

THE AMERICAN ARCHITECT

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MADISON SQUARE GARDEN

An Account of the Passing of One of New York City's Architectural Landmarks

THE confined area of Manhattan Island combined with an unparalleled growth in population have led to more radical changes in plan and the shifting of trade and amusement centers than those found in any other city in the United States. This fact not only complicates every problem of building but it has also complicated, and to an acute degree, the problem of traffic regulation.

With the single exception of the financial district which still retains its position at the lower end of the Island, every other trade center in New York City, at one time or another during the past fifty years, has undergone radical changes as to location. Even the financial center may be, on careful observation, seen to be affected by this matter of typography before which the speculative center still clings to Broad and Wall Streets. The investment center has within the past five years been brought to the central part of the shopping district and is now firmly established on Fifth Avenue between 42nd and 57th Streets.

When Madison Square Garden was erected on the site of the old Union Station, Madison Avenue and 26th Street, but thirty-five years ago, it was then at the Northern rim of the amusement center of New York. The rialto was along Fourth Avenue and West from that point was the real congested amusement center of the city.

In the same way as the shopping center, the dry goods center and the needle trades, did the amusement center migrate Northward and Madison Square Garden while it tenaciously clung to its early tradition was finally abandoned and given over to be a site for an insurance building, adding to an already large and dignified group on Madison Square, once the center of aristocratic New York.

The New Madison Square Garden, which will occupy the block bounded by Eighth and Ninth Avenues, 50th and 51st Streets, has already vaulted over the present amusement center and is now a new regional center for theatres and places of amusement North and West of the present great White Way.

It is seldom that any city presents an opportunity for careful study during demolition of a building built so nearly in accord with present day practice, but whose age warrants the drawing

of definite conclusions as to the effect of time and usage upon construction. Through the co-operation of the New York Life Insurance Company, the Joslin Construction Company, McKim, Mead and White, and Cass Gilbert, this journal has been able to carry forward the idea editorially expressed in its columns several months ago, and to present at this time the results of this investigation together with something of the history of the Garden from its building to its demolition.

As before mentioned, the site of Madison Square Garden occupying the block between Madison and Fourth Avenues, 26th and 27th Streets, was also the site of the first Union Railroad Station built in 1857 and used by the New York and Harlem Railroad. The passenger coaches were drawn by teams of four horses from this station to 42nd Street where steam locomotives were attached to haul the train through a tunnel under Park Avenue and thence to its destination. This brick tunnel, still in existence, is now used by the Fourth and Madison Avenue surface cars.

In 1871 the Union Station was abandoned as a railway terminal, and after alterations it then became an exhibition hall for circuses and other forms of entertainment, known as Gilmore's Garden and later Barnum's Hippodrome. Less than twenty years later, this building was demolished and Madison Square Garden which replaced it in 1890 was built only to be removed thirty-five years later.

The directors of Madison Square Garden at the time it was built included P. T. Barnum, J. P. Morgan, Darius Mills and other prominent men conspicuous in the horse shows. McKim, Mead and White were the architects. The building was erected by the late David H. King, general contractor, Post and McCord, steel contractors, and superintended by Charles E. McDonnell.

The building covered a site approximately 200 x 425 feet and contained a large restaurant and service rooms, a theatre, concert hall, ballroom, executive rooms, roof garden and apartments in the main tower. The famous arena was 125 x 265 feet with three balconies above the amphitheatre and a stable for 400 horses in the basement.

Few structures have sheltered in a period of thirty-five years the pageants, exhibitions, con-

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claves and historical assemblages of the magnitude, variety, notoriety and romance as those witnessed during the life of Madison Square Garden. On its records are mingled science and art, beauty and utility, politics and religion, industry and commerce, capital and labor and mechanics and literature. Its walls could tell of diverse national, international, serious and merry-making assemblies alike.

It is said that 17,000 people gathered to hear Edward Strauss' Vienna Orchestra at the opening of the Garden on June 16, 1890. Within its doors the late William Jennings Bryan accepted the Democratic presidential nomination in 1896. Adelina Patti sang in the Garden in the middle 90's. In 1906 the "Prophet Dowie" and his followers met there. One can but speculate upon the thousands who have gathered to witness pugilistic battles of men like John L. Sullivan, Corbett, Fitzsimmons, and others;

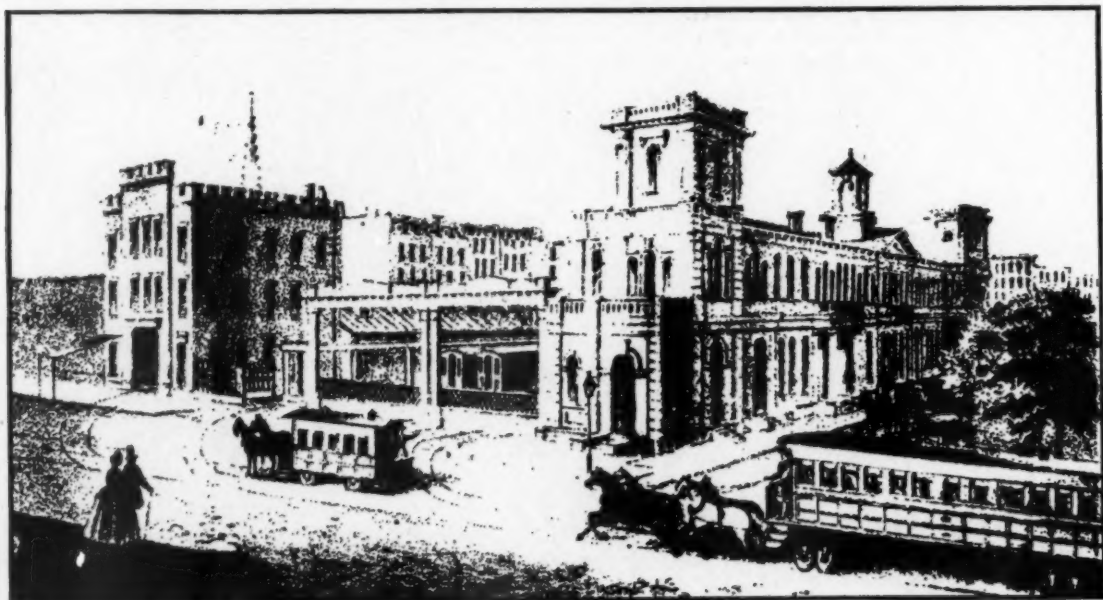


THE TOWER OF MADISON SQUARE GARDEN HAS BEEN CAREFULLY REMOVED AND WILL BE ERECTED AS A CAMPANILE ON THE CAMPUS OF NEW YORK UNIVERSITY. THE SKETCH IS FROM THE OFFICE OF McKIM, MEAD AND WHITE, ARCHITECTS

wrestlers and runners, pedestrians and bicycle riders. For many years, the annual horse shows were the most brilliant of society-sport events preceded by the famous luncheons always held the Sunday before in the Southwest corner room of the Garden. The memorable Democratic National Convention of 1924 held at the Garden is still well remembered. The circus came to the great arena each year bringing joy to the old and young alike. To record the flower, automobile, motor boat, business, chicken, cat, dog, and Wild West shows and the famous brilliant spectacular balls held in the Garden would make a story of its own.

The following is quoted from THE AMERICAN ARCHITECT of November 21, 1891:

"The tower of Madison Square Garden in New York, which forms a very beautiful part of the composition, is to be made also a profitable one. The top of the tower is three hundred and forty-one feet above the ground, so that a very extensive view is obtained from the upper chamber over New York,



THE UNION RAILROAD STATION BUILT IN 1857 ON THE SITE OF THE MADISON SQUARE GARDEN, 26th STREET BETWEEN MADISON AND 4th AVENUES. IN 1871 IT BECAME AN AMUSEMENT CENTER KNOWN AS GILMORE'S GARDEN AND LATER BARNUM'S HIPPODROME

(Courtesy of the New York Central Lines)

Brooklyn, and Jersey City, with the harbor as far as Sandy Hook, the Hudson River and the Palisades, and the Western part of Long Island. A large elevator, accommodating twenty-five passengers at once, makes regular trips to the top, while people who like exercise can reach the same point by climbing a staircase of six hundred steps. The tower is surmounted by a hollow copper figure of Diana, twenty feet high, with the crescent moon on its head. The crescent is of glass prisms with two hundred incandescent lights behind it, and the figure itself, which turns with the wind, is illuminated by concealed lamps and reflectors. The whole affair is as curious as it is beautiful, and will be likely to prove an inexhaustible attraction to sight-seers."

It will be recalled that the tower of Madison Square Garden was inspired by the Moorish tower of the Giralda at Seville built in 1160. The lofty rectangular mass of brickwork terminated in a series of diminishing lanterns. The ornamental mouldings and detail of the tower as in other parts of the structure were worked out with the most infinite care in both scale and modeling.

The Garden was unique, beautiful and without doubt occupied a position of being unlike any other institution in this country, enjoying a distinctive place in the life of New York. Madison Square Garden and its tower were among the conspicuous New York monuments before it was shut in and its beauty partially hidden by the tall buildings built within adjacent blocks.

The arcade which sheltered the sidewalks surrounding the building and often those who waited in line to gain admittance to some sport or other event, were unique features at the time the building was erected.

No visitor to the city felt his stay complete until he had at least had a fleeting glimpse of this amusement center. There is little wonder that its fame spread throughout the world.

During the year immediately following the



UPPER PORTION OF THE TOWER OF MADISON SQUARE GARDEN BEFORE DEMOLITION WAS BEGUN. THE PORTION ABOVE THE BRICKWORK WAS BUILT OF STRUCTURAL STEEL COVERED WITH COPPER, AS SHOWN ON FOLLOWING PAGE. IT WAS IN THIS POSITION THAT THE STEELWORK WAS SLOWLY BEING DESTROYED

erection of Madison Square Garden, the newspapers found it a favorite subject for editorials which were again repeated in another vein upon the demolition of the structure. In 1892 adverse criticism was directed toward the exit provisions in case of panic and an agitation was begun to have fire escapes installed. These fears were quieted by Manager Brophy who replied that as the Garden was practically a pile of brick masonry the chance of fire was very remote.

The *Boston Transcript*, referring to Madison Square Garden, stated on August 11, 1892, "It is one of the few buildings in New York with any pretensions to architectural dignity, aside from the churches, that can be properly rated as a composition."

The proposal to send the original statue of St. Gaudens' Diana, which crowned the tower, to the World's Fair Exposition in

Chicago for use on the Agricultural Building was given much publicity in 1892 and many arguments were advanced both for and against such action. The statue, however, was removed on September 7, 1892, and shipped to Chicago. It is stated that it required one and three-quarters of an hour to lower the figure to the ground. The second statue, removed on May 6, 1925, required one hour less in the lowering operation.

W. J. Henderson wrote of Diana in the *New York Times* September 18, 1892:

"Oh chaste Diana! shattered is the spell
That bound thee to us; so a long farewell."

The Garden is no more and time has a way of softening memories, but it will be many years before the memory of Madison Square Garden is forgotten, for it remains in name at least even though its location does not.

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At Left: View of upper part of campanile just prior to lowering of statue. At right: The statue lowered. In the foreground, from left to right: Tex Rickard, Lawrence White, Dr. Elmer E. Brown, Chancellor of New York University, Darwin P. Kingsley, President of New York Life Insurance Company

DIANA OF MADISON SQUARE GARDEN—McKIM, MEAD AND WHITE, ARCHITECTS

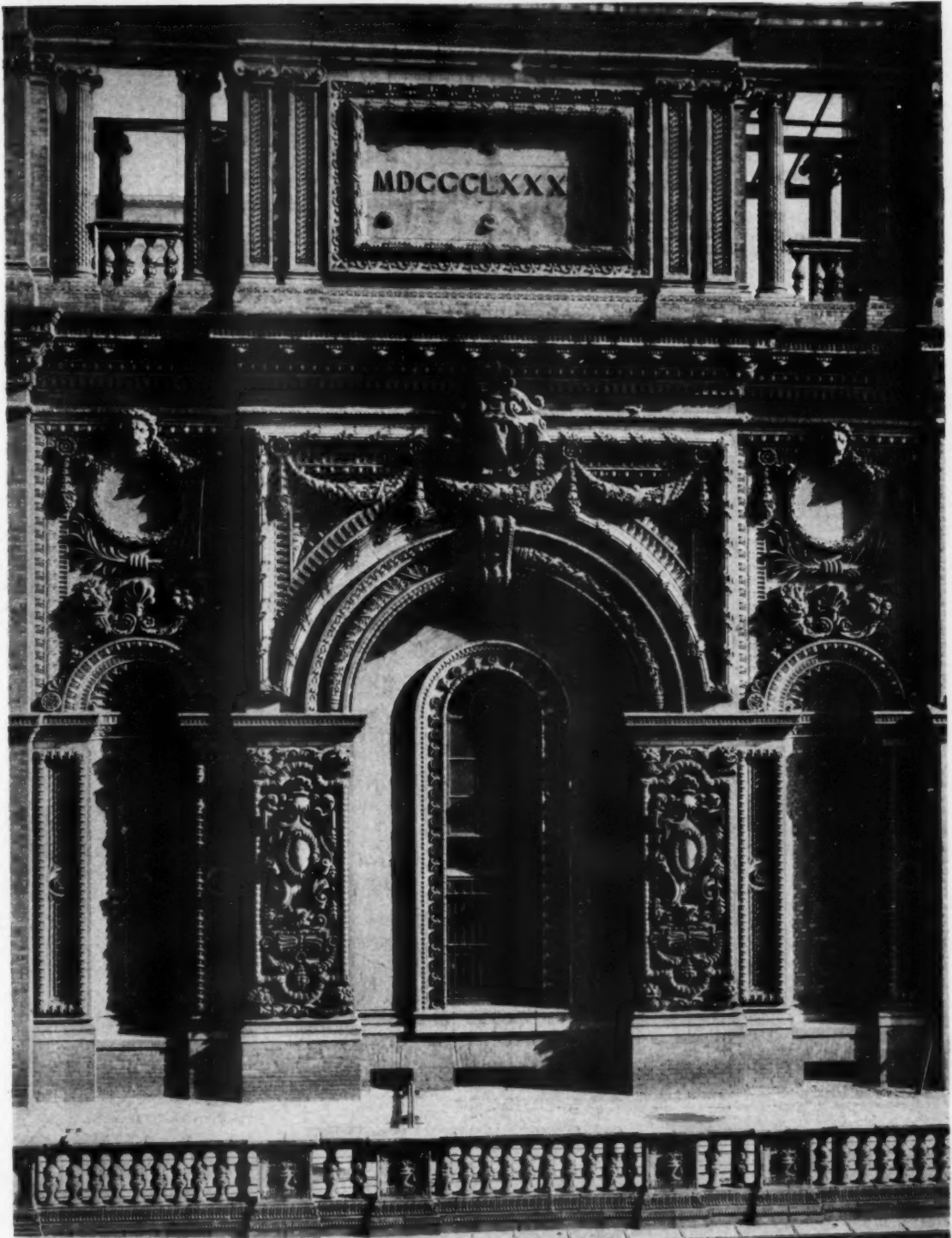
THIS is not the original figure of Diana mounted on the tower and removed a few months later in 1892 because the architects considered it too large in scale. After the first figure had been set the architects are said to have remarked, "The present Diana makes the tower a pedestal for the statue whereas the statue should be merely a pinnacle of the tower." The first statue was sent to the World's Fair held in Chicago in 1893. A fire partially destroyed the statue a few years later. The upper portion of the figure is said to be still in existence. The statue was intended to act as a weathervane. Counter poise was obtained by means of a 7" pipe, 9 feet long which turned with the statue and whose weight was supported on ball bearings. A wind pressure of $\frac{1}{4}$ pound was said to be sufficient to cause the figure to revolve.

When first erected many were skeptical as to the security of the figure. A test was made which indicated that the statue would withstand a wind pressure of about 5000 pounds per square inch.

The second figure, also a masterpiece of Augustus St. Gaudens, was erected in 1893. It was built of copper sheets by W. H. Mullins of Salem, Ohio, and weighed nearly one ton. The drapery which gracefully flowed from the shoulders of Diana and acted as a weathervane rudder mysteriously disappeared some years ago and the figure ceased to turn with the wind.

When the demolition contractor began the work of tearing down the structure the copper architectural forms covering the cupola steelwork were first removed and a scaffold built as temporary bracing and working space. A wooden gin-pole was erected, Diana was securely lashed to a sling, and successfully lowered with block and fall to the roof of the garden on May 6, 1925.

The statue has been given by Darwin P. Kingsley, President of the New York Life Insurance Company, to New York University where it will surmount a campanile to be erected on the campus of the University, as a part of McKim, Mead and White's design for that group.



WINDOW DETAIL, SECOND STORY LEVEL OVER MAIN ENTRANCE
MADISON SQUARE GARDEN, NEW YORK, ERECTED 1890, DEMOLISHED 1925
McKIM, MEAD AND WHITE, ARCHITECTS

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AN ENLARGED DETAIL OF THE TERRA COTTA AT THE SECOND STORY OVER THE MAIN ENTRANCE IS SHOWN ABOVE. IT IS EXCELLENT IN COMPOSITION, SCALE AND MODELLING



AT THE LEFT IS SHOWN A DETAIL OF ONE OF THE IONIC TERRA COTTA CAPITALS USED IN THE FIRST STORY STREET ARCADE. DELICACY IN MODELLING IS ESPECIALLY EVIDENT IN THIS DETAIL

MADISON SQUARE GARDEN, NEW YORK

McKIM, MEAD AND WHITE, ARCHITECTS

ERECTED 1890—DEMOLISHED 1925

A THIRTY-FIVE YEARS' TEST of MATERIALS

A Non-technical Report of an Investigation Conducted upon the Razing of Madison Square Garden

THE demolition of Madison Square Garden during the first half of 1925 has afforded an opportunity to investigate the weathering qualities of the brick and terra cotta and to note the durability of various methods of construction of thirty-five years ago.

The masonry throughout the building was found to be in uniformly good condition. That the workmanship and materials were of the best was evident to those given the opportunity to inspect the building as destruction progressed. The excellent condition, the result of honest building and careful selection of materials, speaks well for the architects and builders who had the work in charge.

Madison Square Garden was designed by McKim, Mead & White, architects, and built by David King, general contractor. Post and McCord erected the steel and iron work. The four street facades of the building were elaborately ornamented with terra cotta furnished by the Atlantic Terra Cotta Company. The face brick came from the plant of Welch, Glanzer and Maxwell, of Welch, Pa. Several Hudson River brick plants supplied the common brick. W. A. Underwood of Croton Point, N. Y., is understood to have furnished the paving brick used for the floor of the roof garden. While accurate information is not available, it is very likely that the cement used in the mortar was Rosendale and the mortar probably mixed 1:3 with a small percentage of lime.

Charles E. McDonnell, who acted as superintendent for David H. King, states that Madison Square Garden was erected in eleven months. Concrete footings were used under the masonry

walls. The famous tower rested on a concrete mat without steel reinforcement. The superintendent states "in running the level brickwork around the building it checked out to less than three-quarters of an inch."

The buff colored face brick and terra cotta used in the building in 1890 were a radical departure from the smooth repressed red brick and red terra cotta which had been in vogue for many years previous to that time. To this departure can un-

doubtedly be traced precedent which has influenced the varied uses of materials in the United States during the past thirty years.

In recent years the surface of the terra cotta has presented a very much soiled appearance due to smoke, soot, and dust of the city. While this has not marred the architectural beauty of the structure, it was found that proper washing was only necessary to restore the terra cotta to its original buff color.

The contours of the moulded terra cotta upon removal were evidently as accurate as when first built in place and the elements had wrought little

or no damage to the ornament during the life of the building. Injuries noted in this material were fresh breaks unavoidably made during the process of demolition. In a few instances cracks were found on the surface of the terra cotta, probably the result of improper flashing which permitted water to enter the large blocks and freeze. While this can only be surmised, the fact remains that the material resisted some force and was not destroyed in any sense of the word.

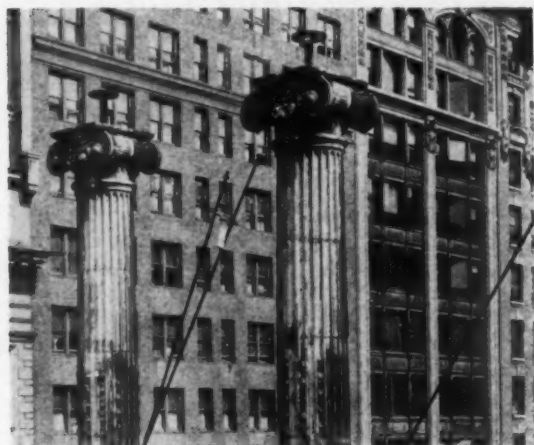
The webs of the terra cotta were in most cases much heavier than those in common practice to-



TYPICAL PIECE OF TERRA COTTA SLIGHTLY DAMAGED IN WRECKING BUT OTHERWISE IN GOOD CONDITION. NOTE THE THICK WEBS AND VOIDS SOLIDLY FILLED WITH BRICKS AND MORTAR. THE FLOOR OF THE ROOF GARDEN WAS OF BRICK LAID FLAT AND GROUTED

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day. Where the burned clay blocks were built into the wall, the voids were filled with brick and mortar carefully built in close contact with all terra cotta webs. This had been so well done that



IRON PIPE STIFFENERS, ENCASED IN MORTAR WERE USED IN THE CENTER OF THE COLUMNS OF THE ROOF GARDEN. NO CORROSION WAS NOTED ON THE STIFFENERS

the brick ties had to be broken flush with the back of the terra cotta to permit removal. The masonry filling apparently did not extend beyond the wall line. Voids inaccessible at the time of erection were the only ones observed to have been left unfilled. More filling was used in the free standing work than is recommended nowadays when the tendency is toward drainage and ventilation of the units in exposed work. In recent years solid filling to a large extent has been considered unnecessary and, serving no useful purpose, a waste of labor and material. The mortar used in setting the units was found to be very hard and evidently of high quality. The joints were in unusually good condition and practically no disintegration or cracking of these were noted, nor was loose pointing observed. Strenuous labor with sledge hammer and crow bar, and in the case of brick the pneumatic hammer, was required to loosen the materials of which the walls were built. No swelling of the grout used to fill finials, balustrades, columns and similar features was observed.

The free standing features were exceptionally well built. Wrought iron pipes were used as stiffeners in the columns of the tourelles and loggia of the roof garden. This pipe encased in mortar showed practically no rust. No structural anchors were used in the terra cotta cornices and projecting belt courses. Dowels and anchors used for finials and balustrades were in good condition, having been effectually protected from corrosion with mortar or grout.

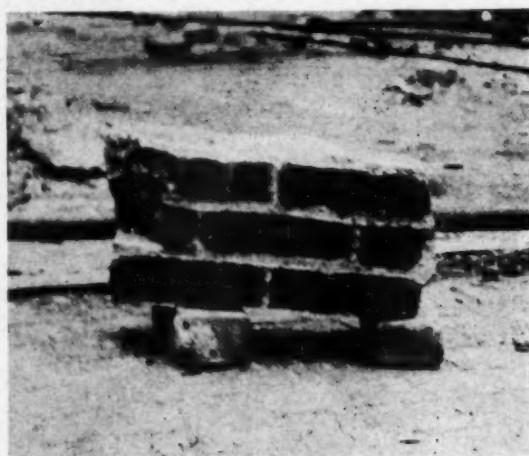
Cecil Fidler, Engineer of Standards of the

Atlantic Terra Cotta Company, in respect to these anchors, states "In this particular building the rods have done no harm. Due to the hard mortar and light workmanship, moist air has not been able to attack the iron. In more recent buildings there has been more or less trouble through water getting in at soft or faulty mortar joints and corroding the iron rods, causing them to swell. While the iron rods in the balusters of Madison Square Garden have not caused any damage, the balusters would have done just as well without them."

Mr. Fidler in commenting upon the terra cotta tile which have from time to time fallen from the roofs of the tourelles, incidentally affording an opening for the feathered inhabitants of the tourelle domes, further states:

"The construction of the ornamental terra cotta tile roofs of the tourelles was not carried out as permanently as the masonry construction. The framing of these small domes consisted of wooden ribs covered with sheathing boards. The terra cotta tiles were nailed to the sheathing with iron wire nails. There is no evidence that these nails were even galvanized. It is now the custom to construct such domes as these in a different manner and not depend even on copper nails. Where the slope is steep and there is no gutter to catch broken tiles that may slide down, it is best to construct terra cotta dome coverings with structural blocks that can be securely bonded and anchored. The best modern practice is to form a rough hollow core of brick or reinforced concrete and cover this with a waterproof membrane of felt and mastic. Then the terra cotta tiles are built around it in rings, the pieces being securely clamped to each other with rust-proof clamps."

The brick foundation of the main walls were twenty-eight inches thick. Above this the walls were offset in the usual manner, including the brick and terra cotta parapet walls of the roof.



PNEUMATIC DRILLS WERE USED TO DEMOLISH THE BRICK WALLS. THIS SPECIMEN OF BRICKWORK WAS SELECTED AT RANDOM

The tower walls averaged 3'6" thick. The tower was 341 feet high to the top of the cupola above the street and the floor construction was wall bearing. The brick was laid with the same care



SOUTHWEST CORNER TOURELLE, MADISON SQUARE GARDEN, NEW YORK

McKIM, MEAD AND WHITE, ARCHITECTS

WIRE NAILS USED TO FASTEN THE TERRA COTTA ROOF TILES TO THE WOODEN FRAMEWORK, HAD RUSTED AND ALLOWED SOME OF THE TILES TO FALL OFF. NOTE THE EXPOSED STEELWORK OF THE ROOF GARDEN COLONNADE. THE TOURELLES AROUND THE ROOF GARDEN EFFECTIVELY BROKE THE SKYLINE OF THE BUILDING AND REPEATED THE MOTIVES OF THE MAIN TOWER. THE METHOD OF LIGHTING THE FINIAL PRODUCED THE EFFECT OF A CROWNING STAR AT NIGHT. THE PERGOLA SURROUNDING THE ROOF GARDEN APPEARED EQUALLY WELL FROM THE STREET OR THE GARDEN ITSELF. NOTE THE USE OF THE IONIC AND THE CORINTHIAN ORDERS IN THE COLONNADE AND TOURELLE

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MADISON SQUARE GARDEN WITNESSED MARKED CHANGES IN ITS NEIGHBORHOOD. THE NORTHWARD TREND OF THE BUSINESS CENTER DISPLACED ONE OF NEW YORK'S MOST ARISTOCRATIC RESIDENTIAL CENTERS, YET THE GARDEN MAINTAINED THE DIGNITY AND CHARACTER OF THE SQUARE UNDER ALL CONDITIONS

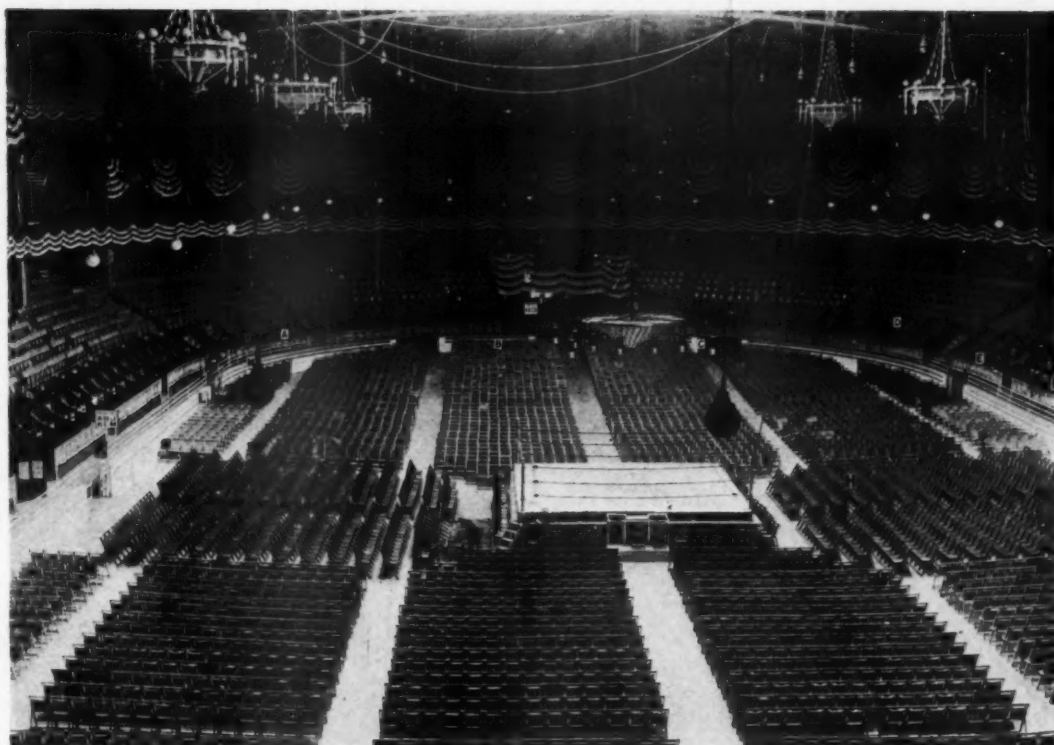


ROOF GARDEN DURING DEMOLITION AUGUST, 1925

MADISON SQUARE GARDEN, NEW YORK

McKIM, MEAD AND WHITE, ARCHITECTS'

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THE ARENA OF MADISON SQUARE GARDEN READY FOR THE NATIONAL DEMOCRATIC CONVENTION IN 1924



BALCONY STAIRWAYS OF THE ARENA WERE BUILT OF IRON WITH SLATE TREADS AND PLATFORMS AND IRON RISERS. NORMAL WEAR WILL BE NOTED ON THE EXTREME EDGE OF THE TREADS IN LINES OF TRAVEL

MADISON SQUARE GARDEN, NEW YORK
McKIM, MEAD AND WHITE, ARCHITECTS

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shown throughout the construction of the structure. Joints were well filled with mortar, flush laid in common bond and each course was grouted.

Partition walls were of hollow terra cotta blocks. The same material was used as wall furring and as floor arches between the structural steel beams, with the exception of the construction of the sloping area of the amphitheatre around the arena where oval corrugated metal arches and concrete fill were used.

The stairways from the street level to the various balcony levels around the grand arena were of iron with slate treads and landings. These had been subjected to a test the severity of which is exacted from few materials. The wear on the edge of the treads varied from a negligible amount to approximately one-half inch measured on the extreme edge. In no case, however, had wear or depressions been sufficient to impair the use of the stairs or cause dangerous conditions.

White glazed tiles used on the walls and ceramic mosaic tiles used on the floors of toilet rooms were found in good condition and in but few cases were wall tiles found separated from the backing. Such as were found, can unquestionably be attributed to abuse rather than faulty construction.

Stamped metal lath of the type known as "Hay's lath" popular in the late 80's and early 90's was used to a limited extent for the backing of a few tile faced walls and for furring. The lath was in

good condition, and the backing securely keyed.

The structural steel members of the arena roof were covered with hemlock tongue and grooved, dressed planks 15/8" x 8" and were found to be in an excellent state of preservation. These had been covered with roofing paper and a felt and pitch roofing, but were exposed on the underside.

Tin flashing covered with felt and pitch was used between the roof and parapet walls. This was found to be badly disintegrated. As a result water had seeped down and behind the flashing which partly accounts for the rotting of the blocking and cant strips used against the parapets.

The structural steel with the exception of certain cases noted in the cupola surmounting the tower was in uniformly good condition and but slightly rusted in a few places.

The demolition of Madison Square Garden disclosed that in spite of the fact that the structure had not received the average maintenance attention required of any building, it was as a whole in excellent condition. Any deterioration noted with but one or two exceptions could have been prevented had proper care been used in protecting vital portions of the structure from the elements through adequate maintenance during the life of the building. Had this been done and the Garden permitted to stand, there is no reason why it should not have remained an integral whole hundreds of years from the time it was built and as built.



DIANA SURMOUNTING THE TOWER OF MADISON SQUARE GARDEN WAS REMOVED MAY 6, 1925, AND MARKED THE ACTIVE BEGINNING OF DEMOLITION. THE ABOVE VIEW OF THE ARENA WAS TAKEN ON JUNE 3, 1925



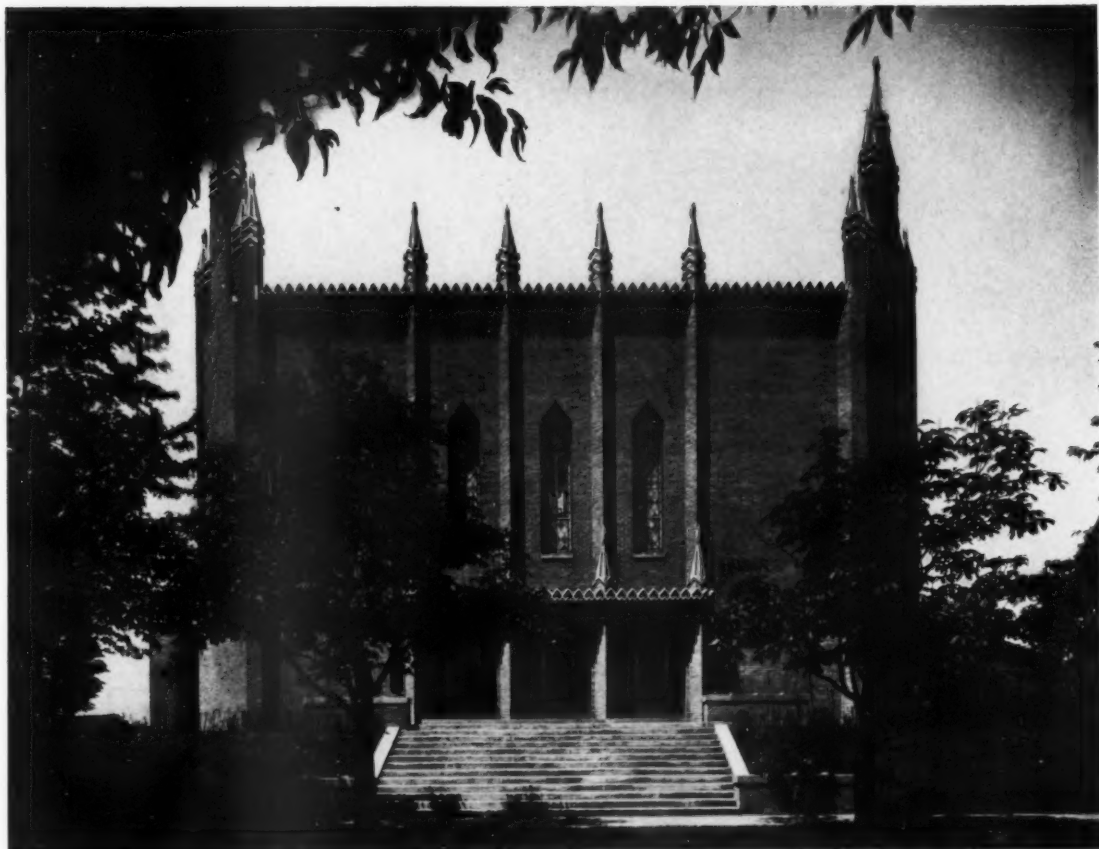
BUILDING FOR THE NEW YORK LIFE INSURANCE COMPANY TO BE ERECTED ON THE SITE OF MADISON
SQUARE GARDEN, NEW YORK

CASS GILBERT, ARCHITECT

FROM THE DRAWING BY HUGH FERRISS



THE BUSH TERMINAL BUILDING, NEW YORK
FROM THE ORIGINAL SKETCH BY JOHN F. JACKSON, ARCHITECT



THE pastor of this church, Rev. William Fitz Patrick McCarthy, is a man of distinct personality and courage. He was entirely in accord with the architects in their belief that Catholic church architecture should reflect its national environment and the twentieth century spirit.

The building was constructed by the architects without the employment of a general contractor. They employed the foremen, the skilled and the unskilled labor and gave personal direction to the work. Among the advantages of this method of conducting a building project is the possibility of determining much of the detail during construction, affording opportunities for more prolonged study both in the office and in the field. In a practical way the advantages were also many. As an instance, the acoustics were given special study during the construction and the ceiling detail was determined after the roof was in place, when effects could better be gauged.

The basic idea of the plan was so to arrange it that the congregation would be grouped around the altar. To do this, the sanctuary was projected into the auditorium which is practically square in plan. This arrangement is in decided contrast with that in general use. In former times, before the decree of Pope Pius X, the number of persons who partook of the communion was comparatively small while at this time large numbers of persons approach the sacrament. Under this custom a communion rail which is accessible from all parts of the church is highly important in a spiritual way because

of grouping the congregation *close* to the altar in sympathy with the spiritual life of the church.

The choir and organ are above the sacristies and in the rear of the altar, in a better position than in the rear of the church where they usually are located. The priest and the choir form a unit in the celebration of solemn services and this relationship is more sympathetic with them.

The design of the exterior attempts a simple and natural envelopment of the plan, accentuated by openings and the pinnacle developments of the four corners, which have been designed, as have the ornamental details, with the spiritual purpose of the building in view. The exterior walls are faced with warm-toned light gray brick and terra cotta ornaments of the same color. The feeling of terra cotta has been preserved, and the usual "slick" appearance avoided, by making the moulds directly from the models which were made by Alfonso Iannelli, sculptor.

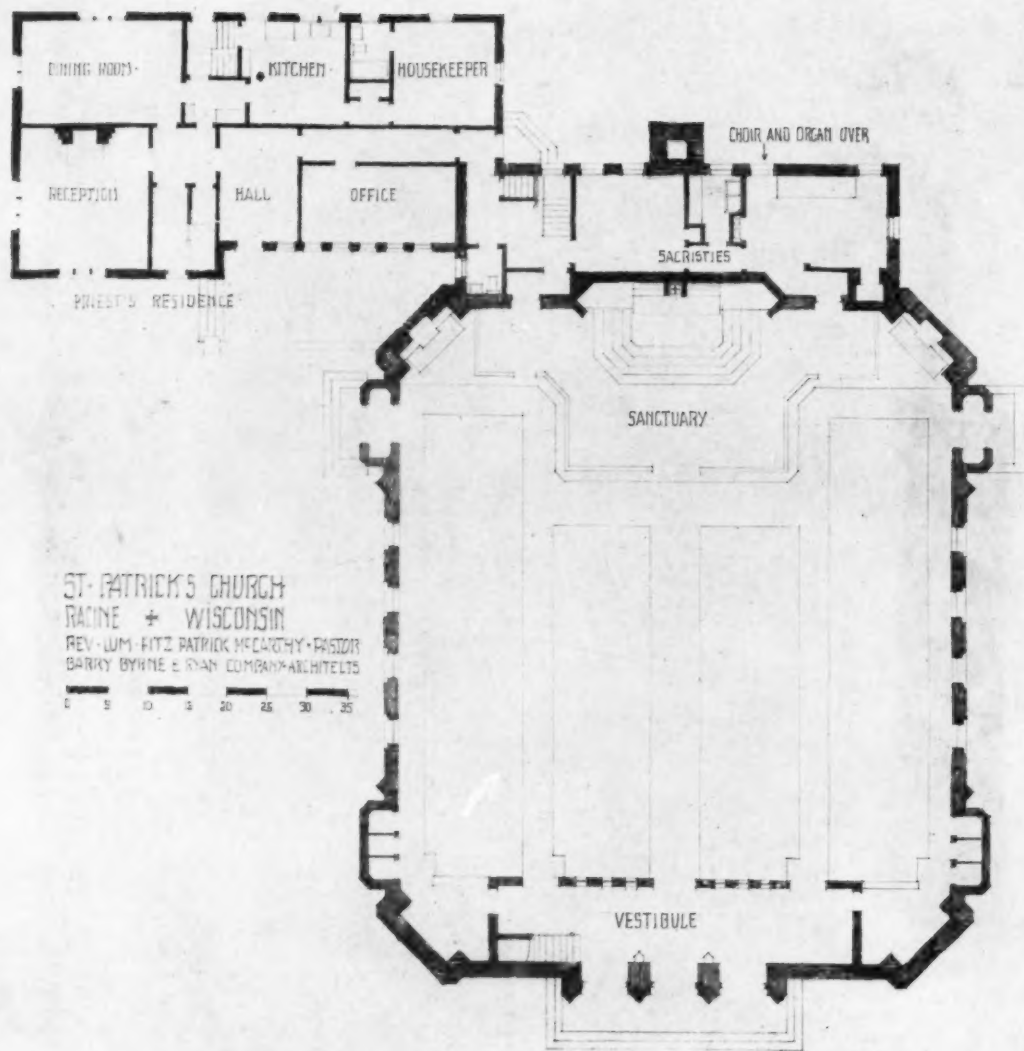
The interior wall surfaces are faced with a brick having a salmon-tone color. The ceiling is of rough plaster, warm in tone and between tan and ivory in color, carrying the brick color, though lighter, over the surface. The altar is made of ivory colored terra cotta enriched with vermillion, gold and ultramarine glazes. The repository in the center niche, the candlesticks, altar cross, vases and the sanctuary lamp are made of polished brass. The two side altars are to be completed with sculpture at some future time. The pews are almost black in color.

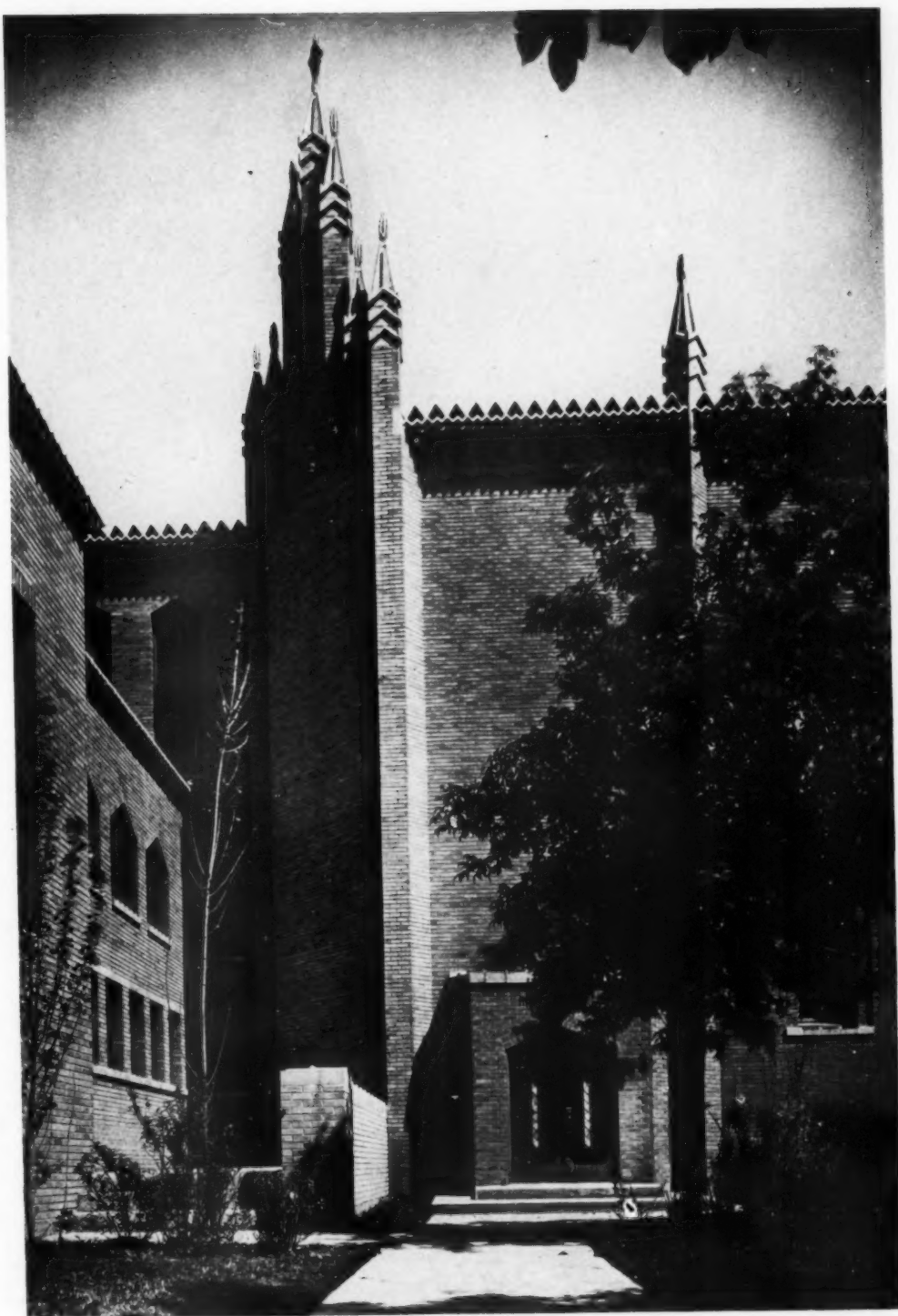
ST. PATRICK'S CHURCH, RACINE, WIS.

BARRY BYRNE & RYAN, ARCHITECTS

(See plan on back)

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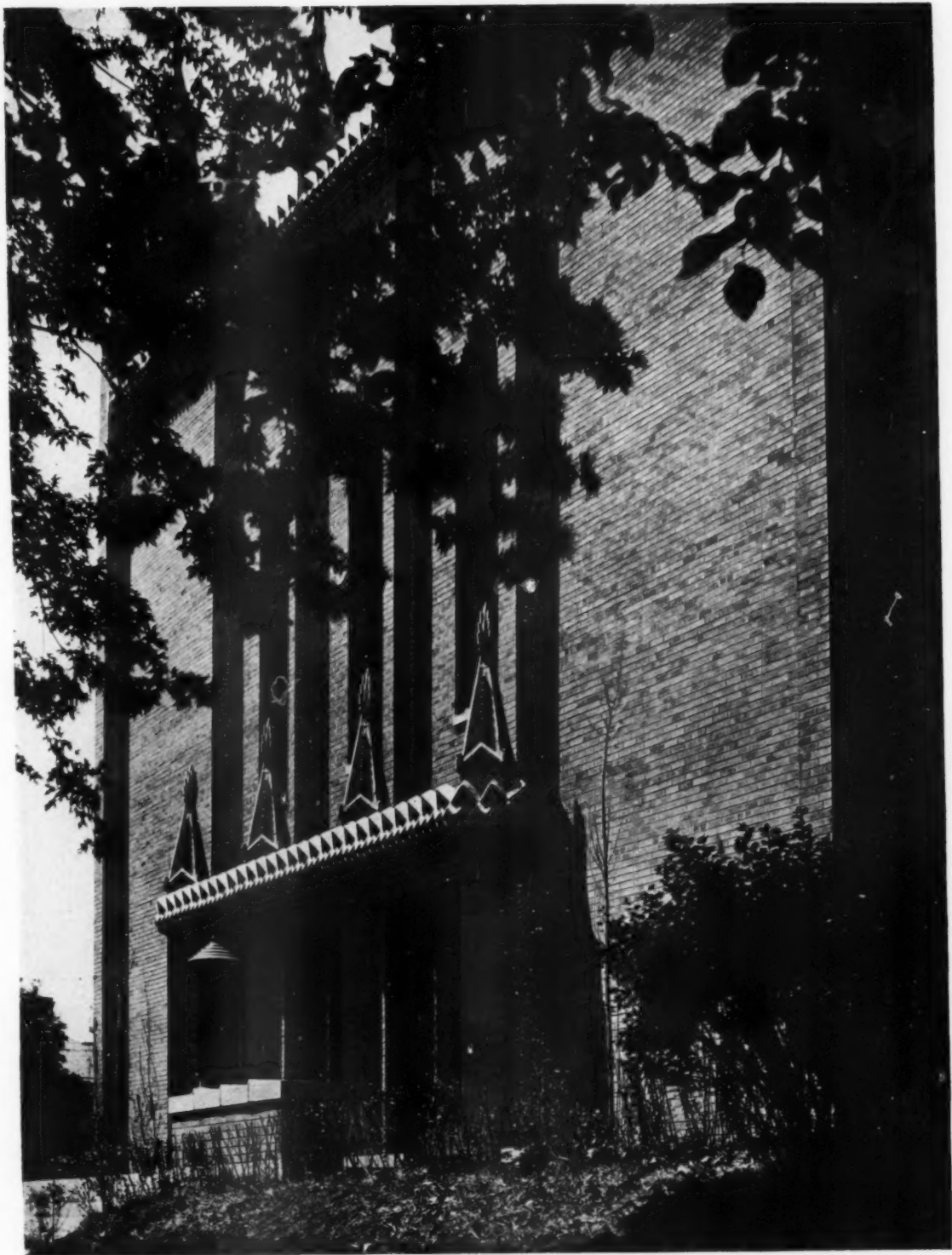




ST. PATRICK'S CHURCH, RACINE, WIS.

BARRY BYRNE & RYAN, ARCHITECTS

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ST. PATRICK'S CHURCH, RACINE, WIS.
BARRY BYRNE & RYAN, ARCHITECTS

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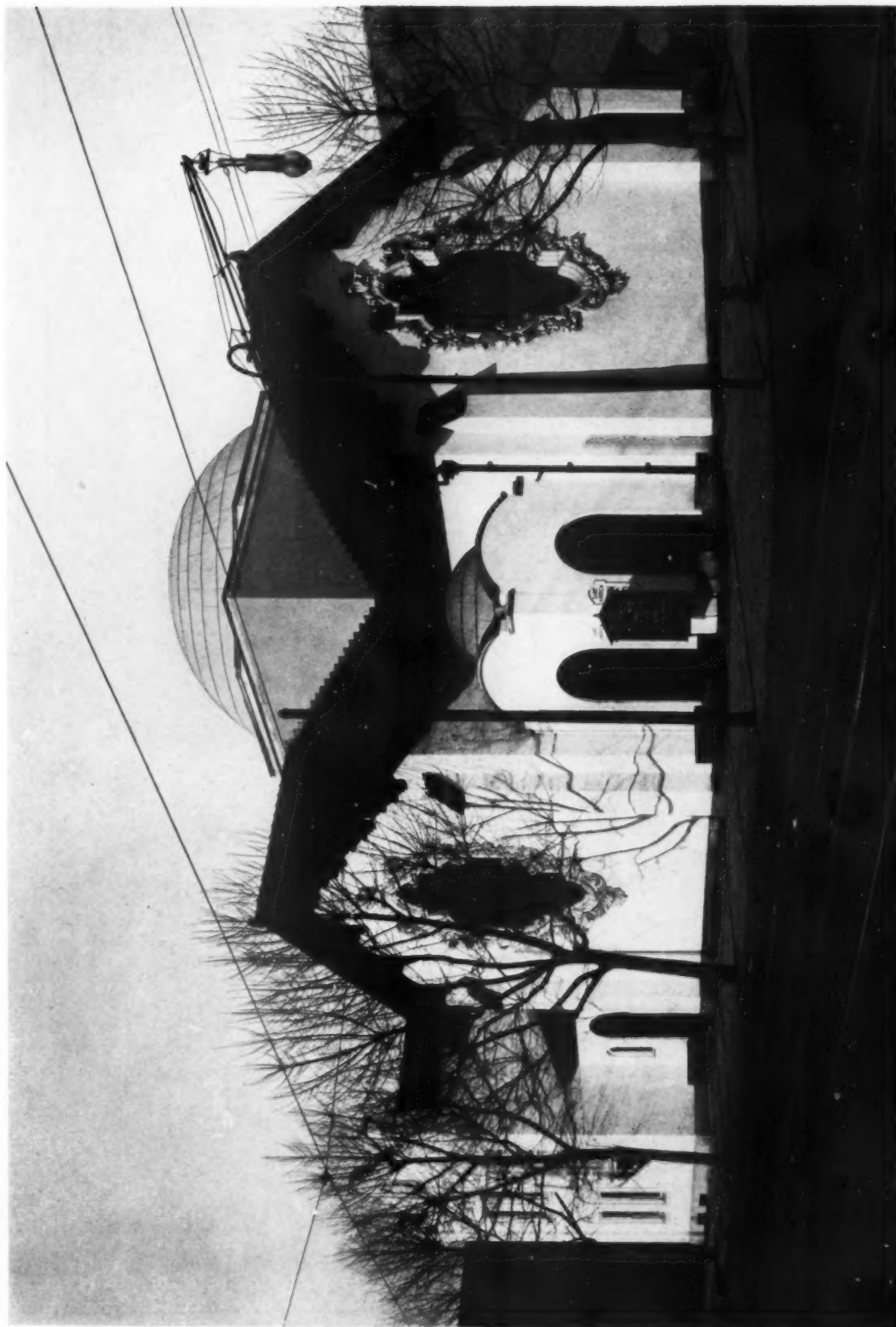
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ST. PATRICK'S CHURCH, RACINE, WIS.

BARRY BYRNE & RYAN, ARCHITECTS

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ST. ANDREW'S M. E. CHURCH AND SUNDAY SCHOOL, PHILADELPHIA, PA.

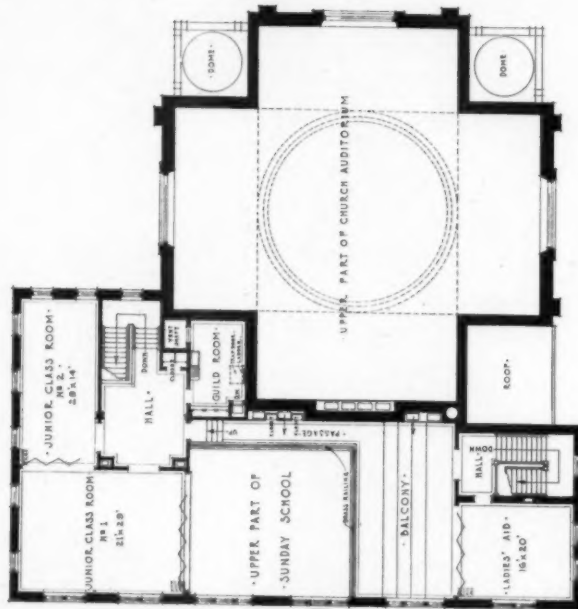
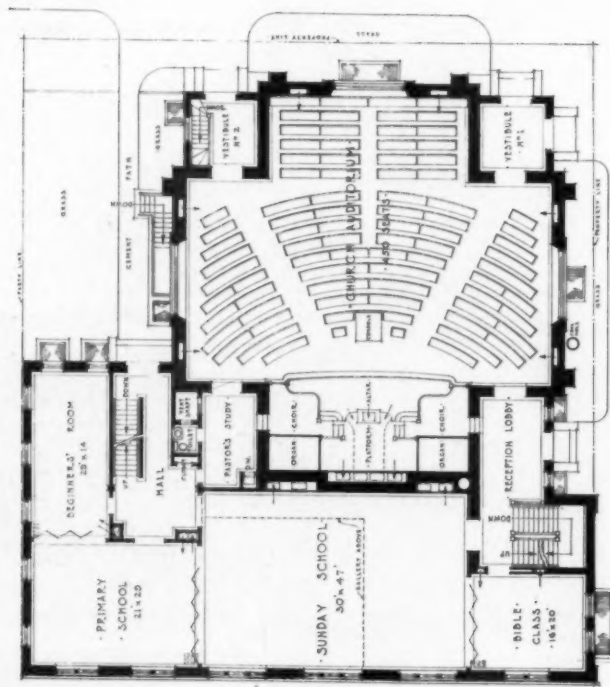
C. E. SCHERMERHORN, ARCHITECT

(See plans and description on back)

THE AMERICAN ARCHITECT
December 20, 1925. Plate 336

CHURCH erected in 1908. Sunday School erected in 1925. Cost \$108,000 or 30 cents per cubic foot. Exterior walls, cream white stucco on brick. Dome, Guastavino tile covered with copper. Construction, steel frame. Sloping roofs, tile; flat roofs, built up gravel. Sheet metal, copper. Glass, sheet, plate, stained and leaded. Doors, windows and trim, wood. Partitions, wood

stud and hollow tile. Interior wall surfaces, sand finish plaster painted light buff. Floors in vestibule, tile; in other places, wood. Hardware, brass and bronze. Heating, steam. Ventilation in main rooms only. Plumbing, vitreous ware and enameled iron fixtures, cast iron and wrought iron piping. Electric wiring run in conduit system. Equipment, dumb-waiter, vault.



ST. ANDREW'S M. E. CHURCH AND SUNDAY SCHOOL, PHILADELPHIA, PA.
C. E. SCHERMERHORN, ARCHITECT



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THE AMERICAN ARCHITECT
December 20, 1925. Plate 337

EDITORIAL COMMENT

WHEN KIPLING WROTE "East is East and West is West and never the twain shall meet," he did not foresee, as perhaps Jules Verne did, the progress that the world would make in a half century. Space and time have, in a sense, been annihilated. The voyage to Europe that consumed upward of thirty days a half century ago, is now reduced to a matter of but little more than five days. The post, no faster then than steamer time, is now, in case of urgency, reduced by the cable and the radio to instantaneous communication. East and West become as one. And in the progress made in conquering time and space, we have for comparison building as carried forward now and in 1876. A group of vacant houses vanishes and within the comparatively short period of a few months, there is reared a sky-towering building that stretches its height to twenty-five stories and often more. The Arabian Nights Tales are no more wonderful than is the recital of these building operations.

There is a sense of pride and elation in being identified with an industry that has so truly kept step with progress. And in this progress the perfection of construction methods has been followed by the perfection of building materials. The novice who watches the steel erectors on a building marvels at the accuracy with which each member falls into its allotted place, how each rivet hole accurately registers with another, each hour marks a visible advance.

In exploiting the art of architecture we are apt to lose sight of the art and skill that are being brought to the making of all the many materials that go into the completed structure. Glance through the advertising pages in this issue. Note the perfection of materials, their design, their absolute fitness for the purpose desired and then regard the methods used in their presentation before the architect. We truly stand amidst the greatest happenings in every walk and practice, but we are, so to speak, so close to the canvas that we fail to grasp their great importance.

Contrast the service that the architectural press renders the profession of architecture and the arts and crafts allied to it. Fifty years ago, when this journal started out to serve, architecture was but a dilettante fad. Today it is reforming the entire world. The twain have met. The East goes West and the West travels to the East and in the intermingling of styles, methods, practice, there has been evolved an architecture that fits into any country in the world. Nor has it lost its character. It is as it always has been, but is divested of the things that retarded progress. Architecture has assumed a universal type. We find that in the up-

building of great centers in Europe, in Japan and in those new political groups carved out since the World War, that the progressive spirit of the builder and the manufacturers who supply materials, has created types of buildings that are universal, all over the world.

We are often disposed to quarrel with conditions, to insist that in many things we are facing the wrong way, but the fittest has always survived and we believe that today the conditions to insure that survival are better than ever before.

* * *

PROFESSIONAL SUCCESS is attained by honest procedure only. Success may be defined, as applied to architects, as the securing and retaining a desirable clientele. It is not the accumulation of wealth by fortuitous circumstances or the one time creation of a masterpiece. Success only lies in correct relationships. Life is a continuous exchange and honesty is an equitable exchange.

To achieve success as above defined, what must be the architect's honest procedure? That depends on the relationship that exists between him and his client. That relationship consists of rendering a complete service for which the client pays. The client is entitled to such a service and by the same token, the architect is entitled to a sufficient compensation. Unless both factors to this relationship exist it is not an honest relationship because it is not equitable.

But if the architect engages to perform certain acts for an insufficient compensation, it does not justify him in withholding a complete service. Another and third party, the contractor, is involved as he is required to produce in materials the things implied by the plans and specifications, whether shown or not. The architect's service is represented by plans and specifications, certain supervisory functions and the disbursing of the client's contract funds. Of these, the *adequate* plan and specification are important if not the most important and essential parts. An inadequate plan and specification are not an equitable exchange either with the owner or the contractor and both of these parties must suffer an inevitable loss.

A glaring and unspeakable instance of a failure to render a complete architectural service is given in Bulletin No. 5 of the Structural Steel Board of Trade, Inc., of New York City. In order to explain why the members of that organization require something to be done that will tend to insure proper plans and specifications as a basis for bids,

the bulletin quotes from a specification for work on which the architect employed an engineer, reading in part:

No. 3.—"The architect will furnish plans showing the general features of the design of the structural steel for the purpose of estimating therefrom. The said plans are for estimating purposes only and shall not be considered as working drawings nor as having indicated thereon all the structural steel and iron necessary for the completion of the building according to the architectural drawings and specifications. The foregoing design must be examined and checked as to strength by this contractor, and it is hereby understood that any or all steel to be found weak will be substituted or reinforced, by this contractor, by proper steel sections and the cost of same included in the amount of the proposal submitted. Should any steel be found heavier than required, this contractor may redesign same and reduce the amount of steel to the stresses required. However, no deviation, modification, or omission from the architect's design of the structural steel will be permitted unless it is so authorized by the architect.

Special attention is called to the fact that this contractor hereby assumes full responsibility for the safety and strength of all structural steel and iron work.

No. 4.—This contractor shall prepare and provide full and complete working plans of all the structural steel and iron entering into the construction of the building. As the building progresses, this contractor shall furnish the architect with complete setting plans. He shall also furnish such plans to "other mechanics" employed on the building and who may be in need of such information for the proper execution of their work.

No. 5.—This contractor shall file with the Bureau of Buildings through the architect's office, a complete set of working drawings and obtain an approval for same. Any and all objections filed by the said department against such plans shall be immediately remedied by the contractor to the satisfaction of the department. The architect reserves the right to reject and cause the contractor to have changed anything which the Bureau of Buildings may have approved, if in the opinion of the architect that which has been submitted to the said department or approved by it is not in accordance with the contract or the architect's wishes.

Should the architect so request, this contractor shall file preliminary steel plans, or such portions of the plans as may be required to facilitate the examination of the architectural plans and the progress of the work.

No. 6.—This contractor shall examine all concrete footings, masonry, walls, etc., which are to receive the structural work and see that same are in a proper condition and correctly built to receive his work before proceeding."

What architect can read unashamed the above words which convict the writer thereof of an utter failure to render a complete service and deliberately passing, in effect, the *entire* responsibility on to the contractor? The owner, however, presumably has paid for this service in the

architect's commission which is clearly unearned by him in that respect, and the owner also pays for the service a second time in the added expense which the steel contractor must include in his bid for this work. Pyramiding expense results to the owner either by a shirking of a duty or because of sheer inability to function as a competent architect.

This is but one example of insufficient service. The same shirking of duty is often found in other branches of work, notably in heating, plumbing, and electrical work where the contractor is required to guarantee the adequacy and correctness of the work, as he may be compelled to execute it regardless of the plan and specification submitted by the architect as a basis of estimate and contract.

It is difficult to suggest a complete remedy for this all too common practice. Unless architects can be brought to a realizing sense of shame and chagrin through their own sensibilities that will result in a serious effort to make an equitable exchange with their clients, it may become necessary for every branch of contracting to refuse to bid on inadequate plans and specifications such as are instanced above. A failure to receive bids would disclose instantly to the owner a dangerous condition and the architect would certainly forfeit his confidence.

Contractors cannot be censured for assuming such a position. It is their province to execute and not plan. According to the specification quoted above the contractor must assume the responsibility for planning as well as executing the work—and the architect evades all responsibility whatever. In these days when architectural service is the basis for tremendous monetary investments, it is only those who render complete service who can hope for success. But the same principles of service and honesty obtain in even the smallest project and perhaps it is more important because the small owner does not possess the knowledge or means necessary for self protection.

It is better to clean your own house than to have others do it for you.



INTERIOR ARCHITECTURE

Textured Walls

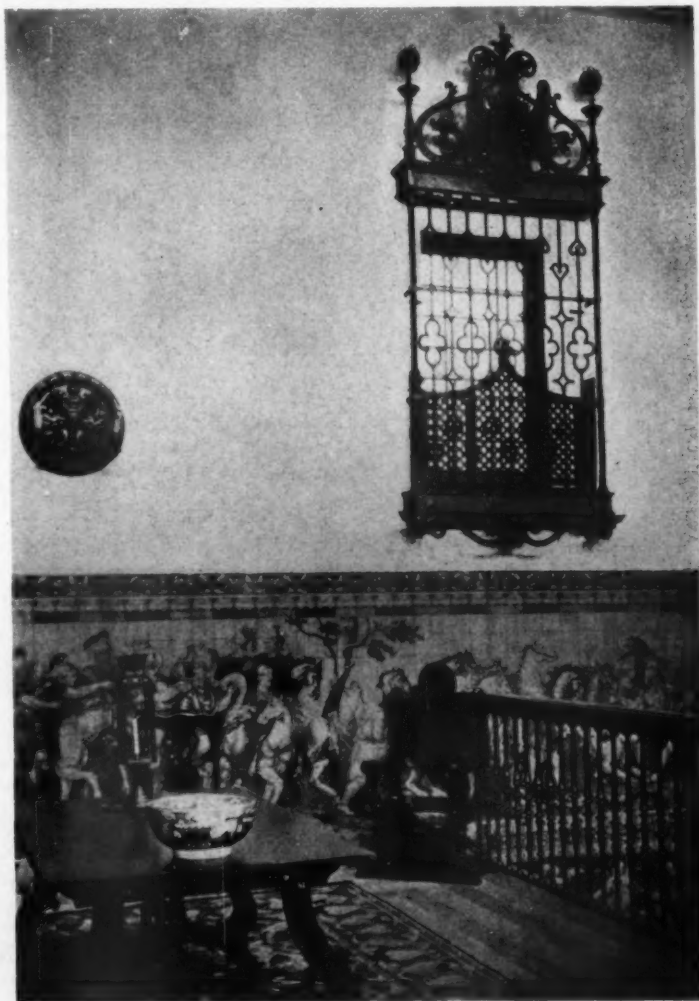
LIKE a pendulum, fashions in decorative design in this country swing from one extreme to another. The vogue for the dainty, refined Louis XVI of France was followed by a revival of the bold, hand-hewn Tudor of England; the free-hand, flowery patterns in carpets preceded an era of plain colored floor coverings; and now a craving for rough textured walls comes directly on the heels of a general desire for flat, smooth surfaces. The present tendency in decorative design throughout the entire country to search the old Spanish for ideas and inspiration has aroused an interest in textured walls, which is a relief after unsuccessful efforts of the last decade to stimulate interest in plain plaster surfaces by the application of insignificant panel strips or mouldings or by attempting to effect texture by means of paint. It is proof of the old adage that, after all, "honesty is the best policy," even in decorative design. It is always true in architectural design.

The beauty of the rough textured wall lies

primarily in its structural significance. More and more are architecture and decoration being drawn closer together, each depending on the other for a certain amount of its inspiration and final

success, by better appreciation of the decorative value of structural details. In other words, certain purely architectural elements, designed so as to justify their construction, are actually given decorative interest. Rough textured walls might well be so considered. We have learned from research of the old Spanish that large masses of textured wall surfaces must be relieved by occasional ornamentation. The Spanish, in their interiors, as well as in their exteriors, invariably combined ornament of wrought iron, terra cotta, or tile, with textured walls, relieving the scheme of its austerity, and,

by contrast, increasing interest in both walls and ornament. But it is not only in Spain that one may find rough textured walls made use of. In Italy, especially during the Renaissance, textured surfaces were quite frequent, although they were



ROUGH PLASTER WALLS COMBINED WITH POLYCHROME TILES AND ORNAMENTAL IRON, IN THE PALACE OF DON JAVIER SAUCHEZ DALP, SEVILLE, SPAIN

(From "Spanish Interiors and Furniture")

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TEXTURE OF THE GOTHIC

more generally confined to the smaller houses. To quote from an English writer on the subject of plastering in Italy, "During the Middle Ages plastering existed only as a craft, and its highest function was to prepare a surface to be painted on." This refers, of course, to the fresco painting done directly on

show a number of forms and arrangements. The ground was laid with nice discrimination, varied in its surface and texture, and was not of the uniform, true dead level by which plastering now is characterized."

The modern tendency to create texture on walls similar to rough plaster has naturally aroused a peculiar



TEXTURED WALLS OF ITALY

the plaster, for which Italy is famous, and which has only recently been given renewed interest in this country.

In old England, plastering was practiced as an art. In its early form, known by the name of "wattle and dab," plasterwork was used for the filling in of panels formed by the vertical and horizontal timbers of wooden-framed structures. Later on, the material used for the covering of cottage walls came to be known by the name of "parge," and the art of applying it was called "pargetting."



EARLY ENGLISH TEXTURE MODELLED WITH A BROAD SCRAPER KNIFE



SPANISH PALM-FINISH SWIPED DOWN WITH THE PALM OF THE HAND

interest in the methods of these old-time craftsmen, and we may well look to them for inspiration. Mr. and Mrs. Arthur Byne in one of their authoritative publications state: "About plasterwork not ornamental (in Spain) there is an important observation to be made: Spanish walls are never treated with that exaggerated roughness affected by many who work in a pseudo-Spanish style." However, it must be remarked that Mr.

and Mrs. Byne had especial reference to the more palatial buildings, and the so-called

"palm-finishes," typical of the Spanish and of such interesting texture, do not appear there. The method employed by these old plasterers in obtaining this texture was purely that of a craftsman. As the plaster began to set, the plasterer rubbed it with his palm into a satisfactory finish. This palm-finish, inci-



TEXTURE OF THE COLONIAL, IN SAND-FLOAT FINISH

Plastering as an art reached its highest state of perfection during this period. Sydney R. Jones in an article describing "The Village Homes of England," says:—"Especially applicable was pargetting to the cottage walls. Some were plain and unembellished, some rough cast; while others were recessed or modelled in relief. . . Patterns in plaster



TYPICAL MODERN TEXTURE IN VOGUE IN THIS COUNTRY

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dentally, might be said to be the parent of all the "jazz plaster" effects now so much in vogue among American home builders and designers. It is the method used today in Cuba, Mexico and Central and South America. The plaster was applied in this way also by the Indian boys whom the earliest monks employed for the erection of their Missions in California, and it has been variously adopted in the majority of typical modern Californian residences and buildings.

Plastering in England was done by a different method. The material itself was different. It was coarser. The base was uneven, and the implements



ORNAMENTAL IRON WALL BRACKETS IN THE HALL IN STRIKING CONTRAST TO PLAIN TEXTURED WALLS RELIEVE THE SCHEME OF ITS AUSTERITY

were comparatively rude. A triangular trowel, resembling a mason's pointing tool, was used, and smooth plastering would not only be difficult, but quite impossible, with such an implement. Textured walls and ceilings of varying degrees of roughness were common in English cottages, as well as in the earlier great houses of the country.

The present revival of interest in rough textured walls emphasizes the decorative value of texture far above its structural significance, although, by precedent, its suggestion of construction is never lacking. With modern manufactured materials and modern methods of applica-



IN THE DINING ROOM, TEXTURED WALLS ENLIVEN A SCHEME OF ITALIAN INSPIRATION
TWO VIEWS IN THE HOUSE OF WILLIAM ZIEGLER, NEW YORK—F. J. STERNER, ARCHITECT

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tion, we are confronted with none of the difficulties which the early plaster craftsmen faced, and, as a consequence, modern textured walls, ranging from the very smooth to the very rough, are less characteristic of the times than were the palm-finishes of the early Spanish, for example. On the other hand, it is possible, now, especially with certain materials, to introduce personality and character into the texture, and thus, and only thus, is the wall given more than ordinary interest. But, in any case, textured walls, considered as an element of decoration, must be sharply contrasted



LIVING ROOM IN THE FORMER HOUSE OF
ARTHUR S. VERNAY, OSSINING, N. Y.

FRANK J. FORSTER, ARCHITECT

ROUGH PLASTER IS USED FOR THE FILLING IN OF THE PANELS
FORMED BY THE VERTICAL AND HORIZONTAL TIMBERS OF
THE STRUCTURE IN THIS ADAPTATION OF THE TUDOR

with rich ornament to attain the best results. The crudeness and austerity of the Tudor and Stuart periods of England courted as decoration in contrast with the rich ornament with which they were associated. Similarly with the old Spanish, although the contrasts, if anything, were even more emphatic. The greatest mistake in the use of textured walls today is the failure to introduce that element of contrast which is so very vital to success.

As already pointed out, the textured wall depends wholly on its structural significance for its use. Appreciating its decorative possi-



HALL IN THE HOUSE OF E. R. TROXELL, JR., BRONXVILLE, N. Y.

LEWIS BOWMAN, ARCHITECT

THE STRUCTURAL SIGNIFICANCE OF THE ROUGH TEXTURED WALLS IS RETAINED THROUGHOUT THE SCHEME BY COMBINING WITH THEM A TILE FLOOR, WROUGHT IRON BALUSTRADE AND WALL BRACKETS, AND EVEN APPROPRIATE ORNAMENTS. IN FACT, THE DECORATIVE AND STRUCTURAL ARE COMBINED THROUGHOUT

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bilities, it can be of great value by knitting closer in the scheme the architectural and the decorative, for both should develop naturally from the structure. In completing the scheme, this structural significance must never be lost sight of, and other elements must be selected to aid in attaining the result for which the textured wall strives. Structure alone suggests



VIEW IN THE MODEL ROOM ERECTED BY THE GEORGE BATTEN COMPANY, INC., IN THEIR OFFICES IN NEW YORK CITY, FOR DEMONSTRATION PURPOSES. THE DECORATIVE SCHEME CONSISTS OF MODERN ROUGH TEXTURED WALLS, A LINOLEUM FLOOR REPRESENTING HANDCRAFT TILES IN RELIEF—THE NEWEST DEVELOPMENT IN LINOLEUM MANUFACTURE—AND APPROPRIATE MODERN FURNITURE OF PERIOD INSPIRATION

the mechanical and if not occasionally relieved by decoration becomes monotonous. And the contrast must be stronger so that the structural significance will not be concealed, but rather will be emphasized, for structure is the foundation of ornament and decoration, as well as architecture.

Color, combined with texture, offers a wide range of interesting and unusual effects. In the parge work of the early English the delicate yellow tint was due to certain ingredients in the material used. But, in the application of flat or glazed color to a rough or textured surface, the possibilities are so numerous that a discussion of that subject must be left for another article. Acknowledgment is made to the United States Gypsum Company for their courtesy in furnishing research material, and to them and to the Craftex Company for supplying illustrative matter.

DEMONSTRATION OF ARTIFICIAL LIGHTING

ALTHOUGH not entirely unfamiliar with the services which manufacturers offer the architectural profession through permanent exhibitions and demonstrations of their products, architects, as a rule, seldom avail themselves of the opportunities which are thus presented to them. They claim that they have not the time to visit plants, mills and factories, even though such a visit may mean only an hour or two of their time, for which they would in every case be amply repaid.

At Harrison, N. J., a half hour out of New York City, the Edison Lamp Works have an extraordinary exhibition and demonstration of artificial lighting—"the possibilities of its use for beauty, for comfort, for safety and for business success"—which is worth half a day of any architect's time. "The symphony of light is played in the Institute of the Edison Lamp Works at Harrison, N. J. In the great auditorium of the Institute, a virtuoso takes his place at the console of his organ of light. He idly runs his fingers over the keys, and as he touches them, he plays in notes of light that weave an ever-changing pattern of illumination, now fading into shadow, now building into brilliant climax. His improvisation runs the gamut of lighting, opening with the discovery and early development of the incandescent lamp. It carries on through every field of its application and ends with a demonstration of methods employed in the selling of this commodity. . . . As he plays, he makes use of every type of lighting, graphically demonstrating the effect of half light, brilliant light, direct light, indirect light and their various combinations. He shows the effects that can be produced by color, distribution, intensity, direction and motion."

Practical demonstrations are given of stage lighting on a revolving stage, with disappearing footlights, overhead lights and colored lights; house lighting, showing a model room for every room of the house; store lighting, in a model store, as seen from the street, its windows beautifully illuminated, and within, fully equipped for the sale of merchandise; industrial lighting, with exposed lamps as they were once used with no reflectors, which, at the touch of a button, disappear into the ceiling and in their places descend others of more modern use; street lighting, for which two model streets are used, one to demonstrate the lighting of business and one of residential thoroughfares. The Institute is, in fact, a laboratory of the use of light. Its educational uses are unlimited for it is in effect a complete visualization of an encyclopaedia of lighting. It concentrates and makes concrete the best of modern lighting practices. Demonstrations are given at any time, at the visitor's convenience, and one comes away enlightened on the subject in more ways than one.

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IN THE BEDROOM, ROUGH TEXTURED WALLS ARE RELIEVED BY BRILLIANTLY COLORED HANGINGS, BED-SPREAD AND RUGS, APPROPRIATE TO THE EARLY AMERICAN FURNITURE. THE FURNITURE ITSELF IS OF MAPLE.

IN THE HALL (AT THE RIGHT) TEXTURED WALLS ARE COMBINED WITH A SLATE FLOOR AND OLD-FASHIONED EARLY AMERICAN FURNITURE.



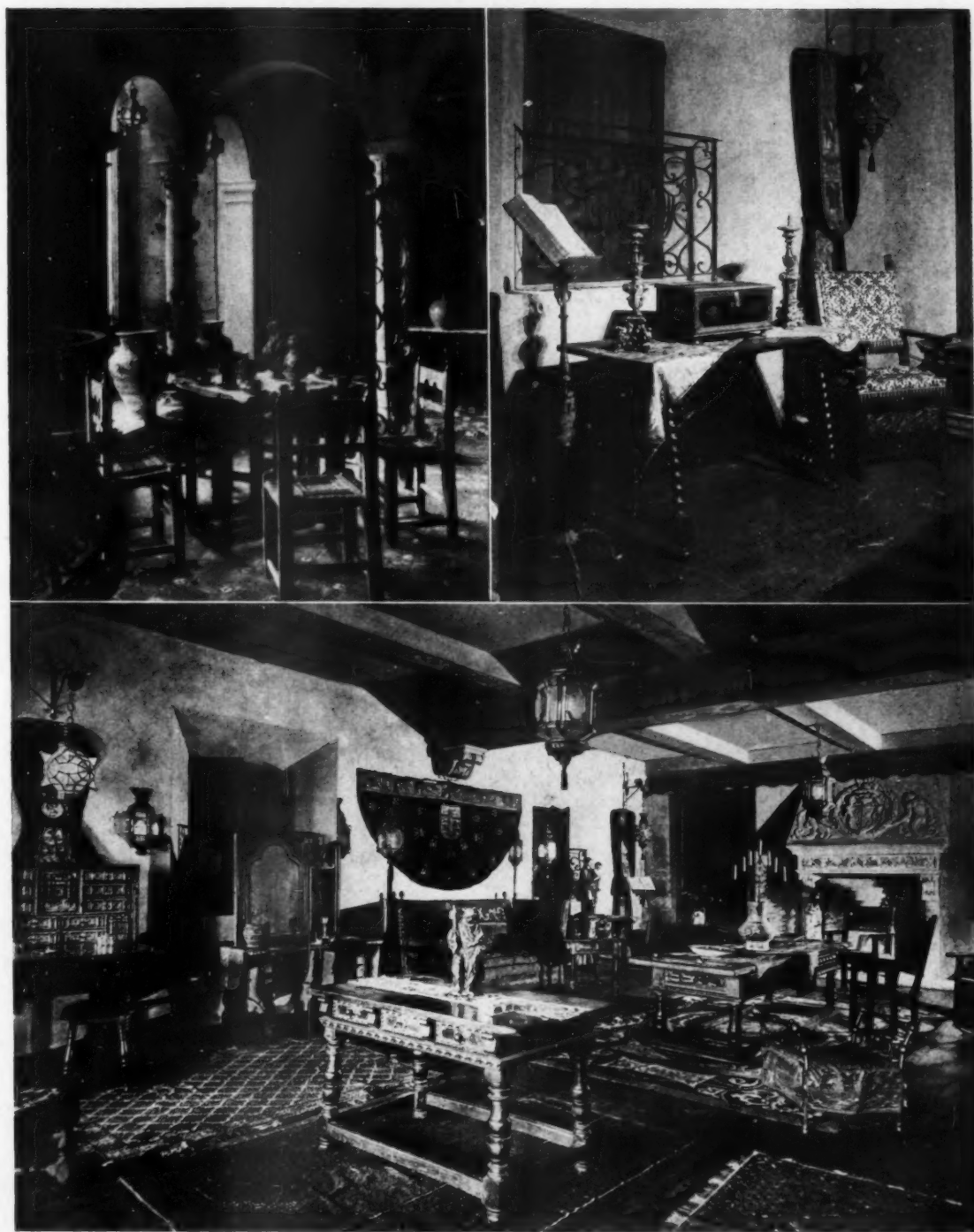
A BUILT-IN CORNER CABINET IS THE FEATURE OF THE DINING ROOM SCHEME, WHICH IS COMPLETED BY TEXTURED WALLS AND SIMPLE FURNITURE. THE PURPOSE OF THE ROOM IS THUS EMPHASIZED, FOR IT IS NEITHER CONCEALED NOR MINIMIZED BY INAPPROPRIATE DETAILS. BELOW IS THE LIVING ROOM IN THE DESIGN OF WHICH THE EARLY AMERICAN CHARACTER IS RETAINED.



WHILE AN EARLY AMERICAN ATMOSPHERE IS RETAINED THROUGHOUT THE ENTIRE HOUSE, THE DESIGN SPARKLES WITH ORIGINALITY, AS SEEN IN THE TREATMENT OF THE MANTEL AND BUILT-IN BOOKCASES IN THE LIVING ROOM.

IN THE HOUSE OF WALDO SHELDON, SOUTH NORWALK, CONN.—FRANK J. FORSTER, ARCHITECT

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UPPER LEFT: THE PATIO, SHOWING PEASANT CHAIRS, WROUGHT IRON WELL, AND TILE FLOOR OF OVER FOUR HUNDRED 16TH CENTURY ALCORA TILES. UPPER RIGHT: A GRILLE WINDOW, TABLE, CHASUBLE AND LECTURN. BELOW: GENERAL VIEW OPPOSITE THE ENTRANCE SHOWING REFECTORY TABLES, PANELS OF PORTUGUESE RENAISSANCE APPLIQUE EMBROIDERY, CARPETS AND WROUGHT IRON WORK

A NOTABLE COLLECTION OF SPANISH FURNITURE, FABRICS AND OTHER ANTIQUE OBJECTS OF ART SHOWN IN THE POMPOSA GALLERIES AT THE HAMPTON SHOPS, NEW YORK CITY

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UPPER LEFT: OF SPECIAL INTEREST, A PORTUGUESE BED OF THE 17TH CENTURY, HAND CARVED, AND A DECORATIVE SCREEN. UPPER RIGHT: ONE OF THE MOST ATTRACTIVE CORNERS OF THE EXHIBIT. A 16TH CENTURY VARGUANO WITH HISPANO-MOESQUE BASE, POLYCHROME TOP AND ORIGINAL FORGED IRON ORNAMENTS, AND INTERESTING IRON TORCHERE. BELOW: GENERAL VIEW, SHOWING THE 18TH CENTURY ANDALUSIAN GRILLE AT THE DOORWAY. ON A TABLE STANDS THE TABERNACLE PELICAN (OLEA SANCTA) SECURED FROM THE URSULINE CONVENT IN GRANADA

OTHER PIECES ON VIEW IN THE POMPOSA GALLERIES AT THE HAMPTON SHOPS, NEW YORK CITY

ENGINEERING *and* CONSTRUCTION

The STEELWORK of MADISON SQUARE GARDEN

BY FRANK W. SKINNER, Consulting Engineer

THE structural framework of Madison Square Garden was fabricated at a time when both wrought iron and steel structural shapes of the same dimensions and patterns were on the market in large quantities, probably more iron than steel being then fabricated. Since the Garden was built, both the architects and engineers have moved their offices one or more times and many of their records have been destroyed by fire, lost or abandoned, so that efforts have entirely failed to disclose any information regarding the steel that was stated in current descriptions of the work to have been used for part of the construction. No specifications and no mill orders have been found. Bending, breaking and chemical tests made of available samples from angles and small pieces indicate wrought iron, but portions of the main trusses very closely resembled steel and it was the opinion of several engineers who inspected them and of the experienced superintendent who removed them that they were made wholly or in large part of steel, but that many or all of the I-beams and small pieces were wrought iron. In most cases the behavior and appearance of the metal might indicate either iron or steel.

The main outer brick walls, 40 feet high from street to roof, rested on 28-inch brick foundation walls 10 to 30 feet deep with concrete footings. Partition walls were of hollow tile in cement mortar. The main tower of brick surmounted by a slender steel framework carrying the statue of Diana, was 38 feet square. The roof trusses, beams and columns were of wrought iron and structural steel in proportions now unknown. The floors and roofs except that over the arena, were supported on short span wall bearing I-beams; most of the doors were iron, and the construction, although considered when designed to be fireproof due to the minimum use of combustible materials, lacked the protection usually given all steelwork.

The tile and concrete floors were supported on wall bearing I-beams. The lower part of the steel framework in the main tower was



THREE STORIES OF THE TOWER AND A LARGE PORTION OF THE ROOF OVER THE ARENA REMOVED. THE PHOENIX COLUMNS WHICH SUPPORTED THE ROOF TRUSSES ARE SEEN IN THE FOREGROUND. ALL STEELWORK SHOWN IN THE ILLUSTRATION, THOUGH UNPROTECTED, WAS IN GOOD CONDITION. MUCH OF IT WILL BE USED AGAIN

solidly built into the brickwork, but above the top of the masonry it was sheathed with copper.

The most interesting and conspicuous part of the framework construction was the 167 x 277 foot oval roof, about 75 feet in extreme height above the floor of the arena. It had six main transverse trusses and sixteen radial end trusses carried on 28 independent Phoenix columns about 50 feet long. The top chords of the trusses were connected by 12 inch 32 pound I-beams carrying 4 inch, 18 pound I-beam purlins parallel to the trusses, that supported the wood planking under the tar and gravel surface. The arena was lighted

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by two 26 x 55 foot fixed end skylights and ten intermediate 26 x 26 foot rolling skylights together covering the 55 x 135 foot central space that could be completely opened.

The pin-connected roof trusses were all of similar design with depths varying from about 6½ feet at the first panel point to 10½ feet at the center and having trough shape top chords. The radial trusses had the same dimensions as the semi-trusses of the main transverse spans and were supported at their converging ends by top chord connections to semi-drums and by bottom chord bearings on shelf angles on the end transverse trusses. The semi-trusses of each transverse span had the bottom chord eye-bars in the adjacent center panels connected by short plate links with a chord pin in each hand. These links were undoubtedly, and the remainder of the trusses were probably of steel. The vertical end posts of all trusses had roller bearings on the tops of six section iron Phoenix columns about 12 inches in diameter each made in four one-story lengths with transverse horizontal connection plates at balcony floor levels. The columns were seated, below the basement levels, on high cast iron pedestals with well proportioned concrete footings.

The razing of the Garden was commenced May 6, 1925, and the structure was removed to the street level in about four months. Operations were begun on the main tower where the stripping of the copper sheathing and brickwork enclosing the upper part of the framework showed some of the girders to be in such bad condition that a four post pyramidal wooden false work 35 feet high was set on top of the rectangular main framework to give support to the circular drums carry-

ing the apex of the tower and the statue. A 35 foot wooden gin-pole was installed on the upper drum and with it the 1400 pound statue made of riveted copper plates was lowered. The remainder of the tower framework was removed by means of the gin-pole and a jinniwind derrick.

The demolition of the entire building was

done by the Joslin Construction Company who lowered the roof trusses with a steel traveler operated on the arena floor. The traveler was equipped with two stiff leg derricks with 90-foot booms which supported the 42 ton trusses while the bolts were removed from the top chord center splices and the bottom chord center connection links were cut with oxy-acetylene torches, and then lowered the semi-trusses successively. Later bridles were connected to each semi-truss at four points and it was moved with the web horizontal with little deflection and piled up awaiting transportation to storage, great care being taken to avoid any injury or distortion of the trusses which are to be re-erected for permanent use in a new building.

Except for the main truss pins, all field connections were found to be bolted instead of riveted, and in some cases half or more of the holes in the field connection

were found open. The bolts were in excellent condition except that the threads were rusted tight, making it generally necessary to burn off the heads in order to remove the bolts. The remainder of the framework was taken down with stiff leg derricks and jinniwind.

The structural framework had been fabricated and erected with the same care shown throughout the building. All of the structural iron and steel, except a relatively small proportion under special



TOWER FRAMEWORK STRIPPED OF ITS COVERING AND BRACED. THE STEELWORK WITHIN THE BRACED AREA WAS CORRODED AND IN MANY PLACES THE CIRCULAR STEEL DRUMS WERE PRACTICALLY DESTROYED. NOTE THE GIN-POLE SET FOR LOWERING THE STATUE OF DIANA TO THE MAIN ROOF FROM WHENCE IT WAS LATER LOWERED TO THE STREET AND PLACED IN STORAGE

and unusual conditions in the main tower, was found in a perfect state of preservation, of unimpaired strength and excellent appearance after more than thirty-five years of service with little or no apparent care for its maintenance. None of it had been protected except where it happened to be enclosed or partly enclosed in the brickwork or floor slabs and there was little evidence of periodical painting except perhaps for the columns and other metal exposed in the balconies.

Many of the beams and braces and all of the roof truss purlins and rafters showed no traces of painting after erection, with the exception of the skylight girders and framework which were poorly protected and severely exposed to the weather and showed considerable corrosion in places. All the roof members, especially the main trusses, were in good condition and scarcely discolored by rust except in a few bearings.

Although the upper surfaces of the top flanges of the 4-inch I-beam purlins supporting the main roof planks had apparently never been painted, the metal was generally clean and bright with only occasional rust stains and no pitting or material corrosion. The webs and bottom flanges were well protected with what was apparently the original shop coat of paint still in good condition. The 2½ inch T-bar purlins supporting the tile roof over the upper gallery showed no signs of corrosion. The beams embedded in the gallery floors also showed no signs of corrosion.

Painted I-beams bearing in the corners of the outer walls, above the roof, to support the minarets, although fully exposed to the weather were practically free from corrosion except where the ends penetrated the brickwork and were slightly rusted.

The Phoenix columns which were well painted on the outside and had both ends tightly closed by the end bearings were in perfect condition outside and, as well as could be seen when exposed, in equally good, uncorroded condition inside. A large number of I-beams were wall bearing, many of them were inspected where they had penetrated and rested on the masonry and none of them showed serious corrosion; very few showed more than a trace of rust or discoloration or roughness.

The lower flange angles of the roof truss portal braces had connections several feet long against the vertical faces of the vertical end posts of the trusses and these contact surfaces on both members as well as the contact surfaces of hitch angles in beam and girder connections had been unpainted, and were generally bright and clean except in a few cases where they showed light rust or rust stains. In general the surfaces of field joints, sometimes two or three feet long and wide, although unpainted were clean and bright.

In the upper part of the main tower the framework was subjected to very severe, destructive and wholly improper conditions entirely different from

those affecting the steel and iron in all other portions of the Garden. Notwithstanding this fact, and the obviously total lack of attention and maintenance, this (apparently iron) structure resisted destruction to such a degree as to continue to perform its structural functions for thirty-five years.

Above the top of the brick walls the iron framework simply supported the ornate architectural members and were enclosed not closely covered as with a molded skin, by the hollow columns, bases, panels and mouldings of the architectural embellishments. This envelope was made of sheets of copper fastened to a light iron furring secured by angle clips to the main framework.

When the statue of Diana was removed no corrosion or other deterioration was observed on it, or its base or in the ball bearing which supported it; there were no evidences of electrolysis where the different metals were in contact, and for a distance of about 30 feet below the statue the copper sheathing was intact, there being no holes in it; the framework it covered was not corroded, and that part of the structure was in good condition.

From the foot of this undamaged section, at the level of the upper circular girder, for a distance of about 35 feet down to the lower circular girder or drum on top of the rectangular tower framework, many holes were found through the copper sheathing and the enclosed framework was badly injured by corrosion or electrolysis or both. Some of the rivets attaching the copper sheathing to the light furring were found in good condition while the furring was entirely gone, leaving only the flanges of some 7-inch circular channels. Some beam connections had completely rusted away so that it was necessary to brace and wire the remaining pieces of the framework together before commencing the critical operations of disconnecting and removing it.

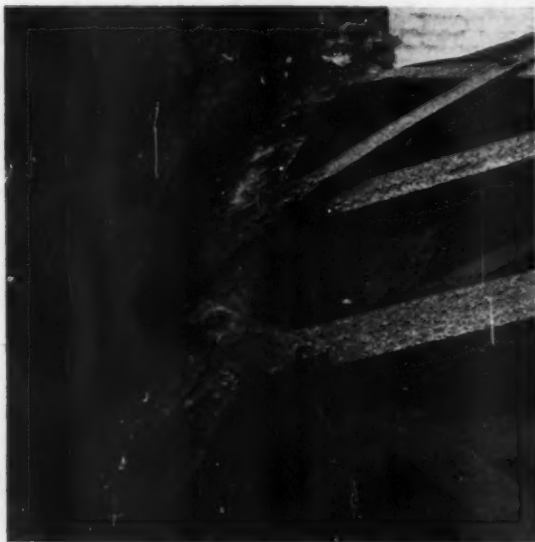
This portion of the tower framework, between and immediately adjacent to the two circular drums or girders, which weighed less than 20 tons and was not properly protected or maintained, was the only portion of the entire structural framework that was not found to be in good condition.

The circular girders or drums were about 10 feet in diameter with 3 to 5 inch flange angles, that were presumably $\frac{3}{8}$ or $\frac{1}{4}$ inch thick originally. The webs of the upper and lower girders were 24 and 36 inches deep respectively and probably about $\frac{1}{8}$ inch thick when fabricated. The webs were found very badly corroded, deeply pitted and covered with very thick rust and scales although little of the latter had apparently been detached. Underneath the rust there was a considerable thickness of hard metal possessing enough strength and stiffness to be serviceable but to a greatly reduced degree.

The flange angles, especially their horizontal



RADIAL ROOF TRUSSES OVER THE ARENA IN POSITION AS EXPOSED BY THE REMOVAL OF THE ROOF COVERING AND SHEATHING BOARDS. THIS PORTION OF THE STEELWORK WAS IN EXCELLENT CONDITION



LOWER DRUM OF TOWER SHOWING CORROSION OF TOP FLANGE AND DIAGONAL CONNECTIONS OF THE VERTICAL STRUTS. NOTE UNINJURED SMOOTH THIN SHEET OF METAL PROJECTING FROM THE THICK SPONGY, CORRODED LAMINATIONS OF OUTSTANDING LEG OF ANGLE



EXTREME CORROSION AND DESTRUCTION OF SECTIONS OF LOWER DRUM OF UPPER PART OF TOWER DUE TO EXPOSURE TO MOISTURE OR ELECTROLYSIS OR BOTH. THE RIVETS WERE MUCH BETTER PRESERVED THAN THE WEB PLATES OR ANGLES

THE AMERICAN ARCHITECT

legs, were almost and in many places entirely destroyed by corrosion, large sections of a whole flange being completely gone. In general the rivets were much better preserved than either the web plates or angles, some of them being in good condition. The light latticed vertical struts connecting the upper and lower drums were very badly rusted, especially at their connections to the drums, and were nearly eaten away in places. Lattice members invite destruction when exposed.

The lower drum was seated on an octangular platform made by corner plate girders 24 inches deep riveted to the webs of the four deeper plate girders connecting the tops of the main tower columns below. All of these plate girders were badly rusted, especially the flanges of the corner girders, the horizontal legs of which were in some places corroded through their entire thickness although the disintegrated metal still remained in position, but with very little strength.

The vertical legs of the girder flange angles, although very much eaten by rust were generally in better condition than the horizontal legs and had not actually crumbled away in many places. In several places the horizontal legs had entirely disappeared and in most of the other places they had become spongy and soft, swollen to several times the original thickness and peeling off in cinder like scabs and flakes, often the full width of the flange, a foot long and perhaps an eighth or quarter of an inch in thickness, a loose dirty mass that easily broke and crumbled in the fingers.

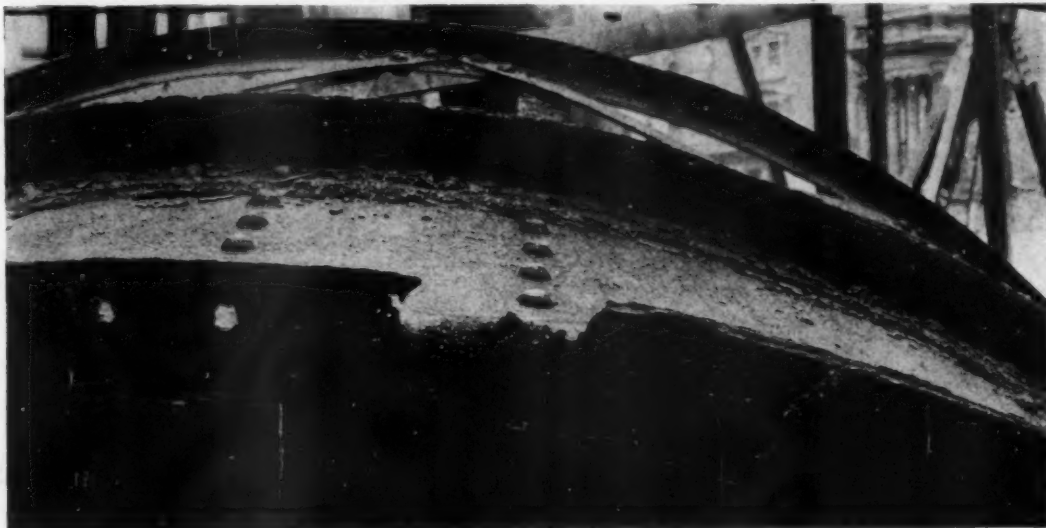
In all places where the horizontal legs, or portions of them, remained, the structure was changed to distinct lamination instead of hard solid metal,

and in many places the layers had crumbled away from the upper and lower surfaces leaving exposed in what had been about the center of the original thickness of the cross section of the leg, a very thin sheet of metal of the full width of the leg that extended to the root of the angle and apparently turned a right angle there and continued through the full width of the other or vertical leg in the center of its cross section.

This sheet of metal was of an entirely different appearance from the material that covered it on both upper and lower surfaces when it was not fully exposed. Instead of being black, cindery looking and spongy, it was very hard, dense, strong and smooth, full width, straight-edged, without pitting or irregularities, like a good piece of sheet iron or steel of a uniform thickness of about 1/32 inch and merely discolored with yellow rust.

In some cases the upper surface of the thin central sheet was exposed and the lower surface was still covered by the spongy mass. The thin hard center sheet is very distinctly shown in several of the illustrations of girders, especially in the picture of the ends of the octagonal girders, where lamination of the spongy metal covering the center sheet on both sides is very apparent. In some cases the expansion due to corrosion and disintegration had swelled the flange to a thickness of more than 1 1/8 inches.

The very definite laminations correspond with the construction of wrought iron angles which are rolled from piles of full width flat bars wired together to make a solid rectangular mass that is heated white hot and welded together into a solid bar, rolled out to the required width and thickness in flat grooves, thus continually thinning down



TOP AND BOTTOM FLANGES OF UPPER DRUM, OF TOP PORTION OF MADISON SQUARE GARDEN TOWER, WERE PRACTICALLY DESTROYED BY RUST OWING TO LACK OF PROTECTION AND PROPER MAINTENANCE

THE AMERICAN ARCHITECT

the original flat elements to a small fraction of their original thickness.

It, therefore, seems probable that in building up the piles for these angles a different kind or quality of bar was placed in the middle, and becoming reduced by rolling to a very thin sheet, perhaps of steel, that preserved the identity and entirely resisting the corrosion that destroyed the other bars, was left practically unchanged. The action of the metal under corrosion appears to be impossible for a homogeneous uniform unit mass rolled like steel from a single cast ingot, but is consistent with the character of structural iron and the method of its manufacture.

About ten years ago, in the course of an extended study of the "Life of Iron and Steel Structures,"* the writer conferred with a large number of eminent engineers, architects and builders who expressed their opinions and outlined experiences with structural iron and steel, chiefly the latter. The conclusions reached were that although the steel frameworks of buildings are, unless properly designed, constructed and maintained, liable to possible deterioration or destruction by improper stressing, exposure or accident, good steel buildings of the present class have so far shown very little serious deterioration from any cause, and

that there appears to be no reason why the life may not often be made extremely long, practically unlimited with the best design and maintenance, if exempt from fire and serious accident. In most classes of buildings the life, up to probably 100 years, is potentially limited by controllable factors, such as design, maintenance and proper use.

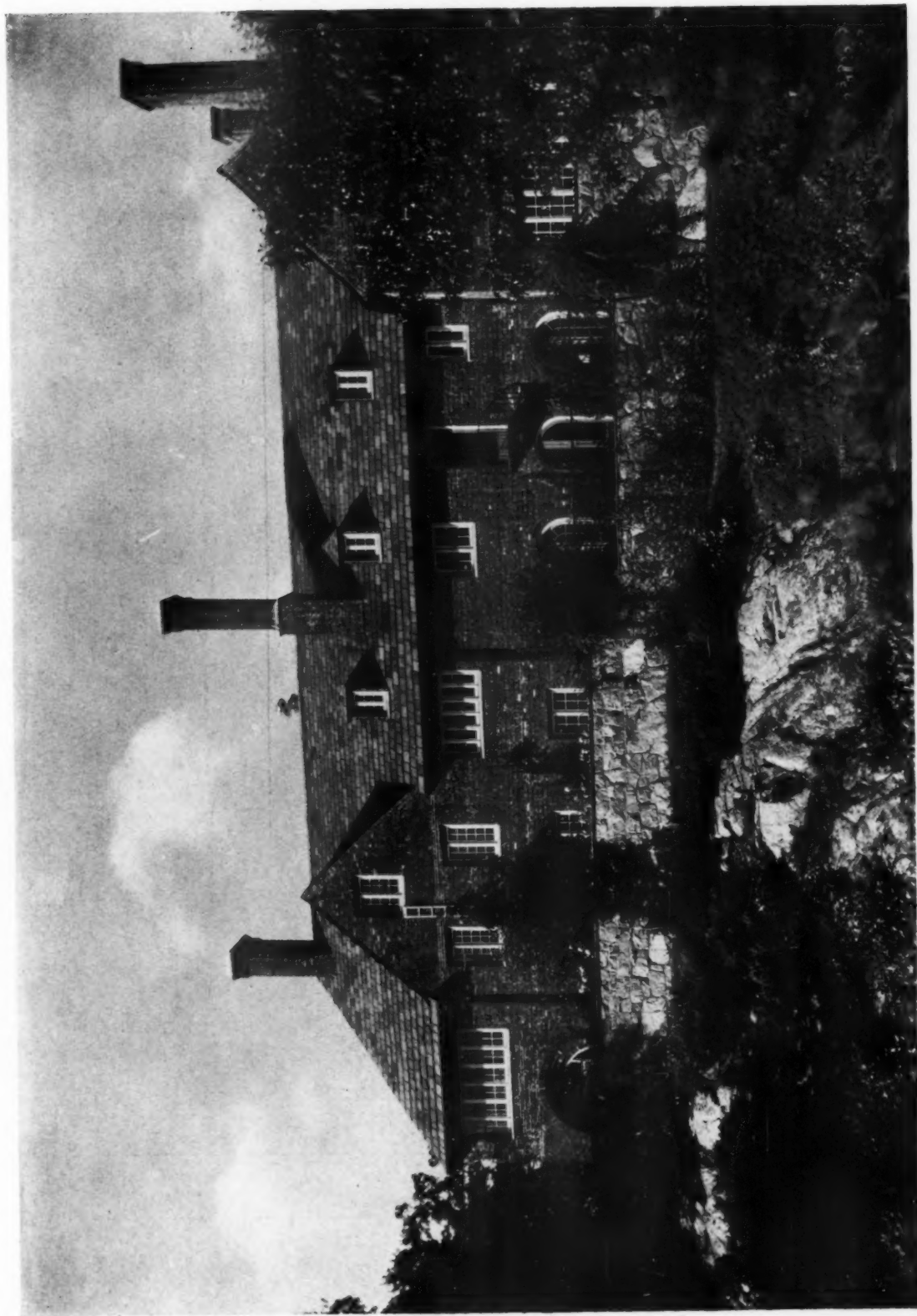
In the case of the Madison Square Garden the structural framework as well as the rest of the structure was well designed and built with good materials and workmanship, but no special pains whatever were taken for the protection or preservation of the iron and steel, most of which received little or no maintenance.

With the negligible exception of a portion of the tower, it was thoroughly protected from the weather but except where partly embedded in the floor construction was wholly exposed to the interior atmosphere that was well ventilated and probably free from excess of moisture or acid fumes. Escaping the exposure to fire, which it could not have long resisted, it performed for more than a third of a century all its intended functions with unimpaired efficiency, and notwithstanding lack of painting and special maintenance was as good as new when removed. By the maintenance of a watertight roof, inspection and attention, it might well have continued five or ten times as long in service under the same conditions.

*A paper presented to the International Engineering Congress in San Francisco, September, 1915.



SHORT CORNER GIRDERS IN THE OCTAGONAL FRAMEWORK SUPPORTING THE LOWER DRUM OF THE UPPER TOWER OF MADISON SQUARE GARDEN. NOTE THE THIN SHEET OF METAL PROJECTING FROM THE CORRODED LAMINATION OF HORIZONTAL LEGS OF FLANGE ANGLES AND THE DEFINITE LAMINATIONS DEVELOPED IN BOTH LEGS OF THE ANGLES. THE HITCH ANGLES ARE IN GOOD CONDITION. THE PATCHES ON THEM, NOTED IN THE ILLUSTRATION, ARE CEMENT AND MORTAR. RIVETS WERE IN EXCELLENT CONDITION



HOUSE AT WESTON, MASS.

GORDON ALLEN, ARCHITECT

(See plans on back)

THE AMERICAN ARCHITECT
December 20, 1925, Plate 338

HOUSE AT WESTON MASSACHUSETTS
GORDON ALLEN ARCHITECT

LAUNDRY YARD

SERVICE COURT

FIRST FLOOR PLAN

COURT

SECOND FLOOR PLAN

DRIVE

LAUNDRY YARD

SERVICE COURT

FIRST FLOOR PLAN

COURT

SECOND FLOOR PLAN

DRIVE

FIRST FLOOR PLAN

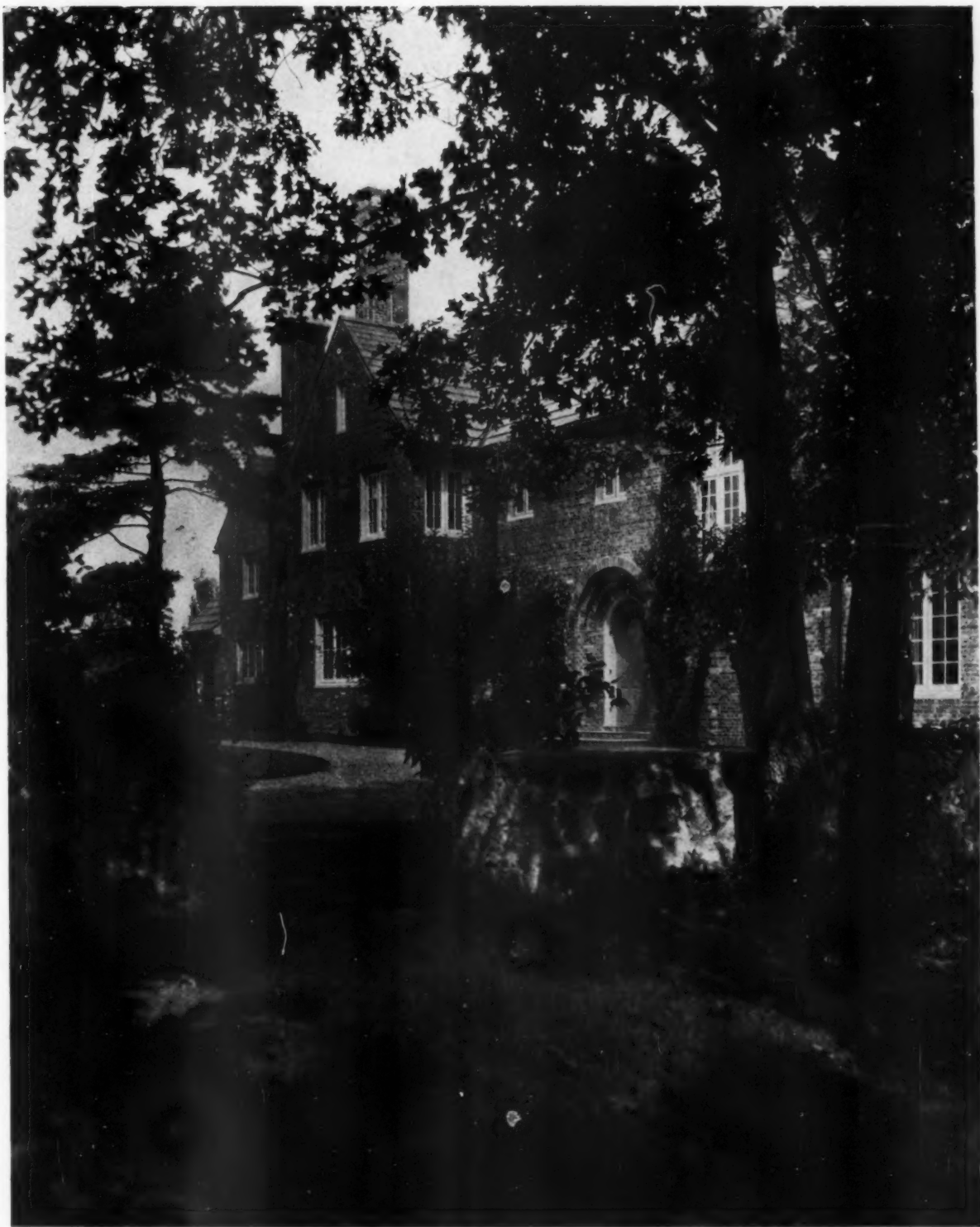
SECOND FLOOR PLAN

021, v2



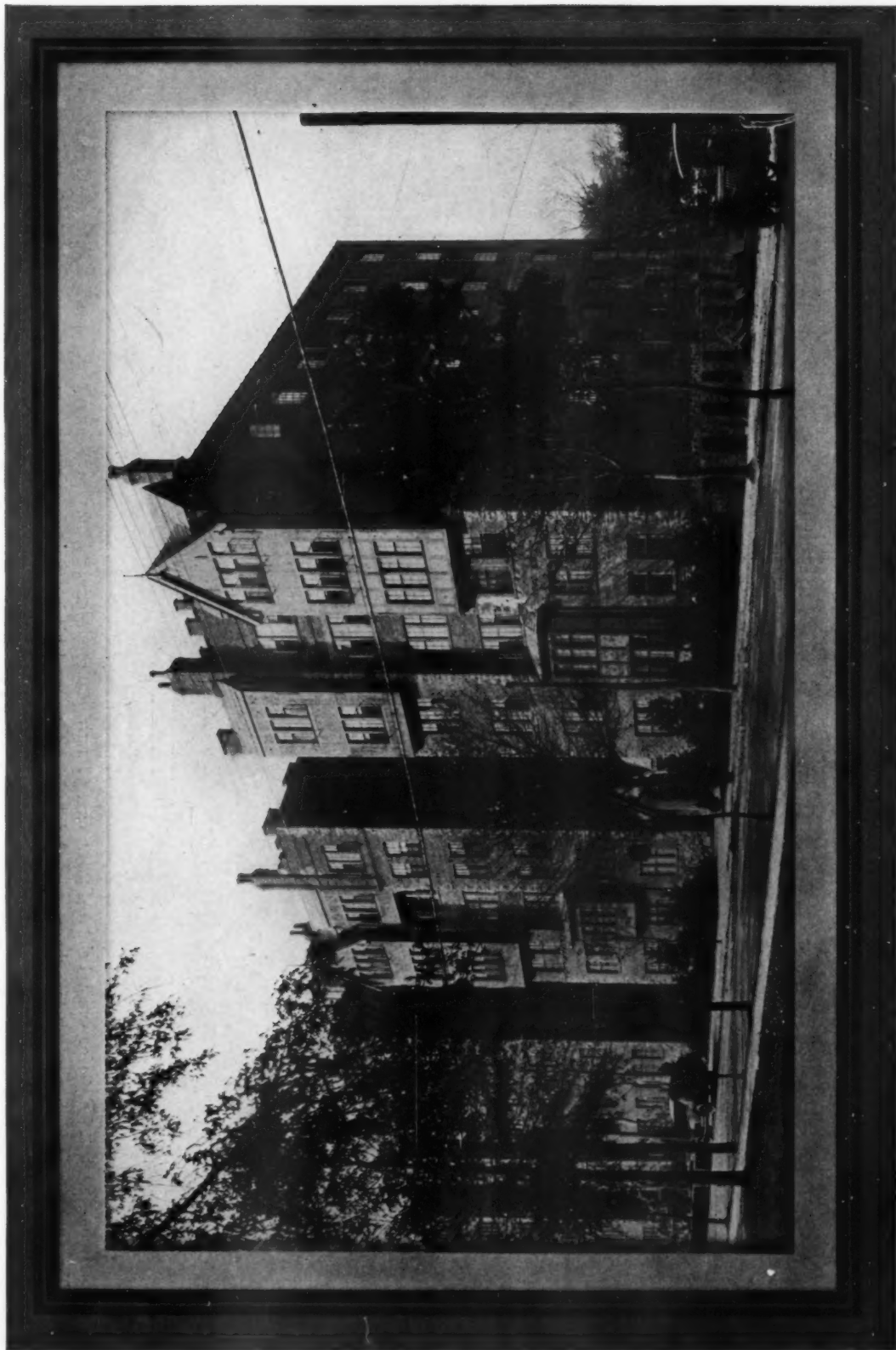
HOUSE AT WESTON, MASS.
GORDON ALLEN, ARCHITECT

THE AMERICAN ARCHITECT
December 20, 1925. Plate 339



HOUSE AT WESTON, MASS.
GORDON ALLEN, ARCHITECT

THE AMERICAN ARCHITECT
December 20, 1925. Plate 349

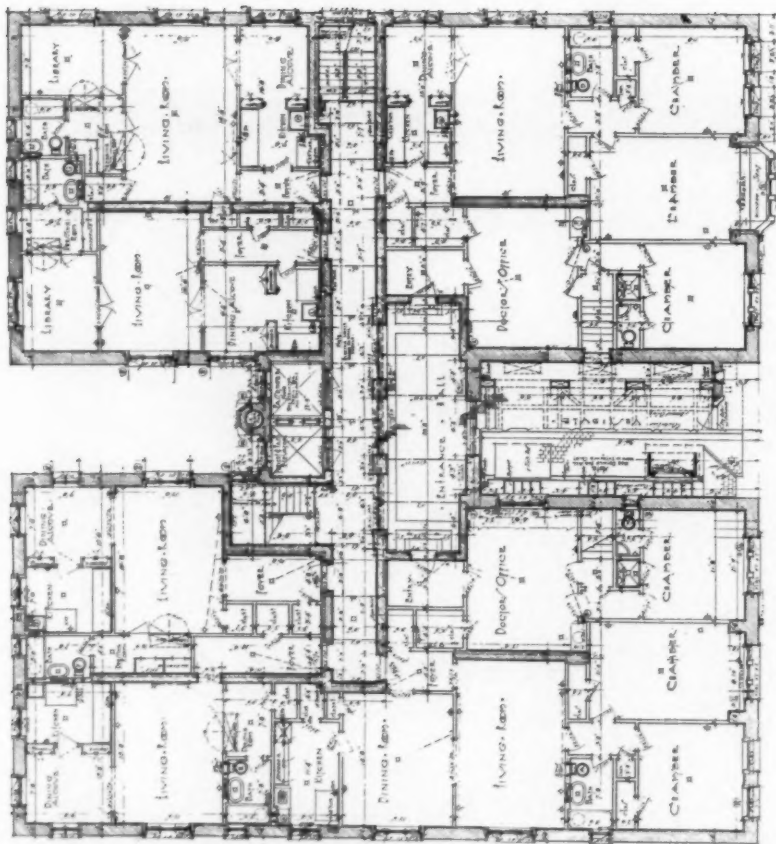


PELBROOK HALL, PELHAM, N. Y.

GEORGE F. PELHAM, ARCHITECT

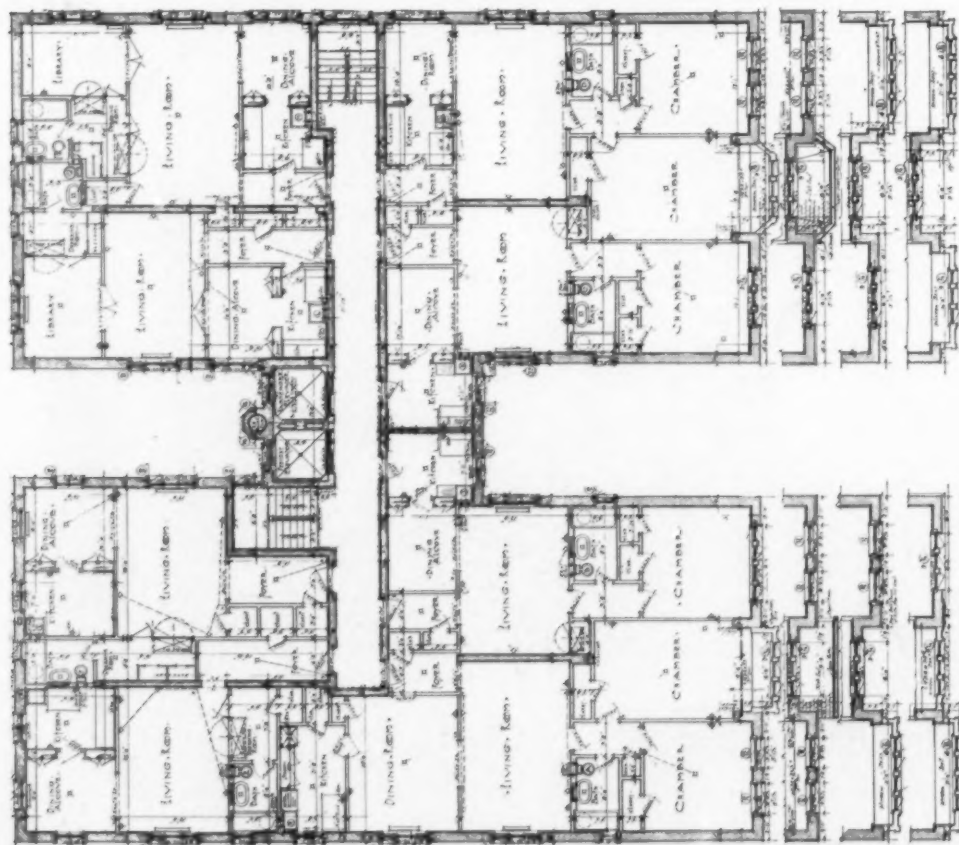
(See plans and description on back)

THE AMERICAN ARCHITECT
December 20, 1925. Plate 341



PELBROOK HALL, PELHAM, N. Y.

GEORGE F. PELHAM, ARCHITECT



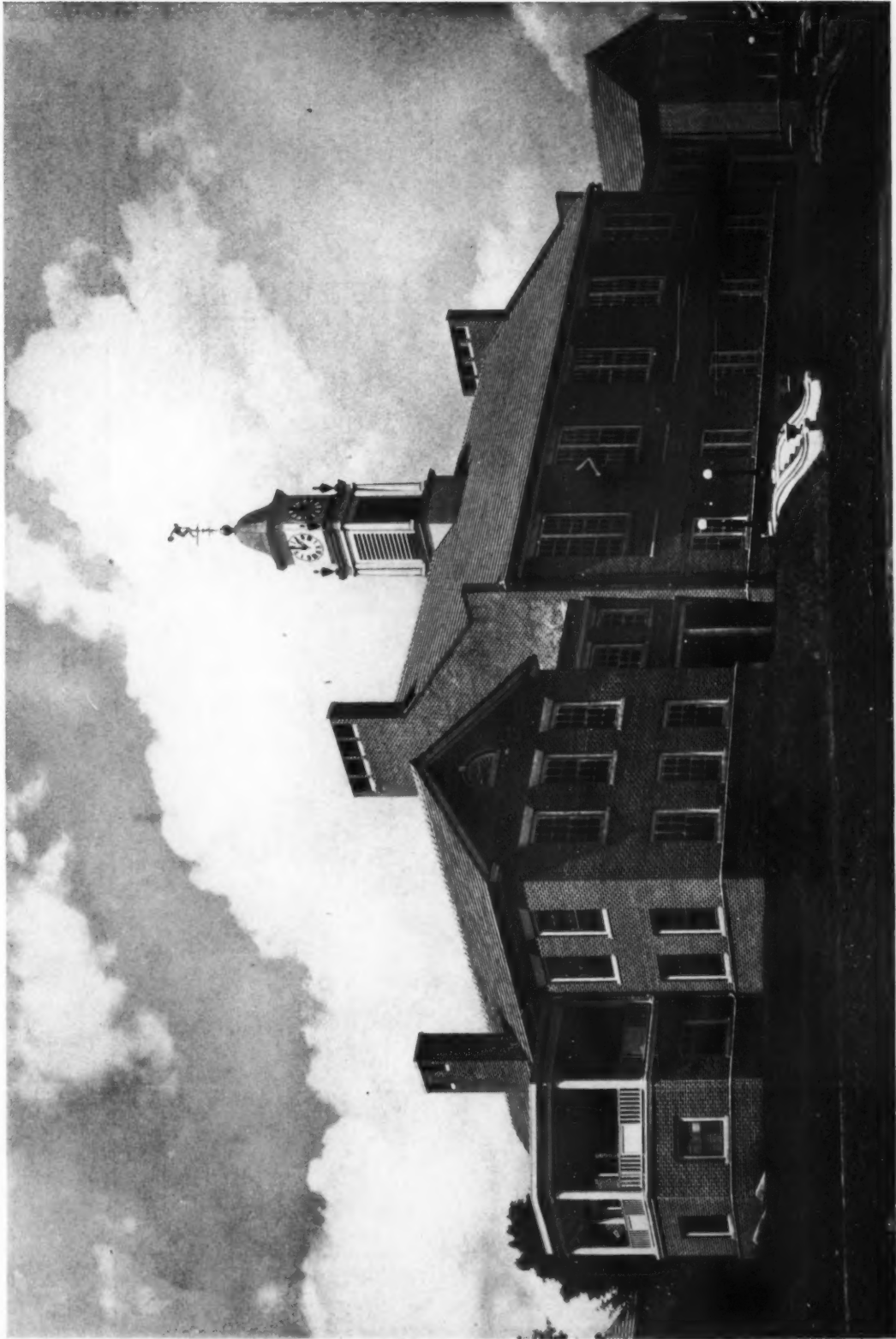
Non-fireproof construction. Exterior walls, brick. Floors, oak. Partitions, stud, lath and plaster. Trim, whitewood. Roof, slag and slate. Vapor heating system. Two automatic elevators. Rooms have concealed beds, white steel kitchen dressers and ice boxes. Cost per cubic foot, approximately 50 cents



PELBROOK HALL, PELHAM, N. Y.

GEORGE F. PELHAM, ARCHITECT

THE AMERICAN ARCHITECT
December 20, 1925. Plate 342

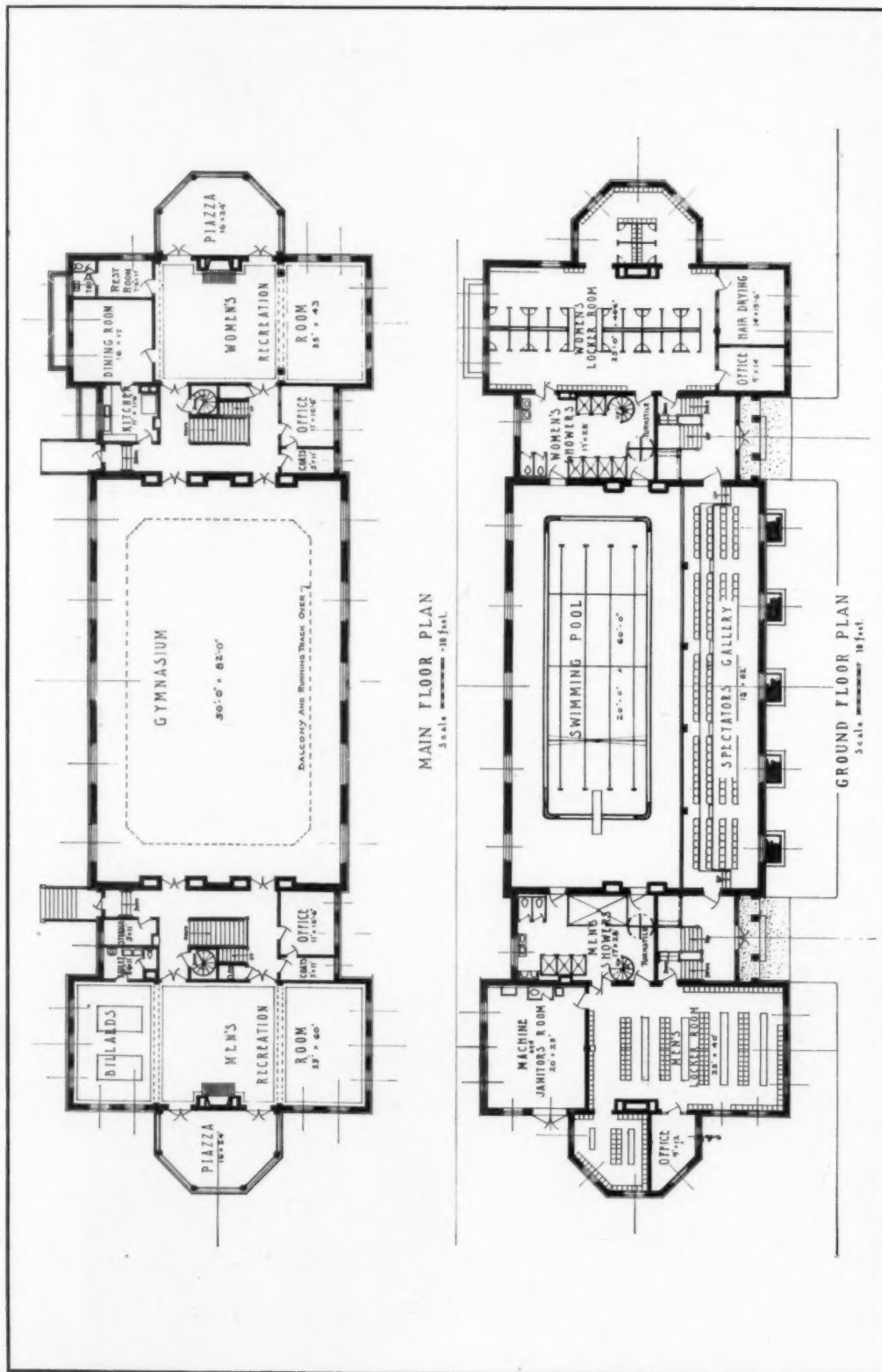


RECREATION BUILDING, NEW HOLLAND, GA.

KILHAM, HOPKINS & GREELEY, ARCHITECTS

(See plans and description on back)

THE AMERICAN ARCHITECT
December 30, 1925. Plate 343



Walls, brick. Roof, slate. Interior walls, plastered and painted. Floors, wood, linoleum and terrazzo. Trim, wood. Steam heat. Cost \$164,000

RECREATION BUILDING, NEW HOLLAND, GA.

KILHAM, HOPKINS & GREELEY, ARCHITECTS



HOUSE AT NASHVILLE, TENN.
DONALD W. SOUTHGATE, ARCHITECT



HOUSE AT NASHVILLE, TENN.

DONALD W. SOUTHGATE, ARCHITECT

IN the suburban and semi-urban residential sections of many Southern cities, where land is comparatively cheap, it has become a custom to erect small houses on unusually large plots. Such condition permits wider opportunity to architects and enables the designing of a small house with an unusually large setting. This house is an interesting example of this practice.

The exterior walls of this house are of rough Indiana limestone rubble trimmed in part with red brick and combined with porches of timber and stucco. The gray white of the limestone is in good contrast with the white painted window frames. The porch timber, cornices and other woodwork are stained a dark brown and the roof is covered with contrasting asbestos shingles.

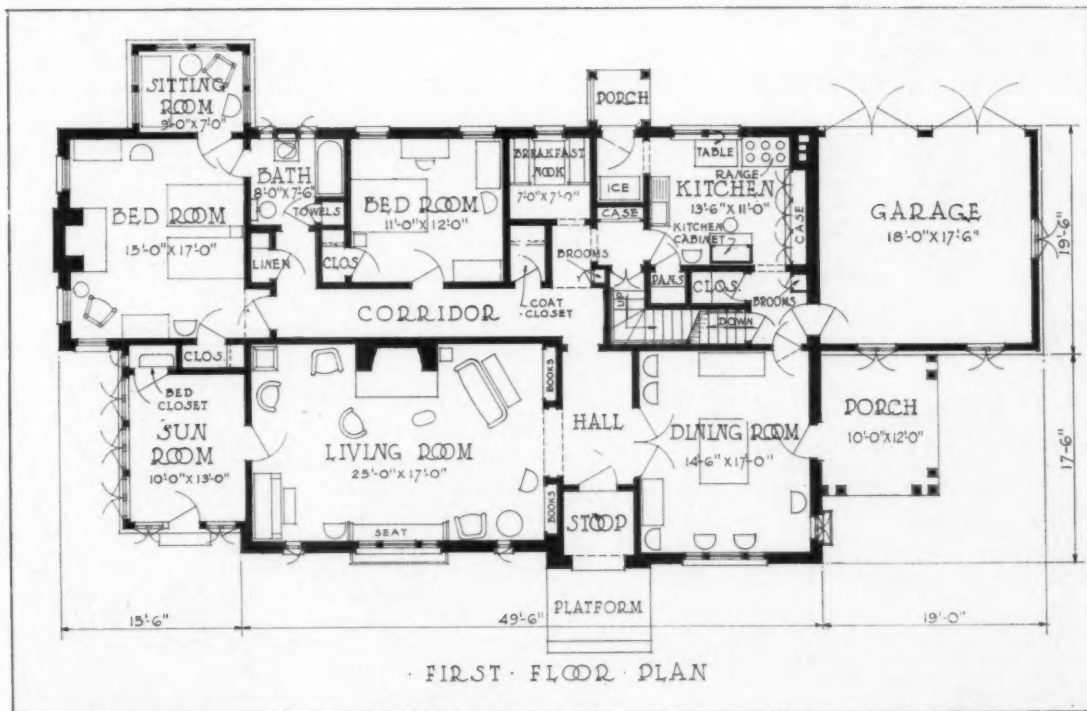
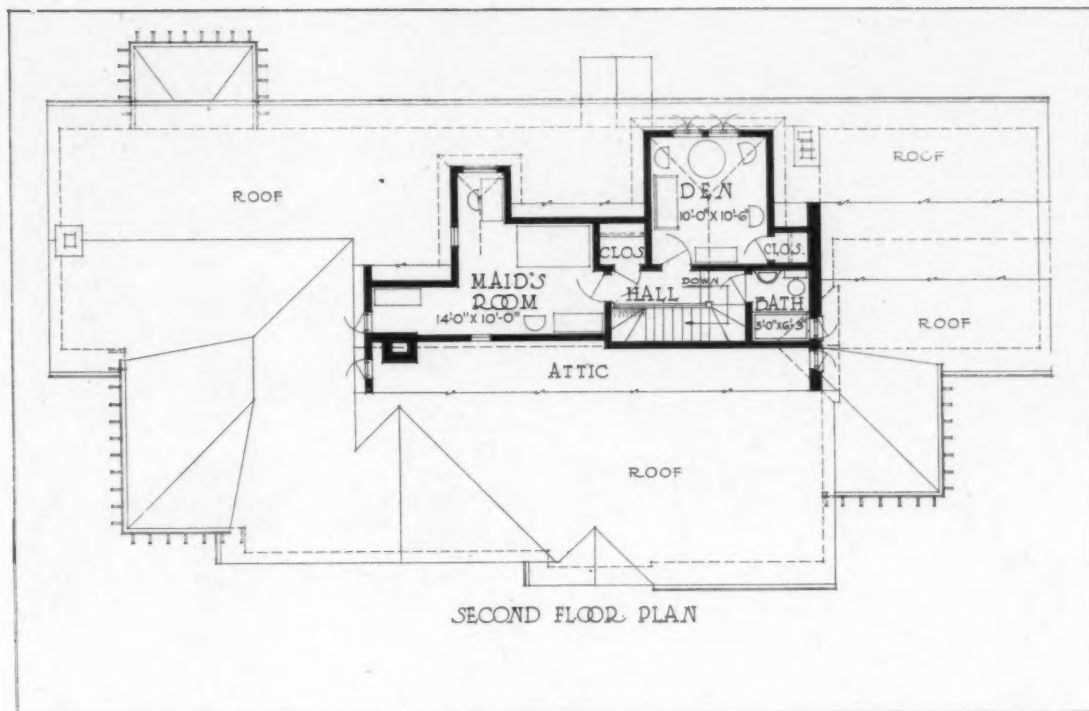
The plan is of interest. The square entrance porch leads to a short hall paved with black and white square tiles. The entrance to living room is through an arched way, without doors, while that to the dining room is through a pair of glazed doors. There are two sun porches, one each at

sides of living and dining rooms. The view on axis through the entire front of the house is unbroken. Living room has built-in book cases, and the radiators are concealed under the seat placed in front of the wide triple window.

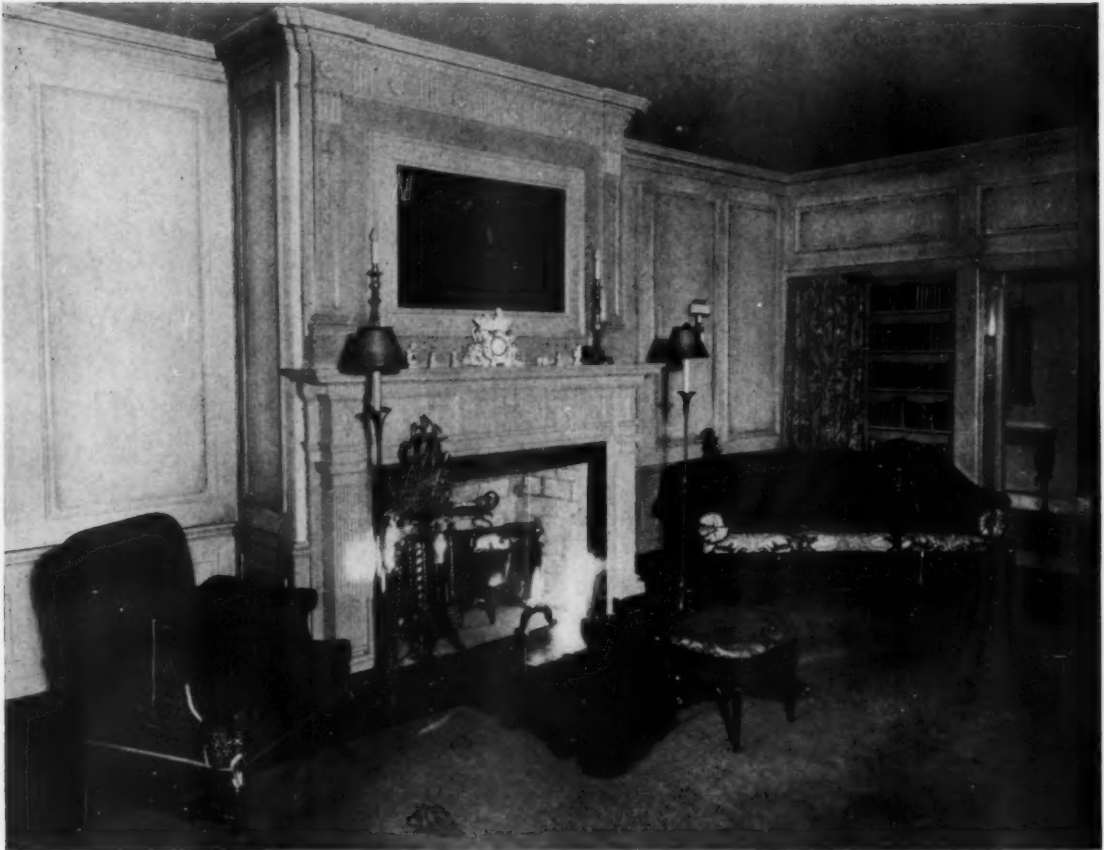
A feature of the sun room adjoining the living room is a concealed bed. Entrance to the garage from the house is by way of the small hall at rear of dining room. The kitchen has been arranged with considerable thought and, in its planning and provision for convenience, has been as carefully considered as any room in the house. The maid's room on second floor is reached directly from the kitchen, and the two bedrooms and well located breakfast alcove fall naturally into the plan. There is a fine seclusion to these sleeping rooms. The whole plan of this floor has been admirably considered. Note the fireplace in one of the bedrooms and the ample closet space provided. Maid's room and bath, and a den have been planned on second floor, all as more particularly shown on opposite page.



THE AMERICAN ARCHITECT



HOUSE AT NASHVILLE, TENN.
DONALD W. SOUTHGATE, ARCHITECT



THE LIVING ROOM

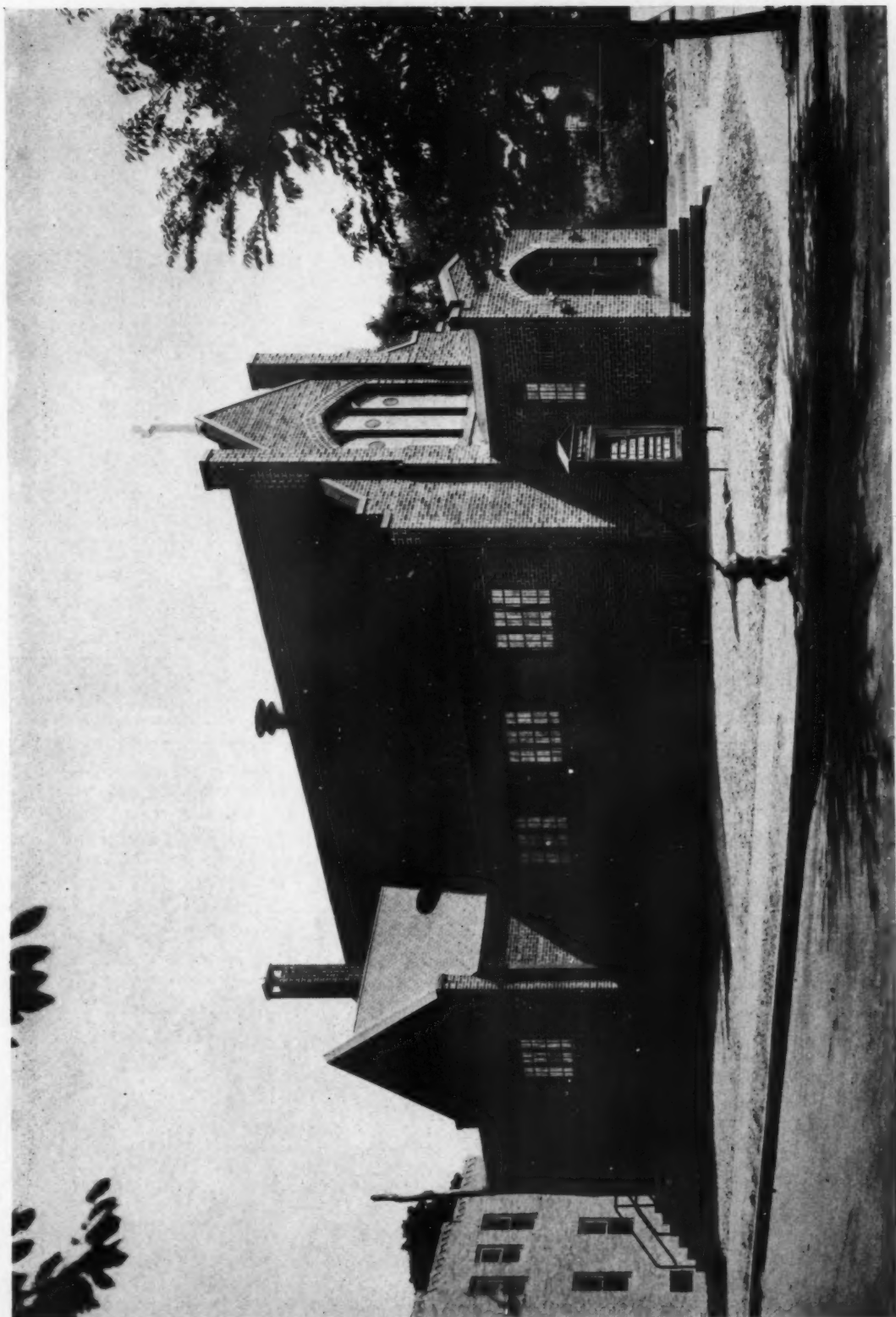
HOUSE AT NASHVILLE, TENN.

DONALD W. SOUTHGATE, ARCHITECT

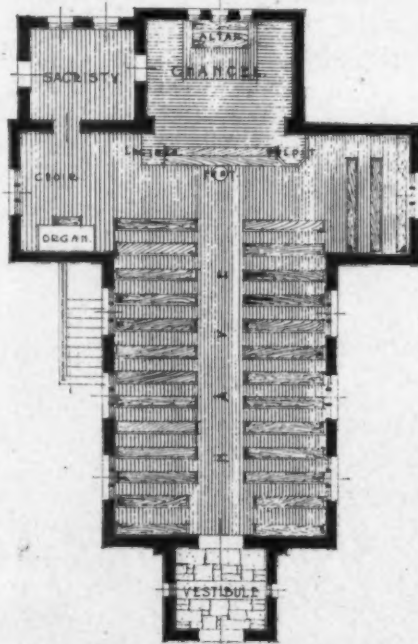
GEORGIAN AND VICTORIAN

IN art, as in minor matters, fashions wax and wane, states *The Architects' Journal*, London. Seldom if ever do they become entirely obsolete; and in architecture they are particularly apt to recur, modes that had fallen into disfavor coming again into warm popularity after a season of cold neglect. Sir Charles Nicholson has given a pointed instance of this. He remarked, in a paper read to the British Society of Master Glass Painters, that Georgian art, now at full floodtide of popularity, was utterly despised when he was a boy. From this experience he drew the inference that Victorian art, today regarded contemptuously, may tomorrow supersede Georgian in popular esteem. Indeed, one sees sundry indications that Sir Charles Nicholson's surmise is not without warrant. At least the Victorian period had its purple patches. Sir Charles argues very justly that "the artists of the period were giants in their

way, and a century which produced buildings like Waterloo Bridge, the Houses of Parliament, Truro Cathedral, and All Saints Margaret Street; paintings such as those of Turner, the pre-Raphaelites, and Millais; sculptures like the Wellington monument, cannot be passed over as a dull period of artistic effort." There is, however, a characteristically heavy *per contra* account, of which Sir Charles does not fail to remind us. It includes such dreary items as Wyatt "the fashionable architect" who touched nothing that he did not spoil; and Egington, who substituted enamel transparencies for thirteenth-century glass in Salisbury Cathedral, and supplied bogus heraldry for Fonthill. Such are the accidentals that dwindle and perish; but Victorian art was not entirely destitute of the principles that never die. Victorian architecture is coming again, not to supersede Georgian, but to be in amiable companionship with it.



LUTHERAN CHAPEL, BALTIMORE, MD.
JOHN J. ZINK, ARCHITECT



LUTHERAN CHAPEL, BALTIMORE, MD.

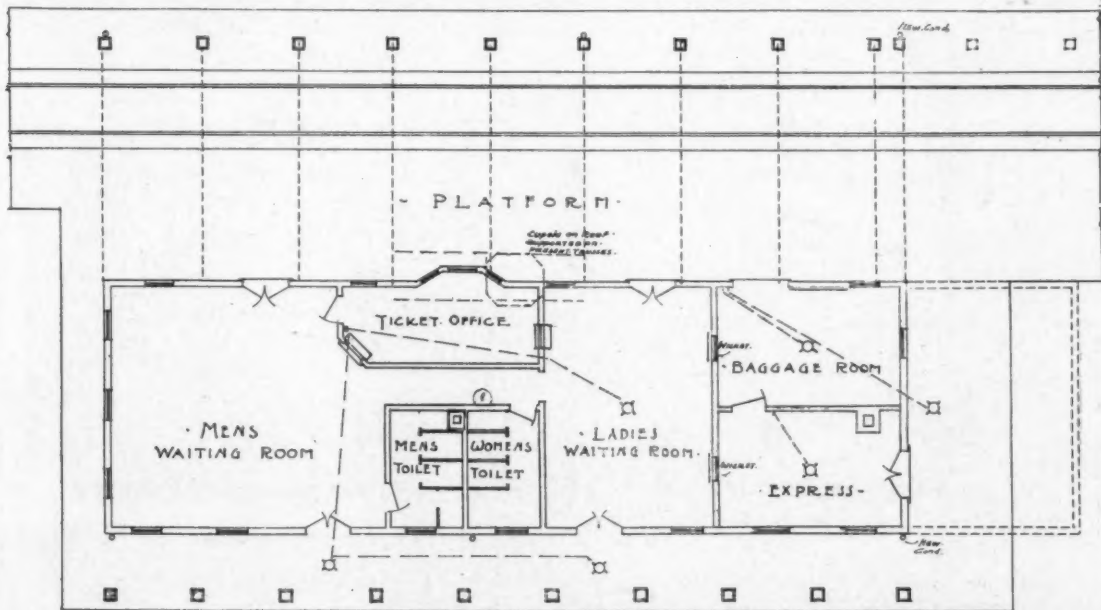
JOHN J. ZINK, ARCHITECT

Exterior walls, brick. Interior walls are faced with comb grained tile. Windows and doors trimmed with brick. Roof, asphalt shingles. Partitions, wood studs and metal lath. Sand finished plaster walls in basement. Floors and trim are of wood. Interior woodwork is finished in fumed oak tones. Usual electric equipment supplemented by ear phones. Church is heated by gas. Cost \$21,600.

THE AMERICAN ARCHITECT



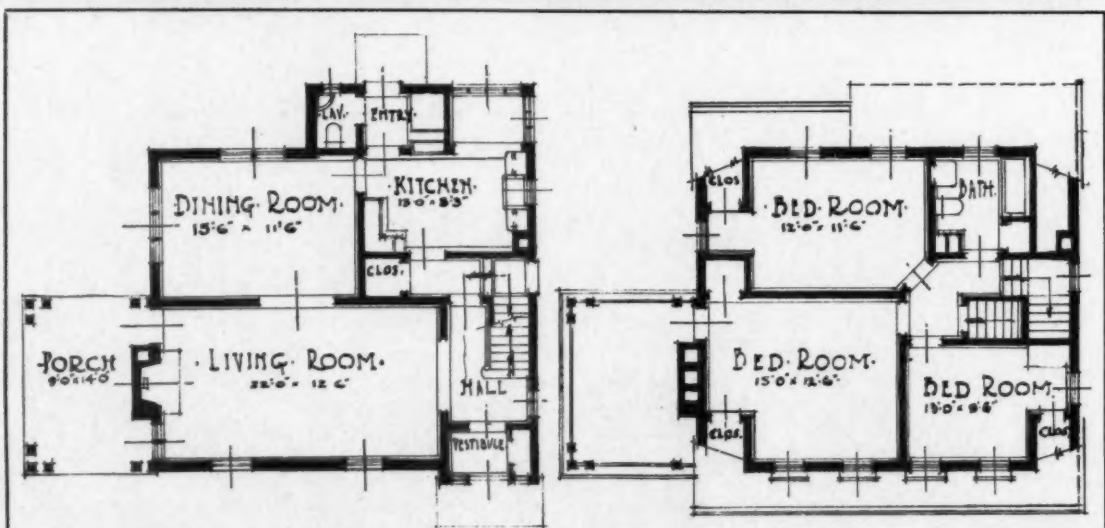
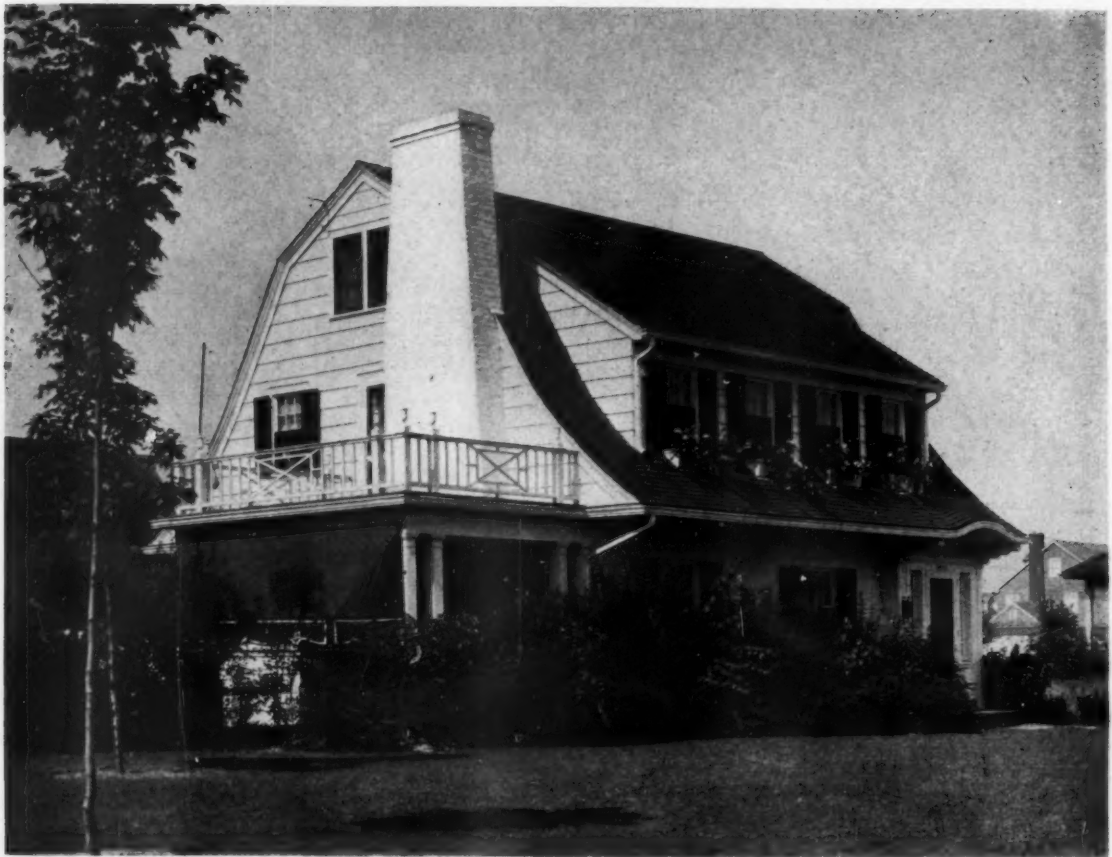
THIS IS A FRAME STRUCTURE COVERED WITH WOOD SHINGLES AND SIDING. ROOF IS OF SLATE. FLOORS ARE WOOD. PARTITIONS ARE WOOD, PLASTERED AND PAINTED. BUILDING IS STEAM HEATED, ELECTRICALLY LIGHTED THE GENERAL ARCHITECTURAL TREATMENT OF THIS STATION SUGGESTS THE IMPORTANT EARLY COLONIAL TRADITIONS THAT MARK THIS TOWN WHERE "THE SHOT HEARD ROUND THE WORLD" WAS FIRED



RAILWAY STATION, LEXINGTON, MASS.

KILHAM, HOPKINS & GREELEY, ARCHITECTS

THE AMERICAN ARCHITECT



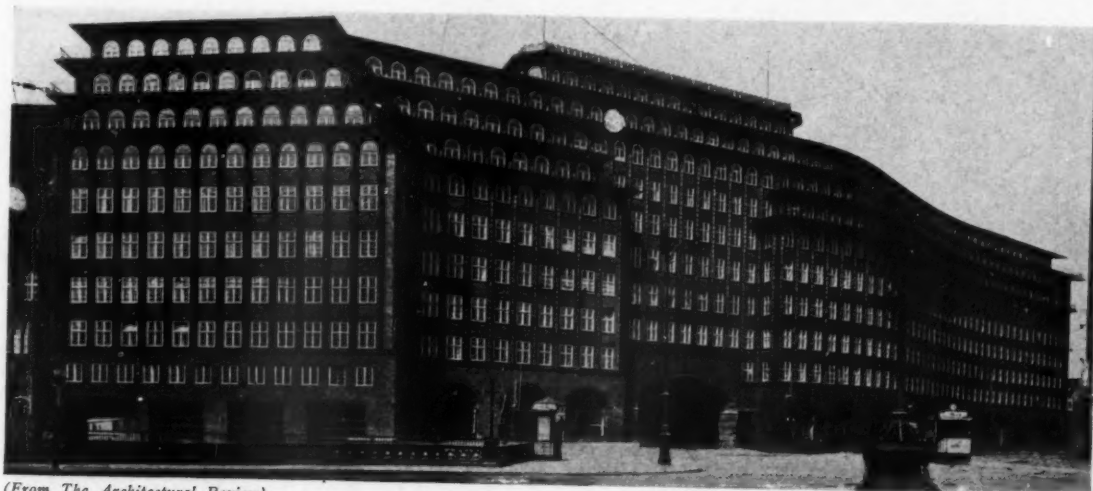
Construction, wooden joists, studs, sheathing and lath. Exterior walls covered with white shingles, roof covering gray shingles. Sheet metal work galvanized iron. Glazed with sheet glass. Doors, sash, floors and trim, wood. Interior wall surfaces finished with hard white plaster and papered. Enameled iron plumbing fixtures. Hot water heating, thermostatic control. Knob and tube electric wiring system.

HOUSE OF JOHN A. GUYER, SHAKER HEIGHTS, CLEVELAND, OHIO

PAUL OCKERT, ARCHITECT

GLEANED *from the*
FOREIGN ARCHITECTURAL PRESS

The illustrations on this and the three following pages represent examples of current architectural design in Europe



(From The Architectural Review)

CHILE HOUSE, HAMBURG
F. HÖGER, ARCHITECT



(From The Architectural Review)

THE LIBERAL JEWISH SYNAGOGUE, LONDON
MESSRS. JOSEPH, ARCHITECTS

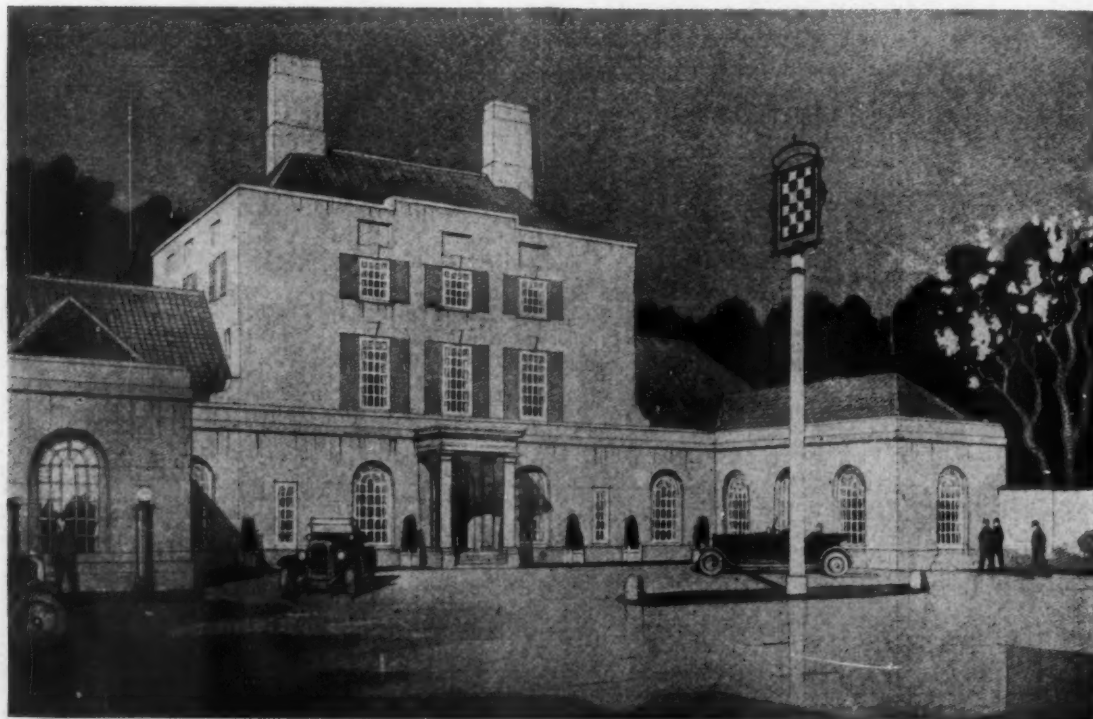
THE AMERICAN ARCHITECT



VIGO HOUSE, REGENT STREET, LONDON
SIR JOHN BURNET & PARTNERS, ARCHITECTS
(From The Builder)

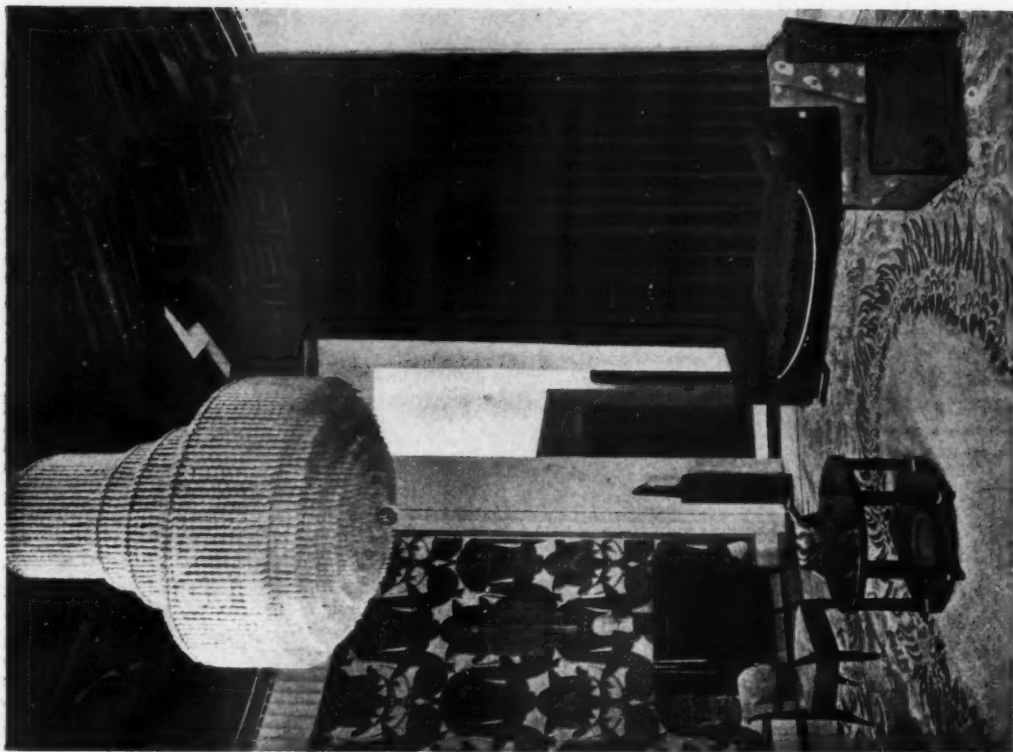


NURSES' HOME, LEICESTER ROYAL INFIRMARY
PICK, EVERARD, KEAY & GIMSON, ARCHITECTS
(From The Architects' Journal)



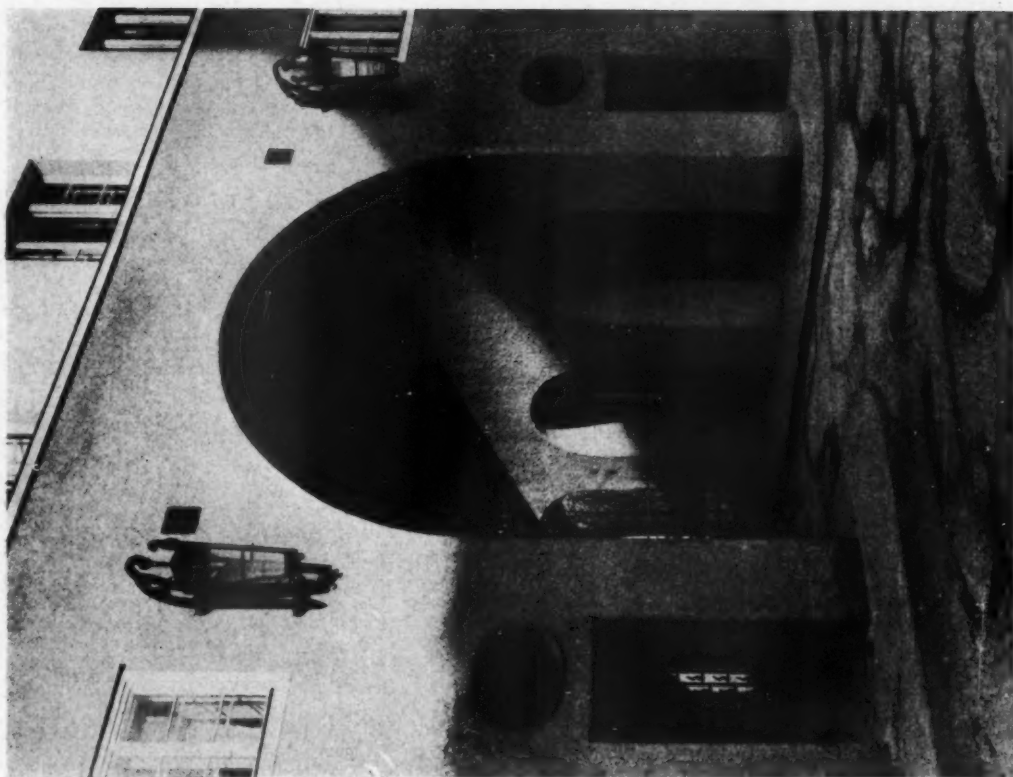
(From The Builder)

DESIGN FOR A MAIN ROAD INN
HAYWARD, MAYNARD & FAREY, ARCHITECTS



(From *The Architectural Review*)

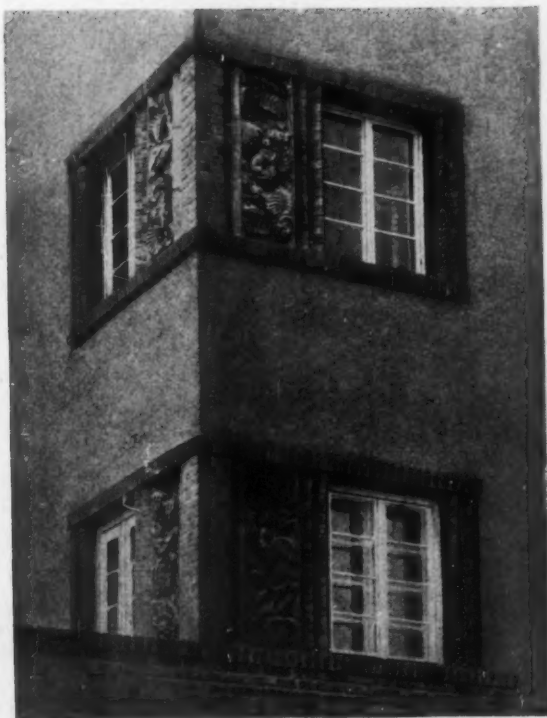
CENTRAL ROTUNDA OF HOTEL DU COLLECTIONNEUR
INTERNATIONAL EXPOSITION OF MODERN DECORATIVE AND INDUSTRIAL ARTS



(From *Moderne Bauformen*)

DETAIL OF BUILDING IN VIENNA
HEINRICH SCHMID & HERMANN AICHINGER, ARCHITECTS

THE AMERICAN ARCHITECT



AT TOP AND BELOW AT LEFT: EXTERIOR DETAILS AS ILLUSTRATED BY MODERNE BAUFORMEN. BELOW AT RIGHT:
 DETAIL OF AN ENTRANCE AS SHOWN IN THE ARCHITECTURAL REVIEW OF LONDON
 RECENT EXAMPLES OF CURRENT ARCHITECTURAL DESIGN IN GERMANY

COMPETITION for a MODERN BASEMENT

See three following pages

THE Peoples Gas Light and Coke Company of Chicago recently set out to salvage basement space and make it as attractive and useful as living quarters by offering a prize to Chicago architects and draftsmen for the best designed modern basement in which beauty and utility would be the keynote of design. The importance of solving this problem is emphasized when it is remembered that the basement area of a bungalow is equal to the area of the living quarters. In a two story house it is one-third of the available area, and though only used for eight months of the year by the heating apparatus, this condemns the entire basement, as far as "livable" conditions are concerned, for the entire year.

The reclamation of basement storage space is made possible by the installation of a gas fired central heating plant. The competition for the prize arrangement was confined to Chicago architects and draftsmen and the conditions provided

that a central, gas fired house heating plant, together with hot water service, refrigeration, laundry washing, drying and ironing, should all be taken care of in a practical manner, leaving the remainder of the basement space to be turned into an attractive room or rooms for recreation, rest or entertainment. The size of the lot specified upon which the building was to stand was 50 x 125 feet.

First prize was awarded to P. Donald Horgan. Four other prizes were presented to J. W. Turner, G. P. Lagergren, Margaret S. Jones and T. A. Butler, while honorable mention was given Alfred F. Schmiek. There were 364 entries. The competition was held under the auspices of the Chicago Chapter, The American Institute of Architects. The judges were Pierre Blouke, A. I. A., Frederick Hodgdon, A. I. A., Earl H. Reed, Jr., A. I. A., G. A. Carnahan, American Gas Association, L. E. Lindsay, American Gas Association, with H. V. von Holst, A. I. A. acting as architectural adviser.

NEW YORK—PAST, PRESENT AND FUTURE

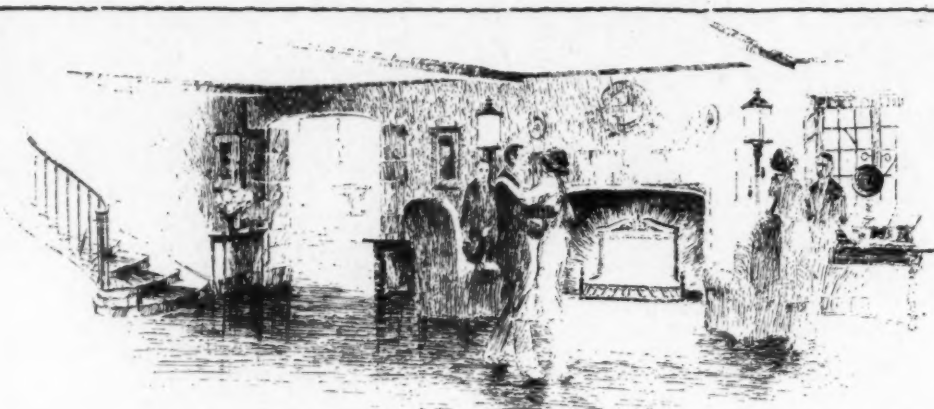
IN celebrating the inauguration of the addition to their new building and commemorating the 300th year of New York, which will be celebrated by the city at large next year, the John Wanamaker organization has presented in their New York store a pictorial pageant of New York, past, present and future, which is of especial interest to architects. The feature of the exhibit in the old building is a cathedral vision of the Titan City, as New York is called, by means of three silken windows, conceived and painted by the Hungarian artist, Willy Pogany. One of these windows takes the skyline of New York for its theme. From the lone Indian standing beside his wigwam and the squat Dutch houses, there are depicted the periods of architectural progress, with a glimpse of the buildings of the future, laced together with bridges. Another window shows fire protection and traffic progress, while the third visualizes the evolution of commercial travel on the seas from the little Dutch trading ship to the magnificent modern ocean liner.

Other artists have painted in panels, from authentic prints, the pictorial history of the city, showing the Dutch period, from 1609 to 1664, the Colonial period, from 1664 to 1800, the early American period, from 1800 to 1850, and the late American period, from 1850 to 1900. In the new building, one is given an architectural vision of the city of the future, executed under the direction of Harvey Wiley Corbett. Huge can-

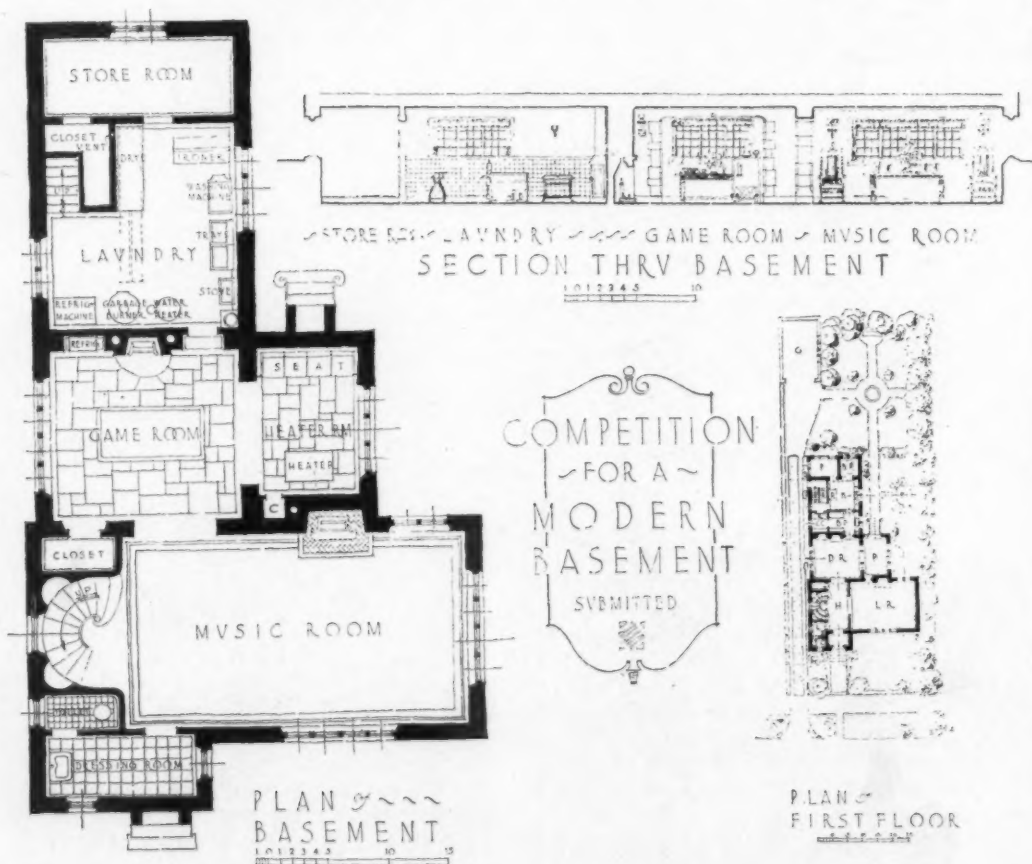
vasses in black and white have been painted by Hugh Ferriss and Robert Winthrop Chanler, showing the towering skyscrapers and connecting bridges of the next half century, as well as the traffic problems of the present and future. In other parts of the building are shown thoughts on city planning by the Russell Sage Foundation, interiors of the future, in which future American art is conceived as inspired by machinery, and photographs of the North American Indian. The entire exhibition is of tremendous educational value on account of its authenticity and high art quality.

AN AMERICAN HOUSE FOR FRANCE

THE American House, now on exhibition in Brooklyn, N. Y., is to be sent to France as this country's contribution to the International Exposition of Household Appliances and Labor-Saving Devices which is soon to open there. At the close of the show, it is to be presented as a gift of the American people to a citizen of France who shall be selected as having contributed the most to the prosperity of France during the past year. This exposition differs from the Exposition of Decorative Arts, but recently closed, in that it has to do with the practical furnishings of a house. All of the appliances and devices for cooking, washing, lighting, heating and cleaning were contributed by firms who expect to profit by the introduction of their products to the European public.



PERSPECTIVE IN MUSIC ROOM

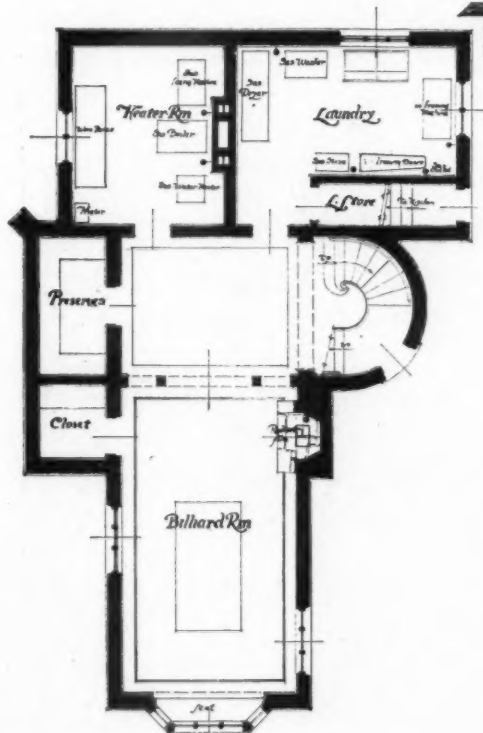
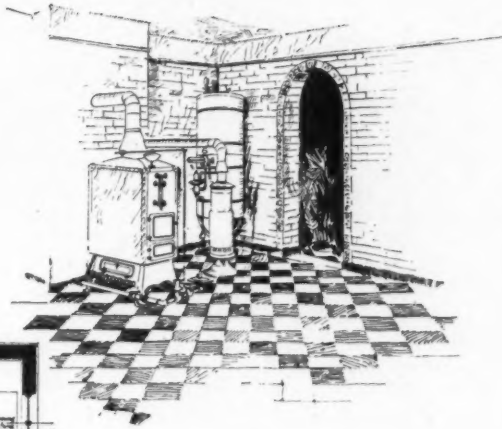


PRIZE WINNING DESIGN SUBMITTED BY P. DONALD HORGAN

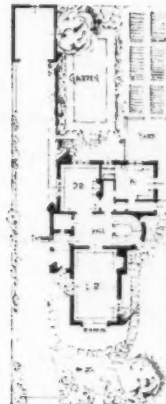
COMPETITION FOR A MODERN BASEMENT

A MUSIC ROOM, A GAME ROOM AND AN ATTRACTIVE STAIRCASE, ARE CONSPICUOUS FEATURES OF BEAUTY FOR SPACE THAT IS USUALLY UNSIGHTLY

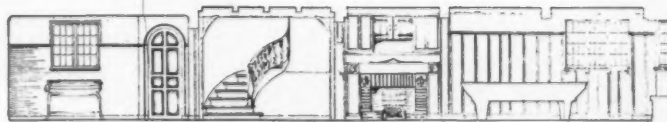
Competition for. A Modern Basement



First Floor Plan



Plot

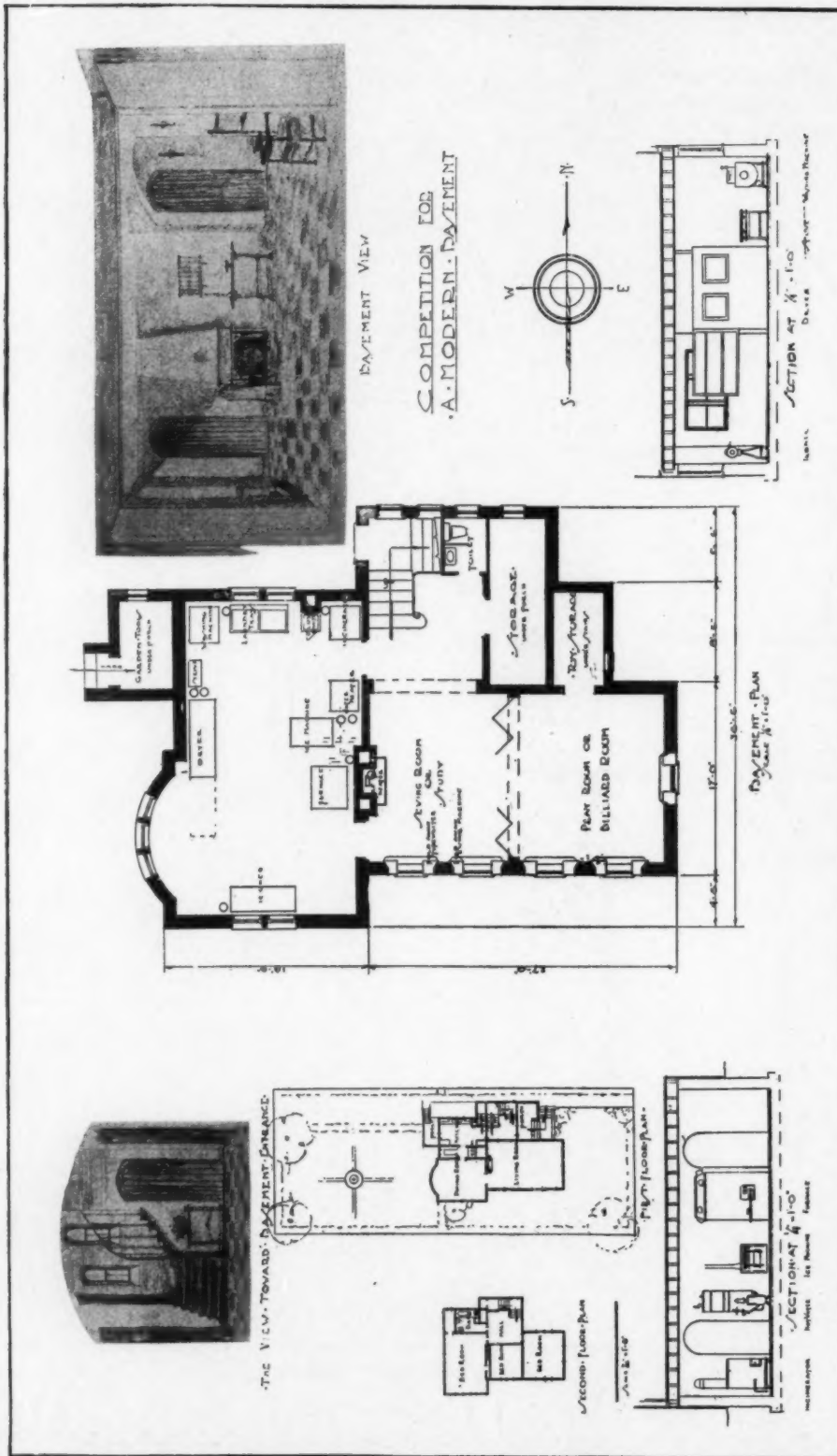


*Sectional
Elevation*

SECOND PRIZE DESIGN SUBMITTED BY J. W. TURNER

COMPETITION FOR A MODERN BASEMENT

A BILLIARD ROOM WITH SPACIOUS LAUNDRY, HEATER ROOM, AND CLOSETS, ARE THE DISTINCTIVE FEATURES OF THIS PLAN



FOURTH PRIZE DESIGN SUBMITTED BY MARGARET S. JONES

COMPETITION FOR A MODERN BASEMENT

IN THIS CASE THE FORMER UGLY BASEMENT IS TRANSFORMED INTO A BEAUTIFUL SEWING ROOM OR STUDY AND A PLAY OR BILLIARD ROOM LEAVING PLENTY OF SPACE FOR THE LAUNDRY AND FURNACE ROOM WITH IRONING, WATER HEATING, AND INCINERATOR FACILITIES



An Anaconda Installation

York & Sawyer, Architects, specified and used Anaconda Brass Pipe for the new First National Bank Building, Boston.



Anaconda Brass Pipe cannot rust or clog with rust deposits. It is guaranteed sound and physically perfect by the world's largest manufacturers of Copper, Brass and Bronze. It may be used in relatively smaller sizes than iron or steel pipe—because rust cannot reduce the internal diameter of Anaconda Brass Pipe.

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SOME OBSERVATIONS on BUILDING CONSTRUCTION DURING 1925 and the OUTLOOK for 1926

THE total building construction for the country for the year 1925 will exceed that of any previous year by a considerable amount, and the total value of contracts let during the year is likely very closely to approach a total of six billion dollars.

According to published reports, the unit cost of building construction during the year 1925, has been approximately 105% greater than building costs during 1913. Statistics compiled by the Associated General Contractors of America show that the labor cost during the year averaged 122% greater than labor cost in 1913—while building material costs averaged 89% above the 1913 prices.

In money value, the construction of 1925 was between three and four times that of 1913, while in volume of construction, based on cubical contents, there was an increase in 1925 of somewhere between 30% and 40% over 1913.

The normal increase in volume of construction in 1925 over 1913, if general conditions had remained the same as in 1913, should have been in the neighborhood of 25%, so that actual construction during this year has somewhat exceeded normal.

While the cost of labor in construction work has been very considerably more—that is approximately 122% greater than in 1913—it is rather difficult to compare the efficiency of labor in 1925 with that in 1913. It is, however, much greater this year than it was during, say, 1920.

Labor rates have generally been stable throughout the country during the year, but of course there have been some slight exceptions. In the southeastern section of the country, particularly in Florida where there has been a great demand for construction, bonuses have been paid. This has also been true in a few instances in the eastern section of the country and possibly in other sections where we have not known about it.

A number of wage agreements in the building industry are coming to a close, and there seems to be an idea that the next wage scale will be some-

what higher than at present. Probably the determining factor in the final answer to this problem will be the actual building demand and the effect of such an increase in wages on building costs. These matters will probably not be determined until the early months of 1926.

What of 1926?

General business conditions are good and from all indications will continue that way for many months to come. The country generally is prosperous and individuals and organizations are receptive to the idea of spending money for betterments and improvements.

The great amount of speculative building that has been done in some sections during the past year will probably be very materially curtailed, because money rates generally are higher, and loaning institutions are closely watching building demands and in some sections, notably New York, are very greatly curtailing their loans on certain types of structures such as office buildings and apartment houses of the speculative type.

Projected work, which usually runs about 50% greater than actual contracts let, has been in about the same proportion during 1925 as in 1924, and there should be quite a carry over into 1926.

Almost without exception, architects in every part of the country report that their offices are extremely busy and the demand for architectural draftsmen very considerably exceeds the available supply. All of these factors confirm the feeling that 1926 looks like a good building year.

It is not apparent that there will be any change in the cost of building construction, except as it may be affected by changed wage scales. Producers have apparently successfully reduced their cost so that they are now in line with the index of the general cost of living. Labor costs have not been so liquidated unless there has been an increased efficiency in labor which would compensate for the relatively higher wage scales, and there is no adequate method of measuring this efficiency.



The Straus Roll Call of 1925

VIEWED from any angle, the operations of S. W. STRAUS & CO. for 1925 in the field of first mortgage real estate financing form themselves into impressive outlines.

Our operations have covered 35 large cities in fifteen states and the Dominion of Canada, extending from Toronto and Seattle on the north to Tampa and Los Angeles on the south.

The projects financed range in size from \$250,000 for a suburban apartment house to \$10,000,000 for a great New York office building; from \$300,000 for a warehouse to \$8,000,000 in literally lifting a great Chicago industry from one section of the city and creating for it a finer, larger and more profitable location.

The 1925 roll call of Straus-financed buildings speaks eloquently for the financial strength, knowledge and experience of the House, and as well for principals, architects and builders everywhere who have reposed their confidence in it.

We are always interested in loans of \$250,000 upward, either as permanent financing of structures to be built or for completed buildings of the better type. Write today for our booklet, "The Straus Plan of Finance". Address our

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BOOK NOTES

THE LAW OF ARCHITECTURE AND BUILDING*

BY

CLINTON H. BLAKE, JR.

A BOOK which makes every man his own lawyer is apt to make business for the law courts, but there come times when it is highly advisable for the statement of one's rights to be handy for immediate reference, and for such an emergency Mr. Blake's book is admirable in every way. It is not exhaustive, it does not pretend to do away with the necessity for legal advice, but it puts in very clear form the relative duties and responsibility of architect, builder and client. Mr. Embury's introduction calls attention to the fact that most architects have more trouble with clients than they do with builders and they are the kind of troubles that are most difficult to adjust. Some of the points covered will come as a surprise to even those who have studied into the question, such as the lien rights of the architect, the much debated ownership of plans and the binding force of contract for professional services. And it may interest some architects to know that they cannot arbitrarily throw up a job even if they wanted to but are legally bound to carry it through.

C. H. BLACKALL

*Second Edition. New York, The William T. Comstock Co.

PROBLEMS IN ARCHITECTURAL DRAWING

A BEGINNERS' course based on a modern house. This book is divided into two sections: Series A presents each problem in pictorial form, either isometric or perspective; Series B presents working drawings in orthographic projection. Simple statements on house planning, house construction, with eight typical American houses precede the practical work of drafting. The instructions are clear and complete for walls, stairs, details, etc. This book is an aid to the student, mechanic, etc.

Problems in Architectural Drawing, by C. V. Bush and E. D. Townsley. 64 pp. Ill. 9" x 12", heavy paper. Published by The Bruce Publishing Co., Milwaukee, Wis. Price \$1.08.

NATIONAL DIRECTORY OF COMMODITY SPECIFICATIONS

THIS book has been in preparation by the Bureau of Standards for the past two years and is now ready for distribution by the Superintendent of Public Documents, Government Printing Office, Washington, D. C., price \$1.25.

It is an index which contains a list of some 27,000 specifications for more than 6,000 commodities. These specifications are prepared and adopted by the Federal government departments, state and city purchasing departments, public utilities, technical societies and trade associations.

The book is divided into ten divisions: animal and animal products (except wool and hair); vegetable products (except seeds, expressed oils and beverages); vegetable products (except food, fibers and wood); textiles; wood and paper; non-metallic minerals; ores, metals and manufacturers (except machinery and vehicles); machinery and vehicles; chemicals and allied products; commodities not otherwise specified.

This directory is of value to the producer, the consumer, the buyer or seller of commodities. The specifications are classified by the decimal system according to the "source" rather than the "use" of the commodities. It contains 385 pages, 7½" x 10½", bound in cloth.

HEATING AND VENTILATING GUIDE

THE fourth edition of The Guide issued by the American Society of Heating and Ventilating Engineers, 29 West Thirty-ninth Street, New York, is now available. It is larger than any previous edition, containing considerably more technical data as well as the catalog data of many new manufacturers. Under the direction of The Guide Publication Committee, many changes in the technical data have been made.

Entirely new data on Heat Loss from Buildings has been contributed by Prof. A. C. Willard. Systems and Piping for Steam Heating is a new chapter arranged by R. V. Frost. New data on Insulation has been compiled by L. B. McMillan and a new chapter on Automatic Temperature Regulation has been written by Samuel R. Lewis. New material on Hot Water Heating has been furnished by Prof. F. E. Giesecke and each of the other chapters in the heating section has been revised by the authors.

In the ventilation section, many changes will be noted, one of the important additions being the chapter on Cooling in Air Conditioning Work, by N. B. Hollister. W. H. Carrier sponsored the chapter on Air Washers and Filters and the new chapter entitled Systems of Ventilation was prepared by Perry West, H. B. Hedges, G. E. Otis and A. J. Nesbitt.

A new index to the text section has been compiled and it will be found most convenient in locating data upon any special subject.

As in former years a roll of membership of this Society is included which shows both alphabetical and geographical lists.

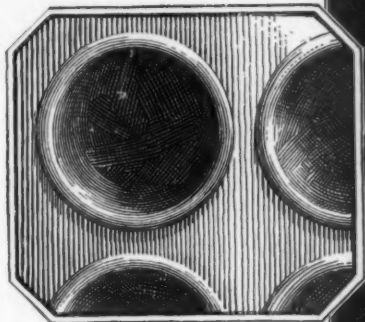
The Guide 1925-26 represents the combined efforts of a great many men, both members and non-members to whom the Society is indebted for the production of this exceptionally fine reference volume.

The Guide is bound in blue cloth, stamped in red and gold, contains 584 pages and may be obtained from the publishers for \$3.00 per copy.

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Expanding and beading
make tubes water-tight.



Quality Assured by Thorough, Unhurried and Experienced Workmanship

The Heggie-Simplex Boiler combines in one portable, electric-welded steel unit all the recognized advantages of both firebox and return tubular, double pass boilers. It has four distinctive features of fundamental importance:

1. Extra large firebox and direct heating surface.
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Made in both smokeless and direct draft types and in a complete range of sizes for bungalows, residences and all larger installations.

QUALITY workmanship unites with quality material and the latest approved design to make Heggie-Simplex Heating Boilers a quality product throughout.

All Heggie-Simplex workmen are carefully trained under the time-honored apprenticeship plan. Only skilled workmen are utilized. The day work basis is employed throughout, to insure careful, thorough, unhurried craftsmanship. No green hands—no piece-work—no records for speed. The emphasis is always on *quality*.

Our rigid, step-by-step inspection in process prevents hasty, careless or faulty work—and makes possible our guaranty of the materials and workmanship in every Heggie-Simplex Boiler, as well as the capacities for which they are rated.

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ATLANTIC TERRA COTTA

THE November issue of *Atlantic Terra Cotta*, the monthly house organ of the Atlantic Terra Cotta Company, continues the "Studies in Polychromy" by Leon V. Solon, begun in an earlier issue. This month's installment is devoted to sculpture. Several full page illustrations of Spanish terra cotta are shown, a photograph of the pediment of the old Madison Square Church, New York, and some interesting modern sculpture in polychrome to be used in the Euclid Avenue Baptist Church, Cleveland, Ohio, now in the course of construction. Architectural interest is, as usual, maintained throughout.

NEW BULLETIN ON WATER SOFTENING

THE National Lime Association has recently issued a bulletin on Water Softening. There are four main chapters in this publication each relating to a particular plan of water treatment. Charles P. Hoover, Chemist in Charge, Water Softening and Purification Works, Columbus, Ohio, is the author of the first chapter on Advantages of the Use of Lime in Water Softening and Purification. The second chapter, The Cost of Impurities in Locomotive Water Supply and the Value of Water Treatment, is from the report of Water Service Committee of the American Railway Engineering Association. Raw Water Ice is the subject of a chapter by A. S. Behrman and O. A. Decille. A. Arthur Brown, Sanitary Engineer, prepared the fourth chapter titled, Some Variants from Accepted Formulae in Water Flows.

The bulletin is 6" x 9" in size, illustrated, and contains 48 pages. This booklet will be sent free upon request to the National Lime Association, 918 G Street, N. W., Washington, D. C., or 844 Rush Street, Chicago, Ill.

OIL BURNER BULLETIN

A TWENTY-EIGHT page bulletin, thoroughly covering the methods and procedure in oil burner testing wherever the burners are fired under boilers or in warm air heating plants, has just been issued by the American Oil Burner Association, 350 Madison Avenue, New York, N. Y. The bulletin discusses theoretical considerations needed for the practical application of the methods and procedure given, which apply for both industrial and domestic burners. One of the principal purposes of preparing the bulletin was to provide under one cover all the important tables and formulae needed in testing burners.

Emphasis is laid on the heat balance method of test for domestic burners. By this method, with simple apparatus and few observations, the operating efficiency of an oil burner can be learned quickly with a sufficient degree of accuracy for most purposes, the bulletin states. A chart for quick determination of losses in oil combustion

which will prove particularly useful is included in this manual. Copies may be secured from the Association Headquarters at 75 cents each.

A CIRCULAR ON CONCRETE BUILDING UNITS

THE Bureau of Standards states in the November *Technical News Bulletin* that the Bureau has issued a circular entitled "The Properties and Manufacture of Concrete Building Units." The circular discusses the important properties of concrete units. Recommendations of the Division of Simplified Practice for the standardization of sizes for concrete block, tile, and brick are given, as well as the large numbers of sizes in present use.

Various materials widely used in the manufacture of concrete products are described in detail, and among others, facing materials and coloring process are outlined. The requirements for concrete units are dealt with from the structural, architectural and fire-resistant viewpoints.

The circular concludes with a bibliography of books, technical papers and periodicals dealing with various phases of the manufacture of concrete units, and several specifications from the Standards of the American Society for Testing Materials and the American Concrete Institute.

SPECIFICATION AND DETAILS FOR SHEET METAL CORNICES

THE Cornice and Educational Publicity Committee of the National Association of Sheet Metal Contractors has prepared in co-operation with the Trade Development Committee of that organization a thirty-two page book on sheet metal cornices.

The book prepared especially for the use of architects, engineers and contractors, contains suggested specifications and details for the construction of sheet metal cornices. Numerous conditions under which sheet metal cornices, balustrades, conductors, etc., are used are described and illustrated by excellent detail drawings and photographs.

The size, 8 3/4" x 12", while a little larger than that recommended by The American Institute of Architects, will fit the standard letter size file. Copies of this book can be obtained by addressing the National Association of Sheet Metal Contractors, 608 Chestnut Street, Philadelphia, Pa.

The Association has in course of preparation a book on sheet metal work which will cover in a comprehensive manner all branches of sheet metal work in building construction.

TECHNOLOGY OF THE MANUFACTURE OF GYPSUM PRODUCTS

A CIRCULAR entitled "The Technology of the Manufacture of Gypsum Products" has been prepared by the Bureau of Standards and

We appreciate the co-
operation you have
extended toward us dur-
ing the past year. . . .
We shall endeavor to
continue to merit your
approval.

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will be available in the near future at the office of the Superintendent of Documents, Government Printing Office, Washington, D. C.

Twenty-three representative gypsum mills located at several of the larger gypsum deposits were visited and a general description of each is included in an appendix to the paper.

STUDIES OF CURING CONCRETE IN A SEMI-ARID CLIMATE

STUDIES of Methods of Curing Concrete in a Semi-Arid Climate, by Harrison F. Gonnerman and C. L. McKesson has been published as Bulletin 15 of the Structural Materials Research Laboratory, Lewis Institute, Chicago.

This investigation was conducted at Sacramento, Calif., as a co-operative research by the California Highway Commission and the Structural Materials Research Laboratory. The climatic conditions were quite unfavorable for the proper curing of unprotected concrete, but are typical of those encountered in semi-arid regions.

The experiments were carried out on 7 by 10 by 38-in. Portland cement concrete beams made out-of-doors and cured in the open. Five hundred and eighteen beams were tested in cross-breaking with the cured surface in tension at ages of 3 to 90 days.

The principal conclusions from the tests are:

(1) A curing method is efficient which maintains the moisture content of the concrete during the early stages of hydration, about equal to the original mixing water. Wet-earth curing gave the best results. Curing methods which permitted high evaporation losses gave concrete of low strength.

(2) Concrete cured under earth wet for 7 or 14 days was only slightly stronger than when cured under earth wet for three days.

(3) Curing with a surface application of flake calcium chloride, $2\frac{1}{2}$ lb. per sq. yd., gave strength-ratios of from 88% at 7 days to 83% at 90 days; with less than this amount and with 3 and 5 lb., there was a slight reduction in strength.

Surface hardness for calcium chloride-cured beams was considerably less than for beams cured with wet earth or with asphaltic paper.

(4) For beams molded and cured in concrete forms using calcium chloride, $2\frac{1}{2}$ lb. per sq. yd., the strength-ratios ranged from 100% at 14 days to 89% at 90 days. The strengths in this case were about 12% higher than for beams molded in wood forms and cured with a similar amount of calcium chloride.

(5) Asphaltic paper curing gave average strength-ratios ranging from 92% at 7 days to 78% at 90 days; surface hardness was almost as high as for wet-earth curing.

(6) Both air curing and sodium silicate curing showed low strength and surface hardness. The strength-ratios for these methods of curing ranged from about 77% at 7 days to 74% at 90 days.

(7) Indentation loads used in measuring surface hardness averaged 21 times the modulus of rupture; the greatest surface hardness was found for concrete of highest flexural strength. This method of test showed that calcium chloride, sodium silicate and air curing produced a more friable surface than wet-earth or paper curing.

CERAMIC GLAZES, THEIR ABRASIVE HARDNESS

A SYSTEMATIC study of forty-nine experimental ceramic glazes has been started by the Bureau of Standards. Fifteen of the forty-nine glazes have been examined and observation concerning the following factors has been made: (a) variations in silica and alumina, (b) variations in glaze thickness and (c) temperature at which the glazes were fired.

The experiments, as stated in the Technical News Bulletin of the Bureau, conducted thus far are necessarily preliminary rather than conclusive, but it is believed that fundamental progress is being made on the investigation.

CENSUS OF MANUFACTURES

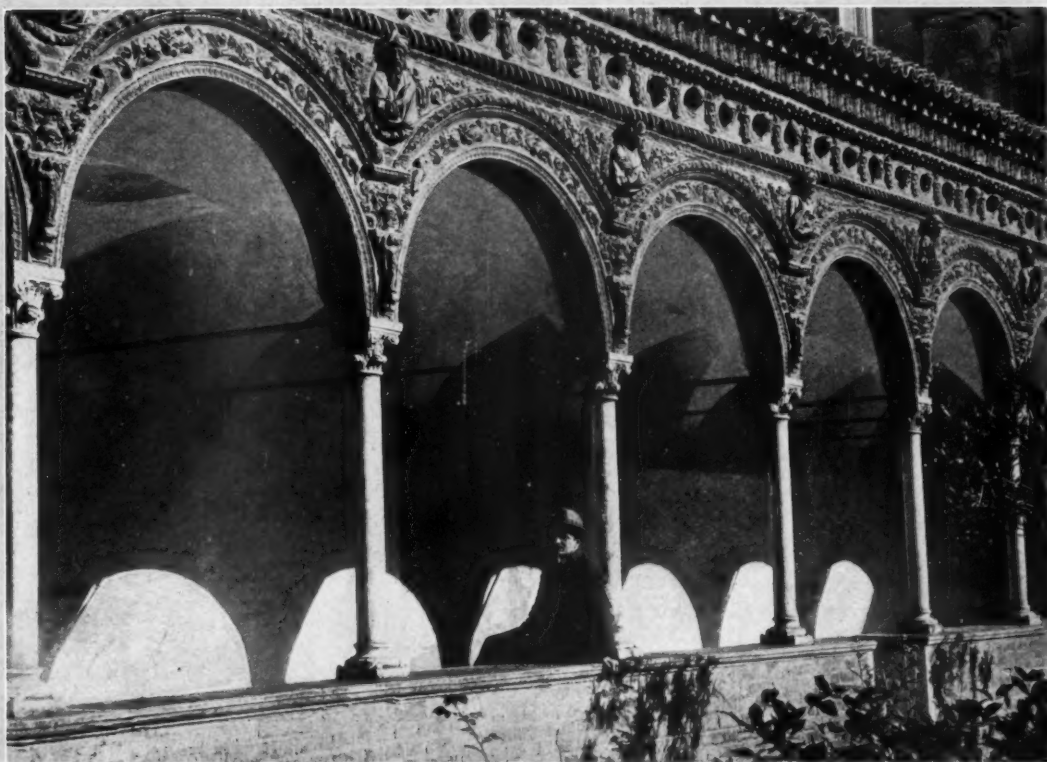
THE Bureau of the Census is making plans for the next biennial census of manufactures, which will cover the year 1925, as provided in the Act of Congress approved March 3, 1919.

In deciding upon the items to be covered by the census, the Bureau has consulted with the representatives of various manufacturers' associations with a view to securing, as far as practicable and without making the schedule too elaborate, information which will be of value to the representatives of the several industries concerned, and at the same time furnish a record of the progress of manufactures generally throughout the United States.

The blank forms upon which reports should be made will be mailed by the Bureau to all manufacturers about January 1, and a report will be required from each manufacturer whose gross products are valued at \$5,000 or more for the year 1925. The tabulation of each industry will not be made by the Bureau of the Census until reports are received from all manufacturers engaged in it. Manufacturers are urged to furnish this information, soon after January 1 in order that the Bureau of the Census may have, as early as possible in 1926, the statistics which will show the condition and record of their industry for the year 1925.

NEW YORK BUILDING CONGRESS STANDARD SPECIFICATION FOR CEMENT FINISH

THE Standards Committee of the New York Building Congress of which Wm. Joshua Barney is the Chairman, has recently issued its standard specification for cement finish. The specification includes paragraphs of general conditions, materials and workmanship, sub-base fills,



*Pavia—Certosa Di Pavia
Terra Cotta Detail Court of the Fountain*

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THE first permanently bound work presenting a comprehensive survey of the Terra Cotta Architecture of early Italy. This volume contains 200 full page plates devoted entirely to illustration of old Italian precedent.

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concrete base for waterproofing, cinder concrete roof grading, concrete base slab, wood sleepers and roof batten fill, cement wearing surface and items such as cement base, plinths, curbs, sills, etc., nailing concrete and gypsum fill.

The standard specification which is called "Part B" is ready for incorporation in the architect's specification without alteration. The specification writer must prepare a brief specification form called "Part A" in which is given a statement of the work in "Part B" which is to be included in the specifications for the particular building described. The paragraphs in Part A are numbered and lettered to correspond with Part B and items not covered in Part B are especially noted and specified.

The use of these standard forms materially reduces the work of preparing the specification for any type of building. Since these standard forms are the results of the combined efforts of architects, specification writers, material producers and contractors they represent not only a vast amount of work but a working document in the complete sense of the word.

A number of offices have been and are using this or similar systems and have found it convenient and productive of results.

The Standards Committee announces that a large number of specifications will probably be issued during the next few months and made available for practical use by architects and engineers.

Earlier in the year, the New York Building Congress issued its first standard specification on "Glass and Glazing" which was printed in full in *THE AMERICAN ARCHITECT*, issue of August 12, 1925. Copies of this as well as the second for "Cement Finish" can be obtained at nominal cost from the New York Building Congress, 1016 Grand Central Terminal Building, New York City, or ordered through this journal.

ANNUAL MEETING, AMERICAN ASSOCIATION OF STATE HIGHWAYS OFFICIALS

AT the annual meeting of the American Association of State Highway Officials held in Detroit November 18 to 21, 1925, Charles M. Upham, Director, Highway Research Board of the National Research Council, presented a paper on "Recent Highway Research Developments" in which he outlined the investigations of the Highway Research Board. The final report of this Board on the Economic Value of Steel Reinforcement on Concrete Roads will be presented at the Fifth Annual Meeting of the Board held this month. The Board has also investigated among other subjects, the Development of Earth Roads, Culvert Pipe and the Urban Highway Finance problem. The Highway Research Board includes contact men from the state Highway departments, representatives from the universities and colleges throughout the United States and has recently extended its contacts with the Latin American

countries. The Board issues the bulletin "Highway Research News" twice a month. The address of the Highway Research Board, National Research Council, is B and 21st Streets, Washington, D. C.

ALBERT B. GROVES

ALBERT B. GROVES died at his home in St. Louis on November 30 after a three day illness of heart disease. Mr. Groves was born in Rhode Island in 1866, and was graduated in architecture from Cornell University, following this by two years of study in France and Italy.

His first practical architectural experience was gained in the office of F. E. Edbrooke in Denver with others who later became leading architects in that city. In the later '80's, Mr. Groves located in St. Louis and was employed in the office of Grable and Weber and soon became the junior partner. Grable, Weber and Groves was succeeded by Weber and Groves, and of late years, after the death of Mr. Weber, he practiced in his own name.

Mr. Groves had a large and profitable practice of a general character and among the prominent buildings designed by him in St. Louis are the New City Hospital, St. Mary's Hospital, the completion of the New City Hall, Westminster Presbyterian Church, Tuscan Temple, the new \$5,000,000 Masonic Temple in association with Eames and Young, Maryland Hotel, the Stock Exchange Building, the addition to the Mercantile Trust Company, and other office buildings. He also designed many large commercial buildings and warehouses, and industrial plants such as the American Brake Shoe plant and many shoe factories.

Mr. Groves was not a member of any architectural organization. He built up and retained a fine clientele among leading financial interests. He was a member of the York and Scottish Rite Masonic bodies, the Missouri Athletic Association, the St. Louis, City and Glen Echo clubs. The business will be carried on by his associates.

PERSONALS

Lewis Bowman announces the removal of his architectural office from Mount Vernon to Pondfield Road at White Plains Road, Bronxville, N. Y. R. H. Scannell will continue his association.

Fooshee & Check, architects, 1310 Dallas Athletic Club Building, Dallas, Tex., desire to have manufacturers of supplies and equipment for hospitals forward their catalogs.

Beacham & LeGrand, architects, and Henry I. Gaines, of Greenville, S. C., have opened offices in the New Medical Building, Asheville, N. C., under the firm name of Beacham, LeGrand & Gaines, where they would be pleased to have manufacturers send catalogs and samples.

