are emptied at the plant, cleaned and sterilized (usually by boiling water) and loaded on a collecting wagon for redistribution. This method is more expensive than the usual one because of the weight of cans and the space occupied, most of the cans being far from full.

Rubbish wagons should have large capacity for carrying barrels, bedsprings and other bulky matters. The sides are frequently made in the form of open racks, the bottom, however, being dust-tight.



REFUSE INCINERATOR AT OAK PARK, ILL.

This operates in the midst of a thickly settled residence district, for which reason special effort was made to give it an attractive appearance. Properly built and operated, an incinerator need not in itself be a nuisance

It is desirable to keep all refuse wagons clean and inconspicuous. Numbers of them must pass through the streets leading to the plant or dump, and even though the latter be made not only not a nuisance but actually an ornament to the neighborhood, the residents along the approach naturally object to the daily procession of refuse wagons. The best that can be done is to reduce to a minimum all the objectionable features of both wagons and plant.

(To be concluded)

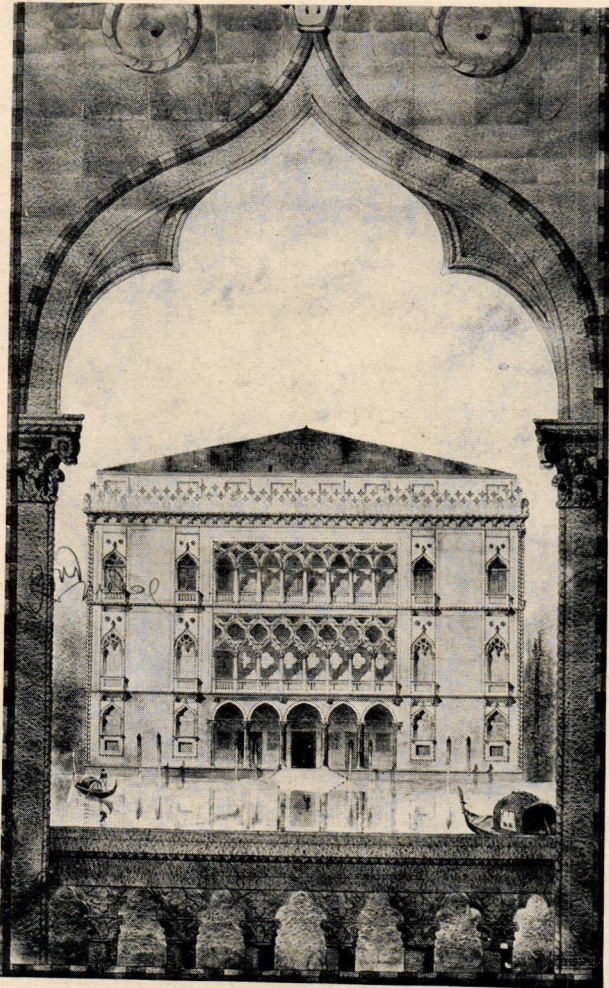
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C. E. MAULE

PENN. STATE COLLEGE  
SECOND MEDAL

JUDGMENT OF APRIL 8, 1924

CLASS "A" AND "B" ARCHAEOLOGY—IV  
PROJET

"A GOTHIC VENETIAN PALACE  
FACADE"

Originating in Western Europe, the Gothic style invaded Italy at a time when each town was still a rival municipality ruled by virtue of force, and the country torn by continual revolutions, wars and conquests. Venice alone, because of

her geographic isolation by land and the greatness of her fleet on the seas, had enjoyed some ten centuries of independence and ever increasing prosperity. For centuries her merchant fleets had brought back the magnificence of the Orient, the pagan splendor of Greece, as well as the simpler Christianity of the Occident to be assimilated by this cosmopolitan metropolis; and from this solved the individual and unique art that found expression in the dazzling splendor of the Gothic Palaces of the Venetian merchant aristocracy.

The subject of this problem is the façade of such a palace. It shall interpret an entrance from the landing platform to the ground floor and three floors above. The entrance floor may be treated with a mezzanine. The reception suite is to be located on the floor above. The façade shall be 100'-0" in width and shall face directly on a wide canal.

CLASS "A" AND "B" ARCHAEOLOGY—IV  
MEASURED DRAWINGS

"THE BASSETT HOUSE"

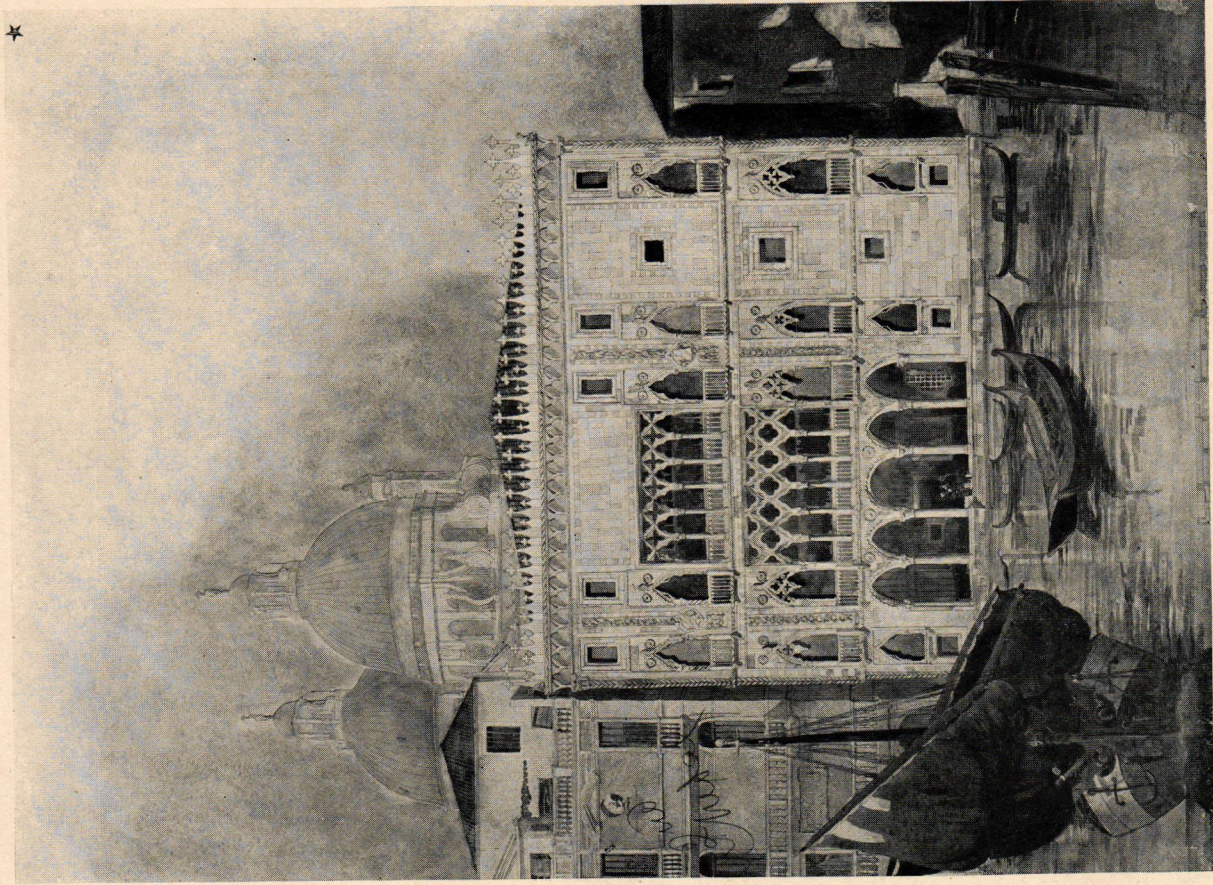
"LOGGIA OF THE VILLA DI PAPA GIOVIO  
III AT ROME"

SPECIAL NOTICE

The prize winning designs in the competition for the annual Paris Prize will appear in an August issue.

## Special Notice to Students

*BY special arrangement with the Society of Beaux-Arts Architects, there appears in each issue of THE AMERICAN ARCHITECT an average of five pages devoted to the presentation of drawings selected from the Beaux-Arts Institute of Design exhibitions, and also the listing of awards and the promulgation of all notices to students. These matters will be exclusively presented to students of the Beaux-Arts Institute of Design through the pages of THE AMERICAN ARCHITECT. By arrangement with the publishers of THE AMERICAN ARCHITECT, a special student subscription rate of \$5.00 per annum has been secured. Further particulars with reference to this service to Beaux-Arts students may be obtained by addressing THE AMERICAN ARCHITECT, 243 West 39th Street, New York City.*



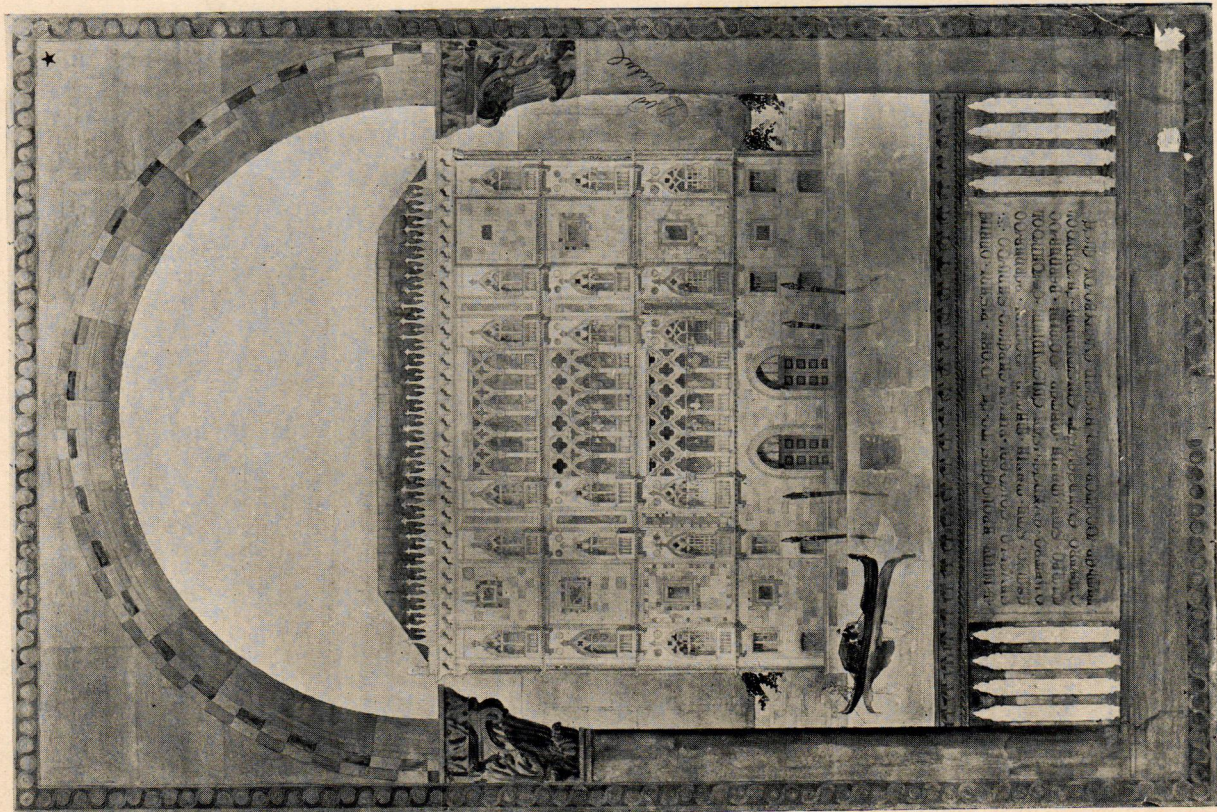
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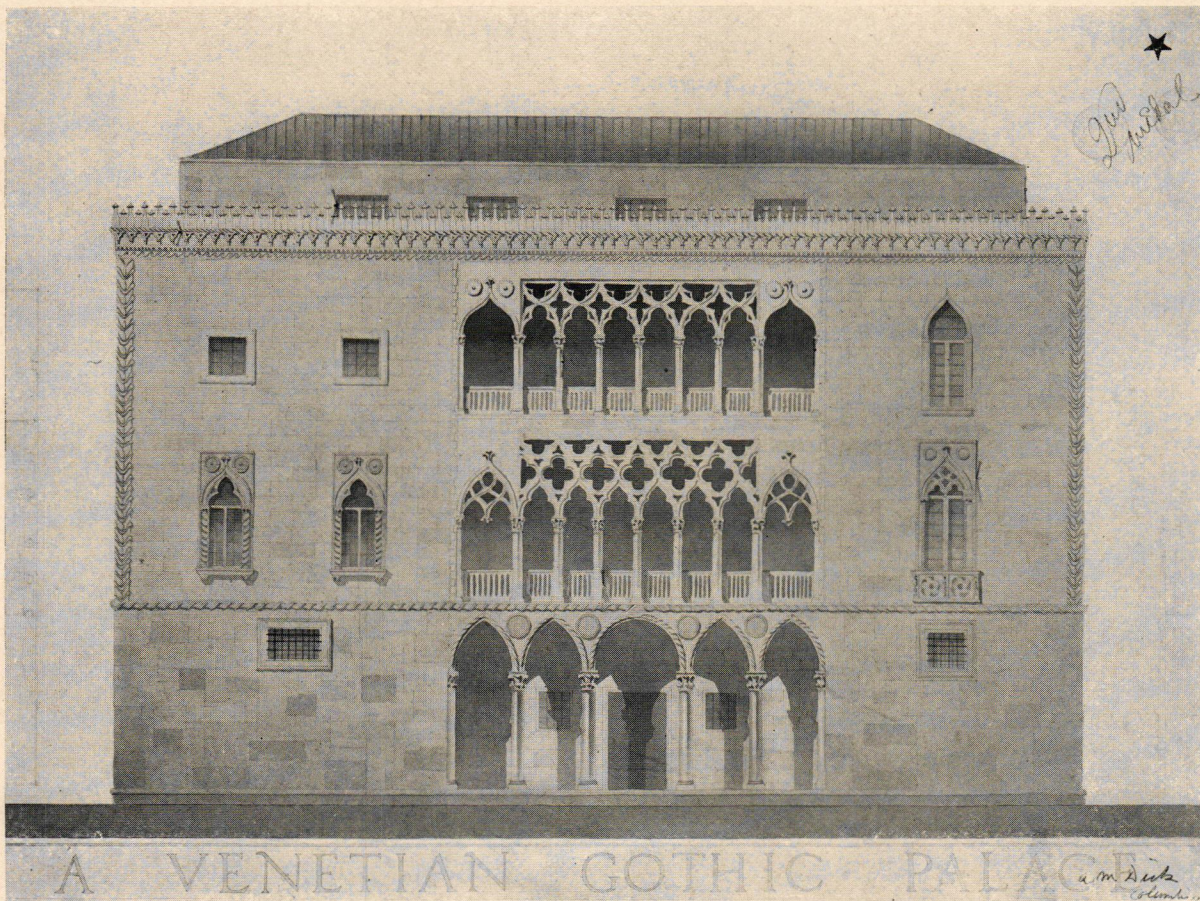
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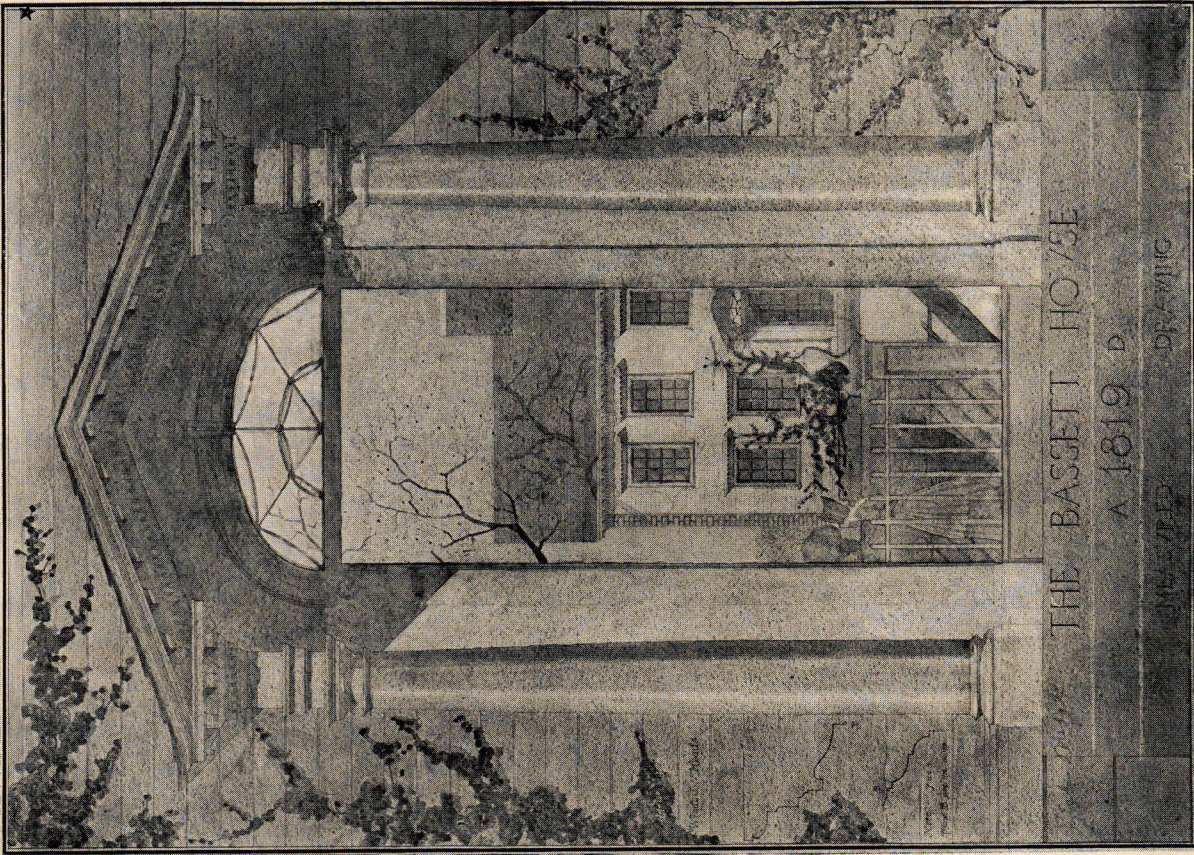
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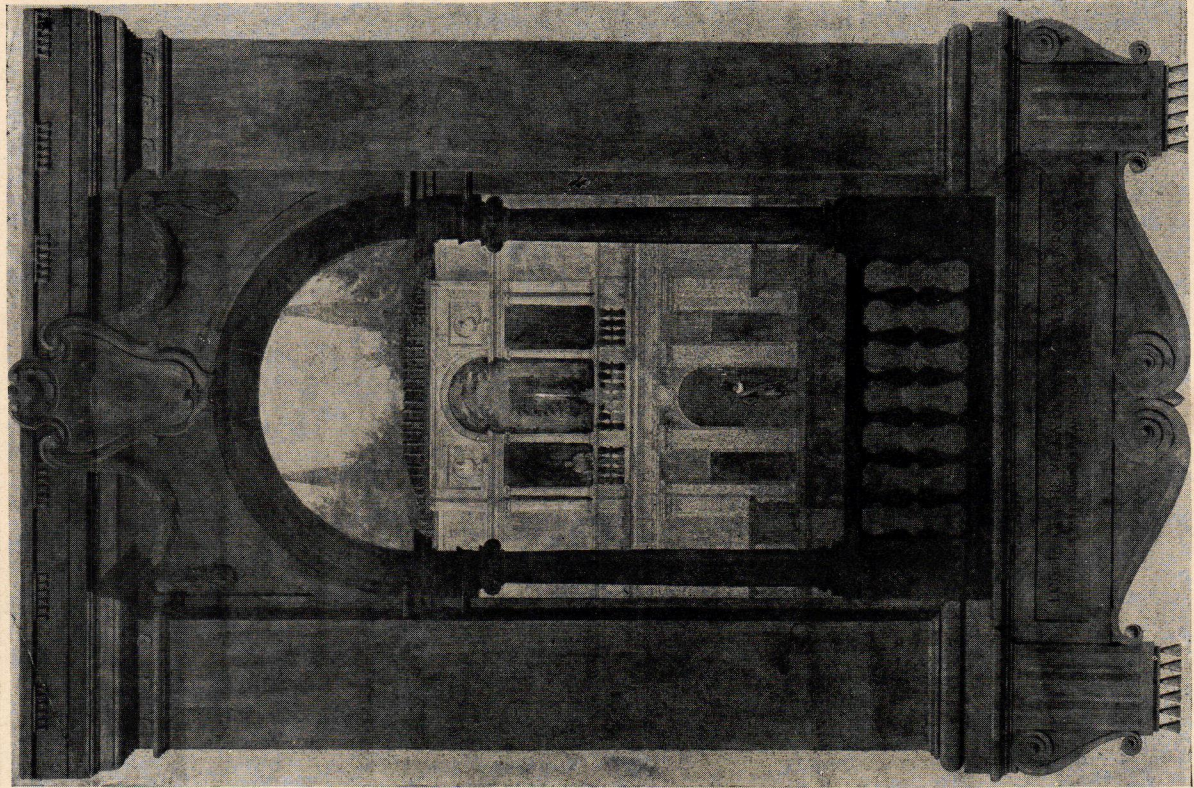
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