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THE TEMPLE CITY of BAALBEK

BY PAUL WORTHINGTON COPELAND, *Architect*

HISTORY and archaeology shall ever go hand in hand. History, comprising the written records of mankind whether on clay, papyrus, paper; engraved on granite cliffs or scratched on the rock walls of caves, is the major science and archaeology is its humble handmaiden. For archaeology fills in the gaps of the written record with intimate details gleaned from pots and pans; weapons and dress; houses and temples.

The kindred art of architecture is not totally dependent on either history or archaeology for it is a living art indissolubly connected with the very life of the human race and will endure as long as civilization endures. Yet architecture, as we think of it as an artistic expression of the great, underlying human desire for beauty in life, owes a great deal of its science and knowledge of its own nativity to archaeology. While we had ever with us examples of the finest works of the ancients and their presence and precedents had consciously or unconsciously influenced our constructive progress, it was not

until the comparatively recent excavations in Italy, Greece, Asia Minor and the Levant that we acquired a scientific knowledge of earlier construction and an æsthetic appreciation of architectural development.

The ancient glories of Athens, Rome and Luxor are familiar to us as memories of golden periods of early architectural progress. Yet to the trained mind, there is often as much interest in the rising,

transitional and decadent periods of historic art for they show the struggles and triumphs, the ebb and flow of human endeavor. Such an example lies in the little frequented city of Baalbek in Syria. As the name obviously indicates, it is solely a temple city. In fact, its creation was due to religious zeal, its present ruinous condition due to religious bigotry.

As you leave the Syrian seaport of Beirut, cross the barren mountain range and drive the sixty miles up the broad level valley of the Ba'kah flanked on either side by the snow covered ridges of the Lebanon and Anti-Lebanon, you are gradually taken back through the centuries to the



Temple of Jupiter

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dawn of history. You pass lumbering, grunting camel trains laden with roughly quarried building stone from the hills or huge bales of cotton from the interior; flocks of sheep guided by bearded, patriarchal shepherds garbed in the Biblical coats of many colors; slow moving oxen plowing the field with a sharpened crooked stick; Fella women working in the fields, grotesque in their blue cloth robes and bright red trousers, hideous with their tattooed faces, blackened teeth and red stained fingernails. As you go winding through little villages of square adobe or dirty

though cult followed cult its sacred significance was never lost to the desert people. Certain it is that Baalbek was a shrine from the beginning of human occupancy and as man's power of expression developed, so we find greater and more pretentious shrines expressing his reverence to a protecting deity. A persistent native tradition mentions Cain as the founder of the first city, saying he built himself a refuge there after fleeing from the wrath of God. His fear must have been great if he laid the massive foundation stones existing today, but archæology ascribes that work



Temple of Bacchus, View of Front

brownstone houses, unadorned save where a primitive artistic impulse has painted them blue or pink, you are taken back to the beginning of human endeavor. The primitive beginnings, the crudities, and yet withal the humanness of life that underlies civilization and culture as we boast it, are most vividly brought to mind.

So that by the time the great Temple City of Baalbek rises to your view, you are, as I was, in a truly sympathetic state of mind to trace its history down through the ages.

History fails us and archæology helps but little to solve the riddle of its origin, but undoubtedly the spot had had a sacred significance from the dawn of man, due to the presence there of an ever-flowing, life-giving spring called Ras-el-Ain. Primitive religions placed local gods or Baals (masters) over this precious spring and

to the indefatigable efforts of the early Phoenicians dating perhaps as far back as 2700 B. C.

Early Egyptian and Assyrian records refer to the sacred city of Balbiki. Solomon is reputed to have built a temple there for his heathen wives. Early Greek and Roman coins show the temple of Jupiter and are stamped Heliopolis—city of the Sun God.

Today, little remains to tell of its ancient, pristine glory. Yet that little, surviving centuries of fire and sword; conquest and iconoclasm; earthquake and the disintegration of neglect; stands a majestic monument to early ideals and stupendous achievement.

As you approach the city, six Corinthian columns topped by a beautiful entablature rise to view and fling themselves, like a triumphant bar of music against the sky. They are part of the

peristyle of the Great Temple of Jupiter and spring from a platform raised nearly fifty feet above the level of the plain, and thirty feet above the level of the general temple area.

Driving through the dirty little village sprawled at its side you soon reach the Eastern portico of the Acropolis. Originally approaching by a grand staircase long since quarried away, you now enter by an inclined causeway to the propylæa measuring 260 ft. by 36 ft. deep and flanked at each end by square towers of cut masonry. At one time these towers were embellished with pilasters and decorative friezes but they are a sad mess now due to the ruthless expediency of countless wars. They were formerly connected by a double row of columns, twelve in number, only the bases of which remain.

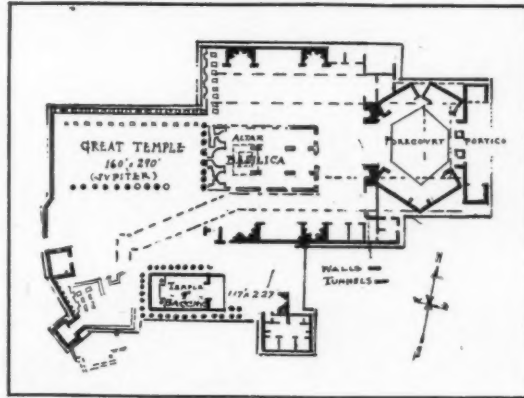
Entering the forecourt by a makeshift opening you gasp at the waste of broken masonry lying before you. Your eyes slowly sweep across the

two large courts, littered with fragments of all descriptions, until they rise and rest on the towering columns of the Great Temple seven hundred feet away. The forecourt is hexagonal in shape, measuring 195 ft. by 249 ft. and was paved with

marble slabs terraced toward the outer walls. These outer walls, composed of large cut blocks of the native rusty-yellow granite, are set close without mortar. The inner facing stone, probably marble, has disappeared. Small exedrae or chambers of the priests, jut from the walls and show somewhat of the early decoration of classic mouldings and panels but all are in poor condition. The walls have been pierced for cata-

pult and cannon and many granite boulders, missiles of ancient war machines, lie about in mute testimony.

Pass on to the Great Court through a waste of broken columns, pediments, lintels, etc., lying in great confusion. This large court measuring



Plan



The Hexagon and Great Court, with Altar

440 ft. by 370 ft. or about $3\frac{1}{2}$ acres, has outer walls and exedrae similar to the forecourt but is in a more ruined condition. At the far side of the Great Court you find the massive foundations



Mask formed of Acanthus in frieze of Temple of Bacchus

of the Great Altar of Burnt Offerings. Excavations here show several layers of slab pavement presuming many alterations around this old altar, which probably antedates the existing temple structures by many centuries of worship.

Surrounding the Great Altar lie the foundation stones of a later Basilica built of blocks torn from the great Pagan temple by the order of the Christian Emperor Theodosius. This "Philistine" structure clutters up the great stairway that rises from immediately behind the altar to the platform of the Great Temple of Jupiter. There you trace



Architrave of the Colonnades in the Court

the rectangular plan measuring 160 ft. by 290 ft. and count the column bases, nineteen on each side and ten across each end. Only six of the enormous Corinthian columns remain but with their aid you can mentally reconstruct the temple

in all its original glory. The columns are unfluted and graceful, 65 ft. high and $7\frac{1}{2}$ ft. in diameter. The shafts consist of only three drums originally clamped together by inset bronze straps long since dug out by vandals. The capitals are of heavy, unrefined Corinthian and the entablature, 13 ft. high is similarly of a decadent craftsmanship, but the great height hides the defects of detail very successfully, leaving only its majesty to impress you.

History gives us the meager facts that Antoninus Pius began the Great Temple in 140 A. D.; that Septimius Severus later dedicated it with a great feast and procession; and that the mad Caracalla finished it about 215 A. D. Constantine started its destruction in the third century and he was ably seconded by the vandal armies of history and great earthquakes of the twelfth and eighteenth centuries. We owe much of our



Detail of Cornice, Temple of Jupiter

knowledge of details and accurate measurements to the efforts of Professor O. Puchstein who excavated the site in 1900 for the Imperial Museum of Berlin.

To the South of the Great Temple and on a much lower platform, stands the Temple of Bacchus in a remarkable state of preservation considering its vicissitudes. One can't help but wonder if it is not the great God Bacchus rather than Mars who is the patron deity of conquering armies. As was usual, the Temple stands on a low basement with a flight of steps rising to the portico. The roofless cella walls, measuring 87 ft. by 74 ft., are mainly intact and are surrounded by a colonnade of Corinthian columns, octostyle, with fifteen on each side. They are $47\frac{1}{2}$ ft. high and support an entablature 7 ft. in height. The North row stands intact but only a few of the rest are in position.

The aisle, ten feet wide, is covered by an arched ceiling coffered in rhomboids, triangles and hexagons out of which peer the richly sculp-



Frieze ornament, Temple of Bacchus



Interior, Temple of Bacchus, Baalbek

tured heads of gods and men surrounded by elaborate wreaths and garlands. The pronaos 25 ft. deep, has a cluster of columns on each side, the outer pair plain as the main peristyle and the inner two fluted. The familiar portal decorated with the lavishly carved trim of white marble has had its famous hanging keystone replaced. The inner walls of the cella are decorated by eight fluted Corinthian semi-columns supporting a heavy composite entablature consisting of a Corinthian architrave; Doric frieze of triglyphs; and a most elaborate cornice. The space between columns is broken by two sets of panels capped by circular and classic pediments. A marble tablet was placed in one of these panels to commemorate the visit of the Emperor Frederick Wilhelm, but it didn't survive the later visit of the Anzacs in 1918.

As mentioned before, the entire acropolis, measuring roughly 1,000 by 700 ft., rests on a heavy substructure of titanic masonry twenty feet above the plain. It is pierced by two huge

tunnels, barrel-vaulted and connected by lesser chambers some of which are richly decorated. Huge blocks of varying sizes and periods dating as far back as the Phoenicians, go to make up this massive foundation. Many of these blocks, nicely fitted without mortar, measure 10 by 10 by 30 ft. But it is in the Western wall that you meet one of the greatest feats of ancient engineering. There, 19 ft. above the plain, rest three Cyclopean stones 13 ft. in height and 64 ft., 63½ ft. and 62 ft. long respectively. Still awed and incredulous, you walk a mile to the ancient quarry and find, cut and dressed except for one under end still fast to its native bed, an even greater brother measuring 13 ft. by 14 ft. by 70 ft. long. How these primitive builders lost in the shadow of antiquity conceived and actually achieved the cutting and moving of such blocks to their final resting places must ever remain a mystery. Yet there they lie, a reverent tribute to the Titanic Gods of old; a silent mockery to our boasted strength and skill.

"Technical Terms"

STILL those technical terms continue to be the bugbear of the general public, including (perhaps one should say "especially") our popular novelists, and other writers, states *The Architects' Journal*, London, in one of its recent issues. Still we read of people sliding down "banisters," receiving "coping stones" upon their unsuspecting heads, and in other extraordinary ways outraging the decencies of technical phraseology. "Banisters" for "balusters" is an offense of long standing; we imagine it is ineradicable. It has become one of those inexactitudes that time and usage sanctify and make more expressive than the correct word. "Coping stone" is rather more difficult to understand, though its literal meaning is intelligible enough. But it is surely unfair to a harmless necessary term that the pedestrian upon whom some part of a building falls should always be injured by the "coping stone." Why not the balustrade or the corona of the cornice? These technicalities should be used cautiously, or unknowingly the layman may find himself performing impossibilities. Only recently we heard of a gentleman who, a victim of odd habits (like Dr. Johnson, who made a point of touching every street post he passed), confessed that he always trod on the "lintel" of the doorway as he passed into a house. He was astonished to find that to do this he would have to turn a high somersault in the air!

Restoration of French Homes

A SOCIETY has been formed, with headquarters in Paris, with the object of restoring and preserving the historic old homes of France, states a recent issue of *The Architects' Journal*, London. The lead was set by Dr. Carvalho, an architectural expert and art connoisseur. It is realized that the efforts of the State to keep the old chateaux, farms, and cottages in repair are not sufficient. The officials will include some of the foremost authorities on historic art and architecture in the country.

Charles Dickens' Last Home to be Sold at Auction

GADSHILL PLACE, near Rochester, England, formerly the residence of Charles Dickens, is shortly to be offered for sale by auction, it is learned.

Gadshill is represented by Shakespeare as the scene of the exploits of Prince Henry and Falstaff. It was here that Dickens set up his Swiss chalet, in which he did much of his later work, and where he wrote the last page of his unfinished novel, "Edwin Drood," only two or three hours before his sudden death.

After his death the chalet was presented by the family to the Earl of Darnley and it now stands in the grounds at Colham.

REBUILDING AMERICAN CITIES

Two Notable New York Examples

IT is characteristic of American cities that they are always in a state of reconstruction which consists of either demolishing old buildings and erecting new ones or enlarging or rehabilitating existing structures. It is the enlarging of existing buildings that generally presents the greater difficulties in designing, planning and construction. In this case the existing building naturally has a controlling influence on the final design. The undertaking is far-reaching in all its ramifications.

Two notable examples of the enlargement of existing structures are the New York Times Building, originally designed by Buchman & Fox, architects, and the Johns-Manville Building, originally designed by Augustus N. Allen, architect. The additions and alterations are made by Ludlow & Peabody, architects. They are good examples of the successful accomplishment of such undertakings.

The New York Times Building was originally 143' x 100' in size, the Eastern 43' frontage being four stories high and the balance eleven stories high. The addition consists of a structure 100' x 100' in size, eleven stories high, and a three story set-back structure, with tower, 200' x 43' in size extending over the old and new sections. In the rear, the old portion sets back at the second floor level and the new section sets back at the second, sixth and ninth floors.

Except for the space occupied by the boilers, pumps and switchboards, the entire sub-basement is used for paper storage, and as the newsprint reel room from which the paper is fed to the presses which occupy the entire basement. From the basement press room the papers are automatically transported to the delivery department which occupies the first story. At this place the papers are delivered to the motor trucks at a wagon dock, the trucks being entirely within the building when loading. The second to ninth floors inclusive have been largely rearranged to accommodate the business, composing rooms and other departments of the paper. The tenth floor is given over to the editorial writers and library. The eleventh floor contains a kitchen with restaurant for employees and private dining rooms. The twelfth and thirteenth floors are given over to library, classrooms, recreation rooms and a small hospital for employees. The executive offices are located on the fourteenth floor. A new double entrance is provided, the architectural treatment of which extends through the second story. The smokestack terminates in the lantern which surmounts the tower.

The set-back portion and tower will be illuminated at night by flood-lights projected from the back of the parapet wall at the twelfth floor level.

The limitations of the Building Zone Resolution require the new portion to set back above the ninth floor level. It would be impossible to incorporate the addition with the old building under these requirements and produce a structure having any semblance of architectural unity. This was so satisfactorily demonstrated to the Board of Standards and Appeals that permission was given to make the front eleven stories high throughout. An outstanding feature of this design is its harmonious ensemble, the set-back portion being in fine relationship to the lower part and particularly well done as a unit.

The Johns-Manville Building presents an entirely different problem. The old building was about 48' x 64', twelve stories high. An L shaped property was acquired which surrounded the old building, having a frontage of about 32' on Forty-first Street and 48' on Madison Avenue making a total of about 96' x 96'. The old building fronts will be extended to these limits. The existing copper cornice is removed and the attic space converted into a thirteenth story with a new terracotta and brick cornice and parapet wall.

The principal set-back is at the fourteenth story with this section extending up to the twenty-first story inclusive. Other set-backs occur at the twenty-second and twenty-fifth floors, twenty-six stories in all. The stairways, elevators and main toilet rooms are removed from the old building. All of these utilities are located in the new portion and in the less well lighted spaces as much as possible. The new elevator plant consists of four passenger elevators to the thirteenth floor and three passenger and one freight elevator to the top. The passenger elevators are equipped with an automatic device to level the platform with the floor at stops, thus permitting a more quick operation. Without this device it is estimated that two additional passenger elevators would have been required properly to serve the building. The roof and back of the parapet wall at the fourteenth story are used to display, in actual service, the materials made for that purpose by the Johns-Manville Company.

Structural difficulties were encountered because of the new upper portion of the building extending over the old portion. This necessitated the reinforcing of some existing steel columns. This work was done during the night in order not to interfere with the occupants of the building. The first



BUILDING OF THE NEW YORK TIMES, WEST 43rd STREET, NEW YORK

BUCHMAN & FOX, ARCHITECTS

ALTERATIONS AND ADDITIONS BY LUDLOW & PEABODY, ARCHITECTS



BUILDING FOR JOHNS-MANVILLE CO., MADISON AVE., NEW YORK

AUGUSTUS N. ALLEN, ARCHITECT

ALTERATIONS AND ADDITIONS BY LUDLOW & PEABODY, ARCHITECTS

story is divided into three stories, one of which will be occupied by the owners.

The old building was designed in a Venetian style while the new portion is designed along Lombardic lines. The new thirteenth story, cornice and parapet afford a satisfactory transition. A feeling of harmony is secured, in fact. It is a most happy solution of a difficult problem. The adaptability of the Lombardic to set-back conditions is well exemplified in this building.

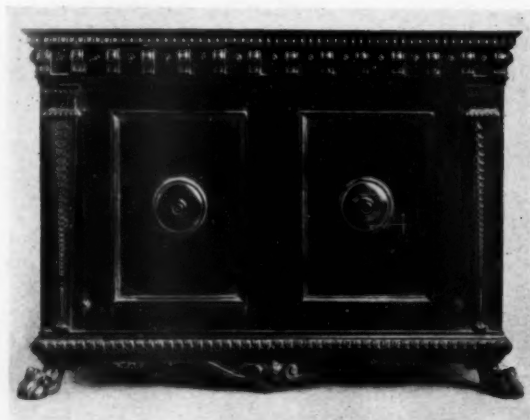
What will eventually become of our tall steel frame buildings is a speculation at once interesting and of value. Does it often pay completely to demolish a skyscraper like the old Gillender Building, for instance, and erect on the site a complete new structure or is it not likely that on account of the durability of the steel frame building as now erected that most of such structures will be altered and added to? The average architect usually groans when he finds that he must have his pace set by an existing design with which he has no sympathy, but it may be open to question whether the same architect receiving a challenge of this sort does not do fully as well in adapting the style imposed and so modifying it and weaving it into a new design as if he had a building to design with free hand from the ground up. To bend himself to the style and conditions imposed by any problem is the first duty of an architect rather than to attempt to impose the style and conditions himself.

The modifying and glorifying of an old build-

ing, when well done, is an achievement perhaps more to be proud of than the unhampered solution of a problem. At any rate it is quite evident that this kind of thing must be done more and more as time goes by and the solutions of such problems are of considerable interest to our architects today.

In comparing the solution of the architectural problems involved in the New York Times and the Johns-Manville buildings it is to be noted that as the Times Building was raised vertically only a few stories and those set-back stories, it was possible and proper to maintain the heavy horizontal lines of the original cornice. In the Johns-Manville Building, on the other hand, as the building was to be raised vertically from twelve stories to twenty-six stories, the heavy cornice shadow at the twelfth story imposed by the overhanging Venetian cornice was impossible as it would cut the building nearly in two, horizontally. In the latter building, therefore, it seemed wise to remove this heavy cornice and also alter, somewhat, the architecture of the story directly under it and to give this portion a "vertical cornice" which would lead comfortably up into the thirteen stories superimposed. This change also made more easy a real harmony between the imposed architecture of the lower stories and the superimposed architecture of the thirteen story tower. As the building will now rise, the zoning set-backs melt one into the other with a sense of continuity to the very topmost member.

Walnut
Credenza



Italian
Renaissance

Executed by Kensington Co.

AN ARCHITECTURAL RAMBLE in VIRGINIA

PART II

BY CARL A. ZIEGLER, *Architect*

JUST North of the James River at Esmont, Virginia, lies what in Colonial days was one large plantation, taking in most of "Green Mountain." This plantation was the property of the Coles family, a name well known in that section, and from the high ground a splendid view is obtained over the famous "Piedmont" toward the East while to the West looms the Blue Ridge with the celebrated Shenandoah Valley just beyond. This splendid old plantation has been divided into a number of estates on some of which the old farm buildings still remain and are especially interesting because of their departure from the classical proportions generally associated with the mansions on the James.

These old farm buildings like similar buildings in Pennsylvania and New England convey an atmosphere of real "dirt farming" but unmistakably they also express something of the gentility of the families who occupied these old estates. Architecture before it degenerated was always per-

fectly true in its expressions and in its sober moments it still is, although the signs have become very much confused in these latter days.

One of the most interesting of these old farm houses is "Tallwood" which is illustrated herewith. The original building was erected early in the eighteenth century and was intelligently enlarged in 1803.

The central building with its wings forms a very pleasing mass and the detail is just primitive enough to make one feel its nearness to the soil. The chimneys are an important feature of the design and it will be noted in the illustrations that these are built entirely free of the frame gables.

It was the custom in the early days to design the fanlights over the entrance door with just the same number of panes of glass as there were states in the Union. This led to some curious subdivisions, not always harmonious with good design, but the date of the buildings can be calculated from these fanlights quite accurately, although the method is not infallible.



Rear view in "Tallwood"



Entrance front, "Tallwood," Esmont, Va.

The Tenant House, Slave Quarters, Ice House and other out-buildings on this estate are of particular interest and give a very comprehensive idea of the character of farm buildings found upon the old plantation.

These white buildings seen through the huge box trees and sturdy sycamores which abound in this section, give a character to these old Virginia farms that is quite different from any other expression of the Colonial type in this country and so true is its record, that one may with very little stretch of the imagination picture the plantation life of early Virginia as it existed in the days when George Washington was practicing the surveyor's art in that vicinity.

At Tallwood are two gigantic yew trees, probably two hundred and fifty years old. Standing beneath these trees, whose outer branches touch the ground, one feels entirely cut off from the world and the flickering of the sunlight through the leaves combined with the notes of the cardinal recall the beautiful "Waldwaben" music of Wagner.

Lady Astor on her recent homecoming to Virginia visited these trees which were associated with her girlhood days spent in these parts and stated that she had not seen finer specimens of the yew anywhere in England. That so brilliant a personage should have remembered a tree known in childhood, despite the turmoil of political life abroad, in which she has played so intimate a part, is evidence that nature's signboard still reads true and has not been altered by the



Detail of Entrance, "Tallwood"

trend of modern thought.

Owing to the fact that architectural publications are prone to use for illustrations only the more pretentious buildings of the "Colonial Period" the minor work of the epoch is apt to be neglected and the architectural student who must confine his research entirely to books, very often has no knowledge at all of the very charming small buildings that form so important a part of the early American work.

In a ramble through Maryland the writer was able to secure many photographs of buildings that had never been published in any architectural publication, although several such as "Beverly" on the Pocomoke River were quite important examples of the Maryland Colonial type.

Photography has opened the architectural storehouse of the world to any one who

will inquire and the well conducted magazines of the country are becoming each year more efficient in bringing into the household information that is causing the public and particularly the younger generation to build up a more intelligent appreciation of architecture. This contention is proven by the demand for better design in the smaller houses that represent the portion of the building industry in which most people are personally interested and the architect who is too "sot" in his ways or too tired to conform to this demand is gradually falling by the way, along with the village doctor who finds that modern fiction fills in his spare time better than treatises on new methods of diag-



Typical out-building on one of the old plantations



The Ice House, "Tallwood"



Tenant House, "Tallwood," Esmont, Va.

nosis and the farmer who "reckons that Burbank is another one of them college chaps."

Although photography has undoubtedly been of the greatest assistance to the professional architect as well as to the layman, it cannot be too strongly impressed upon the student of architecture that only by the closest kind of study of the buildings themselves may he hope to gain the information that will enable him to have something more than a mere superficial knowledge of the subject. This may make it possible for him to meet the demands of his clients for the present but the public which is fast learning to differentiate between the varying moods of Chippendale, Hepplewhite and Sheraton are even now demanding a more sincere expression of the old manner of building in their country houses.

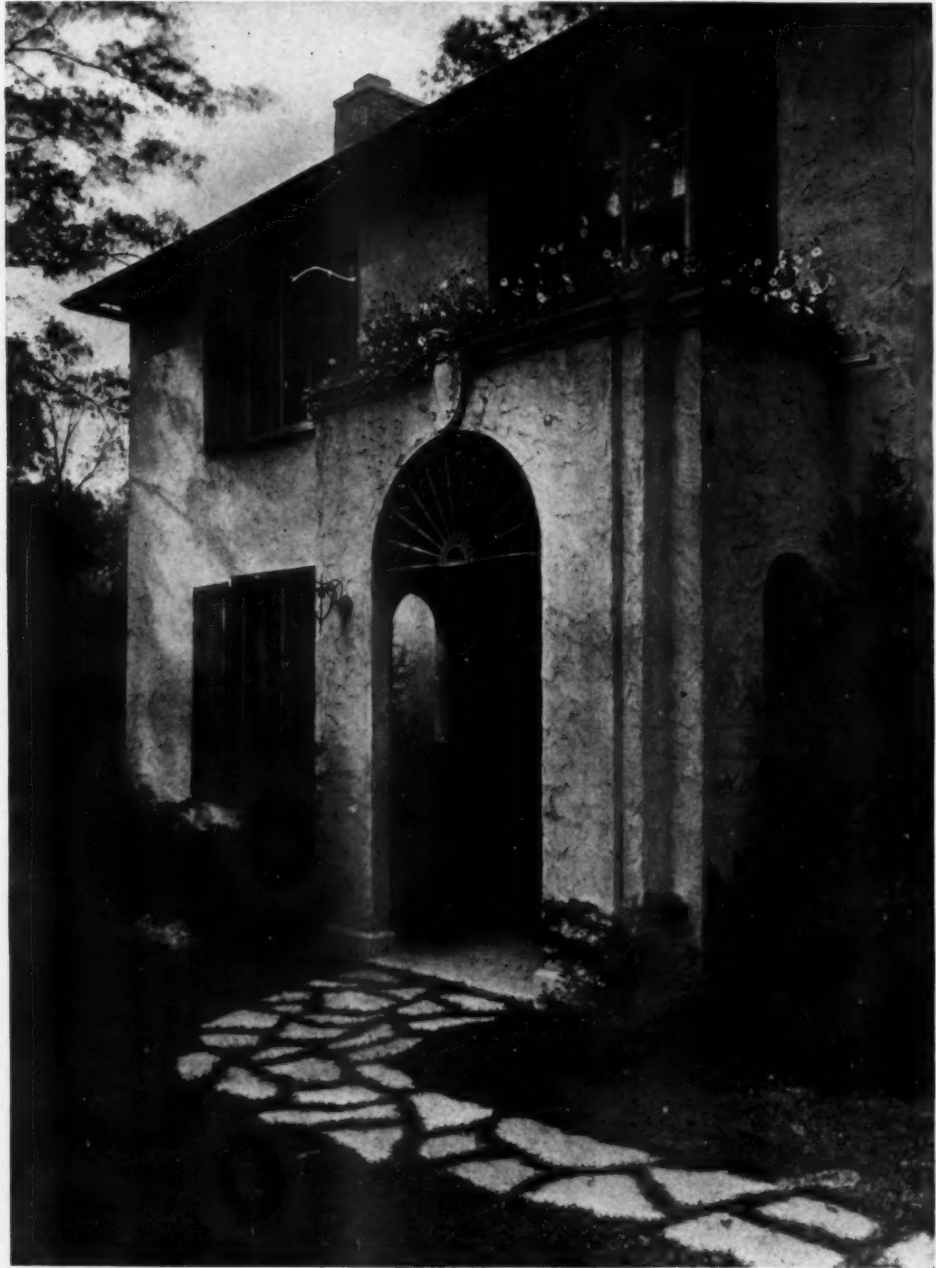
Even the operation builder who probably has his ear closer to the ground than most architects, realizes that he may no longer paint one of his stock designs white and call it "Colonial" and advertise the same house painted a chocolate brown as of the best "English" traditions.

There was a time not long since when the glaring signboards of the illiterate builder (one who uses bad grammar in building) deceived the general public as to the architectural merits of their wares, but the advent of the motor and with it the feasibility of going back to the source and there learning how true craftsmanship expressed itself, have revealed to the thinking public that the "jerry builder" with his architectural monstrosities, even though he may flood the mails with elaborate magazines and pamphlets on the subject of "stock designs" etc., etc., is really no more advanced in civilization than the ignorant painter referred to

in the first part of this article who unwittingly changed the sign of the old "Bachanallian" Inn to the "Bag of nails."



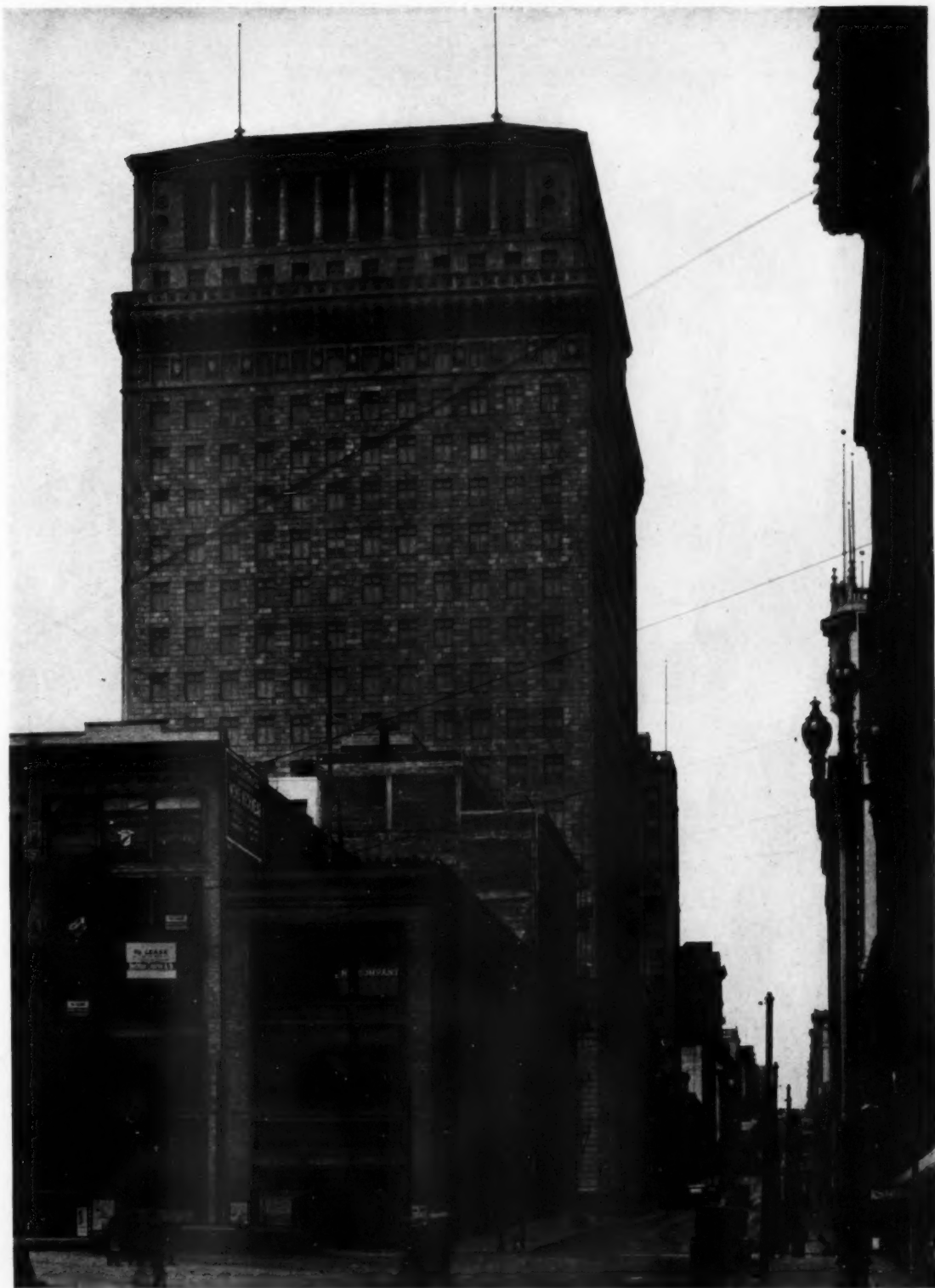
Old Slave Quarters, "Tallwood"



ENTRANCE DETAIL, HOUSE OF C. E. MAXWELL, JR., WINNETKA, ILL.
RUSSELL S. WALCOTT, ARCHITECT

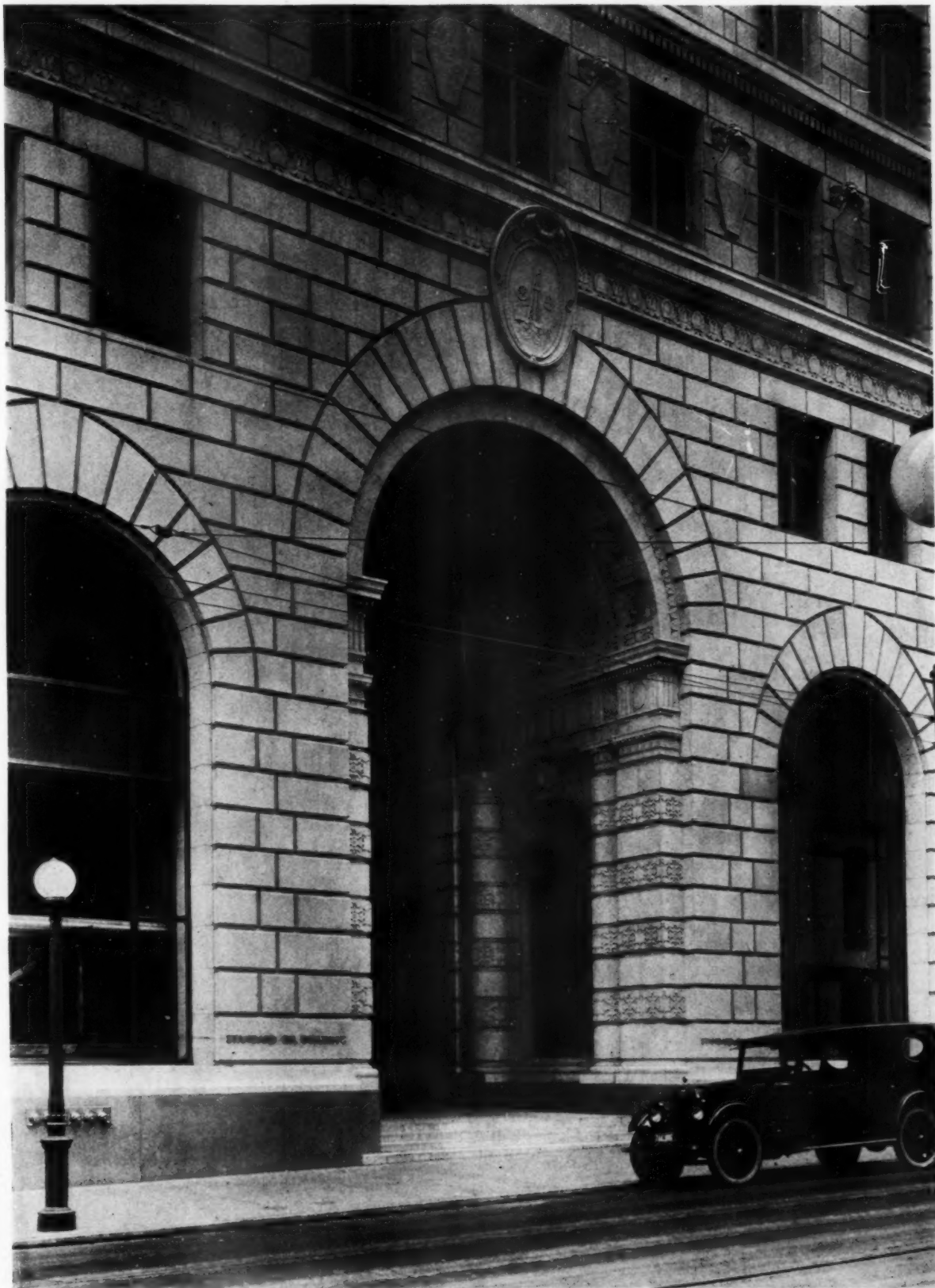


VIEW FROM TELEGRAPH HILL
BUILDING FOR STANDARD OIL CO. OF CALIFORNIA, SAN FRANCISCO, CAL.
GEORGE W. KELHAM, ARCHITECT



BUILDING FOR STANDARD OIL CO. OF CALIFORNIA, SAN FRANCISCO, CAL.

GEORGE W. KELHAM, ARCHITECT



MAIN ENTRANCE

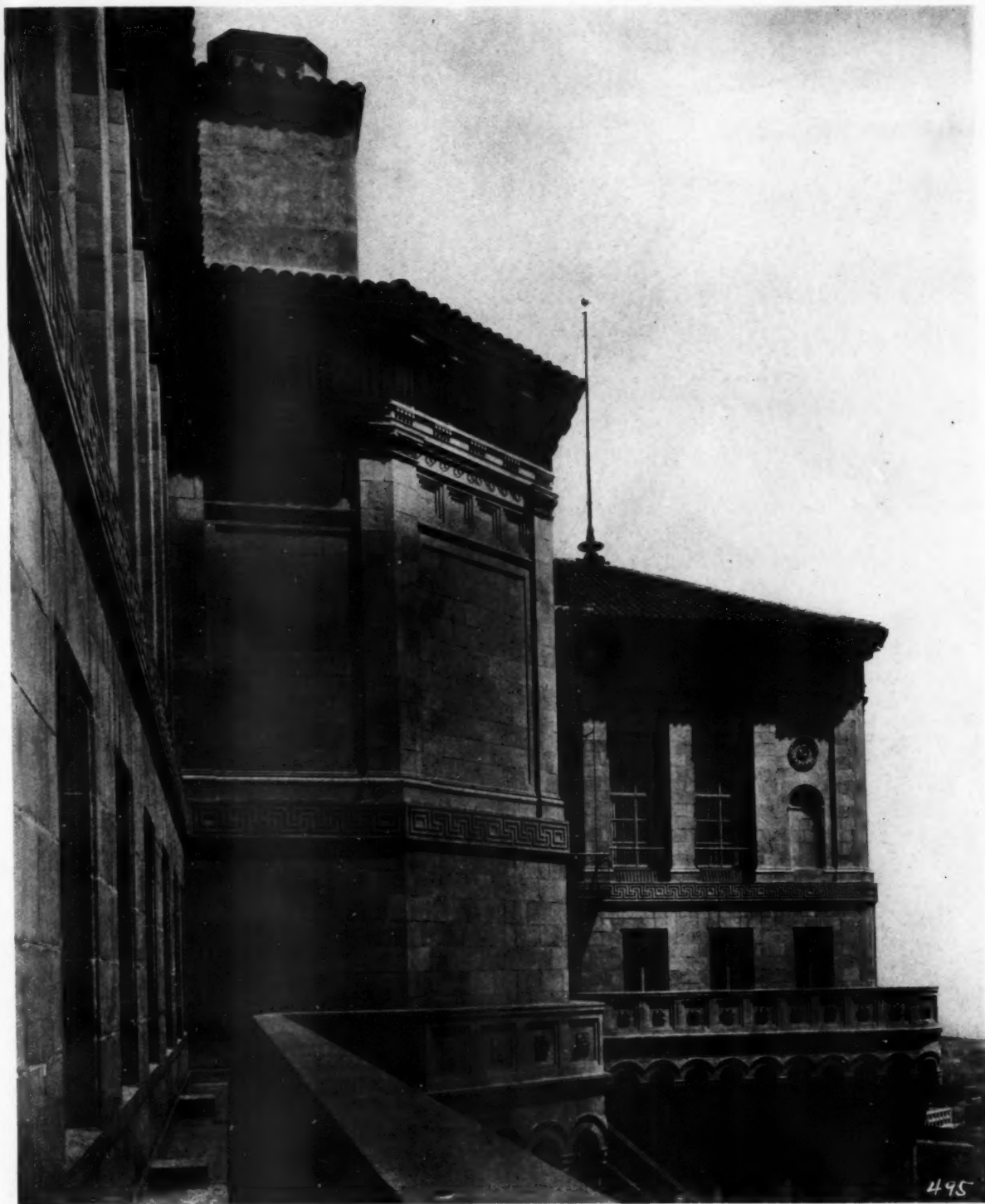
BUILDING FOR STANDARD OIL CO. OF CALIFORNIA, SAN FRANCISCO, CAL.

GEORGE W. KELHAM, ARCHITECT

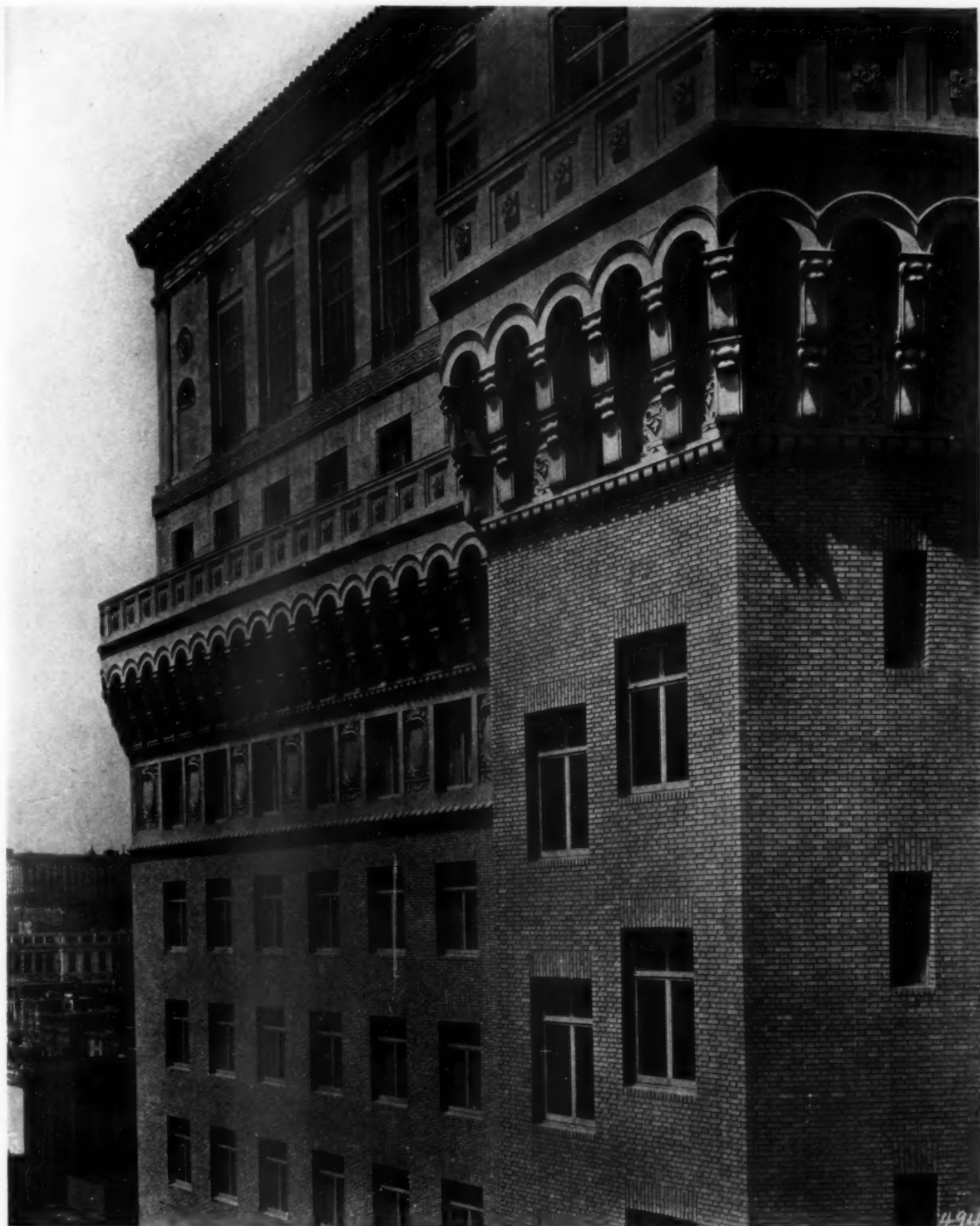


THE COURT FAÇADE
BUILDING FOR STANDARD OIL CO. OF CALIFORNIA, SAN FRANCISCO, CAL.

GEORGE W. KELHAM, ARCHITECT



COURT DETAILS ABOVE 18th FLOOR
BUILDING FOR STANDARD OIL CO. OF CALIFORNIA, SAN FRANCISCO, CAL.
GEORGE W. KELHAM, ARCHITECT



DETAILS IN COURT
BUILDING FOR STANDARD OIL CO. OF CALIFORNIA, SAN FRANCISCO, CAL.
GEORGE W. KELHAM, ARCHITECT

2000



ROOF GARDEN, 22nd FLOOR

BUILDING FOR STANDARD OIL CO. OF CALIFORNIA, SAN FRANCISCO, CAL.

GEORGE W. KELHAM, ARCHITECT



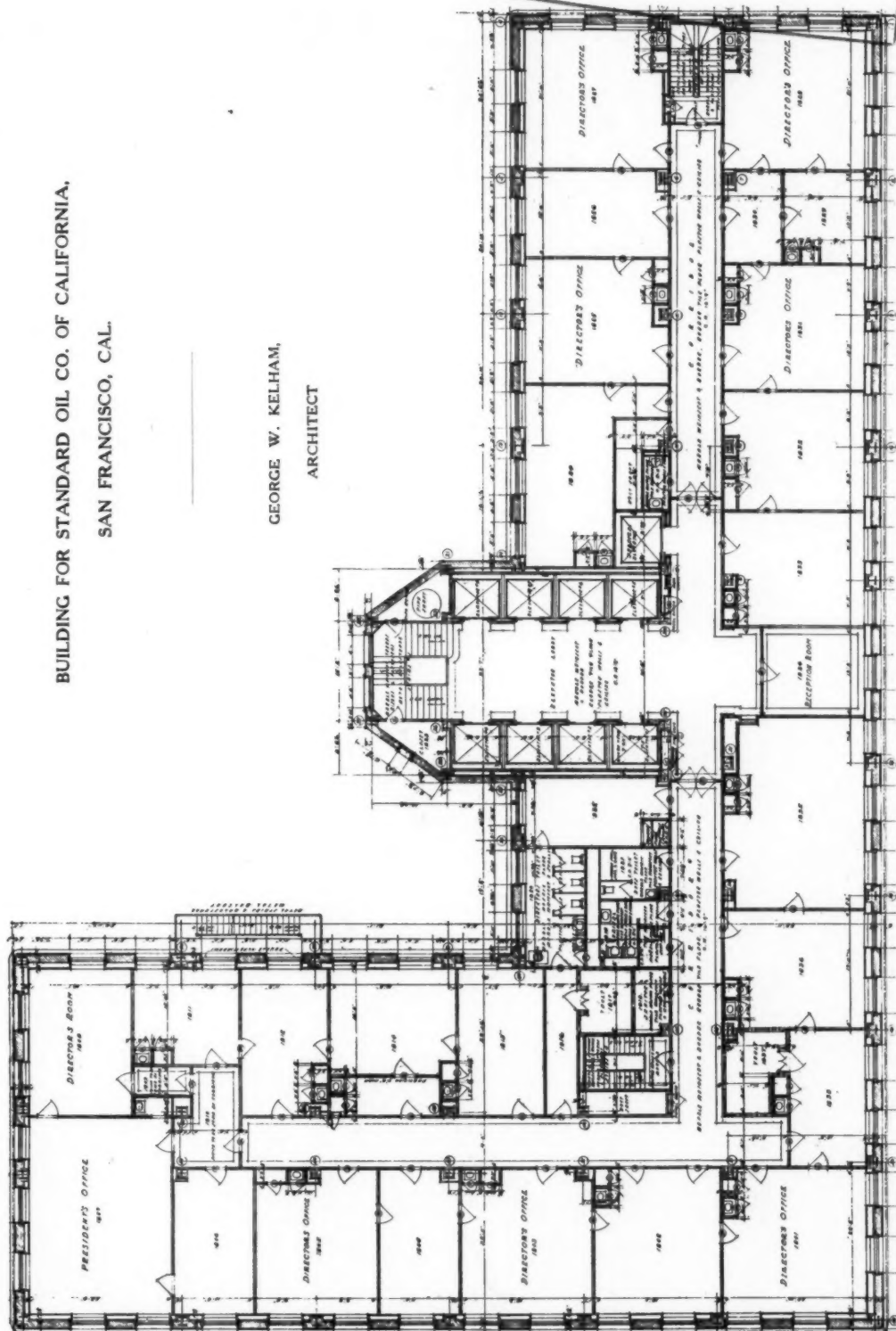
PRESIDENT'S OFFICE

BUILDING FOR STANDARD OIL CO. OF CALIFORNIA, SAN FRANCISCO, CAL.

GEORGE W. KELHAM, ARCHITECT

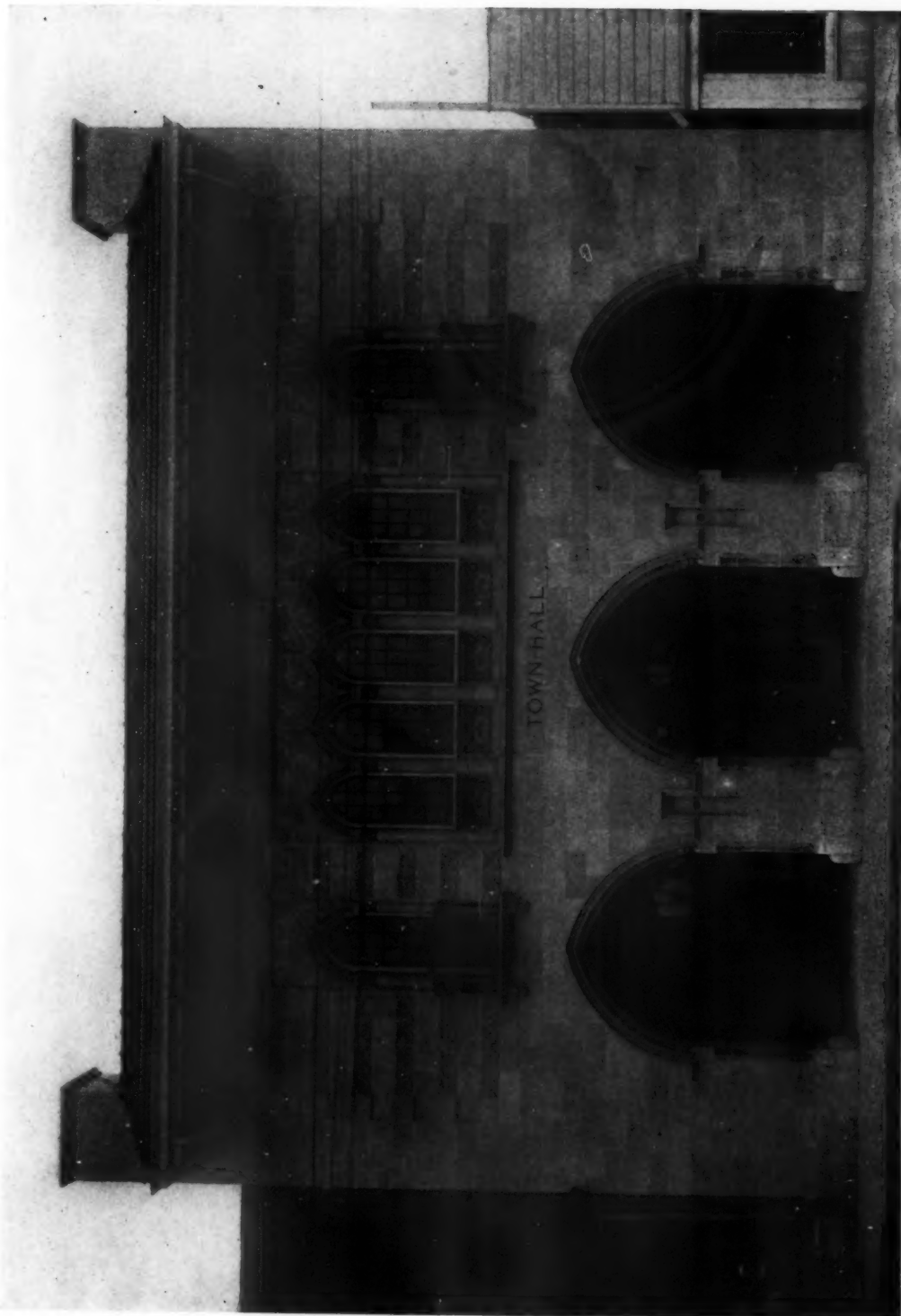
BUILDING FOR STANDARD OIL CO. OF CALIFORNIA,
SAN FRANCISCO, CAL.

GEORGE W. KELHAM,
ARCHITECT



EIGHTEENTH FLOOR PLAN

LIBRARY
THE DETROIT EDISON CO.
AUG 21 1923

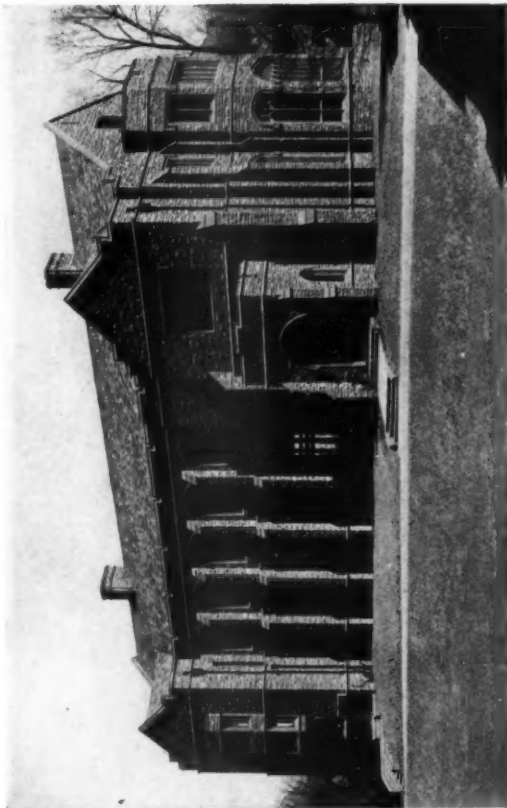


TOWN HALL, LITTLETON, COL.
J. B. BENEDICT, ARCHITECT



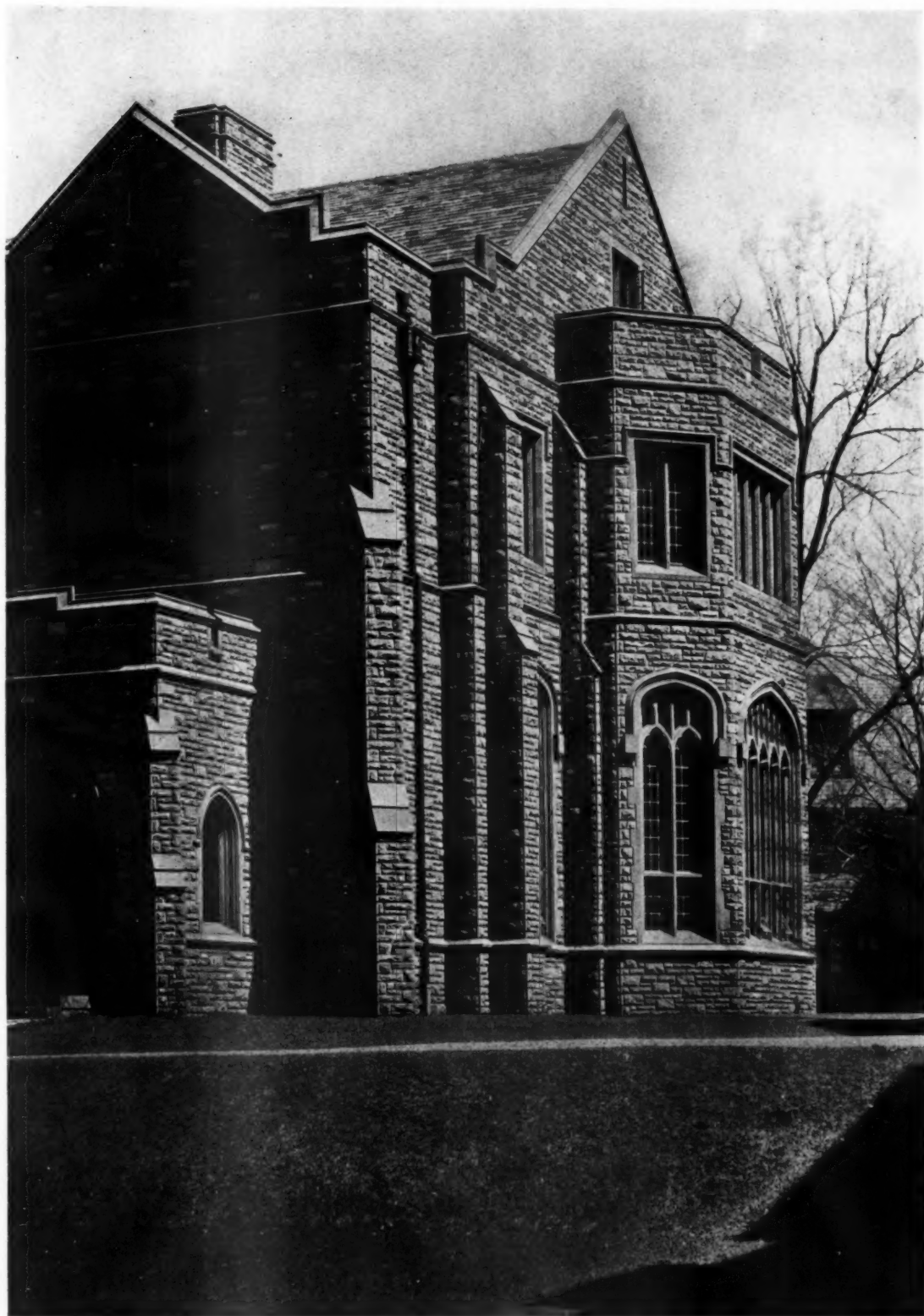
MEMORIAL HALL, THE HILL SCHOOL, POTTSTOWN, PA.

HEWITT & ASH, ARCHITECTS



MEMORIAL HALL,
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BAYS IN MEMORIAL AND CLUB ROOMS
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BAY IN MEMORIAL ROOM
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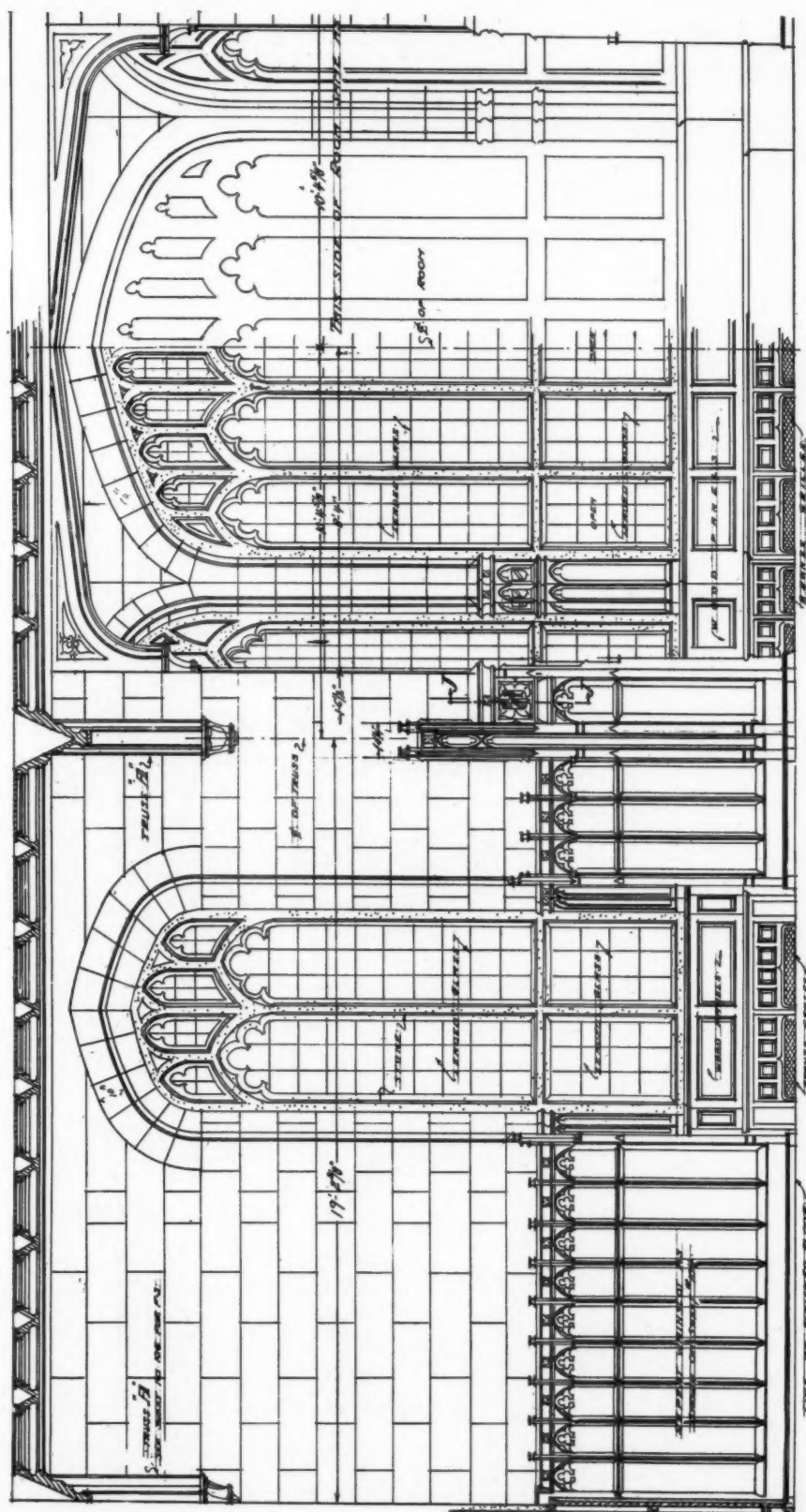
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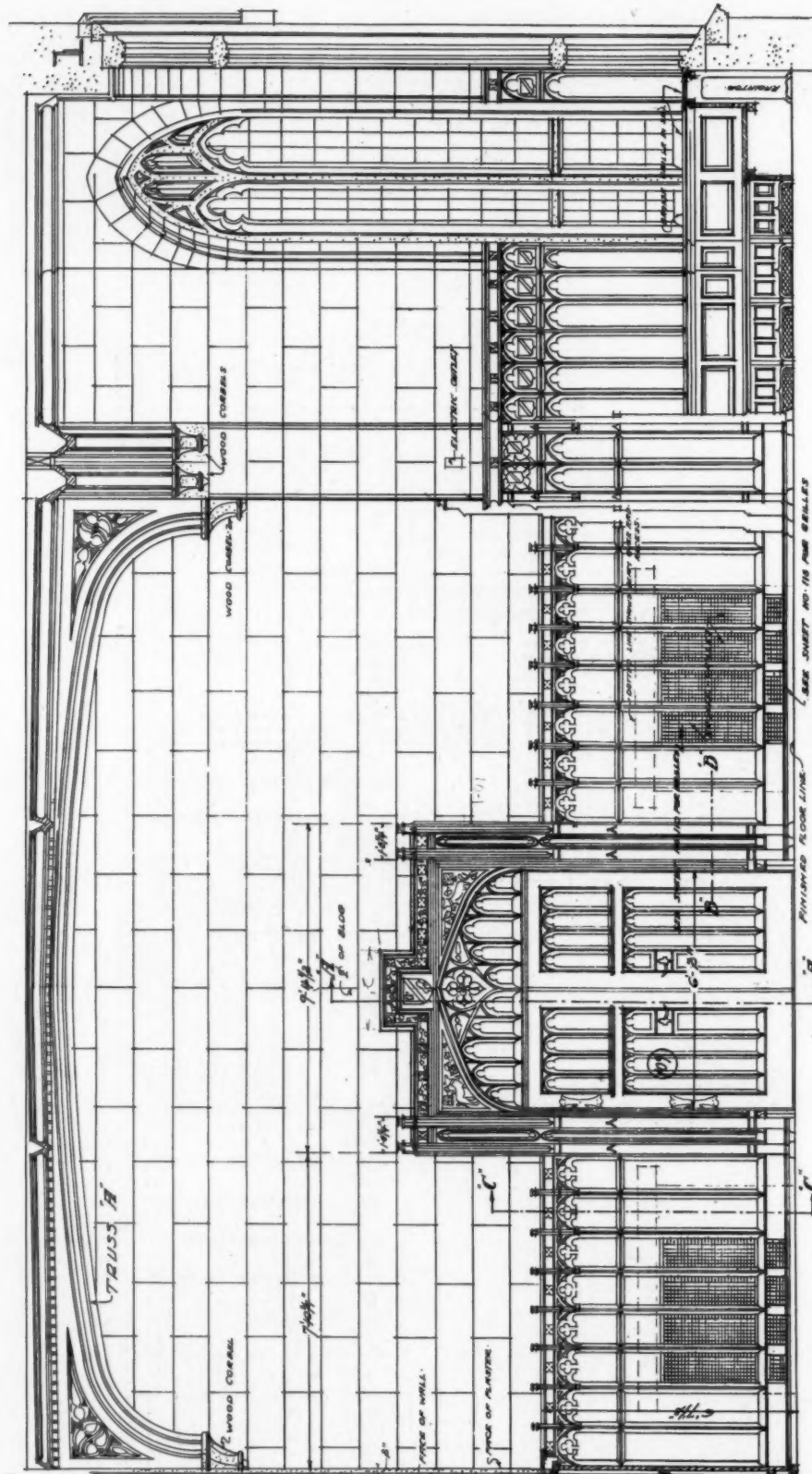
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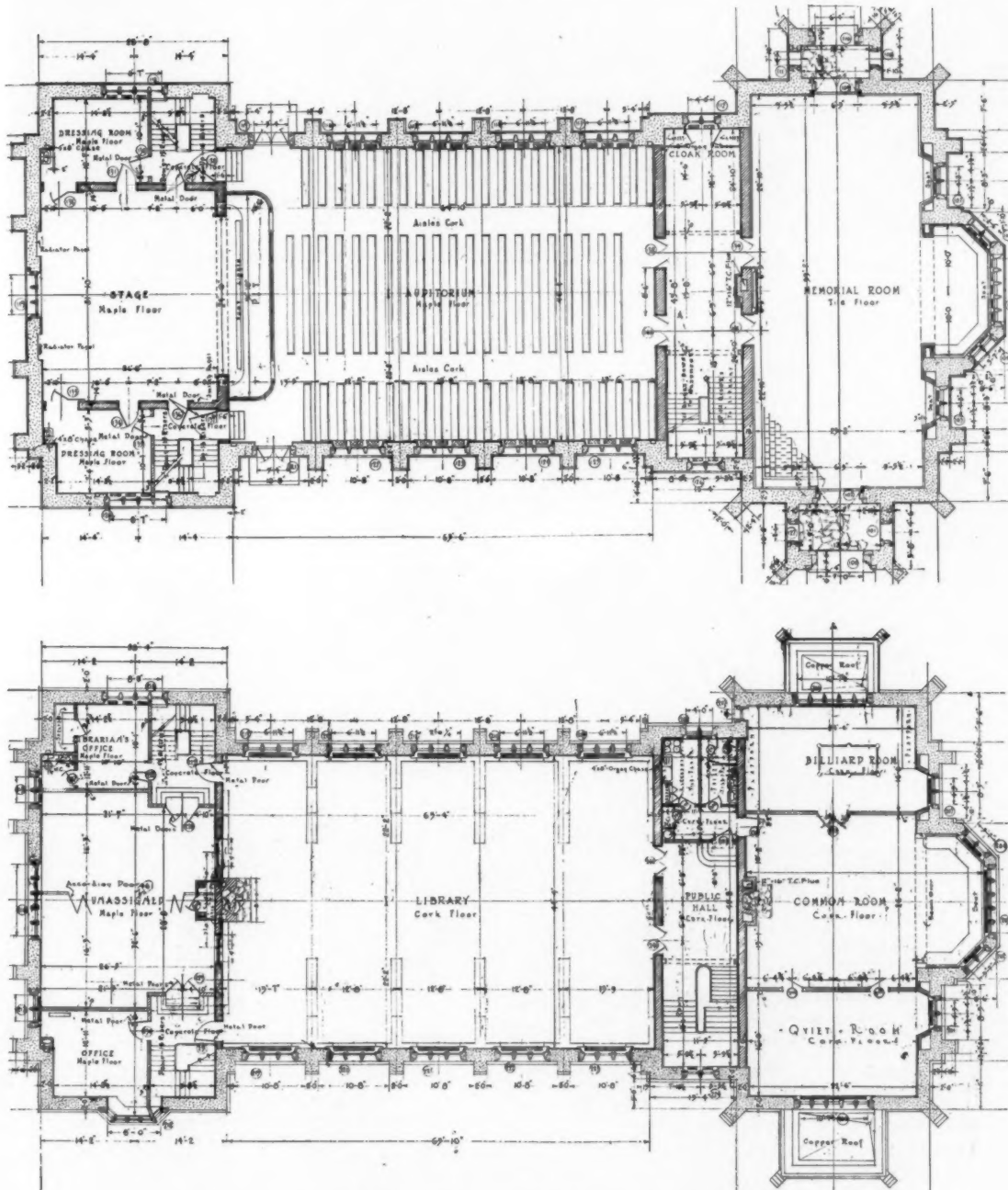
FACULTY CLUB ROOM
MEMORIAL HALL, THE HILL SCHOOL, POTTSTOWN, PA.
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ELEVATION, SOUTH SIDE, MEMORIAL ROOM
MEMORIAL HALL, THE HILL SCHOOL, POTTSTOWN, PA.
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END ELEVATION, MEMORIAL ROOM
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BEAUX-ARTS INSTITUTE of DESIGN

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Special Notice to Students

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

SOCIETY OF BEAUX-ARTS ARCHITECTS

OFFICIAL NOTIFICATION OF AWARDS

JUDGMENT OF JULY 17th, 1923

FINAL COMPETITION FOR THE 16th PARIS PRIZE
of the

SOCIETY OF BEAUX-ARTS ARCHITECTS

PROGRAM

The Annual Committee on the Paris Prize proposes as subject of this competition:—

"AN OFFICE AND RECEPTION BUILDING FOR THE PRESIDENT OF THE UNITED STATES"

Facing the White House, but separated from it by a public park, is a rectangular plot of ground, 600'-0" long by 450'-0" deep. One long side, looking towards the White House, faces a broad avenue; the other three sides are bounded by streets.

It is proposed to erect on this site a building to house the executive offices and to provide a suite for the governmental receptions. The building, with its main entrance facing the White House, shall not exceed 300' in any dimension, exclusive of steps and terraces. An underground passage will connect it with the White House.

The building, serving two distinct uses, will require:—

- (1) THE EXECUTIVE OFFICES on the first or ground floor, which will be in continual use.
- (2) THE RECEPTION SUITE on the second floor, which will only be opened for great receptions.

It is essential that the circulation (particularly to and in the reception suite) should be of the simplest and most direct kind, to facilitate the handling of great crowds.

THE FIRST FLOOR REQUIREMENTS ARE:—

- (1) Spacious entrances.

In connection with the entrance to the reception suite, there should be elevators and ample dressing, toilet and coat rooms for both ladies and gentlemen. The space necessary for coat storage is so great that it may be placed either in the basement or in a mezzanine with mechanical arrangements for transporting articles back and forth.

- (2) A staircase of honor leading to the reception suite on the second floor.
- (3) Ample waiting rooms for the executive offices.
- (4) Offices for the President.
- (5) Offices for the secretary to the President.
- (6) The cabinet room with anteroom and conference room adjoining. Nos. 4, 5, and 6 should form an intercommunicating unit, and should communicate with the other services without passing through public spaces.
- (7) Space for telegraphers, telephone and radio operators.
- (8) A large space for the clerical staff, which may be subdivided.
- (9) A press room.

THE REQUIREMENTS FOR THE SECOND FLOOR consist of a great reception suite composed of rooms of varying sizes communicating one with another in the most direct manner. One of these rooms will be the Presidential Reception Room and a private stair from the first floor should allow him easy access. No state banquet hall is to be provided, but arrangements should be made for a buffet service, placing the kitchen and service so as not to interfere in any way with the arrangement and character of the suite.

JURY OF AWARDS:—James Gamble Rogers, Raymond M. Hood, Joseph Howland Hunt, John M. Howells, J. Otis Post, Whitney Warren, Benjamin W. Morris, Henry Bacon, Charles A. Platt, M. B. Medary of Philadelphia, Benno Jansson of Pittsburgh, G. A. Lansburgh of San Francisco, and H. Oothout Milliken—Chairman.

NUMBER OF DRAWINGS SUBMITTED:—5.

AWARDS:—

PLACED FIRST—(FIRST MEDAL):—Lee Rombotis, University of Pennsylvania, Philadelphia, Pa.

PLACED SECOND—(FIRST MEDAL):—Harry K. Bieg, Armour Institute of Technology, Chicago, Ill.

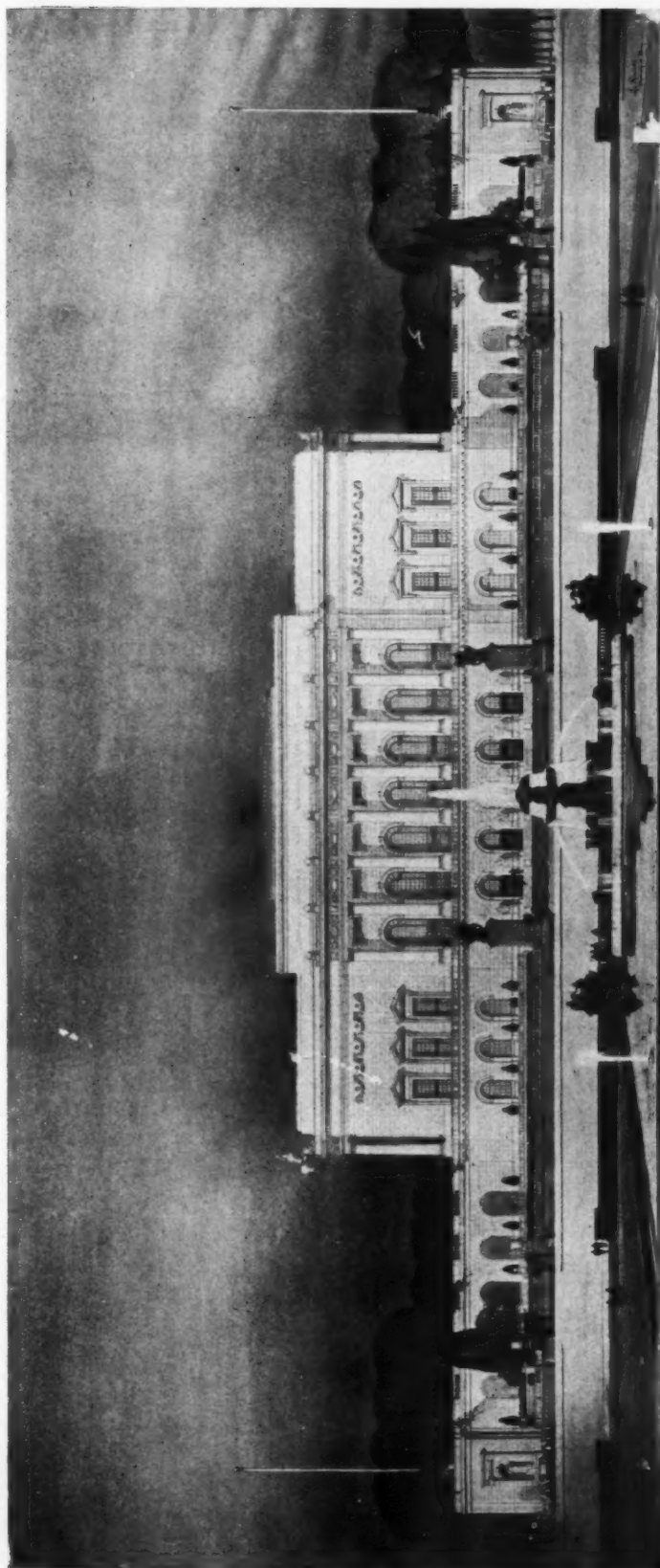
PLACED THIRD—(SECOND MEDAL):—I. Jerry Loeb, Armour Institute of Technology, Chicago, Ill.

HORS CONCOURS:—R. Banks Thomas, Sr., Atelier Hiron, New York City, N. Y.

HORS CONCOURS:—Rudolph DeGhetto, Atelier Hiron, New York City, N. Y.

Note: The jury regretted that it was necessary, on account of changes from the sketches submitted, to place two competitors Hors Concours.

The fact that a sketch is demanded presupposes that the competitor should express in it the germ of his solution and indicate in it the disposition of his main elements and masses.



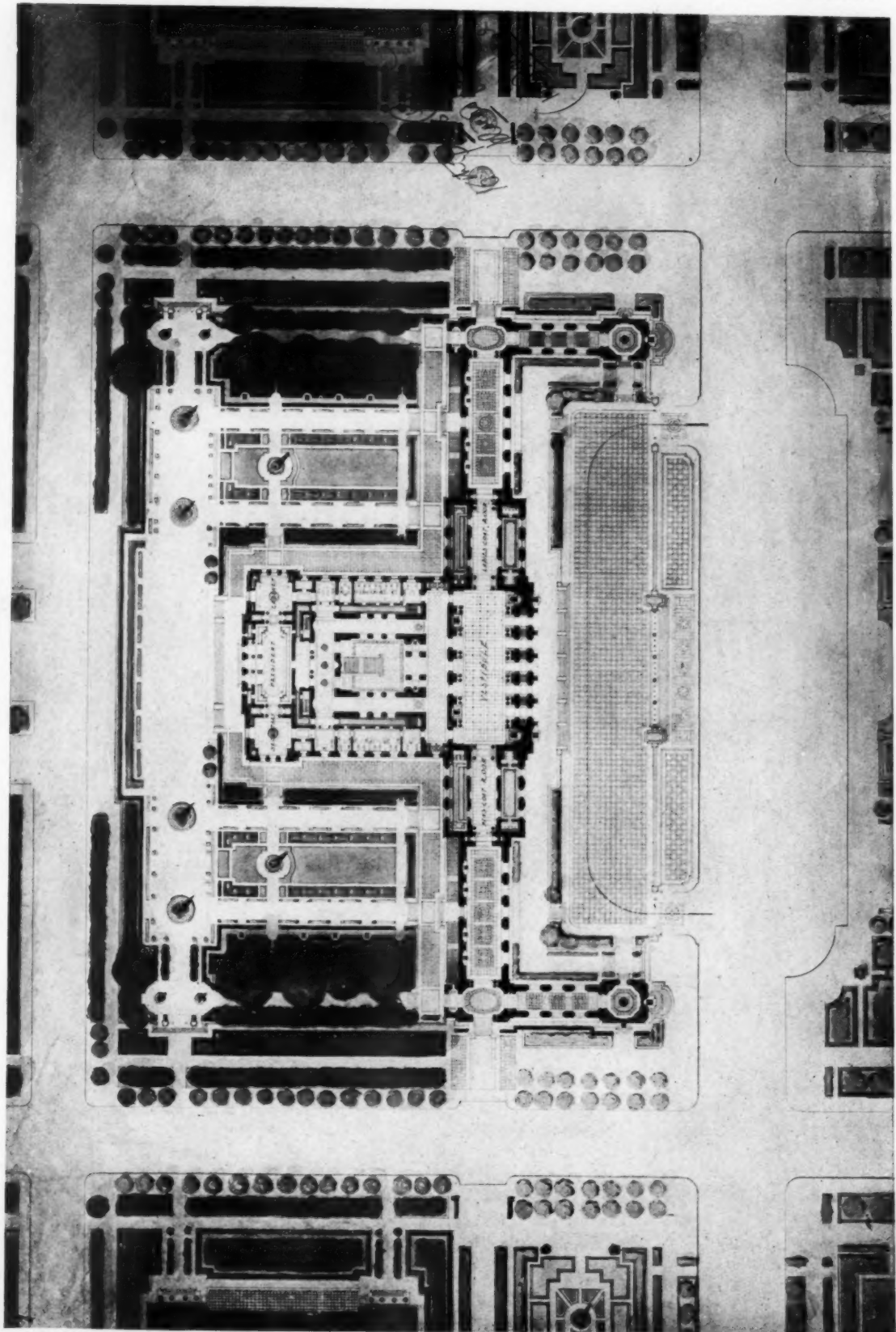
UNIVERSITY OF PENNSYLVANIA

PLACED FIRST AND FIRST MEDAL

FINAL COMPETITION FOR THE 16th PARIS PRIZE

"AN OFFICE AND RECEPTION BUILDING FOR THE PRESIDENT OF THE UNITED STATES"

LEE ROMBOTIS



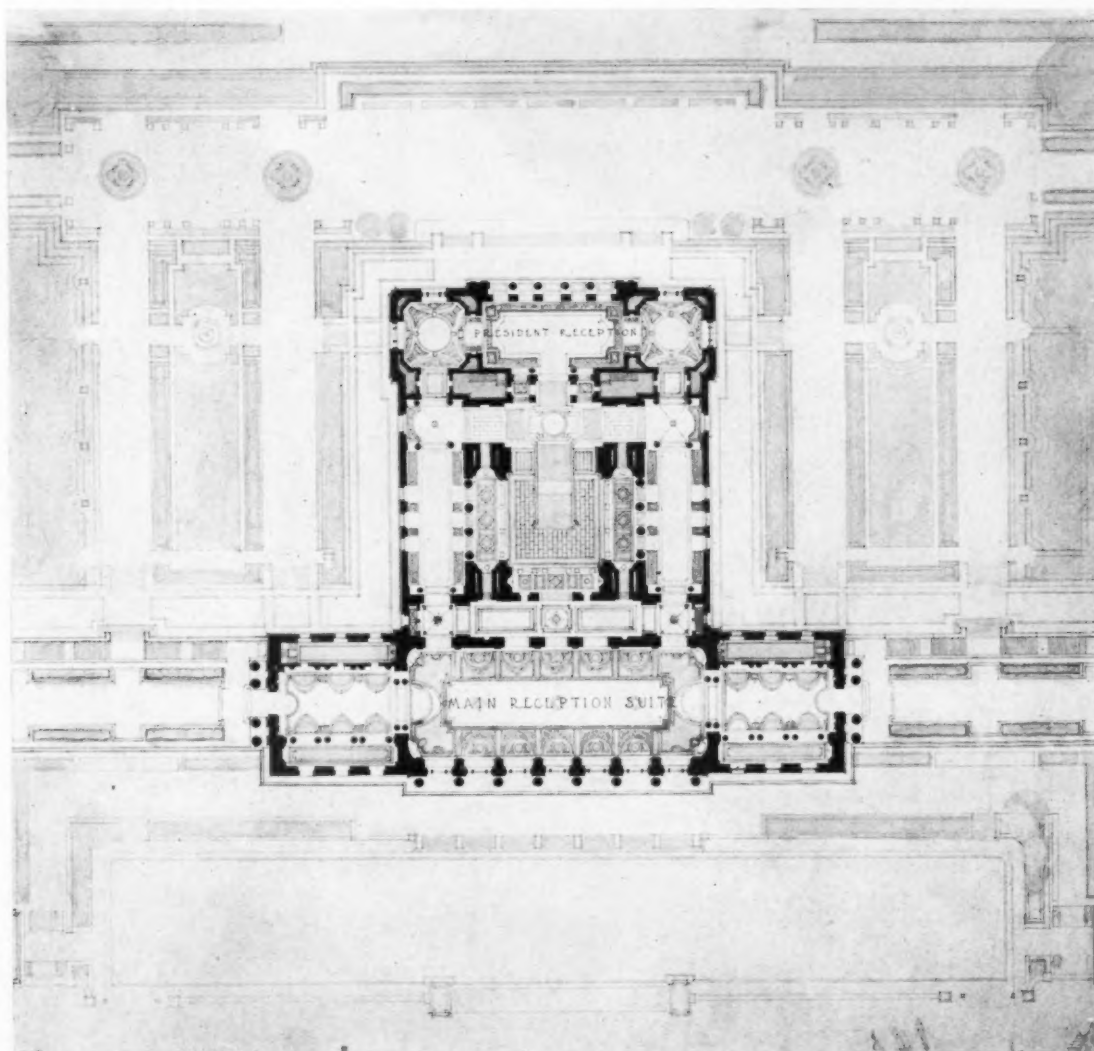
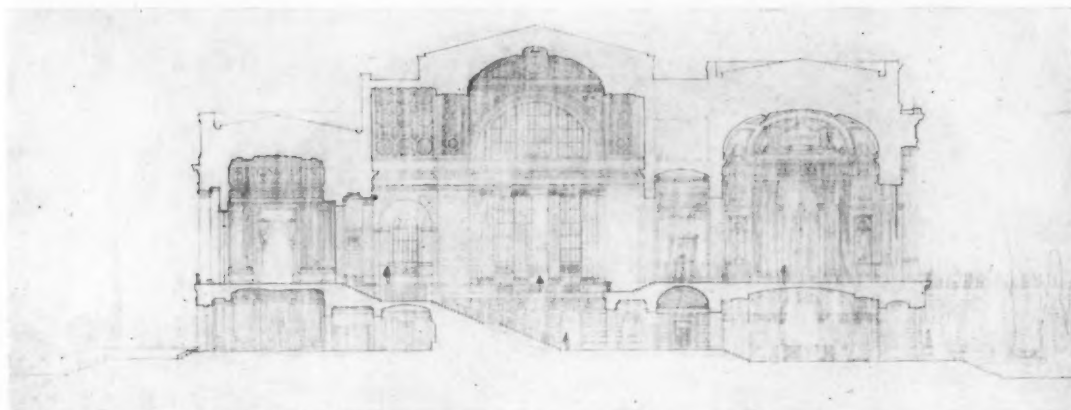
UNIVERSITY OF PENNSYLVANIA

PLACED FIRST, FIRST MEDAL

FINAL COMPETITION FOR THE 16th PARIS PRIZE

"AN OFFICE AND RECEPTION BUILDING FOR THE PRESIDENT OF THE UNITED STATES"

LEE ROMBOTIS



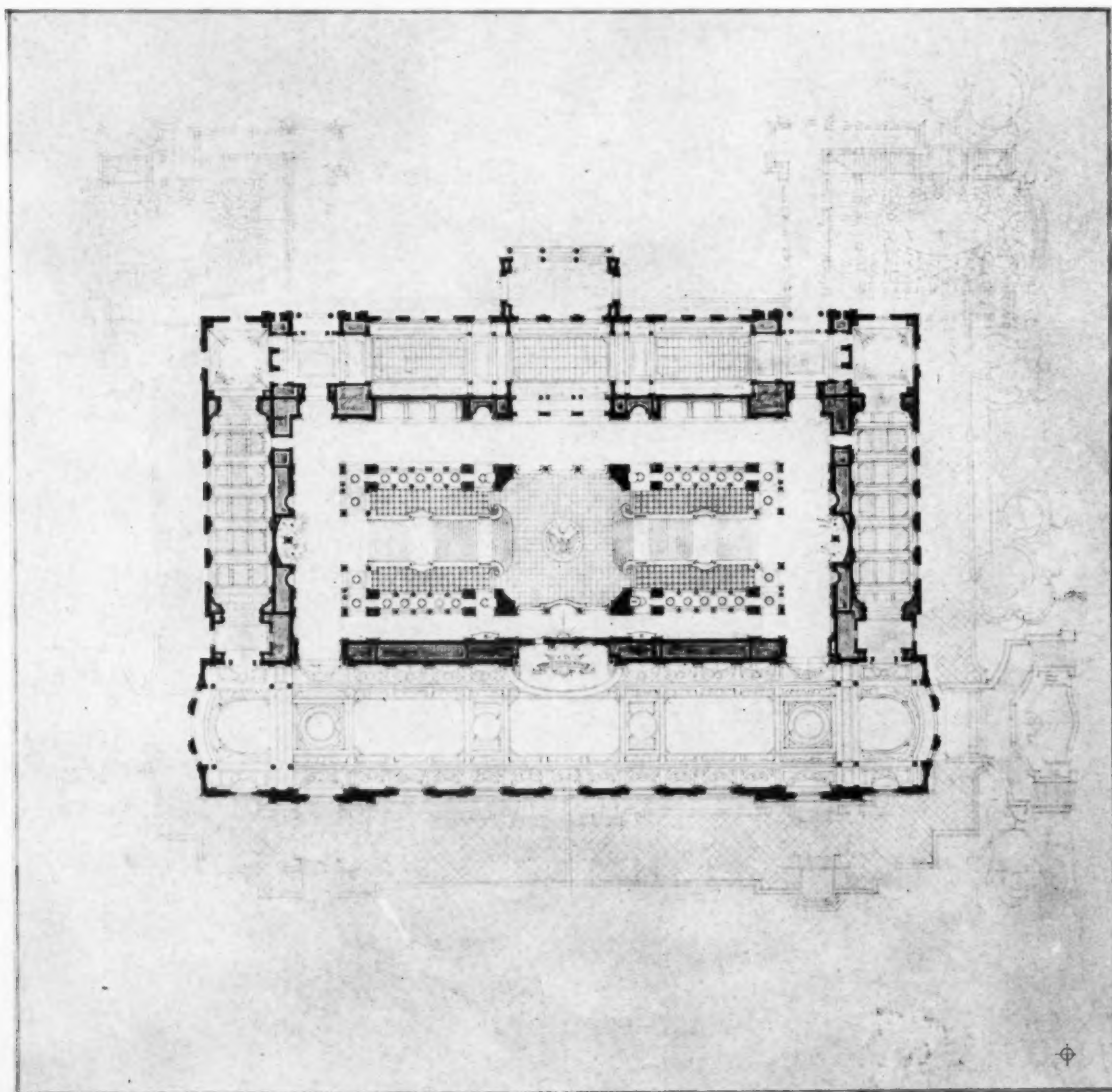
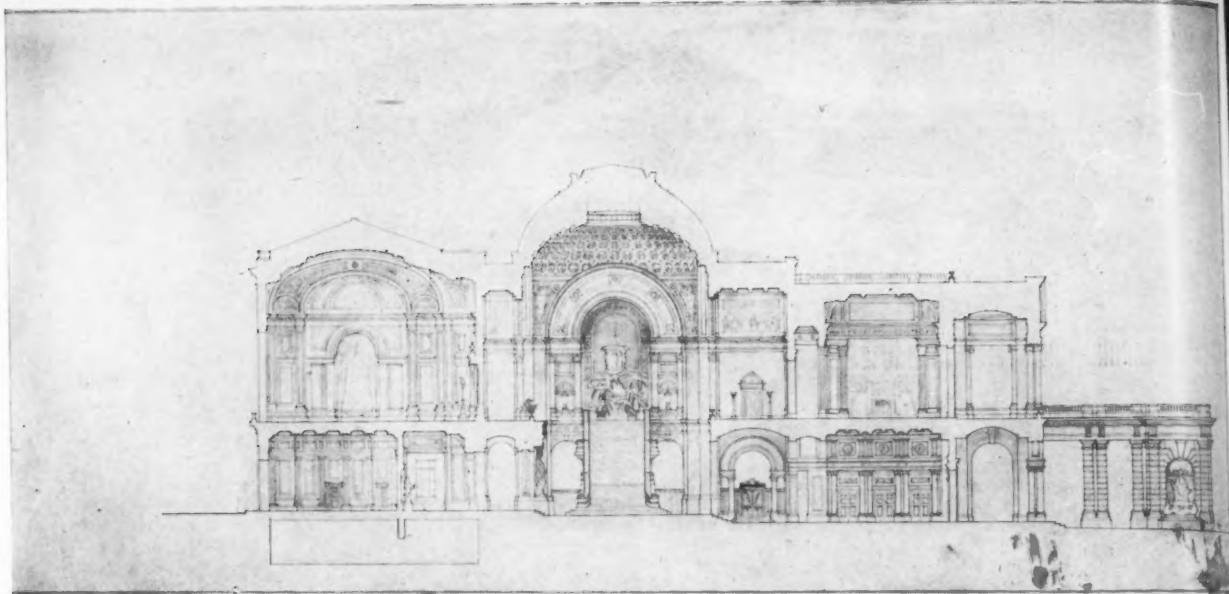
LEE ROMBOTIS

PLACED FIRST, FIRST MEDAL

UNIVERSITY OF PENNSYLVANIA

FINAL COMPETITION FOR THE 16th PARIS PRIZE

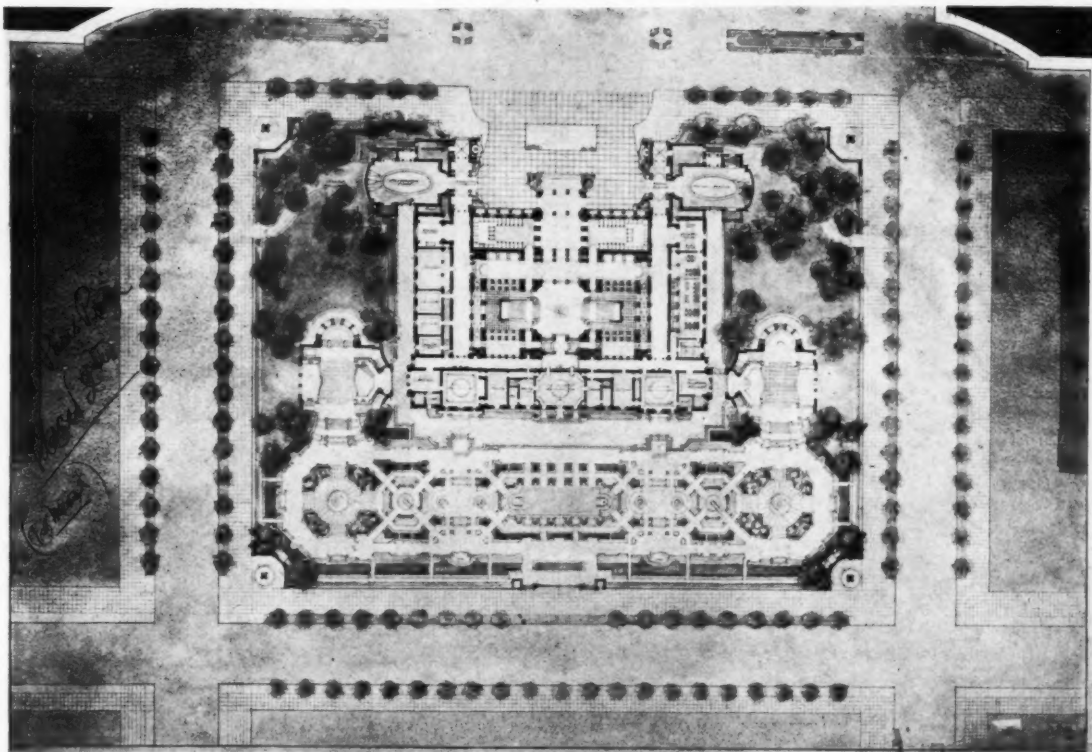
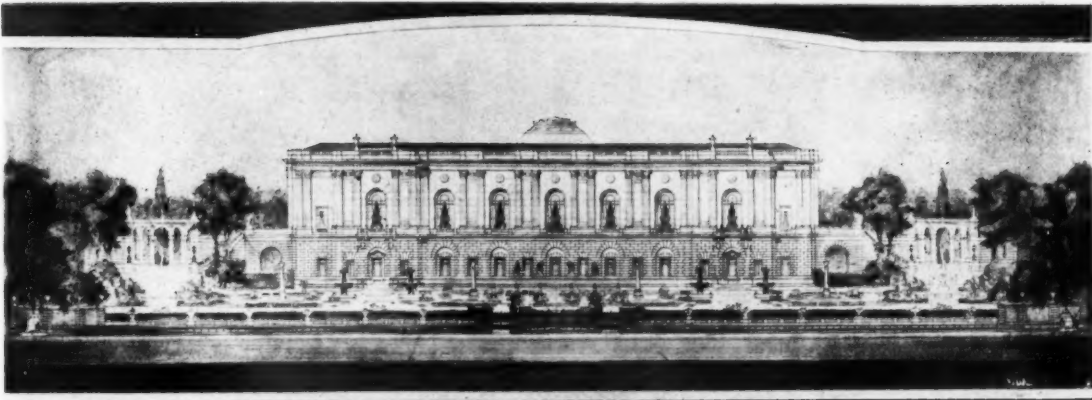
"AN OFFICE AND RECEPTION BUILDING FOR THE PRESIDENT OF THE UNITED STATES"



HARRY K. BIEG—PLACED SECOND, FIRST MEDAL—ARMOUR INSTITUTE OF TECHNOLOGY, CHICAGO

FINAL COMPETITION FOR THE 16th PARIS PRIZE

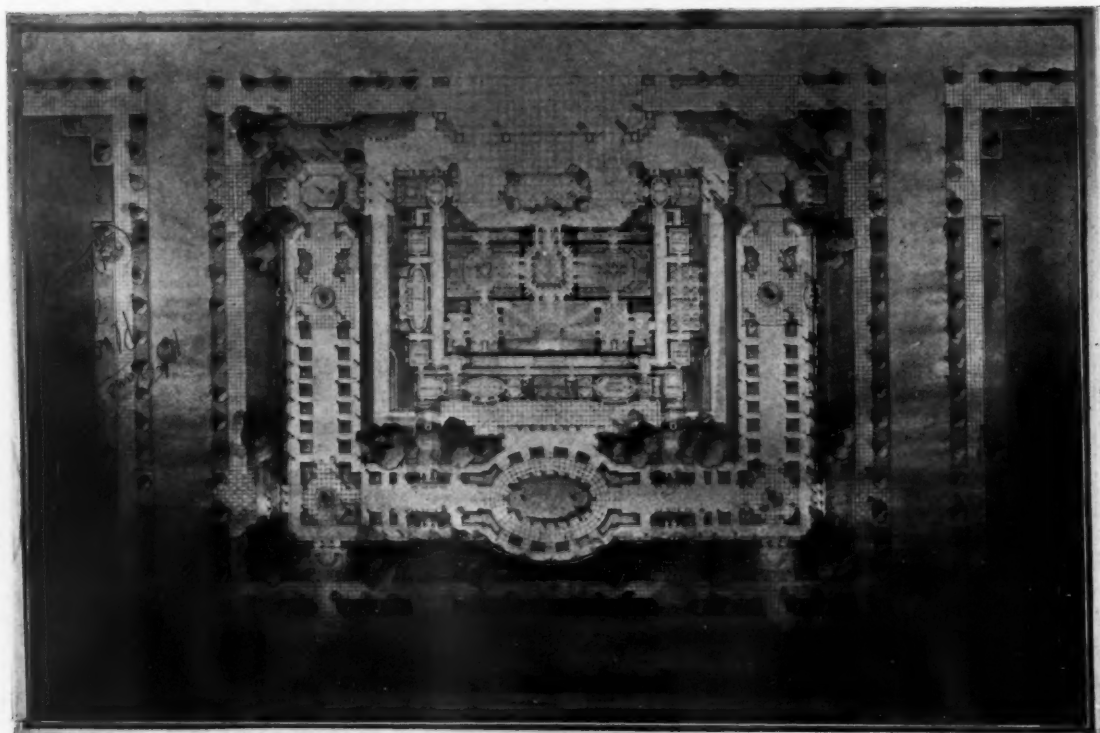
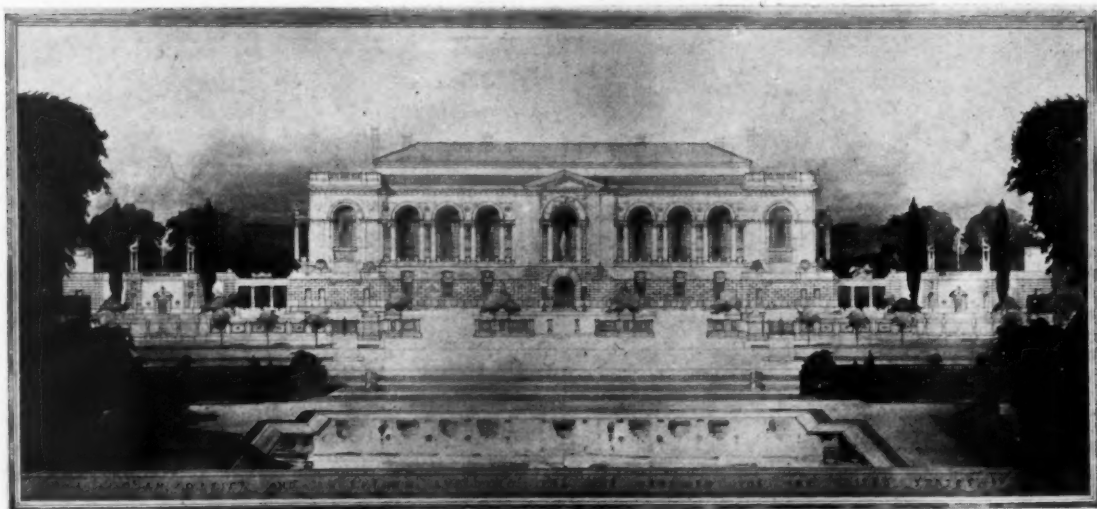
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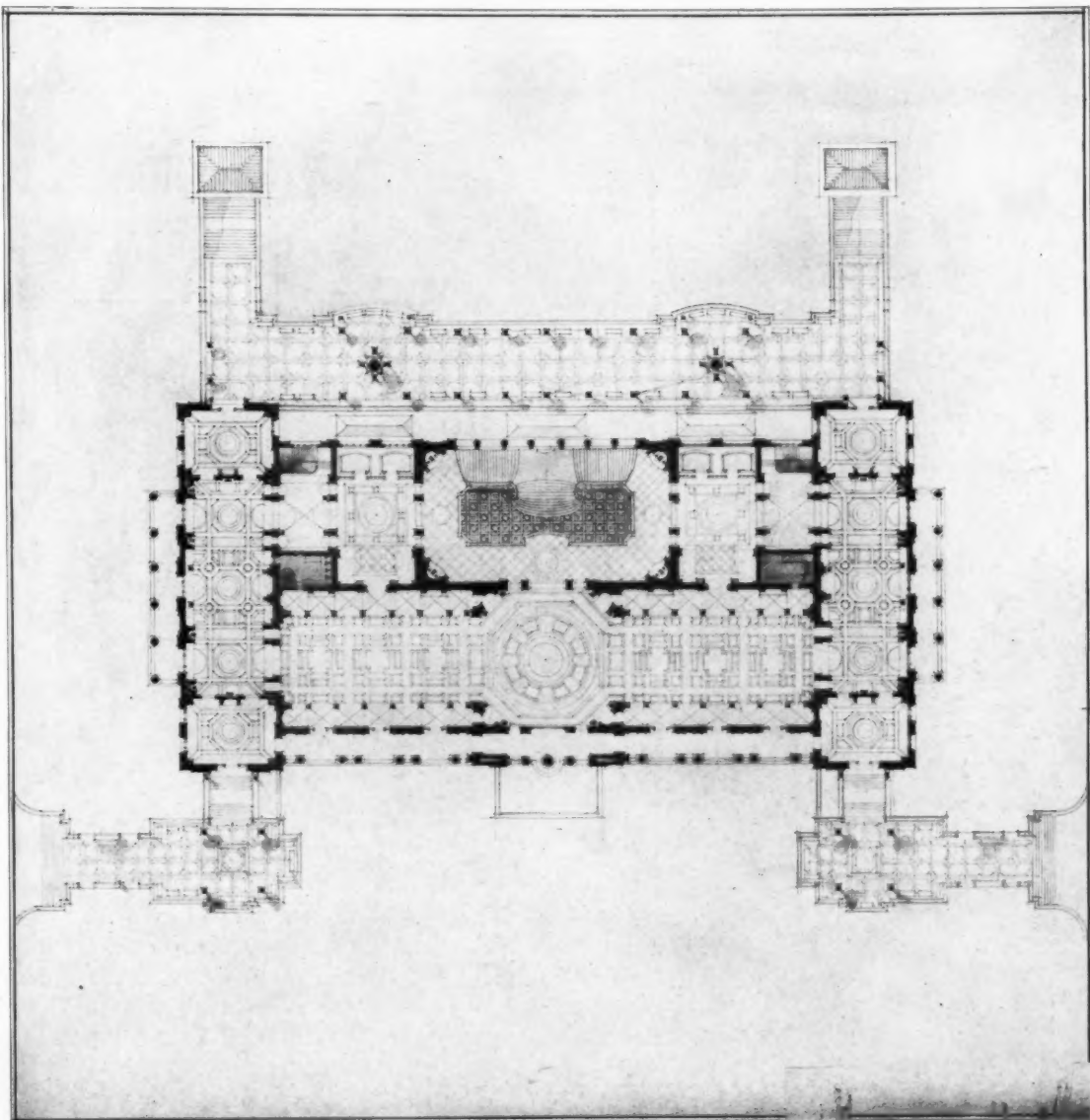
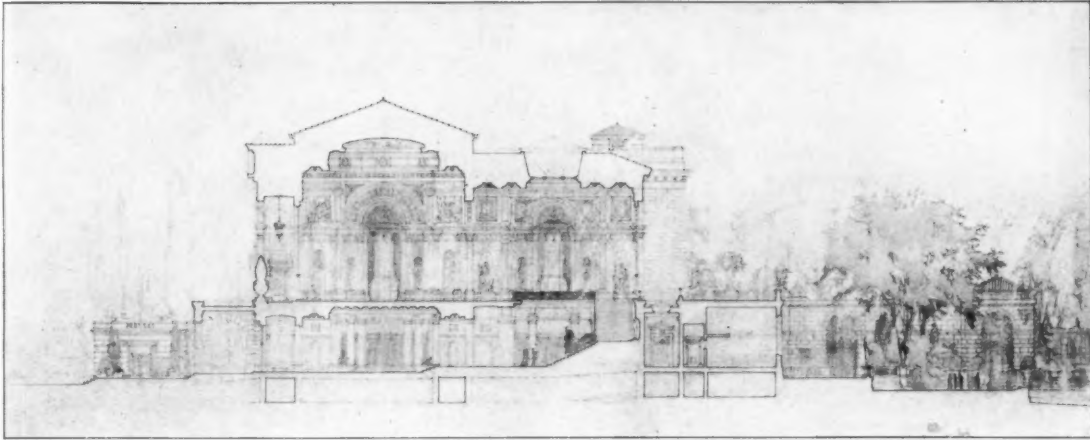
HARRY K. BIEG—PLACED SECOND, FIRST MEDAL—ARMOUR INSTITUTE OF TECHNOLOGY, CHICAGO

FINAL COMPETITION FOR THE 16th PARIS PRIZE

"AN OFFICE AND RECEPTION BUILDING FOR THE PRESIDENT OF THE UNITED STATES"



I. JERRY LOEBL—PLACED THIRD, SECOND MEDAL—ARMOUR INSTITUTE OF TECHNOLOGY, CHICAGO
FINAL COMPETITION FOR THE 16th PARIS PRIZE
"AN OFFICE AND RECEPTION BUILDING FOR THE PRESIDENT OF THE UNITED STATES"



I. JERRY LOEBL—PLACED THIRD, SECOND MEDAL—ARMOUR INSTITUTE OF TECHNOLOGY, CHICAGO

FINAL COMPETITION FOR THE 16th PARIS PRIZE

"AN OFFICE AND RECEPTION BUILDING FOR THE PRESIDENT OF THE UNITED STATES"

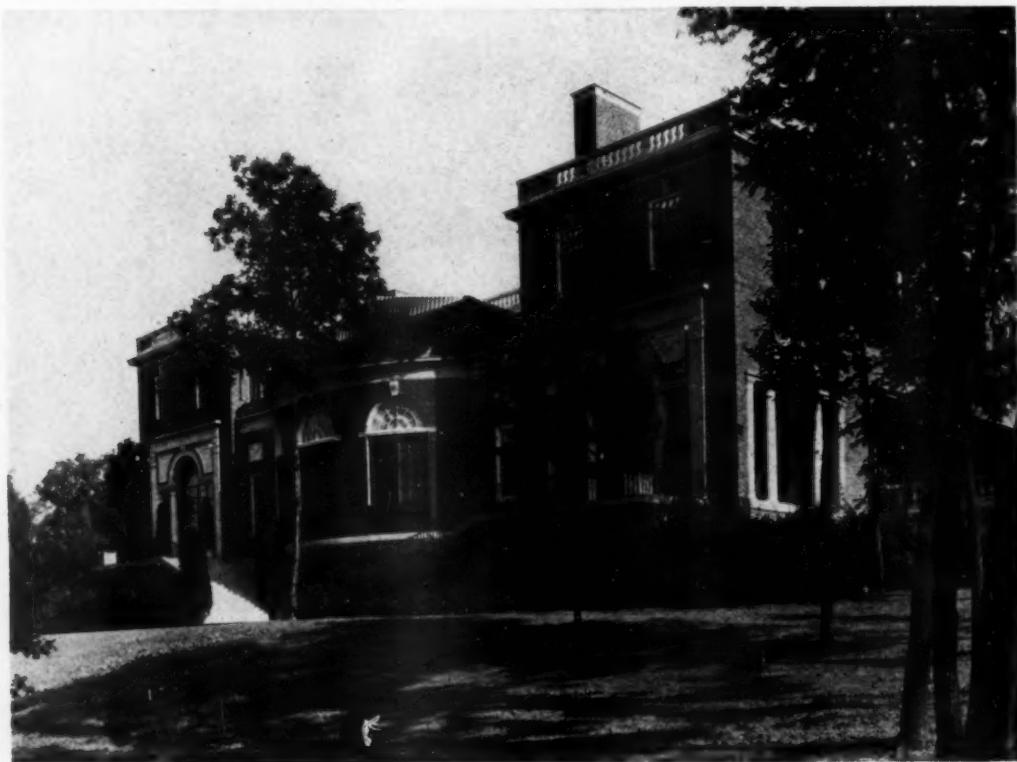
IV. BRICK—ITS ARTISTIC VALUE

BY G. C. MARS, Ph.D.

IT would seem that the first requirement of an architect in designing the color scheme of a wall surface, is the plasticity of his material, a ready yielding to every required change. Here brick answers with a fitness hardly found anywhere else. The small parallelepipeds of very pleasing proportions, which expose one face in the wall, are not only practically convenient for the hand grasp and strength of the workman, but are suited to the purpose of the colorist, who may choose, if he will, to repeat them in uniform tones, or at any moment modify their color relations as readily as if they were mosaic insets. In other words, in this material he has the plasticity of pigments which may be laid on in broad masses of uniform tone, or varied, as he will, in setting the smallest elements of analogous or contrasting colors in closest juxtaposition. He is as free in handling his material as the weaver or the painter, and his work with the plastic brick units may be, considering

its size and scale, as rich in varied harmonies and overtones of color as a Persian rug or a canvas of Giorgione.

During the past generation, there has occurred, as in many other industries, a veritable revolution in the manufacture of brick. The American brick manufacturer has developed a range and variety of color that never before existed in the product, and exists nowhere else in the world. Not only do the brick differ widely among themselves, but each brick may be played upon in the kiln in such a way as to have a dozen beautiful varied tones and shadings of its own. Aside from a few colors, secured by the introduction of mineral substances into the clay, the vast majority of brick colors and color tones, running into many hundreds, are the natural outcome of the kiln burn. And what gives them their essential merit is that they are fixed as an integral and permanent set in the brick substance itself.



House at Locust Valley, L. I., N. Y.

Guy Lowell, Architect



A House in Detroit, Mich.
J. Ivan Dise, Architect

As pointed out in a previous article, brick clays, due to the presence or absence of certain ingredients, burn to three fundamental colors, gray, buff, and red. But upon these simple backgrounds there develops in the burn a bewildering variety of hues, tones, and shadings.

In addition to the colors themselves, the surface textures of the brick, from the smoothest satiny finish to the roughest, exert a subtle and profound shadow effect on the color tone, only less important than the basal color itself. In a scale of textures, beginning with the smoothest surfaces, with sharp true arrises, the first step may be taken to be the sand mold brick with its slightly roughened surface. Then comes what is commonly known as the mat brick with a soft, velvety surface produced by the drag of a wire over the fresh clay surface, leaving fine vertical or horizontal scorings upon the brick. Beyond that, a great variety of scarifications is used, all for the purpose of getting shadow effects.

The writer is occasionally asked what is a face brick. The answer is simple. Any brick which, by reason of its color, texture, or burn, is selected or specially manufactured and carefully laid to enhance the attractiveness of the wall surface is a face brick. In the old days,—and even now in certain localities,—where manufacture was more

or less haphazard, the best brick in the kiln were selected for use on the exterior surface of the wall. In time this suggested a little more care in the process of manufacture. Careful molding of the clay and setting in the kiln brought out what were known as “stretchers” or facing brick, and then with a growing and diversified demand the methods already described in these papers were gradually introduced until the production of “face” or “facing” brick has become a nation-wide industry.

What kind of a structure is to be erected and what is its purpose; where is it to be placed; what will be its surroundings; how will it be oriented to catch lights and shadows; what is the resulting effect desired; are some of the questions that must be answered in making choice of a brick, aside from any question of individual taste. And always the brick must be visualized, not as held in the hand but as built into the wall and seen from a reasonable distance. There will arise instances where the light effects of the creams, buffs, or grays, smooth, semi-smooth, rough or very rough, either in uniform or mingled shades, will alone answer the architect's aim. Then again, nothing will be so fitting as the warm, darker colors, the reds, the browns, the purples. There will always be a wide range of personal taste to



DOORWAY OF A HOUSE IN DETROIT, MICH.
J. IVAN DISE, ARCHITECT



DETAIL OF A HOUSE AT RED BANK, N. J.
JOHN RUSSELL POPE, ARCHITECT

THE ARTISTIC USE OF BRICK

be sure, but essential to the choice will be such factors as the environment, the color and texture of the stone or terra cotta trim, if used, and the demand either for sharp, clear upstanding surfaces and lines or vaguely outlined masses.

Then, most important of all, so far at any rate as the æsthetic reputation of the brick is concerned, is the question of the mortar joint. More good brick have lost their character and reputation by associating or being associated with a thoroughly depraved mortar joint than for any other reason. According to "Building Construction" (In The Architect's Library, Longmans, London, 1910, Vol. I, pp. 93-94), while in mediæval brickwork our modern methods of bond were approached by the use of black headers, the thinner brick and thicker mortar joint lowered the artistic effect of the real bond. It was not, writes the same authority, until the XVII and XVIII centuries that the character of brickwork notably changed by a reduction of the joint to a minimum. The mortar thus ceased to form a disproportionate part of the wall surface, and the brick itself came more into view, leaving the mortar joint as a delicate tracery over the background of the wall. This permitted the architects of the time to seize both the color of the bricks as well as the modifying effect of the joints, to enhance the beauty of the mural surface. With the limited material they had, we all know what fine effects they produced not only in developing such bonds as the Flemish, Dutch, and English, but in designing beautiful pattern tracerics for the embellishment of the wall.

It is a matter of common observation that any spot of color is greatly modified by a border of a different color tone and that the modification varies with the color and width of the border. In brickwork the mortar joints are colored borders around each neat little parallelogram, and, with the great variety in our American product, it is evident what an infinite variety of color effects may be produced. The architect in designing the color scheme of a brick wall has an artistic task about as delicate as that of a Persian rug weaver, or of a landscape painter. Having the purpose, size, and location of the structure in hand, he first selects his brick in regard to their texture, rough or smooth, and their color, uniform or blended. Then he considers the joint. And here he has four distinct factors to consider. (1) Its width, which will depend first on the smoothness or roughness of the brick, and, secondly, on the amount of modifying color per unit of surface desired. (2) Its surface texture, that is, whether finished rough or smooth. (3) Its kind, whether cut flush, struck, rodded, raked, or tooled, depressed or raised. (4) Its color, whether that of the natural mortar, or tinted to contrasting or analogous tones with the brick. All of these factors, in one way or another, neces-

sarily enter into the problem of the mortar joint, and each exerts a subtle and determining effect on the entire color scheme of the wall surface. To convince the doubtful, it is only necessary to select a certain brick, let it be of any color, uniform or blended, and of any texture, smooth or rough, and then lay it up in the different possible joints as to width, texture, kind, and color, and the observing layman will assert that the walls are built of totally different brick.

But just because of the fine possibilities in the right handling of the mortar joint, there are the possibilities of wrong handling which result in concealing or perverting an otherwise beautiful brick wall surface. It is needless to say that, from an artistic point of view, the color and design of bond and pattern tracerics of the mortar joint should always be subordinated to the whole mass or the total impression sought. The pattern designs should never be allowed to become obtrusive and vulgar like the bars and stripes of a gambler's breeches. They should produce their effect without anybody knowing why the wall is so charming. Of course, there are times when the pattern should be allowed frankly to declare itself but generally speaking, it should, as it were, like good children, be seen and not heard.

It is gratifying to note that able American architects have shown, in many examples, rare good taste in the designing of beautiful wall surfaces of brick, but it must be said that the possibilities along this line have hardly been more than touched and that it remains for some color genius to make the most of them. Brick offers a present day opportunity to American architecture such as it has never before had for the development of colorful design that will relieve the dull, drab, monotonous tendencies of traditional inertia or indifferent indolence, and more fully express the optimistic and progressive character of our American civilization.

There are not only the possibilities of dealing with the single structure but with entire groups of buildings. Instead of the haphazard and cacophonous atrocities of many a city street, it is not hard to picture a row of buildings not only with a pleasing variation in the design of the elevations, but with a harmonious scheme of different colors that would fairly make the street sing with beauty. Of course, no individual designer would have control over such an extensive scheme, but where rows of tenements or large groups of houses for workingmen are undertaken under single ownership, it would be possible for the architect to make a name for himself, and confer a lasting benefit on the community, by availing himself of the color possibilities in the brick wall.

The American architect should realize that brick as an artistic facing material is peculiarly an American product and possibility. We have

had brick of a kind, marble, and stone of every variety from time immemorial, but the rich and infinitely varied colors and textures of facing brick we have never had,—and they still do not have in Europe,—before the present generation. Here is a rare opportunity for a strictly American architecture to create, in the material offered, substantial and enduring structures that, granting distinctive design in form, will glow with colorful life and beauty.

In conclusion, the æsthetic appreciation of the brick wall by Mr. Christopher L. Ward, as found in *The Yale Review* (April 1921) is too appropriate to omit. After praising "the softening, en-

during, ennobling work of Time which, as a master artist, takes the new house in hand and with infinite inimitable art, in his own leisurely fashion proceeds to make a picture of it," Mr. Ward continues:

"Brick yields to the touch of time so willingly, so graciously, that it mellows with the passing years into a masterpiece of color. Its texture becomes beautifully accentuated, its coloration varied but always harmonious. Year by year it grows better to look at, better to live in. No art can counterfeit the beauty of old brick masonry."

(The End)

FORTY YEARS AGO

Excerpts from *THE AMERICAN ARCHITECT*, August 18-25, 1883

WE HAVE observed with grief that the quoted price of shares in the Keely Motor Company has fallen of late to about one-third of that for which they were sold soon after publication of those glowing letters from newspaper correspondents. * * We can, however, encourage the stockholders in this great enterprise that if their investment enthusiasm has not waned, another opportunity presents itself. Another inventor has discovered a "new mechanical law, the application of which will enable him to increase a hundredfold the power of any machine, from a clock to a steamship, without using an ounce more fuel than usual." To a reporter of the *Philadelphia Record*, the inventor "could not at this time disclose the details" except to say that the application of the new law "consisted in combining the action of the screw, inclined plane, and one other form." Hitherto, the combination of a screw and an inclined plane has hardly been thought of as an efficient mechanical device, and its application to clocks and steamboats is, we venture to say, wholly new.

* * *

The seventeenth annual convention of The American Institute of Architects will be held in Providence, R. I., August 29. Aside from the address of President Thomas U. Walter and the reading of reports of officers, Prof. Lanza will present an illustrated paper on the Strength of Materials; Mr. John A. Fox, of Boston, will discuss Archi-

tectural Competitions; Mr. W. A. Potter, of New York and former Supervising Architect of the Treasury Department, will describe the conduct of that office; Mr. Arthur Rotch, of Boston, will present a paper on a subject to be announced, followed by Mr. T. M. Clark, of Boston, on the Architect as a Sanitarian.

* * *

According to the *Scientific American*, a conduit supplying water to Virginia City, Nev., follows the contour of a deep valley and has a hydrostatic pressure of about eight hundred pounds per square inch at the bottom. The tubes are of the lap-welded and riveted type. The latter kind frequently fail and the fine stream of water, almost invisible, will cut anything in its way, and if it falls upon another part of the pipe will soon perforate it.

* * *

A very interesting recital of a visit to Viterbo with fine description of its architectural features is contributed by Mr. C. Howard Walker.

* * *

Illustrations: United States Signal Station, Pikes Peak, Col., designed by P. P. Furber, representing Peabody & Stearns in Colorado Springs. "Brookside," house for Walter Jones, Esq., Schenectady, N. Y., Franklin H. Janes, architect, Albany, N. Y. Sketches at Viterbo, by Mr. C. Howard Walker, architect, Boston.

EDITORIAL COMMENT

THE ANNOUNCEMENT in our issue of August 1st, of the proposed joint exhibition of architecture, to be held in 1924 in New York, under the auspices of The American Institute of Architecture and the Architectural League of New York, is of more than usual interest.

An exhibition such as was held by the Institute in the Corcoran Galleries in Washington, during the 1921 Convention, combined with one equally as good as the League has presented in recent years, would undoubtedly result in an epoch marking presentation of architectural work.

At this writing it is, of course, too early to even hint at an outline of this exhibition, but it is safe to assume that these representative organizations will present a showing of architecture that will be an object lesson to the general public and attract professional observers from the four quarters of the globe.

The great pity is, that New York has no adequate gallery to house so important an undertaking. The choice of buildings is practically confined to the Fine-Arts Building on Fifty-seventh Street, the Metropolitan Museum of Art—if space there is available,—or the Grand Central Palace.

It seems that the occasion of this important showing of Architecture and the arts allied to it, would afford an opportunity to revive, and satisfactorily settle, the often debated question of a representative Fine-Arts building in New York. It is an artistic scandal that there is no such building in this large City. Its lack has retarded our art advancement. It is earnestly hoped that during this exhibition, the Institute and the League will revive this important question, seek co-operation with allied societies, and vigorously inaugurate a campaign for an adequate building to house both permanent and transient exhibitions of art. Why not a permanent exhibition of Architecture? Every exhibition of the League has disclosed work that might fittingly become a part of a permanent exhibition of our architectural development.

* * *

DURING FIVE STRENUOUS years Frank E. Davidson of Chicago has served as president of the Illinois Society of Architects. And, in addition, he has edited the Society's *Monthly Bulletin*, making of it one of the best official publications in the field of architecture.

It is impossible to conceive how any man could more unselfishly give of himself than has Mr. Davidson during this long period.

Ill health, possibly in part due to unceasing activity in Society matters,—has forced Mr. Davidson to refuse to further serve as president. The recent annual meeting of the Society was marked by the presentation of an engrossed testimonial, setting forth the Society's appreciation of Mr. Davidson's long and valuable services.

This testimonial was presented by Mr. Irving K. Pond in, to quote from the Bulletin,—“his usual inimical manner.”

In the course of his remarks Mr. Pond stated,—“Mr. Davidson has, throughout the long years of his service, kept the Society keyed up to an unprecedented pitch, and the memory of his ardent activity will remain as a stimulus.”

Not only is this true, but Mr. Davidson has been actively prominent in every movement that has had for its object the best interests of architectural practice throughout the country.

As a rule, tasks such as Mr. Davidson set himself have been thankless ones and but little appreciated. It is therefore encouraging to note how thoroughly the Illinois Society appreciates the work Mr. Davidson has accomplished. And, it is quite certain that Mr. Davidson will always recall with a large measure of satisfaction that he has been able to command the respect and affectionate regard of a group of men so prominent in a profession he, himself, has so splendidly served.

* * *

FOR MANY REASONS, the second Pan American Congress of Architects, the details of which were set forth in our issue of August 1st, should prove of exceptional interest to architects.

The special inducements offered by steamship lines makes it possible to economically undertake a voyage that affords a comprehensive trip along both coasts to the more important cities of Latin America. As far as American architects are concerned, South America is an undiscovered country. It competes with Europe in old world interest, and it offers a field for architects, in which opportunities are many and large.

The larger cities in South America are growing architecturally in an erratic way. The people are however receptive of ideas of design and plan that will work toward improvement. The Avenida Rio Branco, in Rio de Janeiro, is an example of a great opportunity that was lost. The native architects failed to solve the problem. A group of architects from the United States would have made that splendid thoroughfare,—practically built all at one time.—one of the architectural marvels of

the world. As it is now, there are a heterogeneous lot of buildings with no inter-relation of design or style, and one turns with a sense of relief to the "old city" and its Rua de Ouvidor where all the traditions of Portuguese settlement are strictly maintained.

In the "old town" of Rio de Janeiro the streets are so narrow that there is only width for one person on its sidewalks and the roadways are mostly one way thoroughfares. The Avenida Rio Branco, with a fine central park strip and roadways for different speed traffic, is more than 100 feet wide, but through neglect of its architectural possibilities has never reached a satisfactory status.

As in Rio, so in most of the larger cities in South America. They need there the efficient assistance that architects in the United States could give. It is a wonder that this beautiful country with its history and tradition of more than four centuries should so long remain an architectural *terra incognita*, and that architects in planning jaunts abroad should not seriously consider a visit to South America.

* * *

"**WE HAVE LEARNED** by sad experience," writes Lawrence F. Abbott, in a recent issue of *The Outlook*, "that beauty talks, as well as money." "The fact is," he continues, "that beauty can be capitalized and is a money making asset to any community."

Mr. Abbott is moved to these remarks as the result of an inspection of the proposed Bear Mountain Bridge designs. As a rule the opinions of the laity in these matters may be taken *cum grano salis*, but Mr. Abbott undoubtedly knows whereof he writes. To Mr. Abbott the photograph of the design for this bridge "looks like a piece of tin trumpery." And, in this emphatic expression of disapproval he is in accord with many architects and engineers. To Mr. Abbott, the steel piers that carry the cables suggest the aerials that are used for high powered electric transmission.

Engineering-News Record commenting on the criticism, and holding of course a brief for its profession, regards Mr. Abbott's statement as an "arbitrary dictum" and "extravagant enough to be its own answer."

Undoubtedly this bridge is structurally fitted to do its work, and undoubtedly it lacks so much of even casual architectural treatment as to ruin a location long known for its scenic beauty. This work if undertaken and supervised by competent architectural service would have received a monumental design that would have conserved the scenic grandeur of its location. The material for monumental piers is right at hand, tons of it, and a bridge might have been designed that would have

become a part of the landscape and a source of pride to every beholder.

Mr. Abbott makes the good point that in a certain sense the Hudson River belongs as much to the people of Oregon and California as it does to New York, and if the people of New York do not conserve the scenic beauty of that river the rest of the United States should raise an outcry. It is not too late to make strenuous objection to the present design, or more properly speaking, lack of good design, and there arises an opportunity for the New York Chapter and the Architectural League to vigorously protest.

* * *

AND, THIS SUGGESTS a further matter, the proposed tunnel between Manhattan Island and New Jersey. It was recently stated in the daily press that the long and elaborate approach and Plaza to this tunnel would be designed under the present State Architectural Department, or what is now left, after political expediency has torn down the structure so finely erected under a previous administration.

For years architects in New York have unselfishly contributed time and money to the making of designs for proposed municipal improvements. A large number of these designs, long buried, were brought to light and shown at the architectural exhibition held during New York's recent "Silver Jubilee." A great many of them were illustrated in Mr. Van Felt's article published in this magazine on July 4, 1923. Their architectural value is unquestioned, their artistic merit beyond criticism. What New York City should do, and it will be a crying shame if it does not, is to hand over to the New York Chapter and the Architectural League, the conduct of a competition for this approach and the Plaza. Then we would be sure of a dignified and appropriate treatment of one of the most important architectural opportunities New York has ever known.

We lost the Dewey Arch because of politics, and the proposed Hendrik Hudson water gate never was undertaken through similar causes. We lack public rostrums where the people may meet on patriotic holidays and civic occasions of importance. These have been designed and carefully buried by new political parties, jealous of any credit that might be taken by opponents. The Bear Mountain bridge is commonplace through apathy and the approach to the new Hudson River tunnels may and probably will suffer from a similar cause. Isn't it about time the American Federation of Arts, the National Academy, the Scenic Preservation Society, to say nothing of the architectural societies in this state, should wake up from a present moribund condition, and let their voices and influence be heard and felt?

DEPARTMENT of ARCHITECTURAL ENGINEERING



Van Buren Station, Chicago Post Office
Graham, Anderson, Probst & White, Architects

VAN BUREN STATION, CHICAGO POST OFFICE

Mechanical Conveyor System Installed to Handle Large Tonnage of Mail

IT is a combination of modern conditions which has developed the automatic machine and the mechanical conveyor systems usable for almost every purpose. These are the outgrowth of the scarcity of labor, its high cost and in many instances its unreliability; the ever increasing bulk of things to be made and handled due to a growing population and extensive transportation systems which make possible wide distribution from centers of industry; the necessity of quick handling to avoid congestion and the necessity of concentrating certain operations within a limited space. The plan of a building is the essential element in successful operation and regardless of the nature of the undertaking the same factors are present. These consist of the receipt of material, its distribution for fabrication or classification, assembly into shipping units and delivery to means of transportation. In the majority of cases it involves also storage or warehousing immediately preceding the last two operations. The variations of service demand particular planning although the basic principles employed are unchangeable.

A most excellent example of a mechanical conveying system is that recently installed in the new Van Buren Station of the Chicago Post Office. This is a special plant designed for the exclusive purpose of consolidating the distribution of outbound parcel post matter, paper mail and catalog matter formerly handled at the Main Post Office, Quincy Station and the five Chicago R. P. O. terminals and the large mail order houses where post office employees are stationed. At this building direct loading at track level is made into storage and mail cars of the Chicago, Milwaukee & St. Paul, the Chicago and Alton, the Pennsylvania and the Chicago, Burlington & Quincy railroad systems of approximately forty-five per cent of the parcel post and paper mails schemed to those lines from the Chicago standpoint. The remaining fifty-five per cent of the mail arrives over belts and spirals at the street level for transfer by government owned motor trucks to the Chicago & Northwestern, the Baltimore & Ohio, the La Salle, the Dearborn Street and the Illinois Central terminals which accommodate the remainder of the twenty-four great railway systems terminating at

Chicago. It is possible to transfer all of this mail to the various stations without entering the congested loop or business district.

The building is located along the East side of the Union Station property about 320'-0" East of Canal Street and extends from West Van Buren to West Harrison Streets, a distance of 796'-0" with a width of 75'-6". The building is eight stories high including basement and sub-basement, served by railroad tracks on the basement level and by a teamway on the street level. This teamway is along the East side of the building, is 30'-0" wide and extends the entire length of the building. It affords 580'-0" of clear tailboard space or enough for 60 motor trucks at one time. The platforms at track level will accommodate 61 mail cars. It is a steel frame structure with concrete floor slabs, faced with tan-colored brick and trimmed with sandstone to conform with the general appearance of the Union Station now under construction.

The plant represents an increased efficiency of more than 600 per cent over former methods and is a further development of the scheme employed at the Quincy Station, both of which were origi-

nated and designed by P. J. Madigan, Assistant Superintendent of Mails in the Chicago office.

Under the previous system of handling parcel post mail, it was sacked and loaded into trucks at the business houses and transported to the Quincy Station. The sacks are unloaded onto small hand trucks, about seven truckloads to each motor truckload, and pushed to the dumping platform and emptied one at a time. It requires one-half hour to load and the same time to unload each motor truck. Under the new system this delay is overcome by delivering parcels unsacked in the non-damage parcel dump truck.

This truck, which was invented by Mr. Madigan, is a vertical receptacle, side-pivoted to vertical supports and mounted on casters. It has a tilting device which is released by a foot pedal. The top swings toward the operator, the bottom opens and the parcels slide out gently into the chute designed to receive them. Six or eight of these dump trucks are loaded into the motor truck at the business house in from three to five minutes and at the station unloaded in the same time, resulting in a saving of time for each motor truck of at least fifty minutes per load. An important item is the decreased dockage space required at each end of the haul.

At the station the dump trucks are dumped singly by hand or quickly coupled together and attached to a small electric tractor and hauled to a trough 50'-0" long and 45" wide below which is a 42" four-ply belt. A ridge or curb at one side of the trough marks the route of the train and prevents its slipping into the trough. As the train passes, employees tilt each truck, the bottom opens and the contents slide to the feed belt below. The belt travels in the opposite direction and thus clears each truckload in time for the next. The tractor and train of empty tilting trucks return to the platform and the trucks are loaded on the motor truck in which they were received. The total time of the motor truck at the dock does not exceed ten minutes. Other trains in the meantime are dumping on the feed belt. To provide for peak loads there is another trough and feed belt so that the capacity can be doubled at will.

The building is equipped with 14 freight elevators and 3 passenger elevators, 5 sets of spiral



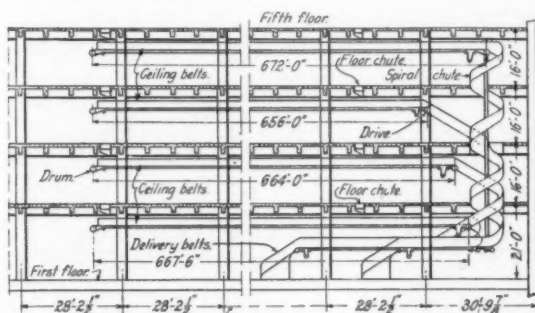
Detail of Entrance, Van Buren Station, Chicago Post Office
Graham, Anderson, Probst & White, Architects

chutes, some of which are double. Eight and one-half miles of conveyor belting are installed. There are 73 of these belts making 82 conveyors (both strands being used on 9 belts), all driven by 71 motors of the multi-polar semi-enclosed type designed for 220-volt direct current service. The belts, of various widths, are of four and five thicknesses of canvas, each ply untreated, weighing two pounds per square yard, traveling on rollers con-



Floor chutes to ceiling belts and spiral chute

sisting of cold drawn seamless steel tubes, $3\frac{1}{2}$ " to 5" in diameter, made of No. 10 gauge material. This tubing is spot-welded to pressed steel heads that support turned steel shafts $\frac{3}{4}$ " in diameter, turning on roller bearings. The spiral chutes are made of No. 12 gauge steel plates. Mail chutes leading to the ceiling belts are given a quarter turn so that the mail sacks can slide to within 3'-0" of the belts instead of dropping the full vertical distance of 7'-0" from the floor level to the belt.



A part longitudinal section, showing how the ceiling belts deliver mail to the spiral chutes

The mail handled as described above is all pre-canceled. Uncanceled mail, in separate tilting trucks, is taken by elevators to the second floor, where it is dumped on a slide leading to the mezzanine below the second floor, where it is canceled and the larger parcels placed on an auxiliary 36-inch four-ply belt, which delivers them to the feed belt leading to the primary separation on the third floor. Leading from the mezzanine floor in the opposite direction is the return of the belt. An interesting feature in connection with the work done on the mezzanine floor is that the return of

the belt for the reverse strand is utilized for small packages, delivering them to a distributing section for hand separation into mail bags. Another belt on this floor takes care of first-class and other matter not to be handled at this Station, delivering it in a tilting truck to a section from which it is sent to the Main Post Office.

The two 42-inch feed belts in the trough of the floor deliver the mail from No. 1 trough on the first floor, which is 100 feet in length, to an incline belt 48 inches wide, which delivers and acts as the feed belt for Primary Separation Unit No. 1 on the third floor; from trough No. 2, which is



Spiral chutes leading to the wagon space and track floor

50 feet in length, also on the first floor, it delivers the mail onto a 44-inch incline belt, which in turn deposits packages onto a horizontal 48-inch belt on the third floor, which acts as feed belt for Primary Separation Unit No. 2, adjoining No. 1, with a tier of belts common to both between.

There are nine belts in Primary Separation Unit No. 1, one feed belt and eight separation belts, the separation belts being 30, 32 and 36 inches wide and parallel to the feed belt. The 48-inch feed belt, which carries mail from trough No. 2, and three more separation belts, make up the twin unit due to the common tier, consisting of four belts, in the middle.

There is another Primary Separation on the fourth floor, also composed of two units. Two Primary Separations, one on the third and one

on the fourth floors, were designed because complete primary separation on one floor of this building was not considered practicable.

The primary separation system on the fourth floor has the same number of belts as the system on the third floor, excepting that the fourth floor system is 60 feet long while the third floor system is 120 feet long. The fourth floor separation is fed from two separation belts, one in each unit, on



Separator unit, showing the main feed belt with distributing belts on each side

the third floor, which serve the double purpose of separation and feed belts.

All belts on the third floor, excepting the two belts which act as feed belts to the fourth floor units, deliver to chutes leading to the second floor, where the parcels are packed and dropped through openings in the floor to ceiling belts on the first floor, which carry the mail to spiral chutes that deliver to the train level. All separation belts on the fourth floor likewise deliver to chutes that deposit the mail on the third floor for sacking, and the sacks are then dropped through the floor to ceiling belts on the second floor, which deliver to spiral chutes that deposit the mail at the first floor, or train level, or sub-basement.

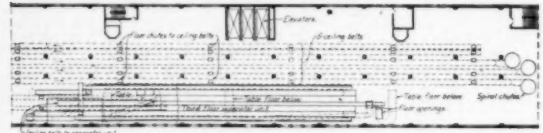
The system on the third floor, which is the most important, accounts for 65% of the primary separation, the separation belts being for those States which receive the most mail.

In each unit of the system a platform extends between the two tiers of belt conveyors, with room for forty men each at the feed belt, with 3 feet of space to each man, and from the feed belt the men pick up packages addressed to various states and throw them onto the various belts for these states. There are canvas flares at the sides of the belts, which prevent packages from dropping on the floor and at the same time deflecting them to belts and breaking their fall.

Located on the third, fourth and fifth floors, as well as on the first and second, there are ceiling belts fed through floor chutes, which carry the sacked mail to the chutes which deliver to the

trains; there are five belts to each floor, each belt 42 inches wide, five-ply, with centers averaging 655 feet, excepting the fifth floor, where the centers are shorter.

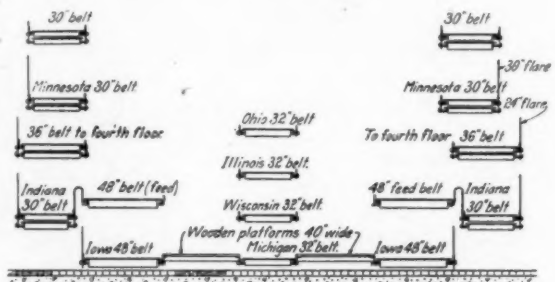
The fifth floor is occupied by the Railway Mail Service for the handling of incoming parcel post that must be re-routed, trade journals, magazines and catalogs. This material is separated by hand, although the sacks go through the floor to ceiling belts on the floor below. Some paper mail is also handled on the sixth floor, being dropped through the floor when sacked for ceiling belts on the fifth floor to distribute. This floor, however,



Part of the third floor, showing the separator unit and the floor chutes and ceiling belts

is principally for the offices, first-aid station, Nixie section, machine shop, rest rooms and cafeteria.

The roof of the building is well adapted to, and it is proposed to have, outdoor rest and recreation rooms on it. The idea is to have that part of the roof devoted to rest and reading rooms roofed over, without side walls, while the rest of the roofing space will be devoted to hand and volley ball, basket ball and indoor baseball floors and varied gymnastic apparatus. It is believed that this innovation will more than pay for itself in the improved health of the employees, with a consequent improved spirit and efficiency.



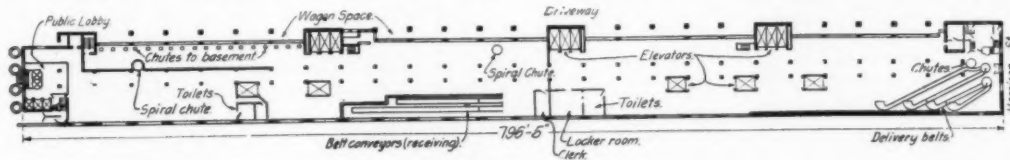
Typical section through one of the separator units

The maximum capacity of the system is 5,000 sacks of parcel post per unit per hour; 10,000 per hour when the twin unit is also in operation, which, estimating 40 pounds to the sack, will equal 100 tons per hour with a single unit, and 200 tons per hour when both units are in operation. With a continuous flow of mail it is possible to handle 100,000 sacks, or 2,000 tons, of parcel post in a 10-hour period, a rate which could be maintained for the 24 hours if men and material were available.

Beginning with 1915, when the parcel post became somewhat steady, the figures for October in each year show that there has been a constant increase in the amount of parcel post received at this office, the figures for October, 1915, showing 7,660.4 tons, and for October, 1922, showing

era in the handling of bulky mail, and its importance and value to the postal service, not only in Chicago, but throughout the nation, can scarcely be overestimated. It is, indeed, an engineering masterpiece.

The interests of the government in this work



Plan of the building at street level

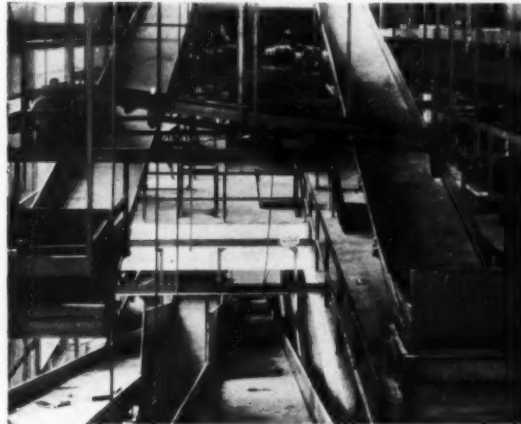
22,308 tons, or, nearly three times as much as that handled in 1915. At the present time, there is handled more than 1000 tons of parcel post and newspapers daily, an amount greater than that handled even during the holiday season in any previous year; allowing an average of 15 tons of parcel post matter to each 60-foot storage car, about 67 railway cars are required daily to handle this volume of mail.

While the capacity of the new system is greatly in excess of the demand that will be made upon it at present, the actual output will be controlled by the number and efficiency of the clerks assigned to the final distribution. Experience with the system at the Quincy Station, which has been in use since May 9, 1921, shows that 1,200 pieces per man per hour is not too much to expect on the peak loads from the distributors on the primary separation. This is an average of approximately 20 pieces per minute per man; but many of the distributors handle 25 to 35, and some even 40, pieces per minute on the peak loads.

The approximate cost of the conveyor system is \$560,000; the total appropriation for the purpose of equipping the building, including the conveyors, with racks, tractors, dump trucks, etc., is \$812,000. The rental for the building is \$500,000 per annum for the first five years, and \$350,000 per annum for the next fifteen years thereafter. Heat and light, which are on a metered system, are not included in this rental.

This building, devoted solely to post office purposes with its elaborate equipment, marks a new

were in charge of the late E. H. Shaughnessy, Second Assistant Postmaster General, and W. H. Riddell, General Superintendent of the Railway Mail Service. Graham, Anderson, Probst and White were architects for the Station Company. The building was constructed by R. C. Wiebold



Conveyor belts from floor to floor with separator unit and distributing belts

& Company under the direction of J. D'Esposito, chief engineer and A. J. Hammond, assistant chief engineer of the Station Company. Acknowledgment is made to *Railway Age*, R. C. Wiebold & Company, and the Lamson Co., for courtesy of use of illustrations.

Radiator Traps

THE members of the National Association of Building Owners and Managers* own and operate practically all of the principal office buildings in this country. The maintenance and operation of the steam plants in these buildings are matters of great importance to them. The efficient and economical operation of these plants is influenced to a great extent by the radiator traps used in connection with the vacuum or vapor systems of steam heating which are usually installed in such buildings. The purchasers of these traps have been compelled to accept the claims of the manufacturers as to performance or the testimony of various users. As the opinions held by users are necessarily based on non-uniform conditions, they had little real value.

Some tests have been made by the Bureau of Standards for some manufacturers but the results were not made public. In order to have a record of performance under uniform conditions the Association induced fifteen manufacturers to agree to have their appliances tested and for them nineteen traps were so tested.

The tests were made under conditions prescribed largely by the Bureau of Standards. They were made at The Lewis Institute, Chicago and conducted by Prof. Julius Wolf, observed and recorded by Messrs. L. Berman and S. Phatakwalla of the Institute staff. The traps were selected from stock by Mr. B. K. Read, Engineer of Committee. The tests determined the amount of water condensed in the radiator and passed through the trap to condensation pots and the amount of steam which passed through the trap and passed from the return pipe through a condenser coil to steam-passed pots. The total amount of water collected both in the condensation pots and in the steam-passed pots (measured in pounds) is evidently equal to the amount of steam received by the radiator (also measured in pounds). The amount of water collected in the condensation pots alone, in proportion to that collected in both sets of pots, the total, is obviously the percentage of steam which the radiator has condensed and which the trap has trapped until so condensed. It is the measure of efficiency of the trap in its duty of trapping steam and is called the condensation ratio.

It is stated clearly that these laboratory tests must be accepted as such and that performance in buildings develops their faculty to operate satisfactorily under working conditions. The presence of dirt, scale, oil and other effects of operating conditions affect the efficiency of the traps. These conditions will be observed by the various users and reported as "experience" to the Committee at a later time.

*Lewis B. Emerling, Executive Secretary, The Edison Building, Chicago, Ill.

The laboratory tests are reported in detail in a recently issued bulletin entitled Radiator Traps. There is an introduction consisting of an explanation of the properties of steam, sensible and latent heat, types of boilers, types of heating systems and radiating units. It concludes with a memorandum of suggestions to operators. The bulletin contains 68 pages and is adequately illustrated. It is of value to those interested in the design and operation of efficient and economically operated steam heating plants.

Color of Slate

WHY Americans always demand a non-fading slate is a problem. Possibly the word "fading" conveys the idea of inferiority. This should not be the case as long as the qualities of durability and structural strength remain constant. It is true that the action of sunlight, snow and rain causes the color of some slates to change. This is to be expected of almost any material which was formed and unexposed to these things for untold ages. The fading or changing of color does not necessarily injure its beauty but rather, in many instances, increases it by destroying the deadly monotony of uniformity.

The Department of the Interior issues the following memorandum concerning the color effects in slate, by Oliver Bowles, mineral technologist of the Bureau of Mines:

Slates differ in color, and some colors are much more in demand than others, the preference being based more on tradition than on artistic taste or actual qualities of the slates. A wider market for colors not now in demand depends, therefore, on the cultivation of public taste. Architects and builders can widen the field of utilization of roofing slate by judicious efforts to popularize new colors or combinations of colors.

Slates are classed as fading or non-fading according to their color stability. The fading of green slates is probably due to the presence of iron carbonate which seems to be present not as pure siderite, but as an isomorphous mixture of the carbonates of iron, lime, magnesium, and possibly manganese. The hydrous iron oxide formed by decomposition of the carbonate through action of certain solvents carried in rain water destroys the green color and causes fading. The black and gray slates usually contain small amounts of such constituents and are therefore nearly permanent in color. Bluish slates commonly turn grayish, and red slates may turn brown. The green slates are the most uncertain; some are practically permanent in color, but others fade and discolor badly.

A moderate and uniform fading may not be detrimental, but may produce a more pleasing effect, though in replacing broken slates it may be difficult or impossible to match the colors. Non-

uniform fading results in spots or streaks and is undesirable. The formation of some spots is due to the weathering of grains of the iron sulphides, pyrite, or marcasite.

Spots and blotches are very objectionable in slates. Many of the red and purple slates contain pale green spots, some bordered with purple. The spots range in size from minute specks to spots 2 inches or more across; some are circular or oval and others are irregular. In places the spots form bands or ribbons.

It appears that the pale green spots in the red and purple slates are due to chemical changes caused by the decay of organisms embedded in the clays from which the slates were formed.

Preventative Sanitation

THE responsibility of architects for the welfare of the occupants of the buildings they design is not always appreciated. Legal requirements are followed cheerfully in most cases and the thought of further obligation is dismissed. But this limitation is not sufficient in some instances—in fact, an architect must keep in close touch with the development of hygiene in order to render complete service to his clients. In a paper read before the Western Society of Engineers January 5, 1923, and printed in the *Journal* of that society, May, 1923, Charles Atwood Kofoid, Ph. D., Sc. D.*, called the attention of engineers to the necessity of certain precautions to be taken when in the field to preserve their own health as well as that of the construction forces under their control. He also went further and spoke of certain requirements for correct sanitation in public places. This phase of the discussion is more applicable to architects than to engineers.

Among other parasitic invasions of the human body he described that of amoebae. The presence of this parasite in the human body results in Hodgkin's disease and a complex of diseases known as arthritis, commonly known as gout or other painful diseases of the joints. It is also responsible for certain forms of dysentery and diarrhea as well as a wide range of chronic ill health. Dr. Kofoid's remarks applicable to architects, follow:

In urban life with all its sanitary conveniences there still exist certain unsanitary aspects of our expensive sanitary installations. One of these is the close proximity of the toilet and the wash bowl. The soiled hand of the infected person, soiled, it may be, by imperfect toilet paper, is cleaned in the wash bowl. Cysts may adhere to its surface and contaminate the lips of subsequent users and thus gain admission to the mouth. The common towel and bath tub may also add to this risk. Clothing soiled with infected faeces carried through the laundry process in the home or at the public laundry without long

enough exposure to temperatures high enough to destroy the cysts, becomes a source of contamination whereby cysts are transferred to handkerchiefs and towels, and thus ultimately to the lips of uninfected persons.

Our systems of sanitation in the home, and especially in all places of public resort should eliminate the spring (self-closing) faucet which hinders the use of running water in washing hands and face. Do away with the standing water in the wash bowl, and substitute the shower bath for the tub. Towels and handkerchiefs should be segregated from underwear in laundries and sufficient heat employed on the latter to insure sterilization.

Thoughtful architects should insist on eliminating the self-closing faucet. Its use is incompatible with decent conditions. The combined hot and cold water fixture is the only one that can be used comfortably under running water conditions. The most insistent client demanding the self-closing faucet is the hotel keeper and above all he should protect his guests from possible infection. This idea is based on the experience of olden days when guests were unused to the lavatory and would forget to shut off the water with a consequent flooding of the room. Today the traveling public is acquainted with the use of sanitary conveniences and the self-closing faucet is as anachronous as the old time sign "Don't blow out the gas."

Building Disaster Responsibility

ARCHITECTS and engineers continually face the possibility of disaster to their work. Even though the plans and specifications are entirely adequate, inefficient supervision with improper construction, change in character of intended occupancy or alterations made after completion, are sources of danger. Even though the utmost care has been taken in producing proper designs, providing good supervision and obtaining a successful completion of the project, a disaster occurs and a suspicion is aroused as to competency to design. Such a thing is deplorable and every effort should be made to fix the responsibility for disaster and as vigorously defend the innocent.

A recent disaster developed some unusual features. The Fuller Brush Company had completed a new factory building, to one side of which was attached a brick tower 28' square and about 113' high above the ground. About 65' above the ground supports were provided for a 50,000 gallon water tank which, when full of water, weighed about 250 tons. On each of these concrete and steel grillage foundations in each corner of the tower at the fifth floor level, was placed the foot of an inclined steel column which supported the tank. The outward thrust of these steel columns was resisted by horizontal channels connecting the columns about 1'-6" above their bases. These channels connected the adjacent columns; no provision was made for diagonal horizontal connections. Eight 1" square diagonal rods connected the tops and bottoms of the adjacent columns. These were upset to 1 1/4"

*Professor of Zoology and Assistant Director of Scripps Institution of Biological Research of the University of California and Consulting Parasitologist of the California Board of Health.

for turnbuckles. The design had been approved as adequate.

After the tower was nearly completed the owners decided to use this fifth story for the instruction of branch managers and assistants. As the horizontal channels and the diagonals interfered with this arrangement, the owners proposed to the architects and engineers that these be removed. The engineers approved the proposal. Twenty-four hours after their removal the tower collapsed, resulting in the death of ten workmen. The coroner has held certain members of the firm of architects and engineers and their superintending engineer criminally liable. The contractors appear to have followed the plans and specifications without deviation and are not in any way responsible.

It is extremely unusual for architects and engineers, apparently, to wreck their own projects. It is easily understood why they should wish to satisfy their clients and to what extent clients will exert pressure to secure approval of foolish requests. No one should enter these professions unless he has judgment and stamina sufficient to resist such requests. Owners generally look upon building regulations as an invasion of their rights and to almost as great an extent they consider good engineering as foolish, inconvenient and extravagant. In this case the owners are not criminally liable. What their conscience may suggest to them we do not know.

Soundproof Rooms

ONE of the chief social objections to multiple dwellings, even to the high grade apartment house of our large city, has been the lack of privacy due to the transmission of sound from floor to floor and from apartment to apartment, says *Housing Betterment*. Methods by which

these defects can be overcome have, therefore, considerable value for persons interested in the improvement of housing conditions.

Some recent experiments in this field carried on by the Western Electric Company in the Bell Telephone Laboratories in New York in order to develop soundproof telephone booths, are of especial interest. To shut out the vibrations which would be transmitted by the floor, the rooms are built on foundations of three alternating layers of one inch thick special all wool felt and sheet iron. It is said that the results achieved have been highly successful and that when first entering one of these booths a person accustomed to the city noises, has the sensation of almost suffocating stillness such as might be experienced in the depths of the woods on the stillest of nights.

The foregoing evidences the fact that the subject of soundproofness is being studied principally by commercial organizations. The conclusions of many of them are widely variant. This is to be expected, especially those of manufacturers. With the several properly equipped laboratories available in this country, it should be possible to determine the methods of construction best adapted to overcoming sound transference. A great deal of valid data is at hand and more can be secured. The problem is how to evaluate and co-ordinate it and apply it in a practical, workable and economical way to building construction.

This entire matter can only be handled satisfactorily by a committee of persons not interested in manufactured products but which would seek and accept the co-operation of those interests. No suggestion is made at this time as to the constitution of such a committee. That such a thing should be done must be apparent. With the tremendous improvements made in building construction, this matter of sound prevention and control has made the least progress.

REVIEW of RECENT ARCHITECTURAL MAGAZINES

BY EGERTON SWARTWOUT, F.A.I.A.

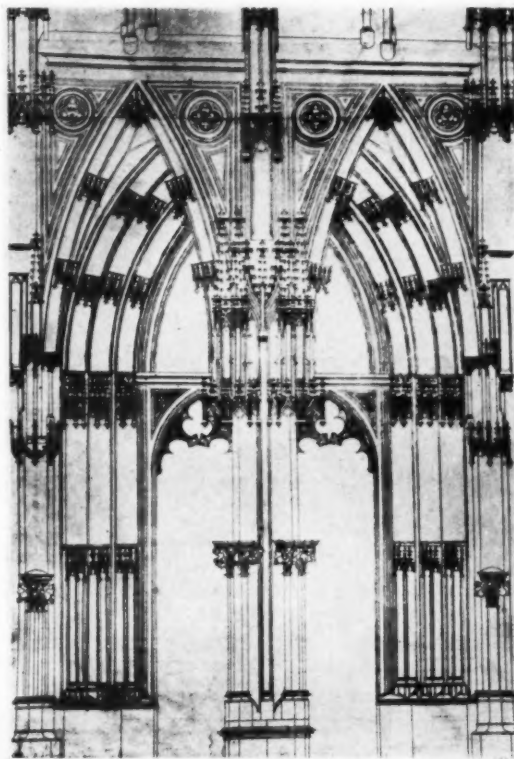
THERE has been a good deal of comment in the English Architectural papers lately on the subject of competitions. There always is a good deal of comment everywhere on that subject, and I suppose there always will be, as upon any subject on which no two people ever seem to agree. The provocative case at this time is the abandonment by the Manchester War Memorial Committee of a competition for a proposed War Memorial because the commission on the one hand and the assessor on the other could not agree as to the right of final decision. The assessor, Mr. Worthington, backed by the Royal Institute of British Architects and the Society of Architects contends that the assessor's award is final; the Commission exhibits a certain restiveness at this condition, and feels that since it pays the piper it should be allowed to call the tune, all this being well brought out in an editorial in the *Architects' Journal*, London, of July 11th, from which I quote the following:

"Competitions, from the architects' point of view, are a very doubtful blessing; some, indeed, regard them as an unmitigated evil. That they are extremely wasteful of time, talent, and money is generally conceded. The disadvantages of the system are wholly felt by architects; the benefits entirely by promoters, who frequently have the advantage of the ideas of a hundred or more architects, of whom only three receive any sort of financial recognition. This is admittedly a grievance, but one that competitors must be content to endure, since they are under no obligation to enter a contest, and mostly do so in the sporting spirit of the man who tries his luck on the Derby. Little can really be said, from the architects' point of view, in favour of competitions. Their one virtue of giving unknown men a chance of proving their mettle under conditions that favour nobody cannot, however, be denied, and for this reason alone the system should be perpetuated. If it had done no more than discover Harvey Lonsdale Elmes it would still be entitled to our respect. An evil, perhaps; but a necessary, occasionally a benign

evil. The question of the assessment of competitions, however, sometimes provides a real grievance. Occasionally a wrong assessor is appointed, as is only to be expected in this very imperfect world, and in this event there can be little satisfaction for either competitors or promoters. In the case of the Manchester competition this complication was, of course, entirely absent, for Mr. Worthington's taste, ability, and fairness command universal respect. Hence the bewilderment that everybody feels at the abandonment of the competitions."

Now, the question at issue in this case is not the old, the very dead question, as to whether there

From "The Architectural Review," London



The High Porch of Regensburg Cathedral—
Late XV Century



Residence of James A. Burden, Esq., Syosset, L. I.
Delano & Aldrich, Architects

shall be competitions at all, but the very vital question as to the method of decision. If John Smith is going to build a house for himself he naturally expects to select the architect and to tell that architect what kind of a house he wants, just as he expects to select the material for his clothes and have something to say as to their fit and cut. Cer-

tainly this expectation of his is a natural one. He has to live in the house and he has to wear the clothes. Just so a commission who are acting for a municipality, a State or a nation. Theirs is a responsibility much greater than that of the individual, for they represent many who are the owners, and they are dealing with matters of much

From "The Architectural Record"

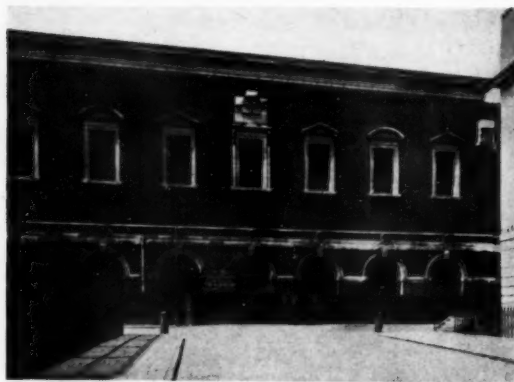


Residence of James A. Burden, Esq., Syosset, L. I.
Delano & Aldrich, Architects

more importance than a house or a suit of clothes. Their success as a commission depends upon the architectural value of the operation they control, its fitness for its purpose and its proper and economic construction. They are the ones upon whose shoulders will fall the blame if the thing is a failure. They are the ones to whom their constituents look, and they have to live in the locality the rest of their lives. And bearing this responsibility a certain restiveness is natural when they are told that the selection of the design and the architect are matters beyond their control, and they must abide without question the decision of one man, the assessor, who is not a member of their commission and is perhaps foreign to their locality and unsympathetic to their ideas. Then, too, there is the point of delegation of authority. Have they the power to delegate this right of final decision to others? In this country it is generally conceded they have not. In fact, such dele-

gation of authority is often made illegal. Where then, is the way out? In this country there have been attempted solutions, first by a sort of gentleman's agreement between the commission and a jury of architects that the commission will accept the decision of the jury unless there should appear good and sufficient reasons against it, and in such case the commission agree to reduce their objections to writing and put on record their reasons for disagreement; and second, the formation of a mixed jury composed of the commission and one, or preferably more professional architects, who shall arrive at a conclusion by majority vote, the members of the commission naturally forming the majority. Both these schemes have met with general success. I don't know of an instance in which the commission has failed to approve the decision of the jury; such cases may exist but they are rare. If a jury has been appointed partly by vote of the competitors themselves, and partly by the commission, and all the proceedings are under the auspices of the Institute, or in accordance with its established practice, few commissions are willing to accept the responsibility of overthrowing the decision of that jury. They may not secretly approve of it, but they accept it, and generally, by the same token, the scheme also. In the case of a mixed jury the results are generally good.

From "The Architects' Journal," London



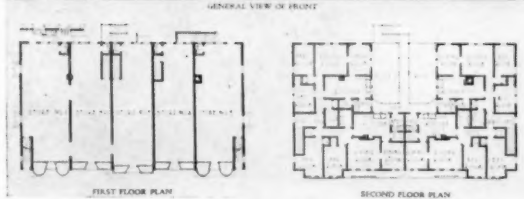
Headquarters of Theosophical Society, London
Sir Edward L. Lutyens, R. A., Architect

I have been a competitor in a number of competitions under this method and have never had occasion to be dissatisfied with the decision, and I have served as a member of several mixed juries in whose proceedings the opinions and ideas of the laymen were rational and constructive. In such a jury it is natural that among the laymen there is at first a lack of understanding of the drawings, but a careful explanation by the professional members soon dispels that, and I have often found that laymen, being without prejudice,

are apt to grasp the big essential features of a scheme better than a professional who is often unduly influenced by small details of presentation and preconceived ideas of design.

It is difficult to suggest any ideal solution; in fact there is no ideal solution, but there are some things which may be disposed of with a certain

From "The Architectural Forum"

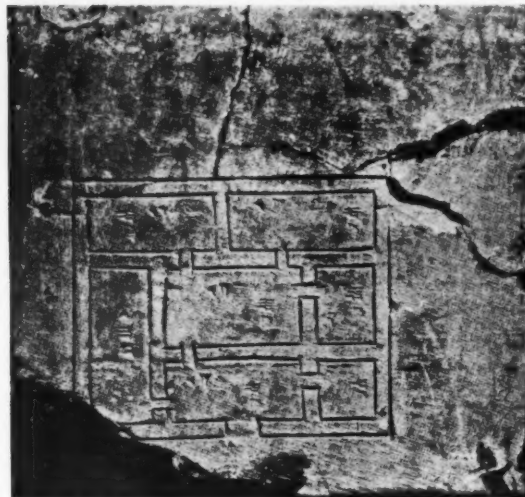


Shop and Apartment Building, Falmouth, Mass.
Hutchins & French, Architects

degree of finality. In the first place the commission should at the outset secure a competent professional advisor. I am now, of course, discussing a competition for an important work. This professional advisor should be a man of wide experience, with an intimate knowledge of monumental architecture and a thorough acquaintance with the conduct of competitions. He should be in sympathy with the commission, with the project and with competitions in general. There is more individual responsibility upon him than upon any member of the commission or any competitor. Unfortunately, such a man is hard to find, and he seldom is found. But he can be found, and his selection is the most important thing the commission had to do. It is the duty of this advisor to study the problem, adjust the divergent views of the commission and advise them as to the prob-

able cost. Generally a competition is held for a building for a specific purpose and generally there is a definite sum of money at the disposal of the committee. If, in the opinion of the advisor, this sum is not sufficient he should place this condition squarely before the commission, supporting his arguments with definite statements as to prices from reliable contractors. He should in no instance shirk his responsibility and set such a low cubic foot price that the successful architect can never hope to complete his scheme within the limits of the appropriation. Unfortunately this is a condition which often exists. The advisor takes the easiest way out, with a feeling of "let George do it," and the unfortunate George, the receiver of the buck, the successful competitor, has, colloquially, a hell of a time, and so incidentally has the commission. And again if the competition is held for a building which has a specific purpose, the absolute requirements must be laid down in hard and fast terms. If it is considered an absolute essential that a hall should seat four thousand

From "The Architectural Review," London



A Plan of a Babylonian House
Size of original, 11.3 x 12 cm.

people, it is idle to say it in those words in the program. It's too vague, and no two competitors will use the same dimensions. The area of the room must be given, and the size checked by the jury, or else the width of aisles, the back to back dimensions and the width of the individual seating and the stage or platform sizes given, and these must be checked, otherwise one competitor may come through with a corking scheme just inside the cube which, when built, will not give the needed accommodations. Generally in a competition for a specific scheme the more detailed and

positive instructions the better, provided of course these instructions are for essentials and are intelligently given. It is often said that a tight program kills the imagination and produces a type. This statement is rot. On the contrary, a tight program provides a definite basis, a starting point. Each competitor knows everybody else is working from the same information, and that every hall has to seat four thousand, and he starts with confidence to solve the problem. And the same thing applies to methods of indication. It

From "The Architectural Record"



Residence of Otto H. Kahn, Esq., Cold Spring Harbor,
L. I.
Delano & Aldrich, Architects

is idle to say that the drawings can be either in ink or in pencil on tracing paper. Everybody then does it in ink. Personally I would carry it much further. I would say, and I have said, that the windows in this building are real windows and, as the building is probably of light stone or marble, they will count in reality as dark holes and they must not be disguised with marble grilles or rendered out, and the professional advisor reserves the right to use a little charcoal on any window that seems to need it. If these things are clearly and firmly said in the program nobody objects, nobody could object, for they all tend to fairness and to put all on the same level, and the

best design will then clearly show, and the issue will not be obscured by tricks of rendering. And the rendering should be made simple by obligatory clauses. An elaborate rendering is not necessary, nor is a black background; and the permission of extreme elaboration gives an unfair advantage to the few offices who have skillful draughtsmen or to those who get the prior claim on the services of the professional renderer. Such things as large scale rendered details are ridiculous, unnecessary, and put an undesired premium upon mere draughtsmanship. And the scale of the drawings should be small. Sixteenth scale is big enough for any elevation and for a large building one thirty-second is enough for the plans.

Another thing in favor of a tight program is the ultimate value of the competition. It has been said often enough that a competition is only for the selection of an architect, a quaint little fallacy which still persists. It is on the contrary the selection of a scheme, as well as an architect. I know of no instance in an important competition in which there has been a radical departure from the competition scheme. It is restudied, possibly reduced on account of expense, to be sure, but it is always the same scheme, and this being so the program should state definitely the requirements and not be so clothed in ambiguity that the theme of a telephone book would seem clear beside it. It has been said often that one of the advantages of a competition is that it gives the owner a number of schemes from which to select the best, but what avails that opportunity if most of the schemes are impossible of selection? And such ambiguity places a very heavy burden on the jury. If no two schemes are based on the same idea, how can they decide which is best? How can anyone decide which is the best building, Notre Dame or the Parthenon?

As to the jury, a large jury is better than a small one, and a small one is better than the English system of one assessor. The decision is not a matter of fact as would be the answer to a question in mathematics, nor is it a matter of law, as a case before a judge. It is a matter of taste, judgment and common sense. The jury must be governed by two things—the program and the drawings submitted. Personally, I think the decision should not be made at the site. The professional advisor should so describe the local conditions that anyone from the program, which should be illustrated by photographs, could get an accurate idea of those conditions. Most of the competitors do not visit the site. Granted that they ought to, this is often impossible in a large competition, particularly an open one. If, then, the jury makes the decision on the ground and it is not obligatory for all the competitors to go there, the jury is apt to be influenced by some fancied local condition of which the competitors

know nothing. It is unfair. The program should be enough, and the program should govern. It seems to me in some ways comparable to a court of law. Nothing can be considered that is not evidence, nothing that is not in the program. And along that line it is much better that the professional adviser be not present at the judgment, otherwise he may be inclined to emphasize some point he has forgotten to put in the program. Such things have happened. To my mind the ideal jury is a triple jury; three separate juries of three each, making their judgments on different days or, in any case, entirely separate. After these separate judgments are made they should meet and, if it happens they agree, which they would not six times out of ten, then they can argue the matter out and decide by majority vote. It is a rather cumbersome method to be sure, and expensive, but I am convinced it's the best. A jury of three may have one dominant personality; the effect of that would be lost in three separate juries, and again any jury is apt to decide one

From "The Architectural Forum"



View of LaRoquette from Approach to the Town

way, on one day, and quite the opposite on the next. Such a large jury would do away with the danger of the competitors playing up to the jury, which they all generally do, and quite naturally. If, for instance, it is known that Mr. Goodhue is a member of a jury for a church, the designs will all be Gothic and most of them an attempt at that free expression of the style that Mr. Goodhue is fond of; if, on the contrary, Henry Bacon is on the jury it would be, as Mr. Potash says, something else again. This all is considered highly immoral by some, and to prevent it the names of a small jury are not given out until a few days before the drawings render. This is a mistake, an injustice if there is a small jury. It simply means that half of the submissions are hopelessly out of it from the start, if it happens that the jury or a substantial part of it are stylists. This condition could hardly happen in a

large jury and never in a mixed jury, nor would it happen to a great extent if there was a tight program. In other words, anything that tends to put all the competitors on an equal footing is good, and anything that is ambiguous is not. People have queer ideas of fairness. I remember a competition some years ago in which most of the competitors had a very definite idea of the character of the scheme required. It had been talked of pretty generally in the institution that the building would be a parallelogram around a closed court, but just before the program was issued the local authorities frowned on that scheme, and it was proposed to say this definitely in the program. Oh, no, said some, that would not be fair. Give no information. It would stunt the imagination of the competitors. So nearly three quarters of the schemes presented had a closed court and were promptly thrown out. It's a queer idea of fairness. In the same way, if a committee wants a Gothic church let them say so frankly; it's fairer to themselves as well as to the competitors, for they are sure then of getting ten schemes from which to choose instead of three Gothic schemes and seven Colonial ones.

To show what might happen to a War Memorial where no competition for it is held, here is a neat, new bas relief for Leeds University, the result, we are assured, of the method of direct selection.

From "The Architects' Journal," London



Leeds University War Memorial
Christ driving the Money Changers out of the Temple
Eric Gill, Sculptor

In *Architecture*, London, for July, there is added to their list of distinguished contributors Mr. G. K. Chesterton who writes on the Impossible Cathedral, regretting that no one ever builds a real Gothic Cathedral nowadays and says

"Nobody supposes that the modern world is incapable of producing anybody who can really carve saints in niches or gargoyles on roofs. Yet we have no gargoyles on our roofs and very few saints anywhere. Nobody supposes we are actually without the technical talent that could produce a lively devil to dance for us. Yet we look over the walls of all our public buildings, and have to lament a deplorable absence of devils. In short, when I say Gothic I mean the fulness of Gothic, the freedom, the fantasy and the caricature. It is well known that the sculptors of the old churches were

often satirists even of their own employers, as well as of the abuses of the age; and would present pleasing pictures of bishops with the heads of asses or foxes, abbots agreeably tormented by demons, or generally of hypocrites going down to hell. If we lack these things, it is not so much, I fancy, because we have no hypocrites to go to hell, as because we have no hell for them to go to. But it is pleasing to think how much might be done with the modern patrons of public buildings, the modern employers of labour, or the modern moralists and preachers of various philosophies, if only this defect and difficulty could be overcome. For it must be confessed that this defect is the difficulty. In however detached and secular a spirit we approach the problem, it remains true that the architectural system, rested on an intellectual system. Indeed the intellectual system was itself very architectural. It had a great affinity to architecture in its love of balance and of series. This architectural spirit marked the mediæval mind, even when it was not dealing with religious classifications like the Seven Sacraments of the Seven Deadly Sins. It was apparent in its secular humors, as when it talked of the Nine Worthies or the Seven Wonders of the World. The difficulty therefore is not only the absence of well distributed individual craftsmanship, but also of well-defined philosophical classification. It would be interesting to speculate on whether a new sort of cathedral could really be built in the modern world, if ever there really was a modern philosophy. It would be great fun to sketch out a fanciful scheme of such a symbolic edifice, flanked with allegorical statues of Eugenics and Psycho-Analysis, with complexes flung forth from the walls instead of demons, and angels rejoicing over a birth-control instead of a birth. Whatever form of mediæval extravagance it might exhibit, I fear the building would fall short in the quality of humour."

There is an editorial in the same paper which starts off by calling attention to the improved condition of Hyde Park corner, now that St. George's Hospital is painted, and goes on to comment on the distressing effect of the blackened London stone, and that it might be better to paint it all, and so on. Now, I find myself usually in entire accord with Mr. Barman, but I sincerely regret this point of view. To me those blackened buildings of Portland Stone were always singularly attractive, and when I've seen people painting them, as unfortunately they do, I consider it rank vandalism. It's a question, of course, what material is best in the grime of a modern city; stone blackens and marble grows dirty; brick is better, but buildings can't be all brick; glazed terra cotta had its advocates, but to my way of thinking it is worst of the lot for it dirties up soon enough and with the glaze underneath its appearance is no better than a dirty tea cup. I'm inclined to think granite has a more respectable appearance when dirty than any other stone, for example, the University Club here in New York and some of the older buildings in St. Louis and Chicago. They are blackened, especially the latter, but they seem to have gained an air of permanency and dignity that they lacked when new. Let us hope they will never be cleaned, and as for painting them, God forbid!



Cypress Arcade, Garden of Murillo, Seville, Spain

(From the photography by Francis Howard)

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DEPARTMENT of ECONOMICS

Economic Factors Which Underlie Construction Activity—Prepared for THE AMERICAN ARCHITECT by the American Chamber of Economics, Incorporated*

NOW that the building and construction industry has statistical records of the extent of the recession in the industry's volume of new business, some architects are beginning to wonder if the present rate of decline presages a collapse. Having achieved what they, as an organized body, set out in May to accomplish, they stare, a little apprehensively, at the result.

Their feeling undoubtedly is a part of the general wave of restlessness and uncertainty, which, during the past two months, has swept the whole industrial field. Happily, the time draws nearer when we may expect more speculative support to stock prices, and men accustomed to governing the flow of their optimism by the trend of the averages will at least see their index within the control of more reliable forces. Marked irregularity and the absence of any definite direction in the course of stock prices never make for the purest kind of confidence. Developments in the next two months should hint more accurately as to the direction in which the list is headed.

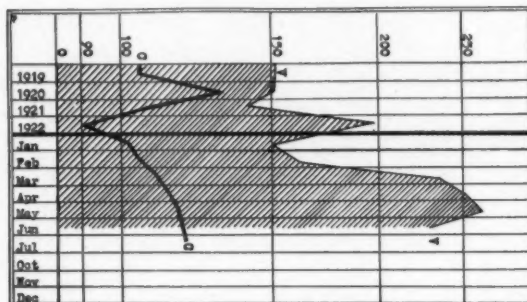
Production and the volume of manufacture, meanwhile, are completing the readjustment begun in April. Cancellations have not been general, nor have they appeared in large volume. Production programs have been altered, but not drastically cut; and inventories are not generally heavy. Commodity prices seem to indicate that they will work fractionally lower, but Autumn buying should establish some resistance against these

declines. The indications are that general business will tend toward stabilization at levels sufficiently high to warrant a reasonable profit and a comfortable turnover of merchandise. Commercial money rates are relatively easy, and favorable to such a movement. Money is in good supply, and the basic strength of the nation's credit mechanism makes the fear of a pronounced slump seem most unreasonable and foolish.

Similar economic trends shape a future of stabilization at relatively high levels for the building industry. Conservative observers expect the volume of contracts awarded to continue their recession, tempered, of course, with the usual seasonal variations. They feel, however, that in spite of these influences a heavy volume of construction will continue throughout the year, and may very probably project itself well into 1924.

The most prodigious single factor on the demand side, and a fortification against any abrupt depression, is the building shortage, which was permitted to accumulate between 1913 and 1921. The proportions of this deficit cannot be determined accurately, but conservative opinion concedes that it is substantial. Besides, projects deferred during the last two months make up no mean volume of demand in themselves. Lower costs should bring these jobs again on the market. Furthermore, the normal need for new building, which always attends the conservative progress of industry, is another guard against a slump in new business. The earning power of industrial and commercial enterprises, even during this period when so many delight in pessimism, is gratifying, and ample to finance all of industry's reasonable wants including the necessities for conservative expansion. Individual buying power, although spotted and irregular when the income of various groups is considered, is slowly increas-

Late Trends in Building Volume and Building Costs



The underlying trend of the volume curve (V) is moderately downward, although a temporary or a reactionary movement may be expected during the Autumn months. An abrupt decline, amounting to a collapse, is not in prospect. The indications are that for the remainder of the year the volume curve will remain in relatively high territory. The cost of curve (C) is likely to remain high for some time yet, although its course is perceptibly flattening. Its outlook is not favorable to an immediate recession. During 1919-1922 these curves represent only average months while in 1923 they portray actual achievements. They are not corrected for secular trend nor seasonal variation, and in each instance 1918 equals 100. The volume curve is based upon the F. W. Dodge reports, and the cost curve upon the construction cost index published by the Engineering News-Record.

*The American Chamber of Economics conducts a consultation and educational service for executives, in economic principles. Its Supervising Director is George E. Roberts, Vice President of the National Bank of New York. Co-operating with the Chamber are James B. Porgan, Chairman of the Board of First National Bank, Chicago; Frank A. Vanderlip, Financier and Economist, New York; Samuel Insull, President, Commonwealth Edison Company, Chicago; Joseph H. Defrees, Ex-President, United States Chamber of Commerce; Henry S. Pritchett, President Carnegie Foundation; Edward J. Nally, Managing Director, International Relations, Radio Corporation of America.



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ing and tending toward a more equitable balance between its various classifications. Individuals generally are in a better financial position to buy expensive houses than they were last year, and they certainly are in a position to donate more toward the erection of clubs, halls, memorials, churches and schools. Finally, with rents where they are, the speculator and the investment builder will find the impetus to build increasing as costs tend downward and as the construction industry displays further signs of realignment at lower levels.

June's 13 per cent decline from the year's probable peak has come about as the direct result of early exhortations to wariness, rapidly rising costs, and the usual seasonal influences. This lull in the number of contracts awarded has been common to all parts of the country, and marks the initial step in the long overdue readjustment of building volume and demand to the producing capacity of the industry and of building costs to the earning power of individuals and enterprises. The underlying strength of the industry is sufficient to guard against severe breaks, and moderate recessions of both volume and costs should be accepted as indicative of a remedy necessary to the industry's complete health. Architects should not change their advice to clients now about the postponement of jobs until the late Autumn or the Spring of 1924. What they have sought to accomplish by such advice has only just begun and has not been completed.

Buoyant wages and their tendency to equalize in various centers over the country have slightly exceeded the recent reductions in materials prices, and building costs have continued to advance moderately. The rate of accretion is diminishing perceptibly, and the curve of costs is flattening.

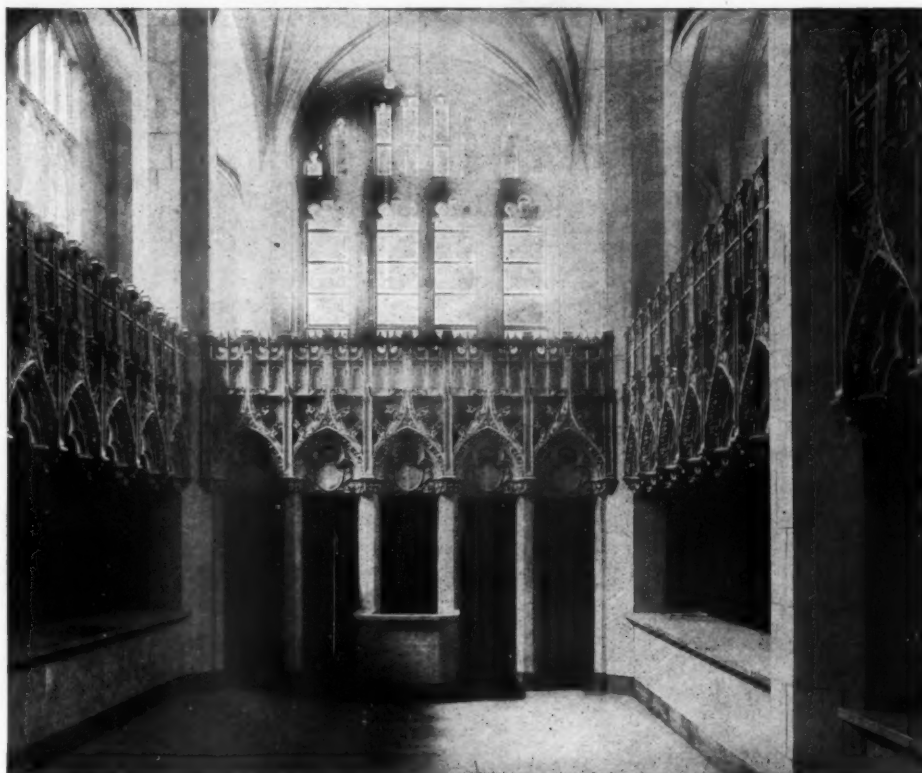
According to the Bureau of Labor, the decline in materials prices since their peak (April, 1923) has been about 5 per cent. A break in quotations is improbable, but the declining volume of building plus any moderate recession in commodity prices suggest that quotations may drift fractionally lower. Materials prices usually move in a general way with other commodity values, and above or below them, depending upon the influence of shortages and surpluses, but especially upon the trend of the volume of building. Railroad and shipping conditions are playing a very small part in the materials markets now. The situation has greatly improved, although in some quarters doubt is expressed as to prompt deliveries in the event of a heavy crop and coal movement.

Lumber has been the weakest of the major classifications of the materials market. The lull in building and the improvement in the railroad situation are largely responsible. Production and shipments, according to the National Lumber Manufacturer's Association, are slightly above

normal, while new business is running behind. Further heavy declines are not in prospect, but buying support of a positive character has yet to manifest itself. Steel prices have likewise tended downward, although for the past month quotations have been relatively steady in a quiet market. Mill operations are reported to be about 85 per cent of capacity, contrasted with 94 per cent two months ago. Fabricating shops are said to have 90 days of work on their books, but premiums for immediate delivery have disappeared, and labor conditions are reported to be more favorable. Cement prices have been steady and unchanged for the past three months. Production and shipments have been at record levels, and stocks have fallen unusually low for this time of year. Reserves are small, and a scarcity is not a remote probability. Demand is heavy and the mills are reluctant to take on much immediate business. The market's undertone is firm and steady. Brick occupies a position similar to cement. Owing to low stocks and higher labor costs, there have been advances in brick prices in many centers. Fortunately, orders are reported to be decreasing by the Common Brick Manufacturer's Association, and with no slack in production apparent severe shortages may be avoided. The market is firm.

The labor situation has changed only slightly. The readjustment now in progress in general industry has released many men, but these have been employed by industries struggling along with a deficiency of workmen. The shortage, then, isn't as menacing as it formerly was, but employment is still full, and supply hasn't sufficiently exceeded demand to threaten the forcing of wages to lower levels. With general industry moving toward stabilization at relatively high levels, it is hardly probable that the supply of workmen in the building trades will be augmented greatly from the general field of industry. If the present readjustment amounts to a depression and unemployment increases, wages very likely will decline, but such an event seems hardly probable now. The poor supply of labor is attributed to the failure of the old apprentice system, the restricted immigration law, the appeal of new industries offering less seasonal work the qualifications for which are similar to those of the building industry, and finally, the fact that during the war the long lull in building forced men to learn new trades. Permanently high wages in other fields have made them reluctant to return. Barring industrial depression and the modification of the present immigration law, there is little immediate hope of an increase in the supply of labor sufficient to force wages in the building trades to seek a more equitable relationship with wages in other trades. And there is little prospect of a proximate recession in the labor cost of construction.

This important change, however, has taken



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place. Contractors are no longer bidding against each other for men, and wage increases that come in the future must grow out of the aggressiveness of labor itself. Public opinion, furthermore, is not favorable to an increase in wages at this time. Then, too, the lull in the demand for building itself will have a sobering effect upon the union man, and will render the situation less susceptible to exploitation. Finally, the downward trend of commodity prices should reflect itself soon in the cost of living, and that should be conducive to the exercise of saner thought and judgment on the part of the man asked to vote in favor of a strike. Sporadic strikes there will be, of course, but the trend of immediate events is against the employe and in favor of the employer.

The cost of mortgage money has undergone no appreciable change during the past month. Rates are still high, and, with costs of building and prices of real estate unadjusted and at about their previous levels, bankers are no more enthusiastic

about lending money to finance high priced construction than they were in May or June. Mortgage money rules between 6 and 7 per cent. While rates aren't prohibitive, construction loans are not attractive, and the lender is continually asking himself what the value of the equity will be when prices of building and real estate turn downward from their present peak. Consequently, bankers scrutinize risks very critically, and by increasing the moderation of their advances they force the owner to provide increased security and to finance a greater part of the job himself.

This is likely to be the procedure as long as building volume and the demand for construction is out of balance with the productive capacity of the industry, and as long as building costs are inequitably related to the earning power of individuals and enterprises. A greater supply of mortgage money and easier rates will attend the correction of these maladjustments.

BOOK NOTES

Foundations, Abutments and Footings*

THIS book is the first of a series of six volumes, two of which have been published, to cover thoroughly the design and construction of the principal kinds and types of modern civil engineering structures. It is intended to give such a complete treatment of the elementary theory that the books may also be used for home study. Each volume is a unit in itself, as references are not made from one volume to another.

The subject of this first volume is most important and one which has quite a limited literature. The book is readable and usable. It is made up of eight sections treating of soil investigation; excavation; foundations in general, wells or pits, cofferdams, open caissons, pneumatic caissons, caisson details, timber, concrete and sheet piles; spread footings; underpinning; foundations requiring special consideration; bridge piers and abutments; legal provisions regarding foundations and footings. There are also two appendices. It can be seen that the field is quite thoroughly covered.

The subject of footings for buildings is one of the most valuable sections of the book for the use of architects. The same may be said of some portions of the section on foundations. The portion of the volume applicable to building construction

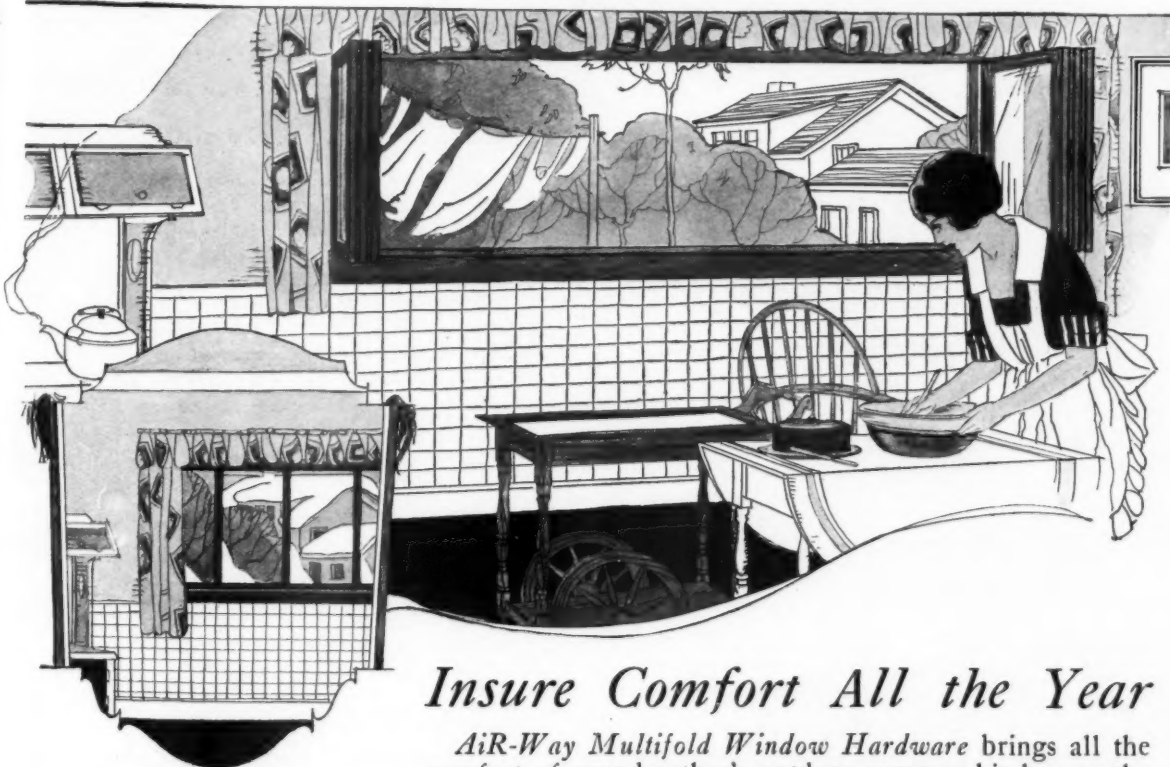
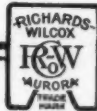
constitutes a valuable addition to an architectural library.

It is unfortunate that the subject of open caissons, such as are used in the Chicago district, is not more fully discussed. Another important item of foundation construction in that city is the deep trench which is usually made to a depth of 40 to 50 feet below grade and in which the exterior foundation walls are built, after which the various basements are excavated. It is frequently the case that the cost of caissons, foundation walls and excavation constitutes one-third of the entire cost of the building.

It seems strange that the writers of books on foundations neglect to have some practical sections written by experienced digger foremen and superintendents, commonly known as "ground hogs." These men can tell how actually to lay out, start and carry on the job. Theoretical design does not mean much to them and angles of repose are not of moment, but they can describe the rigging of bulkheads, lagging, drums and braces; the indications of shifting or moving soil; the sounds of cribbing being distorted by pressure, and other signs of danger. The real execution of the work is of great importance from the cost standpoint and it is strange that all authors overlook the practical digger and the fine technique of actual execution.

This book, however, compares most favorably with others and is evidently more comprehensive than any treating of the subjects included in its title. It and the subsequent volumes should find a place in every architect's and structural engineer's library.

Foundations, Abutments and Footings. Editors-in-chief: George A. Hool, Professor of Structural Engineering, University of Wisconsin, and W. S. Kinne, Professor of Structural Engineering, University of Wisconsin, assisted by a staff of 17 specialists. 413 pages, 6 x 9, fully illustrated. McGraw-Hill Book Co., New York City. Price \$4.00.



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Publishers, THE AMERICAN ARCHITECT AND THE ARCHITECTURAL REVIEW.

OUTLINE OF FIRST DRAFT OF TENTATIVE SPECIFICATIONS FOR MECHANICAL DRAFT SYSTEM

(The form of this Bulletin conforms to the arrangement of Elements of a Specification as given in Bulletin No. 5, ANALYSIS OF A SPECIFICATION.)

I. CONTRACT AND LEGAL

1. Parties:
2. Drawings:
3. Agreement:
4. Terms of Payment:
5. General Conditions:
6. Regulations and codes:
7. Standards:
8. Patents:

II. ECONOMICS

SCOPE OF CONTRACT:

9. Work Included:
10. Work Not Included:

METHODS OF ANALYSIS AND COMPARISON OF BIDS:

11. Methods:
12. Basis:
13. Form of Bids:
14. Conditional Payments:

III. GENERAL DESCRIPTIVE

CHARACTERISTICS AND SERVICE CONDITIONS:

15. Location:
16. Railroad Siding:
17. Visiting Site:
18. Working Facilities:

IV. PRELIMINARY PREPARATION

19. Field Measurements:

20. Shop Drawings:
21. Samples:
22. Models:

V. MATERIALS

23. Properties, Chemical and Physical:
24. Sizes, Weights, Gauges:
25. Quantities:

VI. DESIGN AND CONSTRUCTION

26. Design of System:

SHOP WORK:

27. Forced Blast Blowers:
28. Engines:
29. Electric Motors:
30. Regulators:

FIELD WORK:

31. Foundations:
32. Ducts, Etc. (Mechanical System):
33. Connections:
34. Hangers:
35. Bends:
36. Access Doors:
37. Steam Connections:
38. Finish:
39. Protection of Work:

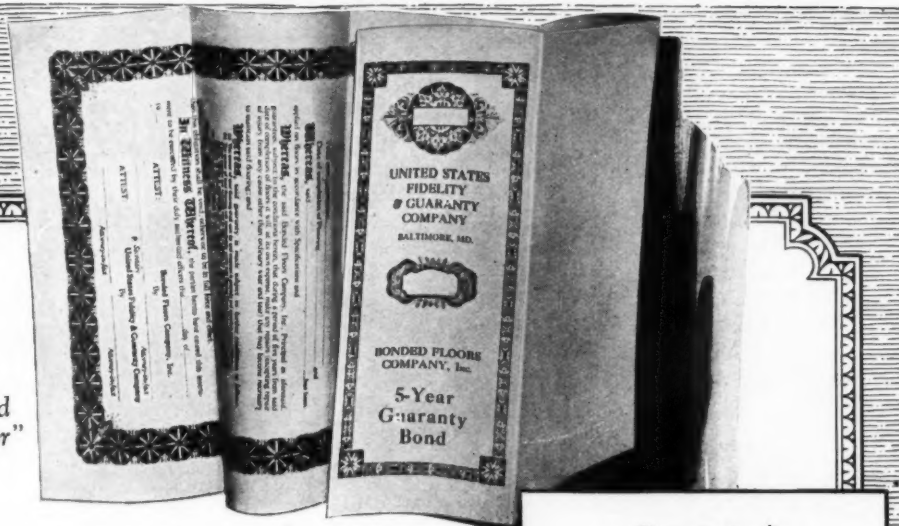
VII. SCHEDULES

40. Shop Production:
41. Field Operation:
42. Shipment and Delivery:

VIII. RESULTS

43. Inspection and Performance:
44. Guarantees:
45. Tests:
46. Approval or Rejection:

"A surety bond
with every floor"



The Guaranty Clause in your linoleum specification—

THE one-year guaranty generally written into building specifications is adequate, no doubt, for general construction work. But it isn't adequate for battleship linoleum floors.

Experience proves that even a very inferior battleship linoleum floor will go through the first year of service without defects becoming apparent. It's later years that tell the story of poor materials and workmanship.

A specification, however carefully it is prepared, cannot in itself prevent substitution of inferior materials or faulty installation by an unscrupulous contractor.

There is one absolutely sure way, however, to safeguard your clients' flooring investment. That is to stipulate in your specification that the contractor shall furnish a 5-year Guaranty Bond for the full amount of the contract.

Any reputable flooring contractor will agree that you are fully justified in demanding this assurance of quality in the battleship linoleum floors he installs. If he objects—look out!

Guarantee*

"The Linoleum Contractor shall guarantee his work to the Owner or General Contractor, as directed by the Architect, against defects of material or workmanship for a period of five years from date of acceptance by the Architect, and shall, on receipt of written notice from the Owner, make—at his own expense—any repairs that may be necessary, except repairs of injury from any cause other than ordinary wear and tear, and shall furnish a surety bond in the full amount of the contract covering the performance of this guarantee."

*(From our linoleum specification.)

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All our battleship linoleum floors are Gold-Seal Battleship Linoleum, guaranteed satisfactory by the manufacturer.

As the largest concern in the country specializing in the installation of resilient floors, we are vitally interested in the service rendered by all floors of this type, whether installed by us or not.

Our flooring engineers will gladly give you the benefit of their wide experience in the solution of any troublesome flooring problems. This service involves no obligation whatever. Write or telephone our nearest office.

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PERSONALS

A. H. O'Brien, architectural engineer, announces the removal of his office to 1210 March-Strong Building, Los Angeles, Cal.

Leonard Willeke, architect, has moved his office from 39 Moss Avenue to 1,100 Berkshire Road (Grosse Pointe Park), Detroit, Mich.

The John Morrell Architectural Company, architects, have moved their offices from Clinton, Iowa, and Sterling, Ill., to De Kalb, Ill., and Chicago, Ill.

Clarence L. Jay, architect, has opened an office in the Braley Building, Raymond Avenue, South of Colorado Street, Pasadena, Cal., for the practice of his profession.

Russell F. Whitehead, architect, has moved his office from 132 Madison Avenue to 150 East Sixty-First Street, New York. Manufacturers' literature is requested.

George Nordham, architect, A. I. A., announces that he has enlarged his architectural offices in the Astor Court Building, 18 West Thirty-fourth Street, New York City.

Charles S. Keefe, architect, announces the removal of his office from 331 Madison Avenue to the new Park-Lexington Building at 247 Park Avenue, New York City.

Harry Silverstein, architect, announces that his office for the practice of architecture, has been removed from 188 Montague Street to 574 Jefferson Avenue, Brooklyn, N. Y.

Hare & Hare, landscape architects and city planners, announce the removal of their offices to Suite 712-15 Huntzinger Building, 114 West Tenth Street, Kansas City, Mo.

It is announced that C. E. Garnett has opened an office for the practice of architecture at 186 South Beach Street, Daytona, Fla. Manufacturers are requested to send catalogs and samples.

Oswald C. Hering, architect, announces a change in the street number of the Waldorf Building, on the roof of which are his offices. The number has been changed from 8 to 10 West Thirty-third Street, New York City.

It is announced that Samuel W. Carrington, architect, has opened an office for the general practice of architecture, at 502 Melba Theatre Building, Dallas, Texas. Manufacturers are requested to send catalogs and samples.

Announcement is made that Louis C. Darnet, architect, has opened an office for the general practice of architecture at 203 Lorain County Bank Building, Elyria, Ohio, where he would be pleased to receive manufacturers' catalogs and samples.

Saul E. Moffie, structural engineer, is now associated with Max Maltzman, architect, under the firm name of Maltzman & Moffie, architects and engineers, with offices at 51 Cornhill, Boston, Mass. Manufacturers' catalogs and samples will be appreciated.

CURRENT NEWS

Parlors in British Homes

THE Labor Party of England, it is learned, has won its contention that houses built under Government subsidy should contain parlors. Neville Chamberlain, Minister of Health, who presented the bill to the House of Commons recently, stated that he was willing to consider any constructive amendments. Thus the Government has relented from its previous attitude that parlors were unnecessary and old-fashioned.

Chamberlain denied he was prejudiced against parlors.

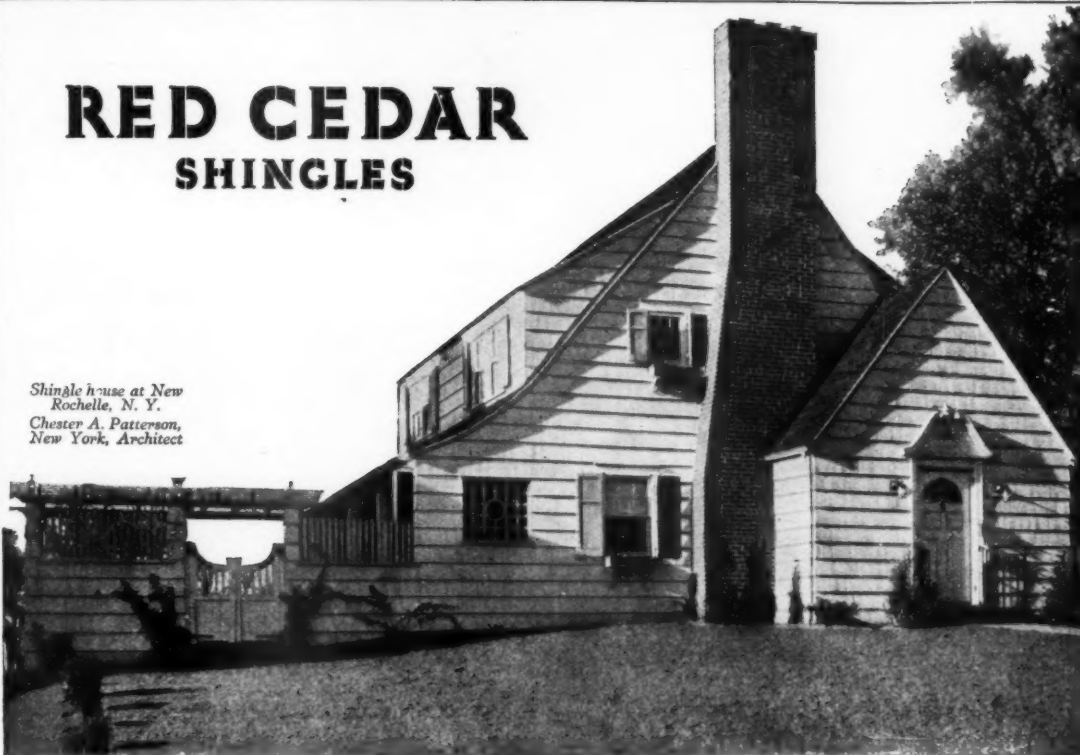
Find 7,000 Year Old Relics

THE remains of a settlement estimated to be at least 7,000 years old has been unearthed at Holmegardsmos, Denmark. Numerous flint implements, bone harpoons, arrowheads, grindstones, chisels and tooth spears were discovered. No human bones have yet been found, but the excavators uncovered skeletons of elk, reindeer and other animals.

A layer of peat several yards thick covered the relics.

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Rochelle, N. Y.
Chester A. Patterson,
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Buildings Occupied Five Centuries Are Unearthed

THE mission excavating for the University of Pennsylvania at Beisan, Palestine, the Bethshean of the Old Testament, has unearthed, according to a Times despatch from Jerusalem, substantial Egyptian buildings, with evidence of five centuries' occupation, and two large clear monumental inscriptions, of Seti I and Rameses II, respectively.

The inscriptions indicate military depositions of known divisions of Egyptian troops and give references to neighboring cities on both sides of the Jordan.

Beisan is a small town, near the Jordan, 55 miles north-northeast of Jerusalem. Seti I was King of Egypt of the nineteenth dynasty, about 1366 B. C. He was the father of Rameses II.

Origin of the Name "Portland Cement"

PORTLAND cement, according to a bulletin of the Portland Cement Association, got its name, not from the place of its origin, as many people suppose, but from the resemblance of Portland cement concrete, as first made, to a widely used building stone from the Isle of Portland, on the coast of England.

The First Spiral Staircase

DURING a lecture at the Royal Institution, London, on the discoveries in Egypt, Professor Flinders Petrie stated that in Ethiopia, eighty miles South of Cairo, there was recently discovered the remains of the first true spiral staircase known. It was found near the ruins of a huge theatre having a capacity of 11,000 persons, wherein the stage was apparently 200 ft. long.

Monument to Roosevelt Planned by Rough Riders

A COMMITTEE of the Rough Riders' Association, backed by the Roosevelt Memorial Association, is raising funds to defray the cost of a monument to Colonel Roosevelt in the city of Santiago de Cuba, in commemoration of his part in Cuba's fight for freedom.

The monument is to take the form of a bust of Colonel Roosevelt as a Rough Rider, set on a granite pedestal. The bust is now being modeled by James Earle Fraser, whose statue of Alexander Hamilton on the steps of the Treasury Department, Washington, recently was unveiled by President Harding.

New Prize for Liverpool School of Architecture

THE White Star Company has founded an annual prize of ten guineas in the Liverpool School of Architecture for the design of a portion of the interior of an Atlantic liner. The subject will be fixed each year in consultation with the general manager of the line.

To Rush New Wing for Art Museum

THE release of \$950,000 by the Board of Estimate, for the completion of the new wing known as wing K, made it possible for the Metropolitan Museum of Art, New York, to announce recently that actual work on this wing will probably be begun in the Autumn. Museum officials have worked out the scheme of the new wing and these suggestions have been turned over to the architects, McKim, Mead & White.

Paris to Experiment with Moving Underground Sidewalk

FIVE of the thirteen plans submitted for the proposed underground moving sidewalk for Paris, will be retained for experiment, states *The Engineer*, London. These five will be tested over a circular distance of 300 m., in two groups. The four plans of the first group are based on the principle of parallel bands at graduated speeds, enabling passengers to step from one band to another until the most rapid is reached; landing places would be alongside the slowest band. The fifth plan is based on the idea of variable speed, slow movement at stations and higher speed between stations.

Forestry in Great Britain

ENGLAND'S difficulty in securing wood products during the war led in 1919 to the adoption of a program of reforestation. The work, according to Trade Commissioner Dye of London, was placed in the hands of a Forestry Commission, which proceeded with the plan until the beginning of 1922, when the Committee on National Expenditure recommended that, owing to the necessity for economy, the entire program of reforestation should be scrapped. The Cabinet did not entirely abolish the work, but cut down expenses.

The plan called for the acquirement of 92,800 acres by the end of 1922, and this has practically been done. The area planted with trees in 1922 was 10,517 acres in coniferous timber and 176 acres in hardwoods, a total of 10,693 acres.



MOORISH FOUNTAIN—THE ALCAZAR, SEVILLE, SPAIN

(From the photograph by Francis Howard)

THE AMERICAN ARCHITECT