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The Poets—Decorative Painting in Detroit Public Library
Edwin H. Blashfield, President, N. A., Painter—Cass Gilbert, Architect

THE THIRTY-EIGHTH ANNUAL EXHIBITION OF THE ARCHITECTURAL LEAGUE OF NEW YORK

THE thirty-eighth annual exhibition of The Architectural League of New York, opened with a dinner in the Vanderbilt Galleries on the evening of January 26, followed by a formal reception on the afternoon of the next day, is, like its predecessors of recent years, a decided advance in methods of holding architectural exhibitions. Probably no organization of men working in architecture and the arts allied to architecture is more progressive than The Architectural League of New York. Each year the underlying motive of these exhibitions has been the realization of the essentials of architectural practice and, also, what is of equal importance, the development of a proper attitude by architects as master builders, toward the arts and crafts that so largely influence construction and the artistic development of architectural design.

While in every instance the League has set forth to the lay observer, in the highest educational manner, the trend of architectural design, and its first importance in the advancement of the oldest of all the arts, it has also in a way that might properly be called paternal, encouraged the development of all the arts and crafts and unselfishly given free of expense a large part of its exhibition space to their adequate presentation.

To this fine spirit and foresightedness are due the results that are each year becoming more and more valuable. The present development of every phase of architectural design is undoubtedly due to this splendid spirit of co-operation. Architects may indulge their finest conceptions with the certainty that they are reasonably sure to be able to have them satisfactorily executed. No longer will there be a retardance

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to the architect's flights of artistic effort. He knows he shall find an allied artist or a skilled craftsman who will lend the very highest skill in co-operation. While perhaps this fine effort of co-operation may best be found here in the East, it is not lacking in other sections, but this progressive manner of working together has had its stimulating incentive in The Architectural League exhibitions.

The League officers will tell you that the object of its annual exhibitions is to educate the general public in good architecture and therefore in good art. And it is this purpose that accounts for the absence of large numbers of technical drawings, floor plans, sections and all those elements that are of first interest to the practicing architects.



Detail of Camp Merritt Memorial, Granite Relief
Robert Aitken, Sculptor
C. V. R. Bogert, Architect



A Memorial Door
James Novelli, Sculptor
Gilbert Stanley Underwood, Architect

The Architectural League exhibitions are, therefore, more largely "popular" in their aspect, and it seems to be right that they should be.

For more than a quarter of a century architects have been the greatest teachers of art in this country. They not only have developed architecture to a point where all of Europe concedes its excellence, but they have taught the people how to live in and use the buildings they have designed for them. One might sermonize to a great extent on these satisfactory conditions, but one must also concede that it is through efforts of organizations like The Architectural League of New York that they have been brought about.

The present exhibition differs considerably from its predecessors in the methods of display.



House for Francis H. McIlhenny, Esq., Chestnut Hill, Philadelphia, Pa.

Mellor, Meigs & Howe, Architects

(Thirty-eighth Annual Exhibition, The Architectural League of New York)

There is present the same feeling of artistic atmosphere that one experiences in visiting a National Academy exhibition or one of the National Water Color Society. Architecture, the arts allied to it and the crafts that so wonderfully contribute to it are all splendidly set forth. Even the man of large years of practice will find much to stimulate his blasé attitude, while the layman will certainly learn to appreciate architecture. And this appreciation will not be selfish, as affecting merely his own interests, but will bring a sense of civic pride when he learns that the satisfaction he has in his daily walks out-of-doors is due to the increasing excellence of the architecture that is everywhere becoming better.

Architects in this country and in England are preparing to observe with appropriate ceremonies



Statue of Monsignor Stein, Paterson, N. J.
Albert Jaegers, Sculptor

the two-hundredth anniversary of the death of Sir Christopher Wren, whose genius has left an indelible impression on American architecture. As preparatory to such ceremonies, the League has placed a special Court of Honor in the main gallery for the display of a splendid collection contributed by the Royal Institute of British Architects. A large portrait of Sir Christopher Wren was unveiled with fine ceremonies at the opening of the exhibition. The contribution of work by English architects is an outstanding feature of the League exhibition. As this is the first time an exhibition of this type has been sent to this country, the public is certain to be



"Toy Venus"—A fountain figure in marble, by John Gregory

greatly interested in seeing the status of British domestic and monumental architecture. Such names as Sir Edward Luytens, Guy Dawber, Paul Waterhouse, Ernest Newton, Mewes & Davis, T. Edwin Cooper, Sir Charles A. Nicholson, and Gilbert Scott are important in a record of contemporaneous British work and are equally well known to the architectural profession in America.

The award of medals, which took place before several hundred guests, was made in the Vander-



The Printed Word—Decoration in Canadian House of Parliament
Arthur Crisp, Painter



The Hunting Party—A silk wall hanging
By Arthur Crisp



The Sportsman—A silk wall hanging
By Arthur Crisp

(Thirty-eighth Annual Exhibition, The Architectural League of New York)

bilt and Central galleries. They were announced by Howard Greenley, president, as follows:

Medal in architecture, to Dwight James Baum, of New York, for excellence in residential work, including a series of houses at Syracuse, N. Y.

Medal in decorative painting, to Edward Simmons, of New York City, for his decorative panel, "One of the Muses," and his drawing, "West Wind," for a mural at the St. Paul Capitol and a sketch for a mural, "The Pioneers."

Medal in sculpture to Edward McCartan, of New York City, for his Eugene Field memorial for Lincoln Park, Chicago, interpreting the theme of the "Babes in the Wood." Further medals awarded were:

Medal in landscape architecture, to Harold Hill Blossom, of Boston, for his series of small house gardens.

Medal in craftsmanship to the Herter Looms, for its tapestry, "Romeo and Juliet."

The Avery prize to James Novelli, for his bronze door.

The Catalog of the exhibition is of usual excel-

lence and is an additional volume to the cyclopaedic record of our architectural achievement. As a reference volume in the architect's working library its value is very great. This Catalog sells for \$2.00 and may be had by addressing The Architectural League of New York, Fine Arts Building, 215 West Fifty-seventh Street, New York City.

Mr. Howard Greenley, the president of The Architectural League of New York, in an opening address, extended a cordial welcome to those present and briefly outlined the objects the League endeavored to attain by its annual exhibitions. Mr. Greenley said in part:

"To many of you these occasions are familiar; to others they constitute, perhaps, an initial experience. May I venture to suggest to those who are now for the first time with us that they acquire the praiseworthy habit of attending our annual ceremonials and absorb in the same degree as ourselves, an understanding of the significance of this organization in its attitude toward architecture and the allied arts, as exemplified in our exhibitions.



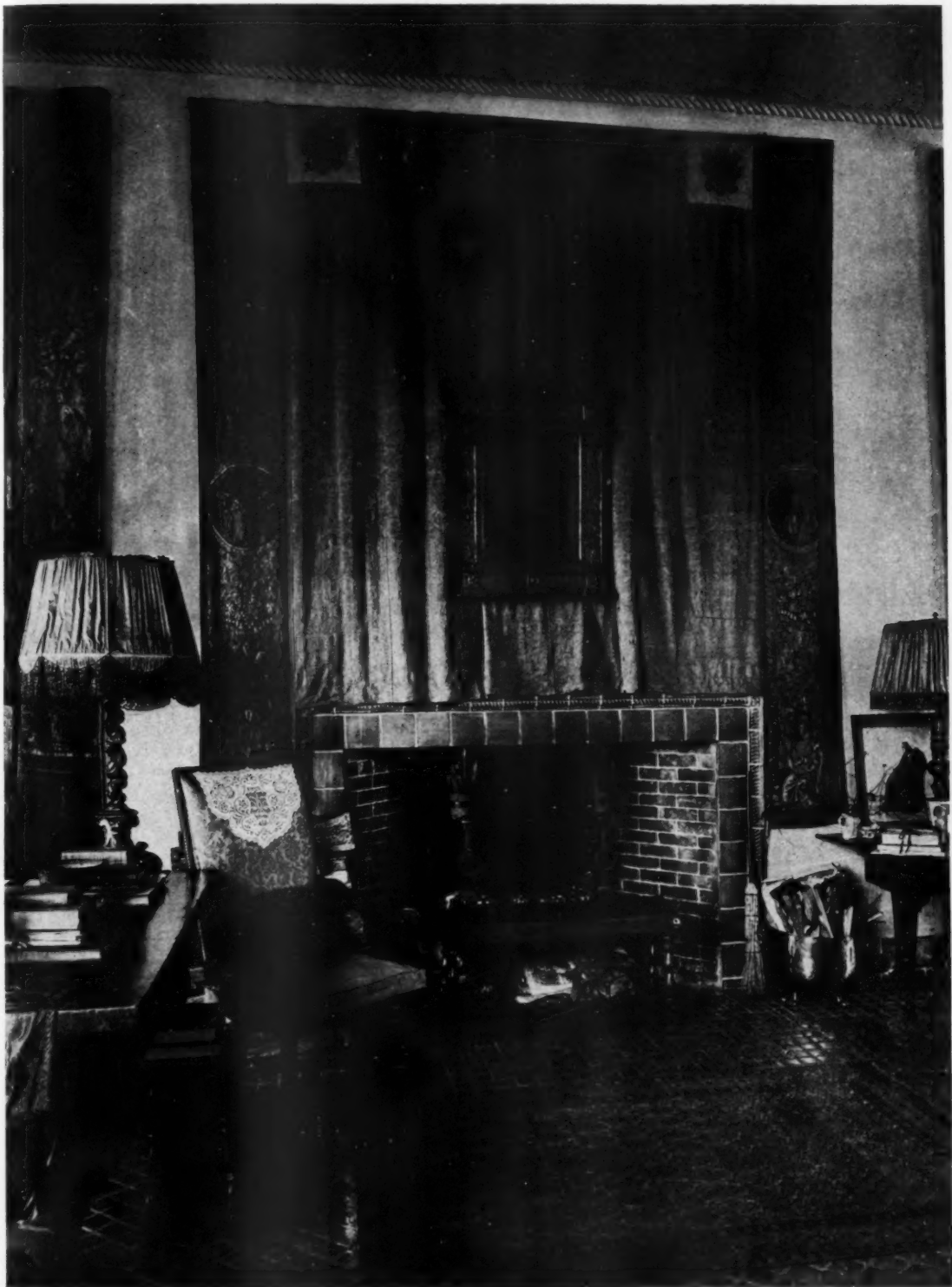
Relief for rotunda, Hartford Fire Insurance Co., Hartford, Conn.

Edmond T. Quinn, Sculptor
Edwin Sherrill Dodge, Architect



Fragment of North Window, United States Military Chapel, Westpoint, N. Y.

Designed and executed by A. L. Willer



Living Room Fireplace

House of George Howe, Esq., Chestnut Hill, Philadelphia

Mellor, Meigs & Howe, Architects

Walls, cream colored plaster. Floor, light yellow tiles. Tiles around fireplace, blue. Furniture, old French and Italian. Ceiling is high, with a hemp rope cornice

(Thirty-eighth Annual Exhibition, The Architectural League of New York)

"The Architectural League celebrated its forty-second birthday about a month ago. The founders of the League numbered a scant half dozen. Its membership today is in excess of eight hundred. We honor the men with whom the conception originated, we honor ourselves by our devotion to the ideas formulated by them, in respect to their faith in the essential value of beauty existent or created in our lives. We take pride in our membership of architects, painters, sculptors, craftsmen and landscape architects and those of the highest standing in building and in the industrial arts. There is an underlying strength in a membership representing the collaboration of all these arts which by their fusion into the League structure, create new beauty. The Archi-



Fountain on Estate of Charles M. Schwab, Loretto, Pa.

Paulanship, Sculptor
Charles Wellford Leavitt, Landscape Architect

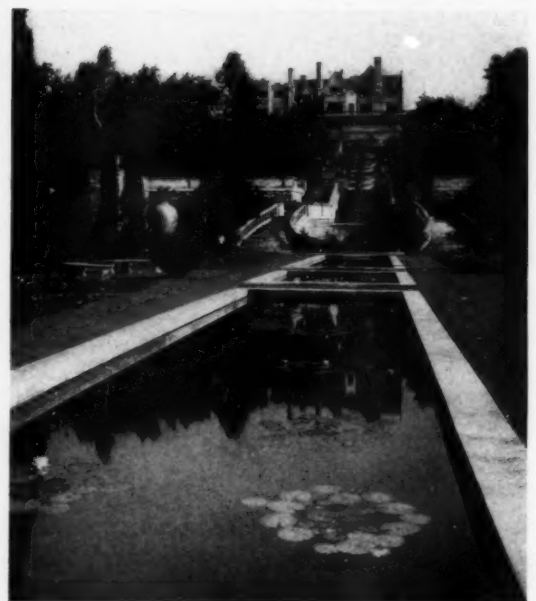
tectural League's influence is therefore the collective influence of its members as reflected in their activities, always toward the maintenance of high standards in art and in the best methods of professional practice. We trust you will find this exemplified in our exhibition.

"The creation of an exhibition of this character is no light task—its selection and hanging require the utmost in judgment, in color composition and arrangement on the part of the juries and the Exhibition Committee. I wish to convey to these groups of experts a grateful acknowledgment of the excellence of the result and of their unselfish devotion of time and energy to this task.

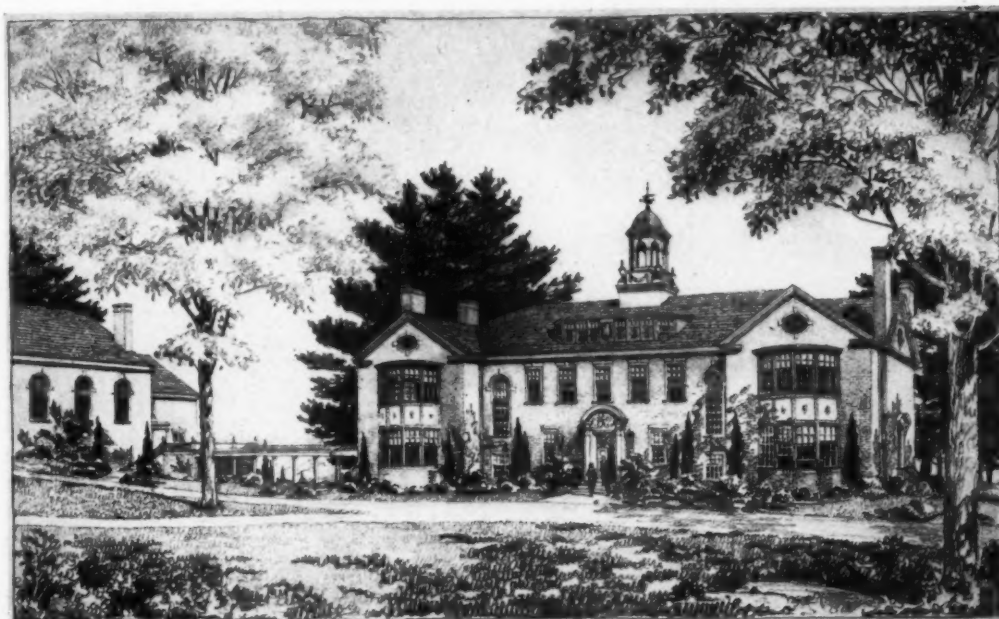
"I wish to make it clear to our guests and to our membership at large, that these annual exhibitions which we work to make representative of



End of Tapis Vert
Estate of Leonard Kebler, Bronxville, New York
Clarence Fowler, Landscape Architect



Cascade and Lily Pools
Estate of Charles M. Schwab, Loretto, Pa.
Charles Wellford Leavitt, Landscape Architect



View from Forecourt
The Hopkins Grammar School, New Haven, Conn.
Murphy, McGill & Hamlin, Architects



Garden Pool, Alliance, Ohio
William Pitkin, Jr. & Seward H. Mott, Landscape Architects
(Thirty-eighth Annual Exhibition, The Architectural League of New York)

contemporaneous art, are not accomplished through the financial resources of the League alone; the contribution which we make is not sufficient, although given to the extent of our resources. We are very greatly sustained and our exhibition made possible by the generous response of the men engaged in the related industries. It

as we are tonight, in an atmosphere sweetened by contact with things of beauty and of the spirit. It is productive of generous thinking and generous reasoning. I for one cannot think it merely a flight of fancy to consider, to a large extent, this attitude of mind as a means of ultimate adjustment of international differences through



Polychrome Triptych, All Saints' Church, New York

Anthony di Francisci, Sculptor

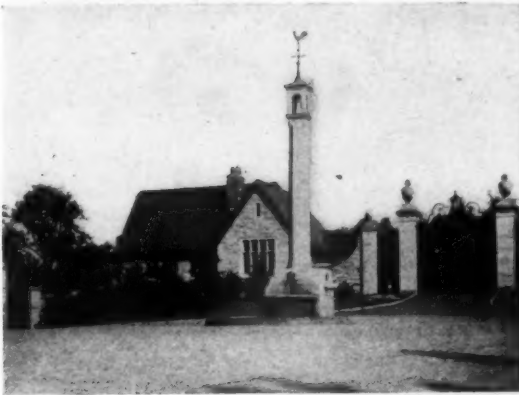
William W. Renwick, Architect

is this public-spirited attitude of co-operation that enables us to maintain these exhibitions annually. Acknowledgment should be made to these men for their important contribution to this opportunity for public instruction in the field of art.

"In these days of political upheaval and mental unrest, where our sense of right direction is obscured, it is reassuring to be gathered together,

the medium of the universal language of art and our healthy reactions under its influence.

"And so to promote this line of thought we have given to this exhibition an international character. We have invited our English friends to submit examples of their work in conjunction with our own. I had hoped to be able to have an exhibition of the work of French architects simultaneously



Plaza and Village Cross, Main Entrance, Estate of Charles M. Schwab, Loretto, Pa.

Charles Wellford Leavitt, Landscape Architect
Murphy & Dana, Architects

with the English exhibit, but on account of the encouraging response of the English architects and the limitations of space in our galleries, I felt that we could only take one step at a time.

"I am gratified to announce that the arrangements for this first official exhibition of the Royal Institute of British Architects in this country were admirably carried out by Mr. Alfred C. Bossom, of our Executive Committee and that thanks are due him for the energy and ability displayed in making this truly magnificent and representative exhibition of English architectural work a possible thing. In recognition of this encouraging attitude of Sir Paul Waterhouse, the president of the R. I. B. A., toward this invitation of the League and also for the friendly interest

of M. Victor Laloux, the eminent French architect toward this international contact through the medium of exchange exhibitions, the Executive Committee has elected them both to Honorary Membership in the League. This seems to me a step in the right direction and I trust that the



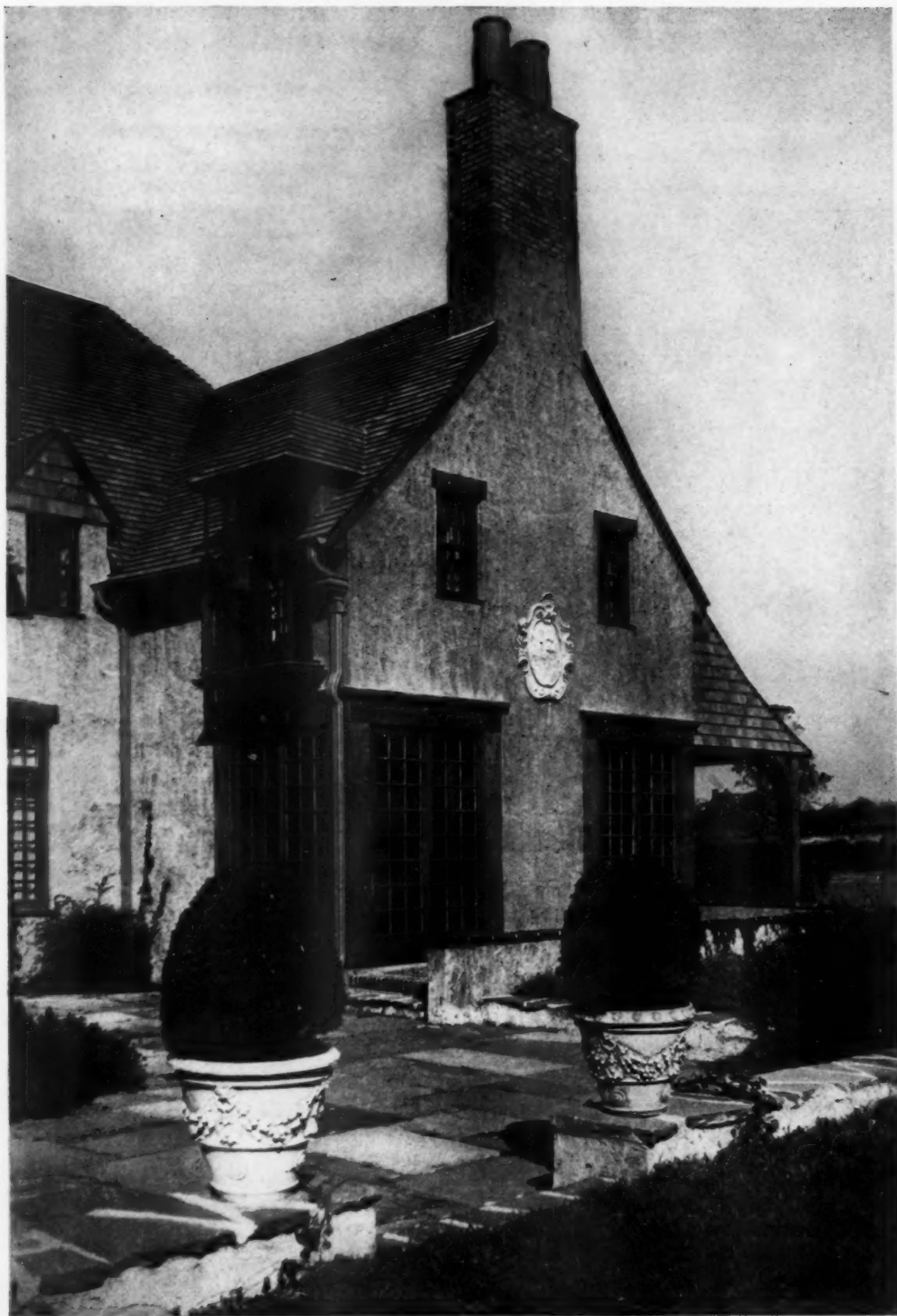
Fountain at Cleveland, Ohio
Walker & Gillette, Architects

future policy of the League will be continually to broaden its scope of activity and thus become perhaps the instrument of more generous thought in other departments of human activity."



Panel for Sixteenth Street Bridge, Pittsburgh, Pa.

Leo Lentelli, Sculptor
Warren & Wetmore, Architects

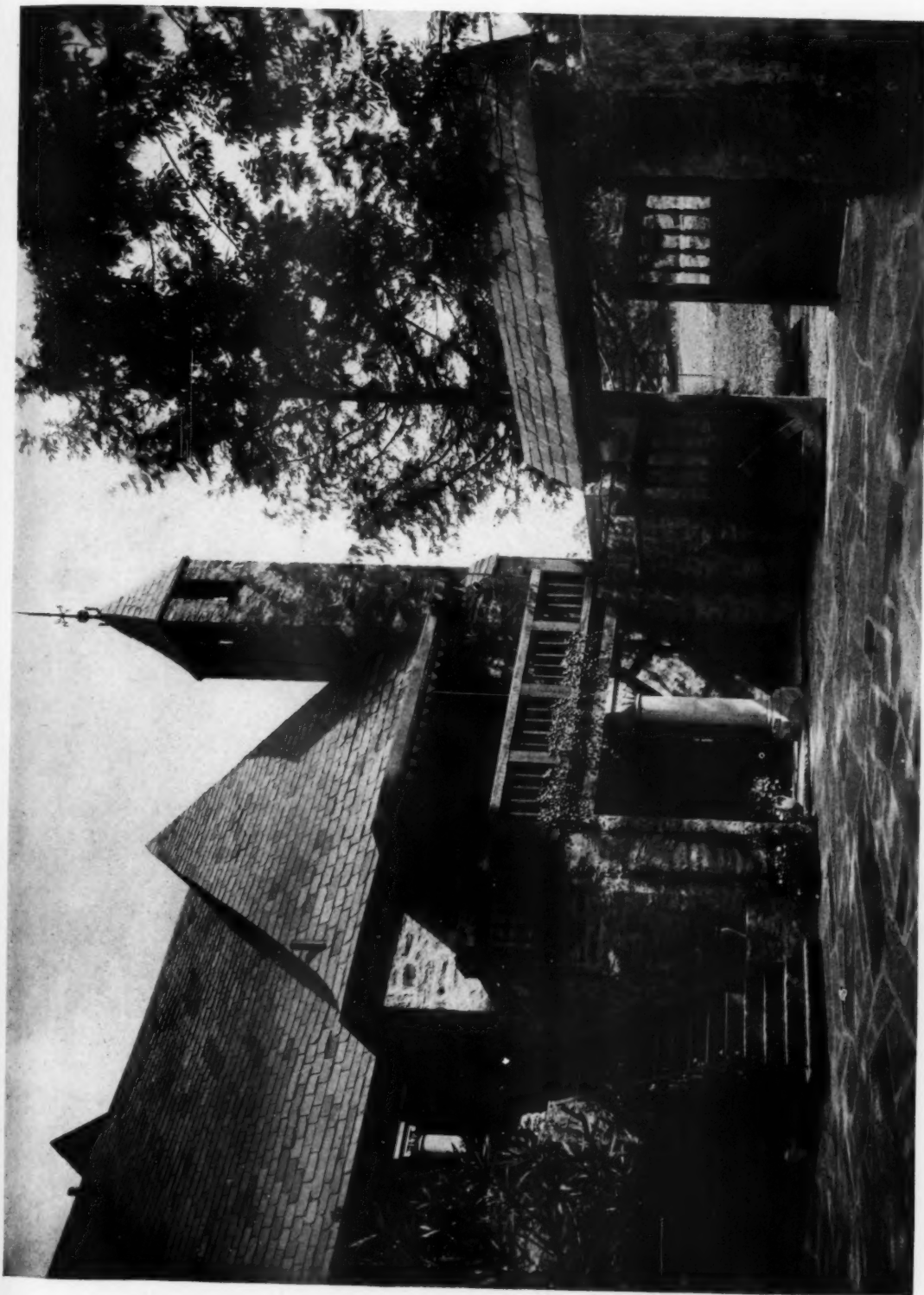


DETAIL OF DINING ROOM WING

HOUSE OF WILLIAM S. JENNEY, ESQ., EASTHAMPTON, L. I., N. Y.

POLHEMUS & COFFIN, ARCHITECTS

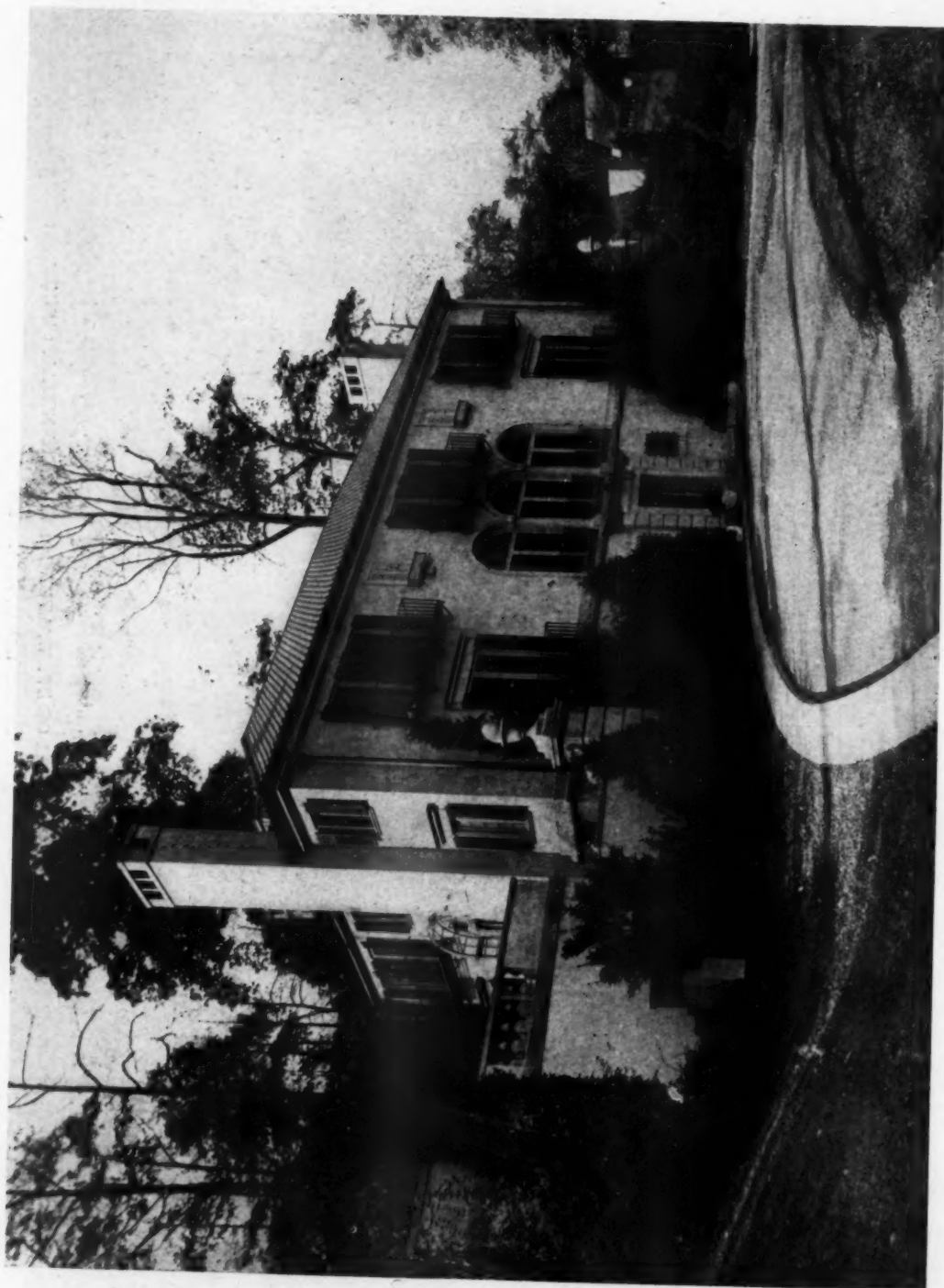
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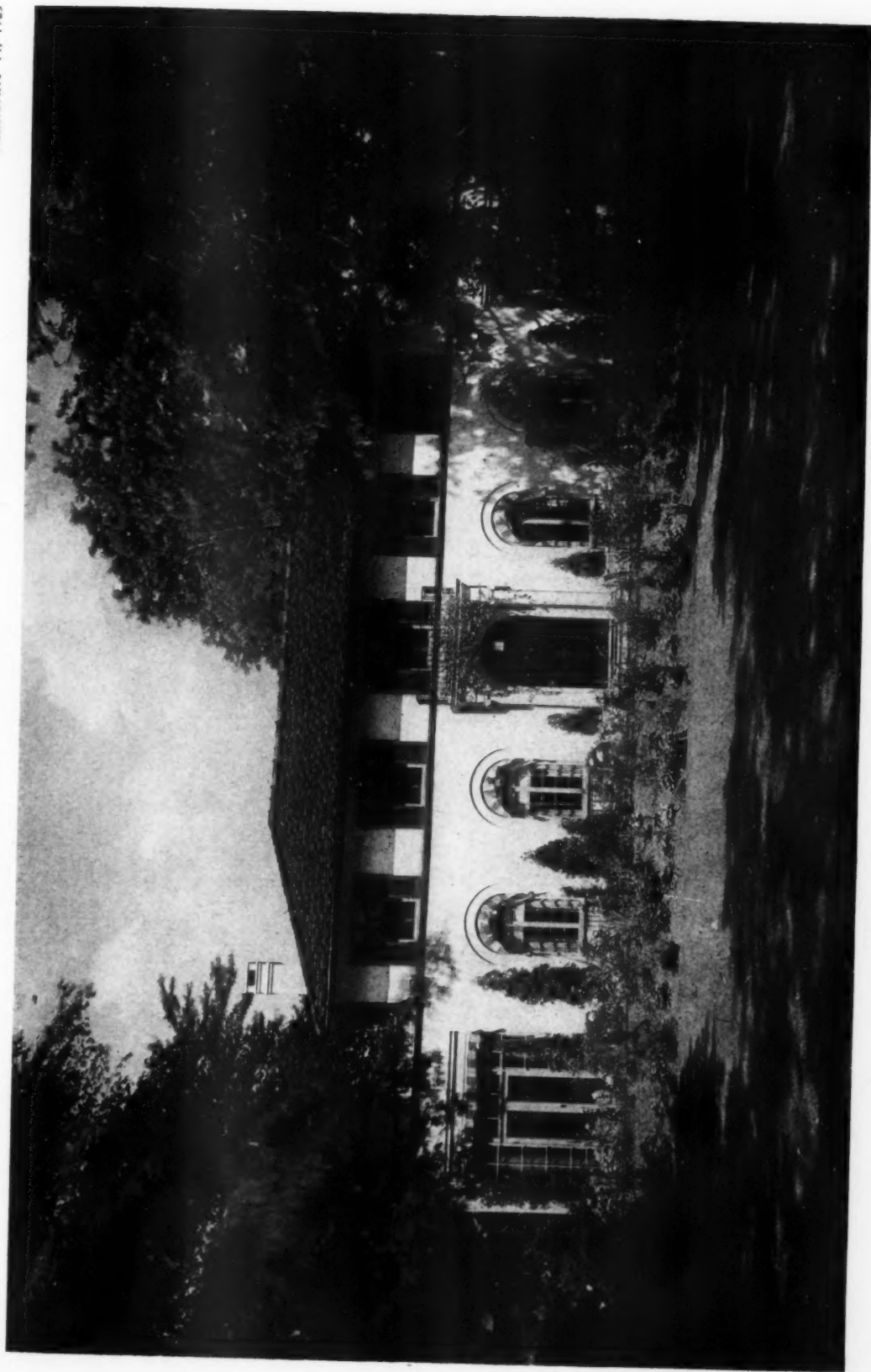
COURTYARD, RESIDENCE OF DR. WALTON MARTIN, CORNWALL, CONN.

EDWARD C. DEAN, ARCHITECT

(Thirty-eighth Annual Exhibition, The Architectural League of New York)



HOUSE AT MONTCLAIR, N. J.
DAVIS, McGRATH & KIESSLING, ARCHITECTS
(Thirty-eighth Annual Exhibition, *The Architectural League of New York*)



HOUSE OF MRS. BENJAMIN E. CHASE, SYRACUSE, N. Y.

DWIGHT JAMES BAUM, ARCHITECT

(Thirty-eighth Annual Exhibition, The Architectural League of New York)



MAIN ENTRANCE

HOUSE OF MRS. BENJAMIN E. CHASE, SYRACUSE, N. Y.

DWIGHT JAMES BAUM, ARCHITECT

(Thirty-eighth Annual Exhibition, The Architectural League of New York)



HOUSE OF MRS. FAYETTE BAUM, SYRACUSE, N. Y.

DWIGHT JAMES BAUM, ARCHITECT

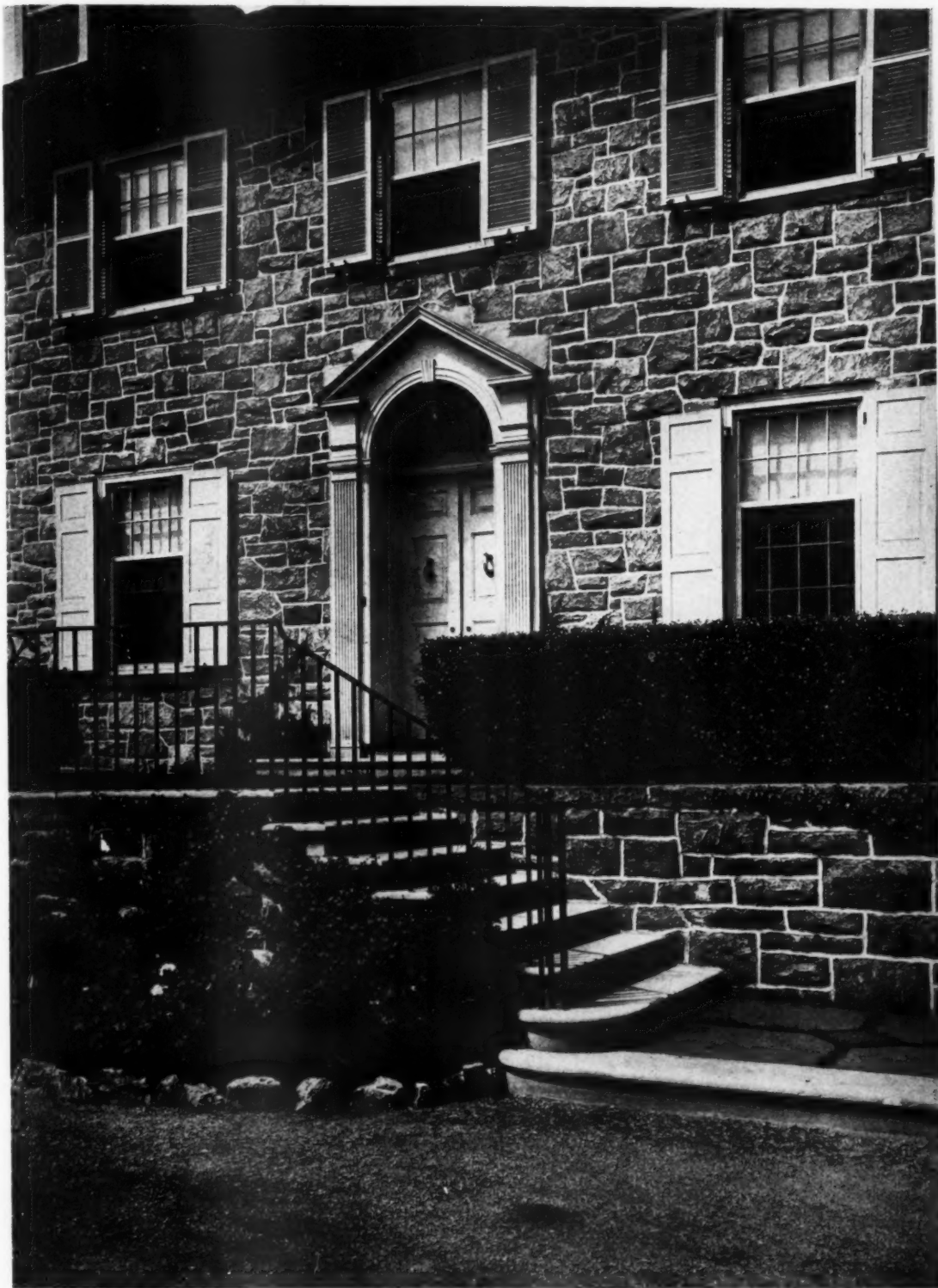
(Thirty-eighth Annual Exhibition, The Architectural League of New York)



HOUSE OF MRS. FAYETTE BAUM, SYRACUSE, N. Y.

DWIGHT JAMES BAUM, ARCHITECT

(Thirty-eighth Annual Exhibition, The Architectural League of New York)



HOUSE OF DR. L. DUNCAN BULKLEY, RIVERDALE, N. Y.

DWIGHT JAMES BAUM, ARCHITECT

(Thirty-eighth Annual Exhibition, The Architectural League of New York)



THE PARK AVENUE BAPTIST CHURCH, NEW YORK

HENRY C. PELTON AND ALLEN & COLLENS, ASSOCIATE ARCHITECTS

(Thirty-eighth Annual Exhibition, The Architectural League of New York)



FIFTH AVENUE HOSPITAL, NEW YORK

YORK & SAWYER, ARCHITECTS

(Thirty-eighth Annual Exhibition, The Architectural League of New York)



THE SHELTON, LEXINGTON AVENUE AND FORTY-NINTH STREET, NEW YORK

ARTHUR LOOMIS HARMON, ARCHITECT

(Thirty-eighth Annual Exhibition, The Architectural League of New York)



FIRST NATIONAL BANK, JERSEY CITY, N. J.

ALFRED C. BOSSOM, ARCHITECT

(Thirty-eighth Annual Exhibition, The Architectural League of New York)



LIBRARY AT CHARLOTTESVILLE, VA.

WALTER D. BLAIR, ARCHITECT

(Thirty-eighth Annual Exhibition, *The Architectural League of New York*)



MONTCLAIR (N. J.) GARDEN THEATRE

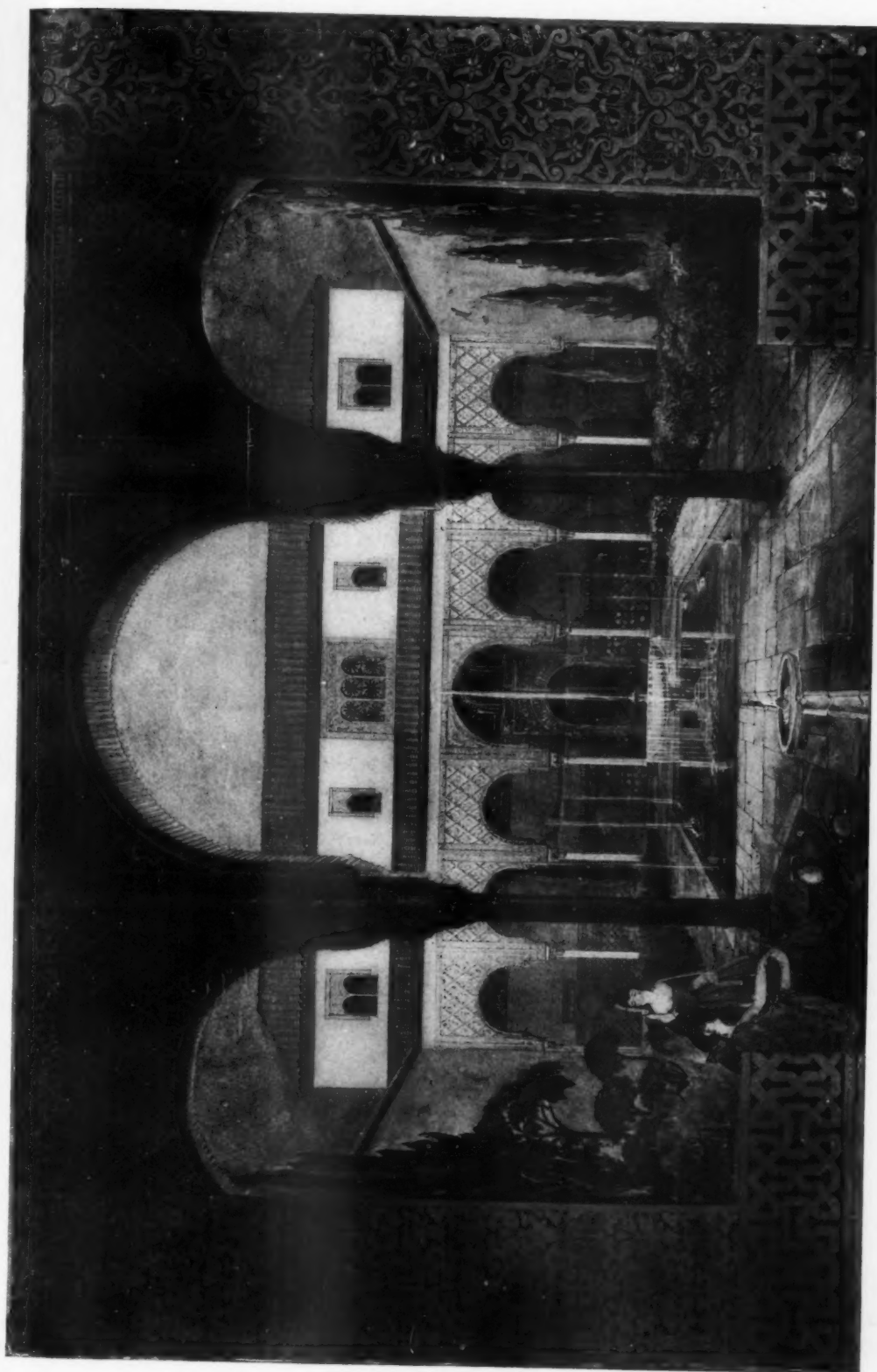
STARRETT & VAN VLECK, ARCHITECTS

(Thirty-eighth Annual Exhibition, *The Architectural League of New York*)



VIEW FROM ENTRANCE COURT
HOUSE AT UPPER MONTCLAIR, N. J.
FRANCIS A. NELSON, ARCHITECT

(Thirty-eighth Annual Exhibition, The Architectural League of New York)

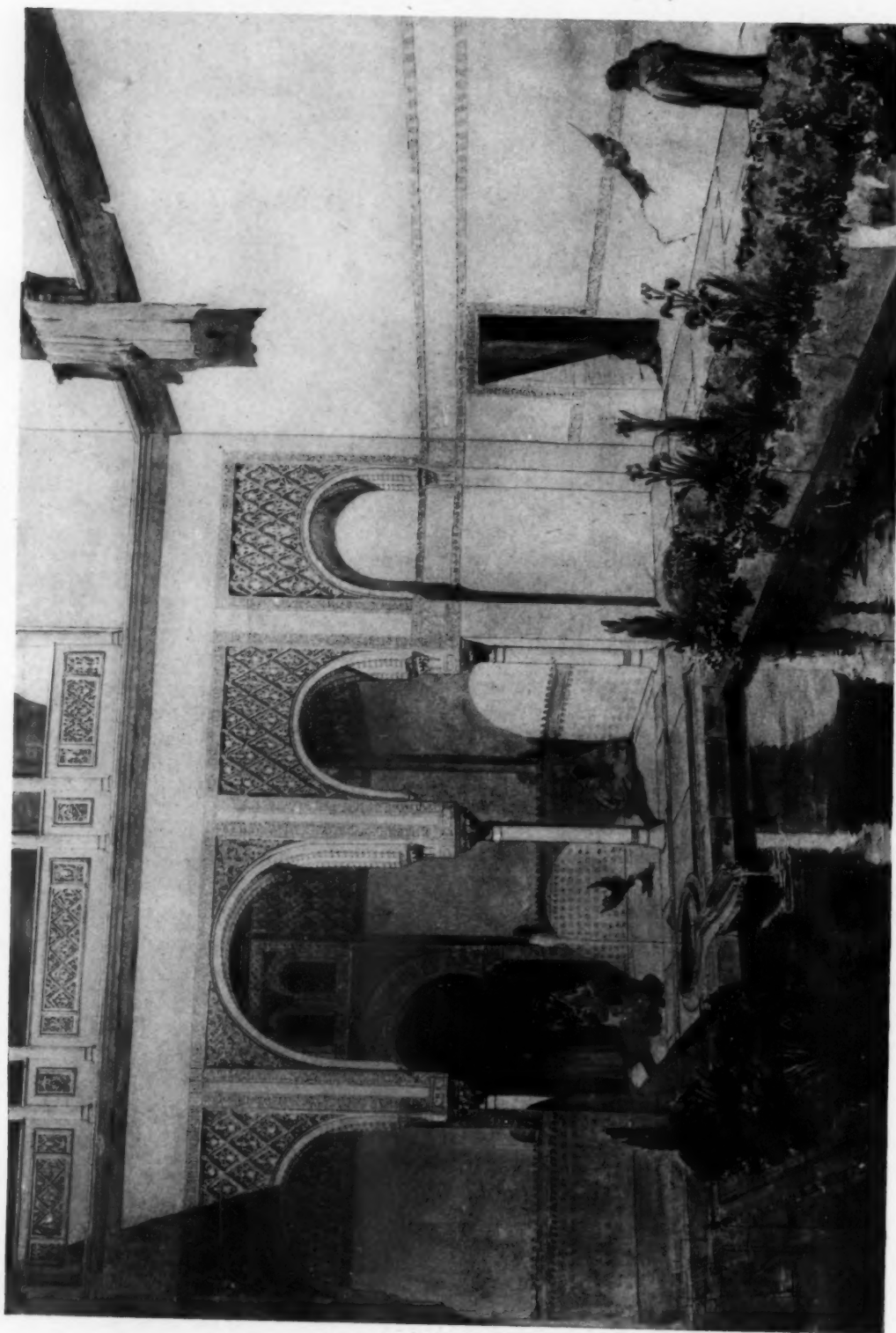


L. TIMOTHEEFF

SECOND MEDAL

CLASS "A" AND "B" ARCHAEOLOGY-II PROJET—A MOORISH ARCADE
STUDENT WORK, SOCIETY OF BEAUX-ARTS ARCHITECTS

COLUMBIA UNIVERSITY

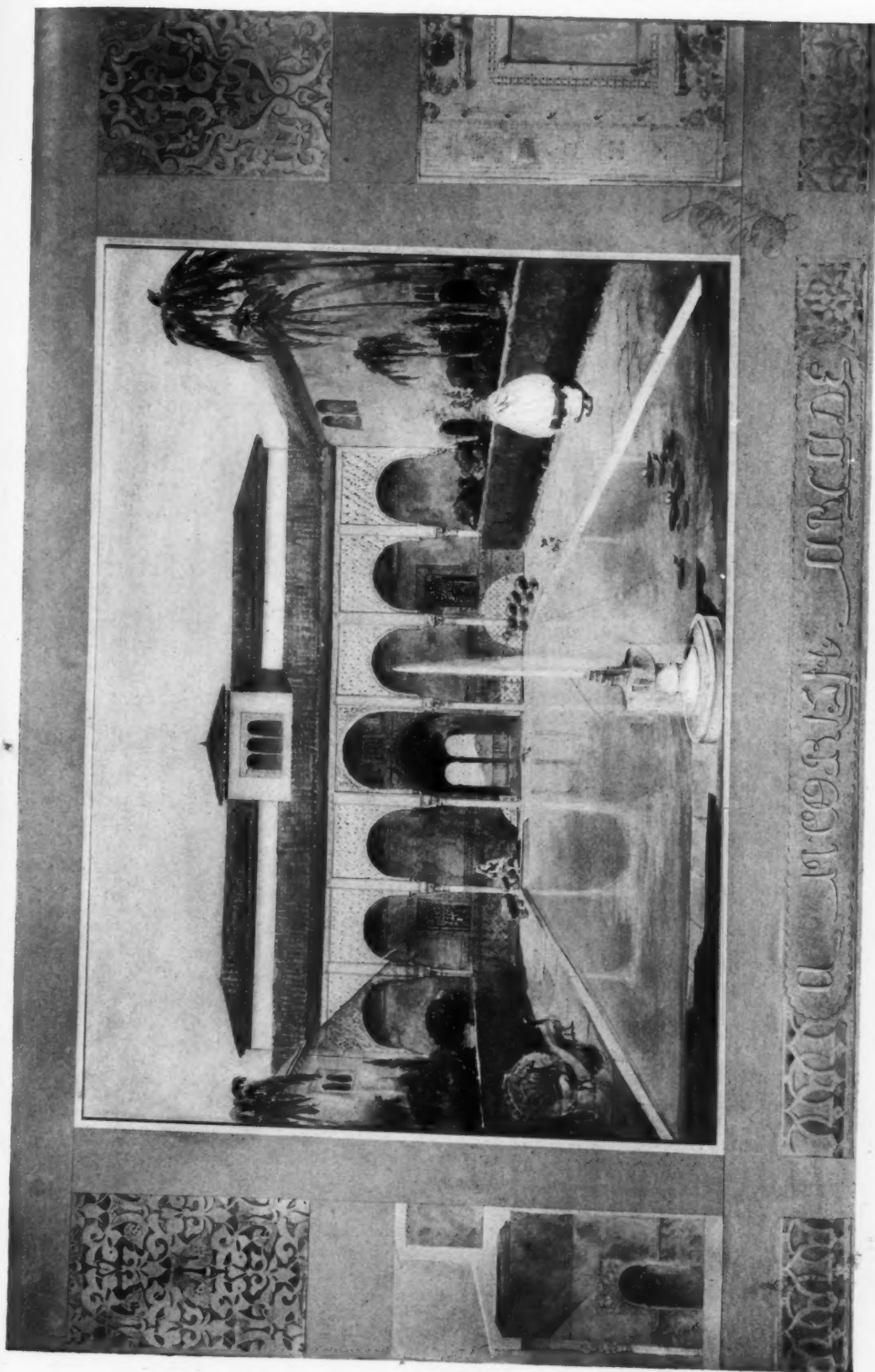


C. F. GROMME

SECOND MEDAL

CLASS "A" AND "B" ARCHAEOLOGY-II PROJET—A MOORISH ARCADE
STUDENT WORK, SOCIETY OF BEAUX-ARTS ARCHITECTS

UNIVERSITY OF PENNSYLVANIA

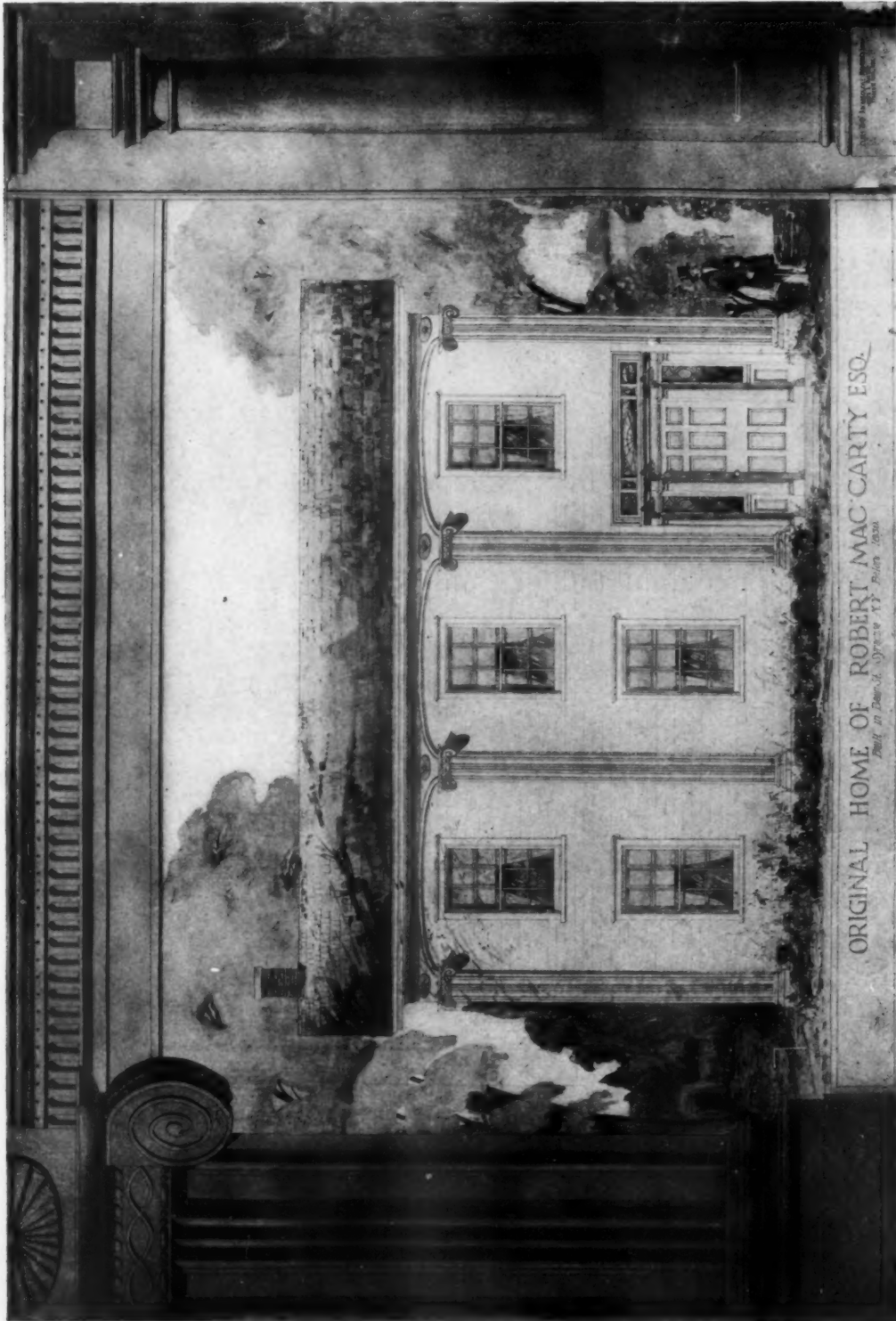


J. ARONSON

SECOND MEDAL

CLASS "A" AND "B" ARCHAEOLOGY-II PROJET—A MOORISH ARCADE
STUDENT WORK, SOCIETY OF BEAUX-ARTS ARCHITECTS

COLUMBIA UNIVERSITY



SYRACUSE UNIVERSITY

SECOND MEDAL

H. A. MARTIN

CLASS "A" AND "B" ARCHAEOLOGY-II MEASURED DRAWING—ORIGINAL HOME OF ROBERT MAC CARTY, ESQ.,
BEAR STREET, SYRACUSE, N. Y.

STUDENT WORK, SOCIETY OF BEAUX-ARTS ARCHITECTS

EDITORIAL COMMENT

JUST AT THIS WRITING it is not possible to state the details of the proposed observance of the two-hundredth anniversary of the death of Sir Christopher Wren.

Wren's work and its fine example have left an indelible impression on American architecture. Wren's spires or types suggested by spires erected by him in London, are to be found in all of our Colonial states. Nor is his influence confined entirely to churches. As set forth in a recent editorial in *The Architects' Journal* of London, we may trace Wren's influence in the White House at Washington and even in the National Capitol. Independence Hall in Philadelphia, with its palladium motif of one tall arched window, flanked by square topped ones, is Wren. Bullfinch, in his design for the State Capitol in Boston, undoubtedly drew his inspiration from Wren, while the Old South and North Churches are notable as Wren examples.

Again referring to the many spires that crown New England churches, almost without exception are these spires directly traceable in their design, to Wren. Probably no other architect's work has had a more widespread influence on our Colonial architecture, and it is therefore fitting and proper that the profession in this country should unite to the fullest extent in the observances to the memory of this great man.

It is stated that a grand committee of English architects has already arranged for the publication of an illustrated memorial volume dealing with the career and achievements of Wren. It is strongly urged that this work be supplemented in its illustrations by examples of work in this country whose excellence of design may be directly traced to the influence of the greatest of English architects. Such a work, properly prepared, would constitute a volume that would be indispensable in the working library of every architect.

* * *

THE CO-OPERATION so splendidly maintained between the Architectural Departments of Harvard University, the Massachusetts Institute of Technology, the architectural societies and the profession at large in Boston, is accomplishing valuable results.

As stated by Professor William Emerson, head of the Department of Architecture at Technology, in an article published in a recent issue of *The Tech*, the real problem is how to equip students so that they may ultimately meet the constantly broadening demands upon architects and engineers.

"Even assuming," states Professor Emerson, "that architectural schools know exactly what steps to take to accomplish the desired ends, physical difficulties at once present themselves."

The greatest of these difficulties is that of condensing the teaching effort to a period of four years. While such a period might be sufficient for those already equipped with a college education, who enter architectural schools, it certainly is not a period of sufficient length,—in fact, as Professor Emerson states, "it is a dangerously inadequate period,"—within which to give a professional education to the students coming directly from high schools.

The solution of this problem would, it might reasonably be assumed, be easy for architectural schools if they would refuse admission to applicants who had not received a college education, or who could not pass a preliminary examination, such as would satisfy the schools that they were sufficiently educated to begin a course in architecture or engineering.

In short, architectural schools should either extend their course to six years or increase the standard of their entrance requirements.

There is also the problem of making the student of practically immediate use in an office on graduation. The solution of this, as offered by Professor Emerson, is the supplementing of the Winter course in office practice by a required Summer course on the same subject. Such a method is, naturally, more theoretical than practical, for as Professor Emerson states, "the time is handled and the work distributed as in an office, jobs in actual process of execution being followed, step by step, through the early stages of preliminary sketches, working drawings, specifications" and, in fact, all the details of office work. Theoretically, this will be as sound a method as an architectural school may devise, but it certainly lacks those practical elements that may only be found in the daily routine of actual office practice.

It is extremely doubtful if the technique of practicing architecture, or anything remotely approaching it, can be acquired at any school without a much more radical departure from the present *curricula* than is anywhere indicated. The incentive for quick thinking, hard, laborious work and strenuous effort cannot obtain in an office practice course in an architectural school. There is not the penalty of loss of employment accruing to the student, for slowness or stupidity; neither is there the steady pressure from employers and department heads whose time, every hour, is money. That is the real difference, mercenary

as it may be, between real and simulated practice—it is the underlying motives which cannot be reconciled.

The medical student watches the demonstrator in a clinic rather leisurely operate and explain. The interne watches and assists the eminent surgeon with great skill and incredible rapidity perform the same operation. The underlying motive which differentiates the speed and technique of the instructor and the great surgeon is that the time of the latter, to him financially, is worth many hundreds of dollars per hour.

The law student in moot courts, or by watching the operation of an established court, is apart from the real operation of legal practice. As a junior in a large legal organization, he is subjected to the pressure of necessity. The great attorney, almost intuitively, outlines the case and directs the analysis of the testimony and facts, the search for precedents, the preparation of the briefs and arguments and other elements of litigation.

The successful, master architect criticises, directs and controls every branch of his organization—by his executive ability he builds up the organization, secures and executes his commissions and inspires his employees to accomplish the things that bring success.

The successful surgeon, medical practitioner, diagnostician, lawyer or architect makes an honest effort to earn his fees and to do this it is necessary to have competent assistants—they make them competent, not their academic instructors. The motive is different and, necessarily, so is the result.

Intelligent purchasers of medical or legal service are influenced by the evidence of interne service in a reputable hospital or service with a well

established legal organization. The hospital and the legal organization have a reputation which is generally known and can be verified. The same thing applies to service with architects. To turn out good, capable and successful men is the proper ambition of every legitimate architectural organization and a successful record with such a one is a valuable asset.

Would it not be better to confine the teaching of architectural students to the purely academic topics of his art? To this add a severe course in the proper use of his language, both written and spoken; add a course in relationship, which would give him a knowledge of the relation his country holds with the world, his relations with the public in general and his fellows in particular, the relations of his profession to the public and his client; teach him to speak to the public or to an individual on matters of general import and not confined to the narrow limits of his profession.

Include a course in discrimination which would instruct him in the proper selection of those things which he must later appraise. This would include a wide range, such as painting, sculpture, literature including poetry, landscape gardening, decorations and personal conduct, if you please.

Relationship and discrimination, the basis of culture, bring appreciation and it is only with a broad comprehension and appreciation, coupled with hard work, that the architect can attain success.

In lieu of the office practice course, as outlined by Professor Emerson, would it not be better to require that the student will have had a specified amount of experience in an architect's office before entrance, or do the same amount of such work concurrently with his technical training?



A Greek Panel—Arthur Covey, Painter

(Thirty-eighth Annual Exhibition, The Architectural League of New York)

DEPARTMENT OF ARCHITECTURAL ENGINEERING

THE SELECTION OF FIREPROOF FLOORS

A Study of the Various Types of Fireproof Floors and the Economic and other Features Involved in the Selection of the Type to use

BY ELWYN E. SEELYE, M. Am. Soc. C. E.*

THE selection of the proper system of structural fireproof framing to adopt in a contemplated building is an important matter for the following reasons:—

1. It is desirable to have the bids as low as possible.

2. It is undesirable to have a contractor come back with suggestions for changes that may effect a saving. This calls for annoying changes in the architect's plans and the confidence of the owner in the architect is apt to be shaken by such a contingency.

3. The system should fulfill special requirements which are not always reducible to figures, these being fireproofness, thin floor depths, flat ceilings, possibility of erection with least misunderstanding (foolproofness), etc.

For the foregoing reasons the architect should very carefully study in advance the relative merits of the many types of floors offered for his consideration and make his decision before completing the plans and calling for bids. The decision once made for a particular building should not be changed.

The writer in his own practice has made a careful study of the material and labor costs entering into the construction of the more common types of fireproof floors and the results are given below. The prices are those obtained as actual costs in New York City, including placing.

The prices being itemized it will be easy for architects to substitute current local prices for all the items and thus place the various types on a comparative basis in other cities than New York. If the price of terra cotta, for example, should go down more than the prices of other materials systems using considerable terra cotta will show up favorably.

The cost data were arrived at by designing a

typical school class-room, 23 ft. by 30 ft. with a live load of 60 lb. per sq. ft. The tensile stress in the steel is 16000 lb. per sq. in. and the compressive stress in the concrete is 650 lb. per sq. in., with the corresponding usual assumptions for shear, etc.

A typical non-fireproof construction is included, to provide an answer to the oft repeated question, "How much more is the cost of fireproof construction?" The saving effected by the use of non-fireproof construction is materially reduced in case of the adoption of linoleum or monolithic cement floor surface.

The computations for the two-way slabs take into account plate action and hence the steel provided is too light to be acceptable under many building laws. This item is taken into account in the Table of Relative Values.

The designs were made on the basis of no continuity. This assumption is favorable to structural steel and metal lumber systems because, in the majority of cases, concrete designs are subject to some continuity.

It seems fair to state that the two two-way tile systems are figured on entirely different moments and do not show the intrinsic relative costs, for one proprietor is more conservative in his designs than the other.

1. METAL LUMBER LONG SPAN

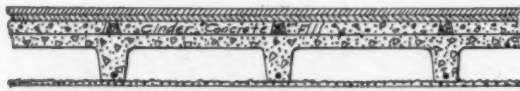


Metal lumber, 6 lb. @ 51½c	33
Furring, 2 sq. ft. @ 5c	10
Nail Code top, 0.18 cu. ft. @ 50c	9
Plaster (3 coats) 1 sq. ft. @ 11c	11

Total. Per square foot 63 cents

*Consulting Engineer, New York, N. Y.

2. REINFORCED CONCRETE RIBBED OR JOIST
FLOOR METAL FORMS REMOVED



Reinforcing steel, 2.6 lb. @ 3.5c	9.1
Concrete, 0.4 cu ft. @ 45c	18.0
Lath, 1 sq. ft. @ 5c	5.0
Metal tile, erected and removed, guaranteed price by one company, per sq. ft.	6.0
Plaster, (3 coats) 1 sq. ft.	14.0
Forms, per sq. ft.	13.0

Total. Per square foot 65.1 cents

3. REINFORCED CONCRETE RIBBED OR JOIST
FLOOR METAL TILE FORMS LEFT IN PLACE
Comparable in cost with No. 2, above.

4. OPEN JOIST. NON-FIREPROOF



Lumber, 2.55 sq. ft. @ 7c	17.85
Lath	5.0
Plaster	14.0

Total.	36.85
Credit fill and sleepers	14.0

Total. Per square foot 22.85 cents

5. STEEL AND CINDER CONCRETE ARCHES



Structural Steel, 5 lb. @ 4.5c	22.5
Mesh, 0.4 lb. @ 5c	2.0
Cinder concrete, 0.45 cu. ft. @ 26c	11.7
Forms, 1.25 sq. ft. @ 12c	15.0
Plaster, 1.25 sq. ft. @ 9c	11.25

Total. Per square foot 62.45 cents

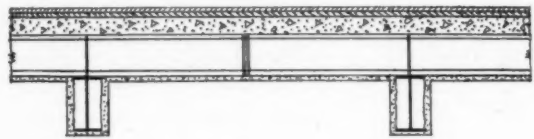
6. REINFORCED CONCRETE, SOLID BEAM
AND SLAB



Reinforcing steel, 2.8 lb. @ 3.5c	9.8
Stone concrete, 0.45 cu ft. @ 46c	20.7
Slab and beam forms, 1.25 sq. ft. @ 20c	25.0
Plaster (2 coats with bond) 1.25 sq. ft. @ 9c	11.25

Total. Per square foot 66.75 cents

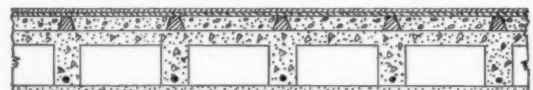
7. METAL LUMBER SHORT SPAN



Steel, 3.8 lb. @ 5.5c	21.0
Metal Lumber, 2 lb. @ 5.5c	11.0
Metal Lath, 2.25 sq. ft. @ 5c	11.2
Nail Code top, 0.18 cu. ft. @ 50c	9.0
Plaster (3 coats), 1.25 @ 14c	17.5

Total. Per square foot 69.7 cents

8. TWO-WAY TILE. REPUBLIC



Reinforcing steel, 4.2 lb. @ 3.5c	14.70
Concrete, 0.45 cu. ft. @ 45c	20.25
Tile (each in place) 20 per sq. ft.	15.00
Plaster (2 coats), 1.1 sq. ft. @ 9c	10.00
Forms, per sq. ft.	15.00

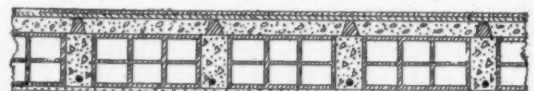
Total. 74.95

Credit. Height of building saved 3 in. @ 10c 3

Total. Per square foot 71.95 cents

Note. Computed by French Commission rules: includes side girders.

9. TWO-WAY TILE. SCHUSTER



THE AMERICAN ARCHITECT—THE ARCHITECTURAL REVIEW

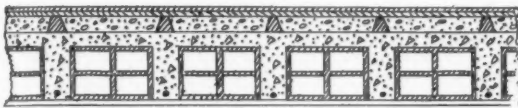
8 in. tile, 0.55 @ 28c	15.40
Concrete, 0.36 cu. ft. @ 45c	16.20
Forms	15.00
Steel, 2.5 lb. @ 3.5c	8.75
Plaster	10.00
Royalty	2.00

Total.	67.35
Credit. Height of building saved	3

Total. Per square foot 64.35 cents

Note. Computed by Schuster formula; includes side girders.

10. ONE-WAY CLAY TILE



Steel, 3 lb. @ 3.5c	10.5
Tile, 3/4 @ 38c	29.0
Concrete, 0.38 cu. ft. @ 45c	17.0
Plaster	9.0
Forms	16.0

Total. Per square foot 81.5 cents

In the Table of Relative Values the writer has attempted to show how other factors than that of price modify the result.

The first factor covers fireproof qualities and permanence. The metal lumber construction is handicapped in this respect and the wood construction is barred.

The second factor is the effect of the building laws of New York City. This may differ slightly from other cities.

The third factor is that of foolproof construction. This takes into consideration the reliability of work done with the class of labor employed and the experience of the working force.

The fourth factor takes into consideration the saving in structural steel due to differences in weight of the types of flooring considered.

The fifth factor is the question of four-way bearing walls, which, when they are provided by the design, have a particular influence on the economy of the two-way systems.

The sixth factor is that of anthracite cinders, in the use of fireproofed steel. Although soft coal cinders are used in the middle West where anthracite cinders cannot be obtained, it is generally recognized that not all soft coal produces suitable cinders and it is best to avoid using such material. If soft coal cinders are used they should be hard burned clinkers from a coal that carries a very small sulphur content.

The seventh factor is that of floor surfacing such as linoleum or monolithic concrete instead of wood. In this item credits should be taken for the reinforced concrete construction, which already has a concrete surface.

TABLE OF RELATIVE VALUES

TYPE	Base price per sq. ft.	Fireproof permanence and Insurance	Special Building Law	Fool-proof Construction	Supporting Structural Steel	Four-way bearing walls	Absence of clean Anth'cite cinders	Linoleum or monolithic floors	Flat ceiling required
Metal Lumber	cents								
Long span	63	handi-	practically		Credit				
Short span	70	capped	barred from	good	for				O. K.
			New York City		Saving				
Reinf. Conc.			Debit 10c					Credit	
Joist	65	O. K.	in New York	good	basic			20c	O. K.
Open joist									
Non-fireproof	23	barred		good	credit				O. K.
Fireproof									
Struct. Steel	63	O. K.	O. K.	good	basic		Debit		Debit
							14c		10c
Reinf. conc. solid beam and slab	67	O. K.	O. K.	fair	debit			Credit	Debit
								20c	10c
Two-way tile. Republic	72	O. K.	Debit 5c in New York	fair	basic	Credit 15c		Credit 20c	O. K.
Two-way tile. Schuster	65	O. K.	O. K.	fair	basic	Credit 15c			O. K.
One-way clay tile.	82	O. K.	O. K.	good	debit			Credit 20c	O. K.

Fire Resistive Interior Building Construction

THE long looked for report by Underwriters' Laboratories on the tests made on interior building construction consisting of metal lath and gypsum plaster on wood supports, has appeared. Copies of the report will be sent on request by the Associated Metal Lath Manufacturers, Chicago, Ill. and the National Lumber Manufacturers' Association, Chicago, Ill. The report contains 118 pages and is well illustrated. It covers reports on tests of the following forms of construction:—

(a) Metal lath and gypsum plaster on wood studs; interior bearing, corridor and room partitions and walls and vertical shaft enclosures. Fire resistance, One hour.

(b) Ditto; non-bearing. Fire resistance, One hour.

(c) Metal lath and gypsum plaster on wood supports; interior, single, wall, partition and ceiling finish. Single finish. Fire applied only on finished face, resistance thirty minutes.

(d) Wood joisted metal lath and gypsum plaster floor construction. Fire resistance, One hour.

An accompanying circular issued by the companies interested gives the following locations where such construction is advisable in order to secure fire resistance in buildings now generally classed as non-fireproof:

(1) Over heating plant, fuel storage rooms, for covering heat ducts, back of ranges for all buildings, including private residences and duplexes, where equivalent fire protection is not otherwise provided.

(2) On entire basement ceilings of all wood joisted buildings other than private residences and duplexes, except those two stories or less in height outside the fire limits. If the basement is equipped with an approved automatic sprinkler system, the use of metal lath on the basement ceilings is optional.

(3) For the walls and ceilings enclosing public halls or stairs, and on the underside of combustible stair carriages of multiple dwellings, also for division walls between apartments.

(4) On the entire basement ceiling, on walls and partitions enclosing halls or stairs, on the underside of combustible stair carriages, and on main floor ceilings wherever, in stores or factories, living quarters or public assembly are permitted above.

(5) For walls and ceilings of attached garages with wood studs or joists.

(6) As protection for joists, bearing partitions and all other structural wood, except for mill construction, in office buildings, banks, court

buildings, passenger stations, museums, libraries, lodge buildings and halls, churches, theatres one story high seating less than 300, schools, colleges, institutions and hotels, asylums, hospitals and nurseries, and in factory or mercantile establishments over 2 stories high.

Spraying Paint and Varnish

THE latest information on the spray method of applying paint and varnish is contained in a special committee report presented to the Twenty-fifth Annual Convention of the National Paint, Oil and Varnish Association, in November 1922. Copies may be procured from the Institute of Paint and Varnish Research, Washington, D. C.

In painting oil tanks the committee discovered that by using brushes it required 124.25 gallons to coat 67,641 square feet in 413 hours. The spray method on an equal area required 82.6 gallons, which were applied in 20.5 hours. The total cost per square of 100 feet was, for hand and brush \$1.16 and by the spray method \$0.40, the material costing \$3.00 a gallon with labor at \$1.00 per hour.

In another instance the cost of painting oil tank cars was reduced from \$15.00 by brush to \$4.17 by the use of spray painting equipment. The spray painting machine is especially serviceable in painting stucco, some costs being reported to have run as low as \$0.001 per square foot.

The committee states there are at present over 50,000 air brushes made by one individual manufacturer in operation in the United States. This number is rapidly increasing day by day due to the unlimited possibilities with equipment of this type. For instance, one large distributor of paints is using over three hundred air brushes for the application of paints and finishing materials on buildings.

Lumber and Its Utilization

IT is announced that Chapter 1, Volume One of "Lumber and its Utilization," is now ready for distribution. This chapter is in the nature of a general introduction to the series.

The next chapter to be issued will be Chapter 1 of Volume Five, devoted to fire prevention. There will be thirty chapters in six volumes, which, will constitute a complete text and reference book on lumber and its uses.

The publications have been put out in form adapted for immediate filing in A-I-A File No. 19a. Architects who wish to receive the entire series should apply to the National Lumber Manufacturers Association, Washington, D. C.

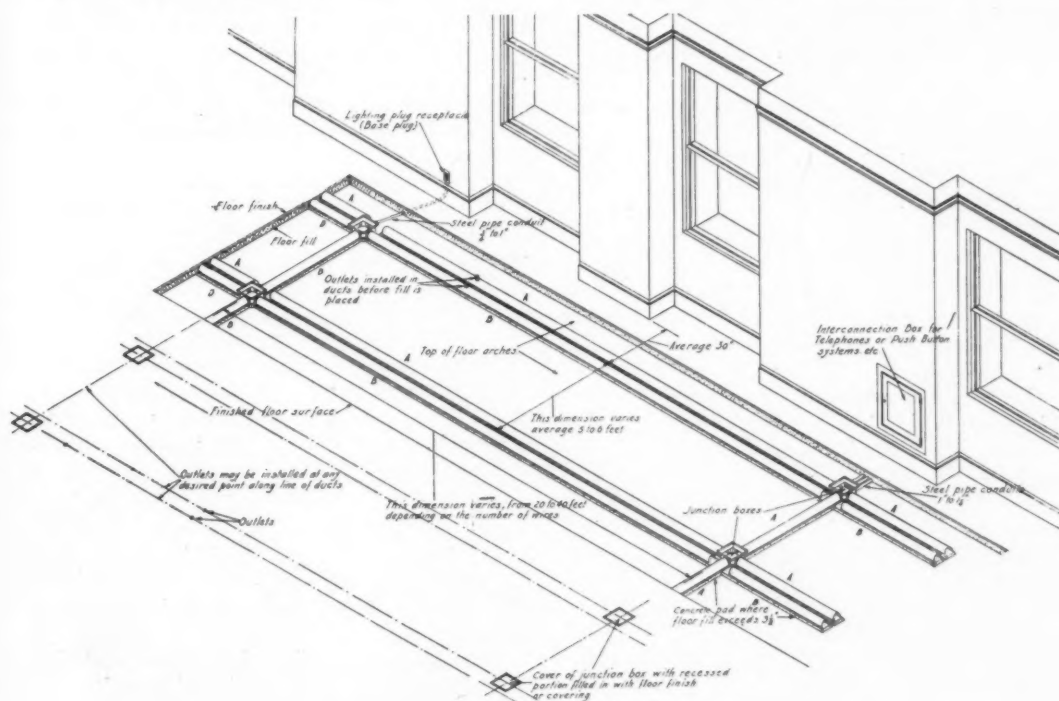
WIRE DISTRIBUTION IN INDUSTRIAL BUILDINGS

A solution of the vexing problem of distributing wires for electrical service in buildings with large floor areas

UNTIL recently all attempts made to solve the problem of wire distribution in buildings involved only the walls and ceiling. In small installations the wires could be run along picture moldings or in sectional, removable base boards. When rooms were divided by partitions into small rooms or offices the proper place for all wires seemed to be along the tops of the partitions. To reach desks that were some distance from any wall the only practicable scheme seemed to be to

of wires hanging from the ceiling, the only alternative, was not good. To run wires from the walls under rugs is possible only in small offices where rugs are used, something rarely seen today as rugs are no longer used in many business offices.

The running of ducts in floors of manufacturing plants has never been particularly difficult, for the location of outlets is generally taken care of in the designs and the wire ducts are installed



Grid Layout of Underfloor Ducts for Open Space Type of Office

run the wires along the ceiling with drops where necessary.

The growing tendency to eliminate partitions and to have offices with large floor spaces and numbers of desks in rows, has developed a system whereby ducts for all wires are placed in the floors. Previous attempts to accomplish this were futile for they were not considered at the time the building was erected and usually consisted of a "chase" cut in the floor, in which the conduit was buried. This was expensive and the appearance

during construction. The principal difficulties have been encountered in office buildings where re-arrangements of desks are not infrequent and where it is impossible to plan many years ahead.

Even in offices, however, attempts were made to anticipate changes by putting in grid systems of metal conduit pipes with the intention of later cutting into these pipes where necessary. The expense of installation was great and this led to unduly wide spacing of the pipes. When outlets were later required the expense of cutting into

the pipes was found to be high and it was seldom that the pipes were so located that they served the desks well.

It was believed by some men that a material less expensive than iron might be used for the ducts, thus cutting down the cost of installation and the later expense of cutting outlets. The advocates of metal objected to this on the ground that as the majority of floors are now made of reinforced concrete the installation of a material weaker than the concrete would cut down the compressive strength of the floor. This objection offered a good point from which to start and the idea was further studied. The result was the invention of a duct semi-circular in section, open on the bottom, which is laid in floors at points designated by the designers so that the strength is not in the least impaired. The duct is made of fibre and is approximately 4-in. across by 2-in. high, for the smaller size. The larger size is half an inch wider and half an inch deeper. It is regularly furnished in 5-ft. lengths with a mortise and tenon joint connection.

The manufacturers employed George J. Seebach, a consulting engineer in New York City, to prepare details for the installation of these ducts in floors of every type now used. The response by architects has been good and many large office buildings are at present under construction with this type of duct installed in the floors. It being the custom to divide floors to suit tenants, the use of a grid system that enables ready access to the contained wires has been well received by renting agents. Partitions may be placed anywhere and outlets may be cut wherever wanted.

The general plan is shown in the accompanying figure. The first line is placed about thirty inches from the outer wall and other lines are run parallel to it at intervals of from five to six feet, this arrangement serving almost any imaginable placing of desks. These lines are fed by ducts extending out from the walls, or from riser shafts, these ducts being at right angles to the distributing ducts and with a junction box at each intersection to facilitate pulling in of wires. These feeding ducts are spaced from forty to sixty feet apart, the intervals being determined by the density of wiring required. The top of the duct is close to the surface of the floor and may readily be cut into as the fibre is not difficult to cut. The close spacing of distributing ducts takes care readily of average size desks, for few of them are more than six feet long and the space between is seldom more than six feet.

In buildings in which it is anticipated that desks requiring wire service will generally be located near walls, but two lines of distributing ducts are run, the first one thirty inches from the wall and the second ten feet from the first. These two lines are sufficient in nearly all modern buildings

erected for the purpose of renting in small occupancies. However, a third line ten feet from the second will certainly take care of practically all office arrangements in such buildings.

In some recent installations in loft buildings the fibre ducts have been run in the regular grid method, as shown in the figure, for the purpose of taking wires to motor driven machines, as well as for the office telephones, etc. In such buildings the outer ducts in parts of the floors are reserved for desk wires and the others for the machines. The junction boxes are of iron with adjustable brass covers, these covers being recessed to receive a filling of cement or linoleum in order to leave only a narrow rim of brass visible when the work is completed. There are regular outlet pieces provided that screw into the duct after it is cut for the purpose of taking out a wire. The top of the duct being about one inch below the floor surface a small flat chisel is used to cut the hole in the floor. When the duct is exposed a wood auger bit or metal drill may be used to cut through the shell. The enclosed wires are not injured and after the new outlet is screwed in place the hole is patched without leaving an unsightly scar in the floor surface.

Suggestions for Painting Cypress and Yellow Pine

IT is stated by Mr. Henry A. Gardner of the Institute of Paint and Varnish Research, Washington, D. C., that repeated requests have been received from paint dealers, painters, and property owners for information regarding the use of ready-mixed paints for cypress. The Institute as a result of these inquiries issued a special circular in January 1923 containing suggestions for painting and decorating cypress dwellings and structures with prepared paints. In offering the suggestions Mr. Gardner points out that the treatment of yellow pine may be similar and says that the use of a properly thinned priming paint that will dry to a firm film, is the basis of most good painting.

The circular contains eight pages and should be in the file of every specification writer. The following introductory remarks are taken from the circular.

Cypress is universally recognized as one of the most durable woods for general construction purposes. Hundreds of examples of the longevity of this wood are to be found in the old colonial dwellings of the Southern and Middle Atlantic States. Enthusiastic users have even stated that cypress needs no paint. Even if this should be so, people would look askance at the dwelling that was left unpainted, for the modern desire for community betterment demands æsthetic surroundings and properly decorated homes. As a matter of fact, however, paint helps to increase the life of any

species of wood, because it keeps out moisture and fungi, the first effects of which are shown by surface staining.

The question has often been asked as to the holding power of paint upon cypress wood. This question can be answered by stating that cypress takes and holds properly prepared paint, with highly satisfactory results, provided the paint is properly applied. Painters at one time had no understanding of the distinctive nature and properties of cypress and they naturally made the mistake of treating it like any other type of wood. The researches of the lumber expert, however, have shown that cypress contains an oily ingredient known as Cypressine, which seldom appears upon the surface of the wood, but which may be the active agent that gives to cypress its remarkable durability. The painter and paint expert have made their contribution to the subject by demonstrating that remarkable painting results may be obtained by the application of paints thinned with certain volatiles, which will cause an amalgamation of the priming coat with the Cypressine contained in the pores of the wood, producing a composite bonding coat that is undisturbed by exposure to the elements.

Principles of Successful Painting.—The failure of paint to give the expected service upon any type of wood is due in a majority of cases to factors which may easily be overcome by the observance of principles which have been developed as a result of many practical tests. The most important of these is to avoid painting during damp weather. Dampness prevents proper penetration of the paint into the wood, delays the hardening or drying of the film, and produces a soft coating that may be affected by the weather. Often the dampness which may be drawn out through a new house from the fresh plaster will affect the paint and cause blisters to form. For these reasons it is very necessary that all exterior painting work should be done upon properly dried surfaces during a dry period of weather. Another factor which must be carefully avoided is the use of shellac over knots or sappy surfaces. When paint is applied over such shellacked surfaces, no penetration is obtained and the action of the weather will cause flaking and scaling at such spots. The use of ochre as a priming coat on new wooden surfaces should also be carefully avoided. Probably more cases of failure have been caused by this material than any other.

Selecting a Paint.—In selecting a paint for the dwelling the property owner should understand that best results are obtained with paints made

by the thorough grinding of pigments and oils in the powerful machinery that is used by the manufacturer. The property owner should also be taught that the most durable results from exterior painting are obtained from the use of tinted paints. Permanent colors which are ground by machine into lead and zinc paints have the effect of increasing the durability of such paints by 30 per cent or more. Of course, in some instances white is the color that gives the most harmonious effect, but in most cases tinted paints should be selected. The majority of the high-grade Prepared Paints to be purchased from reliable dealers in any city will give the most highly satisfactory results, as they closely approximate the prepared paint that is called for in the specifications of the U. S. Government.

Spreading Rate of Paints on Wooden Surfaces.—Paints ready to apply will spread from 500 to 800 feet per gallon, one coat. The average spreading rate, however, of the paint for three-coat work, when well brushed out, is generally reported as about 200 to 250 feet.

Cost of Painting.—The number of gallons required for a job may be estimated by figuring out the square feet of surface to be coated and dividing by 225. For two-coat work, divide by 350. The cost of application will depend entirely upon wage scales in various communities and upon whether the work is done by an employee or the property owner himself. The use of spray machines for large surfaces will greatly reduce the cost of application.

A Valuable Bulletin on Slate

THE Bureau of Mines, Washington, D. C., has just issued Bulletin No. 218 entitled "The Technology of Slate" by Oliver Bowles. Copies will be mailed on receipt of request, to all who are interested in the material. Architects who wish to be well posted on all building materials should obtain this bulletin for their reference libraries.

Twenty Years of Portland Cement History

THE Portland Cement Association issued, in commemoration of its Twentieth Anniversary Meeting a Progress Review of Twenty Years. It is an artistic brochure and contains articles showing what the association was organized to do, what it has done and the plans for the future. A large number of halftones add to the attractiveness of the book.

The Care of Linoleum Floor Coverings

AN investigation was made recently to discover the effect, on all grades of linoleum, of washing with various kinds of neutral and alkaline soaps and abrasive soap powders. While in general the neutral soaps proved entirely satisfactory, the continued use of alkaline soaps or abrasive cleansers was damaging. The investigation was conducted by Mr. Henry A. Gardner and his report appears in Circular No. 161, Institute of Paint and Varnish Research.

Mr. Gardner states that "the results obtained led to the inauguration of a series of tests on various grades of linoleum, that were varnished either with a high grade interior varnish or a high grade exterior spar (all-purpose) varnish. Two coats were applied, with a period of about two days for drying between coats. A smooth, glossy finish was obtained, which appeared to have better traction properties when sprinkled with water than the unvarnished samples similarly treated. These samples were then rubbed for thirty different periods in almost as many days with various neutral and alkaline soaps and the abrasive soap powders. In no case was failure shown. It is true that the alkaline soaps, and especially the abrasive soap powders dulled the finishes, but no failure of pattern, color change, darkening, spotting or similar defects were observed. This would suggest that varnishing is the proper treatment for all linoleum or similar floor coverings, and that the varnish should be applied immediately after the laying, or at least as soon as it has stretched to permanent form on the floor.

"Waxing of linoleum is a practice that cannot be recommended. Wax compounds often have a softening effect upon the linoleum, and dirt is easily ground into the softened surface, with danger of permanent discoloration. On the other hand, waxing is desirable where a "dull polish" is desired, but it should be applied after the linoleum has been varnished as noted above. The varnish makes a firm base upon which the waxing will give good results.

"On board ship in the U. S. Navy, where linoleum is almost indispensable as a floor covering, the practice of maintaining the linoleum with treated oil coatings applied by cotton waste, is part of the requirements. In officers' quarters where the linoleum has become dull, the upkeep

of the surface is maintained through the application of paint coatings. For home use, however, where linoleum printed in designs or block patterns is used, the application of a clear, transparent coating of varnish is much more desirable."

New Moulding Standards

THE Southern Pine Association, New Orleans, La., announces that the new standard moulding book is ready for distribution.

The adoption and publication of the new moulding designs marks the completion of an important task jointly undertaken by the American Institute of Architects and the National Lumber Manufacturers Association. To quote from the announcement of the Southern Pine Association:

"In the former standard moulding book there were approximately 900 different patterns, but the architects' committee has reduced the number of new patterns to 149. The old designs of mouldings were criticized from the standpoints of excessive numbers and artistic form. The new patterns are pronounced artistically perfect by the architects, they having changed the lines and forms of the mouldings to serve the purpose for which mouldings are designed, to create light and shadow.

"For example, where there were reverse curves in the old moulding patterns the concave and convex curves usually were of equal length. The architects hold that in the case of reverse curves one must dominate the other, that the eye is rested more by a short concave and a longer convex curve than by curves of equal length. According to the architects the new patterns are decided improvements over the old forms in simplification, notable reduction in number of designs and in being artistically correct.

"The Association's new moulding book contains the old standard patterns as well as the new, inasmuch as many dealers still have more or less stocks of the old pattern mouldings on hand and time will be required to eliminate their use and secure the general adoption by architects, builders and the public of the new forms. Ultimately, however, it is expected that the new patterns will entirely replace the old and the forms designed by the architects' committee will be adopted as standard by all the lumber manufacturers throughout the country."

LEGAL DEPARTMENT

Conducted by

CLINTON H. BLAKE, Jr., of the New York Bar

A SUBSCRIBER to THE AMERICAN ARCHITECT AND THE ARCHITECTURAL REVIEW has submitted to the editor the following questions and requested their discussion in the Legal Department:

"Under what conditions may a bidder withdraw his bid?

Can the owner make a bidder accept a job?

I understand that no one would be foolish enough to try to make the average contractor take a job against his will, after submitting a proposal, but am anxious to know the legal status of such case."

It is a fundamental rule of contract law that, in order to have a valid contract, there must be a meeting of the minds, as we lawyers term it. This means that the minds of the parties must have been met, in the sense that they have both agreed on the terms of the contract with a proper understanding on each side of these terms and of the meaning of the agreement made. It is also fundamental that the contract must have what is called mutuality. This means that there must be an obligation on the part of both of the parties to the contract. In the case of a building contract, there must be the obligation on the part of the contractor to do the work and on the part of his employer to pay him for the work done.

An offer in itself, be it ever so definite, cannot and does not constitute a contract. Something more is needed, namely, the agreement by the other party to the terms of the offer and the acceptance of the offer by him. If an owner requests the submission of bids and bids are submitted in the most definite and clear form imaginable, they remain bids, and are not transformed into a contract, unless and until they are accepted as made. Up to that point, they are offers in effect, submitted by the bidder and subject to withdrawal or modification by him at any time, prior to their acceptance.

The acceptance necessary to transform a bid into a binding contract must be definite and unconditional. If a bid is submitted by A and B writes back that he accepts the bid, but states that he does so on a condition which adds a new term to the agreement, there is no contract, unless the bidder approves and agrees to the additional term thus imposed. If he does not agree to this, he is quite free to withdraw his bid, and the acceptance is not, under these conditions, sufficient to create a contract. Where the bid is accepted, without any new condition being imposed and

without the bid having been withdrawn prior to the acceptance, the acceptance completes the contract and the contract becomes effective upon the making of the acceptance.

The law does not require that the offer or the acceptance shall follow any cast iron formula or make use of any technical phraseology. So long as the intention of the parties is clear and so long as it is established that a proper offer has been made and that this offer has been accepted as made, the contract is in effect and can be relied upon by either party.

The answer to the first question submitted, therefore, is that a bidder may withdraw his bid at any time prior to a proper acceptance thereof, but that, if it has not been withdrawn prior to acceptance, it becomes a binding contract, when the acceptance is made. This rule, of course, would not apply where, for a proper consideration, the contractor had agreed that the bid should be a firm offer and not subject to withdrawal for a certain period. This, however, is not, I take it, the case which the correspondent has in mind.

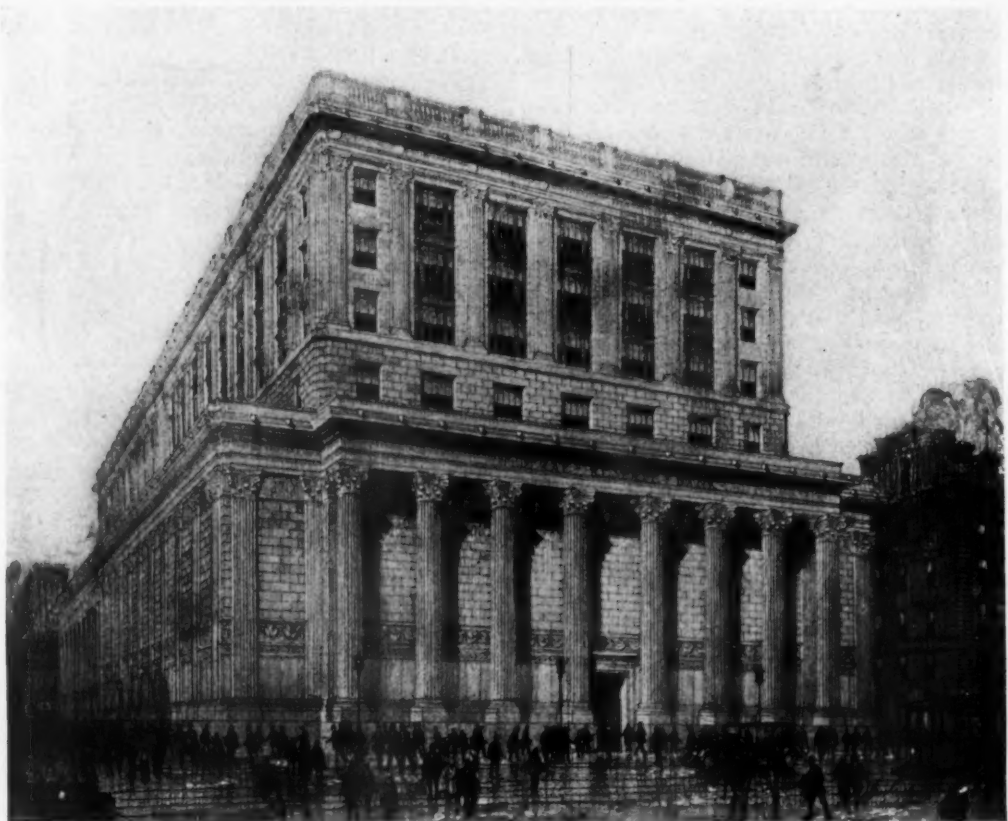
With respect to the second query, namely, whether the owner can make a bidder accept a job, the answer is in the negative. If a bid is made and accepted, the most that the owner can do is to call upon the contractor to perform the contract resulting from the offer and acceptance and hold him liable in damages, in the event that he does not perform this contract. The law will not take a contractor by the neck and physically compel him to erect a building which he has agreed to erect. This is beyond its scope and power. It will say to him "You are obligated, legally, to do this work and, unless you do do it, the owner will be entitled to recover from you all of the damages occasioned to him by your refusal to live up to your undertaking."

There are cases which the correspondent doubtless has in mind, where the law requires specific performance of a contract. These, however, are cases such as an agreement to convey real estate, where a Court of Equity can compel a conveyance to be made in accordance with the agreement. The difference between this class of cases and the ordinary building operation or the ordinary contract for personal services is clear, and where, in one case, the law can compel the defendant to do that which he has agreed to do, in the other, it can do no more than recompense the other party for the breach of the contract and the damage occasioned him thereby.

In considering the matter of a bid and its acceptance, it must not be assumed that, if the contractor makes a mistake in his figures, this will be such a misunderstanding as will relieve him from his obligations, in the event that the bid is accepted. If a bid which is perfectly clear and definite is submitted and the other party, in good faith accepts the bid and acts upon it, the contractor submitting it is bound by the offer which he has made, notwithstanding the fact that he or one of his employees, in arriving at the figures which he has included in the bid and submitted to the owner, has been in error. An error of this kind is the fault of the person submitting the bid and the innocent party accepting the bid in good faith cannot be

made to suffer for a mistake of this kind.

There may, of course, be certain other conditions under which a bid might be withdrawn, even after acceptance, as for instance, if its submission had been secured by false representations or if it had been submitted by someone who had undertaken to represent the contractor, without authority to do so, or the right to bind him. I do not imagine, however, that the architect who made the inquiries which have resulted in the foregoing discussion had in view cases of this character, which are entirely special in their circumstances and governed by distinct rules of law which are not applicable to the ordinary case of the submission of a bid and its subsequent withdrawal or acceptance.



Federal Reserve Bank, Ninth District, Minneapolis, Minn.

Cass Gilbert, Architect

(Thirty-eighth Annual Exhibition, The Architectural League of New York)



Study in a Mexican house

THE CINEMA ARCHITECT

BY SANFORD D. BARNES, Technical Director for Mack Sennett, Inc.

Illustrated by photographs of "sets" for the moving picture production of "Suzanna"

EVERY large industry is composed of a number of parts which, when placed together, form a perfect whole. Often one part is not as perfect as it should be; then effort must be concentrated on that part to fill in the gap. Progression sometimes causes it, but by retarding the progress of some parts and concentrating effort on others, an almost perfect machine will result.

So it is with the motion picture industry. Motion picture production is made up of a number of arts combined to make a finished product. Until recently, while many of the arts were forging ahead, some, it was noticed, were lagging behind. At this point it was apparent that details necessary for the accurate refinement in picture production were not receiving proper attention. It was then that the thoroughly equipped technical director for motion picture production came into his own.

Well known architects and equally well known painters are now engaged by the larger producers to plan, design and supervise the construction of proper settings, accurately fitting in design and atmosphere the story, the characters, the locality and the period of the story.

Not so many years ago, a few "flats" nailed together and papered, constituted a room. A few sticks of any kind of furniture were the furnish-

ings. But now, whether it is a single hall room or a street in India, much thought is exerted in mapping it out, in planning, designing, and making perspective sketches. Oftentimes a "set" is made in miniature before it is built for reproduction. In the case of reproducing on the screen a street scene in India, or such other foreign setting, much research work is necessary before any actual construction is started.

A case in point is the recently completed production of "Suzanna." With this cinema play, the early and romantic days of Southern California, about the time of 1835, are filmed. At that period, according to the history of California, the aristocratic Spanish Dons were the firm but wise rulers of that section of our country. Much has been said and written about those pioneering days so that every portrayal in the picture had to be authentic. Every "set" had to be perfect in detail and construction. It was only after many of the old ranchos had been visited and photographed, histories and other books consulted and historical societies appealed to, that the designing and planning were begun.

A "screen architect" has more intricate problems as to correctness of details to contend with than the architect who merely designs and supervises the building of a house.

For instance, the strength and direction of

light rays have to be considered for the various and proper effects desired to get perfect composition in each photographic angle. The characters must fit into the setting and look as though they really belonged there, that the effectiveness of the "sets" may not be marred by their presence or action. Nor must the setting overpower them so that the characters' actions and presence are lost. Both must harmonize if a perfect picture is to result.

In the case of "Suzanna," as much time was devoted to thoughtful planning as was given to

tives are made and the plans and details all carefully worked out. Each "set" is thoroughly inspected and criticized by the producer and director, who study the effectiveness of architectural composition in conjunction with the action which is to take place in it. It is the technical director's duty to plan, build and dress "sets" which will combine authenticity of period, beauty and artistry with sufficient space for the action required.

In "Suzanna," one of the problems presented was the amount of action which must take place



Dining room in a Mexican house

the actual photographing. Considering the fact that the story, characters and costumes were romantic as well as the period in which the action is supposed to take place, so must the "sets" and their dressings be also romantic. With this thought in mind, each little detail of the customs which governed the lives of those early settlers and the style of architecture of the Missions of California was noted and incorporated in this play.

Technical Directors (screen architects) are painstaking in their efforts to achieve correct effects. A large number of sketches and perspec-

at night in a garden of the rancho, also in the patio reserved for the peons. After deliberation it was decided to build both "sets" on the studio lot, surrounding them with buildings which would later be utilized for other "sets." This was done and it proved entirely satisfactory. Incidentally it brings up another problem that is being carefully studied by producers, which is, the building of exteriors, no matter how large, in the interior of the studio.

Soon it will not be necessary to find locations and take a large cast and paraphernalia to them to photograph the scenes wanted. In this way

time is not sacrificed and the saving of time means the saving of money, for oftentimes the only locations which could be used are many miles away and great inconvenience is experienced in transporting the things needed for photographing.

Various facts combine to favor the building of exteriors on the lot. Not solely because it is less expensive, but that it is more convenient to have the "set" in the studio where it is of easy access for those working in the picture and for the producing head, who is able to give more time to the supervision of the work being accomplished, when that work is not hours or days removed from the studio.

of the enclosed studios. Sometimes it is done, although it is not practical except during the summer months. In most cases they are built as any house would be constructed and as were the haciendas in "Suzanna."

Those buildings were constructed in much the same manner as though they were intended for permanent use. The walls are of solid 2x10 boards upheld by 2x4 studs covered with laths over which a coat of plaster and cement is applied. There is a "porche" or corridor around three sides of the garden patio all of which is constructed to hold up the heavy tile roof which covers it completely. The outhouses bordering the servants'



A private chapel in a Mexican house

Everything considered, it is the most practical method of producing motion pictures. On the studio lot the camera angles are thought out, planned and discussed with relation to the action called for, and if night scenes are to be "shot" platforms for lights, camera, director and in fact for everyone and everything, are instantly available for use.

When buildings are erected in the studio, taking for example the rancho buildings with its patio and gardens used in "Suzanna," they must be constructed to withstand the weather, especially the winter months when rain may always be expected. It is seldom that exteriors built out-of-doors are constructed in the same fashion as those built under cover, or we might say on the stages

patio are finished on three sides with complete roofs over them, and in some parts the interiors are also finished. Every "set" in the entire production was treated to two finishing coats of plaster to give the effect of realism and strength, and every bit of exposed wood construction hewn by hand. No detail was overlooked which would add to the necessary realistic effect, even to the locks and hinges on the doors and windows, which are all wrought iron, except where wood or raw hide was used for better effect.

Thousands of feet of lumber, wagon loads of sand and hundreds of bags of cement, with many gross of tiles, were used for the construction of the rancho set in this picture. This one set alone covers an area of over twenty thousand feet of

space, and represents to the most minute detail one of the early California Missions.

From the accompanying photographic reproductions of sets constructed for "Suzanna," it can be seen to what expense and mental and physical

effort the present day producer will go, who would have his art accepted by an educated and entertainment-loving public, as an honest cinematographic likeness of things, places and incidents, whether historic, romantic or otherwise.



A Mexican living room with wedding decorations

Historic Landmarks

THE following editorial appeared in a recent issue of the *New York Tribune*:

"The announcement that a purchaser has already been found for the house in which James Monroe died will be welcome to all who are interested in the preservation of historical relics within the city limits.

"Monroe was not a native New Yorker. Despite the doctrine which has made his name immortal, he was the least of the Virginian Presidents who exercised so great an influence on the early history of our country. Both Jefferson and Madison were men of greater ability, but Monroe had the wisdom to rely upon both for counsel in time of trouble. He also was fortunate in having as his Secretary of State John Quincy Adams, a gifted diplomat and man of keen insight into world affairs, to whom as much as to Monroe credit is due for the promulgation of the Monroe Doctrine.

"The house where Monroe died is, nevertheless, a landmark of historic interest to the country. It is of particular interest to New York, and its

preservation is all the more desirable in that so few similar landmarks in the city have survived. We have been too negligent in the matter of enshrining the past. Whether the reason for this is that New York owes its greatness to the fact that it always looked to the future is hard to tell. Certain it is that while the city strode forward it ignored the past, and that the preservation of early historic monuments was left to New England and the South. In Boston there is hardly a spot of historic interest which is not marked by a commemorative tablet, nor a house where a great figure was born or lived or died which has not fallen into the care of reverent hands.

"In New York, however, we do not seem to have cared. Who of the throng that hurries through Wall Street knows that at No. 35 formerly stood the house of Alexander Hamilton? How many persons realize that lower Broadway was once the heart of the residential district and contained the houses of many famous early New Yorkers? It is high time to preserve the few remaining historic landmarks in the city and to commemorate the sites of those destroyed."

MORE COMMENTS ON REGISTRATION LAWS

BY ARTHUR PEABODY, A. I. A., President, National Council of Architectural Registration Boards

THE article "Architects and Law Makers" in the January 3 number of THE AMERICAN ARCHITECT AND THE ARCHITECTURAL REVIEW may well attract the attention of the Boards of Examiners of Architects. Mr. Pond is not a captious critic, but a man who has observed the working of the Illinois registration law for twenty years and sees the obstacles that registration generally puts into the path of architects who, while interested in the welfare of the profession and in the protection of the public, are not directly assisted by the law. That is to say, their standing and methods would be quite the same if the law did not exist.

Points in Mr. Pond's essay might be controverted. Replies might be made to some arguments. Yet the present laws will remain in force, and new laws will be enacted in other states until, as he says, an architect might be obliged to carry too many certificates for the amount of business derived from them. His plea for the emotionally endowed and serious minded artist is justified in part only. However temperamental the artist may be, he cannot quite forego acquaintance with all that is contained beneath the skin of his conception, any more than the sculptor can be indifferent to the anatomy of the men and horses he depicts in bronze and marble. In fact, his knowledge must be more accurate than the sculptor's for he proposes to create a reality and not a semblance. It is only when the artist goes beyond the limits of pure design and touches upon the physical that the law exclaims, "Tut tut, what do you know about that?" In short, the law applies only to execution and then just to those items that go to hold things together. It would be interesting to speculate whether the designers of the Cathedral of Beauvais, true exemplars of emotionally endowed and thoughtful minded artists, had they been a little closer to the facts, could have saved the building from that second crash that ended cathedral building in their neighborhood for the rest of time.

But the architect is something more than simply an artist, closeted in a secluded nook, dreaming of palaces. He assumes to be a master craftsman. He takes upon himself to be the leader of specialists in construction, the safe custodian of a client's funds, wise and honorable judge, first resort in emergency and sure captain who brings all safely to the end.

So much is this the fact, and so complicated are modern problems, that a division of the different functions among the partners of a firm is too common to create remark. Yet each of

the associates assumes to carry the title "Architect" and will, on occasion, undertake any of the duties implied by it. But this predicates at least some measure of training in the profession.

The registration law contemplates also a class of architectural quacks, pirates, bootleggers one might almost call them, parasites on the profession who manage to keep from the sheriff by a more or less narrow margin. As a general thing such men are incapable of passing even the simple examination given by the Board of Examiners of Architects. Most of them are registered under exemption, which confines them within the borders of their own states, and breaks down their system of preying on strangers here and there at points sufficiently far apart. If the registration law had reached only to this point it would still be justified.

Right here comes the next point raised by the critic, transfer of registration to another state.

The cumbrous and expensive method by which transfer is effected has been the occasion of not one, but many complaints. To alleviate the situation the National Council of Architectural Registration Boards was created, and taking conditions as found, it may be fairly said to have done good work. Transfers can be made through it without personal appearance before examination boards at different points in the country, involving expense of travel, loss of time and repeated questioning of fundamental qualifications. It is admitted that for an architect of the first rank to be compelled to demonstrate elementary skill and competence to boards of examiners who may be far less qualified than himself, savors of the ridiculous. Yet it is not the fault of the examining board, but the narrow and parochial way in which state laws have been compiled and made to operate.

The National Council of Architectural Registration Boards as a channel for transfer of registrations is but a temporary expedient, depending upon a gentleman's agreement and colored by the personnel of the Executive Committee of the Council who without pay and under some criticism have established a modus by which transfer can be made more practicable. Some better means must be thought out as soon as can be. A more perfect union between states must be effected. Architects must not be required to do over again what should be done once for all. There should be one examination, in whatever form is best suited for the occasion, such as the junior and senior examination, one fee, one standard of excellence below which no architect should be registered, however much he may rise above it. A number of states are

already on this basis. Between such a mutual agreement should be made whereby an architect registered in one state may practice freely in all.

It is not suggested to violate the substance of any law, or to make such concessions as would break down its force. What will be required is a closer study of the essentials of these laws, which are that the public shall be protected by sound construction and building hygiene. As with all other documents, the registration laws are now surrounded by tradition, precedents, and conventions arising in some measure from the interpretation of the first registration law, which was until recently as parochial as one could wish.

Mr. Pond suggests the repeal of all law. The case is not so desperate as this, nor would the change be much better than that of the house mentioned in holy writ as swept and garnished but into which entered seven other devils worse than the first.

The project of registration was begun by the architects. Laws were compiled, passed and applied by them. To exchange what is now in their control for something not so conditioned, would be a little like the story of King Log and King Stork. But a remedy can be applied. As an illustration, suppose we glance at the law licensing the operation of automobiles. In most states a license can be obtained upon payment of a fixed fee. Just how it is obtained is not important. The point is that in making application for a license the person submits himself voluntarily to the state law and agrees to obey it on penalty of having his certificate revoked. But note this. Once having a license and a number plate, the driver may go where he pleases. He does not stop at every state line and obtain another license, paying a new fee. However, if he changes his residence permanently he would be obliged to do so. The license may or may not indicate that he is a competent driver, although that element is right on the way and is being discovered by examination and by actual demonstration in some of our large cities. The point in the issue of a license is that a permission is granted, which may be revoked. The automobile law would, of course, need to be stretched somewhat to serve as a model registration law, but the idea is correct. Once the driver is permitted to place a number plate on his car, and he cannot drive without one, his status is indicated. If in a foreign state he violates the local law, he is amenable to its terms the same as in his state of residence. Otherwise he is not interfered with.

Now the object of the registration law is the same as the automobile law, protection to the public. The revenues from either law, etc., are immaterial to the argument. It can be presumed that registration boards are not out primarily for the money. Their intention is the protection of

the public, directly by the elimination of incompetents and indirectly by the gradual raising of standards in the profession. If the intention were to earn revenue, of course the more difficulty as to transfers the more fees. But, surely it is not that.

The principal difficulty in the formulating of a reasonable plan for the interstate practice of architecture is the will to bring it about. It has been said to be impracticable under the present registration laws. Without attempting to discuss all laws at once suppose we confine the inquiry to the Wisconsin law which is a fair representative. Section 2394-97-1 prescribes that

1. No person doing business in this state shall use the term Architect ——— without a certificate of registration.

2. A Board denominated the Board of Examiners of Architects is created, etc. Said board shall prescribe reasonable rules for the examination and registration of candidates for certificates.

3. Any person ——— may apply for examination or a certificate of registration ——— but before securing such certificate he shall submit satisfactory evidence of having acquired a thorough knowledge of sound construction, building hygiene, architectural history and mathematics ———. Upon complying with the above requirements the applicant shall satisfactorily pass an examination as established by the Board of Examiners. The Board of Examiners in lieu of all examinations may accept satisfactory evidence of anyone of the following qualifications:

(1) A diploma or satisfactory certificate from a recognized architectural school or college, ——— together with at least three years' practical experience ———.

(2) Registration or certification as architect in another state where the qualifications ——— are not lower than those required by the Board of Examiners.

The remaining portions of the law regard the conduct of business, the issue and revocation of certificates and punishments for violations. The reasonable rules of the Board of Examiners of Architects of Wisconsin touch upon the conduct of business and the dates of class examinations. The forms of certificates are left to the judgment of the Board. At present there are two forms, one for registration by examination and one for registration by exemption, the latter being issued also to architects transferred from other states.

The interpretation of the law and the attitude of the Board of Examiners of Architects, like others similar is state bound. The board will not examine candidates residing in states having a registration law. They do not consider transfers as a right, but as a courtesy and are not wholly governed by the fact that candidates are registered by examination in other states. This is the prob-

able attitude and practice of most examining boards.

The particular section of interest in the Wisconsin law recites that the Board of Examiners in lieu of all examinations may accept

(2) Registration or certification in another state where the qualifications are not lower than those required by the Board of Examiners.

Practically all states have agreed to do nothing for architects registered by exemption. Such men must attain the status of examined in order to be eligible to transfer. This does not always involve class examination where the architect has practiced for a number of years. The determination of whether the qualifications in some other state are not lower than in their own state has bothered boards of examiners considerably and has perhaps given rise to policies not actually warranted. What is needed here is clear vision and good sense. The language of the law of each state is a good indication of the probable equality of requirements. Another evidence will be the interchange of documents between states, a frank statement of policies and a mutual agreement to carry out the spirit and intent of the law, without being unduly influenced by precedent, tradition and insistence on items immaterial to the main idea. It is not necessary that examinations should be identical nor in every case equivalent. Certain states may insist on higher excellence in design than others, some on a more exhaustive inquiry into the structural and utilitarian knowledge of the candidate. These differences are not essential so long as each state examines its own citizens, and the examinations are on the whole such as show adequate skill and competence. The parallels of requirements between different states need not be more exact than that. This question of absolute equality of requirements is perhaps too greatly pressed by boards of examiners.

The whole matter may be thus summed up:

1. A board of examiners should examine only residents of its own state. Such examinations should be fairly comparable, but need not be identical.

2. States should furnish each other with correct lists of examined registered architects.

3. A certificate of transfer should be granted on the sole basis of registration by examination in the candidates' home state. This should amount to permission to practice only and should not constitute independent registration, from which other transfers can be made.

4. A transfer should be cancelled for cause the same as any other form of registration, but this should not involve revocation of registration in the candidates' home state.

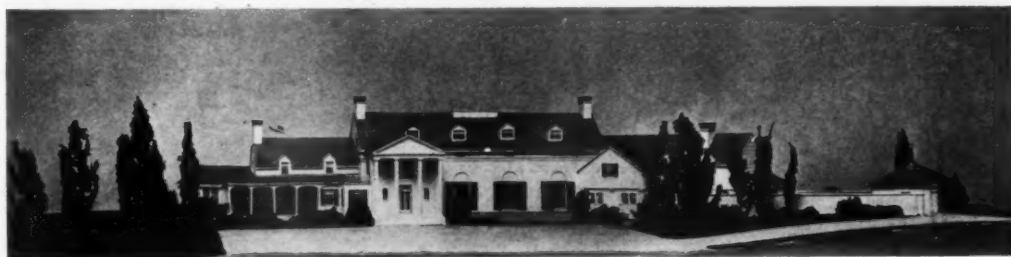
5. Revocation of the original certificate of registration in the candidates' home state should cancel all transfers.

The formal act of obtaining formal transfer is not, after all, necessary. That is to say, the whole machinery now employed need not be insisted upon. Should several states, by mutual examination of documents, practices and policies, come to a realization that their requirements are equivalent, though not necessarily identical, certificates of registration in one might automatically carry permission to practice in all. The details of this project would be too long to insert here, and are not essential to the present argument.

For some reasons a stamp or seal might be advisable, to show the architect's right to practice. This information to the public might, however, be conveyed in some other manner. Other details of practice would, of course, need to be arranged.

It is the intention at this moment only to point the way, not to cover all the ground, or to evolve a complete scheme which will be impregnable to the assaults of the formalists, legislators and so forth that made the whole trouble in the first place.

The contention is that architects can best control their own practice. That the registration of architects should be put on a broader basis than at present obtains. To bring this about the states will need to co-operate and so overcome the difficulties and annoyances connected with the interstate practice of architecture.



Plainfield, N. J., Country Club

Roger H. Bullard, Architect

(Thirty-eighth Annual Exhibition, The Architectural League of New York)

William H. Gompert Appointed Architect for New York City Board of Education

THE Board of Education, New York City, has appointed Mr. William H. Gompert, A.I.A., architect and superintendent of buildings to succeed Mr. C. B. J. Snyder, F. A. I. A., resigned. Mr. Gompert, who is Vice-President of the Brooklyn Chapter, A. I. A., comes well qualified for the position. He received his technical architectural training at Pratt Institute and his art training under Professor Whitaker at Adelphi Academy, Brooklyn. His early architectural experience was obtained with such well known firms as McKim, Mead & White, Maynicke & Frank and Harding & Gooch. He was among the very first to receive his certificate of registration when the law went into effect in 1916. He is also a registered architect in New Jersey and Michigan.

Mr. Gompert's experience has been confined almost exclusively to large fireproof buildings in New York City and is expert in architectural business administration and building contracts. Among the more important buildings designed by Mr. Gompert are the Burrell, Pullman, Cuyler and Sinclair Buildings, the Embassy Hotel, Finishing School at Tarrytown, N. Y., and the reconstruction of Plymouth Church, Brooklyn.

Mr. Gompert's appointment is fitting in every way and he will undoubtedly maintain the same high standing and efficiency of the Building Bureau which distinguished the long service of his predecessor.

Traveling Exhibitions of Art

THE American Federation of Arts, Washington, D. C., has recently issued its announcement of traveling exhibitions for the season of 1922-23. Sixty-three collections are listed, including oil paintings, water colors, illustrations, original prints-etchings, lithographs, wood blocks, reproductions, photographs, sculpture and school work, besides industrial art, architectural and civic collections. Among the latter may be mentioned an exhibition of tapestries and brocades; a collection of modern American materials in silk, wool and cotton, showing most recent developments of mechanical production of fine designs; a collection of modern American velvets, with hand and machine printed patterns; furniture types—a collection of illustrations, chiefly large photographs, showing types of furniture design by styles, and a group of garden photographs from the American Society of Landscape Architects.

These exhibitions, covering a wide range, are obtainable by art museums and associations in all parts of the country for a fee covering the cost of assemblage and insurance. Last season the Federation's traveling exhibitions were shown in 143 different places in thirty-eight out of the forty-eight States.

Review of Recent Architectural Magazines

THE usual feature of Review of Recent Architectural Magazines is unavoidably omitted from this issue, and will appear in the succeeding issue, February 28.



George Washington Masonic National Memorial, Alexandria, Va.

Helmle & Corbett, Architects—Osgood & Osgood, Consulting Architects

Olmsted Brothers, Landscape Architects

(Thirty-eighth Annual Exhibition, The Architectural League of New York)

DEPARTMENT OF SPECIFICATIONS

CONSTANT readers of these columns will understand the scheme governing the specification outline suggestions that appear after the discussion on one section of the specifications has been concluded. However, without going into detail, the following brief explanation may suffice for those readers who have not read previous issues. The outline will be found to be more complete in some respects than is the discussion. The insertion of suggestive references in the outline will lead the reader to understand reasons for their mentioning and he will undoubtedly be able to develop an outline to suit his more particular needs in a more thorough fashion. Each outline is presumed to be complete in itself, although some of the references will be found to be identical in all outlines. The expansion of this outline should be studied with a view to turning it to the particular needs of the user; expansion should not be made to cover work not ordinarily encountered, except where a general listing of items may be had to carry through the intended sequence. The preparation of outlines in amplification of this one may be more clearly understood if the reader will turn to the discussion appearing in these columns some time ago with regard to the compilation of a master outline and checking list.

SPECIFICATION OUTLINE FOR STRUCTURAL STEEL

I. GENERAL CONDITIONS

- a. A paragraph referring the reader to the General Conditions that will be made a part of the contract, and which will be read by all bidders. This will be a standard clause.

II. SCOPE OF CONTRACT

- a. Extent of the work given in brief outline, to be followed by
- b. A schedule of general items that are to be included in the work. This schedule should be drafted from the general outline or master specification and should be completed only when the specifications are finished, when the paragraph, or sub-division captions may be used. This schedule, in tabulated form, will improve the clarity and the businesslike appearance of the documents. In many cases, the scope of structural steel work may be referred to in the following words: "All structural steel work shown on the structural steel drawings."

- c. Work of a similar character that already has been done by other contractors, arranged in schedule form.
- d. Work of a similar character that will be done by other contractors concurrently with or subsequent to this contractor's work, in schedule form.
- e. State if erection is to be included or delivery only desired.

III. EXAMINATION OF SITE

- a. The use of this paragraph may be questioned in many cases, but where foundations already have been built and peculiar conditions regarding storage of materials exist, or where restricted areas preclude easy erection conditions, such a paragraph will be found of great benefit. Caution bidders of the necessity for making visual examination of physical conditions of the site and the work that already has been done by other contractors so the expenses that may be foreseen easily may be anticipated and allowance made therefor in the bid. Do not assume that work or difficulties that cannot be anticipated by the architect should be foreseen and included by the contractor.

IV. DRAWINGS

- a. Schedule the drawings that will be made the basis of the contract, giving the number of each sheet and its title.
- b. A statement that further drawings explanatory of those scheduled in the preceding paragraph will be available at later dates. NOTE: It is probable that the General Conditions of the contract will have clauses covering the drawings, but the information suggested above will prove invaluable to everyone interested in the specifications. For instance, the bidder will know whether or not he has been furnished all the drawings he should have.

V. QUALITY OF MATERIALS

- a. Each material that the contractor will be required to furnish should be listed here, and the standards of excellence that will govern their acceptance or rejection should be specified. It is suggested that this grouping be made under this heading so that all readers of the specifica-

tions will know where to turn when looking for materials and their required qualities. All physical characteristics that will be considered should be mentioned, such as grade, weights, gauges, processes of manufacture, etc.

- b. List all materials entering into the required work somewhat as follows:

1. Structural Steel
 - A. S. T. M. standards
2. Cast Steel
 - A. S. T. M. standards
2. Cast Iron
 - A. S. T. M. standards
4. Rivet Steel
 - A. S. T. M. standards
5. Paint for Structural Steel
 - Graphite
 - Basic chromate of lead of zinc
 - Sublimed blue lead
 - Red lead
 - Other kinds of paint available
6. Other items

VI. SAMPLES OF MATERIALS

- a. If samples of any materials are to be submitted for approval before delivery, state so in order to avoid later unpleasant experiences. It is probable that this will apply in most cases only to paint.

VII. SHOP OR MILL INSPECTION

- a. If certain materials are to be inspected by testing engineers, state so, laying down all conditions that the contractor will be required to meet.
- b. It is suggested that testing engineers be employed and paid by the Owner direct.
- c. Even though it is customary to have structural steel inspected, it is a rule to forego the inspection of paint. There is no reason why paint for structural steel should not be inspected if the specifications are sufficiently definite to afford a basis for such inspection.

VIII. QUALITY OF WORKMANSHIP

- a. If the stipulations of the General Conditions of the contract are not sufficiently definite, specify the grade of workmanship that will be expected, such as best structural shop practice, or practice of bridge shops, or make reference to the "Code of Practice" of the Structural Steel Society.

IX. SHOP FABRICATION

- a. Protect steel from rust when received from the mill, store under roof.
- b. Straightening of material to be done in all cases where the character of the work precludes the use of material not straight. Provide for milling and planing contact surfaces of base and cap plates except where in contact with masonry.
- c. Templates laid out flat and where close fitting is required, specify templates for laying out of such work.
- d. Shearing and chipping should be done neatly and visible edges or ends should be left with a neat finish.
- e. Punching controlled by diameter of the rivets and thickness of plates. Accurate punching only. Drifting of unfair holes not allowed.
- f. Reaming shall be done only after pieces are assembled. Clean out burrs from between pieces and take pieces apart where necessary to accomplish complete cleaning. Prohibit interchange of reamed parts.
- g. Turned bolts used for shear shall be reamed cylindrical and perpendicular to the face of members. Turned bolts shall make a driving fit. Provide washers not less than $\frac{1}{4}$ " thick under each nut.
- h. Drilling for holes in materials thicker than the rivet diameter plus $\frac{1}{8}$ " always required.
- i. Assembling of members to be riveted in the shop should be done by pinning the parts together before riveting is commenced. Clean and paint surfaces in contact. Face compression joint bearings after alignment.
- j. Stiffeners faced.
- k. Fillers and splash plates.
- l. Widths of web plates.
- m. Riveting shall be done by pressure riveters with use of pneumatic riveters allowed only where pressure riveters cannot be used. Size of rivets indicates the actual size of the cold rivet. Rivets finished neatly, filling holes completely with heads central on shank. Recupping and caulking not allowed.

X. SHOP PAINTING

- a. Remove all dirt and foreign particles. Apply paint only on clean warm surfaces under cover. Paint applied only after all shop work and inspection have been

done and erection marks placed. Do not paint over erection marks. Painted material not to be handled until dry. Surfaces assembled so as to be inaccessible after assembling to be painted in the shop.

XI. SHIPMENT OF MATERIALS

- a. Material to be loaded so as not to be displaced during transportation. Where shipped in open top cars, material to be piled for draining of rain water. Specify that the contractor will be responsible for all damages to material caused by incorrect packing or loading.

XII. STORAGE OF MATERIAL AT SITE

- a. Specify that mishandling of structural steel material in unloading and piling in storage yards will not be allowed. Require care in the handling of fabricated trusses for other large members having light weight parts. Material to be piled to drain rain water. Material to be piled so that it may be removed from the piles for use without disorganizing the pile and cause rehandling that may lead to damage.

XIII. ERECTION OF STRUCTURAL STEEL

- a. Specify for large operations that a schedule for erection of steel shall be discussed and agreed upon so that no delay to other work will be caused through non-sequential placing of the steel. Provide for the omission of members in floor systems where necessary to permit later delivery of large equipment, machinery, etc. Specify time for completion of erection work, usually number of days to be allowed. Certain classes of work may require the omission of completion dates

except where the contractor may be asked to state in his proposal when he will complete the work. Specify that materials damaged after delivery must be made good by the contractor. Structural steel should be cleaned before erection. The steel erector should determine the locations of centers and levels from information furnished. Require the services of a surveyor if the work is of sufficient importance to justify that expense. Set steel column base plates and grillages on shims. Specify that the steel erector shall see that his work is plumb and level. Place guy wires necessary for plumbing.

XIV. RIVETING AND BOLTING

- a. Specify whether material should be riveted in the field or bolted or if a combination of riveted and bolted joints will be permitted. Specify character of riveting and indicate rejection of poorly driven rivets, or loosely drawn-up bolts.

XV. FIELD INSPECTION

- a. If the services of an inspecting engineer are to be utilized, state so. The Owner should furnish these services.

XVI. FIELD PAINTING

- a. Specify one coat of paint on all steel erected. Require touching up of bare and abraded portions and the covering of erection marks before application of final coat. The field coat should be tinted to contrast appreciably with the shop coat. Indicate whether or not painting of members to be encased in concrete is desired.

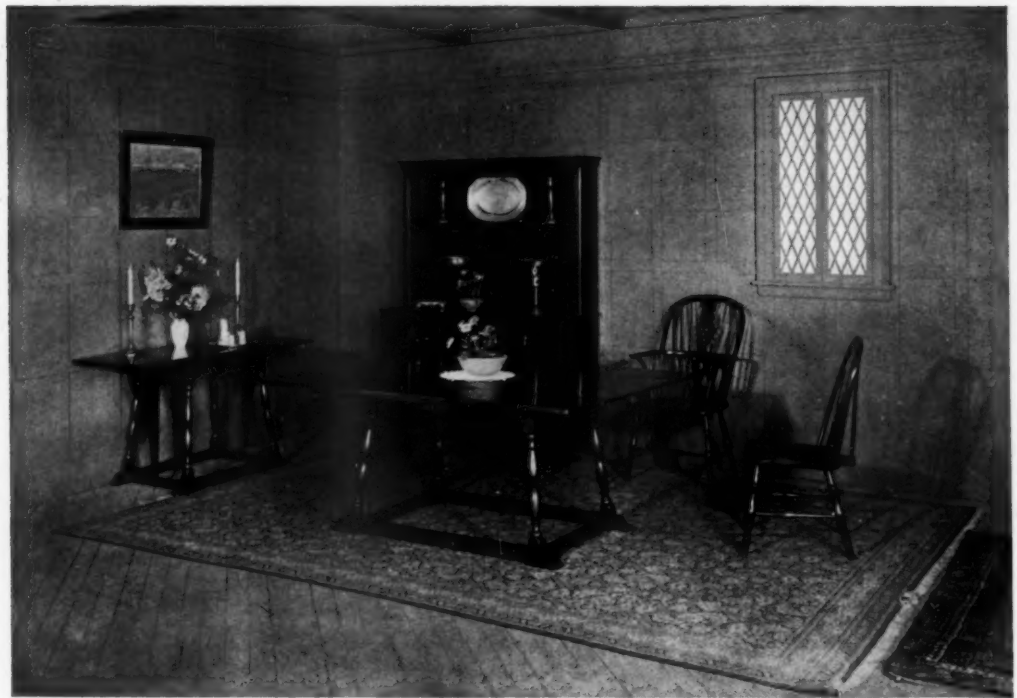
XVII. PROGRESS PHOTOGRAPHS

- a. Specify the furnishing of progress photographs at stated intervals.



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(Thirty-eighth Annual Exhibition, The Architectural League of New York)



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Lincoln School of Teachers' College, New York

Starrett & Van Vlack, Architects

(Thirty-eighth Annual Exhibition, The Architectural League of New York)



SIR
CHRISTOPHER
WREN

ENGLISH and American Architects are to observe on February 26th the 200th Anniversary of the death of Sir Christopher Wren, famous English Architect.

New England is fortunate indeed, in having in stately Georgian Hall, Belfast, Maine, the home of J. W. Blaisdell, a splendid example of his work.

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THE AMERICAN ARCHITECT AND THE ARCHITECTURAL REVIEW has gratuitously set apart this section for use by The American Specification Institute. The Editors and Publishers assume no responsibility for any statements made, or opinions expressed.

The purpose, simply stated, is to afford an organization which, it is believed, will become a most important element in architectural practice and building operations, a medium through which it may, without expense to itself, reach a class of readers that are most intimately identified with the field of the activities of The American Specification Institute.

Publishers, THE AMERICAN ARCHITECT AND THE ARCHITECTURAL REVIEW.

TENTATIVE SPECIFICATIONS FOR VACUUM CLEANING 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. Agreement:
The form of agreement shall be that of The American Institute of Architects known as Standard Form of Agreement between Contractor and Owner—Stipulated Sum.
3. Terms of Payments:
4. General Conditions:
The General Conditions of the Contract of The American Institute of Architects, which are attached to these specifications, apply to all contracts and form a part of and are included with these specifications for Vacuum Cleaning System. Wherever the word "Architect" appears therein it shall be understood in this contract to refer to.....or the Owner's representative on the work.
5. Regulations and Codes:
The Contractor shall obtain all permits, arrange for necessary inspection and furnish a certificate of inspection and approval from the public authorities having jurisdiction. Should any changes be necessary in the drawings or specifications to secure such approval, the Contractor shall notify.....at once and cease work on all parts of the contract that are affected.
6. Standards:
7. Patents:

II. ECONOMIC

SCOPE OF CONTRACT:

8. Drawings:
The general drawings that will govern the work of this contract comprise the following:

Schedule:

- 1
- 2

which may be supplemented by further detailed explanatory drawings.

9. Work Included:

The work under this contract shall include all labor and material for the furnishing and installation of a complete vacuum cleaning system including piping, outlets, valves and vacuum producer machine complete with sweepers, cleaning tools, hose and racks ready for satisfactory and continuous service.

10. Methods of Analysis and Comparison of Bids:

The bids submitted under this specification will be analyzed and compared strictly in accordance with the stipulations of the specification regardless of the form or text of the bids. The bids submitted for this work will be analyzed on a basis of:

- a. price
- b. quality
- c. delivery
- d. responsibility

11. Conditional Payments:

III. GENERAL DESCRIPTIVE

12. Characteristics:

The construction shall be in accordance with the manufacturer's standard practice for a (state number) sweeper machine.

SERVICE CONDITIONS:

13. Surfaces:

The surfaces to be cleaned are (bare floors, carpets, walls).

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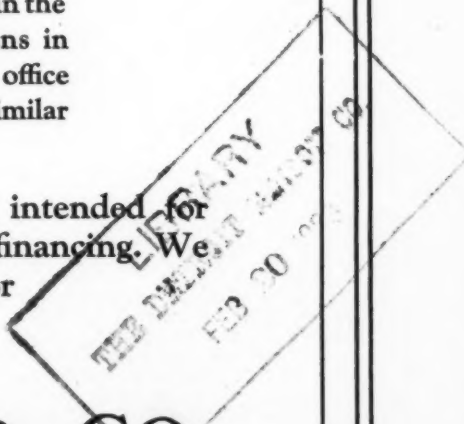
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14. **Duty:**
The performance of the vacuum producer shall be such that it will maintain a vacuum of (two to three) inches of mercury at each of (state number of connections to be in use at one time) $\frac{1}{4}$ inch round sharp edged orifices made in a $\frac{1}{16}$ inch thick plate with each of such orifices connected through a fifty foot length of hose as furnished by the bidder to any (repeat number of connections to be in use at one time) service openings in the air piping; and further that it will maintain a vacuum of (three to four) inches of mercury at each of (repeat number of connections to be in use at one time) $\frac{1}{4}$ inch round sharp edged orifices connected in a similar manner.
15. **Power Consumption:**
The maximum power consumption of the vacuum producer while operating at its rated speed and under full load conditions shall not exceed.....K.W.
16. **Lubrication:**
The vacuum producer shall be entirely automatic and dustproof in its lubrication.

IV. PRELIMINARY PREPARATION

17. **Field Measurements:**
18. **Shop Drawings:**
Except as hereinafter specified, shop drawings shall be furnished in accordance with Article 5 of The General Conditions. The Contractor shall submit (state number) copies of all shop drawings required for this work. After these drawings have been corrected to meet the approval of (state number) copies shall be furnished to.....
19. **Samples:**

V. MATERIALS.

20. **Vacuum Producer:**
The vacuum producer shall be of the self governing type capable of operating simultaneously (state number) sweepers and shall be constructed throughout with clearances of not less than $\frac{1}{8}$ inch. The vacuum at machine must at no time exceed seven inches of mercury. The bearings shall be of the self-oiling type and must operate under maximum load and speed without undue heating. All dust and other particles collected during the sweeping must be entirely separated from the air before it is exhausted from the vacuum producer.
21. **Dust Pan:**
The dust collector shall have a capacity of not less than.....cubic feet from which the accumulated dirt can be removed at one operation.
22. **Motor:**
The motor shall be direct connected to the vacuum producer. The motor shall be of approved make,H.P.,volts,current,phase,cycle, capable of operating at full load for two hours with a temperature rise not exceeding 40 degrees Centigrade.
23. **Motor Starter:**
(Note: Hand or remote control.)
24. **Wiring and Conduit:**
Wiring and conduit furnished under another contract.
25. **Vacuum Piping:**
All piping shall be (steel or wrought iron) of the sizes indicated on the drawings, all sizes designated being inside diameter. All fittings shall be of the drainage type with long turn bends wherever possible. All pipe shall be smooth inside and screwed to a tight bearing in fittings.
26. **Cleanouts:**
Cleanouts shall be installed at the foot of each riser and at every point in the system where sharp turns are made. Cleanout plugs shall point in the direction of the flow of the air. Cleanout plugs shall be of brass.
27. **Inlet Valves:**
The inlet valves shall be $1\frac{1}{2}$ inches inside diameter of the spring closing type.

28. **Exhaust Piping:**
Exhaust pipe shall be of standard weight black wrought iron pipe one size larger than the main suction pipe.
29. **Hose:**
Furnish (state number) foot lengths of $1\frac{1}{2}$ inch spring steel wire reinforced rubber hose weighing.....ounces per foot. Hose shall be equipped with clincher or taper type rubber couplings with no metal exposed. The hose shall withstand the weight of an ordinary operator without collapsing.
30. **Cleaning Tools:**
The cleaning tools shall be of cast aluminum finished smooth and polished. Handles shall be of light but strong steel tubing nickel plated. Swivel joints shall turn free, but shall not leak under suction of cleaner. Furnish (state number) complete sets of the following cleaning tools:
1 (state size) floor tool with swivel connection,
1 (state size) upholstery tool,
1 (state size) carpet tool,
1 (state size) wall brush,
1 (state size) curved floor handle.

VI. METHODS

31. **Workmanship:**
All workmanship shall be of best quality and none but competent mechanics skilled in their trade shall be employed.

SHOP AND FIELD:

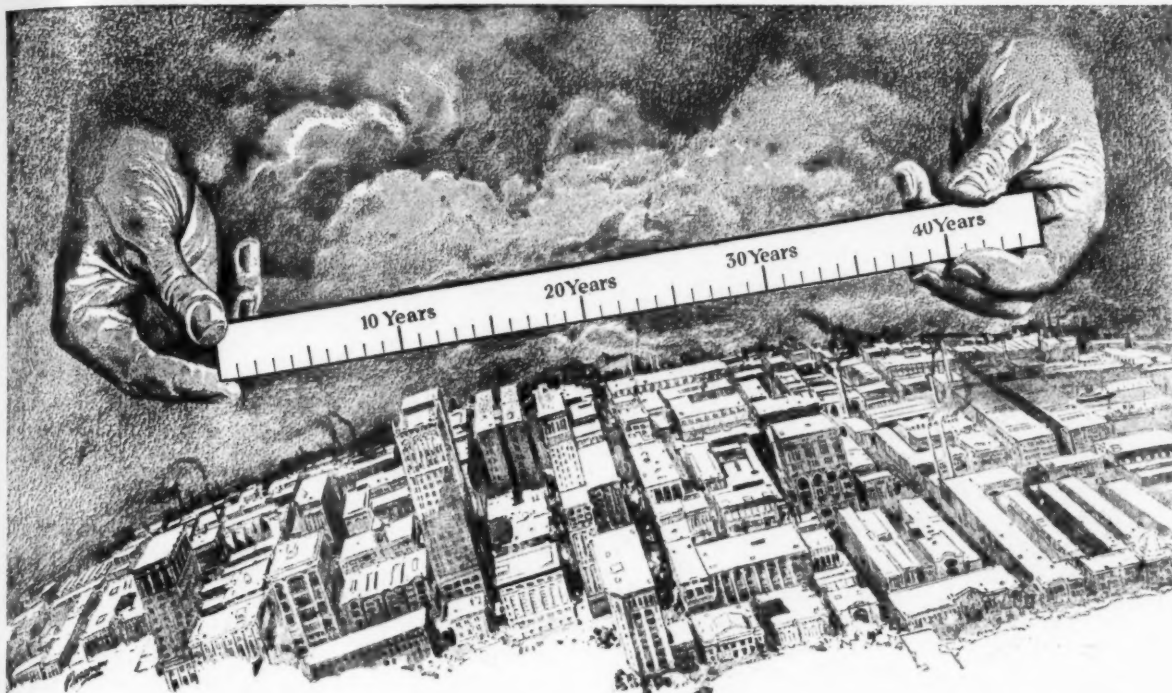
32. **Piping:**
All suspended horizontal lines shall be supported by approved hangers not more than ten feet apart. All risers shall be securely fastened at each floor and at each change of direction from the vertical a firm support shall be given the riser in its new position. All screwed joints shall be made with male fittings fully coated on male thread with white lead and oil and screwed home sufficiently tight to maintain the required vacuum.
33. **Inlet Valves:**
All inlet valves shall be at equal heights above floors and at right angles to floor or wall.
34. **Sleeves and Plates:**
All pipes passing through floors, ceilings or walls shall have galvanized iron sleeves and nickel plated face plates, which shall be furnished and placed by this Contractor.
35. **Co-operation with Other Contractors:**
36. **Protection of Work:**

VII. SCHEDULES

37. **Power Consumption:**
The Contractor shall state in his proposal the power consumption of the motor (a) while maintaining the vacuum of (two to three) inches, (b) of (three to four) inches of mercury under the conditions above specified and also (c) while operating with all openings in the air line closed.
38. **Motor:**
The Contractor shall state in his proposal the manufacturer's name of the motor and the type and H.P. of same.
39. **Cleaning Tools:**
The Contractor shall state in his proposal the cleaning tools he proposes to furnish and the unit price of each.

VIII. RESULTS

40. **Guarantees:**
All apparatus shall be guaranteed against any mechanical or structural defects, and any such defects that may develop within one year shall be made good by the Contractor without expense to the Owner.
41. **Tests:**
Upon completion of the installation the Contractor shall furnish approved apparatus and shall conduct an orifice test, as directed by and under the supervision of (the Architect or Engineer) to ascertain the compliance of the system with these specifications.
42. **Approval or Rejection:**



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BOOK NOTES

Sketching and Rendering in Pencil

THIS very valuable contribution to the art of pencil sketching is so splendidly reviewed by Howard Greenley in his introduction to the work that no better substitute could be offered than to quote Mr. Greenley. He says, in part:

"An artistic conception is susceptible of translation into graphic expression through a variety of media, but by a certain universality of custom, or perhaps more accurately of convenience, the familiar lead pencil has achieved a significance derived from its immediate association with all forms of pictorial delineation. One may speak of it as a kind of staff upon which the artist or the draftsman leans most heavily. But this popular acceptance or recognition has, curiously enough, failed to carry with it an equivalent degree of appreciative comment or of authoritative instruction in the technique of its individual employment. Therefore, an examination of the text and illustrations contained in this volume must be of special and compelling interest to any one of artistic profession or aspirations, for in his accomplished and excellent interpretation of the potentiality existent within the pencil, Mr. Guptill is practically a pioneer.

"By far the greater acknowledgment must be given, however, to the very definite stimulus contained in this volume toward a really effective educational development among architectural draftsmen. The atelier system which offers an inexpensive means of acquiring certain architectural training, based on the general principles of instruction at the Ecole des Beaux-Arts in Paris, nevertheless, stops short of completeness from the lack of stress placed on the important element of free-hand drawing. Great emphasis is properly laid on the solution of the plan and its presentation but the adherence to the mechanical method more or less predicated in the drawing of the two-dimensional plan, has been carried with almost equal insistence into the study of the three-dimensional elevation. Out of this practice has grown a kind of formalized T-square and triangle 'indication,' much in vogue, and with scarcely more suggestive value than the working drawing produced with the other mechanical paraphernalia of ruling pens, compasses and dividers.

"Most draftsmen avoid the blunted pencil point as they would a plague. A large part of their time is spent in sharpening the pencil to the

length and sharpness of a needle. With such an implement their horizon is narrowed down to the production of scale drawings and the conventionalized sectional hatchings indicative of various materials. Form expressed in the graceful, flowing suavity of line becomes a remote possibility under such conditions.

"If I am dwelling with some insistence upon the value of free-hand drawing, it is not in disparagement of instrumental drawing, nor with any view to its neglect. It is rather in the desire to build something more vital and engaging on this foundation of mechanical skill which will result in the draftsman becoming ever increasingly more of a draftsman than I most earnestly recommend this book. Mr. Guptill has with every evidence of success endeavored to assist the draftsman out of this automatic conventionalized indication into the realm of appreciation of the greater artistic possibilities lying within himself. To suggest to others a way of increasingly beautiful accomplishment is obviously no slight contribution. This volume is a plea for better instruction in free-hand drawing and for the thorough perception of its value."

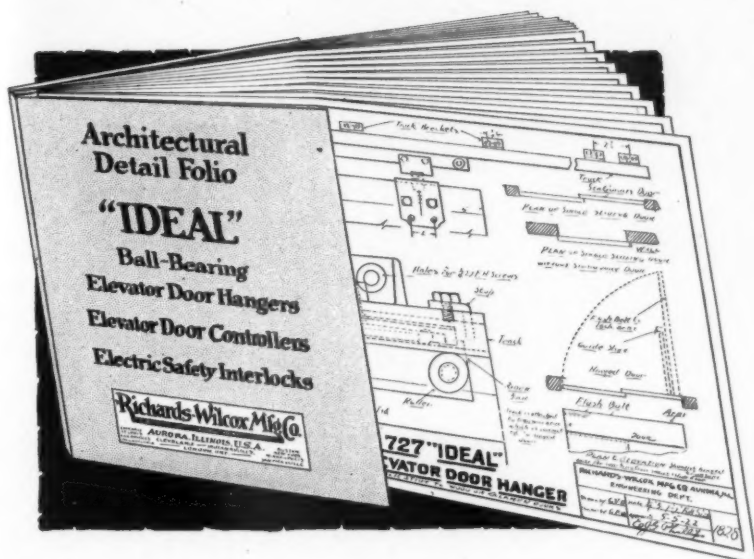
We do not recall a better work on this topic, and this opinion is based on many years of search for just such a work. The matter is presented progressively in a logical and clearly understood way. The illustrations, from work by the author, or from that of men also of high reputation, are all excellently presented and selected with the view to placing before the student the very best methods.

The wide circulation of Mr. Guptill's book should stimulate a better knowledge of pencil sketching and encourage a more extended practice of the finest and most valuable effort in which an architect may indulge from the first hour of his student life.

As Mr. Greenley points out in his preface, a more general practice of pencil sketching takes the draftsman out of an "automatic conventionalized indication" into the realm of true artistic perception.

This book on pencil sketching will be of very large value to every one engaged in any of the arts, but more particularly in the art of architecture.

Sketching and Rendering in Pencil, by Arthur L. Guptill, architect, with a preface by Howard Greenley, A. I. A. Price \$5.00. New York, The Pencil Points Press, Inc.



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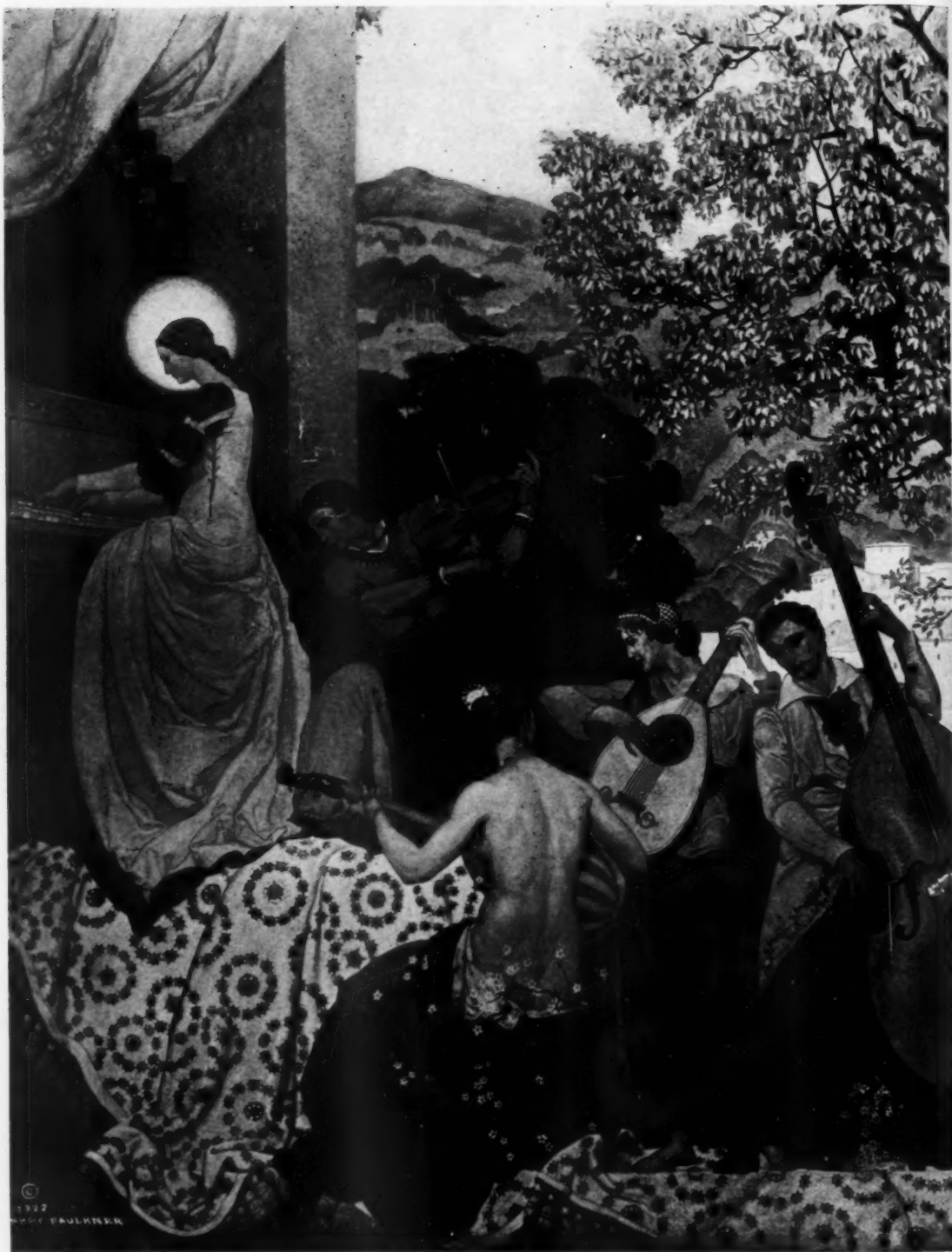
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Tabulation of Building Costs

Thirteenth of THE AMERICAN ARCHITECT'S series of cost tables, figures for which were furnished by Architects throughout the United States. The first compilation appeared in the January 12, 1921, issue.

Type of Building	Location	Type of Construction	Equipment	Foundations	Total Lowest Bid Cubic Feet of Contract Price	Date Bids Received
Residence	San Francisco, Calif.	Non-fireproof; ordinary wood frame; stucco; double floor with hardwood flooring.	Fireplaces and hot air furnace; elec. light; standard plumbing.	Concrete	34,764 \$10,630 \$.307	Feb. 1922
Residence	San Francisco, Calif.	Non-fireproof; ordinary wood frame; stucco; double floor with hardwood flooring.	Fireplaces and hot air furnace; elec. light; standard plumbing.	Concrete	31,324 6,340 .204	Apr. 1922
State Armory	Pueblo, Colo.	Semi-fireproof; brick walls; wood joists; maple floors.	Steam heat; elevators; swimming pool; usual plumbing.	Concrete	186,000 44,750 .240	Apr. 1922
State Armory	Lamar, Colo.	Same.	Same.	Concrete	186,000 41,670 .224	May 1922
School	Whitman, Neb.	Semi-fireproof; brick walls; steel joists; conc. slabs; maple flooring.	Steam heat; usual plumbing.	Concrete	108,000 36,210 .335	Feb. 1922
School	Morrill, Neb.	Same.	Same.	Concrete	236,000 76,960 .323	Jan. 1922
Residence	Little Rock, Ark.	Non-fireproof; 1st sty. stone; 2nd sty. stucco on frame; wood floors.	Vapor heat; elec. lt.; best plumbing.	Concrete	71,569 40,000 .56	Feb. 1922
Loft Building	Little Rock, Ark.	Fireproof; reinf. concrete; tile and brick walls; concrete floors.	Grav. stm. ht.; elec. lt.; plumbing; 2 el. ft. elev.	Spread footings	612,000 120,000 .196	Feb. 1922
Hotel	Beaumont, Tex.	Fireproof; steel frame; brick faced tile walls; concrete floors with marble and tile in public spaces and baths.	Vac. ht.; elec. lt.; best plumbing; 2 pass. and 1 el. frt. elev., 1 dumb-waiter.	Spread footings on piles	1,219,680 696,145 .517	Sept. 1921
Bath House	Hot Springs, Ark.	Fireproof; concrete; stucco walls on brick; conc. floors.	Vac. ht.; elec. lt.; plumbing.	Concrete	119,467 100,000 .84	Dec. 1921
Residence	Washington, D. C.	Non-fireproof; frame.	Hot water; elec. lt.	Hollow Tile	32,375 8,500 .264	May 1922
School	High Point, N. C.	Non-fireproof.	Vapor heat; elec. lt.; best plumbing.	Not stated	375,000 75,000 .20	Aug. 1922
Residence	St. Petersburg, Fla.	Non-fireproof; frame; oak floors.	No heat; elec. lt., 3 baths and laundry.	Brick. No cellar	52,000 25,500 .49	Mar. 1922
Residence	St. Petersburg, Fla.	Semi-fireproof; stucco on tile walls; tile and wood floors; tile roof.	No heat; elec. lt.; 2 baths and laundry.	Brick. No cellar	40,000 24,000 .62	May 1922

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