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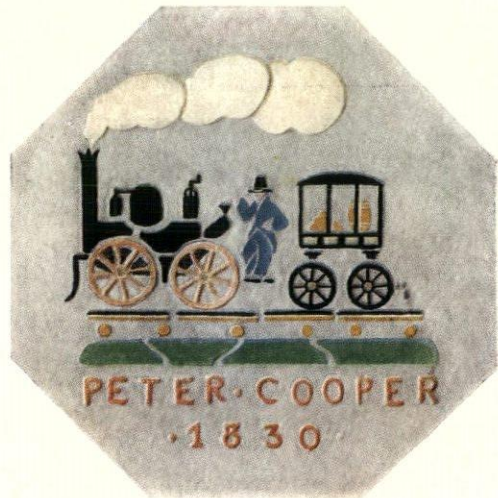
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Top. The "Flying Machine" which ran between Philadelphia and New York in 1766, making this rapid trip in *two days*, hence the name.

Left. The "Conestoga Wagon," a type of conveyance that served inland transportation in Pennsylvania in the first quarter of the nineteenth century.

Right. Peter Cooper and his locomotive, which figured in the early development of American rail transportation.

These tiles were executed at the Enfield Potteries from designs by J. H. Dulles Allen, assisted by Walter P. Suter.



POLYCHROME TILE DECORATIONS IN ELEVATOR LOBBIES,
ILLUSTRATING THE STORY OF TRANSPORTATION—
DELAWARE RIVER BRIDGE

The ARCHITECTURAL RECORD

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NUMBER 1

The DELAWARE RIVER BRIDGE *between* PHILADELPHIA *and* CAMDEN

DAUL P. CRET, ARCHITECT
RALPH MODJESKI, ENGINEER

by

Harold Donaldson Eberlein

THE LATE JOSEPH PENNELL characterized the Delaware River Bridge, between Philadelphia and Camden, as "the ugliest bridge in the world."

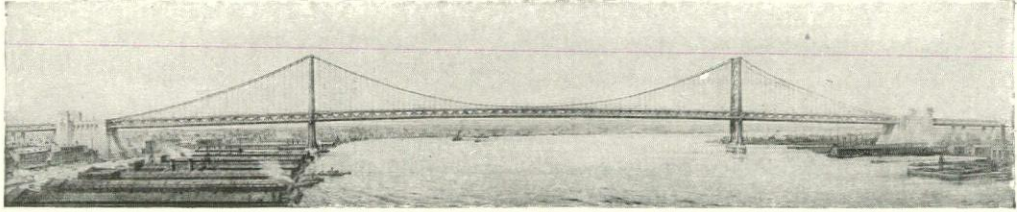
It was unfortunate, in a way, that Mr. Pennell hastily uttered this damnatory opinion, although no one who knew him ever took such pronouncements seriously without knowing what mood he was in when he spoke. Mr. Pennell had a keen sense of advertising values and what he said, in effect, helped the cause of publicity.

His actions belied his words. Notwithstanding the "ugliness," he evidently thought the bridge had character and deserved the labours of his pencil, for he went ahead and made his drawings under conditions that entailed an appreciable degree of personal discomfort. Unfortunately he arrived upon the scene at a time when there was no member of the bridge staff present to do the courtesies of the occasion. Being unable

to get inside the western anchorage or to be accommodated with a point of vantage to his liking, he betook himself to the Camden side, sat on a pile of planks in a timber yard close by the eastern anchorage and sketched with the rain trickling down the back of his neck. Under the circumstances, it is not hard to understand Mr. Pennell's irritation and momentarily uncomplimentary attitude towards his subject.

In actual fact, the Delaware River Bridge is a very noteworthy addition to the bridge-building achievements of America and, indeed, of the world. That its construction was a signal triumph of engineering skill is quite generally recognized. That its design is a matter of no little architectural import and marks a new stage in the evolution of American civil architecture is a fact which the public at large has not as yet fully grasped.

Appreciation of the architectural significance of the Delaware River Bridge



THE DELAWARE RIVER BRIDGE BETWEEN PHILADELPHIA AND CAMDEN

has hitherto been retarded by two factors. In the first place, for a long time past there has been so common a tendency to look upon bridge building as a purely engineering function that comparatively few people think of architecture as having a definite and important part to play. In the second place, the vast majority of those who *cross* the bridge do not really *see* it. They catch a superficial glance as they speed over, but this gives them very little conception of the nature or true appearance of the structure they traverse. Even those who walk the mile and two thirds from plaza to plaza, and recognize that the central span of 1750 feet between the two main towers is the longest single suspension span in the world, can hardly gain any adequate notion of the real aspect of this interstate highway. In other words, *seeing* the bridge and *crossing* the bridge are two altogether different things. To complete the mental picture, it is absolutely necessary to pass underneath the bridge, walk around the anchorages, look up from below at their cliffs of masonry and go inside them as well as cross over the highway on top, and this, unfortunately, not many people do.

The most significant fact about the Delaware River Bridge is that it represents an absolute co-ordination between architecture and engineering. Neither is sacrificed at the expense of the other; each is accorded its due place. To this consistent agreement between architecture and engineering the bridge owes its vital quality, and in this complete and logical accord lies its import as an outstanding example of modern development not only in bridge building but also with reference to monumental architecture in general. It aptly demonstrates the possibility of

satisfactory reconciliation between the demands of engineering necessity on the one hand and the aesthetic claims of architecture on the other, demands and claims which too many have been disposed to regard as more or less irreconcilable and only to be adjusted through some sort of compromise.

The entire agreement between architecture and engineering marks the fundamental difference between the Delaware River Bridge and other large bridges of recent construction. In this case the engineer did not proceed to a mathematical design of cables, piers and steel trusses without consideration of the appearance of the structure, calling in the architect at the final stage to tack on whatever amenities he could to mitigate the brutality of uncompromising structural tensions and stresses baldly expressed in unsympathetic materials. Neither was the architect given *carte blanche* to devise a scheme primarily pleasant to the eye, with subsequent resort to the engineer whose function was merely to make possible of stable construction the fancies of the architect's brain. From start to finish, at every stage of planning and construction, each step was taken only after mature consideration and upon the mutual understanding and agreement arrived at between architect and engineer. The process was not in any sense a case of *compromise*. It was a case of sympathetic, intelligent and tactful *collaboration* between Ralph Modjeski, the chief engineer, and Paul P. Cret, the architect, and the public owes a debt of gratitude to both these gentlemen in recognition of the salutary principle they have jointly exemplified, a principle embodied in a most impressive and notable public structure.

The most striking architectural features are the two granite anchorages on the west and east banks of the river. Their dominating scale and their stern, forceful contours, viewed from the shore level, are almost overwhelming. They dwarf into utter insignificance the docks and marine warehouses around their base; it is only by trying to comprehend the dimensions of their enormous bulk in relation to surrounding objects, the crushing weight of their truly Cyclopean masonry, and the size of the units in their wall surface that one can at all measure and appre-

is not a whimsical conceit of style suggested by the lines of a Thibetan lamasery but a perfectly frank reflection of structure. The slope of the wall follows the line of the enormous steel cable-bent within, whose upper extremity forms a saddle changing the direction and pull of the cable from its anchorage to the horizontal plane whence it begins its soaring curve upward to the top of the main tower. The anchorage towers are not devised with a view merely to interest of composition, or the creation of balance pleasant to the eye, but they are planned



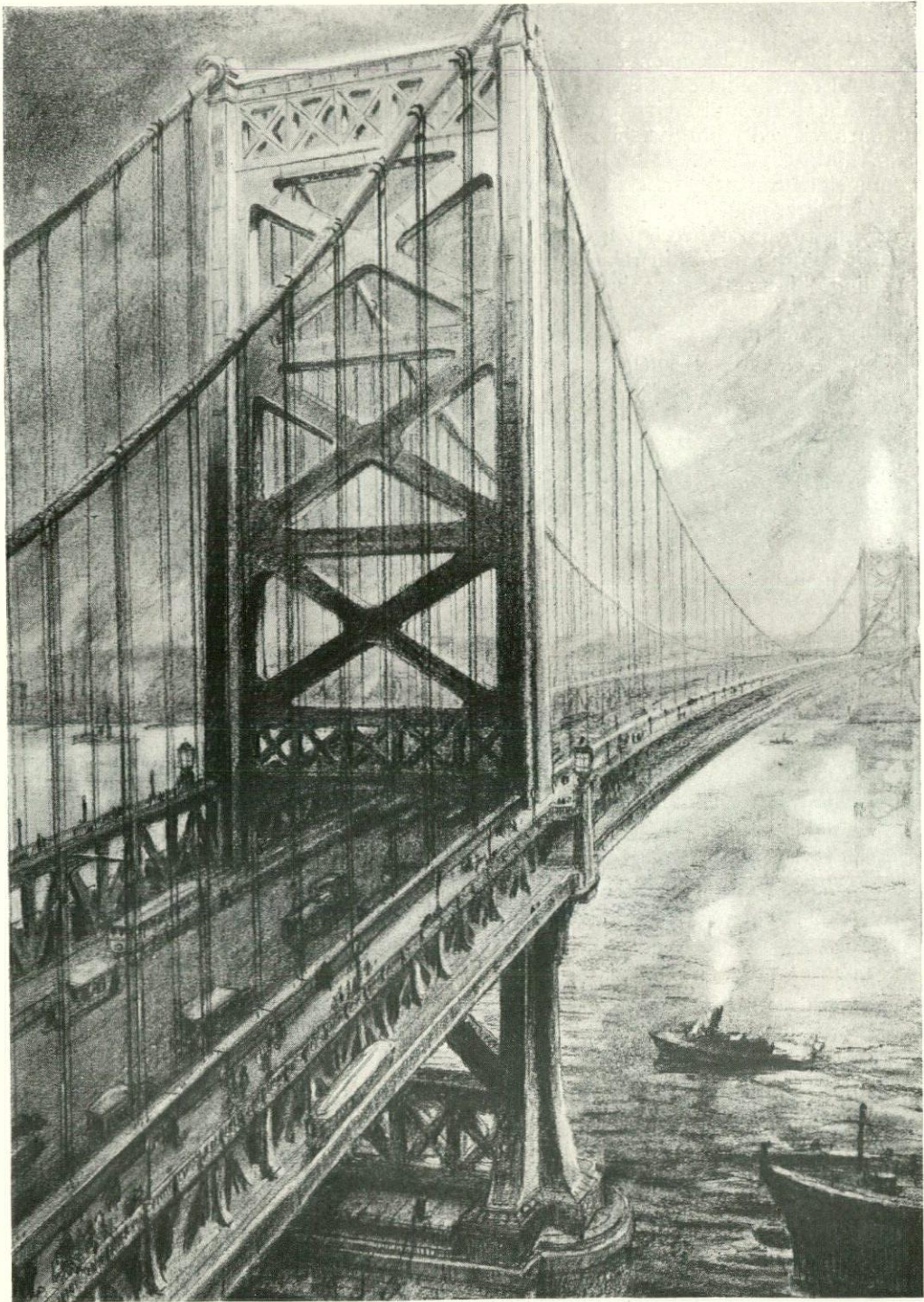
PLAZA AT WEST APPROACH—DELAWARE RIVER BRIDGE
Paul P. Cret, Architect. Ralph Modjeski, Engineer

ciate the scale of the whole bridge structure of which they are merely consistent and proportionate parts. Some idea of the mass of these grim "bull-dog" members of the composition may be gathered when it is known that the torus moulding which runs above the base as a belt course is three feet, two inches in height. The dressed granite blocks that face the walls are of corresponding proportions.

The anchorage contours are both full of interest and convincing to the eye, but their form is altogether determined with reference to structural conditions. The great buttress-like, sweeping batter of the walls at the river end of each anchorage

to contain stairways and lifts giving ready communication between the different levels, from the grade of the street all the way to the footwalks lifted high up above the roadway for vehicular traffic. By means of the stairways, lifts and galleries there is also provision for passenger transfer between the Frankford elevated railway, which crosses underneath the bridge, and the car lines and footways on the bridge above.

The anchorages, despite the severe simplicity and restraint of their design, display a rich imaginative quality and a dramatic value that leaves a deep impression on the mind. Perhaps nowhere



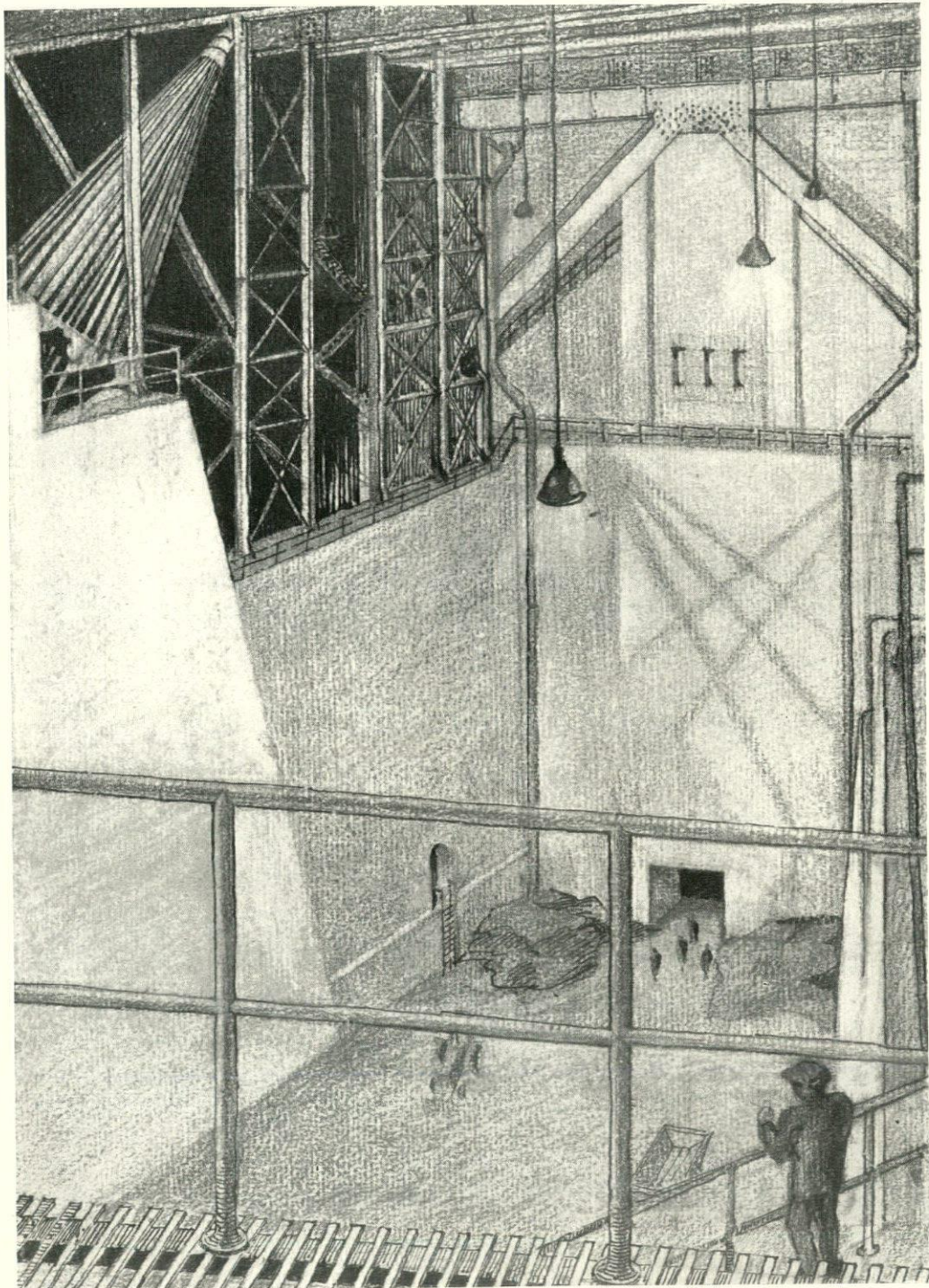
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WEST MAIN TOWER AND SPAN, DELAWARE RIVER BRIDGE

Paul P. Cret, Architect. Ralph Modjeski, Engineer

(From a Drawing by William Hough)

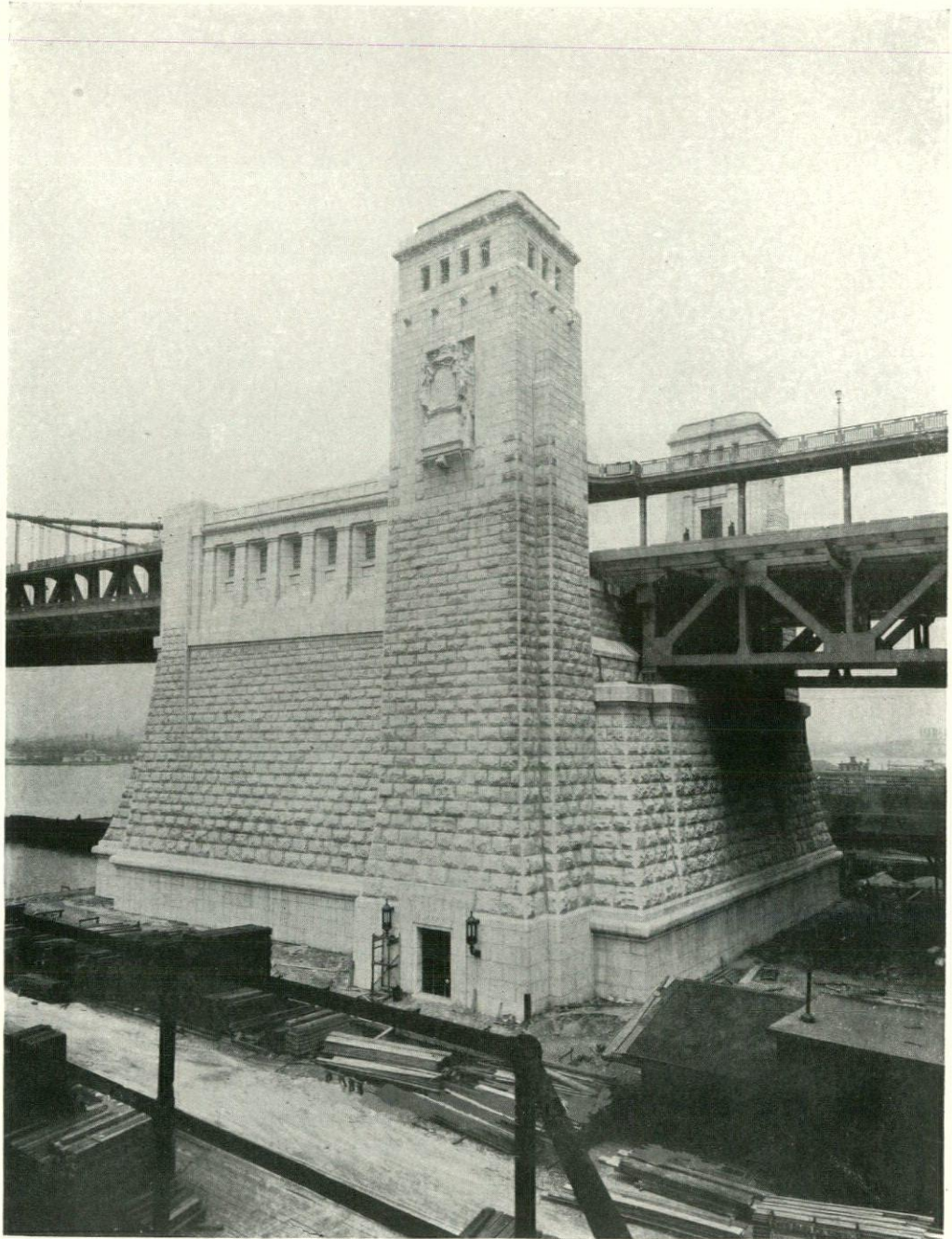
January, 1927



The Architectural Record

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INTERIOR OF ANCHORAGE, DELAWARE RIVER BRIDGE
Paul P. Cret, Architect. Ralph Modjeski, Engineer
(From a Drawing by Perry M. Duncan)



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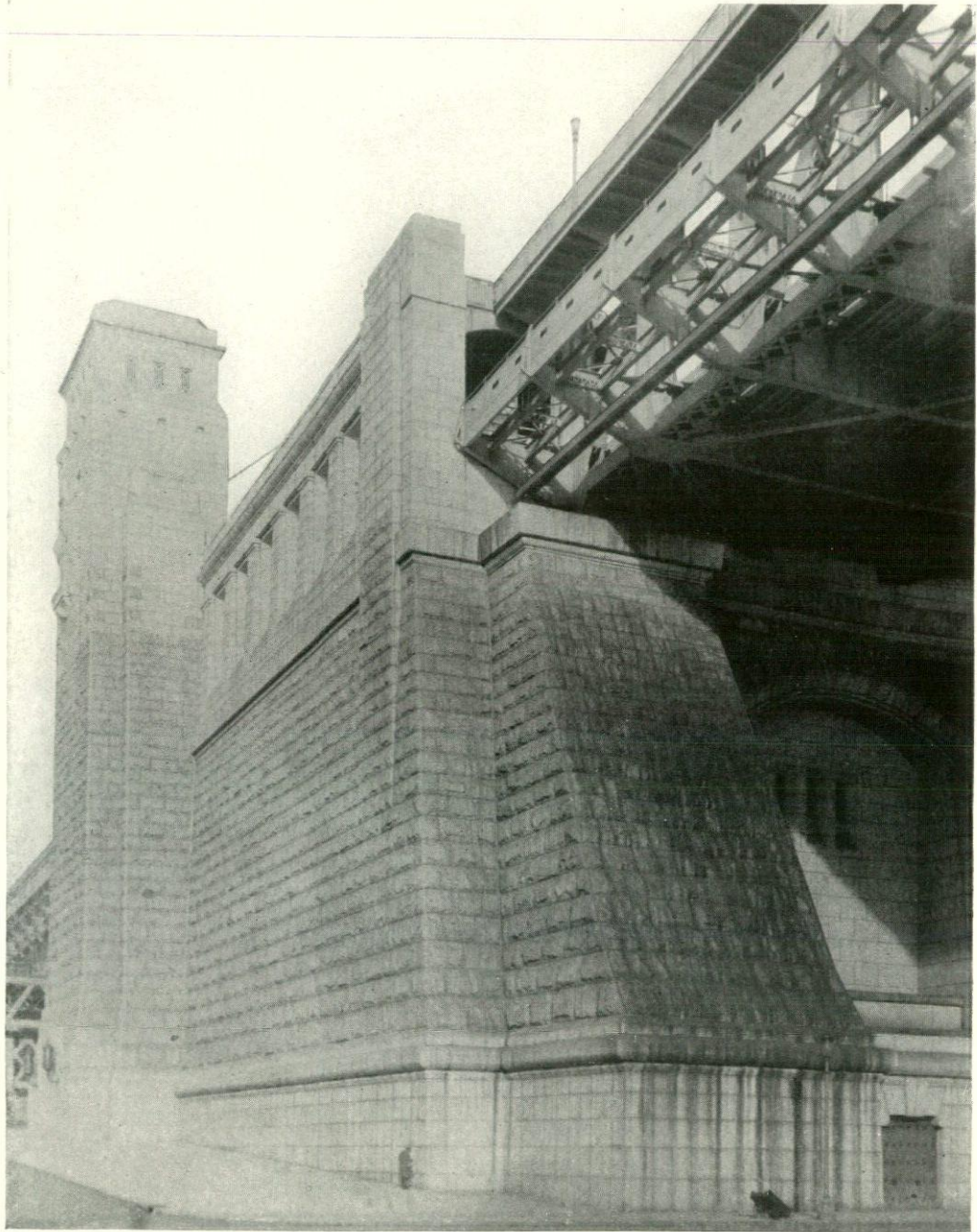
EAST ANCHORAGE, DELAWARE RIVER BRIDGE
Paul P. Cret, Architect. Ralph Modjeski, Engineer



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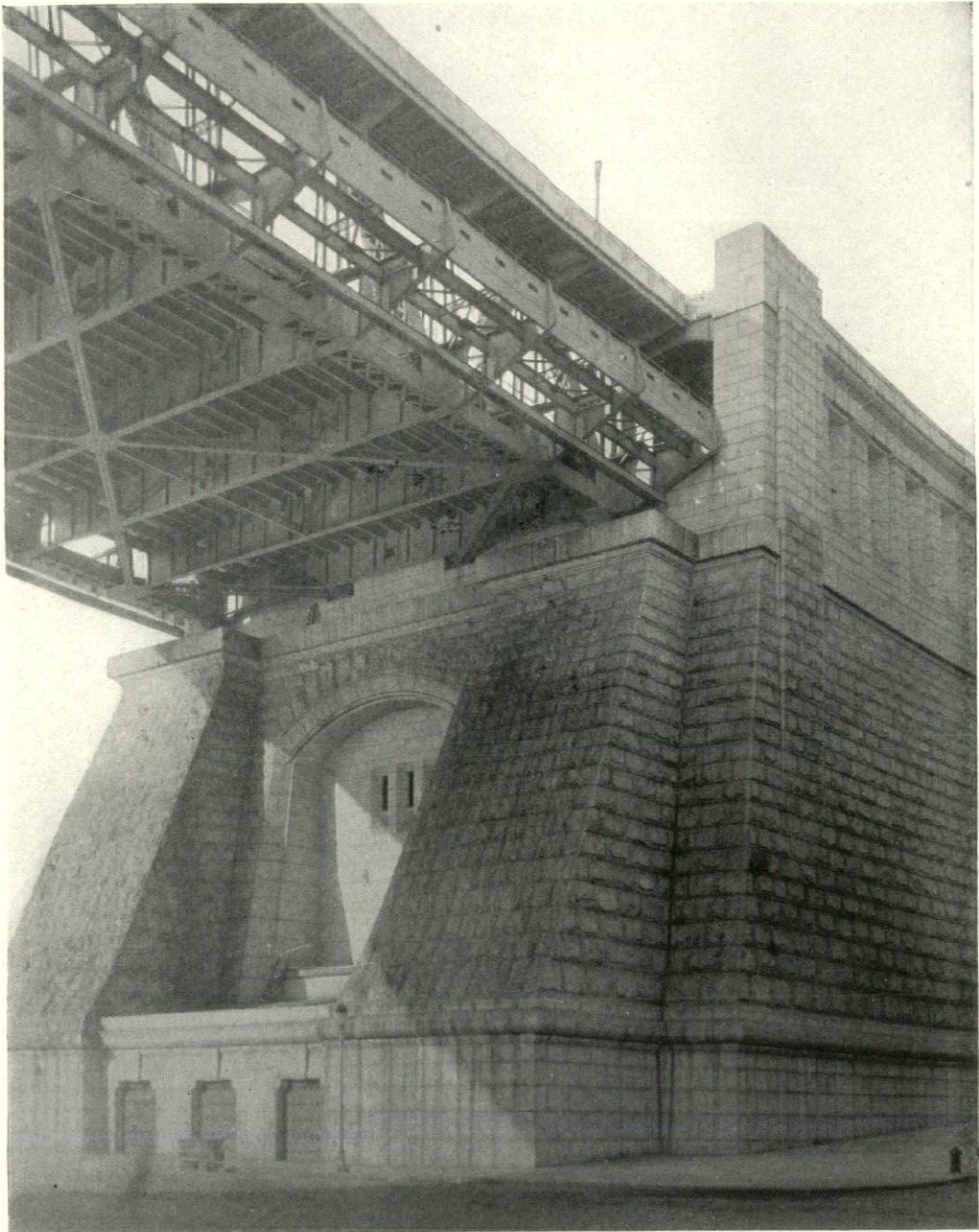
DETAIL AND BASE OF WEST MAIN TOWER, DELAWARE RIVER BRIDGE
Paul P. Cret, Architect. Ralph Modjeski, Engineer



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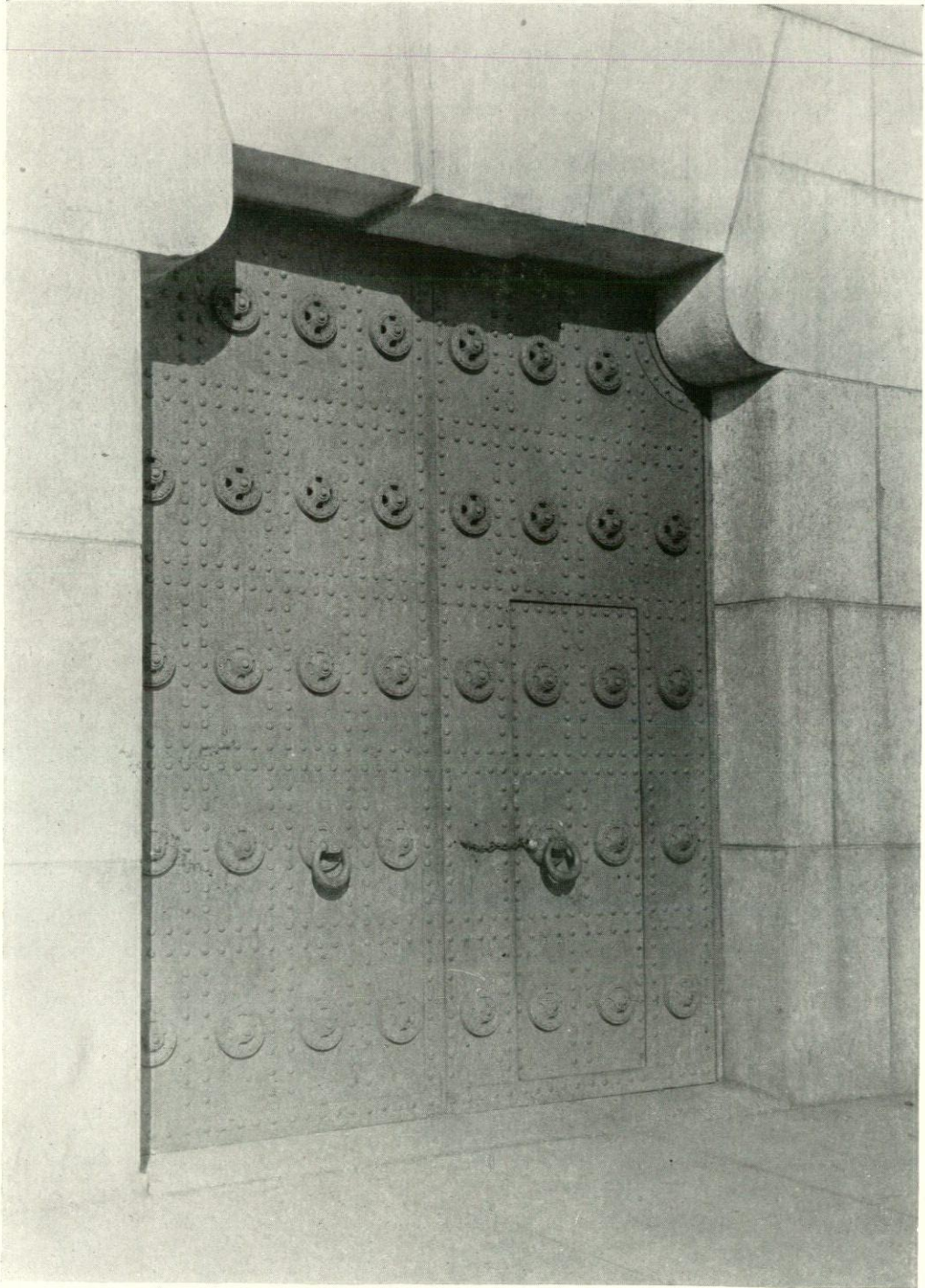
SOUTH SIDE OF WEST ANCHORAGE, FROM RIVER LEVEL, DELAWARE RIVER BRIDGE
Paul P. Cret, Architect. Ralph Modjeski, Engineer



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EAST FRONT OF WEST ANCHORAGE, FROM RIVER LEVEL, DELAWARE RIVER BRIDGE
Paul P. Cret, Architect. Ralph Modjeski, Engineer



The Architectural Record

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DOOR AT BASE OF WEST ANCHORAGE, DELAWARE RIVER BRIDGE
P  ul M. Cret, Architect. Ralph Modjeski, Engineer



Sculptured Cartouche with Seal of Camden



Sculptured Cartouche with Seal of State of New Jersey



Sculptured Cartouche with Seal of Commonwealth of Pennsylvania



Sculptured Cartouche with Seal of Philadelphia

The Architectural Record

January, 1927

SCULPTURED CARTOUCHES ON THE ANCHORAGE TOWERS WHICH BEAR THE ARMS OF PHILADELPHIA, CAMDEN, THE COMMONWEALTH OF PENNSYLVANIA AND THE STATE OF NEW JERSEY

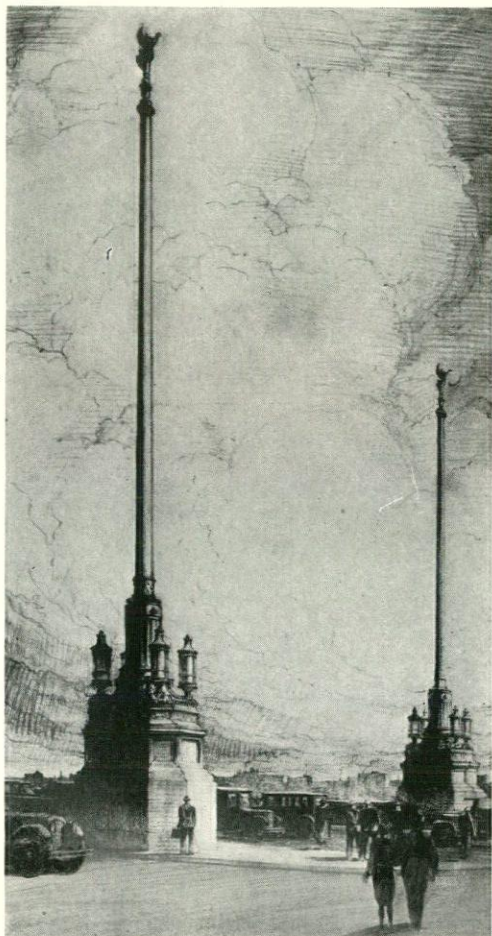
is this peculiarly dramatic force more keenly felt than inside the anchorage walls, looking down from the cross-over gallery, just underneath the floor of the bridge, where a deep pit yawns between cliffs of masonry and concrete and the strands of the cables, spread out fanwise, are wound over steel "shoes" which, in turn, are fastened to huge anchors buried seventy-five feet down under crushing masses of granite and cement. Here, again, the vast scale of the structure is brought forcibly home when a great lorry at the bottom of the pit appears no more than a child's toy and men walking about look less than pygmies. A strange sense of prodigious static power pervades the atmosphere of this place where the vital resistance of the bridge's organism is as visibly manifested as it ever could be. (See Page 5.)

In the use of deliberate and conscious ornament, the architect has been sparing, but where ornament occurs it is concentrated and full of purpose. In this connection especial mention may be accorded to the sculptured arms of the cities of Philadelphia and Camden, the Commonwealth of Pennsylvania and the State of New Jersey which appropriately adorn the anchorage towers; the bronze lamps of the anchorage towers; the grilles

of fretted granite beneath the anchorage parapets, the gilded grilles at the tops of the towers and the metal anchorage doors; and, finally, the gilded figures of winged Victory surmounting flag masts at each end of the bridge and supported on bases of dignified and convincing design. It is scarcely necessary to add that all these features are carefully studied and placed where they will give the most striking emphasis.

One other feature of ornament is particularly noteworthy. It consists of four sets of polychrome tile medallions that embellish the upper walls of the lift lobbies in the anchorage towers at the footway level (see frontispiece). These four sets, consisting of nine medallions each, very fitly represent transportation by land, water and air and their motifs are chosen from historical subjects such as the "Flying Machine," the stage wagon that began to run between Philadelphia and New York in 1766; the Conestoga wagon of the early nineteenth century; Peter Cooper and his locomotive; the *Santa Maria*, in which Columbus

reached the New World; the *Constitution*, and the dirigible *Shenandoah*. It is particularly noticeable that the design has been well adapted to vigorous presentation in the medium selected.



Flag Masts at Bridge Ends, Each One Surmounted by a Figure of Winged Victory

The KENNETH SAWYER GOODMAN MEMORIAL THEATRE, CHICAGO

HOWARD VAN DOREN SHAW, ARCHITECT

By Anne Lee

HOWARD VAN DOREN SHAW faced serious problems when he undertook to design the Kenneth Sawyer Goodman Memorial Theatre, an addition to Chicago's Art Institute. The success of the achievement is noteworthy. Representing, as it does, one of the last works of the eminent Chicago architect, this unique theatre, symbolic in the simplicity and elegance of Mr. Shaw's style, is a fitting climax to an illustrious career.

Grant Park, where the theatre is located, is all made land. Comparatively few years ago, it was part of Lake Michigan, and little excavating is required to strike water. Thus there was a drainage problem to begin with; a problem which was aggravated by the existence of a city ordinance restricting the height of buildings in that section of Grant Park to within 15 feet of natural ground level. Hence the architect had to build down instead of up. Except for the entrance the theatre is practically under ground. A simple, ten-foot wall of Indiana Limestone and a comparatively small entrance motif of the same material, built in simple, classic style, are all that one sees from the street.

The height demanded in theatre construction for the preferred vertical operation of curtains and scenery was not available on account of the imposed building restrictions. The architect had to work within the limitations of two dead-lines, which absolutely precluded a loft and necessitated the horizontal operation of stage appurtenances. At that, it was necessary to build to a depth of 26 feet below ground level. Inasmuch as the architect could not have height to work with, he had to have breadth. The low, horizontal lines which add to the charm of the theatre were a necessity and resulted in an unusually large backstage

with an expanse of 165 feet behind the curtain line. Thus there is ample provision for the horizontal operation of curtains and scenery and wagon-stages. For the fire curtain, a rolling asbestos curtain on a steel drum was substituted for the type in general use in this country.

Mr. Shaw was permitted to digress somewhat from the Chicago ordinances by reason of the fact that Grant Park is under the direct jurisdiction of the South Park Board and does not, strictly speaking, come under the City of Chicago building requirements. Such digressions as were found necessary were made with precautions equivalent to those required by the city. Regarding the exit facilities, for instance, experiments with a full auditorium have shown that the theatre can be emptied in a minute and a half; this in spite of the fact that there are continuous rows of seats, with no front-to-back aisles. The chief advantage in building under the South Park Board jurisdiction in this instance lay in the fact that the City ordinances prohibit the building of public halls below street level.

Ordinary problems, the problems which are usually the chief concern of a theatre architect, such as lighting, heating, ventilation, acoustics and the muffling of outside noises (in this case, the noise of the Illinois Central Railroad whose tracks run directly behind the theatre), became of secondary importance in designing the Goodman Theatre because of the more vital issues involved, foremost among which was that of drainage.

Waterproofing the main portion of the theatre, which is 18 feet below ground level and gradually slopes down to 20½ feet, was accomplished by first laying a six-inch thickness of cinders. On top of this concrete was poured in two four-inch layers, between which was placed a



Main Entrance
 KENNETH SAWYER GOODMAN MEMORIAL THEATRE, CHICAGO
 Howard Van Doren Shaw, Architect

of the auditorium and backstage (in addition to its desirability in many other respects) caused the use of the cyclorama for effects of height and distance.

Built on a steel frame, lathed and plastered, this cyclorama, or sky dome, is 80 feet in width and curves over the stage at a height of 25 feet. It is elliptical in plan, and has a continuous lighting trough 5 feet deep and 5 feet wide, with an opening in the stage 3 feet wide. The curve of the cyclorama, vertically, for outdoor effects, entirely overcomes the feeling of lowness. An effect of a 50 or 60 foot height is obtained inasmuch as it is impossible to determine where the vertical surface ends and the horizontal begins. An enormous proscenium opening 37 feet wide and 19 feet high, enhances this effect.

The cyclorama is lighted entirely from below in three main sections,—right, left and center,—and the effects can be varied

from side to side. Various atmospheric effects, effects of distance and great expanse are provided by the pit lights which are entirely controlled from the stage switchboard. The architect considered the cyclorama one of the most successful features of the theatre. Aside from its primary advantages, it has eliminated many back-drops. Concealed in the ceiling are five sets of lines which may be lowered for drops. The use of two 32-foot movable platforms or wagon-stages also offsets the disadvantages of not having a loft. Entire sets may be arranged on the platforms, which can be wheeled into place instantly.

Two floors of property room space, a large carpenter shop, ample scene racks and paint frames and a green room, which is tucked into the space at the side of the auditorium usually used for a lower box, are backstage features. Space over the side corridors provides exceptional

dressing room facilities where the comfort of the players was given first consideration in spacious arrangement, good lighting and ample sanitary provisions.

There are no windows in the theatre. Except for the auditorium, which is illuminated entirely by concealed lights, and for the backstage region, most of the rooms in the building depend on large skylights for daylight. Heat is derived from the central heating plant of the Art Institute. An extensive exhaust fan system, operated from the fanroom under the entrance stairway, ventilates the building.

Traveling, now, 208 feet on Monroe Street from the extreme backstage on the north side of the theatre to the entrance on South Parkway, one passes through doors flanked by Doric columns to enter the stone vestibule with vaulted stone

ceiling and through a second set of doors into the ticket lobby, also of stone. Going down the flight of shallow marble steps, one is immediately aware of an atmosphere of dignity and elegance; of a beauty of interior that is different.

Instead of the usual lobby, a Memorial Gallery, measuring 20 x 100 ft., stretches out at the foot of the stairs, covering the full width of the theatre. Walls of stone support a vaulted plaster ceiling, down the full length of which runs a metal sub-skylight. Heroic bronzes silhouette their figures against the light stone walls which are hung with three large tapestries and several portraits of theatrical celebrities. Notable among the small sculptures shown is a bronze bust of Howard Van Doren Shaw. Polished, black terrazzo flooring contrasts with the

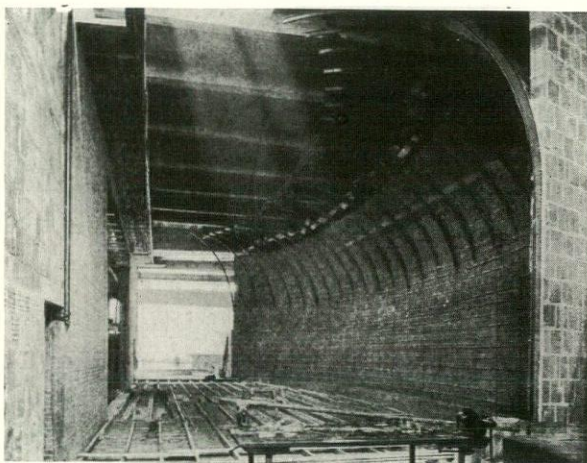
light walls. Looking up, one is aware of an unusual moulding which recalls the architect's love for detail and keen interest in untried ornamentations. Altogether, the effect of the Memorial Gallery is one of a great charm seldom achieved.

The Gallery gives access to the reception and smoking rooms, the office, rehearsal and class-rooms and to the studio where the costumes are created. This model workroom is equipped with sewing machines and with dyeing, washing and ironing facilities. Ample checkroom space is provided under the small balcony which covers the full width of the auditorium.

The Gallery gives access, too to the 12-foot corridors which parallel both sides of the auditorium and are built on a slope to correspond with the auditorium. Five doorways lead from each corridor to the interior which has a

seating capacity of 750. One liberty the architect took was the arrangement of the seats in continuous rows from side to side, with no front-to-back aisles, following the European plan (particularly that used in many modern German theatres and to some extent, in London). There are 37 seats in a row with a distance of 3 feet 6 inches back to back, which allows ample foot room and room for passing. This distance is somewhat greater than that used in most of the German theatres.

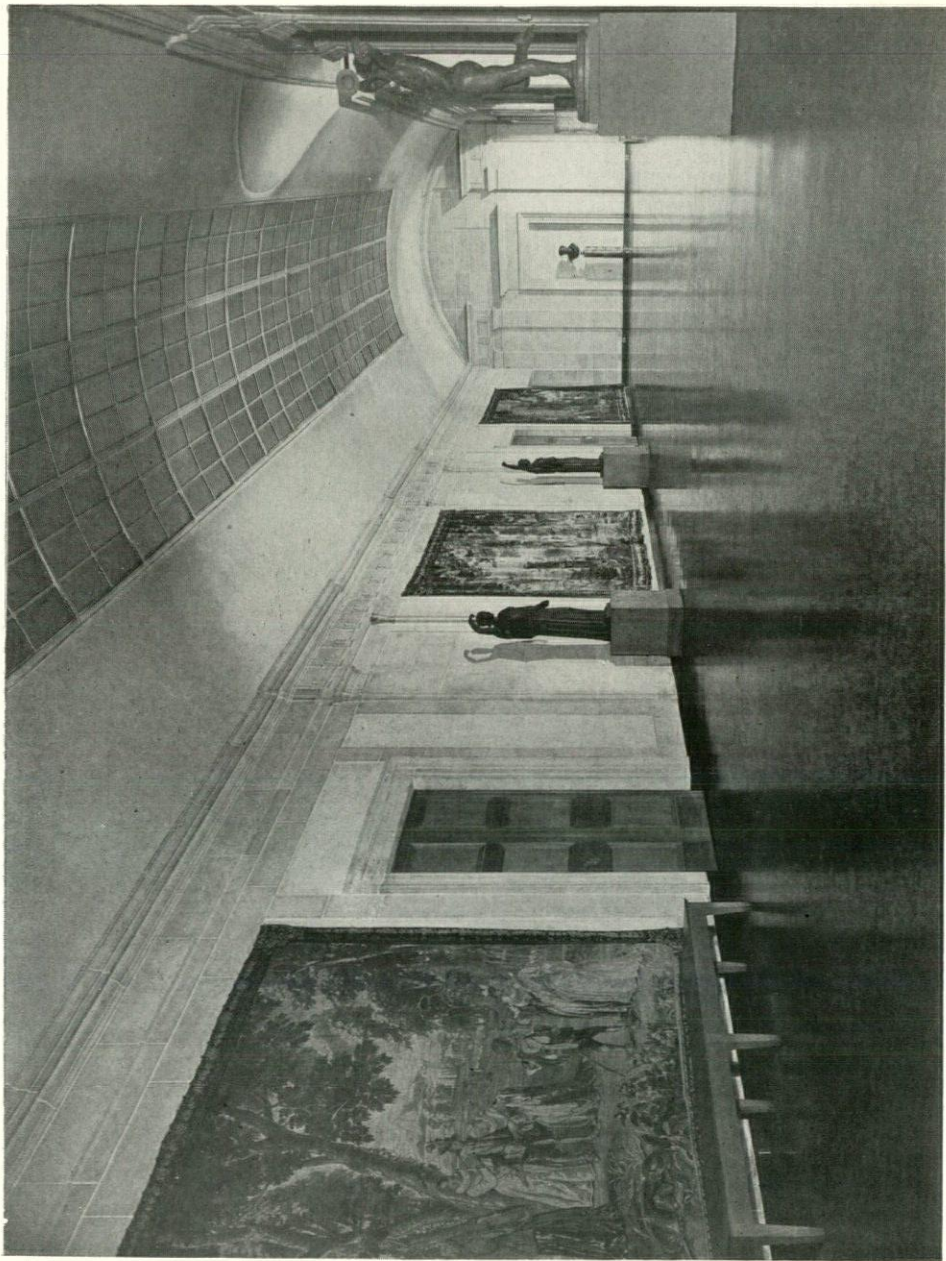
The interior of the auditorium is built entirely of quarter-sawed white oak, fumed and waxed, panelled in a style inspired by the Georgian Period. Here again the effect is one of charming simplicity. A chaste dignity and beauty of proportion and design have been achieved by the varied and interesting uses of



The Cyclorama Under Construction
GOODMAN MEMORIAL THEATRE, CHICAGO



Detail of Main Stair Entrance to Memorial Gallery
KENNETH SAWYER GOODMAN MEMORIAL THEATRE, CHICAGO
Howard Van Doren Shaw, Architect



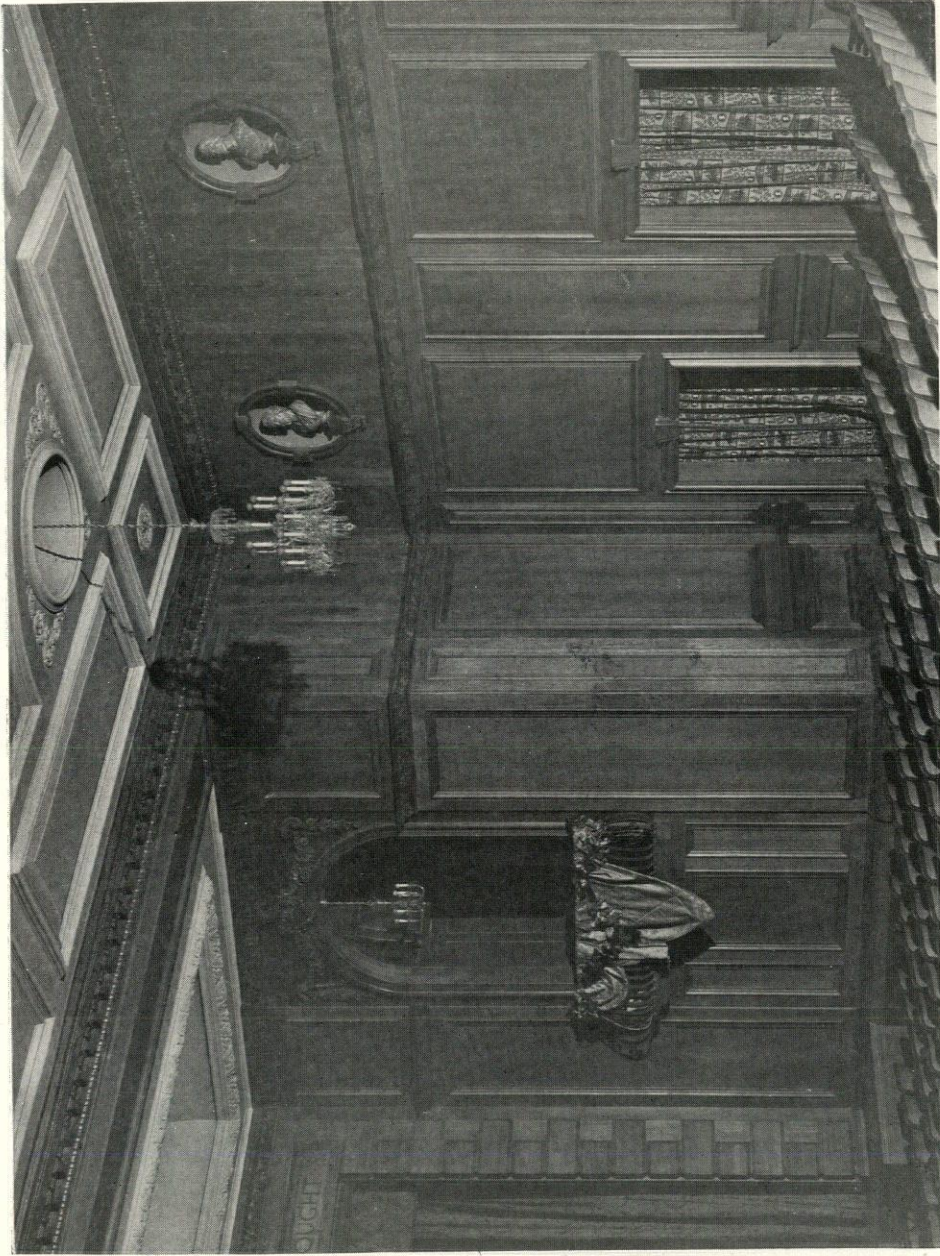
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Memorial Gallery

KENNETH SAWYER GOODMAN MEMORIAL THEATRE, CHICAGO

Howard Van Doren Shaw, Architect

January, 1927



The Architectural Record

Auditorium, Showing Wood Paneling
KENNETH SAWYER GOODMAN MEMORIAL THEATRE, CHICAGO
Howard Van Doren Shaw, Architect

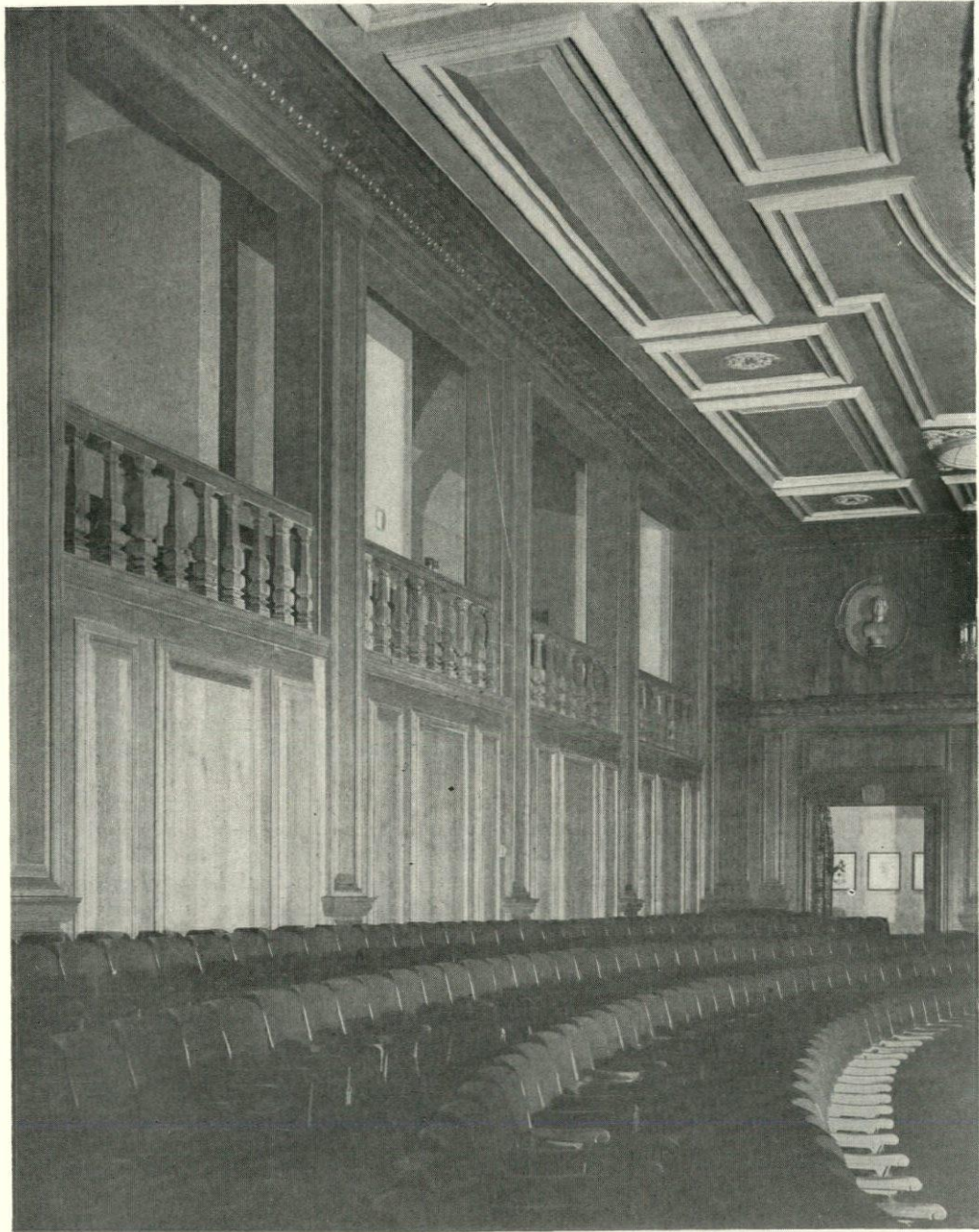
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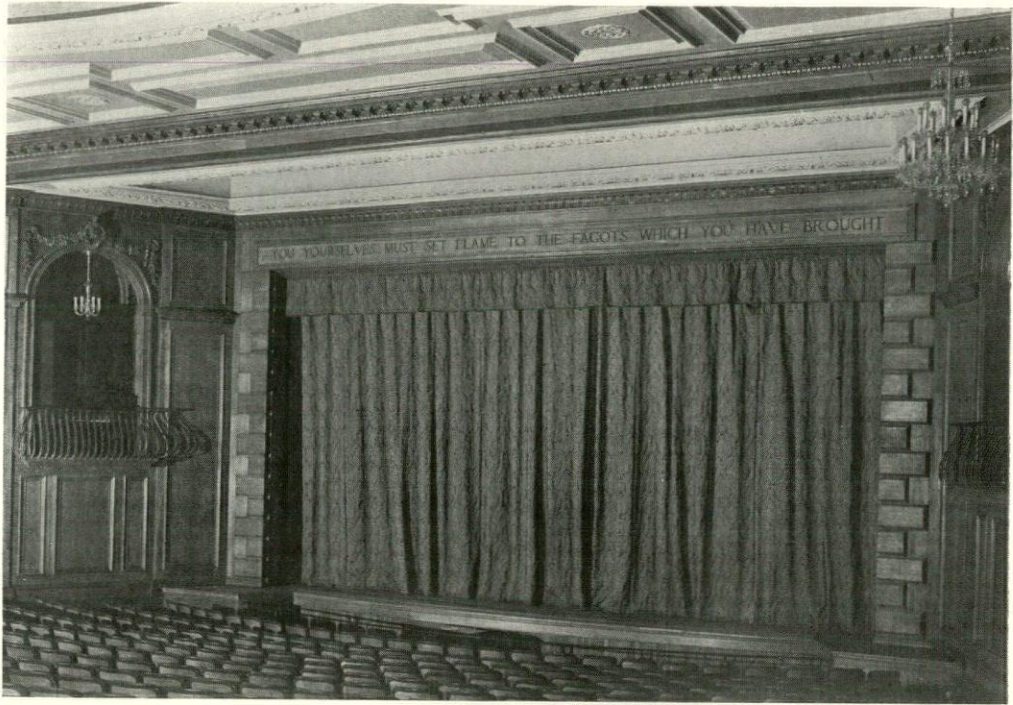
Detail, Auditorium
KENNETH SAWYER GOODMAN MEMORIAL THEATRE, CHICAGO
Howard Van Doren Shaw, Architect



The Architectural Record

January, 1927

Detail, Auditorium
KENNETH SAWYER GOODMAN MEMORIAL THEATRE, CHICAGO
Howard Van Doren Shaw, Architect



Proscenium
 KENNETH SAWYER GOODMAN MEMORIAL THEATRE, CHICAGO
 Howard Van Doren Shaw, Architect

wood. Random-width oak boards, with knots and other imperfections, were used above the large panels to form the background for niches where the busts of noted dramatists are seen. Boxes have been eliminated. Instead, occupying the spaces generally devoted to upper boxes, there is a small balcony on either side of the stage. On occasion, these balconies are used in conjunction with the stage.

Contrasting with the soft brown tones of the oak, are the light plaster ornamental ceiling, the plaster busts, crystal chandeliers, the linen curtains (block-printed in red), and the rose-colored velvet hangings on the corridor-side. These curtains open and disappear into the doorways through which one glimpses colorful prints and paintings hung on the rough plaster corridor walls.

The Kenneth Sawyer Goodman Memorial Theatre, which is so significant a monument to the young playwright, is

none the less a monument, too, to the architect who conceived and brought into being, in spite of serious obstacles, a theatre of charm and beauty as expressive of his own ideals in design as of the dramatist's ideals in stagecraft; blending his own personality in the exquisite handling of detail (for which Mr. Shaw was known), with the spirit of Kenneth Sawyer Goodman, whom the architect immortalized by the use of quotations from the young playwright's works, such as: "You yourselves must set flame to the fagots which you have brought," carved in wood over the proscenium arch, and another, inscribed in the stone lintel over the street entrance, which reads: "To restore the old visions and to win the new."

Thus is the purpose of the theatre explained; thus, the ideal of the young dramatist set forth in perfect harmony with the design of the architect.

PUBLIC CONVENIENCE BUILDINGS *in the* PARKS OF PORTLAND, OREGON

By Florence Holmes Gerke

THE BUREAU OF PARKS of the City of Portland, Oregon, has erected within the last few years several buildings of various sizes, designed to serve the public and to set a standard of good taste in building of this type. The park properties being of many types and sizes with greatly varying topography, location and use, the buildings have naturally been equally varied in style, size and cost.

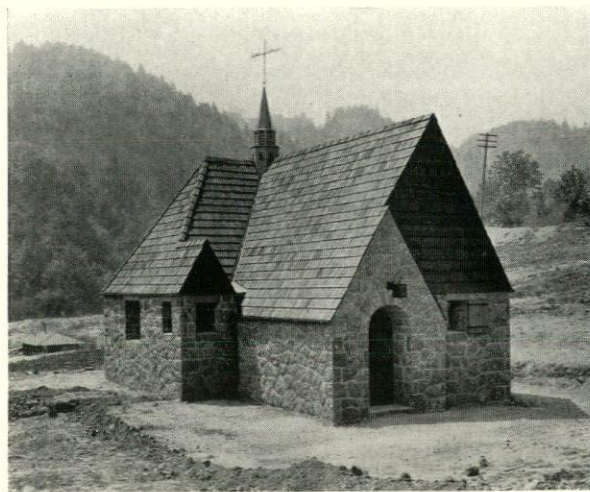
These buildings have been designed to include public comfort stations, refreshment stands, play shelters for children, rest rooms, dressing rooms for park and play ground athletic teams, and for the use of park maintenance. They do not all have all of these features but various combinations have been worked out to fill the need of the particular park for which each is designed. These relatively small buildings have been found to fill a need which the community houses have served and to do so in a far less expensive manner. The Bureau maintains two community houses but has perhaps two score of the little buildings in use.

The smallest building is that which contains two comfort stations and a tool house for the park workman. This is used in small passing-through parks, downtown plazas and in large parks where other buildings are also provided.

These little buildings are extremely varied in design and are arranged to give service with a minimum amount of upkeep. Years ago it was the policy of the Bureau to erect a standard building in all park properties, but this method has long

been abandoned in favor of the method which gives each particular problem careful thought and a resulting design of suitability and of charm.

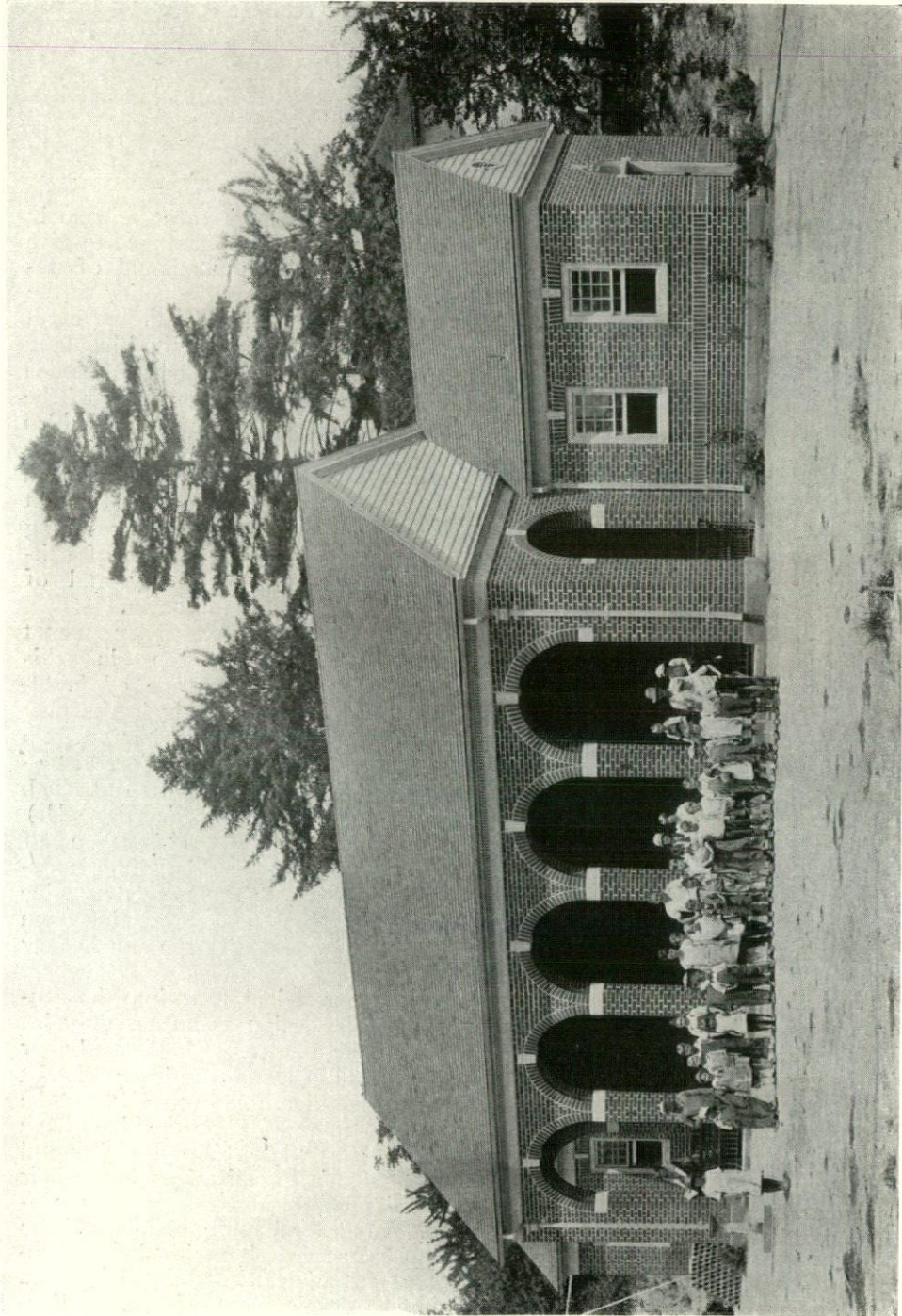
The next step in this type of building is the play shelter with comfort stations attached. (See Page 24.) This type of building is arranged to give protection from the sun in new parks where



PUBLIC CONVENIENCE BUILDING IN DUNIWAY
PARK, PORTLAND, OREGON
L. L. Dougan, Architect

shade is at a premium, to fit into the general landscape design as an accent point on one of the axes, or to be located near the street in a good residence district where the smaller building might not be desirable. Some of these pavilions have large fireplaces where Campfire girls and other children's organizations have their ceremonies on spring and autumn evenings. In general these buildings have been of balanced design with simple archways, grilles and lattices to add interest.

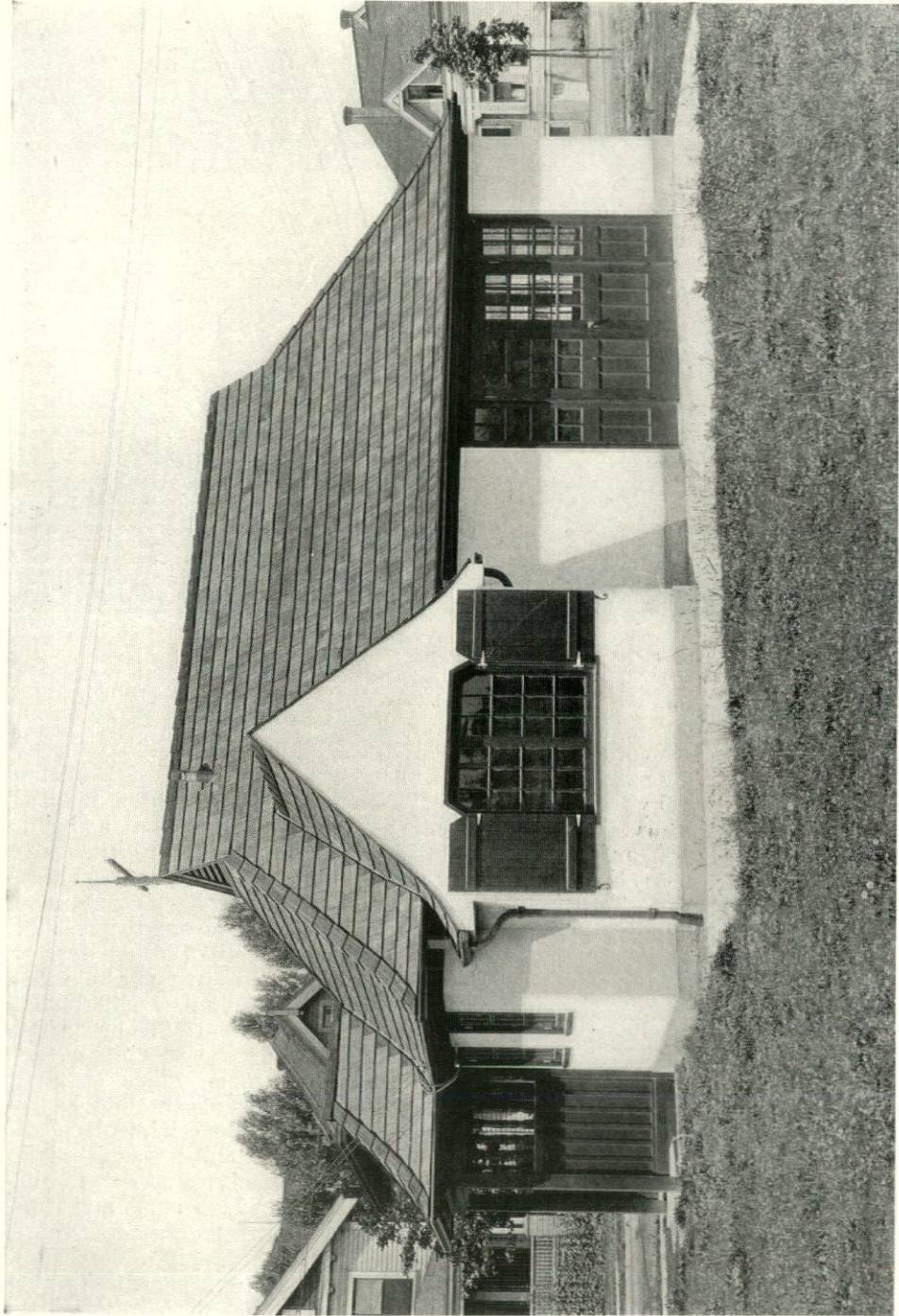
Another development of the convenience buildings is the structure of informal design which contains a refreshment counter and storeroom and occasionally a small terrace for a few tables.



The Architectural Record

PLAY-SHELTER IN NEW PARK, PORTLAND, OREGON
Folger Johnson, Architect

January, 1927



The Architectural Record

COMBINATION REFRESHMENT STAND, DRESSING ROOM FOR BALL PLAYERS AND COMFORT STATION
AT BUCKMAN FIELD, PORTLAND, OREGON

Morris H. Whitehouse, Architect

January, 1927



LODGE AT MULTNOMAH FALLS, BENSON PARK

Operated by the Bureau of Parks, Portland, Oregon

A. E. Doyle, Architect

All types of materials have been used but a very rough stucco or natural stone quarried just outside the city limits have been found most satisfactory. Wooden structures increase the maintenance problem and smooth stucco invites the careless person to scribble and otherwise mar the surface. It is common practice to build the concrete floor directly on the ground whenever the topography of the ground permits. Occasionally tile and stone are worked into the floor to add interest. Thus a sturdy floor requiring little care is obtained.

A further variation of the small convenience structure is the room containing electric and gas plates for the use of picnickers who would boil a pot of coffee for the outdoor supper. A sink and tables are provided in these little kitchens which have been found extremely useful in parks frequented by large group picnic parties. All types described have comfort stations in connection.

A more extensive development of the convenience building is seen at the lodge

at Multnomah Falls on the Columbia River Highway. The City of Portland, which owns the falls and Benson park also, has recently completed a building which has been found to fill the needs of the thousands of visitors who arrive each week. This building is of native stone secured a short distance away, of native Douglas fir and of rough stucco. It is built in a rugged manner to withstand winter storms and snow slides from the cliffs above. The travelling public is provided with every convenience, including a dining room, lunch counter, telephone booths, rest rooms and lobby. The lobby is simply done with plenty of space for circulation and is furnished in stout pieces designed to appeal to the mountain climber in high boots and flannel shirt as well as to the passing motorist. A large stone fireplace dominates the east wall and on the north side are glass doors opening onto a balcony which offers an uninterrupted view of the Columbia River and the distant mountains in the State of Washington.

THE BUILDING PROSPECT FOR 1927

By

Thomas S. Holden
*Vice-President in Charge of Statistical
Division, F. W. Dodge Corporation*

THE CONSTRUCTION record of 1926 was quite remarkable. The prevailing tendency through most of the year was downward, and yet the total construction volume did not decline from the preceding year, but increased a little. The downward tendency was anticipated by most business analysts, including the present writer, at the beginning of the year. Such a downward tendency, following a big speculative movement like that of the second half of 1925 has practically always in the past developed into a fairly severe reaction, with considerable reduction in the rate of construction activity. Consequently, it was thought that last year's reaction would necessarily mean a reduced volume of construction for the year as a whole.

As a matter of fact, the construction record of the first half of 1926 contained no particular surprises to those who had been following such matters at all closely. The present writer, in his outlook article of last January said: "It will not be surprising if construction volume during the first half of 1926 would very nearly equal that of the first half of 1925, or even surpass it somewhat, to be followed by a reduced volume in the second half of the year instead of an increased volume, as in the second half of 1925. Should the volume of the first half of this year (1926) be much above that of the first half of 1925, the year's total volume might possibly be equal to that of 1925, even in the face of a positive reaction."

As it turned out, the first half of 1926 had an increase in contract volume over the first half of 1925 of 11 per cent. The second half of 1926 did run behind the second half of 1925, but not enough behind to wipe out the margin of increase resulting from the big contract-letting of

the first six months. The half year records have been as follows:

CONTRACTS (Millions of Dollars)		
	1925	1926
1st half.....	3,078	3,404
2nd half.....	3,544	3,396*
Year	<u>6,622</u>	<u>6,800</u>

The net gain at the end of 1926 was just about equal to the gain made in the first two months of the year. Now, the normal procedure is a 12 per cent decline in contract volume in the second half of the year as compared with the first half. The increase in the second half of 1925 represented speculative boom. The second half of 1926, holding up to equality in contract volume with the first half, and that in a year following a speculative boom, represented an unprecedented condition of stability.

This record of stabilized prosperity in construction was duplicated in 1926 in a number of lines of business and industry. A well-tempered conservatism guided business policies for the most part; speculative excesses were checked; reactionary tendencies were kept within very moderate bounds, and the year's total volume of general business, as well as of construction, produced results that exceeded all previous records. The general character of business in 1926 has been aptly characterized by Col. Leonard P. Ayres as "prudent prosperity."

It was prudent foresight that caused business leaders to anticipate the collapse of the Florida boom, the early spring stock market reaction, and the decline of general real estate speculation, so that these adverse influences did not cause serious setbacks to the general prosperity

*Preliminary figures.

of the country. The same sort of prudent foresight caused leaders in the construction industry, early in 1926, to agitate for close scrutiny of the credit of promoters of new building projects, conservative appraisals of property against which mortgage bonds were to be issued, and cautious study of proposed construction to determine whether it was designed to fit the real economic needs of the communities in which it was to be erected.

One important element in the construction situation that has been under discussion for over a year has been the first-mortgage real estate bond business. It has been stated that one billion dollars worth of new construction was financed by bond issues in 1926, which makes this form of financing a factor of primary importance to the construction industry. On its present scale this business is a development of the past few years. Ultra-conservative financial authorities have viewed this business with some suspicion, which was accentuated by the G. L. Miller & Co. receivership in the early fall. Perhaps some companies have been developed with a little too much salesmanship and not quite enough financial judgment in their make-up. However, this one receivership, although it disturbed somewhat the confidence of the investing public in this class of financing, was not (up to December 1, 1926) followed by any others. It also disclosed the fact that the company in question had not been responsible for nearly so large a volume of financing as had been generally supposed. Since the Miller receivership a most important development has taken place. The first-mortgage bond business itself, under the auspices of the American Construction Council, is now making a survey of its own business, in order to determine whether there is any necessity for standardization of appraisal procedure, supervision of bond issues by state banking departments or securities commissioners, or any other reform or system of regulation. This movement was initiated by one of the most promi-

nent mortgage bond houses, this house having started the discussion with a proposal for state supervision. Reform of the more risky schemes of installment financing of automobile sales was brought about in early 1926 through the efforts of leaders in the automotive industry. Now it seems that the first mortgage bond business is taking the initiative in demonstrating to the investing public that it deserves the same confidence that any other conservatively-managed investment business does. Such things do not ordinarily happen in a period of great prosperity; they are characteristic of the present era of "prudent prosperity." Confidence in the first mortgage bond business is quite essential for continued large construction volume. This form of building investment is responsible for the construction of a very considerable number of the larger income-producing buildings of the present time, such as office buildings, large apartments, hotels and theaters.

While construction has been and is one of the primary contributors to the general prosperity, it is now just as dependent on a continuation of general prosperity as general business is on it. With necessity-demands for building caught up long since, and current necessity-requirements easily taken care of by less than its full productive capacity, the construction industry must look to a prosperity-demand for continued full-time employment. Already in congested centers new buildings have drawn tenants away from the old ones, and old ones too obsolete to meet the competition are being torn down for replacement by modern structures. So long as the general supply of purchasing power in the country remains high, there will be a continued demand for newer and better buildings. On the other hand, any curtailment of purchasing power in 1927 is rather likely to be reflected in some curtailment of construction activity. Since the collapse of the Florida boom and the decline in cotton prices in the South, construction activity has slackened in that territory. In the Central West and the

TABLE I
REVISED ESTIMATES OF TOTAL CONSTRUCTION VOLUME IN
CONTINENTAL UNITED STATES

Year	Total Construction Volume
1919	\$3,142,500,000
1920	3,337,600,000
1921	3,068,900,000
1922	4,329,700,000
1923	4,768,100,000
1924	5,237,100,000
1925	6,622,600,000
1926 (Preliminary).....	6,800,000,000

NOTE—These estimates are based on the assumption that the building contract records for the 37 States east of the Rocky Mountains, as now completed by the F. W. Dodge Corporation, are complete for their territory. These contract records actually omit a fair number of small low-cost buildings, and practically all alterations and repairs. Consequently, the above estimates may be considered as minimum figures.

TABLE II
ANALYSIS OF TOTAL CONSTRUCTION VOLUME BY DISTRICTS
(Figures in Millions of Dollars)

DISTRICT	Year 1925	*Year 1926	*Year 1927
New England	477.2	440	382
New York & No. New Jersey.....	1,601.3	1,670	1,568
Middle Atlantic	552.3	660	588
Pittsburgh District	828.6	740	662
Central West.....	1,487.3	1,680	1,553
Northwest	95.2	105	93
Southeast	779.1	740	652
Texas	185.4	231	196
Eleven Western States.....	616.2	534	606
TOTAL U. S.	6,622.6	6,800	6,300

TABLE III
ANALYSIS OF TOTAL CONSTRUCTION VOLUME BY CLASS
(Figures in Millions of Dollars)

CLASS	Year 1925	*Year 1926	*Year 1927	Per- centages by Archts.
Commercial Buildings	961.8	989	870	81
Educational Buildings	470.1	407	360	96
Hospitals and Institutions	122.2	137	125	96
Industrial Buildings	541.2	689	669	43
Military, Naval, Public Buildings	60.2	68	75	86
Public Works and Utilities	994.1	1,181	1,261	7
Religious and Memorial Buildings	168.8	147	125	92
Residential Buildings	3,030.0	2,940	2,585	63
Social and Recreational Buildings	274.2	242	230	89
TOTALS	6,622.6	6,800	6,300	60

*Figures for 1926 and 1927 are estimates as of November 27, 1926. The final 1926 figures will vary somewhat from these. The 1927 figures should be considered as subject to revision quarterly.

Northwest, where construction was going strongest during the second half of 1926, the agricultural outlook indicates some reduction in purchasing power in 1927, which may result in some curtailment of construction. Many business observers look for a quite moderate let-down in general business during the first half of 1927. Should this happen, with a reduction in general purchasing power, it would be a cause as well as a result of a continued moderate decline in the rate of contract-letting for construction. Such seems rather likely to be the course of the first half of the year.

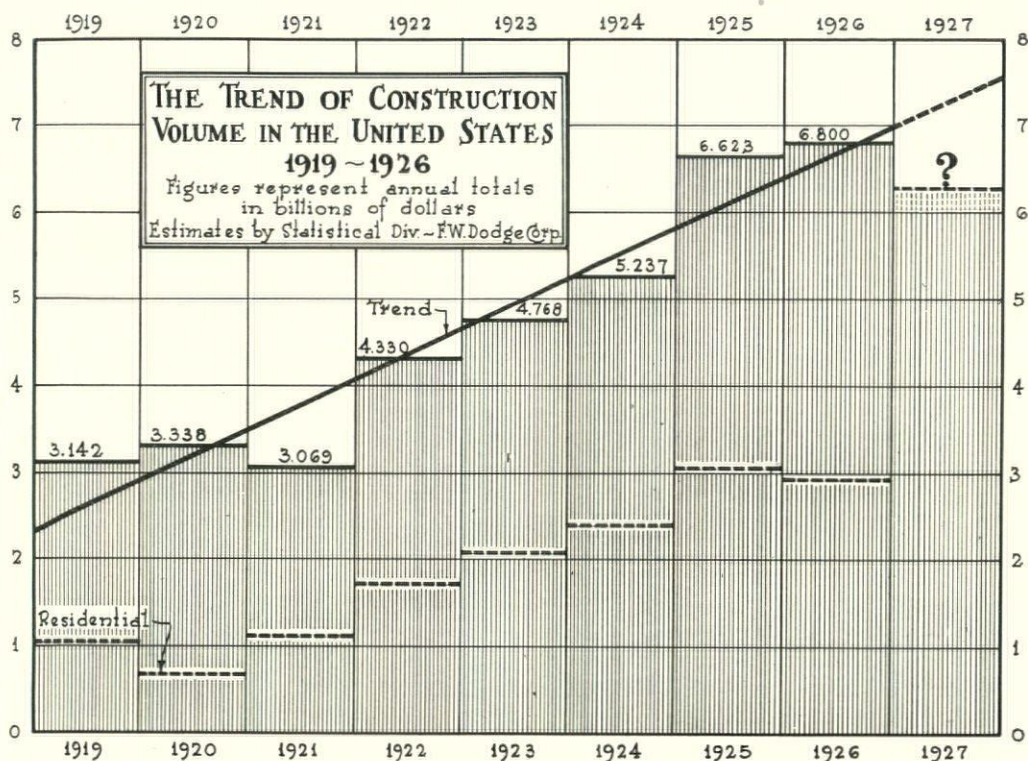
Not only was there a moderate slackening in contract-letting in the last half of 1926, but there was also, between July 1 and December 1, a fairly considerable reduction in the amount of newly planned work on the architects' boards, indicating a slackening of building demand. Rather persistent reports of declining rents and surplus supplies of building space have had a tendency to check the volume of new plans.

Reference to TABLE III indicates that the entire construction gain in 1926 was accounted for by the gain in the Public Works and Utilities Class. This is largely civil engineering work, the biggest single item in the group being road construction. Continuous increase in this class of work during the second half of 1926 was the principal reason for the moderate and gradual nature of the decline. The largest percentage of increase, however, was in the industrial building class, also work mainly of engineering character. It has usually so happened in the past that these classes of work increased during the declining phase of the business cycle. Residential construction in 1926, for the first time since 1920, failed to show an increase over the preceding year.

In view of the comparative stability of business and of construction in 1926, no drastic reaction seems likely to occur in 1927, although a continued moderate decline seems likely to persist through the first half of the year, provided speculative tendencies are held in check. If

this course is followed through the first half of the year, it is conceivable that there might be an upward turn along in the summer, or, perhaps more likely, in the fall months. The most reasonable anticipation, then, is for a contract volume during the first half-year somewhat under that of the first half of 1926; perhaps about like the first half of 1925. The second half-year normally drops 12 per cent below the first half in contract-volume. In 1927, the second half might again do somewhat better than that. It might conceivably have a little larger volume than the first half. On the whole, it now seems likely that the year will have a somewhat reduced volume from that of the one just closed. At any rate, it is safer to estimate it that way. The estimate set down in the tables for 1927 is placed at \$6,300,000,000, compared with \$6,800,000,000 for 1926. At the present writing, a decline of half a billion dollars seems a sufficient margin of safety to allow, even taking into consideration the possibility of continuation of the moderately declining trend of contracts through the whole year. The figure should be considered subject to revision in the light of later developments.

The chart that accompanies this article shows the growth of construction volume since the war. This post-war construction history falls rather obviously into three phases. The first three years, 1919, 1920 and 1921, constituted the Era of Deflation and Adjustment. The second period, 1922, 1923, 1924 constituted the Era of Building Shortage, during which the construction industry practically doubled its production facilities to meet emergency requirements. The third phase, 1925, 1926 and (we add tentatively) 1927, will constitute the Era of Stabilized Prosperity. The year 1925 was the year of speculative prosperity; 1926, the year of "prudent prosperity" (to borrow again Colonel Ayres' phrase); 1927 promises to be a year of somewhat restricted prosperity, provided the same spirit of progressive conservatism that prevailed in 1926 continues this year to guide business policies.



Should the year 1927 develop somewhat along the lines described above, it would rather be expected that public works and utilities construction would continue at the current rate, or perhaps a little better. Industrial construction would also be a little more likely to keep up a good rate of activity. Residential construction and commercial buildings would be rather likely to decline.

It seems impossible today to discuss any business subject without giving some consideration to the influence of the automotive industry. Some writers even go so far as to attribute the present prosperity of the country almost entirely to the automobile. Most financial writers and business analysts, however, are inclined to speak of the automotive industry and the construction industry as about equal contributors to our present national welfare. As a matter of fact, each of the two industries has undoubtedly contributed largely to the prosperity of the other. Undoubtedly a large portion of the golden stream of dollars

that has flowed through the construction industry has later found its way into the pockets of the automobile companies. On the other hand, it is very difficult to estimate the changes in American life that have come through the extension of the use of automobiles to all classes of people. The automobile has been directly responsible for a large volume of construction in the way of factory extensions, highway construction, filling stations, garages, and the like. Indirectly it has influenced a much larger volume of construction. It has not been many years since construction developments on the outskirts of cities in small towns and in the country had to wait for the extension of transit facilities. With the private automobile and the easily-established bus line, transportation is no longer a problem in suburban and rural developments. Knowing that an automobile can solve the transportation question has led many a family to buy or build a house in the suburbs or in the country, and quite a few manufacturing industries

to locate their plants outside of congested centers. On the other hand, the desire to get away from congested centers has undoubtedly increased the sale of passenger cars and trucks.

The changes that the automobile has wrought in American life are by no means complete. Little has been done to solve the growing traffic problems. Before many years it will probably be necessary to develop highways that will divert most of the heavy through traffic of cars and trucks away from our towns and cities rather than through the main streets of all the towns along the way. The movement of families and businesses and industries away from centers of congestion has probably just begun. The problem of parking space in every city, town and hamlet grows more acute. Before it is solved it may require careful town-planning, demolition of old structures, and gradual rearrangement of the layout of business sections. Further than that, some twelve million or more Americans are on wheels every summer, driving in their own cars to Quebec, Maine, Vancouver, California and Florida. Having seen better places than their own home towns, better houses than their own, will not their next step, after some further accessions of prosperity, be to demand better houses, better streets, better towns, better cities? These prosperity-demands have already begun to be apparent in the construction field. This country probably can not continue prosperous unless its construction industry is fully employed. Undoubtedly a large portion of the fruits of its continued prosperity will be spent for building.

These considerations, which go rather beyond any present implications of the statistical records, have led the writer of this article to doubt whether there is to be a long continued decline in building ahead of us. Some observers, viewing increasing reports of overbuilding and declining rents, anticipate declining building volume for many years to come.

The best way to bring to a close the present era of prosperity in building and in the business community would be to

grow overconfident, throw caution to the winds, and let another boom get started in 1927. The automotive industry has stabilized its production through the most careful watching of consumer-demand, avoiding the piling up of stocks in dealers' hands. Leaders of the construction industry have got to be careful of the danger of over-production of buildings.

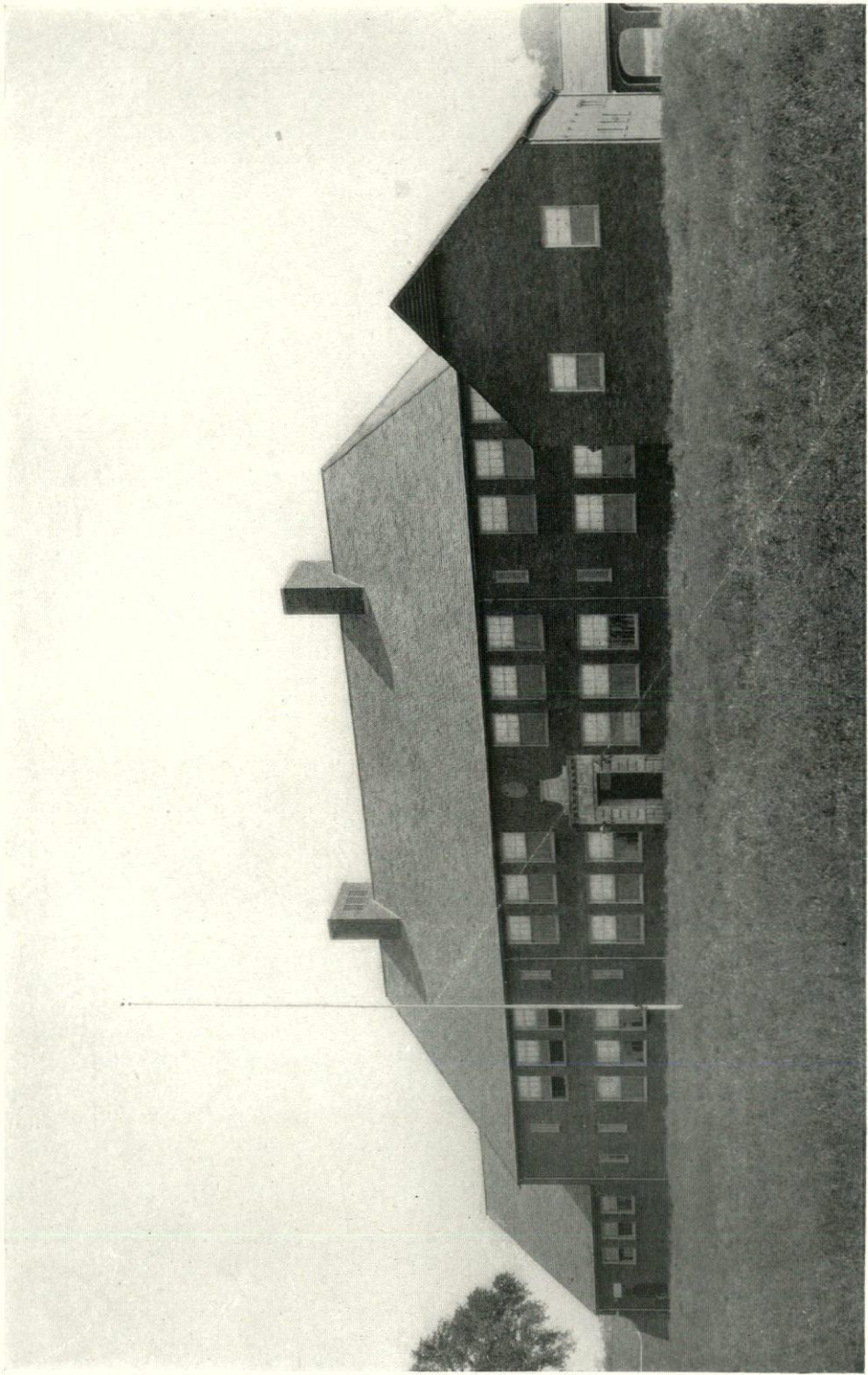
If a new demand for buildings is going to develop, it is likely that it will shift toward types of buildings different from those already produced in large quantities. A new demand would probably take the form of attractive low-cost detached dwellings, well-planned moderate and low-rental apartments, town and community developments, and the like. To avoid over-production, the construction industry must find or develop new economic needs for buildings. A continued period of moderately declining activity, such as seems likely for a good part of 1927, would give the opportunity for such a construction demand to develop along sound economic lines. Such a procedure ought to enable this country to keep its prosperity. A too-rapid resumption of the upward climb of building volume might bring about the conditions that start reaction.

Referring again to the chart, the growth-trend of construction volume during the past eight years is seen to have been at a very rapid rate. At this time last year, it scarcely seemed possible that 1926 could keep up the pace set by the growth through the preceding years. But 1926 did that very thing. However, it does not seem possible that this upward growth can continue indefinitely, probably not through 1927. The considerations outlined above point to a 1927 volume under, rather than over, that of 1926, confirming the guess that construction volume is nearly stabilized for the present. This period of comparative stability may possibly continue until the country is ready for a resumption of the upward growth of building volume. Future growth may be rather less rapid than it has been since 1919, but it ought to be at a quite satisfactory pace.

A PORTFOLIO OF CURRENT SCHOOL ARCHITECTURE



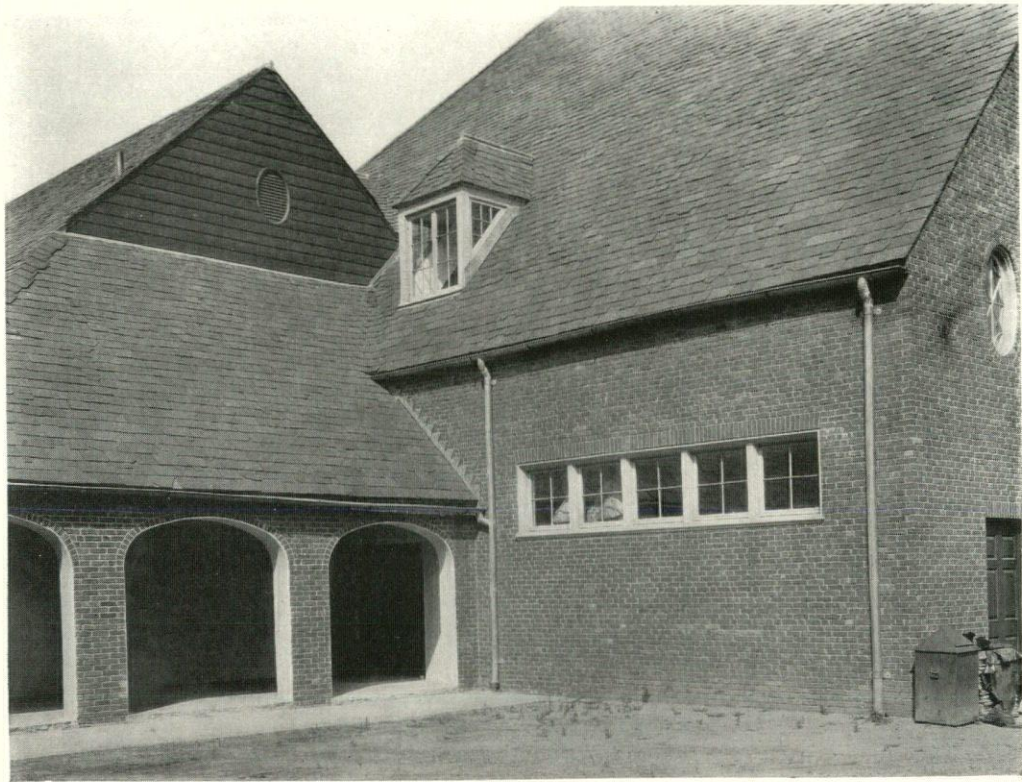
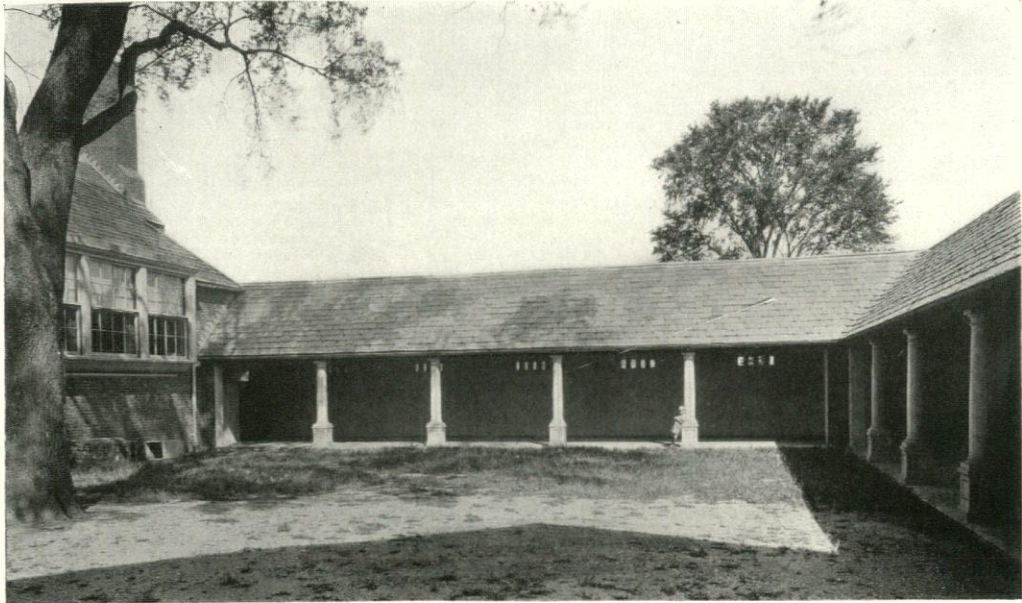
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Wesley S. Bessell, Architect



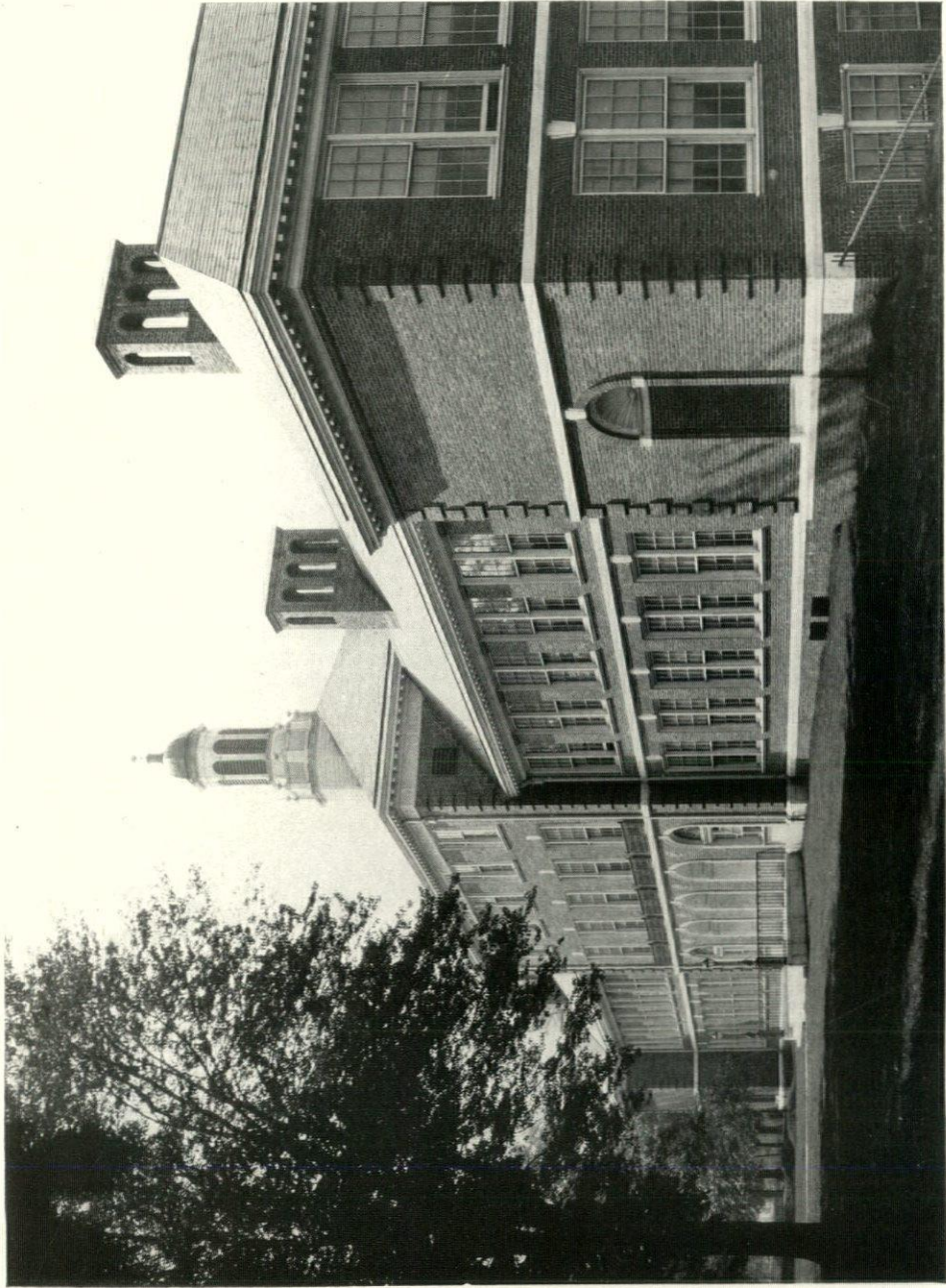
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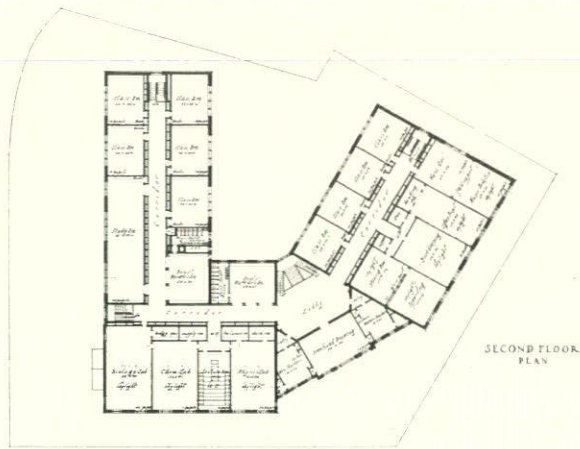
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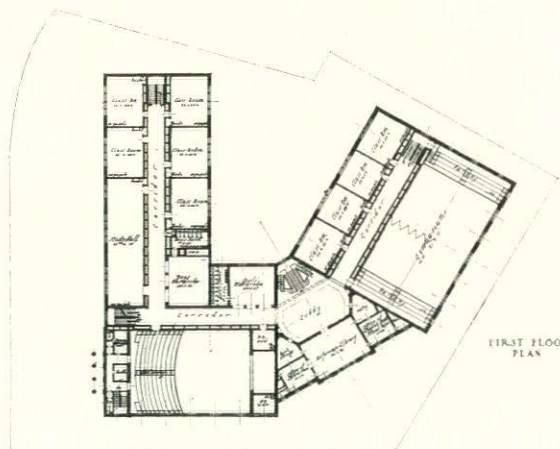
THE HIGH SCHOOL, TARRYTOWN, N. Y.
Guilbert & Betelle, Architects



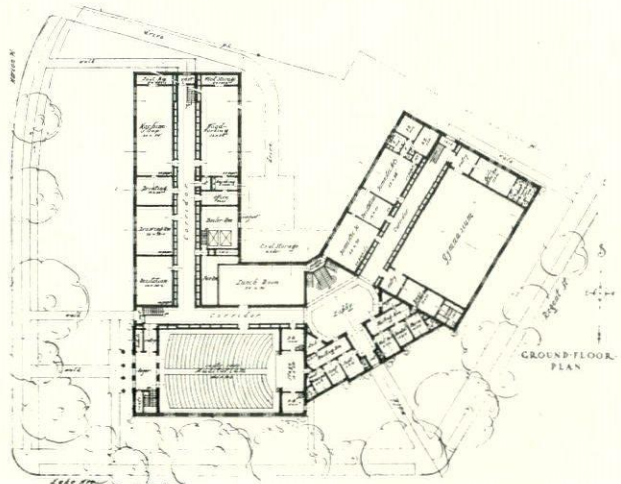
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Coffin & Coffin, Architects



SECOND FLOOR
PLAN

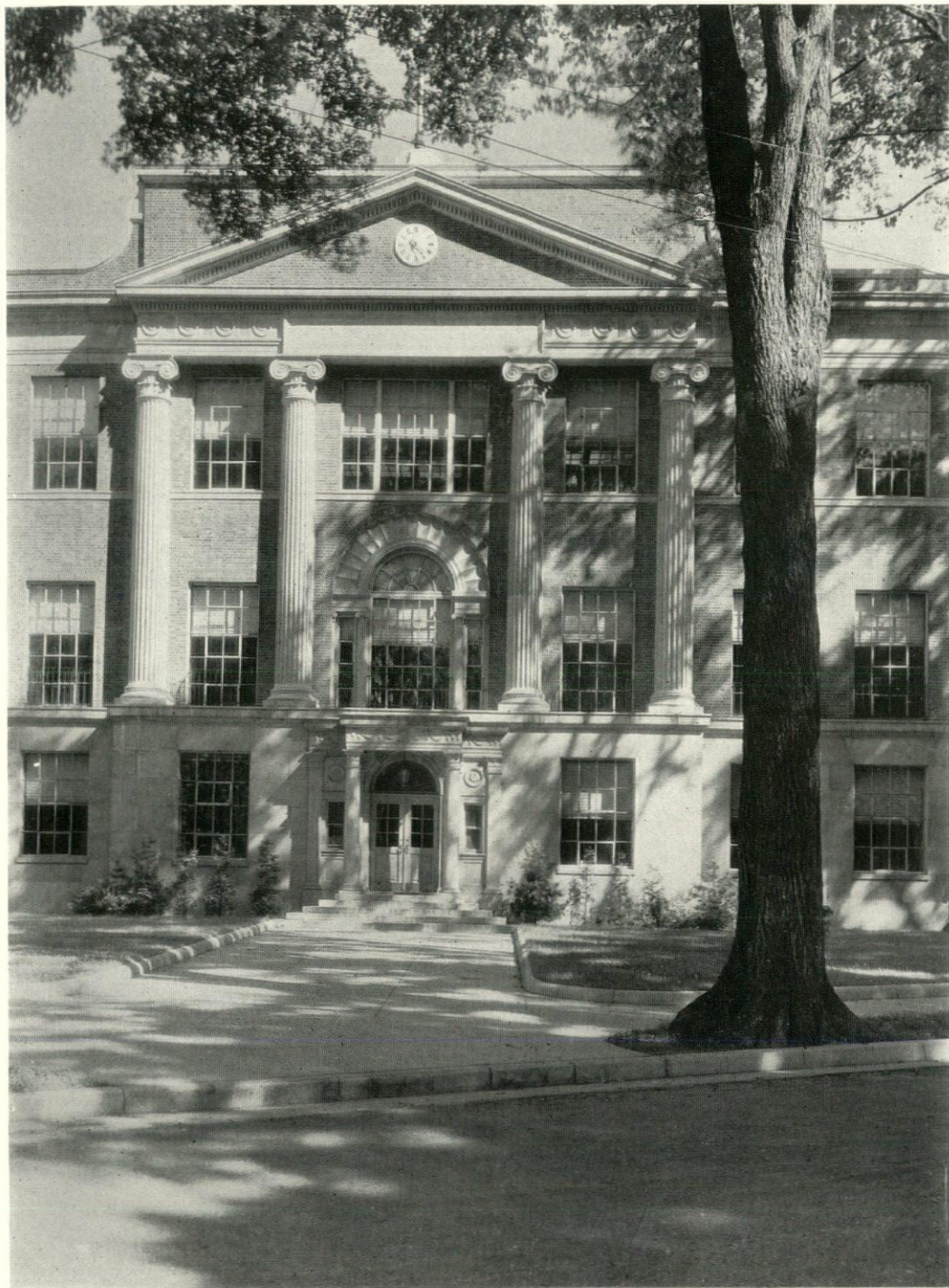


FIRST FLOOR
PLAN

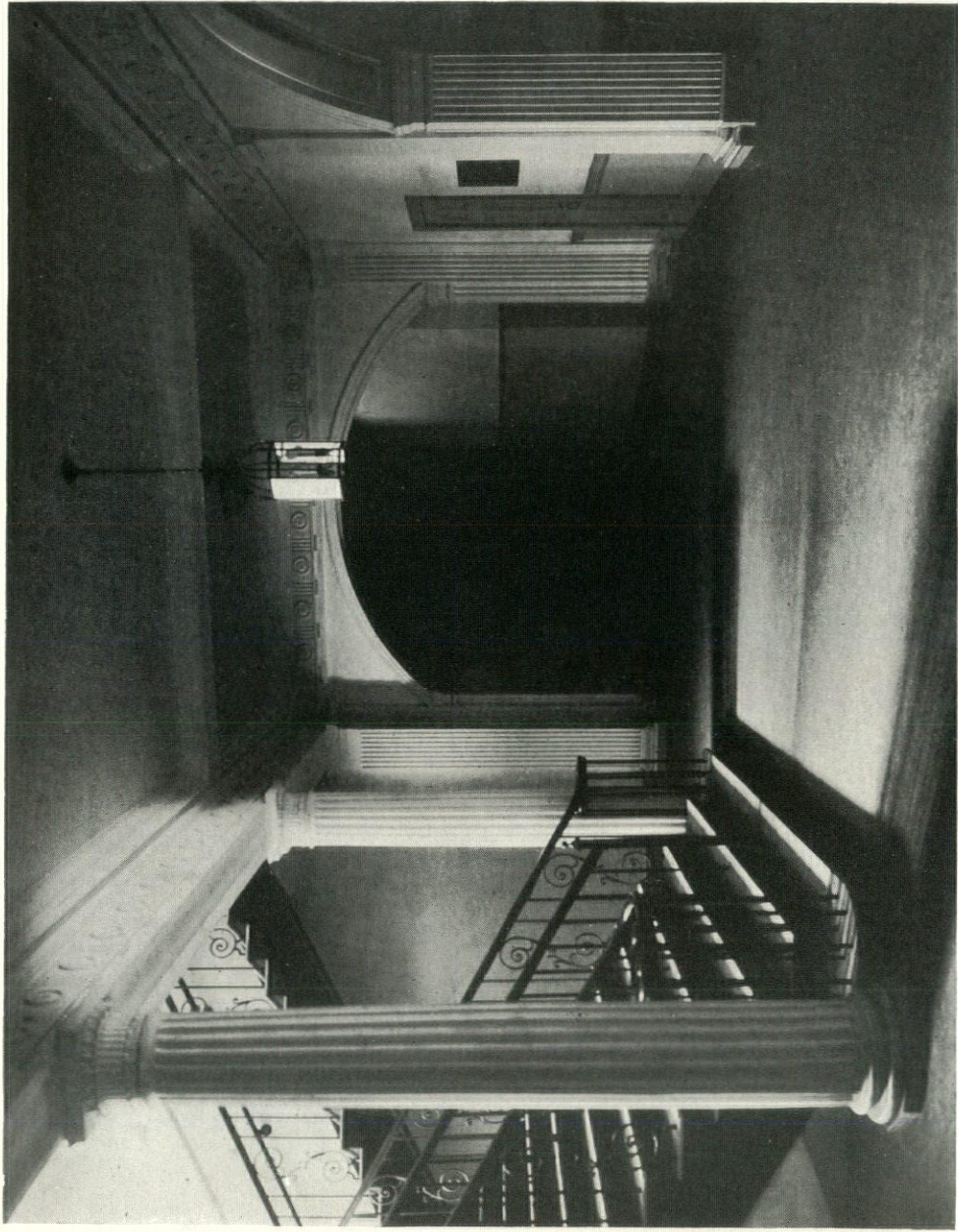


GROUND-FLOOR
PLAN

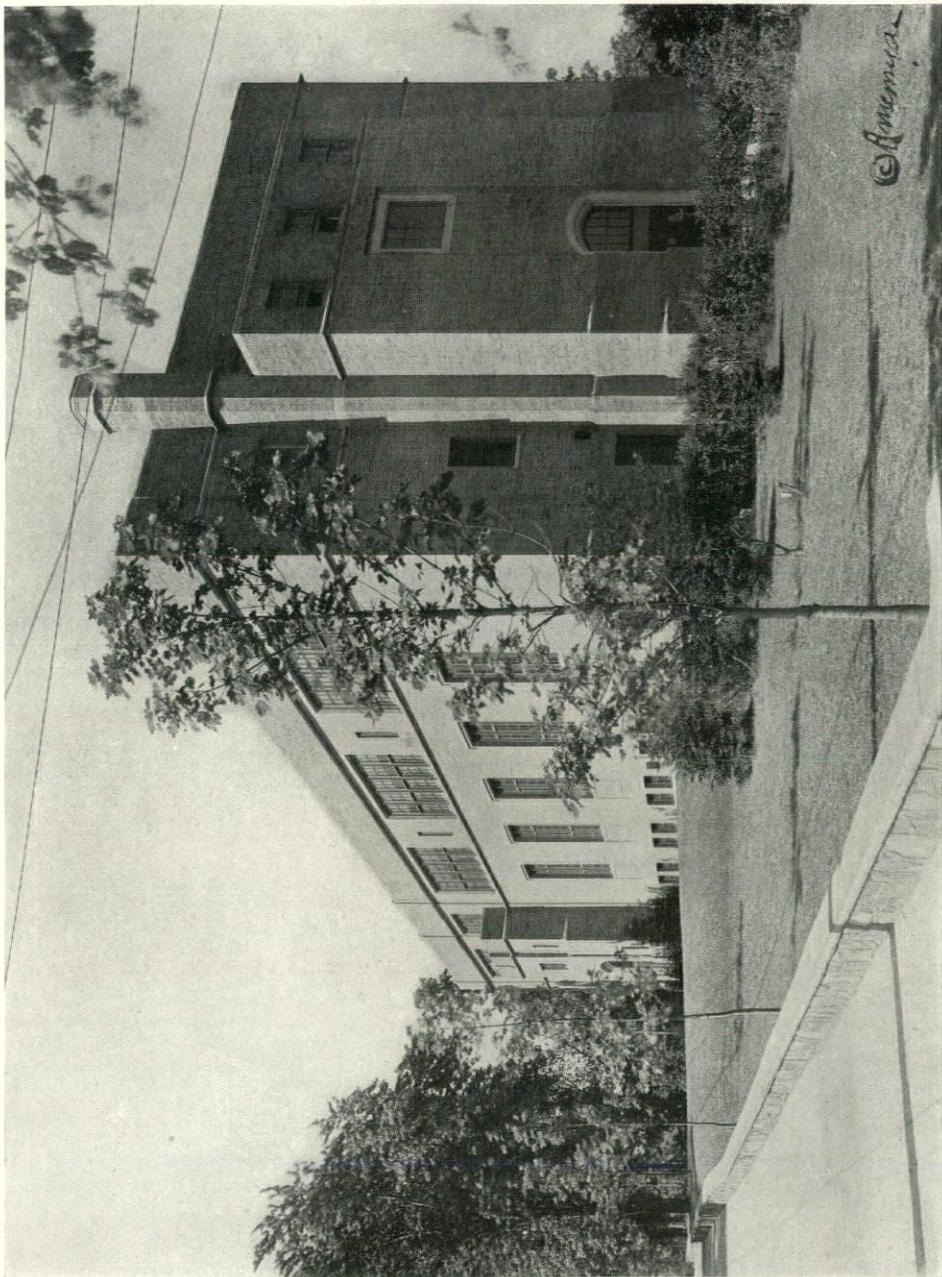
Saratoga High School, Saratoga, N. Y.
Coffin & Coffin, Architects



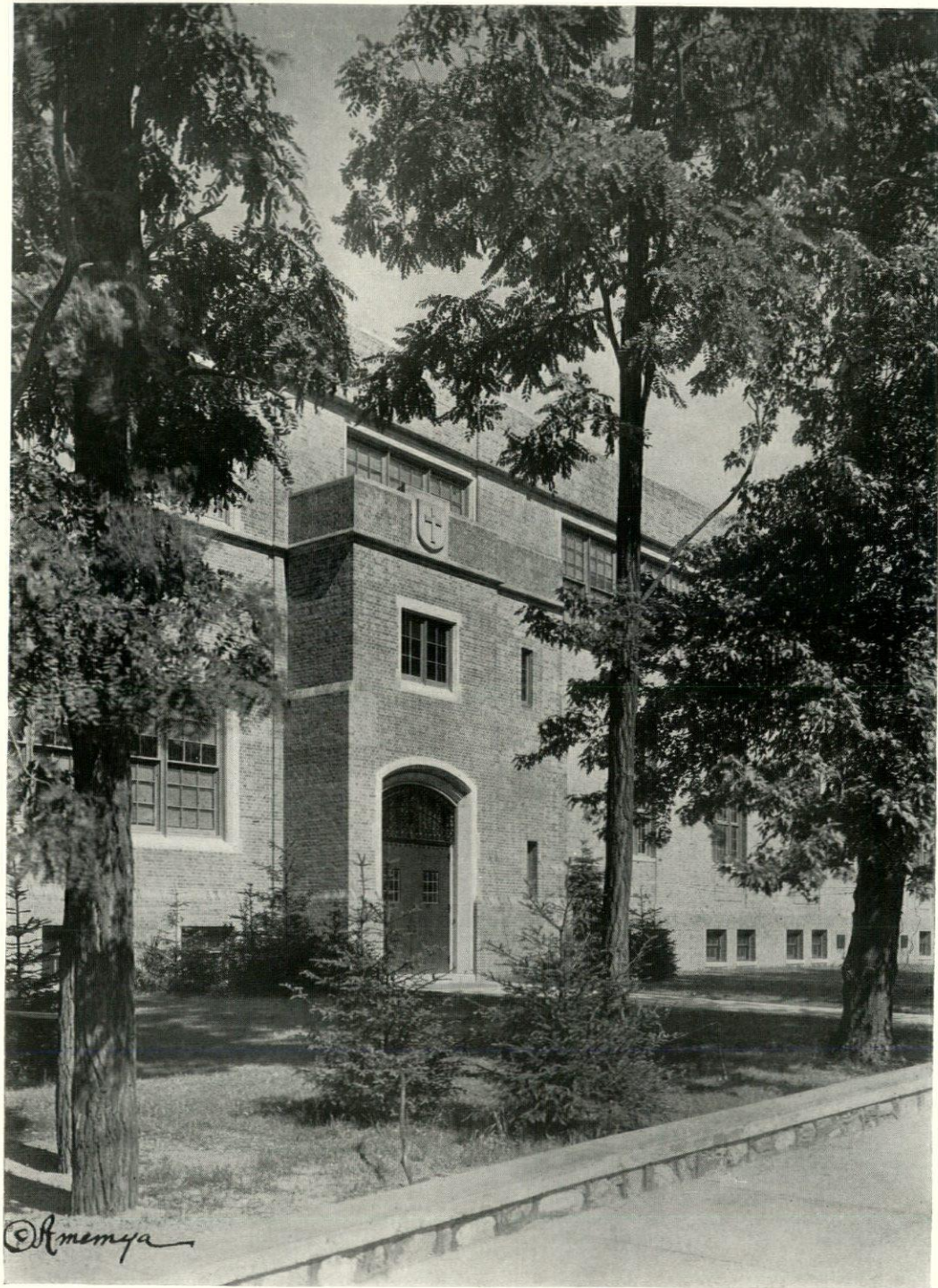
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Coffin & Coffin, Architects



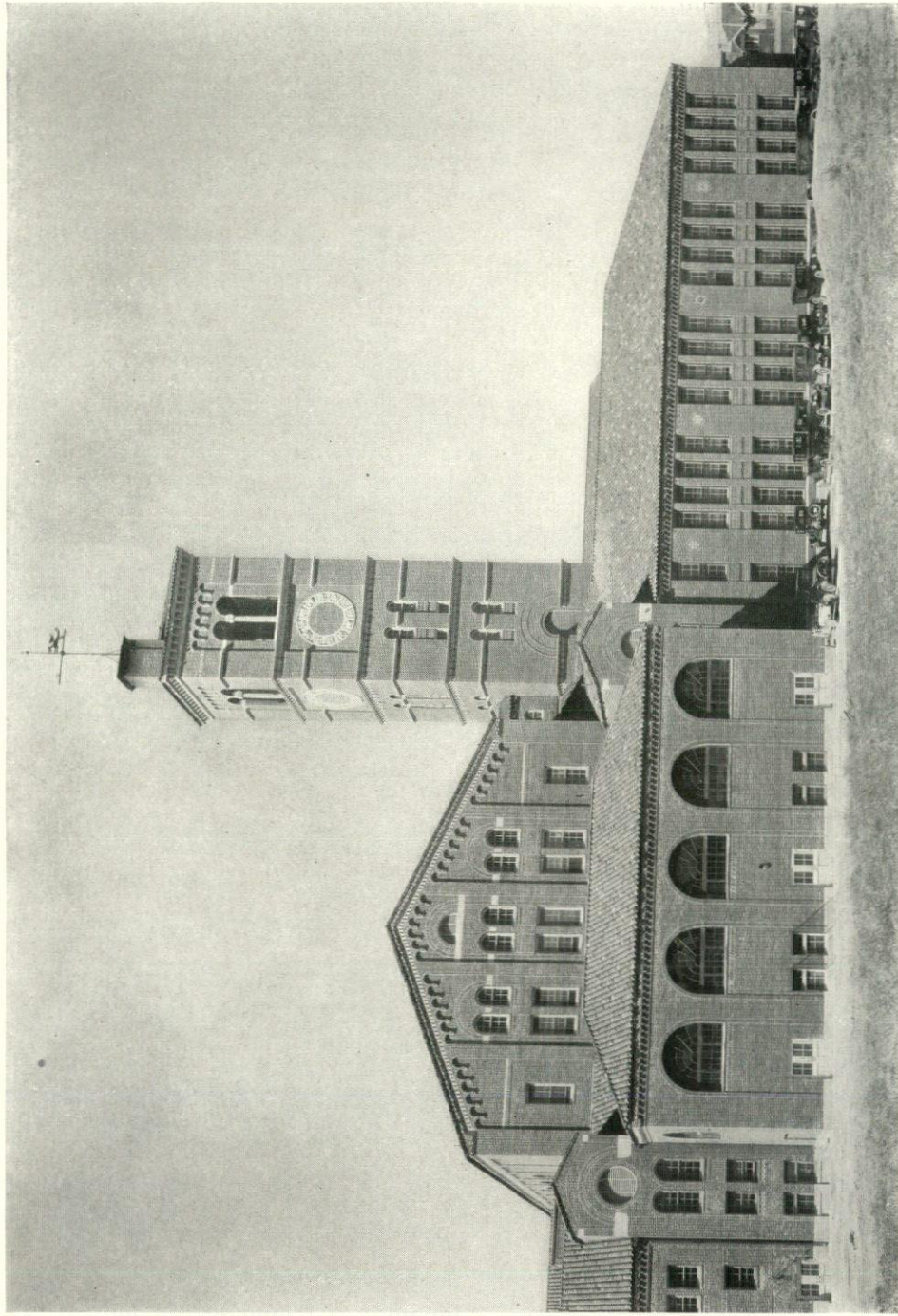
Main Lobby
SARATOGA HIGH SCHOOL, SARATOGA, N. Y.
Coffin & Coffin, Architects



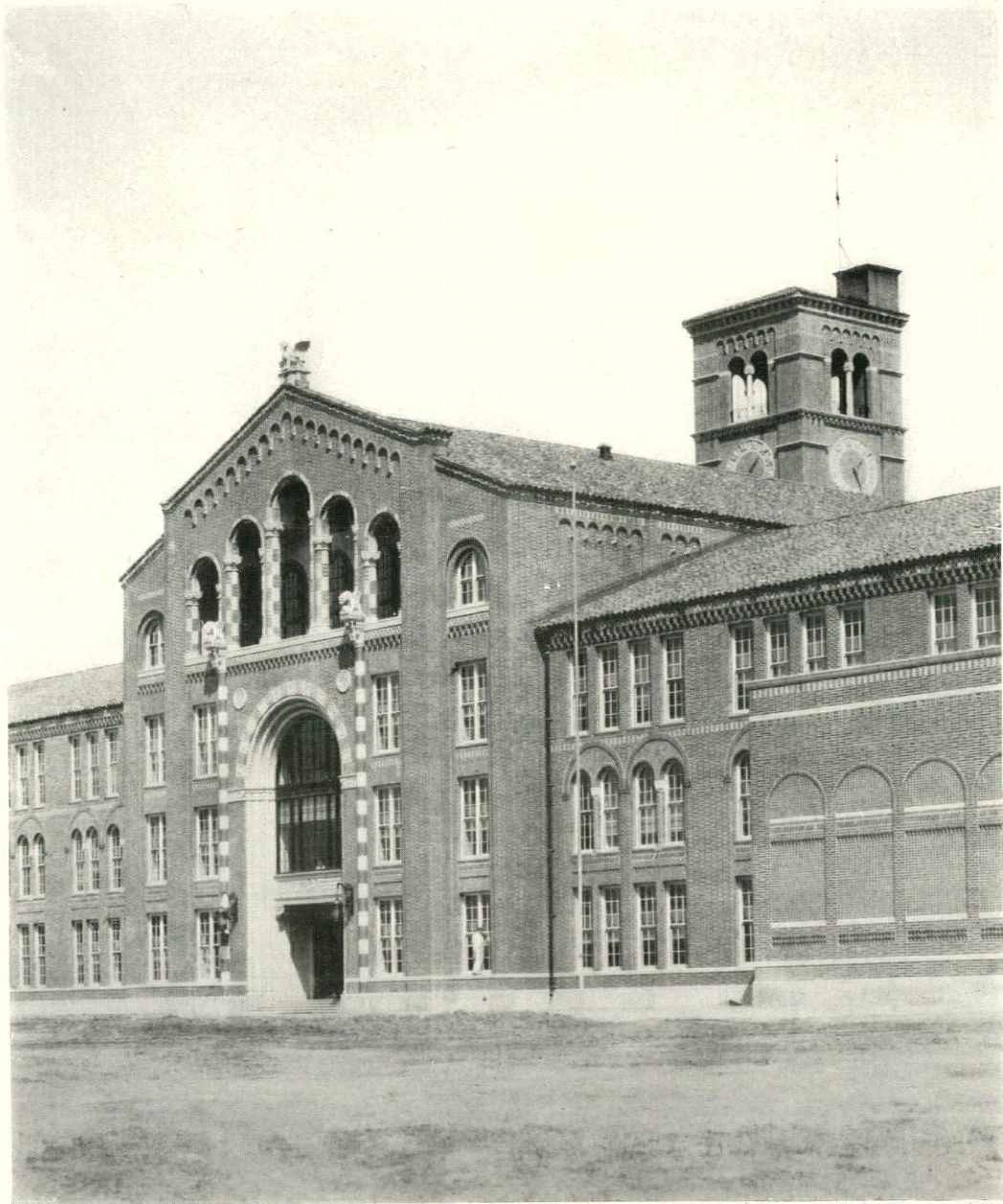
ST. DOMINICK'S PAROCHIAL SCHOOL, OYSTER BAY, L. I.
James W. O'Connor, Architect



ST. DOMINICK'S PAROCHIAL SCHOOL, OYSTER BAY, L. I.
James W. O'Connor, Architect



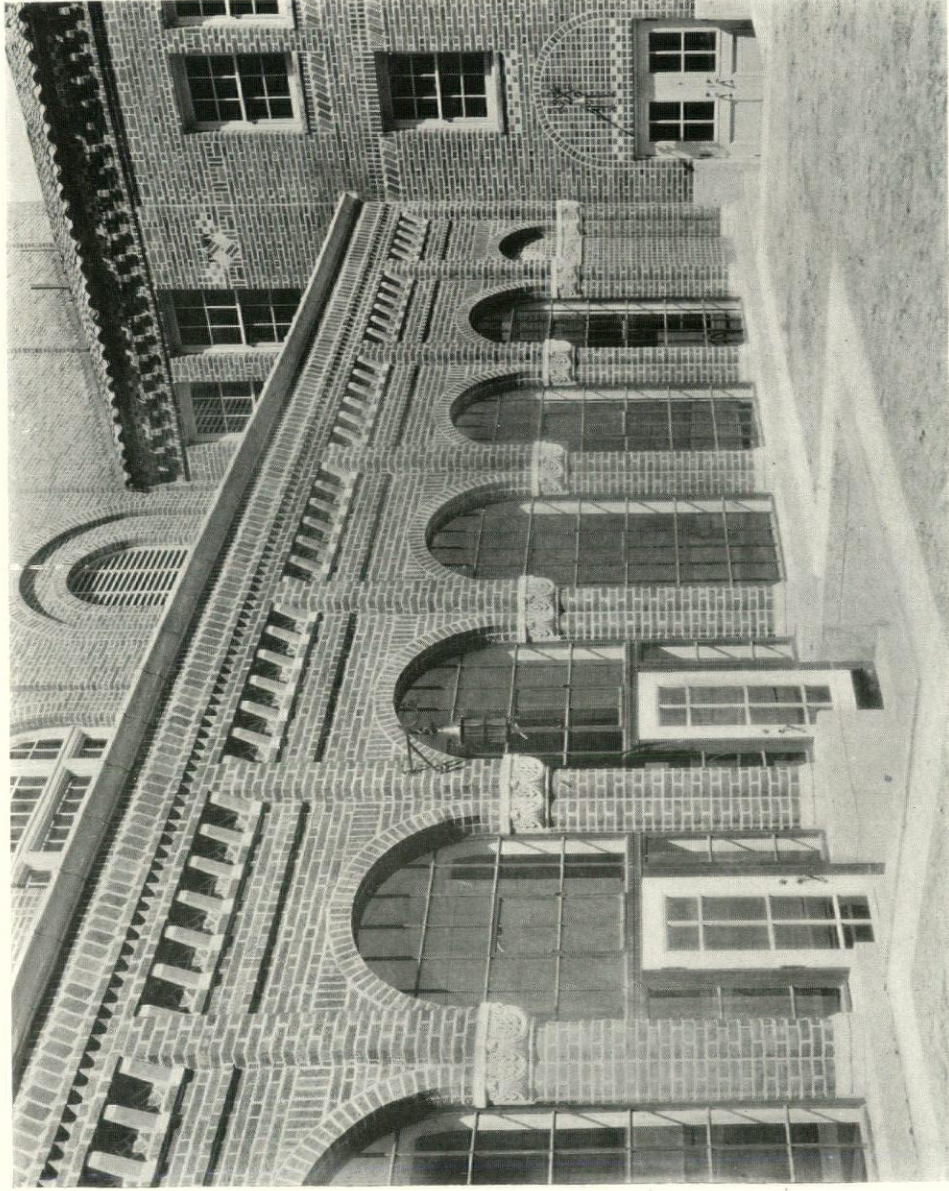
SOUTH HIGH SCHOOL, DENVER, COLORADO
W. E. and A. A. Fisher, Architects



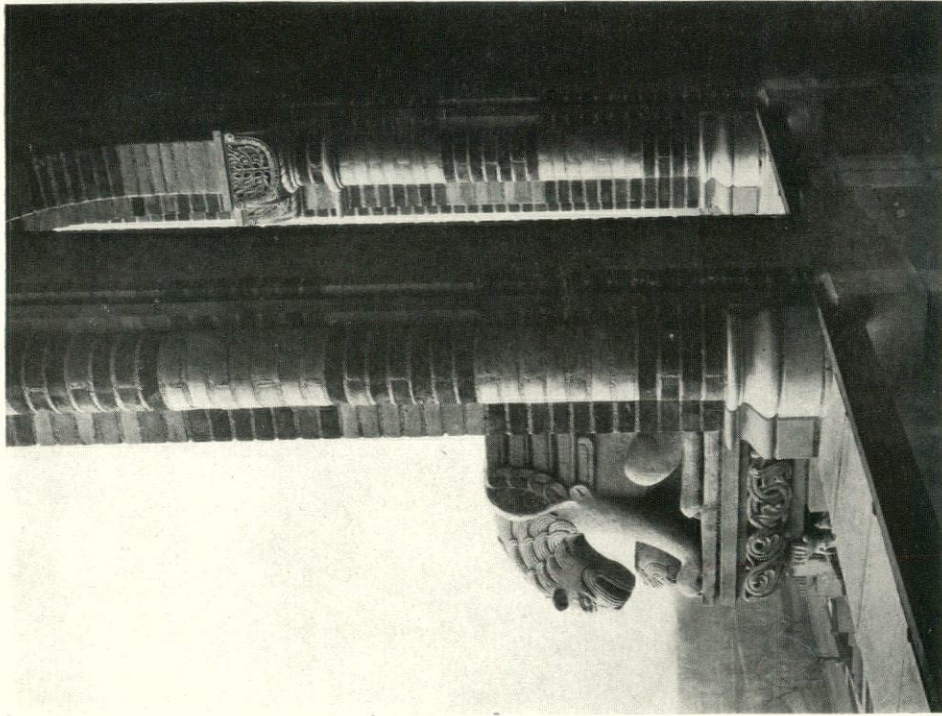
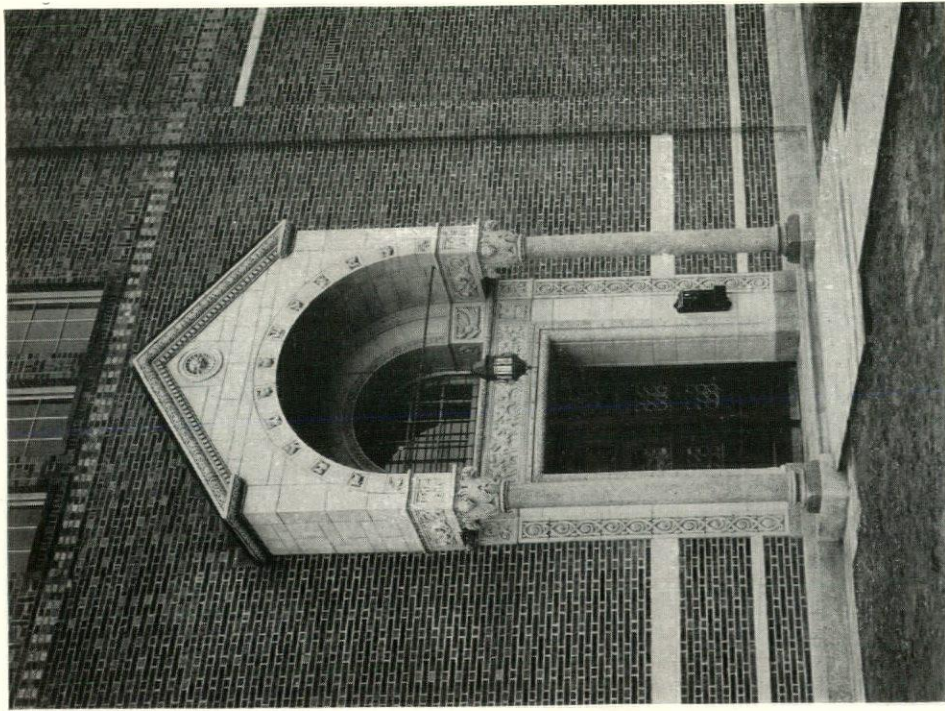
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W. E. and A. A. Fisher, Architects

NORTH ITALIAN BRICKWORK

By

Myron Bement Smith

THE PURPOSE of this and the following articles in the series is to present to the designing architect an intimate study of bricks and brick details as used and developed in the Lombard plain of Italy from the Middle Ages through the Early Renaissance. The Lombard period will be given chief attention not only because of the present interest in the style as a possibility for modern adaptation in designing the surface treatment of steel frame buildings but also, and principally, because in this period brick design culminated in perhaps its finest expression, resulting in a style that compares favorably with the Gothic of France and Spain in the development of structural elements in which the building material discloses its nature more fully by being employed as structural decoration.

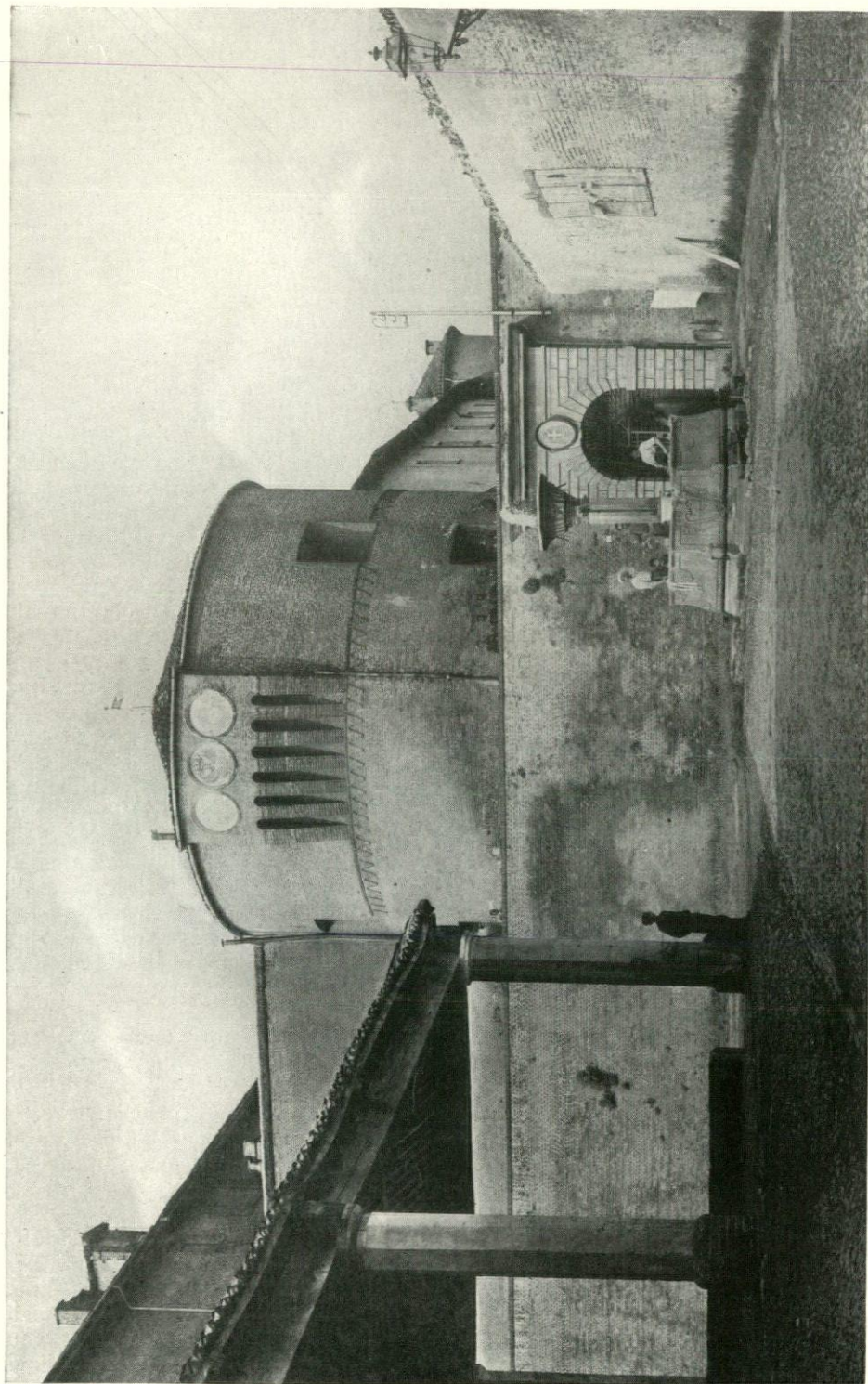
The present and increasing importance of brick as an exterior facing material has stimulated the interest of designers in its aesthetic possibilities and also has disclosed the dearth of documents that present brickwork from the architect's rather than the archaeologist's viewpoint. The Lombard brickwork in particular has not received the attention it deserves, such references as are available being for the most part fragmentary items in archaeological works that are not likely to find a place in the architect's working library. The problem of the modern designer in brick is to bring out the artistic possibilities of this material either by improving on old *motifs* or by inventing new ones. In either case a knowledge of what has been accomplished with brickwork during past ages will give the best point of departure. The detail drawings and photographs that form the principal content of this study are selected for this inspirational value and not with the idea of furnishing scale details for the hurried designer or draftsman to

transfer bodily to an elevation drawing where it would seem that the *motifs* might fit.

WALL SURFACES

The Roman manner of laying brick in horizontal courses ended about the eighth century, and until the eleventh century, brick construction, along with the other building arts, appears to have been at its lowest stage. The eleventh century, while showing many crude examples, marked the beginning of a revival that carried through to the Renaissance in an unbroken development. The Italian genius, always more at home in decoration than in functional design, disclosed in this early period its easy conscience in matters of structural honesty; domes were held from spreading by imbedding wooden chains in the masonry while the iron tie rod openly declared the lack of interest in the problem that was the main concern of the builders in Normandy and the Ile de France. The walls of this period reflect their attitude, the exteriors were severely plain with gesso applied to wall surfaces over the brick or stone. Today, with the gesso fallen off or removed, interesting textures are disclosed of which Fig. 1 from Verona is an example. Here brick are laid in mortar beds an inch or more thick with small cobbles and irregular stonework alternating, the resulting effect being as informal as one might imagine. The mortar contains coarse sand and small pebbles and it is likely that it was made of material removed without screening from the river sand bars.

The interior wall of the crypt of S. Fermo, Verona (Fig. 2), once the original church, shows brick of large dimensions in alternate courses with smaller brick producing a color effect that would be difficult to surpass. The large dimen-



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Saluzzo, Piedmont. The Castello
NORTH ITALIAN
BRICKWORK

January, 1927

sion brick are light salmon color and their granular surface, easily abraded, suggests that they were sun dried or merely lightly baked. The hard, vitreous smaller brick are baked to a deep reddish brown. Verona also has examples of brick in alternate courses with stone.

The detail from the apse of S. Eustorgio, Milan (Fig. 3), shows herringbone work in alternate courses with odd dimensioned stretchers and headers, the whole laid in wide joints and in uneven courses. Another detail from Milan is from the lateral façade of the church of S. Sepolcro (Fig. 4), a wall surface of unusual interest. The bricks are undoubtedly hand made without the use of moulds as they are of every size and shape. Diagonal courses, irregular bonding with a predominance of small headers, the empty scaffolding holes and the introduction of small rectangular stones are all contributions to the effect, yet the unique detail in this wall is the crinkled surface of the individual bricks, accented by the slightly raked, light colored joint. Compare this with Fig. 5 from the restored front of the same building. The restoration lacks the spirit of the original mainly because the bricks are too smooth and the courses too level.

The base of the campanile of S. Satyro, Milan (Fig. 6), shows the use of large dimension stone in the lower portion and in the detail from a height of twenty feet (Fig. 7), the manner recalls the work of S. Sepolcro. These old walls have all been judiciously touched up under the supervision of the Department for the Conservation of Public Monuments of the Italian Government which has charge of these buildings and whose restoration work of recent years has attained a high artistic level. For an example of early Lombard brickwork that preserves its original character with a minimum of repair, examine Fig. 8 from the campanile of the S. Stefano group in Bologna. The pattern work from S. Sepolcro (Fig. 9), in the same group of churches, has been freely restored but is none the less interesting. The smooth pattern bricks contrast with the rough-tooled courses, this scratched surface being the means used by the

Lombard builders to key gesso to the wall. The use of scratched brick here suggests that the restorers found precedent for using this type of brick where gesso was not to be applied. Such an instance is found in the interior stairway of the campanile at Cremona where all the bricks are scratched, apparently while yet soft. In artistic possibilities the mechanical surface of the American "wire cut" face brick falls far short of the hand made product of the eleventh century in Italy.

The insistence of American builders on regularly broken joints and even bonding, often with contrasting mortar to mark the divisions, stresses the brick unit in the wall at the expense of the whole so that they do not get the cohesive quality which is the outstanding effect of the Italian work. Each brick in the Lombard wall has its own individuality of color, shape and texture yet it keeps its place as part of the wall, due, it must be, to the irregular bonding used. To appreciate this more fully observe the odd sizes and bonding in Fig. 10 taken from the sacristy of S. Maria delle Grazie in Milan and then turn to Fig. 11 from the poorly restored Gothic façade of the main church building. The last detail lacks the charm of the first because of the regular bond used. The type of brick used in both these examples is illustrated in Fig. 12. The hand made quality is apparent.

During Bramante's residence in Milan the last quarter of the fifteenth century, he built the apse of the old Lombard church of S. Satyro in the new Renaissance style. A detail is shown in Fig. 13. Note that the bonding and joints are still irregular, the bricks are pitted and wrinkled and the courses in the two pilasters fall out of alignment as they build up. The fact that the stone base moulding is not off-set where it meets the brick suggests that this work was never plastered over. The character of brick making and laying changed considerably during the Renaissance. The detail from the Rimondi palace, Cremona (Fig. 14), a late Renaissance building, shows a smooth wall in keeping with the style and the use of moulded brick detail.

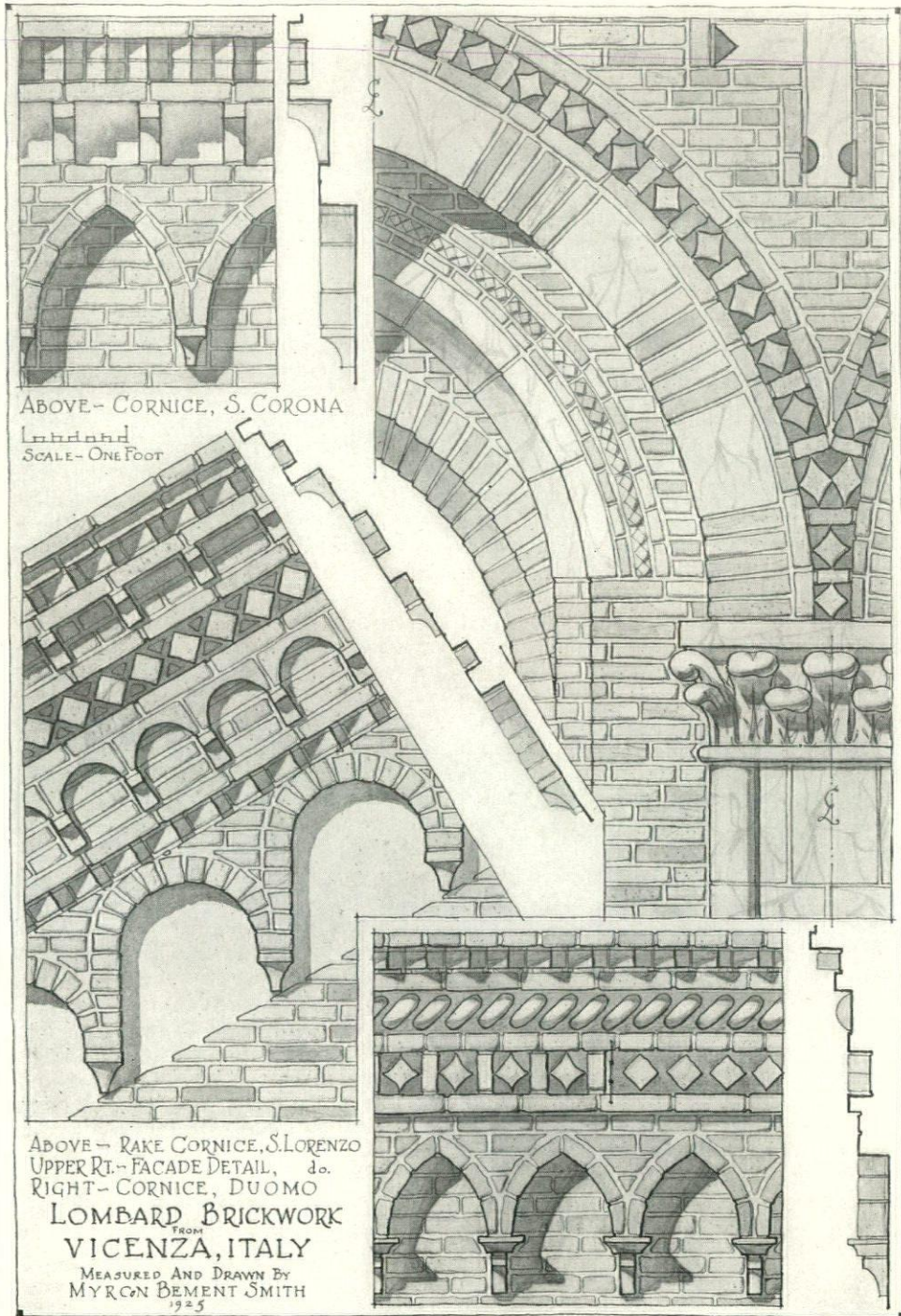
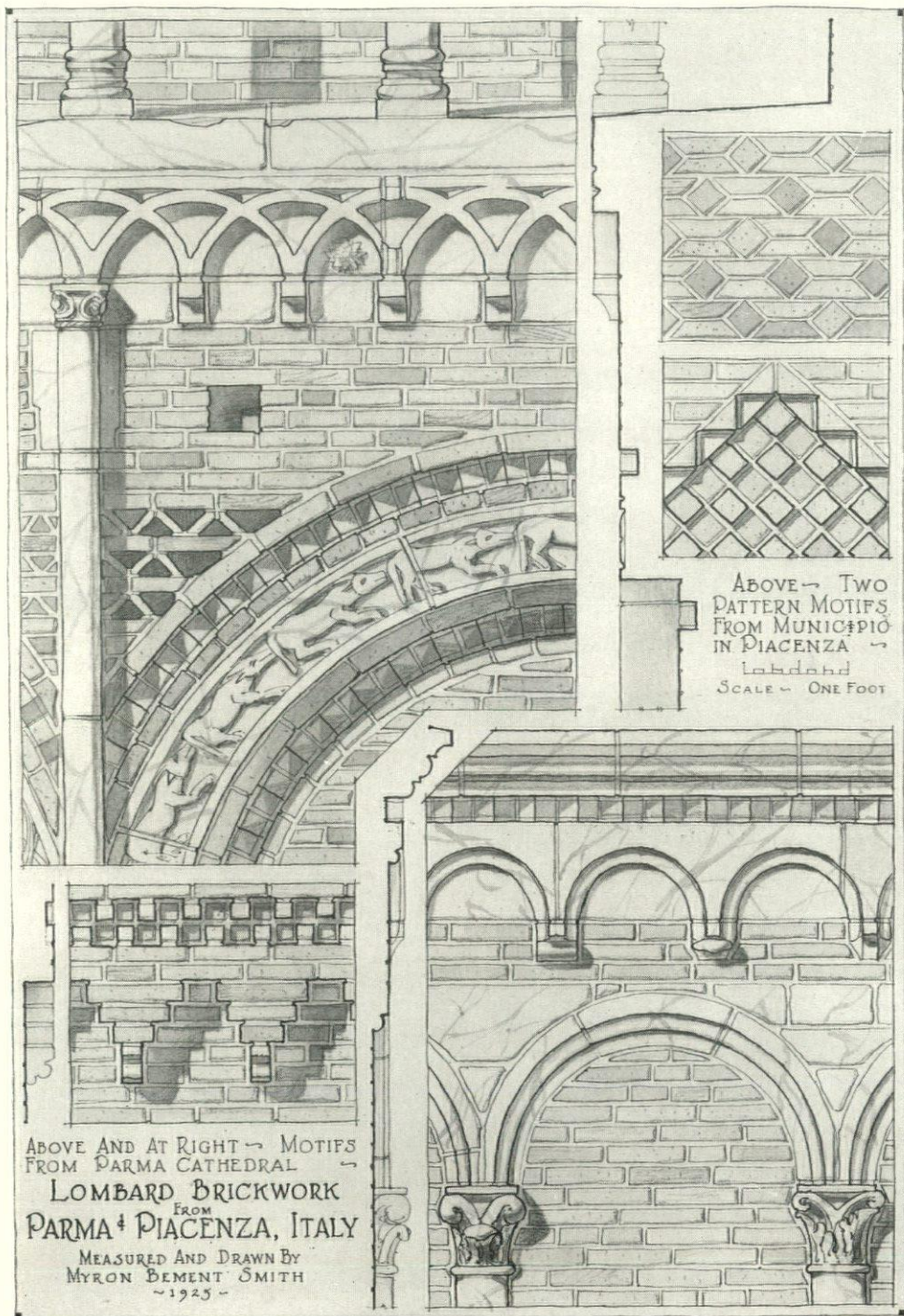


PLATE I. NORTH ITALIAN BRICKWORK

The square metopes in the S. Corona cornice and the white semi-circular areas below the corbels of the rake cornice from S. Lorenzo are both light colored gesso.



These motifs are some sixty feet up and form the decoration of semi-circular apses. The small corbel detail forms a sort of string course on a chapel. The pattern motifs from Piacenza were used in incidental spots in the court façade of the Municipio, a Lombard-Gothic building.

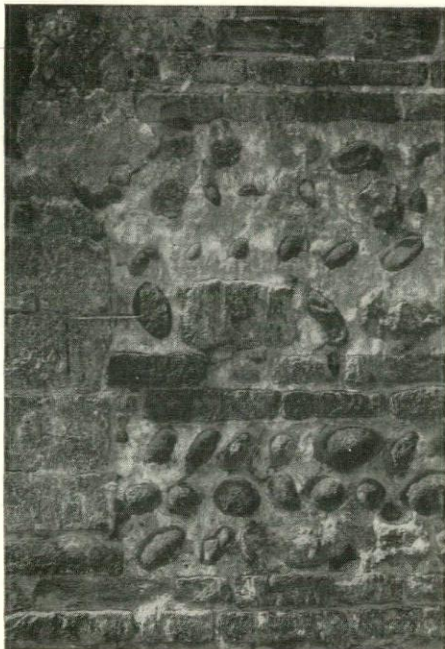


Fig. 1. Verona, Detail from Court
Near the Duomo

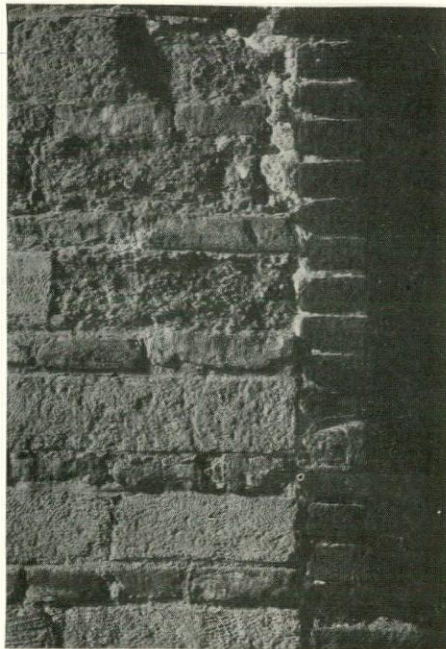


Fig. 2. Verona, Detail from Crypt,
S. Fermo

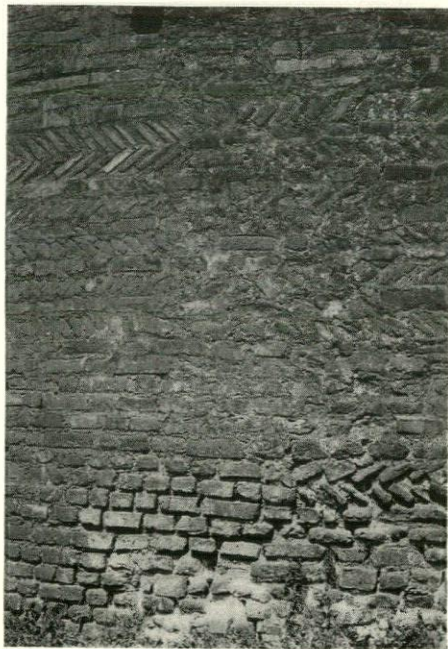


Fig. 3. Milan, Detail from Apse,
S. Eustorgio

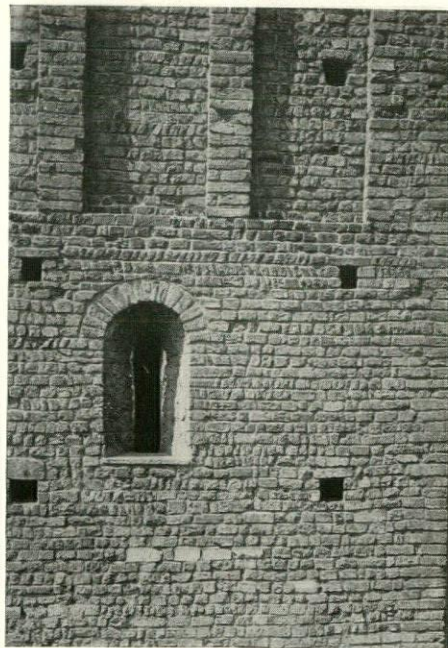


Fig. 4. Milan, Detail from Lateral
Façade, S. Sepolcro



Fig. 5. Bologna, Detail from Street Façade, S. Sepolcro



Fig. 6. Milan, Detail from Campanile, S. Satyro

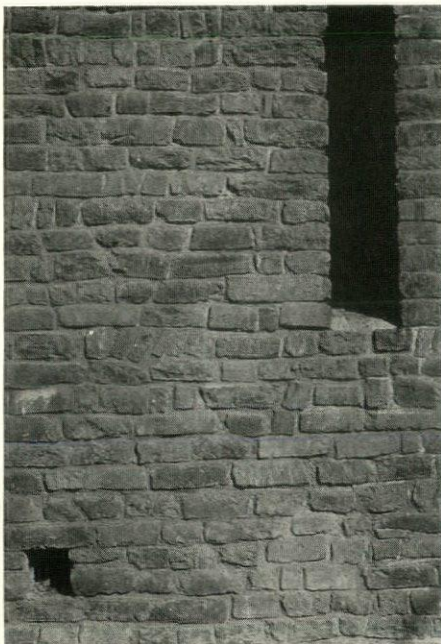


Fig. 7. Milan, Detail from Campanile, S. Satyro

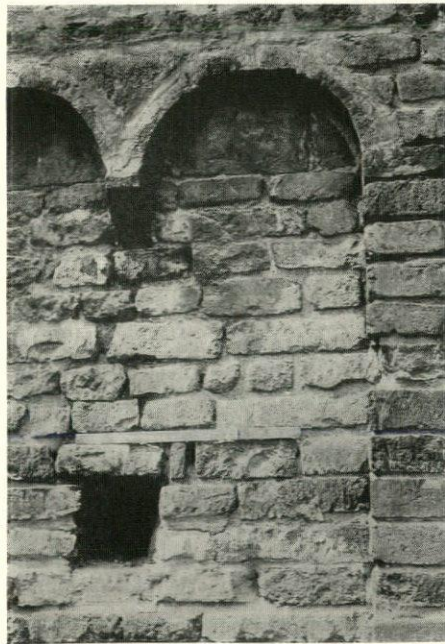


Fig. 8. Bologna, Detail from Campanile, S. Stefano Group

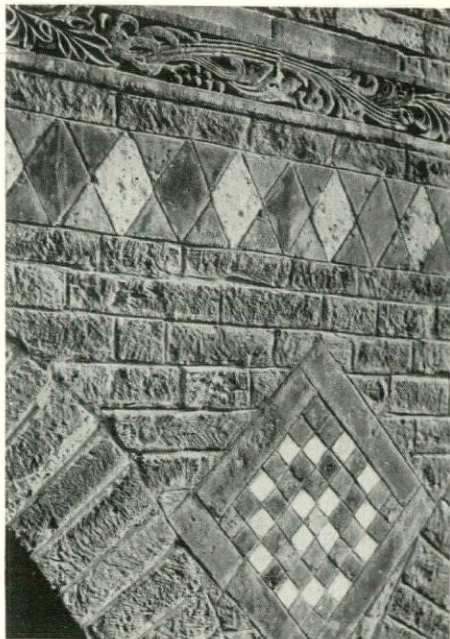


Fig. 9. Bologna, Detail from Façade,
S. Sepolcro

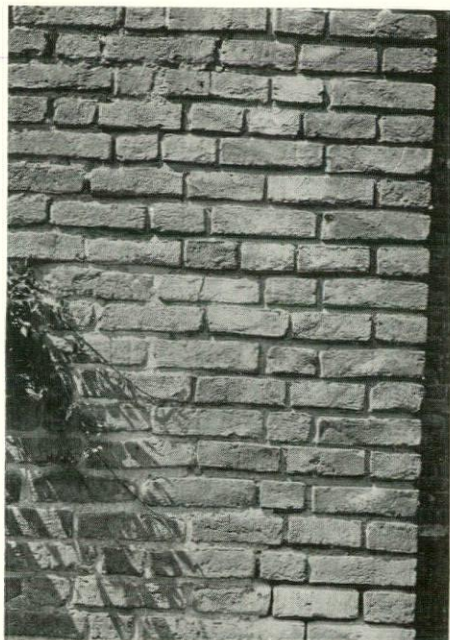


Fig. 10. Milan, Detail from Sacristy,
S. Maria della Grazie

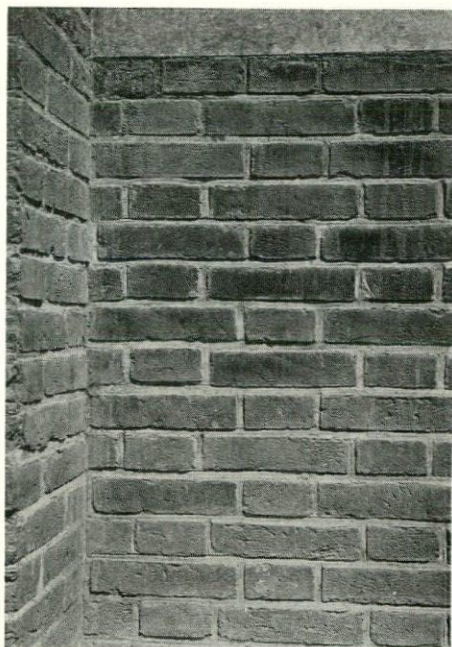


Fig. 11. Milan, Detail, S. Maria della
Grazie. Lombard-Gothic, Restored



Fig. 12. Milan, Brick, Eleventh Century,
from S. Maria della Grazie

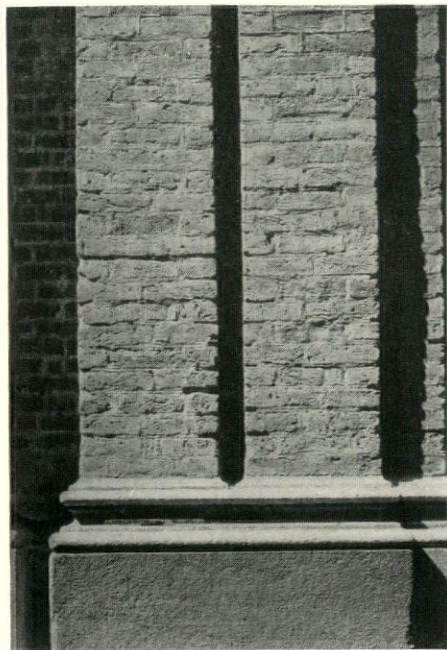


Fig. 13. Milan, Detail from Rear Façade,
S. Satyro



Fig. 15. Milan, Detail from Modern
House in Corso Magenta

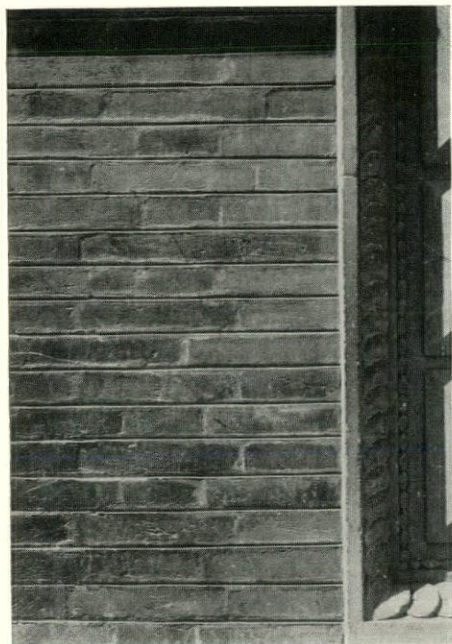


Fig. 16. Bologna, Detail from Modern
House Near Post Office

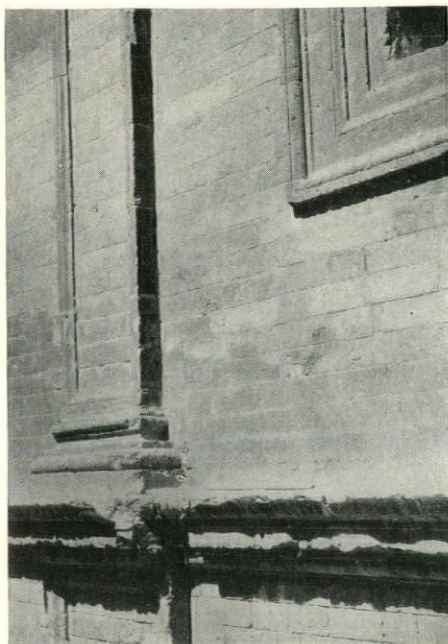


Fig. 14. Cremona, Detail from the Palazzo
Rimondi. Late Renaissance

Modern work in Italy is as generally uninteresting as the commercial bricklaying of our own country. There is occasionally an example that contains a suggestion, as Fig. 14 from a modern house in the Early Renaissance style from Milan. It is the joints that make this wall attractive; just enough mortar was spread, then the covering brick tapped in place squeezing out a bead that lines up with the wall surface yet gives a slightly irregular shadow. This wall has the most interest of any modern work observed in Italy.

Another attempt at an artistic effect is Fig. 16, also from a house in Bologna. The vertical joints are smoothed over, the horizontal

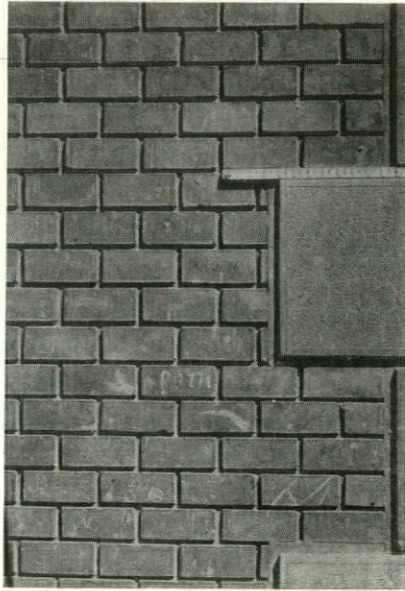


Fig. 17. Bologna, Detail from Modern Building

ones slightly struck, producing a stratified effect that is not unpleasing. It will be observed that in neither of these examples is the bonding quite regular. Lest someone suppose that the Italian mason always does this type of bricklaying, Fig. 17 is included. This detail is from a modern business building in Bologna in a style that demanded a strictly formal treatment of the brick walls about the sharply cut stone trim. The last example (Fig. 18), is from an unfinished façade ready to take the marble veneer;

in its present state it has a character that may interest some designer; it was used, in fact, on a building at the recent Exposition in Paris.

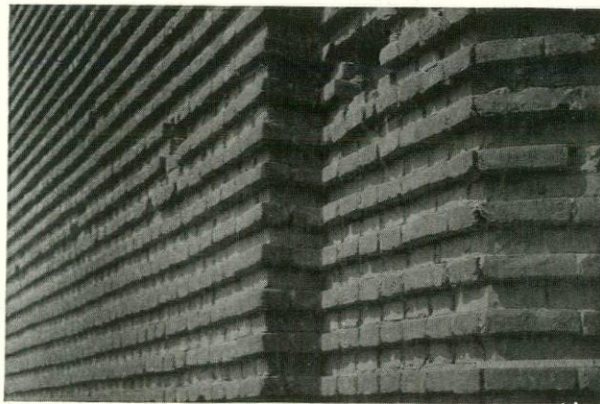


Fig. 18. Milan, Detail from Unfinished Facade. Modern

A BIBLIOGRAPHY of ARCHITECTURAL SPECIFICATIONS

By
William W. Beach

THE COMPILATION OF A bibliography on the subject of specifications relating to building construction reveals a surprising number of such works, varying from the narrowly specific to the more or less comprehensive.

In seeking to make this list as complete as may be, the author has sought to embrace, in addition to regularly published textbooks, all publications dealing with the subject which are issued by associations of manufacturers, contractors or professional men, but has included no reference to specifications gotten out by individuals or corporations concerning their own products.

In attempting to confine the list to specifications relating to the building in-

dustry, mention has been avoided of the more strictly engineering construction, such as railroad work, electric power work, marine construction, etc. Works on construction and inspection are also excluded where these do not treat of specifications.

The list begins with references on contract documents, followed by a section on general treatises of use to the specification writer. After this, details of construction are dealt with after the general arrangement of the American Institute of Architects filing system (using main headings only). An appended list of Societies and Associations having data of specification interest closes the Bibliography.

CONTRACT DOCUMENTS

THE ARCHITECT IN HIS LEGAL RELATIONS. By Eliot N. Jones, LL.B., and Otis W. Richardson, LL.B.; 1916; 83 pages; cloth, 5½ x 8¼; with Appendix containing the standard documents of A. I. A.
American Technical Society, Pub., Chicago65c

THE ARCHITECT'S LAW MANUAL. By Clinton H. Blake, Jr., A. M., LL.B., 1924; 253 pages; cloth, 6 x 9. ". . . to place before the architect, very informally, typical examples of the dangers which may beset him in the practice of his profession; . . . to emphasize the practical business considerations which today enter into the practice of architecture; . . ." Appendix contains A. I. A. and special forms.
The Pencil Points Press, Inc., Pub., New York\$5.00

BUSINESS LAW FOR ENGINEERS. By C. Frank Allen; 456 pages; cloth, 6 x 9; "It covers the elements of law which are of interest to engineers, and an extensive analytical discussion of the several factors of contract letting." Chap. XIX is on Specifications.
McGraw-Hill Book Co., Inc., Pubs., New York.....\$4.00

CONTRACTS AND SPECIFICATIONS. Rev. by Edward Nichols, Arch't; 1918; 110 pages; cloth, 5½x8¼; 2 Figs.; Textbook for Cor. School, contains following headings: Specification and Its Function; Points of Emphasis in Specification Writing; Specification Writer's Methods of Work; Specification Reminder; Specifications for Suburban Work; Specifications for City Work; Outline Specifications; Formal Contracts.
American Technical Society, Pub., Chicago\$1.50

- CONTRACTS IN ENGINEERING. By James I. Tucker, C. E., 331 pages; cloth 6x9. Deals with fundamentals of engineering law and contract essentials. Chap. IX: Preparing and Writing Engineering Contracts and Specifications.
McGraw Hill Book Co., Inc., Pubs., New York\$4.00
- CONTRACTS, SPECIFICATIONS AND ENGINEERING RELATIONS. By Daniel W. Mead; 528 pages; cloth 6x9. "Discusses legal and contractual relations, outlines the principles of personal and ethical relations, and covers in detail the preparation of specifications . . ." Chap. XIV: General Conditions. XV: Preparation of Specifications. XVI: Technical Specifications. XVII: Specifications for Fundamental Materials and Supplies. XVIII: Specifications for Fundamental Processes. XIX: Specifications for Machinery and Apparatus. XX: Designs and Specifications for Engineering and Architectural Work. Appendices treat further of specifications and contain a bibliography of the subject.
McGraw Hill Book Co., Inc., Pubs., New York.\$4.00
- THE ELEMENTS OF SPECIFICATION WRITING. By Richard S. Kirby, C. E.; 153 pages; cloth 6x9; devoted to the Composition of Specifications and Allied Clauses.
John Wiley & Sons, Inc., Pubs., New York.\$1.50
- GENERAL CONDITIONS OF THE CONTRACT, Form No. 25; 10 pages for binding with spec'n; 8½x11.
Illinois Society of Architects, Pub., Chicago. 3 for 25c; 50 for \$2.50. (The Society's printed forms also include No. 21, "Invitation to Bid"; No. 22, "Proposal"; No. 23, "Articles of Agreement"; No. 24, "Bond"; No. 26, "Contract between Architect and Owner"; Form 1, Blank Certificate Book; Form 4, "Contract between the Owner and Contractor"; Form E, "Contractor's Long Form Statement"; Form 13, "Contractor's Short Form Statement"; Codes of Practice and Schedule of Charges.)
- THE LAW OF CONTRACTS. By John C. Wait; 331 pages; cloth 6x9. "Contains the essential principles upon which valid contracts depend and the main features and statutes which modify and limit the obligations of contracts."
John Wiley & Sons, Inc., Pubs., New York\$2.75
- THE LAW OF ARCHITECTURE AND BUILDING. By Clinton H. Blake, Jr., A. M., LL. B., 1916, with introduction by Aymar Embury II, A. I. A., 253 pages; cloth 6x9. "Invaluable for the architect, engineer, owner, contractor and all who have to do with building construction."
William T. Comstock, Co., Pub., New York\$5.00
- SPECIFICATION RECORD OF THE AMERICAN SPECIFICATION INSTITUTE, Annual, Vol. 2, 1925; 398 pages; cloth 8½x11; advs. and ills. "A reference work, comprising bulletins, specifications, outlines of specifications and documents of the American Specification Institute and other correlated data . . . to improve . . . conditions surrounding the writing of specifications and to bring to specification writers the benefits that are to be obtained from organized efforts of men accustomed to study and write these essential documents." Contains also a spec'n writer's checking list.
The American Specification Institute, Pub., Chicago\$10.00
- SPECIFICATIONS AND CONTRACTS. By J. A. L. Waddell and John C. Wait; 174 pages; cloth 6x9. "In Mr. Waddell's chapters is given a full presentation and sound discussion of a number of typical contracts. . . Mr. Wait, on the 'Law of Contracts,' presents much safe advice as to the legal feature, and the relation of

the chief 'general clauses' of contracts and specifications."
McGraw Hill Book Co., Inc.,
Pubs., New York \$1.50

THE STANDARD CONTRACT DOCUMENTS, paper 8½x11:—
 Agreements and General Conditions in Cover20c.
 General Conditions without Agreement14c.
 Agreement without General Conditions 5c.
 Bond of Suretyship 3c.
 Form of Subcontract 4c.
 Letter of Acceptance of Subcontractor's Proposal 3c.
 Cover (heavy paper, with valuable notes) 1c.
 Complete Set in Cover30c.
The American Institute of Architects, Pub., Washington, D. C.

THE ELEMENTS OF SPECIFICATION WRITING. By Richard S. Kirby, C. E., 1921; 153 pages; cloth 6x9. "This is a text-book on the art of specification writing; not a collection of specifications. While intended primarily for the class room, it should prove of value to the young engineer in practice." Introduction discusses various methods of contracting. Chap. II: Contract and Bond. Chap. III: Advertisements and Information for Bidders. IV: Proposals. V: Composition of Specifications. VI-XI: General Clauses. XII: Specific Clauses. XIII: Outlines of Specification Clauses (Spec'n Reminder).
John Wiley & Sons, Inc.,
Pubs., New York\$1.50

CONTRACTS IN ENGINEERING. By James Irwin Tucker. The interpretation and writing of engineering-commercial agreements.
McGraw Hill Co., 1910; 307
p.p.\$3.00

ENGINEERING CONTRACTS AND SPECIFICATIONS. By John Butler Johnson; 566 pages. A synopsis of the law of contracts and illustrative ex-

amples of general and technical clauses.
Engineering News Publishing
Co., N. Y.\$3.00

GENERAL

(BOOK OF) A. S. T. M. STANDARDS; 1924; 1230 pages, 6 x 9; with 1925 Supplement. "... contains the 220 standards adopted by the Society up to 1924" and, in the Supplement, 34 additional standards and 4 revisions.
Am. Soc. for Testing Materials, Pub., Philadelphia. Cloth....\$12.00
Half-leather\$13.50

(INDIVIDUAL) A. S. T. M. STANDARDS AND TENTATIVE STANDARDS. Paper, 6 x 9.
Single copies25c
Lots of 50 to 250.....@20c
Lots of over 250@15c
 Catalog list, Gratis.
Am. Soc. for Testing Materials, Pub., Philadelphia.

THE ARCHITECTS' AND BUILDERS' HANDBOOK. By the late Frank E. Kidder, C. E. Ph. D.; compiled by a staff of specialists and Thomas Nolan, M. S., A. M., Editor-in-chief; rev. 1921; 1934 pages; flex. cloth, 4¼x7; many tables, charts and figures; specifications on many topics of construction and engineering. "A reference book which should contain some information on every subject (except design), likely to come before an architect, structural engineer, draftsman or master builder."
John Wiley & Sons, Inc., Pubs.,
New York\$7.00

ARCHITECTURAL CONSTRUCTION, Vol. 1. An Analysis of the Design and Construction of American Buildings Based upon the Actual Working Documents of Recent Examples. By Walter C. Voss, S. B., and Ralph C. Henry, S. M., Arch'ts, 1925; 1273 pages; cloth, 9 x 12; 577 ills.; 135 tables. "... it has faithfully reproduced the actual, original drawings, details and specifications upon

which the buildings illustrated are known to have been executed . . .” These include II, Cottage; III, Suburban House; IV, Landscape Work; V, Country House; VI, City House; VII, School; VIII, Church; IX, Office Building. Index is complete checking list for specification writers.

*John Wiley & Sons, Inc.,
Pubs., New York* \$20.00

BUILDING CONSTRUCTION, HANDBOOK OF. By George A. Hool, S. B., and Nathan C. Johnson, M. M. E.; 2 Vols.; 1,474 pages; flex. 6 x 9; many ills., tables and details. “Covers design and construction of the principal kinds and types of buildings with their mechanical and electrical equipment.” Chap. V of Part II is on specifications.

*McGraw-Hill Book Co., Inc.,
Pub., New York* Per set \$10.00

BUILDING SPECIFICATIONS, ESTIMATES AND CONTRACTS, 1925. Vol. 346B of Library of Technology; 333 pages; cloth; 6 x 9; 36 ills.; specification writing; specification writing memoranda; estimating and calculating quantities; contracts.

*International Textbook Co.,
Pub., Scranton, Pa.* \$3.00

BUILDING SUPERINTENDENCE. A Manual for Young Architects, Students and Others Interested in Building Operations as Carried on at the Present Day. By T. M. Clark, Architect, 1903; 306 pages; cloth; 6 x 9; 192 ills. Chap. 3 gives complete specifications for a dwelling house.

*Macmillan Co., Pub., New
York* \$3.00

(MODERN) BUILDING SUPERINTENDENCE AND THE WRITING OF SPECIFICATIONS. By David B. Emerson; 1921; 247 pages; cloth, 4½ x 7; pages 183 to 226 on “The Writing of Specifications,” including “Specifications for a Small House,” also Appendix giving formulae for Concrete Mortar, Plaster and Whitewash. “An attempt has been made to give some

information which is not generally found in books on construction. Although written for the use of students and juniors, it is hoped that in some ways it may be of some little value to the older members of the profession in their work.”

*Chas. Scribner's Sons, Pubs.,
New York* \$1.75

CIVIL ENGINEERING SPECIFICATIONS AND CONTRACTS, 2 Vols. By Richard I. D. Ashbridge, C. E.; 1922; 178 pages; cloth, 5½ x 8¼; Cor. School textbook of specifications for general engineering work, also contract forms.

*American Technical Society,
Pub., Chicago* each 65c

THE CIVIL ENGINEER'S POCKET BOOK. By John C. Trautwine, C. E., 1882; Rev. 1919 by J. C. Trautwine Jr. and J. C. Trautwine 3rd; 1923; 1528 pages; flex., 4¼ x 7. Contains specifications for various items of engineering and architectural construction.

*Trautwine Co., Pub., Phila-
delphia* \$6.00

THE CONSTRUCTION OF THE SMALL HOUSE. By H. Vandervoort Walsh, 1923; cloth, 8½ x 11; illustrated. “A simple and useful source of information on the methods of building small American homes . . .” Discusses materials and work of all phases of small house construction.

*Chas. Scribner's Sons, Pubs.,
New York* \$5.00

THE DESIGN OF STEEL MILL BUILDING AND THE CALCULATION OF STRESSES IN FRAMED STRUCTURES. By Milo S. Ketchum, C. E., 1921; 640 pages; flex. cloth, 6 x 9; 410 ills., 60 tables, 4 plates. Ap'x I has 20 pages spec's for Steel Frame Buildings.

*McGraw-Hill Book Co., Pub.,
N. Y.* \$6.00

THE DESIGN OF WALLS, BINS AND GRAIN ELEVATORS. By Milo S. Ketchum, C. E., 1920; 556 pages;

- cloth, 6 x 8½; 304 ills.; 45 tables, 2 plates. Chap. 4 of Ap'x I has 6 pages spec's for Plain and Reinforced Concrete and Steel Reinforcement; Ap'x III has 5 pages "Recommended Standard Spec's" for Stone Masonry; Ap'x IV has 11 pages spec's for Material and Workmanship for Steel Structures; Chap. 3 has 3 pages spec's for Concrete Retaining Walls, and Chap. 4 has spec's for Masonry Retaining Walls.
McGraw-Hill Book Co., Pub., New York\$5.00
- (NATIONAL) DIRECTORY OF COMMODITY SPECIFICATIONS, 1925; 385 pages; cloth, 8½ x 11. Complete list of publications of Federal Specifications Board and Bureau of Standards, including many subjects relating to materials of construction.
Government Printing Office, Washington, D. C.\$1.25
- READY-WRITTEN SPECIFICATIONS. By Leicester B. Holland, B. S. in Arch., Ph.D., and Harry Parker, M. S. in Arch., 1926; 274 pages (about 170 pages of spec's); cloth, 8½ x 11. "A Compendium of Clauses for Direct Use in Architects' Specifications. The .. material covers the greater part of what would be needed for the specifications of a residence .."
John Wiley & Sons, Inc., Pubs., New York\$5.50
- REGULATIONS GOVERNING STANDARD MILL (SLOW BURNING) CONSTRUCTION, also Installation of Scuppers, 1918; 27 pages; paper, 3½ x 5¼.
Nat'l Board of Fire Underwriters, Pub., New York.....Gratis
- REGULATIONS GOVERNING ROOF OPENINGS, CORNICES AND GUTTERS, 1918; 16 pages 3½ x 5¼.
Nat'l Board of Fire Underwriters, Pub., New YorkGratis
 (See other "Regulations" under subject headings, "as recommended by the Nat'l Fire Protection Assn.")
- REGULATIONS FOR THE INSTALLATION OF VAULTS, 1916; 16 pages; paper, 3½ x 5¼.
Nat'l Board of Fire Underwriters, Pub., New York.....Gratis
- SAFE PRACTICES ON CONSTRUCTION WORK. Safe Practices Pamphlet No. Conf. 1, 1926; 12 pages; paper 8½ x 11; 11 ills. Spec'ns, advice warnings and list of "Safe Practices Pamphlets."
National Safety Council, Pub., Chicago25c
- SCHOOL ARCHITECTURE, ITS PRINCIPLES AND PRACTICE. By John J. Donovan, B.S., A.I.A.; 724 pages; cloth, 9¼ x 12½; 669 ills. ". . . each type of school and each department of the school plant is given a separate and most thorough treatment. . . ."
William T. Comstock Co., Pub., New York\$20.00
- SPECIFICATIONS AND GENERAL SCHEDULE FOR BRICK HOUSE; 16 pages; paper 8½ x 11; 6 ills. showing details of "Ideal" wall construction; detachable estimate sheets and contract forms; intended to accompany working drawings.
The Common Brick Mfrs. Assn. of America, Pub., Cleveland....Gratis
- STANDARD SPECIFICATIONS. For Structural Steel, Timber, Concrete, Reinforced Concrete, etc. By John C. Ostrup; 99 pages; cloth 6 x 9; ills. "A book of ten specifications covering all important details of construction work."
McGraw-Hill Book Co., Inc., Pubs., New York\$1.50
- (MODERN) THEATER CONSTRUCTION. By Edward B. Kinsila; 270 pages; cloth; ill'd. ". . . considerable data as to requirements, construction cost, building laws, etc."
William T. Comstock Co., Pubs., New York\$3.00
- THEATRES AND MOTION PICTURE HOUSES. By Arthur S. Meloy, 1916; 120 pages; cloth 7 x 10; plates, tables and diagrams. Con-

tains specifications specially appertaining to theatre construction and fire prevention.

Architects' Supply & Publishing Co., Pub., New York.....\$3.00

HANDBOOK FOR ARCHITECTS AND BUILDERS; ANNUAL VOL. XXVIII, 1925. Published under Auspices of Ill. Soc. of Architects. 752 pages; cloth 6½ x 9¼; many illustrations and advertisements. Contains Chicago Building Code and Zoning Ordinance; also Specifications on Gypsum Blocks; Tile Work; Structural Steel; Reinforcement Bars; Combination Hollow Tile and Concrete Floors; Metal Lath; Hollow Tile Fireproofing; Cut Stone; Lumber; Heating and Ventilating; Refrigerating; Glazing; also many Standard Rules and Jurisdictional Awards.

H. L. Palmer, Pub., Chicago, (Free to Licensed Architects in Illinois.)

SWEET'S ARCHITECTURAL CATALOGUE. Annual 1925 edition has 2855 pages; cloth 8½ x 11½; many ills. Contains only manufacturers' descriptions of their products, with many specifications of same, prepared for architects' use.

Sweet's Catalogue Service, Pubs., New York. Gratis to Architects.

SWEET'S ENGINEERING CATALOGUE. Annual. 1925 edition has 1136 pages; cloth 8½ x 11½; many ills. Contains only manufacturers' descriptions of their products, with many specifications of same, prepared for engineers' use.

Sweet's Catalogue Service, Pubs., New York. Gratis to Engineers.

THE ELEMENTS OF SPECIFICATION WRITING. By Richard S. Kirby; 153 pages with data on specifications and contracts.

John Wiley & Sons, N. Y....\$1.50

1. PREPARATION OF SITE

2. EXCAVATION

ROCK EXCAVATING AND BLASTING. By J. J. Cosgrove, 1913; 184 pages; cloth, 5½ x 8½; ill'd. Contains in-

formation for specification writing.
National Fireproofing Co., Pub., Pittsburgh\$3.00

EARTHWORK AND ITS COST. By H. P. Gillette, 1346 pages, with specifications on Classification, steam shovel work, trenching and backfilling; 3rd edition.

McGraw-Hill Book Co., New York\$6.00

FOUNDATIONS, ABUTMENTS AND FOOTINGS. By George A. Hool, S.B., and W. S. Kinne, B.S., 1923; 428 pages; cloth 6 x 9; many illustrations, details, charts, tables Specifications for concrete piling of 2 Cleveland bridges.

McGraw-Hill Book Co., Inc., Pub., New York\$4.00

3. MASONRY MATERIALS

CEMENTS, LIMES AND PLASTERS: THEIR MATERIALS, MANUFACTURE AND PROPERTIES. By Edwin C. Eckel, 1922; 655 pages; cloth 6 x 9; 158 figs; 6 plates; has specifications for Portland, puzzolan and slag cement and other data for specification writing.

William T. Comstock Co., Pub. New York\$6.50

SPECIFICATIONS AND METHODS OF TESTS FOR PORTLAND CEMENT; 20 pages; paper 6 x 9. Reprinted from "Transactions," 1918.

American Society of Civil Engineers, Pub., New York.15c

STANDARD SPECIFICATIONS AND TESTS FOR PORTLAND CEMENT; 1926; 36 pages; paper 6 x 9; 7 ills; "With Supplemental Manual of Cement Testing of the American Society for Testing Materials." Authorized Reprint.

Portland Cement Assn., Pub., ChicagoGratis

TESTS AND SPECIFICATIONS OF SAND-LIME BRICK. In press.

The Sand-Lime Brick Association, Pub., Saginaw, Mich....\$3.00

BUILDING CODE REQUIREMENTS FOR LIME, 1924; 7 pages; paper 4 x 9; "Tentative Standards adopted by Building Officials Conference."

MATERIALS OF CONSTRUCTION. By H. E. Pulver, prepared for the Extension Dept. of the University of Wisconsin; 318 pages, with specifications on gypsum building material. *McGraw-Hill Book Co., New York*\$3.00

(STANDARD FOR) GYPSUM BLOCKS. Rev. to date; mimeo; L. L. paper binder 8½ x 11; 26 pages. *Underwriters' Laboratories Pubs., Chicago*50c

GYPSUM PARTITION TILE OR BLOCK SPECIFICATIONS. (Including Blue Prints); 1926; 16 pages including 5 prints; paper 8½ x 11. *The Gypsum Industries, Pubs., Chicago*Gratis

STANDARD METHODS OF TESTING GYPSUM AND GYPSUM PRODUCTS; 1923; 10 pages; paper, 6 x 9; 1 plate detail. *American Society for Testing Materials, Pub., Philadelphia.* (Distributed gratis by The Gypsum Industries, Chicago.)

STANDARD SPECIFICATIONS FOR CALCINED GYPSUM, 3 pages; GYPSUM, 3 pages; GYPSUM WALL BOARD, 3 pages; GYPSUM PLASTERS, 4 pages; GYPSUM PARTITION TILE OR BLOCK, 5 pages; GYPSUM PLASTER BOARD, 3 pages; GYPSUM PLASTERING SAND, 1 page; 6 x 9 leaflets. *American Society for Testing Materials, Pub., Philadelphia.* (Distributed gratis by The Gypsum Industries, Chicago.)

FLUES AND FLUE LININGS with Related Data on CHIMNEYS AND FIREPLACES 1925; 32 pages; paper 8½ x 11; 39 ills., and details and specifications. "... in the interest of restraining fire and the products of combustion within lined flues where they properly belong. In it is also included complete information on flue linings and

related data for calculating sizes of flues, determining heights of chimneys, construction of fireplaces and other information. . . ." Edited by D. Knickerbacker Boyd. *Con. Archt. Eastern Clay Products Assn., Pub., Philadelphia*50c

4. CONCRETE AND MONOLITHIC CONSTRUCTION

ABSTRACT OF CONCRETE REQUIREMENTS in Recommended Minimum Requirements for Small Dwelling Construction; Report of Building Code Committee, Department of Commerce, U. S. Bureau of Standards; (Exact wording Condensed); 5 loose pages 8½ x 11. *Portland Cement Assn., Pub. Chicago*Gratis

CONCRETE BANK VAULTS; 1824; 4-page folder with details; 8½ x 11; "... based on a study of materials and details of construction which experience has shown will produce vaults which are fire safe and reasonably burglar proof." *Portland Cement Assn., Pub. Chicago*Gratis

CONCRETE BUILDING CONSTRUCTION by Theodore Crane and Thomas Nolan, C.E., A.M., 1926; "A brief but adequate description of the design and construction methods representing the best present day practice as applied to concrete buildings." Part IV devoted to Specifications, Codes and Rulings. *John Wiley & Sons, Inc., Pubs. New York.*

CONCRETE FLOORS; 1925; 15 pages; paper 8½ x 11; "... assembled and published . . . as a service to engineers, architects and contractors. The correctness of the information given has been tested by extensive use and the instructions may be followed with confidence in the results." *Portland Cement Assn., Pub. Chicago*Gratis

- CONCRETE MASONRY CONSTRUCTION, 1925; 47 pages; paper 6 x 9; 58 figs. and plates of details. Pages 37-43 give American Concrete Institute Standard Specifications for Concrete Building Block, Concrete Building Tile and Concrete Brick; Suggested Specifications for the Application of Portland Cement Stucco on Concrete Block and Tile Walls; Recommended Building Ordinance for Concrete Block and Tile.
Portland Cement Assn., Pub., ChicagoGratis
- CONCRETE SYSTEM. By Frank R. Gilbreth; 184 pages; flex. 8½ x 11; 220 ills.; 10 plates. "A practical book, partaking of the nature of a set of specifications, telling how to do work systematically, safely and soundly."
McGraw-Hill Book Co., Inc., Pubs., New York\$5.00
- THE DESIGN OF WALLS, BINS AND GRAIN ELEVATORS. By M. S. Ketchum. (See under GENERAL.)
- FOUNDATIONS OF BRIDGES AND BUILDINGS. By Henry S. Jacoby and Roland P. Davis, 1914; 603 pages; cloth 6 x 9. Specifications for Bridge Abutments, Concrete and Timber Piles.
McGraw-Hill Book Co., Pub., New York\$6.00
- HANDBOOK FOR CEMENT AND CONCRETE USERS. By Myron H. Lewis, C.E., and Albert H. Chandler, C.E., 1911; 439 pages; cloth 6 x 9. Specifications on Concrete, Waterproofing and Plastering.
Norman W. Henley Pub. Co., Pub., New York\$2.50
- A MANUAL OF CONCRETE MASONRY CONSTRUCTION; 1925; 31 pages; paper 8½ x 11. "The information contained . . . represents improved practices and methods successfully employed in concrete masonry construction."
Portland Cement Assn., Pub., ChicagoGratis
- THE MANUFACTURE OF CONCRETE MASONRY UNITS; 1924; 27 pages; paper 6 x 9; devoted to the making of concrete blocks and tiling.
Portland Cement Assn., Pub., ChicagoGratis
- RECOMMENDED PRACTICE FOR CONCRETE BRIDGE CONSTRUCTION; 1924; 13 loose pages 8½ x 11; "Based on recommendations of the Committee on Bridges of the American Concrete Institute."
Portland Cement Assn., Pub., ChicagoGratis
- RECOMMENDED PRACTICE FOR THE CONSTRUCTION OF CONCRETE TANKS, STANDARDS AND RESERVOIRS; 9 loose pages 8½ x 11.
Portland Cement Assn., Pub., ChicagoGratis
- REINFORCED CONCRETE AND MASONRY STRUCTURES. By George A. Hool, S.B., and W. S. Kinne, B.S., 1924; 786 pages; cloth 6 x 9; many ills., charts, details, tables. Appendix F has 28 pages on "Progress Report of New Joint Committee on Standard Specifications for Concrete and Reinforced Concrete" with tentative specifications for same.
McGraw-Hill Book Co., Pub., New York\$6.00
- REINFORCED CONCRETE CONSTRUCTION, Vol. II, Retaining Walls and Building. By George A. Hool; 666 pages; cloth 6 x 9; 412 ills.; 34 plates. "Gives . . . specifications and useful suggestions for architects, builders and designing engineers." Chap. XVII: Example of a Building Design Including the Specifications.
McGraw-Hill Book Co., Inc., Pubs., New York\$6.00
- REPORT OF THE JOINT COMMITTEE ON STANDARD SPECIFICATIONS FOR CONCRETE AND REINFORCED CONCRETE; 1924; 152 pages; paper 6 x 9. ". . . contains the standard specifications for concrete and reinforced concrete prepared by a Joint

Committee of the American Society of Civil Engineers, American Society for Testing Materials, American Railway Engineering Association, the American Concrete Institute and the Portland Cement Association." 18 appendices.

American Society for Testing Materials, Pub., Philadelphia. \$1.50

SPECIFICATION MANUAL OF PLAIN AND REINFORCED CONCRETE; 1924; paper; 98 pages 8½ x 11. "Engineers, architects, contractors and others interested in building construction so frequently make inquiry of the Portland Cement Association for specifications on the use of concrete, that it suggested the assembling of data in this manual as an aid to drafting general specifications. . . . It is believed that they . . . represent the best prevailing guide for the use of concrete, plain and reinforced."

Portland Cement Assn., Pub., Chicago \$1.00

STANDARD SPECIFICATIONS AND TESTS FOR CONCRETE AND CONCRETE AGGREGATES of the American Society for Testing Materials; 1926; 55 pages; paper 6 x 9; 5 ills.; "Authorized Reprint."

Portland Cement Assn., Pub., Chicago Gratis

STANDARD SPECIFICATIONS AND TESTS FOR PORTLAND CEMENT. (See under CEMENT.) Gratis

SUGGESTED SPECIFICATIONS FOR PORTLAND CEMENT CONCRETE CURBS AND COMBINED CURB AND GUTTER; 5 loose pages 8½ x 11.

Portland Cement Assn., Pub., Chicago Gratis

SUGGESTED SPECIFICATIONS FOR PORTLAND CEMENT CONCRETE SIDEWALKS; 5 loose pages 8½ x 11.

Portland Cement Assn., Pub., Chicago Gratis

SWIMMING POOLS; 1925; 19 pages; paper 8½ x 11; 30 ills. and 6 details.

" . . . to present a few fundamental principles that should be observed in locating and constructing the outdoor pool so that all of its advantages may be realized."

Portland Cement Assn., Pub., Chicago Gratis

TENNIS COURT FOR ALL-YEAR SPORT; 1925; 19 pages; paper 6 x 9; 16 ills. and 1 plate of details.

Portland Cement Assn., Pub., Chicago Gratis

STANDARD SPECIFICATIONS FOR CONCRETE REINFORCEMENT, ETC. By Carnegie Steel Co.

RAIL STEEL FOR CONCRETE REINFORCING, 1922; 84 pages; paper 8½ x 11; many ills. Contains specifications for billet steel and rail steel reinforcing bars, both Manufacturers' Standard and Am. Soc. for Testing Materials.

Rail Steel Bar Ass'n., Pubs., Chicago Gratis

STANDARD SPECIFICATIONS FOR RAIL STEEL CONCRETE REINFORCING BARS as adopted by The American Society for Testing Materials. 1913; 3 pages; paper 8½ x 11.

Rail Steel Bar Assn., Pubs., Chicago Gratis

STANDARD SPECIFICATIONS FOR SPECIAL FORGING QUALITY BAR STEEL; Rev. 1924; 6 pages; paper 4 x 6½.

The Assn. of American Steel Mfrs., Pubs., Pittsburgh Gratis

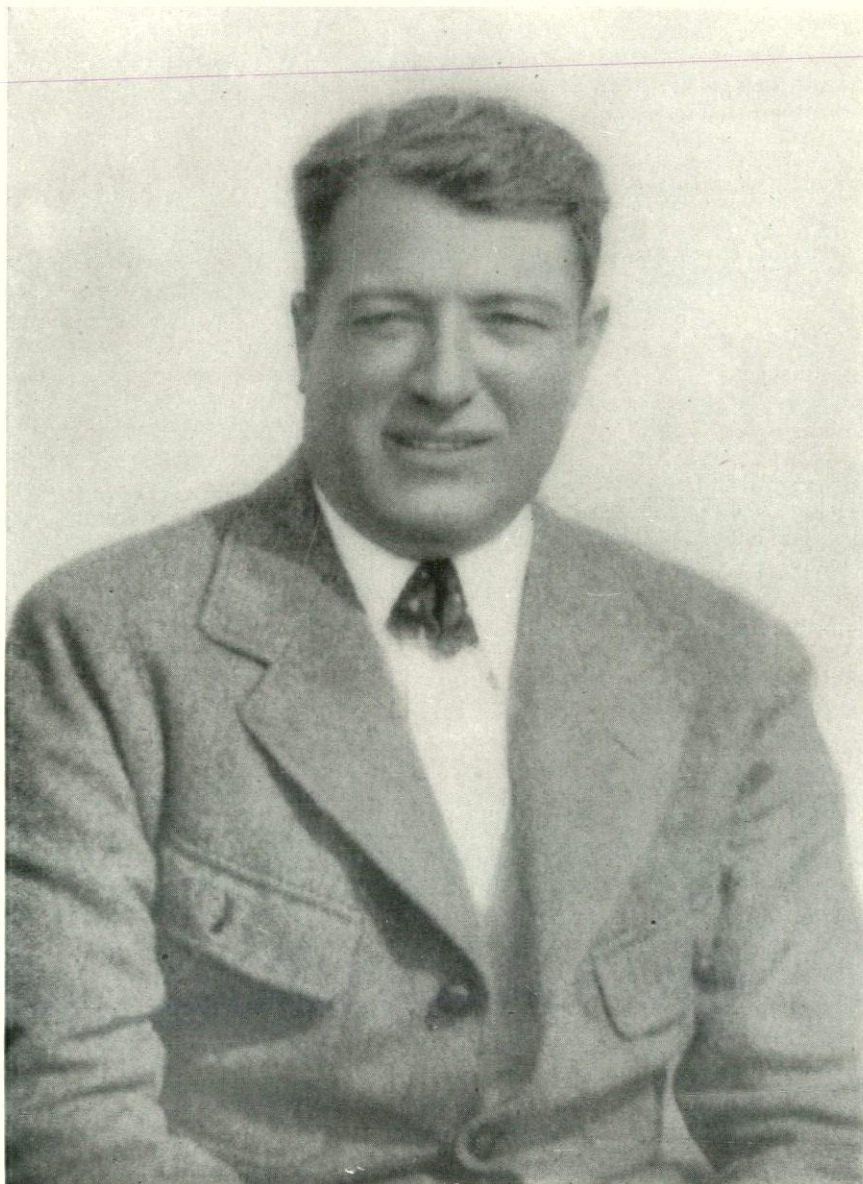
STANDARD SPECIFICATIONS FOR COMMERCIAL QUALITY BAR STEEL; 1924; 6 pages; paper 4 x 6½.

The Assn. of American Steel Mfrs. Pub., Pittsburgh. Gratis

MASONRY AND REINFORCED CONCRETE, 4 vols. By Walter L. Webb, C. F. and W. Herbert Gibson, B.A. and C.E.; 1915; 391 pages (total); cloth 5½ x 8¼; many ills. Cor. School textbook with suggestions for specification writers.

American Technical Society, Pub., Chicago 65c each.

(To be Continued in our February Issue)



The Architectural Record

January, 1927

WALTER LANE HOPKINS
(1879-1926)

WALTER LANE HOPKINS

(1879-1926)

In the death of Walter Hopkins, the world of Architecture has suffered a great loss. Behind a charming personality was an extraordinary ability unusual in modern times. He possessed not only a rare capacity for design and a wonderful sense for color, but the one great quality which makes for the beautiful in Architecture—that is, unfailing good taste. In this armor of good taste he worked without effort. His masterful work therefore was unstilted and without sadness.

Though guided by precedent, he never permitted his work not to be suited to its purpose.

These thoughts come to me after an association of almost a quarter of a century.

CHARLES D. WETMORE.

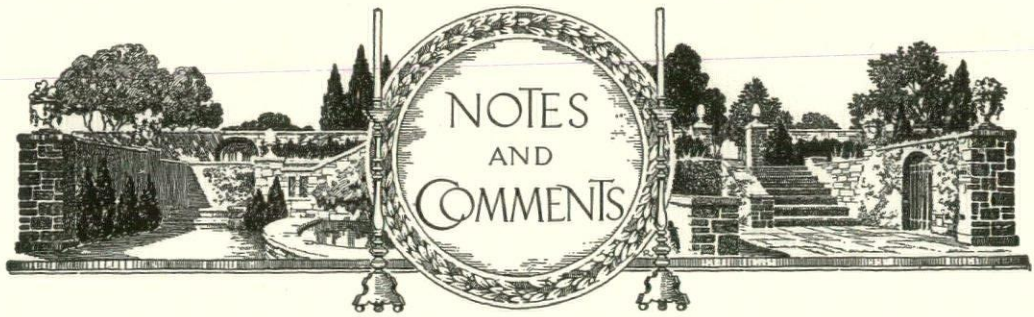
One must indeed be shocked to review that long list of those active and illustrious in the beautiful work of our profession, who have been so recently and so prematurely taken from us. Stopped in the very fullness of their careers when so much fine noble building was still to be theirs. And now my brother Walter is numbered among them; stricken in a far away island of the Pacific, in the very shadow of those public courts and gardens which he planned so intimately and loved so well. As I think of those many intimate, friendly talks about our work that we have had together, talks which now seem vaguely to belong only to the memory of dreams, I feel the finest thing about his talent lay in the directness with which he invariably saw the practical part of every problem. He long ago threw aside, if indeed he ever had, that narrow student view of architectural tradition and formula which is very frequently found, standing squarely in the way of clear-cut practical requirements. His mind was able to immediately dismiss all secondary matters and focus attention on primary ones. And what facility he had in every field of his effort! There is a definition of genius which describes it as an infinite capacity for taking pains. Perhaps that is one kind of genius. But it was not the genius of Mozart, of Shelley, or of Schubert. The beauty of their art is like some crystal spring which without effort wells up clear and refreshing. And so it was with Walter's talent. A ready solution was ever at hand. It came without effort. He had the answer as soon as he had the question. And with what unerring taste was that answer always made. For not only in the field of architectural design was he expert to a high degree, but he had the very unusual quality of being able to furnish that architecture in the most appropriate way. And not only was his taste perfect in every matter connected with his profession, but it extended to the other arts as well; particularly to literature and to music. His interest extended to everything which was beautiful in art. But beautiful it must be for there was nothing which even approached the commonplace or vulgar which he did not immediately reject and resent.

This fine critical faculty with regard to what was noble and pure in artistic things extended to everything which touched his life. It puts every business contact upon a basis which was fair and frank and dignified. It won all to him—those who worked for him and those for whom he worked. He had been only a brief fortnight upon the task he was called upon to do, yet he so inspired the confidence and regard of the owners that they have sent to his firm and his widow a testimonial of their grief at his loss. I cite this to show, not only the high esteem which was instantly accorded him, but that he inspired those gentler qualities of friendly and affectionate regard which he was the first to recognize and the first to give. His delightful personality charmed all who knew him. Though serious in everything to which serious consideration is due, his delight in the very fact of existence made itself felt in everything he said or did. But that bright sunny nature knew no cloud of discontent, no thought of envy, no quail of jealousy. His keen sense of humor enlivened every incident and illumined every contact. He laughed at difficulties when they did not exist. He laughed at difficulties when they did exist. And when Death crept up out of those dark, dank tropical vapors to come and stand by his bedside, he shouted down that foul phantom in derision and laughed him away. But he stayed.

From the mail which has come to me, I find a touching expression of regard from an old friend. This is what he writes: "I have not seen Walter for twenty years or more, but with what pleasure and delight do I remember his bright gay spirit and his music. He was like Shelley's Skylark.

"Hail! Blythe Spirit!
Hail! and farewell!"

ALFRED HOPKINS.



The Traffic Problem

A careful observer who took an extended business trip through the larger cities of the Middle West during October, 1926, re-reported as the result of his observations one interesting and unexpected fact. The business men with whom he talked were not discussing the election of Queen Marie of Roumania or even the condition and prospects of business. They were most of all concerned about the traffic problem of the city in which they lived. All of these cities had of recent years framed and put into effect more or less drastic systems of regulation and it was usually a question with these business men whether the regulation was not too drastic and did not involve delays in the movement of traffic more serious than those which formerly resulted from unregulated congestion. These Middle Western business men approached the problem from a somewhat different direction from that which a New York business man would use in approaching it. They were not merely citizens who wished the traffic to move as freely as possible at all times, but they were usually themselves the drivers of cars who considered themselves unnecessarily delayed by regulations which prevented them from moving when they could have moved without obstructing the progress of any vehicle.

The wide popular interest in the traffic problem is, of course, the result of the enormous increase which has taken place during the last five years in the manufacture and the distribution of cars. The period has been one of sustained activity in all the centres of industry, of a higher level of real wages and of a large expansion in the domestic consumption of wage-earners and salaried workers of semi-luxurious articles. A great many of them live at greater distances than formerly from their places of work and travel from their residence to

their factory or office in their own cars. In addition, of course, the possession of a car by people who have always lived in somewhat confined surroundings is a constant temptation to joy-riding. The result is that in every city of over a couple of hundred thousand inhabitants a traffic problem exists which, however it is dealt with, provokes the liveliest kind of popular interest and irritation.

It was in New York City and its vicinity, however, that the congestion of motor traffic first demanded police regulation, and it is in New York that the problem is most serious and most insoluble except at enormous cost. In the ordinary Middle Western town the congestion arises chiefly in a small area round about the business centre or from the holiday crowds on roads which lead out of the city. But in New York City, almost the whole of Manhattan is becoming at certain times in the day a congested area in which all surface traffic may be subjected to intolerable delays. The result is, of course, that the old New Yorker, who is made wise by costly experiences, picks and chooses his routes very carefully. If he knows where and when the congestion is most likely to occur, he can arrange to avoid it either by changing his plans or by traveling, if he has to, in the Subway.

Such alternatives are, of course, open to a man who either for business or pleasure wishes to be transported to a certain place at a certain time. But unfortunately they are not open to a business man who has agreed to deliver a truck load of goods at a particular hour to a particular customer at a particular place. The truck with his goods in it has to traverse a specific route and reach its destination at some calculable time, and it is this kind of transport and calculation which is becoming increasingly difficult. It is now impossible, for instance, to deliver loads of bulky building materials

to a specified location in the centre of Manhattan without costly delays. A building material dealer cannot obtain anything like the same amount of service out of a given number of trucks that he formerly could, the result being that he must either cut down his business or increase the number of his trucks. The expense of carting in Manhattan was always a heavy burden upon the transaction of business, but of recent years it has become heavier than ever. The time is not far distant when the congestion will operate to make the business itself impossible.

The Police Department of Manhattan has set the pace for traffic regulations for the whole country. It is mitigating the cost of the congestion to the best of its very considerable ability. But the limits within which its task is capable of performance have almost been reached. It cannot improve streets or avenues where there are none and it cannot move a huge volume of traffic through along a few routes faster than a certain pace. In Manhattan one of two alternatives, neither of which will be very popular, will soon have to be chosen. Either the number or capacity of the avenues and streets will have to be increased or the business will have to be transacted somewhere else. It looks as if little by little the manufacturing which is now carried on in Manhattan would be shifted to other locations. In the future the area of that borough will be given over to office buildings, light lofts, hotels, places of amusement and expensive residences.

HERBERT CROLY

Building-Line Encroachments by Architectural Ornamentation

A special report on the above subject is being prepared for the Committee on Civic Improvement of the New York Chapter of the American Institute of Architects by a Committee of the New York State Title Association, of which Mr. Cyril H. Burdett, Vice President, Title and Mortgage Company, is secretary.

Mr. Burdett states that in a question of resale of a building, when the validity of the title is under investigation, the owner often finds himself an innocent offender against the provisions of the Building Code because certain architectural ornamentation such as gargoyles, pilasters, columns, etc., extend over the building line and are thus really occupying city property.

"It has heretofore been customary in the

City of New York" he says, "to erect the main wall of the building exactly on the street line, and then to attach cornices, pilasters and other ornamental projections that in some cases extend over the sidewalk and encroach on the street. Such projections are recognized in the Building Code and the rules governing them are set forth in Section 170, Article IX, in the Code of Ordinances of the City of New York.

"It should be noticed, however, that the section expressly provides that no part of the building so permitted to project shall be so constructed that its removal may not be made at any time without causing the building or any part thereof to become structurally unsafe. Under Section 171 permission to construct any part of the building so as to project beyond the building line is revocable by the Board of Aldermen or the Board of Estimate at will.

"It is very important, therefore, for architects to keep in mind the fact that the City may require the removal of all these ornamental projections, including stoops and areas. Within a few years the Board of Estimate and Apportionment have rescinded all permits for projections of this kind upon Broadway, Fifth Avenue, Forty-second Street, and other main thoroughfares, which removals have cost individual property owners thousands of dollars.

"When architects, therefore, draw plans of buildings with elaborate ornamentation, pedestals and pilasters from the ground up, surrounding the doors, projecting even as much as an inch over on the street line, they impose a burden on their client, because the City may compel the removal of such encroachments. The possibility of such action on the part of the City is constantly menacing the titles which the Courts think unmarketable."

Kinship Between the Maya and the Modernist

An excellent monograph has been compiled by George Oakley Totten and recently published by the Maya Press at Washington. For many years the author has studied this fascinating example of indigenous art, exploring its ruins, making reconstructions in drawings and models of various structural remains, and developing the solution for their polychromatic method in architectural ornamentation and sculpture. This work contains a fund of vitally interesting information concerning the history of Maya structural arts, and their stylistic classifica-

tion into periods identified with the evolution of design. Civic planning (which was extensively practiced), structural types, ornamental detail, methods employed in construction, and various subjects of interest are dealt with in detail. It is profusely illustrated with half-tone and color-plates, and is a work of considerable utility to the student of stylistic manners, or to the designer.

The excellence of the illustrations and their judicious classification, enable the reader to gain a very comprehensive idea of the aesthetic aspirations of this remarkable and mysterious race, and to detect the aesthetic objectives which dominated architectural composition and decoration. Stylistic types such as this, which are the externalization of uninfluenced racial impulses of the aesthetic order, pass with extreme deliberation through their stages of artistic evolution, and reflect the very unhurried march of their civilizations. As sources of inspiration in modern imaginative effort they are only of very occasional utility, interest being mainly sociological, archaeological, or purely aesthetic; their exotic character renders them applicable mainly to those purposes in which the dramatic

or unusual is sought. Indigenous types such as the Assyrian, Egyptian, Mongolian or Hindu, which belong to the same stylistic category as the Maya, reflect conditions of existence and ideals that are so fundamentally different from those which reassure our sense of fitness, when occidental requirements must be met, that they could not be frequent inspirational influences under any conceivable complex of circumstances.

But owing to the present direction of our interest in design, the Maya proves an exception to this general rule. Curiously enough, in this exotic form of structural design and embellishment, we discern a parallel direction in creative effort to that which is so rapidly asserting itself in the structural arts of this country. In a recent

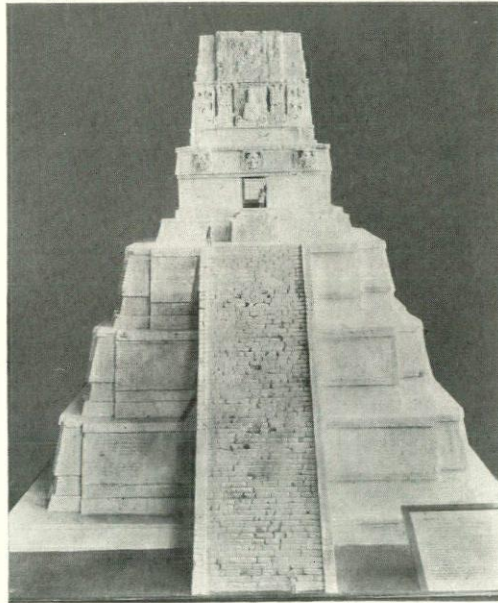
article in this magazine, dealing with an analysis of modernistic architectonic aspirations regulating the character of structural mass, its silhouette, and the relation of decoration to structural areas, we enumerated certain characteristics which, to our surprise, are typified in Maya architecture.

In the composition of structural masses in the monumental type of Maya buildings, a system was adopted with superimposed cubical units which is a precise counterpart of the "set-back" ordained by city building codes. In the Temple II at Nikal we might, without doing violence to our imagination,

imagine we view a project for a New York City building; their lack of mechanical means for human freighting to the upper stories is responsible for the great ceremonial stairway, resulting in many compensating scenic advantages. The ruin at Menche might with little revision be adopted for a superb apartment house.

Their system for decorative elaboration is entirely distinctive, belonging neither to those in which ornamentation is a means for emphasizing structural articulation, as in the Greek and similar structural types; or those in which it is a

means for enriching silhouette and the surface of structural units as in the Gothic and many of the oriental types. We find a precisely identical attitude regarding the preservation of the geometric integrity in the cubical units, which dominate the modernistic point of view, where the unit of mass becomes a decorative area to which the scale of ornamentation must accord, in lieu of conforming to the scale of some minor structural feature or elaboration. The manner in which detail is conceived and assembled, and the rhythmic plans of motifs are contrasted, show an intuitive sense of ornamental value, undoubtedly developed in the invariable need to anticipate color assembly thereupon. This feature in design has been fully grasped by the author, as



MODEL OF TEMPLE OF TIKAL

From *Maya Architecture* by George Oakley Totten

evidenced in the color plates in which he reconstitutes polychromatic effect with every semblance of accuracy, if not in literal statement (as practically all color disintegrated centuries ago); in any case he has entered into the spirit of the Mayas who in their ornamental composition provided for precisely such effects. LEON V. SOLON.

Boston's P. D. Club of Thirty Years Ago

The publication in the October, 1926, issue of *The Architectural Record* of certain happenings during the first Centennial Dinner of the Poor Draughtsmen's Club, has elicited the following letter:

Gentlemen:
We are in receipt of a letter from Christopher Wren anent a certain incident that took place at the first Centennial dinner of the Poor Draughtsmen held at the old Hotel Mieuxett, Van Rensselaer Place (now the stage entrance to the Colonial Theatre,) Boston, December, 24, 1894.

Every few years Chris emerges from his shell and does a schoolhouse, public library, or something of that nature, just to show us how it should be done, keep alive the old traditions, and lay a sprig of laurel and wild thyme at the feet of the Immortal Maiden, as one might say. During one of these periods he must have seen the *Architectural Record* for October for he writes us "It was my good left hand (Chris is a south paw, if such a vulgar phrase may be pardoned as applying to that courtly mannered exquisite of the Old School) and accurate aim that landed that orange in Sody's phonograph horn, and I have always felt pride in both my aim and honorable intentions. Tim Walsh did not realize what had happened to the damned (Chris shares our feeling of aversion for these horrid modern innovations) instrument, and had to be restrained from punching out a pane of glass from the window, for he felt that it needed glass to stand on to produce the proper resonance."

Again in fairness to all parties concerned, and especially in the interests of justice to Christopher Wren, we are only too happy to bow acknowledgment to his superior memory, as, now that he states it, we recollect that it was indeed as he says. Old Chris was right about those unnecessary columns in Saint Paul's and his aura, though tenuous at times, still vivifies more than mere sticks and stones, and makes our "country's past more visually present."

Yours very truly,

HUBERT RIPLEY

Boston, October 23, 1926.

A Correction

Pages 400-402 of the November issue of *The Architectural Record* illustrate the residence of J. L. P. Van Meter, Esq., at Pelham, N. Y. Credit as architects of this residence should have been given to F. Albert Hunt and Edwin Kline and not, as stated in the caption, to F. Albert Hunt only.

The Producer's Research Council

At the Third Semi-Annual Meeting held last November at the Hotel Coronado, St. Louis, Mo., addresses on topics of current interest to the architectural profession were given by prominent St. Louis architects.

Mr. E. J. Russell spoke on "Standardization of Specifications" stressing the improvement in conditions in the architect's office due to standardization of materials such as cement, tile, slate, lumber, etc., which conserved the architect's time in making selections. A plea for the revival of personal craftsmanship was made by Mr. Wm. B. Ittner. Mr. Louis LaBeaume spoke of the value to architects of architectural expositions. "Services which could be rendered Architects by Manufacturers" was the subject of Mr. Oscar Mullgardt's address in which he enumerated the problems faced by the architect on changing from small to larger work—here, he thought, was a real opportunity for the manufacturers to do something in the way of conserving the architect's time by getting authoritative information and in dealing with salesmen.

The 1927 Exhibition of the Architectural League of New York

The Architectural League of New York will hold its forty-second annual exhibition in the Grand Central Palace from Tuesday, February 22nd to Saturday, March 5th inclusive.

Exhibits will be received at the Grand Central Palace on Monday, February 14th only.

Information concerning entries and the awards of prizes and medals may be obtained from the Architectural League, 215 West 57th Street, New York, N. Y.

The 1927 Paris Prize Competition

The first preliminary competition for the annual Paris Prize of the Society of Beaux-Arts Architects will be held on January 15, 1927. The Paris Prize entitles the winner to enter the advanced class of the Ecole des Beaux-Arts in Paris, and also to receive

\$3,000 for expenses for two and a half years' residence and study abroad. Competitors must be American citizens and under twenty-seven years of age on July 1, 1927.

Application for circular should be made to Philip Allain Cusachs, Chairman of the Annual Paris Prize Committee, 126 East 75th Street, New York, N. Y.

Annual Competition of the American Academy in Rome

The American Academy in Rome has announced its annual competitions for fellowships in architecture, landscape architecture, painting and sculpture. The competitions are open to unmarried men not over 30 years of age who are citizens of the United States. The stipend of each fellowship is \$1,250 a year for three years, with additional annual allowances of \$50 to \$100 for material and model hire, and opportunity for extensive travel. Residence and studio at the Academy are provided free of charge, and the total estimated value of each fellowship is in excess of \$2,000 a year.

Under regulations revised this year for the competition in architecture, graduates of accredited schools will be required to have had architectural office experience of at least six months, instead of one year, and men who are not graduates of such schools may enter the competition if they have had at least four years' architectural office experience and are highly recommended by a Fellow of the American Institute of Architects.

Entries for all competitions will be re-

ceived until March first. Circulars giving full information may be secured by addressing Roscoe Guernsey, Executive Secretary, American Academy in Rome, 101 Park Avenue, New York, N. Y.

Announcements of Travelling Scholarships For 1927

The Le Brun Travelling Scholarship Competition, Year 1927, is announced by the Executive Committee of the New York Chapter of the American Institute of Architects, Trustees. The programme will be issued about December 31st, 1926, calling for drawings to be delivered about March 1st, 1927. The sum of \$1,400 is to be awarded to "some deserving and meritorious architect or architectural draughtsman, resident anywhere in the United States, to aid him in paying the expenses of an European trip, lasting not less than six months." Further information may be obtained from Le Brun Scholarship Committee, Room 1618, 19 West 44th Street, New York.

A competition for the James Harrison Steedman Memorial Fellowship in Architecture is announced by the Governing Committee. The Fellowship is open to graduates in architecture, American citizens, who have had at least one year's experience in the office of an architect practising in St. Louis, Mo. Its value is \$1,500, and it is awarded to enable the holder to pursue the study of archi-

itecture in foreign countries. Application blanks may be obtained from the School of Architecture of Washington University, St. Louis, Mo.



Figure of Winged Victory for Top of Pylons, Delaware River Bridge



The Domestic Architecture of the Early American Republic.* The Greek Revival.

Mr. Major's thesis is that the Greek Revival, and not the Colonial, is "the only thorough American architecture," and might properly be called "Federal architecture," that it should be brought back into general use; that "the traditional American belongs in a house of this national style, our independent creation in architecture—one that is suited to the rigour of the Maine winters as well as the tropical heat of the Gulf States."

This Greek Revival ran its course also in Europe at about the same time, but its architecture seems then to have been little put to domestic purposes; whereas here it burgeoned into innumerable private houses, especially in the South and nearer South

West. In England a garden temple was built at Hagley by James Stuart, but the main impetus was given the publication

in 1762 of Stuart and Revett's "Classical Antiquities of Athens." The style ran on to about 1820, but not for private houses. Robert Mitchell in his "Plans and Views in

Perspective," in 1801, expressed the opinion that "the Greek temple would be found inapplicable to a modern mansion." In Paris the Revival appeared not only in the Madeleine, but in the paintings of David, and the feminine costumes of the Directoire and Empire periods.

In American architecture it seems to start with Jefferson's building the Virginia State Capitol in 1789 (see page 94) on the model of the Maison Carrée at Nîmes. Jefferson was for some time at Nîmes in 1785, and began then his sketches for a public building on that model. The Virginia Capitol in turn became the model, or at least

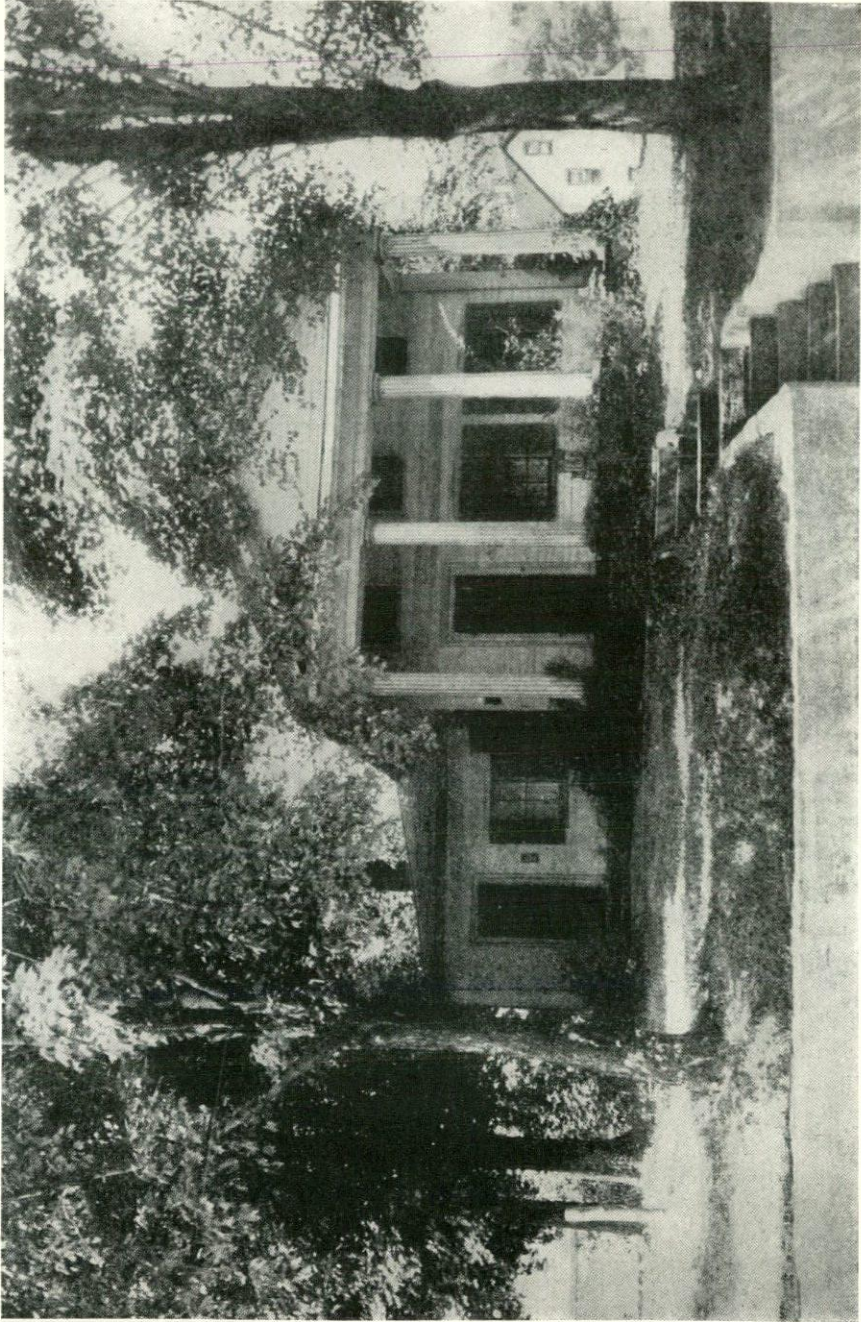
the suggestive starting point. The era of the Greek temple was the first thirty or forty years of the last century. Possibly the War of Greek Independence, 1821-27, stimulated or prolonged the popular interest in things Greek. It was this era that spattered the



Andalusia, near Philadelphia, 1835
THE HOME OF NICHOLAS BIDDLE

Illustration from *The Domestic Architecture of the Early American Republic*

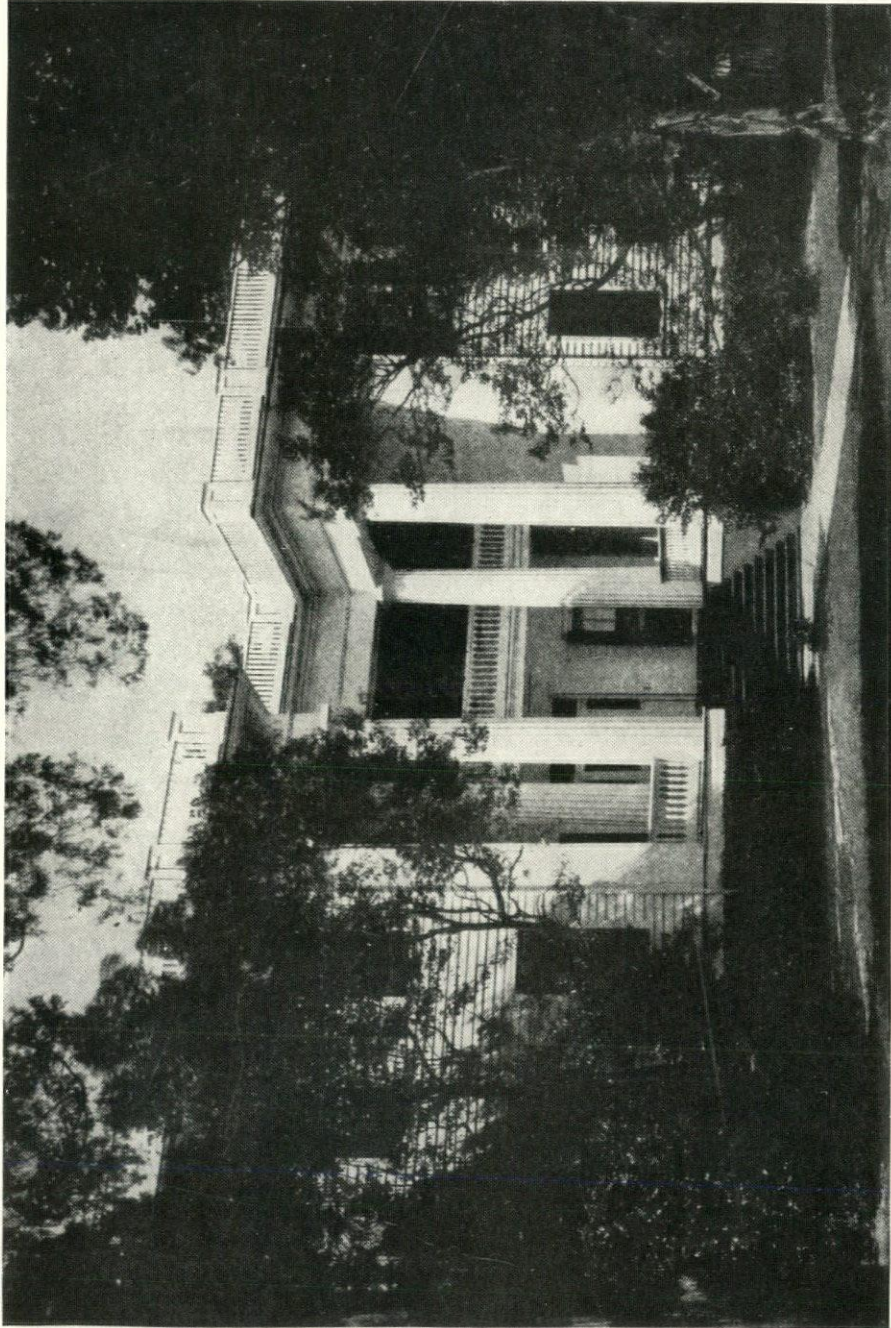
**The Domestic Architecture of the Early American Republic.* By Howard Major. 256 illustrations. Lippincott. \$15.00.



The Architectural Record

CHAGRIN FALLS, OHIO
Illustration from *The Domestic Architecture of the Early American Republic*

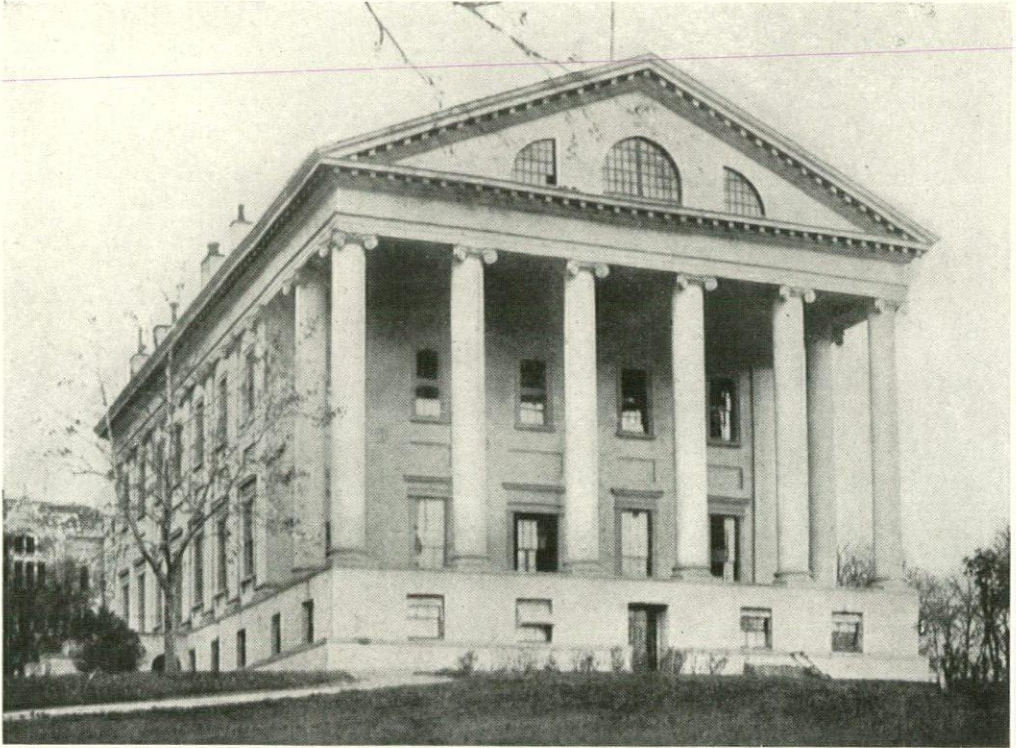
January, 1927



The Architectural Record

EMORY SPEAR HOUSE, MACON, GEORGIA
Illustration from *The Domestic Architecture of the Early American Republic*

January, 1927



VIRGINIA STATE CAPITOL, RICHMOND, VIRGINIA, 1789

Designed by Thomas Jefferson

Illustration from *The Domestic Architecture of the Early American Republic*

country with Greek place names—Euclid, Parnassus, Sparta, Athens, Troy, Ypsilanti, Aurora, and so on. Myriads of temple houses sprang up all over the country, not only county and state houses, but, still more (and here is the American peculiarity) private houses. Old houses were made over into the fashion. The temple portico of Arlington was added in 1826, and to Nicholas Biddle's country house, Andalusia, near Philadelphia, in 1835. In the same year was built Berry Hill in Virginia on the model of the Parthenon, with eight columns instead of the customary four or six.

In America only, then, says Mr. Major, did "the Greek Revival become the practically universal style of architecture—adapted by Americans to all the varied American conditions. It is an independent American development in architecture."

Mr. Major goes rather far, and one's rising doubts on the subject might as well be expressed. That Colonial architecture was borrowed from England, transplanted

Georgian, none ever disputed. The claim of the "Colonists" has been that it developed many peculiar features on American soil. The same claim is equally well made for the Greek Revival. But in what did it consist specifically to differentiate it from Georgian Colonial classicism except that it went directly to the Greek temple for its main model? Its hall marks are the great white pillars with their Doric or Ionic capitals; but many of these columned fronts in Mr. Major's plates may as well have been taken from similar fronts on Sir Christopher Wren's 17th century churches as from the Virginia State House or the plates of Stuart and Rivett.

As to the revival of this Revival, (and apart from any monstrosities in pseudo Spanish that may have been perpetrated in Florida) it would seem more sensible *per se* to take Mediterranean private house architecture, rather Mediterranean temple architecture, for a starting point, where the climate is more or less Mediterranean. In

what way does this temple architecture correspond to the American character, if there is such a thing (Mr. Major seems to think that it does) unless one insists that as the American likes an oratorical front and dislikes privacy, the portico and piazza rather than the patio correspond to his temperament. Perhaps so, though a liking for privacy seems to be growing. Granted Robert Mitchell was proved mistaken in thinking the style inapplicable to a private house, it does not follow that he had no reasons at all for his opinion. A house in that style seems to be inevitably dignified, and dignity is a plus quality. But it is almost as inevitably formal, somewhat cold, somewhat unadaptable and hence running to monotony. Are Americans by temperament and habit formal, cold, unadaptable? If it is apt to seem more Olympian than human, one may wonder what there is Olympian about the American, and how massive white pillars can be held to express and interpret his multifarious and rather informal humanity.

All this is the expression of doubt rather than controversy. Mr. Major's book is an admirable addition to Lippincott's admirable series of uniform volumes on architectural subjects. It is, so far as I know, the only work on The Greek Revival in America, and I do not know if any one else has ever pointed out that the Revival was extended to domestic uses only in America. This extension is the substance of Mr. Major's thesis, the substance of America's title to the "claim" he has "located." So far as domestic architecture goes perhaps it is the best title we possess to any such claim. Steel structural building (such architecture as the Nebraska Capitol and the Shelton Hotel) is the one architecture commonly regarded as a purely American, and as possibly a great movement. There are various rather thrilling things going on in New York at the present moment. But steel does not seem to be, and perhaps never will be, applicable to domestic architecture. At any rate, doubts about the extremities of Mr. Major's thesis should not diminish an appreciation of the value of his contribution to the history of American architecture.

ARTHUR W. COLTON

Castles. By Charles Oman, K.B.E., M.A., All Souls College, Chichele Professor of Modern History in the University of Oxford. M.P., for the University; Hon. LL.D. (Edin.) etc., Garden City, N. Y. Doubleday, Page & Co., 1926. 1st ed. xii. 232 pp.

Ill. (part colored.) Maps (colored.) 7 $\frac{3}{8}$ x 10 in. Cloth. \$4.00.

Cathedrals. Garden City, N. Y. Doubleday, Page & Co., 1926. 1st ed. vii. 123 pp. Ill. (part colored.) Maps (part colored.) 7 $\frac{1}{4}$ x 10 in. Cloth. \$4.00.
Uniform with "Abbeys" and "Castles."

Abbeys. By M. R. James, Litt.D., F.S.A., F.B.A., Provost of Eton, with an additional chapter on "Monastic Life and Buildings" by A. Hamilton Thompson, M.A., D.Litt., F.S.A., professor of Mediaeval History in the University of Leeds. Garden City, N. Y.: Doubleday, Page & Co., 1926. 1st ed. x. 154 pp. Ill. (part colored.) Maps (colored.) Diagrams. 7 $\frac{1}{4}$ by 10 in. Cloth. \$4.00.

A companion volume to "Cathedrals" and "Castles." A series of guides to the old Castles, Abbeys and Cathedrals of the Thames valley, Wessex, the West Midlands, Devonshire, Cornwall and Wales, in the territory, served by the Great Weslin Railway. Nothing of this kind has been done quite so well before, and the descriptive text of Dr. James & Professor Oman is of unusual interest.

The Collecting of Antiques. By Esther Singleton. New York: The Macmillan Co., 1926. 1st ed. xix. 338 pp. Ill. 7 $\frac{1}{2}$ x 10 in. Cloth. \$7.50.

Adequately covering the field of china, silver, glass, furniture, clocks, textiles, and metalwork, with chapters on Americana good and bad, and auction prices.

Concordia Seminary. By Theodore Graebner. St. Louis: Concordia Publishing House. 1926. 1st ed. 128 pp. Ill. 5 $\frac{1}{2}$ x 7 $\frac{3}{4}$ in. Paper. \$1.00.

Contains some interesting data on the plan and design of the new seminary building.

Arc Welding, The New Age in Iron and Steel. Cleveland, Ohio. The Lincoln Electric Co., 1926. 1st ed. 160 pp. Ill. 6 $\frac{3}{8}$ x 9 $\frac{3}{8}$ in. Leatherette. \$1.50.

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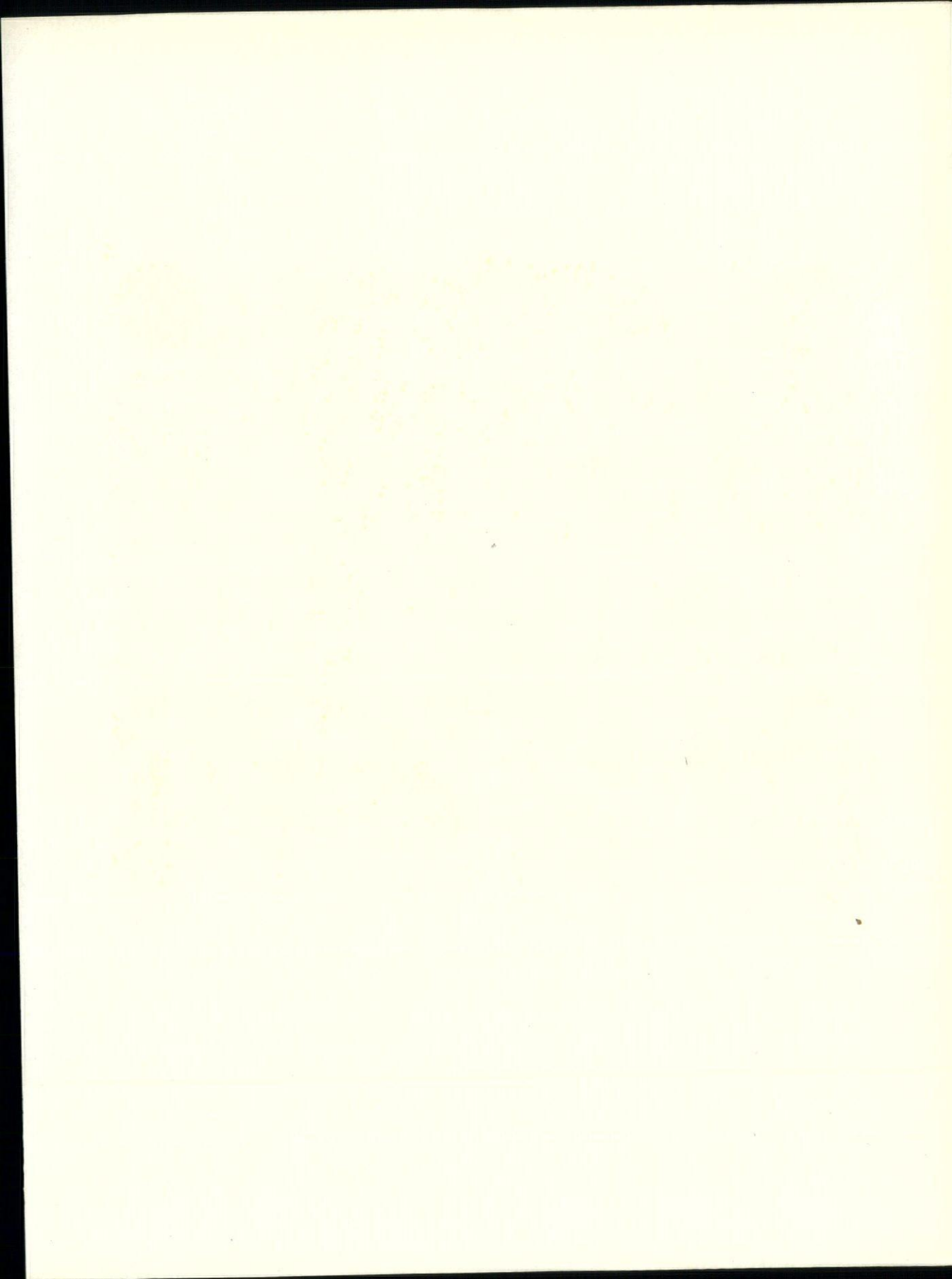
Electrical Equipment for heating and ventilating systems. A. I. A. File No. 31d. Motor application circular 7379. The application of motors and their control for the heating and ventilating of modern buildings. Engineering data, tables and formulas. Types of fans and motors and their power. Installations. Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. $8\frac{5}{8} \times 10\frac{3}{4}$ in. 24 pp. Ill.

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