AUGUST 1931

PENCIL POINTS

A JOURNAL FOR
THE DRAFTING ROOM

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THIS ISSUE PRINTED

Treads of brass provide

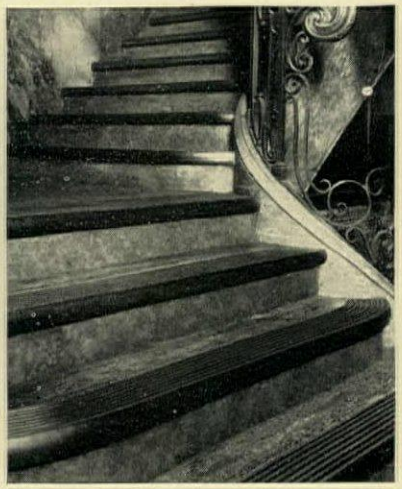
DURABILITY, SAFETY *and* BEAUTY

UNPROTECTED walking surfaces such as stairways, thresholds, etc., wear down . . . mar the appearance of the walk-way and endanger pedestrians. To offset these conditions, the use of safety treads is customary.

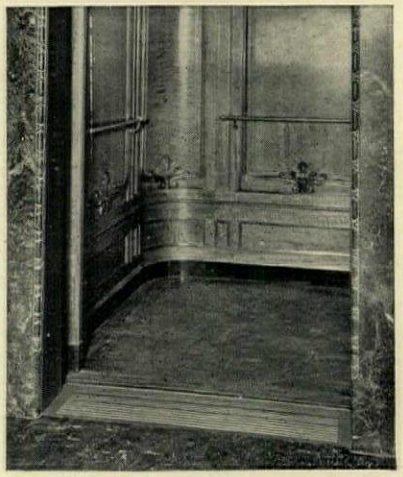
The workability, durability and appearance of Anaconda Brass and Bronze make these metals particularly suited for safety treads. Leading manufacturers make the channeled base of the tread and stair edge nosings from Anaconda extruded metal. In the tread, alternate grooves are filled with a durable abrasive compound, the whole providing for sure footing.

Just as the qualities of Anaconda metals meet the requirements of effective safety treads, so do they for various other applications in modern buildings.

A representative will be glad to consult with you on the many uses of Anaconda Copper, Brass and Bronze. Behind all Anaconda metals is the background of more than a century's experience in developing and producing copper and its many alloys. The American Brass Company, General Offices: Waterbury, Connecticut.

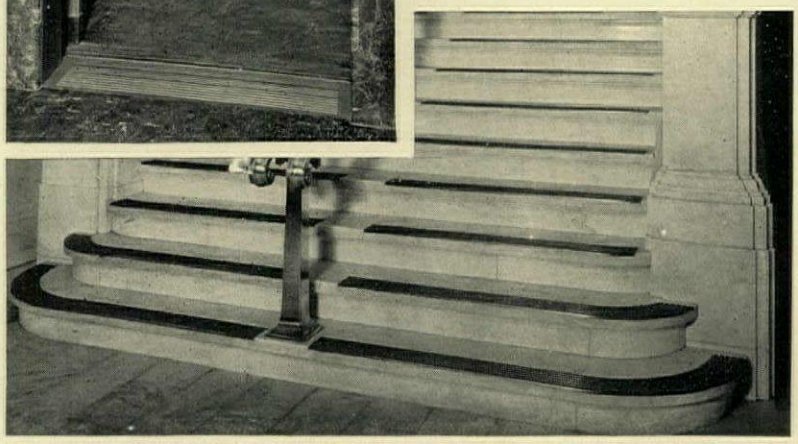


Stairway in the Postal Telegraph Bldg., New York, before and after safety treads of Anaconda Brass were installed.



At left: Elevator entrance in Stevens Hotel, Chicago. Safety tread flush with the floor.

Below: Stairway in The First Trust and Savings Bank, Chicago. Safety treads of Anaconda Brass aid walking and preserves the beauty of the marble.



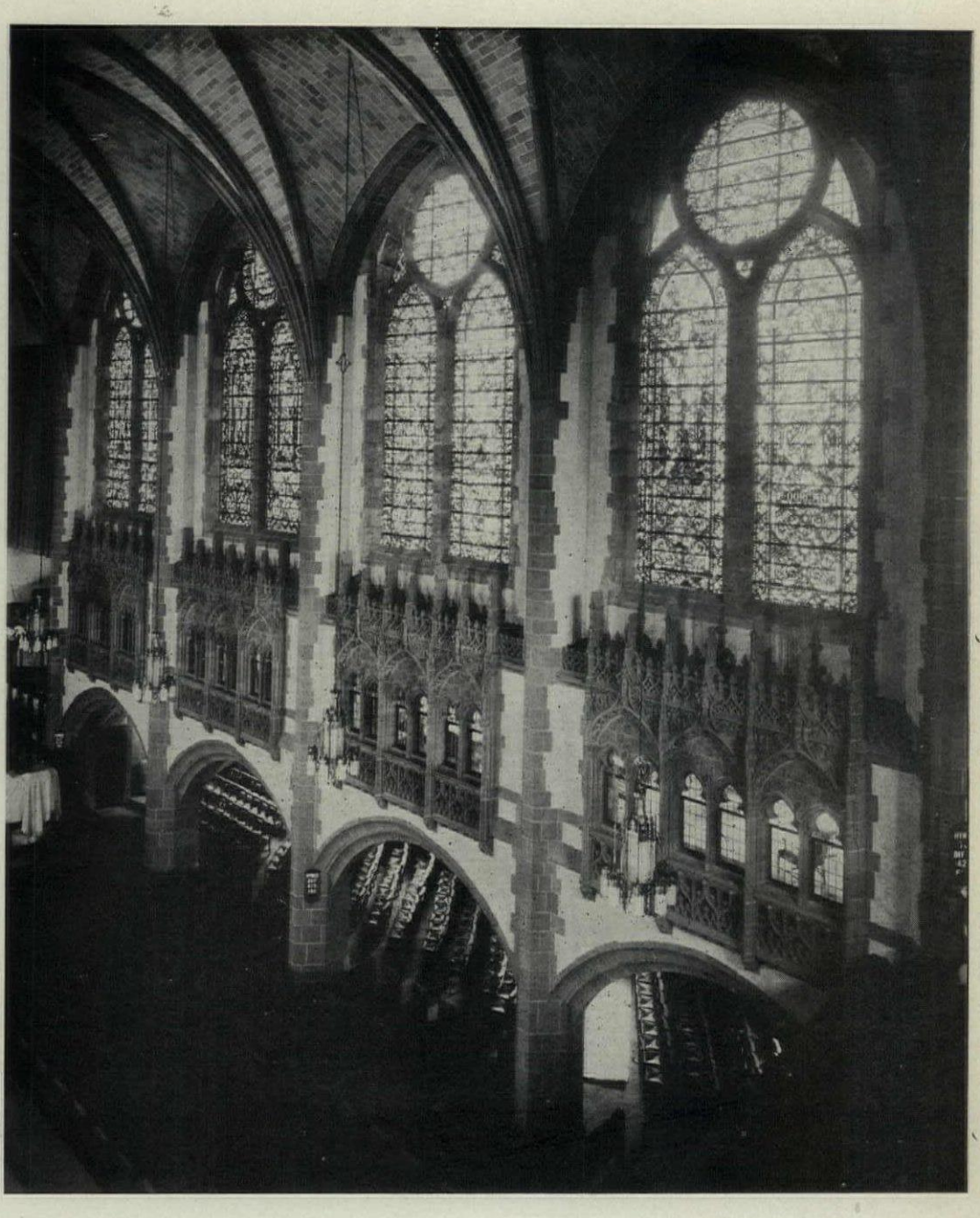
PHOTOGRAPHS COURTESY OF AMERICAN MASON SAFETY TREAD CO. LOWELL, MASS.

ANACONDA
from mine to consumer

ANACONDA

COPPER, BRASS & BRONZE

Pencil Points, published monthly by The Pencil Points Press, Inc., at 258 Atlantic St., Stamford, Conn. Publication office Stamford, Conn. Editorial and Advertising Offices 419 Fourth Avenue, New York, N. Y. Yearly subscription $3.00, single copies 35 cents. Entered as second class matter, March 10, 1930, at the Post Office, Stamford, Conn., under the Act of March 3, 1879. Volume XII, No. 8. Dated August, 1931



CENTRAL
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Halsey, McCormack & Helmer, *Architects*

Wm. Kennedy Construction Co., *Builders*

All the Splendor of Medieval Architecture

THIS splendid church interior imparts an atmosphere of antiquity to a building of most modern construction. The Atlantic Terra Cotta in variable shades of fire-flashed red, the exaggerated joints, and the random block effect on columns, piers and arches are all of authentic design based on a study of medieval church architecture. Besides the columns, clerestory ribs and arches, triforium tracery, and other surfaces illustrated, Atlantic Terra Cotta was also used for trim in chapels and vestibules, for quoins, for ornamental exterior plaques, and various other decorative trim throughout the building.

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Consult with us about your new building requirements. Avail yourself of our long experience. Write for illustrated booklets.

You are invited to view an interesting exhibit of Atlantic Terra Cotta at our New York address

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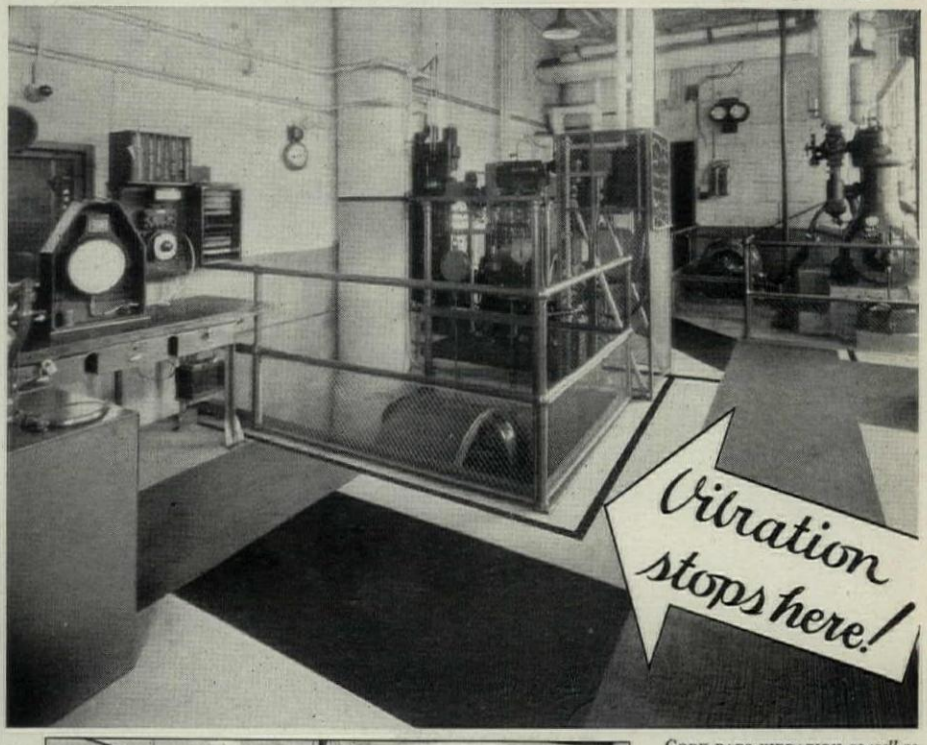
4/22/70 - gjh

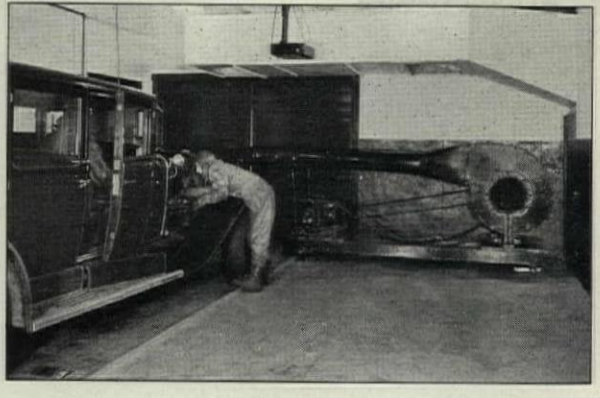
CHRYSLER protects its test rooms with CORK

Carter Carburetor, too, and other leading automotive companies guard low-temperatures with
ARMSTRONG'S CORKBOARD



CORK BARS VIBRATION *as well as heat from the Chrysler test rooms This picture shows how Armstrong's Vibracork isolates moving machinery.*

FORTY BELOW ZERO *tests Carter Carburetor operation here, thanks to Armstrong's Corkboard on the walls and Cork Covering on the cold lines.*



ARCTIC CLOTHING PROTECTS *the workers in this sub-zero testing room of a leading motor company. Armstrong's Corkboard guards the temperatures.*

HOW will the motor perform at 20° below zero? Will the carburetor function properly at sub-zero temperatures? What effect will severe cold have on other equipment?

To answer these questions, leading automotive manufacturers are building cold test rooms. The Chrysler Corporation, for instance, has three such rooms. They are thoroughly insulated with 8 and 10 inches of Armstrong's Corkboard, for temperatures from 20° to 70° below zero. Isolation from vibration has been secured with a cushioning layer of Armstrong's Vibracork. Vibracork is recommended for absorption of vibration and reduction of noise in moving machinery.

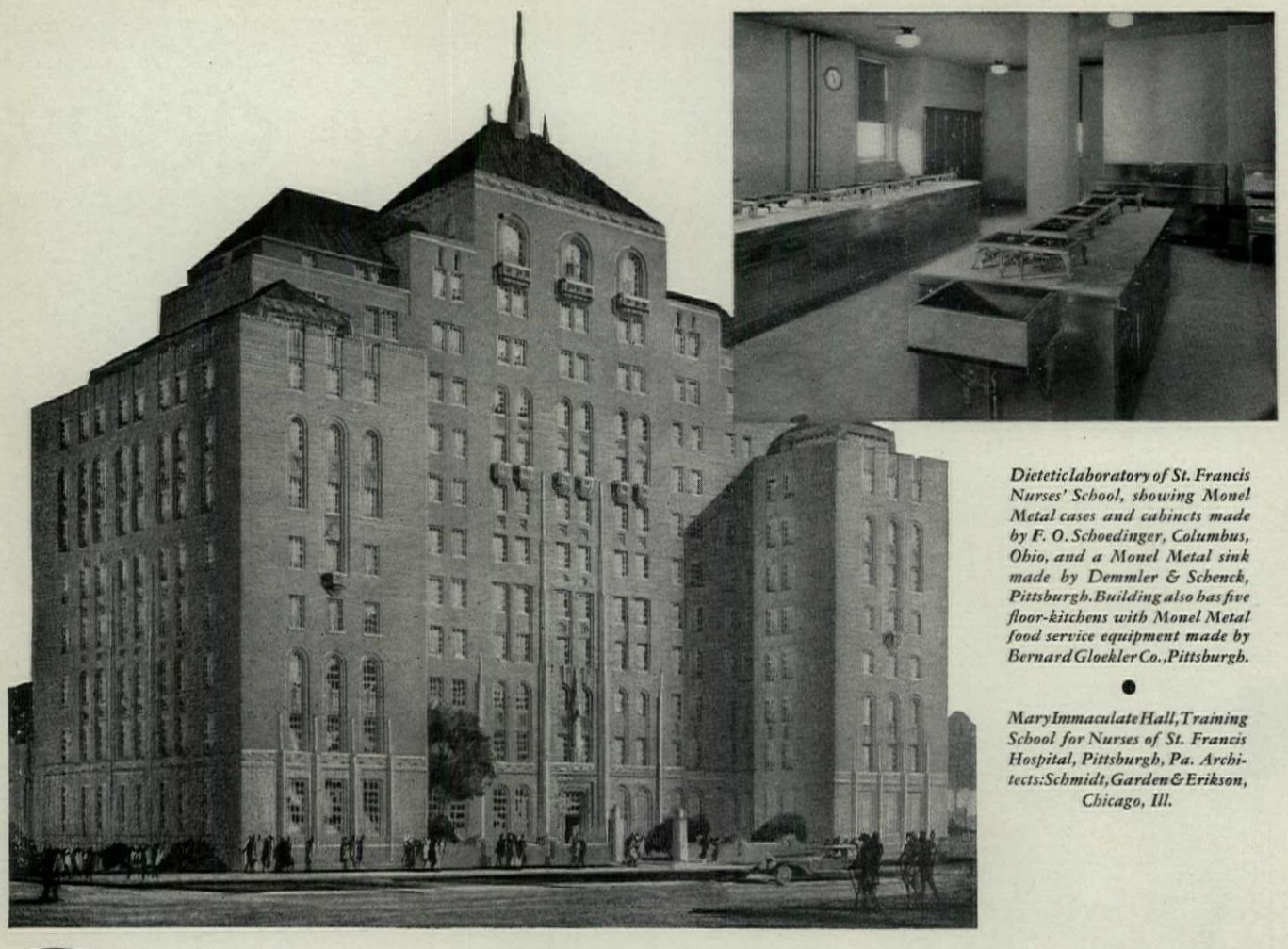
Uses like these prove cork's adaptability and safety for any insulation need. Under severe laboratory conditions, or in actual working installations, cork stands up. Its low coefficient of thermal conductivity combines with low moisture absorption to make Armstrong's Corkboard the ideal *permanent* insulation.

Armstrong's (A) Product

Almost every day sees the development of some new use for cork and cork products. Armstrong's Research Laboratory, where scientists engage in daily experiments with insulation materials and methods, contributes much to this progress. Armstrong engineers will gladly tell you about Armstrong service and Armstrong products. Descriptive booklets and samples are yours for the asking. Address Armstrong Cork & Insulation Company, 902 Concord St., Lancaster, Pennsylvania.

Armstrong Cork & Insulation Company

CORKBOARD . . CORK COVERING . . VIBRACORK . . CORKOUSTIC . . INSULATING BRICK



Dietetic laboratory of St. Francis Nurses' School, showing Monel Metal cases and cabinets made by F. O. Schoedinger, Columbus, Ohio, and a Monel Metal sink made by Demmler & Schenck, Pittsburgh. Building also has five floor-kitchens with Monel Metal food service equipment made by Bernard Gloekler Co., Pittsburgh.

●

Mary Immaculate Hall, Training School for Nurses of St. Francis Hospital, Pittsburgh, Pa. Architects: Schmidt, Garden & Erikson, Chicago, Ill.

This Pittsburgh Nurses' School is modern... of course, it's MONEL METAL equipped

To insure cleanliness and long equipment life, the dietetic laboratory of this modern nurses' school is furnished with Monel Metal sink, cases and cabinets. In addition, Monel Metal equipment is used in five floor-kitchens.

Rust-proof... chip-proof... corrosion-resistant... easy to clean and keep clean... Monel Metal offers the ideal combination of properties for food service equipment in modern hospitals. It provides the perfect material for equipment subject to hard wear and frequent cleaning.

Monel Metal equipment is noted for its great durability—an important consideration to hospital executives who must keep a watchful eye on maintenance and depreciation costs. This solid Nickel-alloy is strong as steel. It retains its original attractiveness and usefulness through years of severe use.

When planning installations of food service, laundry or clinical equipment, specify Monel Metal.

Monel Metal is a registered trade mark applied to a technically controlled nickel-copper alloy of high nickel content. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.

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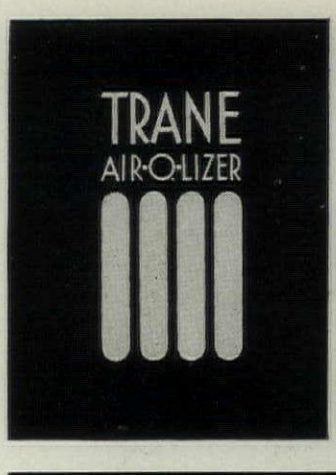
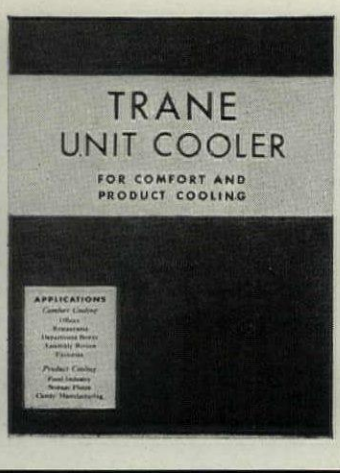
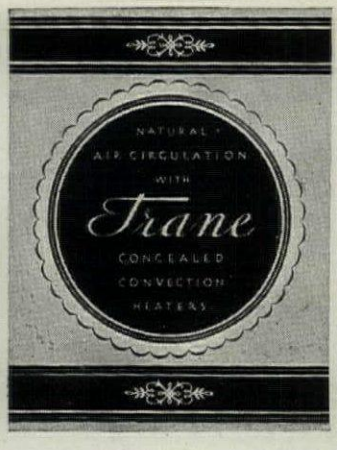
A HIGH NICKEL ALLOY
MONEL METAL
NICKEL ALLOYS LOOK BETTER LONGER







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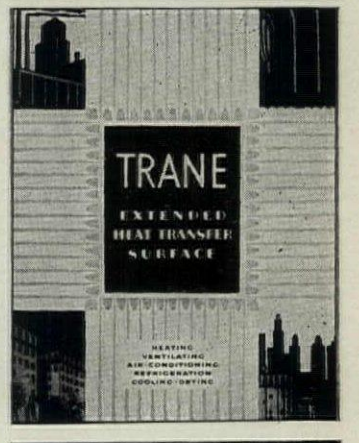
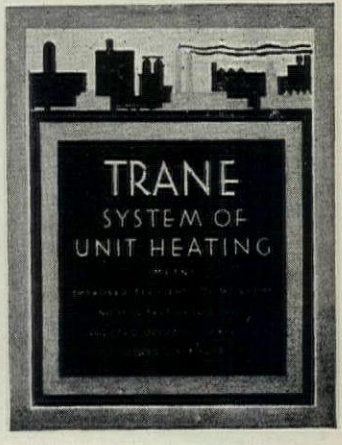
The basis of this comprehensive service and line of equipment is the famous Trane EXTENDED HEAT TRANSFER SURFACE—which is adaptable to all the uses mentioned above and which has demonstrated itself to be exceptionally efficient for all of these requirements.

Each of the Trane catalogs illustrated above should be in the files of every architect. If you do not now possess copies, we invite you to ask for them at once. A coupon is given below for your convenience.

TRANE





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☐ Convection Heater Catalog ☐ Unit Heater Catalog ☐ Air-O-Lizer Catalog

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Where the Deadly Legions Gather He Fights Your Battle

Every school, industrial plant, hospital, public building and similar place where humans gather is a potential rallying ground for the unseen legions of mankind's greatest enemy.

To "defeat" the germs that make up this army—*and to lower the costs through-the-years*—through proper plumbing facilities, has been the job of the Clow Sanitation Soldier since 1878.

It was a Clow Man who was called into a prominent Southern city when Typhoid had all but won the battle.

It was a Clow Man who was drafted into Cuba as an important ally against the deadly legions of Malaria.

Today these Clow Soldiers of Sanitation carry on, less spectacularly, but even more scientifically and effectively. They have developed the Clow-Madden Automatic Closet for schools and public places. They have given us the sanitary drinking fountain. And they have developed a wide variety of fixtures to meet special and dangerous sanitary conditions.

52 years of experience in the battle against pollution, ill-health, and uncleanliness give the Clow Soldiers unmatched knowledge of mass plumbing needs.

The largest line of specialized fixtures, carefully built, help them help you to meet any requirement no matter how specialized or acute.

Wherever sanitation may be an acute problem, the Clow Soldier of Sanitation is your logical ally. Call him in. With his long experience and his complete line of specialized fixtures he naturally is, and can afford to be, unbiased in his ideas. This is George Weiss, Highland Park, Ill.—Northern Illinois Territory.

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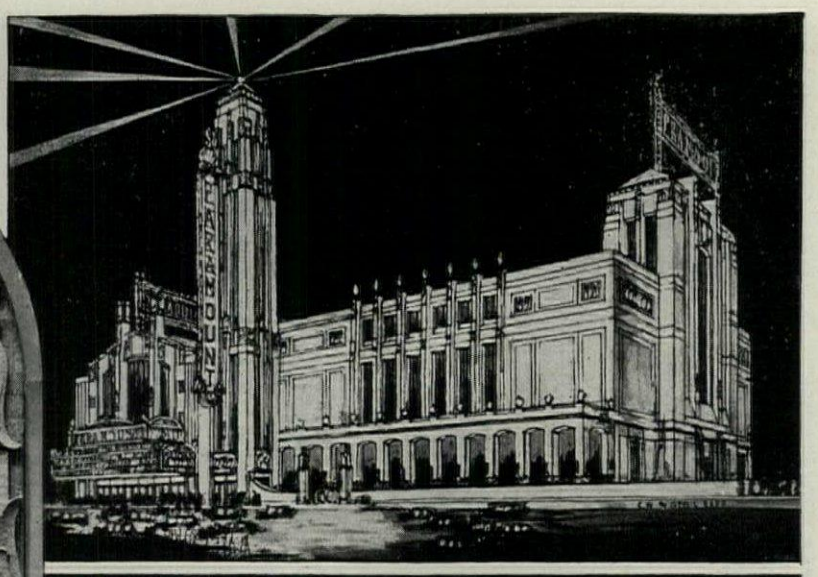
Consult your architect



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▫ BALABAN & KATZ CORPORATION ▫
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Youngstown Buckeye Conduit, Youngstown steel pipe and Youngstown steel sheets are used in ever increasing quantities to insure permanence to the beauty of the architect's creation.

Entrance detail of the Los Angeles Stock Exchange where wiring permanence is assured by the use of Youngstown-Buckeye Conduit. Samuel E. Lunden, Architect; John & Donald B. Parkinson, Consulting Architects.

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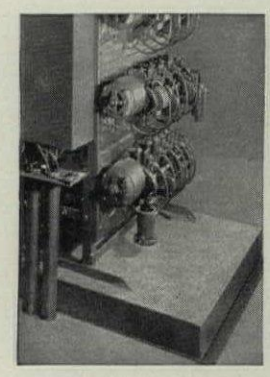
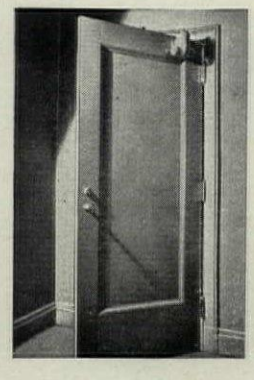
GALVANIZED SHEETS PROTECT : : : : : SAVE WITH STEEL



MACHINE BASES. USG Sound Insulative Machine Bases are designed to prevent the transmission of noise and vibration caused by machinery. Their construction is essentially that of a rigid platform supported on sensitive resilient steel springs.

ACOUSTONE, the USG acoustical tile is used on wall and ceiling areas where noise absorption or auditorium correction is desirable. Creates a more comfortable noise level while providing choice of a great variety of beautiful patterns and decorative designs.



INSULATIVE DOORS. USG Sound Insulative Doors are light weight wood doors which have a remarkably high sound insulative efficiency. Practical in any type of building to prevent the transmission of disturbing noises between rooms.

Specify these USG materials to insure definite results in sound control

A Message to Architects from the United States Gypsum Company

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WHEREVER sound control is essential, architects find that the three USG materials illustrated above—Acoustone. USG Sound Insulative Doors and USG Sound Insulative Machine Bases—are particularly helpful to them.

Acoustone, the USG acoustical tile, and Sabinite Acoustical Plaster, are successfully used to provide a satisfactory acoustical condition and to absorb noise in business offices, banks, restaurants, etc. Acoustone is a beautiful decorative tile that may be applied over present walls and ceilings quickly and without interruption to regular business routine.

USG Sound Insulative Doors are successfully used to prevent the transmission of noise from one room to another in hotels and apartments, or for executive offices, conference rooms, studies, etc. To prevent the transmission of noise through walls, floors and ceilings, the USG System of Sound Insulation is recommended.

USG Sound Insulative Machine Bases are specifically designed for use under fans, motors, elevator machinery, oil burners, pumps and the like. They prevent the transmission of noise and vibration from almost any kind of machinery in any type of building.

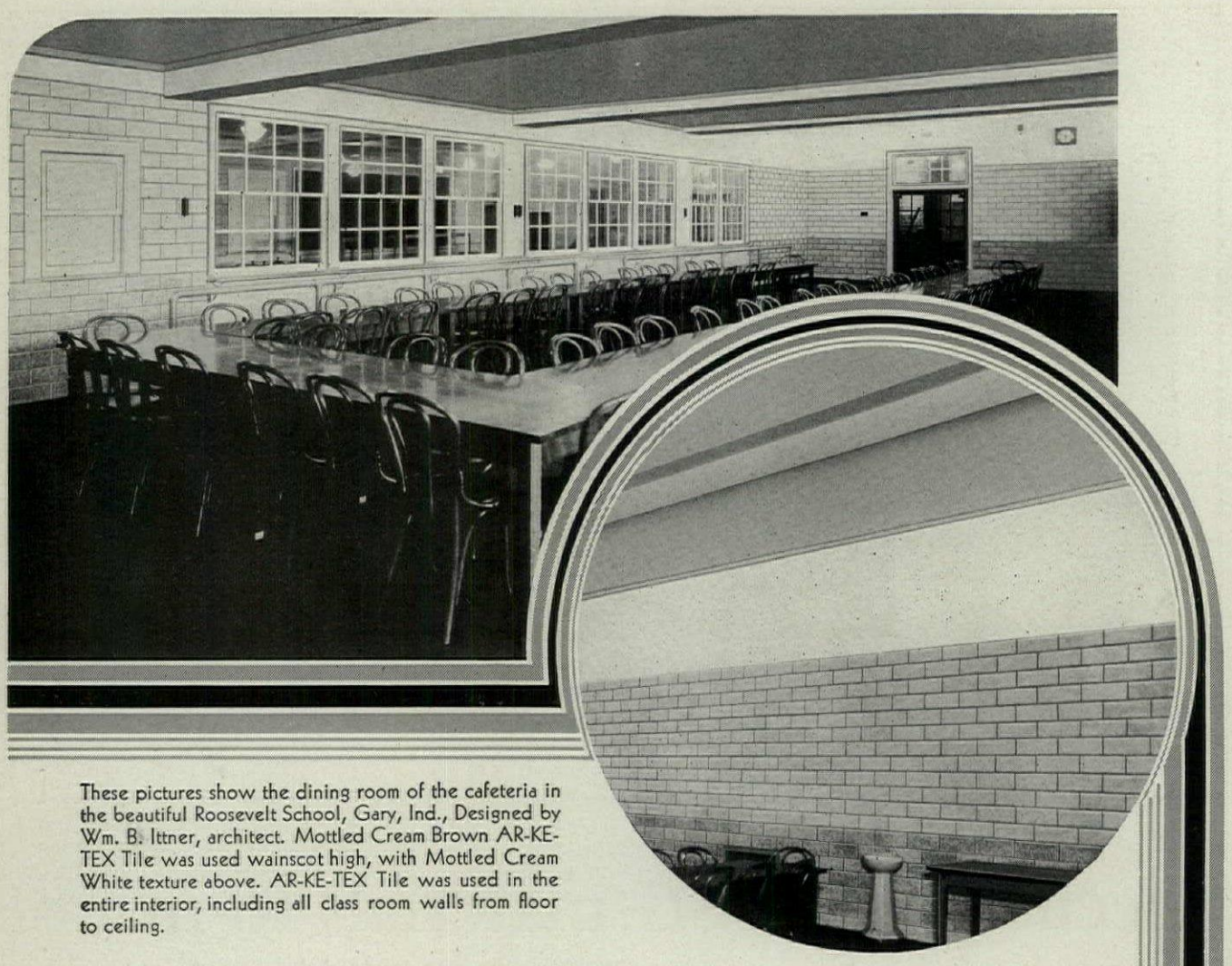
In addition to supplying materials and methods of construction for every phase of sound control, the United States Gypsum Company is in a position to relieve architects of all details on any sound control job, supervise the installation and assume undivided responsibility for the predetermined results.

The services of a USG Sound Control Engineer are available to help you on any problem in architectural acoustics. Without obligation he will diagnose the need for controlling sound, predict definite attainable results and make impartial recommendations. Complete data on USG materials may be found in Sweet's Catalogue. For further information, or for an appointment with a USG Sound Control Engineer, please address the United States Gypsum Company, Dept. 288, 300 West Adams Street, Chicago, Illinois. In Canada, address The Dominion Gypsum Company, Ltd., Toronto, Ontario.

USG

USG SOUND CONTROL SERVICE

Auditorium Correction—Noise Abatement—Sound Insulation



These pictures show the dining room of the cafeteria in the beautiful Roosevelt School, Gary, Ind., Designed by Wm. B. Ittner, architect. Mottled Cream Brown AR-KE-TEX Tile was used wainscot high, with Mottled Cream White texture above. AR-KE-TEX Tile was used in the entire interior, including all class room walls from floor to ceiling.

The Walls of This School Are Permanently Sanitary

Maintenance costs in the Roosevelt School will be greatly reduced because the interior walls of AR-KE-TEX Tile will never need painting or refinishing. In school buildings with walls of ordinary material, annual costs for painting and repairing, represent a heavy expense.

Walls of AR-KE-TEX Tile are impervious to defacement by any ordinary means. Ink cannot penetrate the high fired glaze of AR-KE-TEX Tile, and neither moisture, acids, alkalis, oil or grease have the slightest effect on the permanently beautiful finish.

Walls of AR-KE-TEX Tile retain their original beauty as long as they stand, needing only an occasional washing to keep them as fresh and clean as when new. This sanitary feature makes AR-KE-TEX Tile particularly desirable for use in schools, where wall surfaces are subjected to the most severe usage.

THE AR-KE-TEX CORPORATION

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THE STANDARD OF TEXTURED TILE

ARMSTRONG INTRODUCES A NEW

Inlaid Linoleum

Patterns Veined True to Marble

This actual size illustration of part of a block shows how faithfully marble has been reproduced.

FOR the first time in this country linoleum captures *all* the magic of marble. Notice the delicate tracery, the realistic veining. There is a clearness and an intensity of color in these Armstrong Marble Inlaids never before achieved. Each color is inlaid and will not fade.

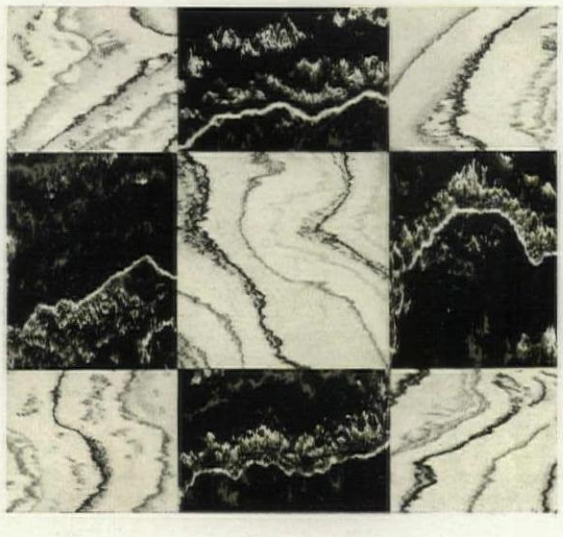
Because of their strong, contrasting colors which do not reveal traffic marks, these new Marble Inlaids are ideally suited for lobbies and corridors, dining-rooms and restaurants, offices and service rooms. They are built for heavy traffic.

Six new designs are now available. Let us send you samples and colorplates so that you can see for yourself their full beauty and utility. Armstrong Cork Company, Floor Sales Division, Lancaster, Pa.

Armstrong's (A) Product

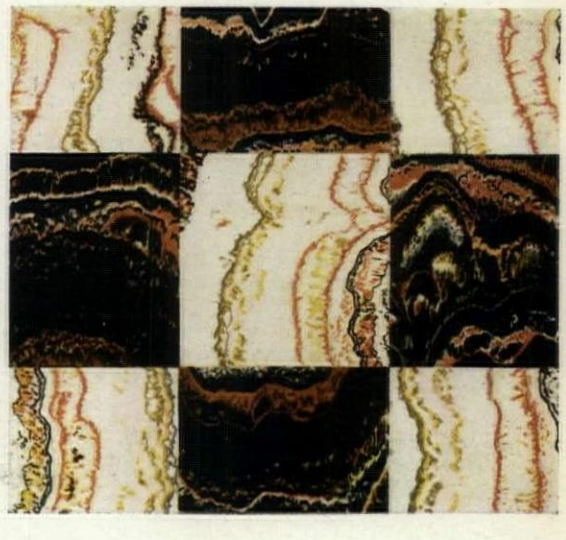
Armstrong's Linoleum Floors

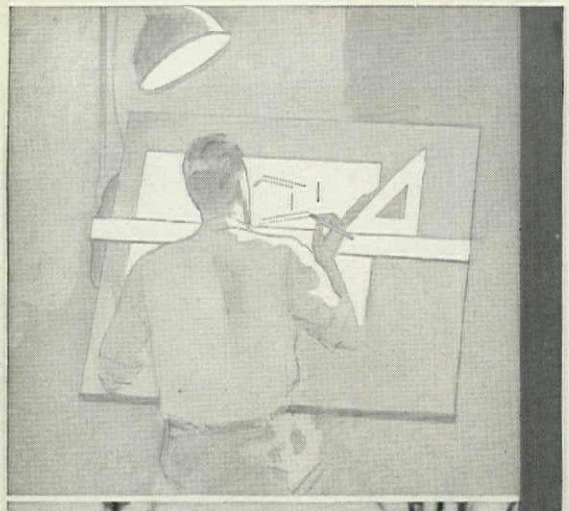
for every room in the house



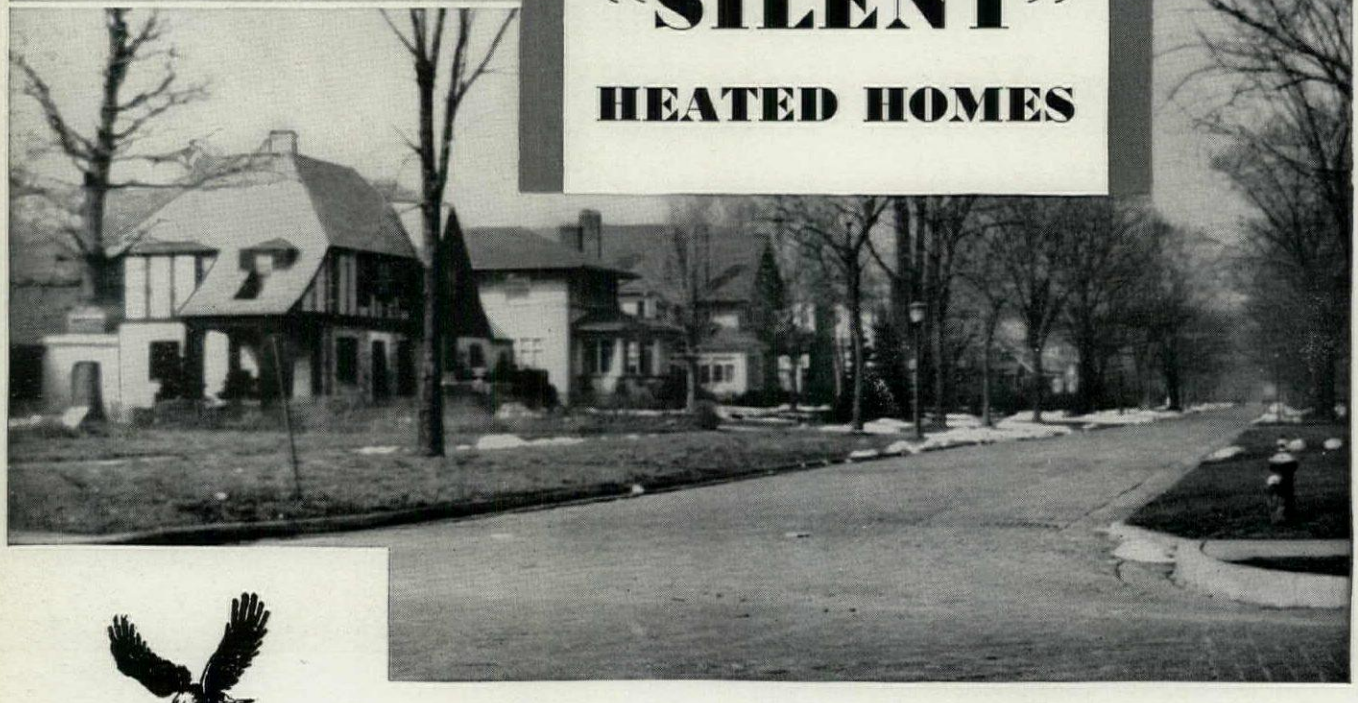
LEFT — *This predominantly black and white design is available in three block sizes —No. 151, 6 x 6 inches; No. 153, 9 x 9 inches; and No. 155, 12 x 12 inches.*

RIGHT—*Observe the depth of color and clear-cut contrast in design No. 150, 6 x 6-inch blocks. Its companion coloring, No. 154, is a 9 x 9-inch block.*





Another
"SILENT TOWN"
of
250
"SILENT"
HEATED HOMES



MEMBER OIL HEATING INSTITUTE OIL HEAT

All Silent Automatic models listed as standard by Underwriters' Laboratories

For Warm Air, Steam and Hot Water Heating Systems —Old or New Homes

IN Evanston, Ill., as in so many exclusive residential areas, an almost solid community of "Silent"-heated homes has been built around a single Silent Automatic installation made only a few years ago.

Neighbor has told neighbor and friend told friend, until more than 250 families in the one district pictured above now enjoy the advantages of "Silent" oil heat . . . in homes that embody the most modern features of architecture and construction.

Only a spotless record of performance could produce such overwhelming owner satisfaction . . . unmatched in this industry. The universal demand for the comfort and convenience of oil heat has brought leadership to Silent Automatic only because "Silent" has met it with a product of thorough dependability, high efficiency and true economy.

Each year, more and more architects recognize the force of this evidence, not only by installing Silent Automatic in their own homes, but by providing for its installation in the homes they plan.

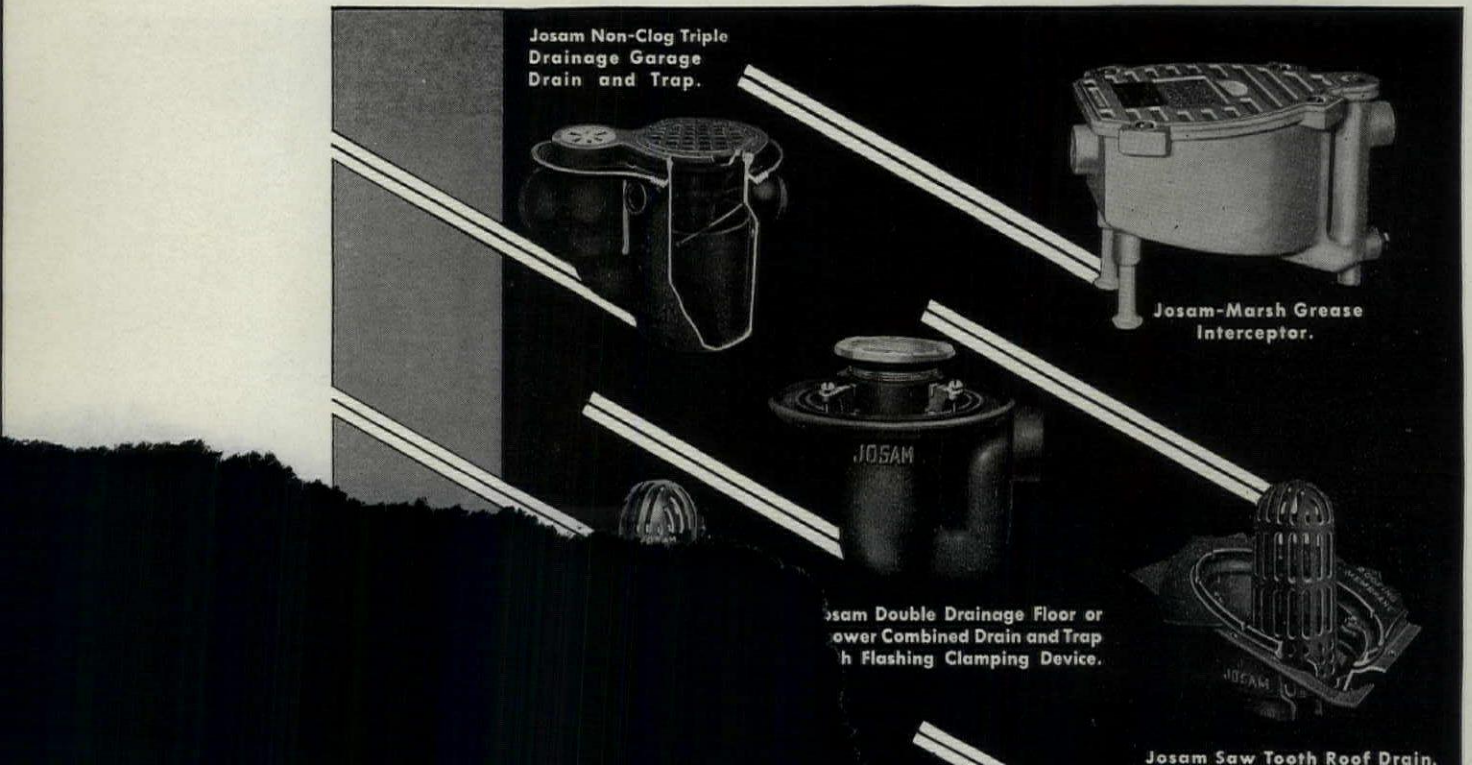
SILENT AUTOMATIC CORP.
12001 E. Jefferson Ave., Detroit, Michigan

SILENT AUTOMATIC
THE NOISELESS OIL BURNER

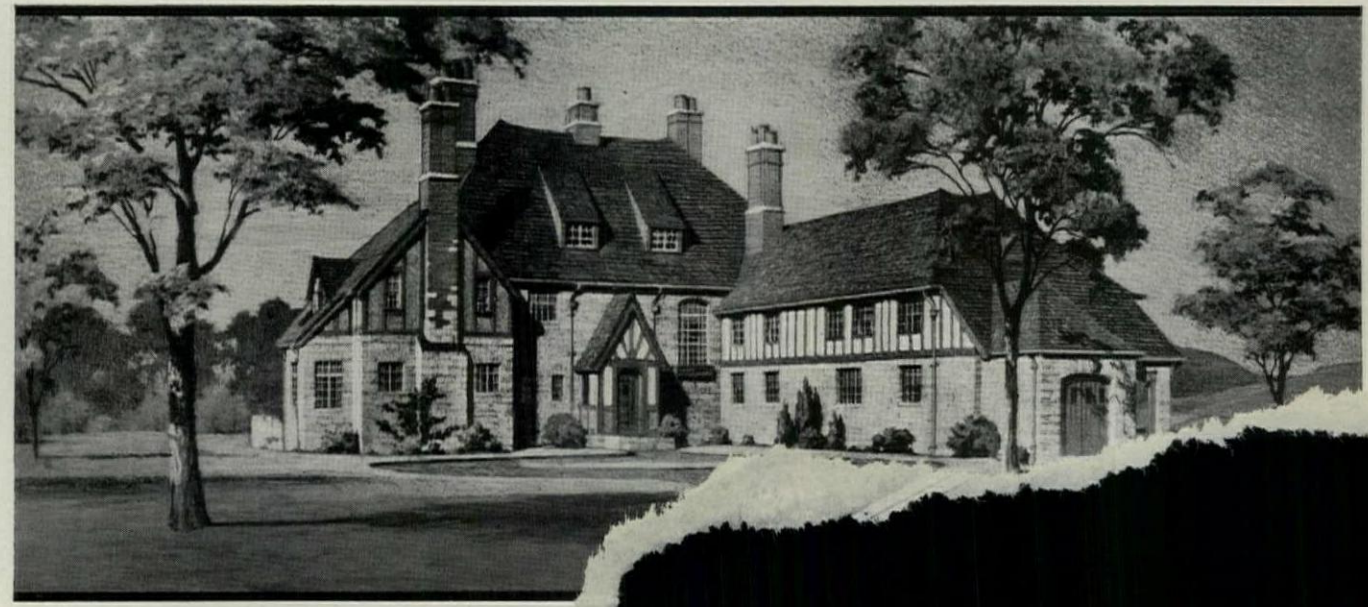
(415)

Made by the World's Largest Producer of Domestic Oil Burners

The building industry

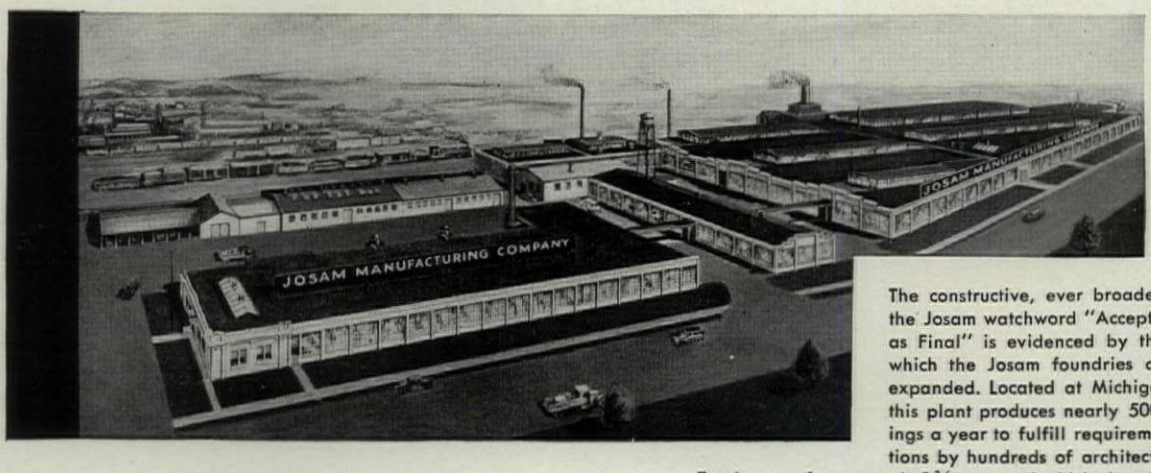


FOR LARGE ESTATES . . . THIS ROOM-TO-ROOM AND BUILDING-TO-BUILDING TELEPHONE SERVICE . . . OVER REGULAR BELL TELEPHONES



Built-in telephone conduit serves fifteen outlets on the estate of Mr Lindsley, Lenox, Massachusetts. Ten are in the residence itself and three outbuildings (two in the garage, two in the gardener's cottage, greenhouse). Underground conduit connects the house telephones with t of the other buildings. JOHN C. GREENLEAF, Architect, *New Yo*

instinctively turns to JOSAM...



The constructive, ever broadening influence of the Josam watchword "Accept no Improvement as Final" is evidenced by the proportions to which the Josam foundries and factory have expanded. Located at Michigan City, Indiana, this plant produces nearly 500,000 drain castings a year to fulfill requirements of specifications by hundreds of architects and engineers. Total area of property is 2¾ acres, of which the plant covers nearly 2 acres. Josam growth in so short a time is just another symbol of the achievements of the building industry in the last decade.

YOU may entertain a needless risk in thinking that the building you plan calls for something specially created, when the peculiar necessities of your particular job may be fully met by one or more of the drains comprising the Josam line.

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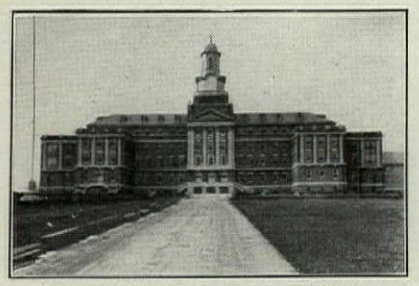

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Plans by Construction Div., U. S. Veterans Bureau
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NEW YORK STATE PSYCHIATRIC
INSTITUTE AND HOSPITAL
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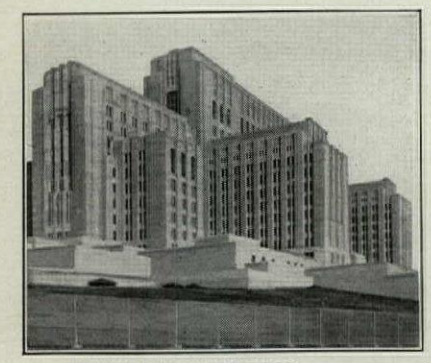
Architect: Sullivan W. Jones, State Architect



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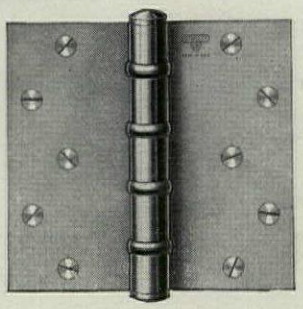
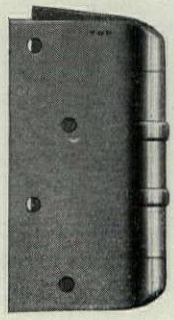
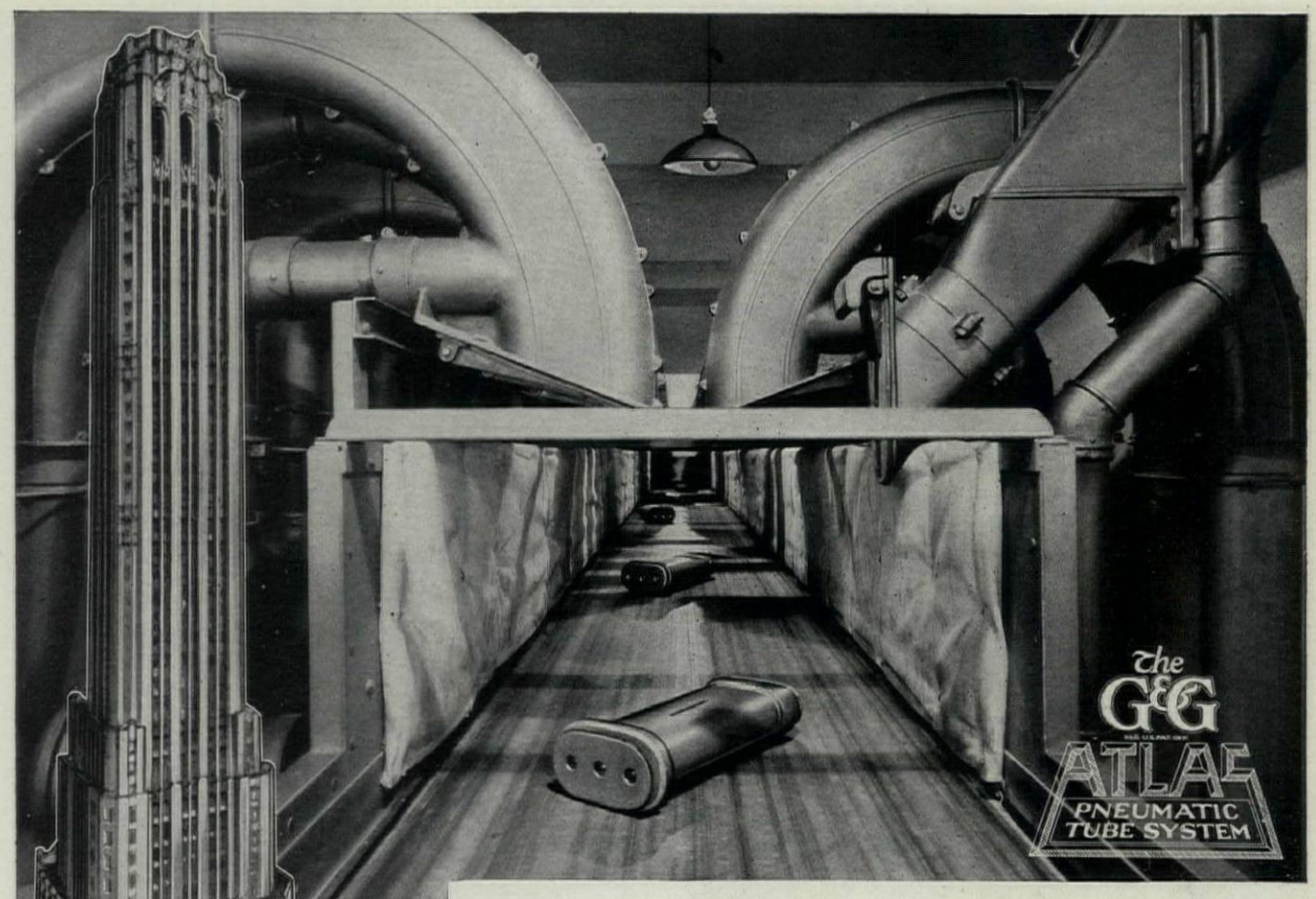


STANLEY
SW



STANLEY BALL BEARING BUTTS



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Catalog in Sweet's Archt. Cat., 1931 Ed. pp. D6350-52. In Canada see Specification Data

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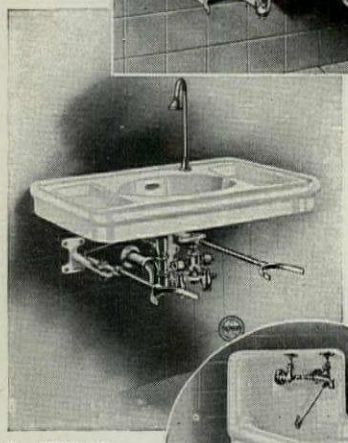

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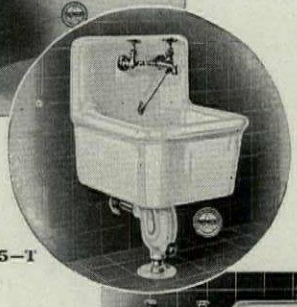

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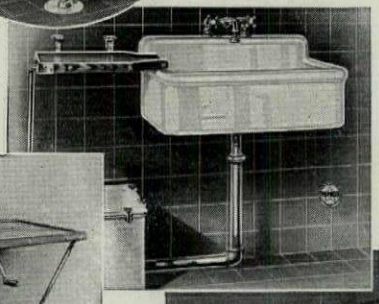

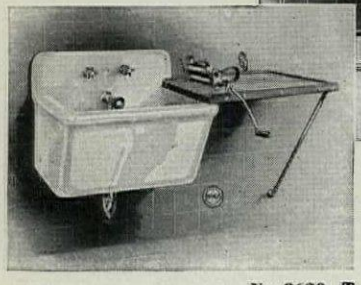

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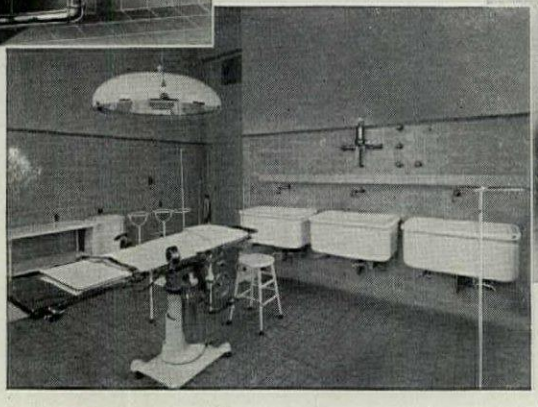

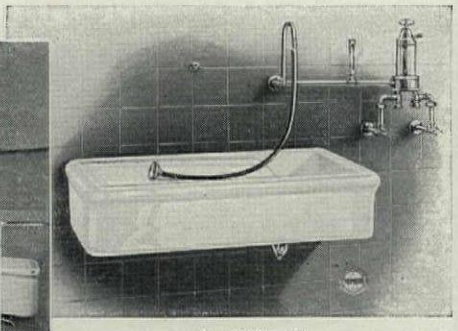

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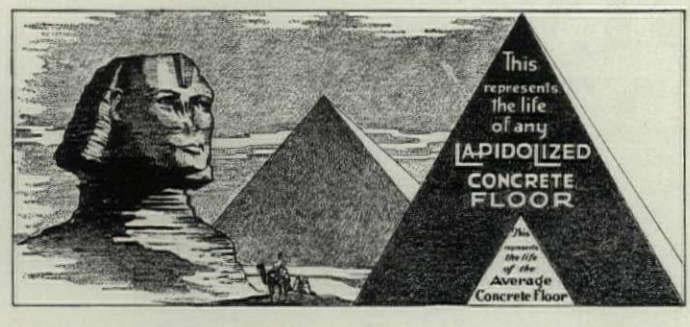

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Alcoa Aluminum

is used for the beacon tower and the batten seam roof . .

also for window jambs, sills, headers and spandrels . .

. . graces the entrance way and store fronts

First National Bank Building, Oklahoma City, Okla. Architect: *Weary & Alford, Chicago, Ill.*; General Contractor: *Manhatten Construction Company, Oklahoma City, Okla.*; Ornamental Contractor: *Michaels Art Bronze Company, Covington, Ky.*; Roofing Contractor: *B. & H. Passmore Company, Oklahoma City, Okla.*

THE architectural use of rolled structural shapes of Alcoa Aluminum is new. Logical though, because while weighing only 1/3 as much as steel, these strong alloy shapes have a minimum tensile strength of 55,000 lbs. per sq. inch. The structural work in the beacon tower of this building is fabricated from aluminum structural shapes. Alcoa Aluminum sheet is used for sheathing the tower and for the batten seam roof.

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The Response to Our Symposium

So much interest, on the part of manufacturers of and dealers in building materials, was evinced in our symposium on Better Cooperation, published in the June issue, that it became necessary to reprint the symposium to meet the demand for copies. A first edition of three thousand copies was quickly exhausted and at the present moment a second edition is being run off the press. These copies are being distributed to salesmen of all types of materials and equipment in all parts of the country.

Now, what does this mean? It means, first of all, that there is a real problem to be solved in connection with improving the relations of the producer and distributor of materials and equipment with the architect and his assistants. That, of course, was the justification for the preparation and publication of the symposium, in the first place. Secondly, it means that the producer and his men are eager to find out what it is the architect wants and how to serve him to best advantage with the least possible waste of time and motion for all hands. The fact that so many architects expressed themselves frankly and without reservation, as to what they thought were the causes of unsatisfactory conditions, met with instant response, and scores of material salesmen have been and are now scanning the pages of the symposium to find out how they can improve their methods of doing business with the architectural profession.

In publishing the symposium it was not our expectation that a final solution could be reached. We only thought to start a discussion which might bring the subject into the light of day and lead to an eventual improvement.

One of our manufacturing friends writes:

"I have noted with no little interest the discussion of the relations between the architects and the manufacturers of building material. There are, of course, two sides to this question, but, frankly, I have been just a little bit disappointed in that no really practical suggestions have been made as to a solution of the problem. I suppose it is a good deal like the matter of international debts—it just has to be worked out gradually and as conditions in each individual case may justify. There seems, however, an unanimity of opinion that the most practical solution hinges upon the selection by manufacturers of really capable representatives—those who are able to use ordinary horse sense in their contacts with architects' offices."

Another says: "I have digested this article very carefully, and I think it should be one of a series, for there is much to be said on both sides of the question, and certainly there is a crying need for this better understanding between designers and fabricators."

Another writes: "The one thing that impresses me is that you have started something and now I wonder what you are going to do about it. It seems to me that little good will come of this effort unless something is done by the way of a follow-up to carry out some of the suggestions that are good."

We have many other letters from manufacturers expressing their appreciation for what has been done to start the ball rolling. More is evidently needed. As a result of what has been done already, we do not expect to see a complete reformation of the hundreds of material and equipment salesmen so that henceforth they will be models of efficiency in their dealings with the architects. We do, however, expect that there will be much improvement.

From the architects we have heard comparatively little, but what we have heard has strengthened our conviction that the subject needed bringing up and thrashing out. We feel that there is still much to be said on both sides and we hereby invite all who are interested to contribute further letters which we can publish in future issues.

It will be noted that we have included in this issue an article by Howard B. Burton, who is at once architect and material man, which has a bearing on the question under consideration, and that we have followed this by two letters—one from a chief draftsman and the other from an architect—which show that they hold the question to be of importance. It has been suggested that some of the men on the actual firing line, the building material salesmen themselves, should be asked to contribute. If any of them read these lines we extend to them an invitation to participate also. From their position of direct contact with architects, specification writers, chief draftsmen, and designers they should be able to size up the situation and make some valuable suggestions.

We hope that many will read what has already been published and what will be published in the future on this subject and that, having read them, will take heed and mend their ways to whatever extent they may need mending, in order that when business again goes forward at its normal speed there will be less time and effort wasted through misunderstanding and confusion. Both parties—the architectural profession and the producers—are vital factors in the great construction industry which forms one of the principal elements of our national business structure. Anything that can be done to oil the wheels of this industry so that it will proceed more smoothly and with less waste will unquestionably add to the prosperity of all. As responsible citizens, we call upon you all to contribute your part towards the solution of this great problem of better cooperation. Don't wait for the other fellow to tell your story; you may be the one who has the idea which will prove to be the key to the situation.

PENCIL POINTS

An Illustrated Monthly JOURNAL for the DRAFTING ROOM *Edited by* RUSSELL F. WHITEHEAD

KENNETH REID & E. L. CLEAVER *Published by* THE PENCIL POINTS PRESS, INC.

Ralph Reinhold, *President*, P. H. Hubbard, *Vice-President*, William V. Montgomery, *Secretary*

This Month and Next

The leading article next month will be on the work of Thomas Ewing King, who has for many years been recognized in the Middle West as a leading designer and delineator. The article was written by Lawrence S. Bellman of the firm of Mills, Rhines, Bellman, and Nordhoff, where Mr. King is at present located. It will be illustrated by specimens of his work done while in that office and in the office of Smith, Hinchman, and Grylls of Detroit. Mr. King's work shows a real feeling for architectural expression and may be compared with the work of the late Birch Burdette Long. One of the illustrations will be a color plate of a pastel rendering made by the subject of the article.

The frontispiece this month by Gerald K. Geerlings is not as successfully reproduced as some of those that have appeared in the past, but it may succeed in giving some idea of the delicacy and beauty of the original. We hope that many of our readers who are interested in architectural prints will take the trouble to visit a convenient print shop where they may find proofs of this and others of Mr. Geerlings' etchings, drypoints, and aquatints. Next month's subject will be an etching by Cecil C. Briggs, Fellow in Architecture of the American Academy in Rome. The subject is the portal of the unfinished cathedral at Siena. Mr. Briggs is an enthusiast for etching and we look to see many fine plates from him in future.

In this month's issue there appears the first of a group of articles by H. Vandervoort Walsh and Alexander T. Saxe dealing with the general subject of estimating. This first article is more or less introductory, but will be followed next month by one dealing in detail with the matter of estimating excavation work.

We have no story as yet for publication concerning the recent expedition of a group of members of the Society of Beaux Arts Architects to Paris to present a flagpole and base to the Ecole des Beaux Arts. Our friend, Henry Saylor of *Architecture*, who accompanied the expedition, will undoubtedly give an entertaining account of the trip in the pages of his journal. We have heard many of the yarns told by the returned architects, one of the most touching being that concerning Frederic C. Hirons, designer of the aforementioned flagpole, who, after three days at sea, was forbidden by the ship's doctor to indulge in anything stronger than Eau de Vichy for a period of six months. Friends of Mr. Hirons extended their sympathy upon learning that, of all those gathered in Paris, he was the only one unable to participate in the libations.

Contents

For August, 1931

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EDITORIAL AND BUSINESS OFFICES, 419 FOURTH AVENUE, NEW YORK.

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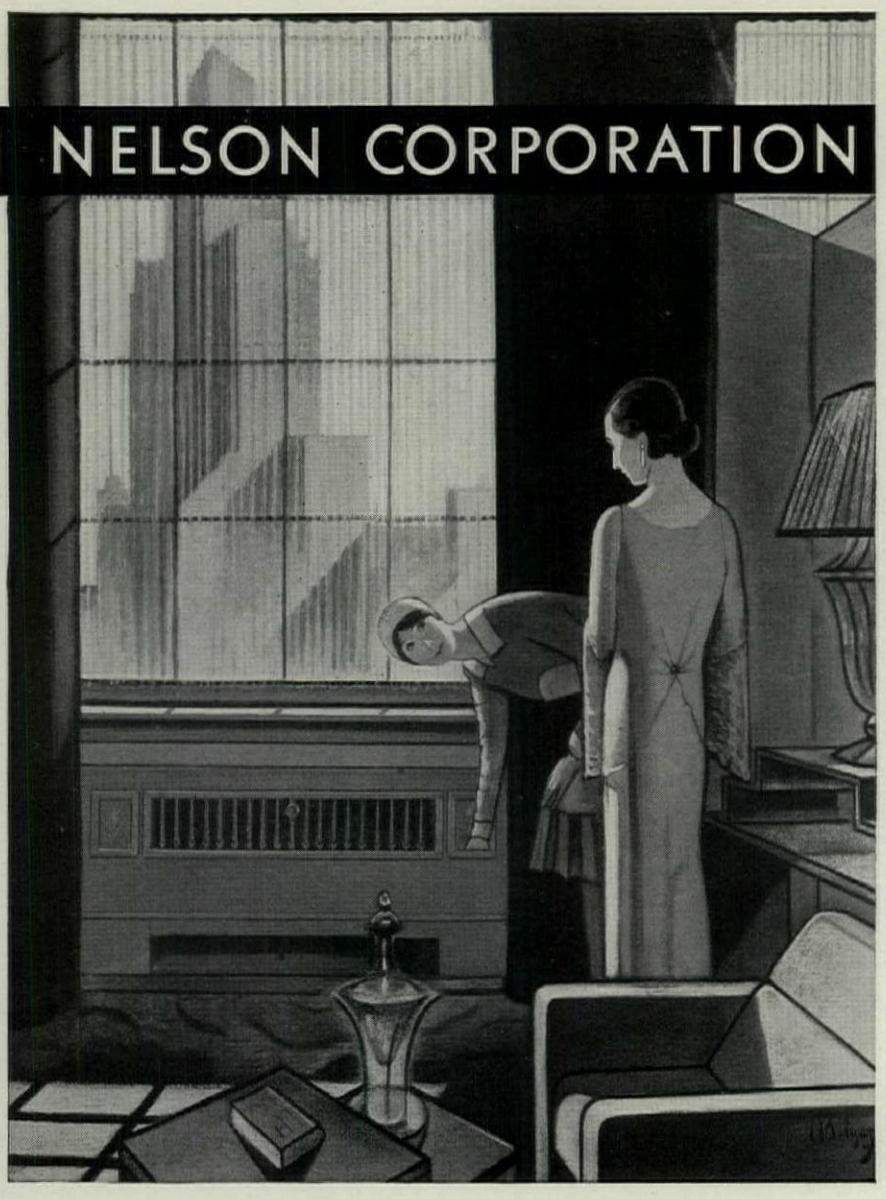

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WASHINGTON, D. C.
BALTIMORE, MD.
CHARLOTTE, N. C.
GRAND RAPIDS
SAGINAW, MICH.
DETROIT
CLEVELAND
COLUMBUS
CINCINNATI
TOLEDO
INDIANAPOLIS
EVANSVILLE, IND.
CHICAGO
PEORIA, ILL.
DES MOINES
MILWAUKEE
APPLETON, WIS.
MINNEAPOLIS
DULUTH
ST. LOUIS
BIRMINGHAM
NASHVILLE
CHATTANOOGA
MEMPHIS
NEW ORLEANS
MIAMI
DALLAS
OMAHA
EMPORIA, KAN.
KANSAS CITY
DENVER
SALT LAKE CITY
BUTTE, MONT.
SPOKANE
PORTLAND, ORE.
SEATTLE
SAN FRANCISCO
LOS ANGELES
VANCOUVER, B. C.
TORONTO, ONT.
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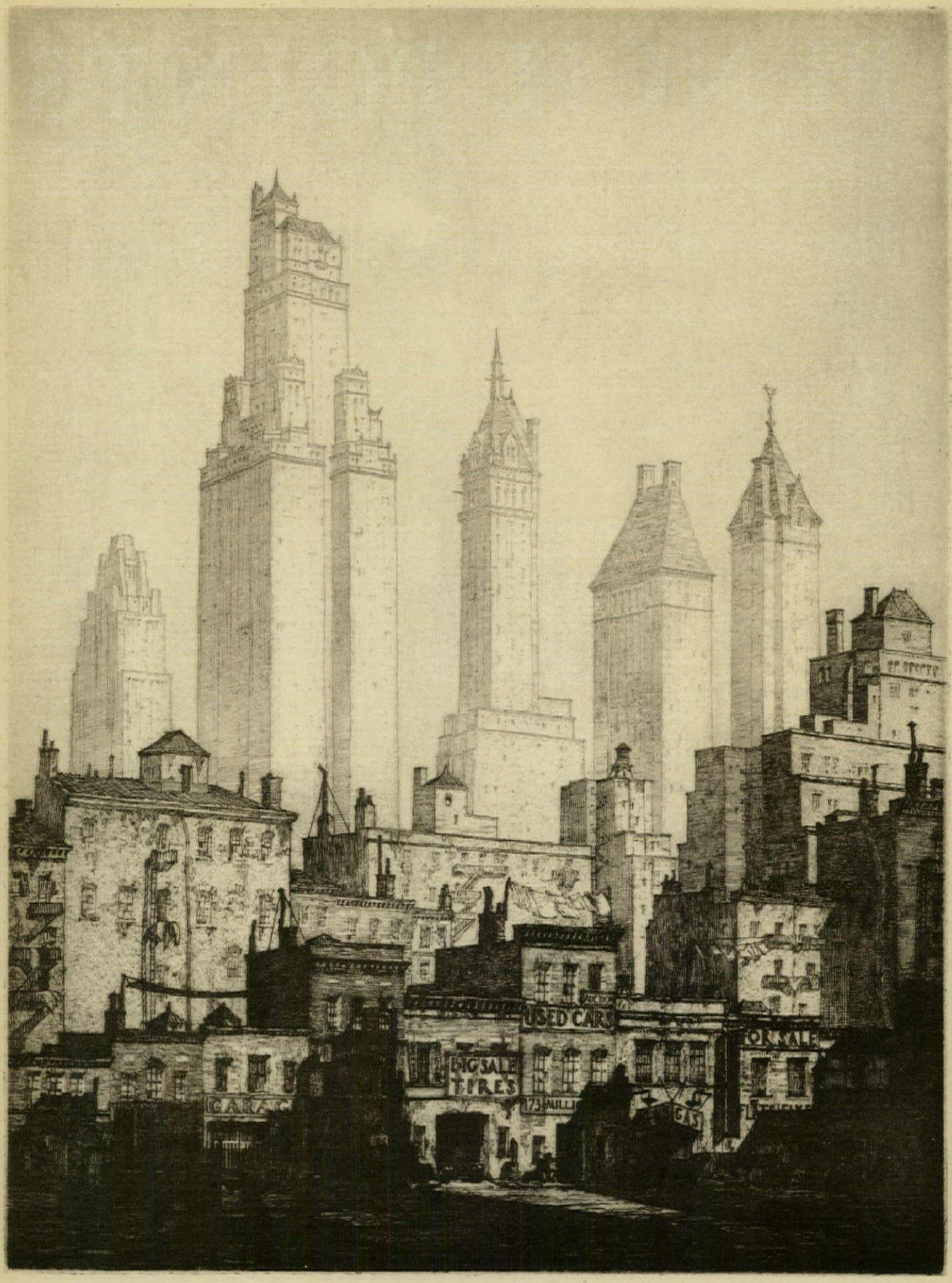
CALGARY, ALTA.
LONDON
OSLO
MELBOURNE
TOKIO, OSAKA
BUENOS AIRES



THE RISING GENERATION
FROM AN ETCHING BY GERALD K. GEERLINGS
Courtesy of Kennedy and Co., New York

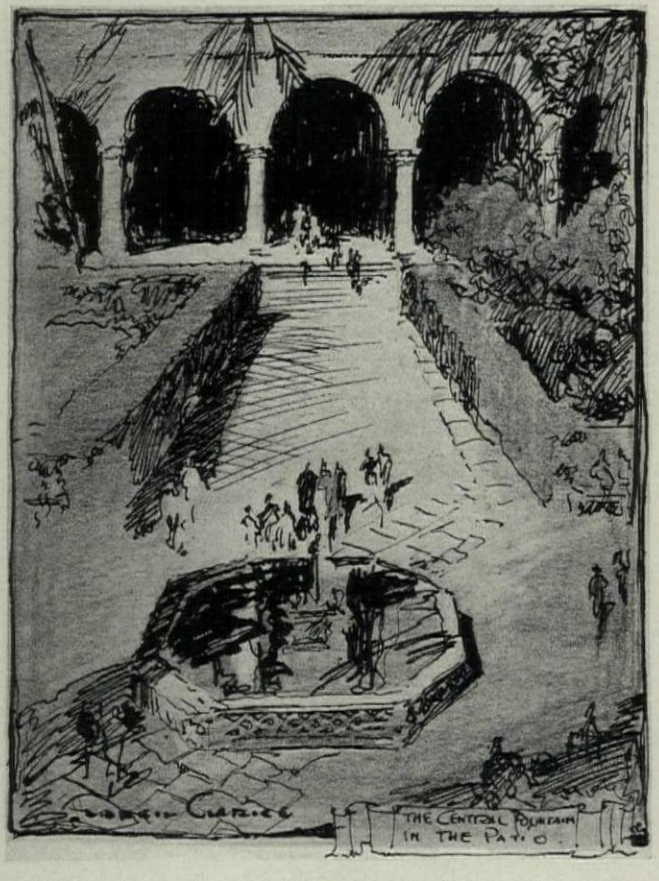
PENCIL POINTS
Volume XII August, 1931 Number 8

Harrison Clarke, Artist and Architect

By Robert Dennis Murray

"Clarke has displayed a talent that I can only compare to Piranesi, perhaps the greatest architectural draftsman of all time. I honestly believe that with opportunity, Clarke in a short time would be recognized along with Jules Guerin, Windsor McKay, William Jean Beauly and other great living illustrators." This is what Willis Polk of San Francisco said of Harrison Clarke, in writing to a friend of his about Clarke's illustrations.

To his friends Clarke's death (November, 1930) is grievous. Into his comparatively short life was crowded far more keen experience and high aspiration, the thrill of living, and the gratification of having accomplished something really worth while, than is given to most men, even of high vitality, in a life twice the length. The loss is assuredly great to the architectural profession and that portion of the world interested in art in which he lived. Though he died young as many of our most talented artists and poets have died, he died happily. To the well worn phrase "Nothing is here for tears" we might add "Nothing but well and fair." If there was ever a person who said "YES" to life, and was determined to live it with all his might, it was Harrison Clarke.

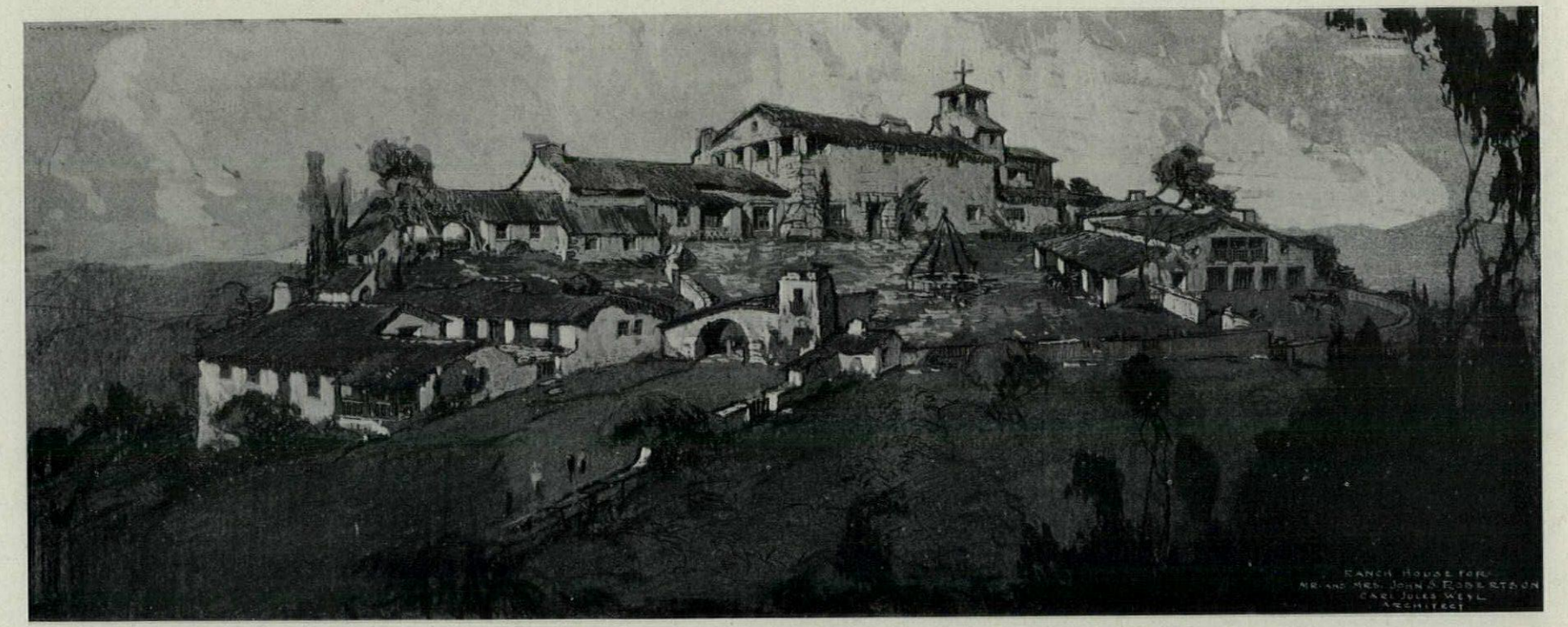


STUDY OF PATIO FOR GORDON KAUFMANN, ARCHITECT
PEN-AND-INK, PENCIL, AND WASH SKETCH BY HARRISON CLARKE

The one great virtue pervading all his work is its absolute sincerity. There is no pose, no affectation. While he was the disciple of many he was the vassal of none. It was not his instinct to put on a mask, even for purposes of artistic personation. Most of his critics agree, there is not a line on his drawings that could well be omitted.

I felt at the outset that I should say something really noble of Clarke, the sort of thing that Marc Antony might have said of Cæsar. I could well imagine Clarke having said: "It seems to me most strange that men should fear; seeing that death, a necessary end, will come when it will come." I even dusted off several volumes of Victor Hugo (and incidentally found that my nobler offsprings had torn several pages from each) in search of some "high-powered philosophy." However, it didn't seem quite the thing when I thought of Harrison Clarke. He was too straightforward a nature to have ever been dramatic. Therefore I have cast about among lesser literary lights. But, as it would be difficult for a jazz-song-writer to copy Chopin, Wagner, and others here and there with reckless abandon, so it seems as futile for me to find adequate expression for this occasion. As for Clarke's work it speaks for itself. He handled many mediums exceptionally well.

His opaque water-color drawings are very pleasing and clever. Some of his sketches he made in lithograph pencil over a light water-color wash, and then picked out certain details in white and color. A very beautiful set of sketches describing the landscaping of a monumental estate in Old Mexico was made in this way for Florence Yoch, landscape architect. He had excellent material with which to work in this particular case,

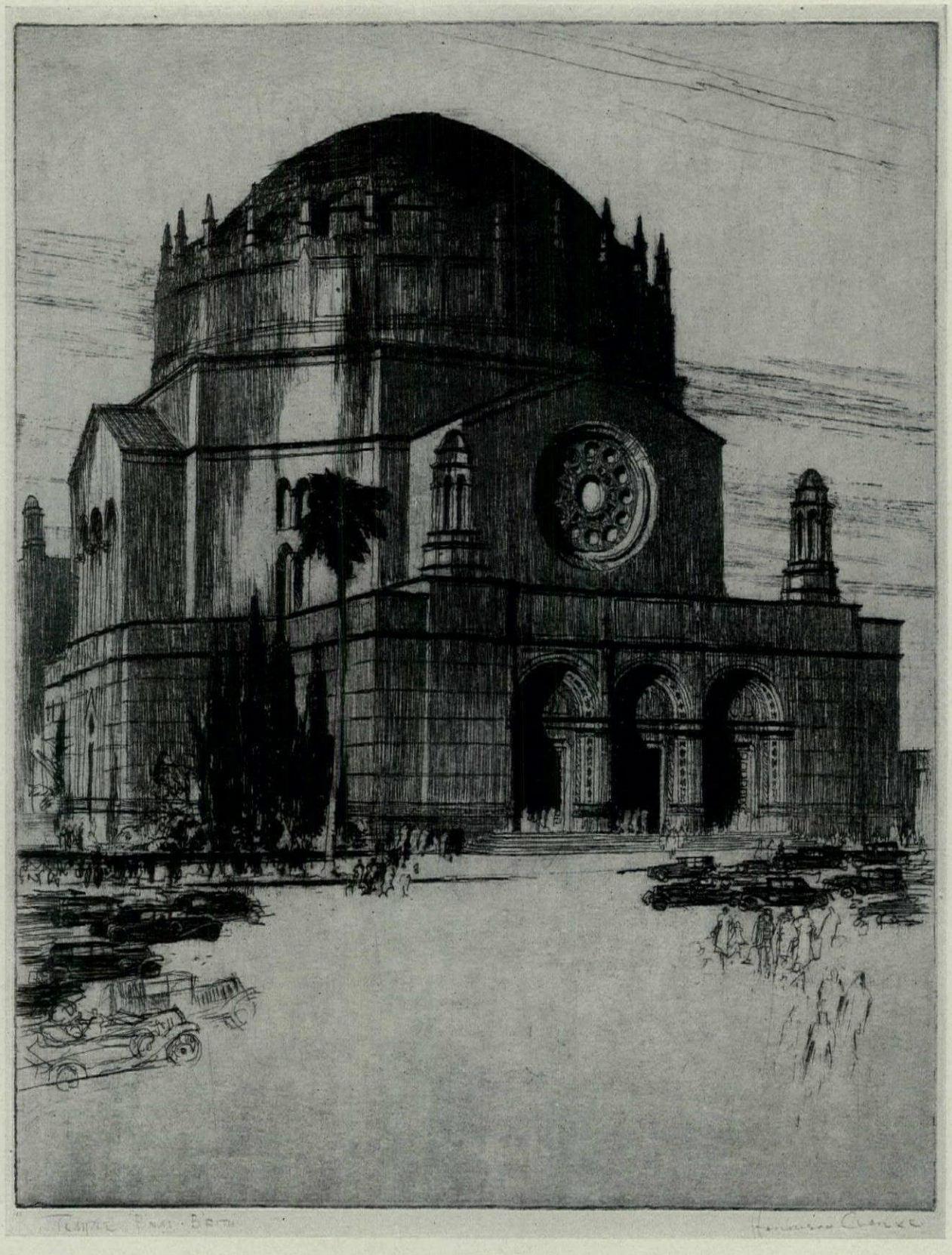


FROM A DRAWING IN OPAQUE COLOR BY HARRISON CLARKE

RANCH HOUSE FOR MR. AND MRS. JOHN S. ROBERTSON—CARL JULES WEYL, ARCHITECT

FROM A RENDERING IN OPAQUE COLOR BY HARRISON CLARKE

PROPOSED HOTEL AND VILLAS, DANA POINT, CALIFORNIA—GORDON B. KAUFMANN, ARCHITECT



TEMPLE B'NAI B'RITH, LOS ANGELES—ETCHING BY HARRISON CLARKE

EDELMAN AND BARNETT, ARCHITECTS—ALLISON AND ALLISON, CONSULTING ARCHITECTS

Size of original, 8" x 10"

FROM A DRAWING IN OPAQUE COLOR BY HARRISON CLARKE

THE ROBERT SCOLES COTTAGES, PASADENA, CALIFORNIA—MYRON HUNT AND H. C. CHAMBERS, ARCHITECTS

as the landscaping had been admirably handled by Miss Yoch. He not only was able to record the ideas of the landscape architect to her complete satisfaction, and she is an exacting person, but he managed to catch the spirit of the thing, and portray a romance that is difficult to show in handling a subject of this sort.

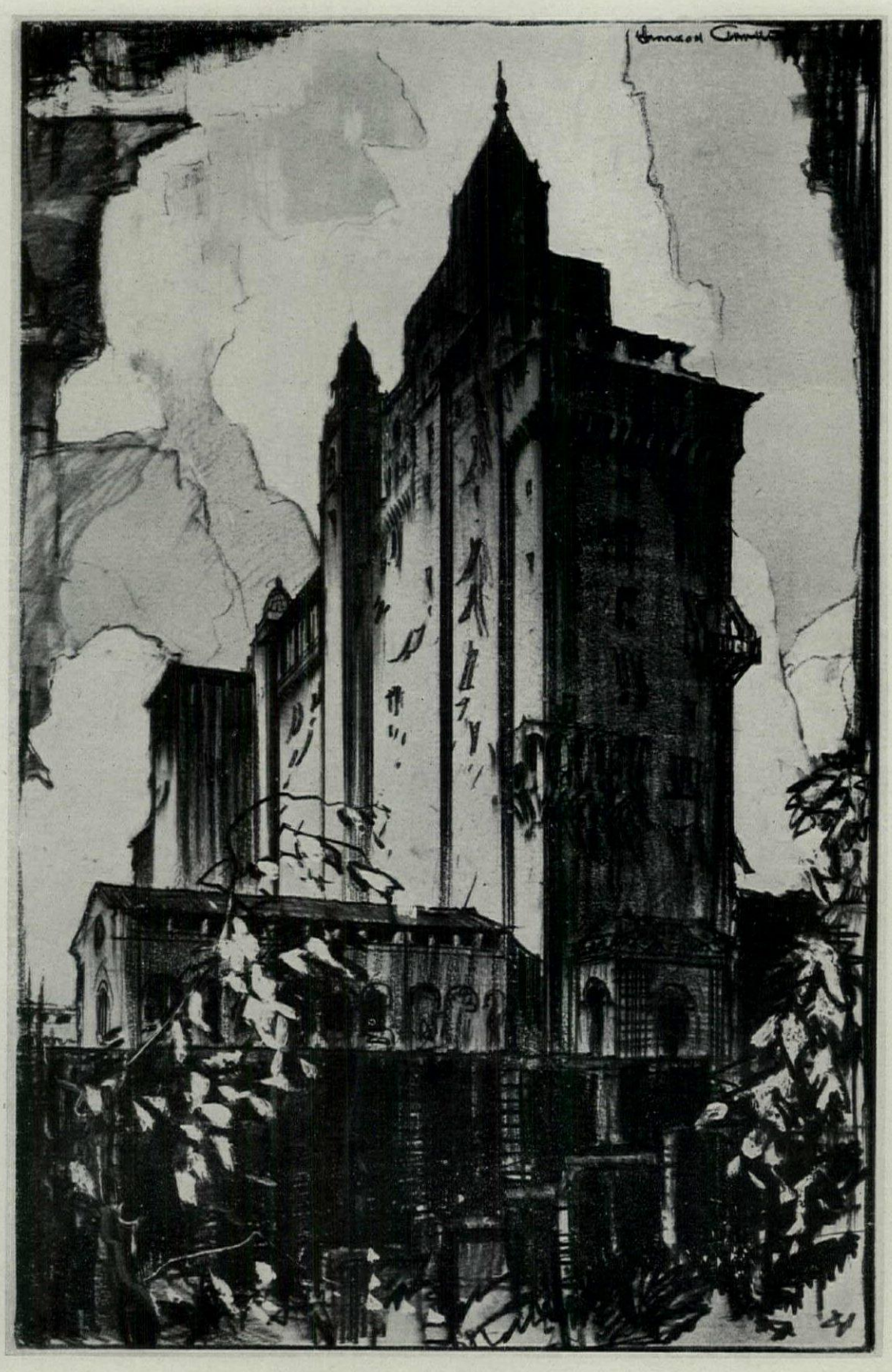
Many marveled at the fact that he seemed to know exactly what he was doing at all stages of the game, in making any sort of a rendering. He might make a rendering in several different mediums, and get away with it in fine shape. His work expresses the "kick" he got out of life—which was a genuinely healthy kick.

In handling opaque color the textures he obtained are remarkable. Varied smooth broad surfaces catch brilliant high lights, contrasted with soft roughly-grained areas vibrating in half tone, these again giving way to recesses of softened shadow from which glints of subdued light glow. His pencil drawings are equally brilliant; they are absolutely direct.

Clarke also painted well in oils. The same economy and directness of method is evident. Each brush stroke seems to contribute to the ultimate result, yet an appar-

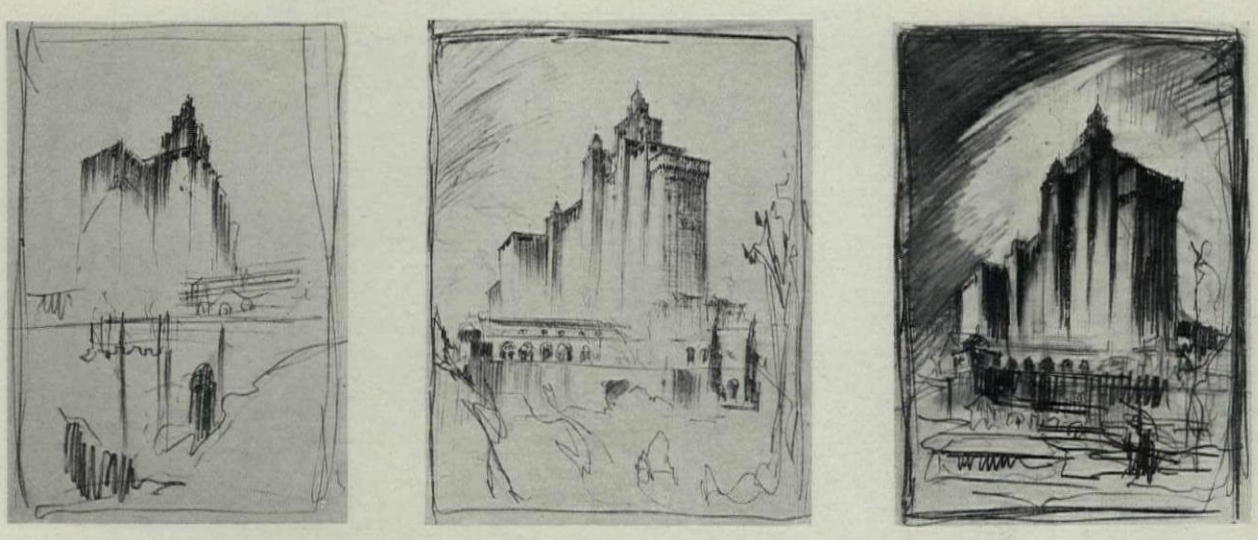
FROM A RENDERING IN OPAQUE COLOR BY HARRISON CLARKE

RESIDENCE FOR DR. W. H. ROBERTS, PASADENA, CALIFORNIA—MYRON HUNT, ARCHITECT



FROM A DRAWING IN OPAQUE COLOR AND LITHOGRAPH PENCIL BY HARRISON CLARKE

THE HOLLYWOOD RITZ—GORDON B. KAUFMANN, ARCHITECT



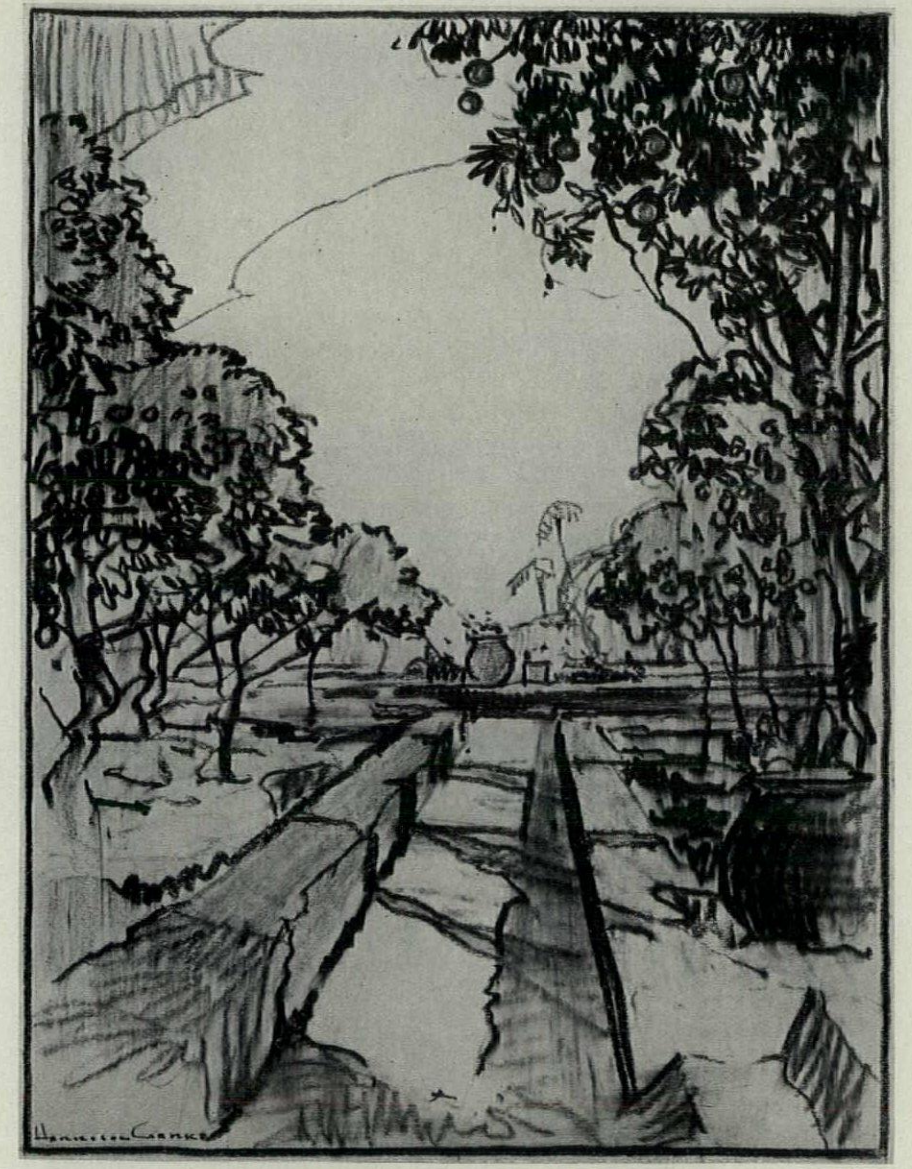
PRELIMINARY SKETCH STUDIES FOR DRAWING OF HOLLYWOOD RITZ
DRAWN BY HARRISON CLARKE FOR GORDON B. KAUFMANN, ARCHITECT

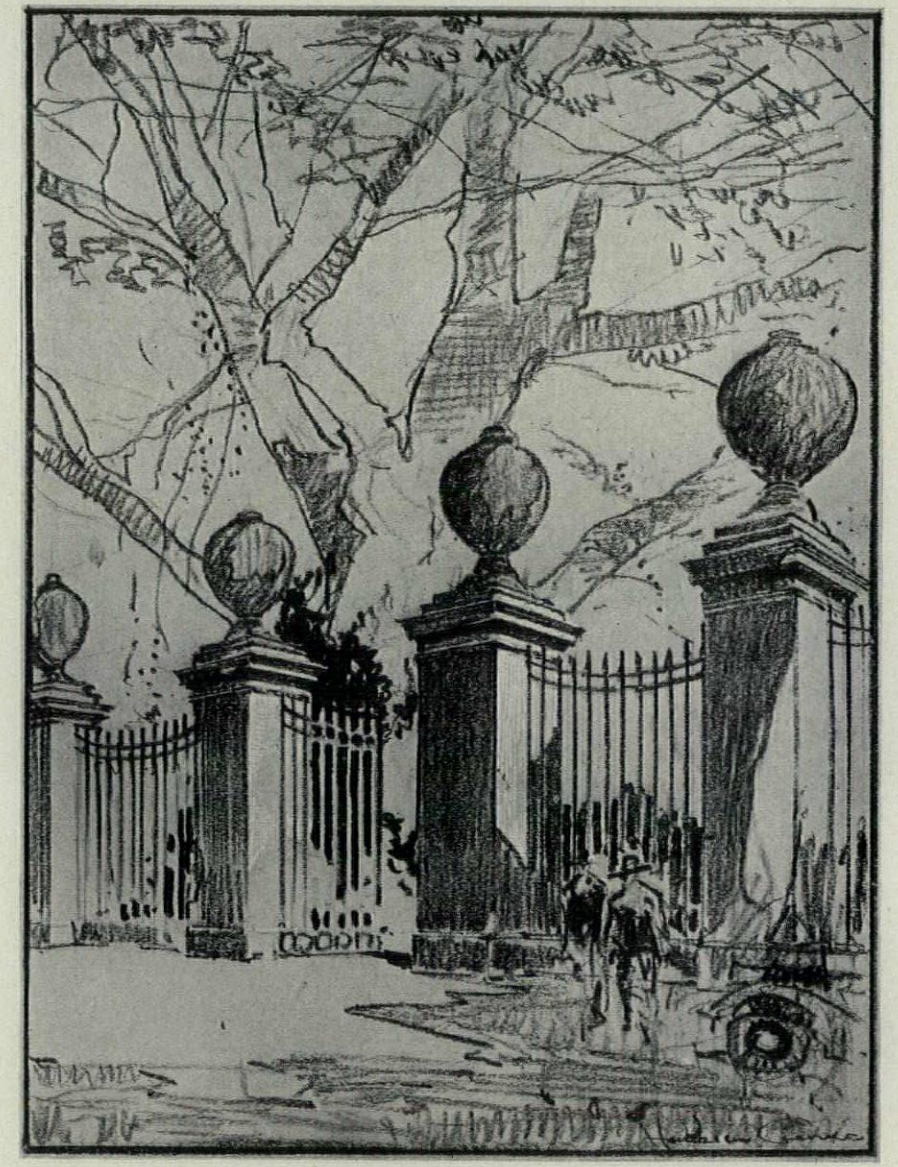
ently free and easy method of handling has been employed.

His pen drawings are particularly charming. His method of handling pen and ink is extremely simple and direct. Brilliant spots of black and large white areas with enough suggestion of half tone to soften the whole effect are characteristic features of his handling in this medium. He has a very individual style. His drawing of foliage is always very excellent. Often in compositions of a simple nature he uses a dark heavy mass of foliage as a foil for the building, with enough carefully drawn suggestions of shrubbery in the foreground to give distance to the picture.

I have been a bit reluctant about comparing various masters of pen drawing, or mentioning continuity of line or other phases of this art, since a severe shock I had in my early youth. I happened to be working for an eminent architect in New York at the time. This architect was over-temperamental even for an architect, but nevertheless eminent. Taking pity on my pitiful struggles with a pen he condescended to give me a lecture one day on "The continuity of line," with certain variations (one of the variations being a merciless attack on a certain architectural jury who had neglected to give him first place in a nice juicy competition). During a very slight pause in the flow of wisdom, feeling that I might at this time be expected to say something, and in order to air my small store of

TWO ETCHINGS BY HARRISON CLARKE
The originals each measured 8" x 9".

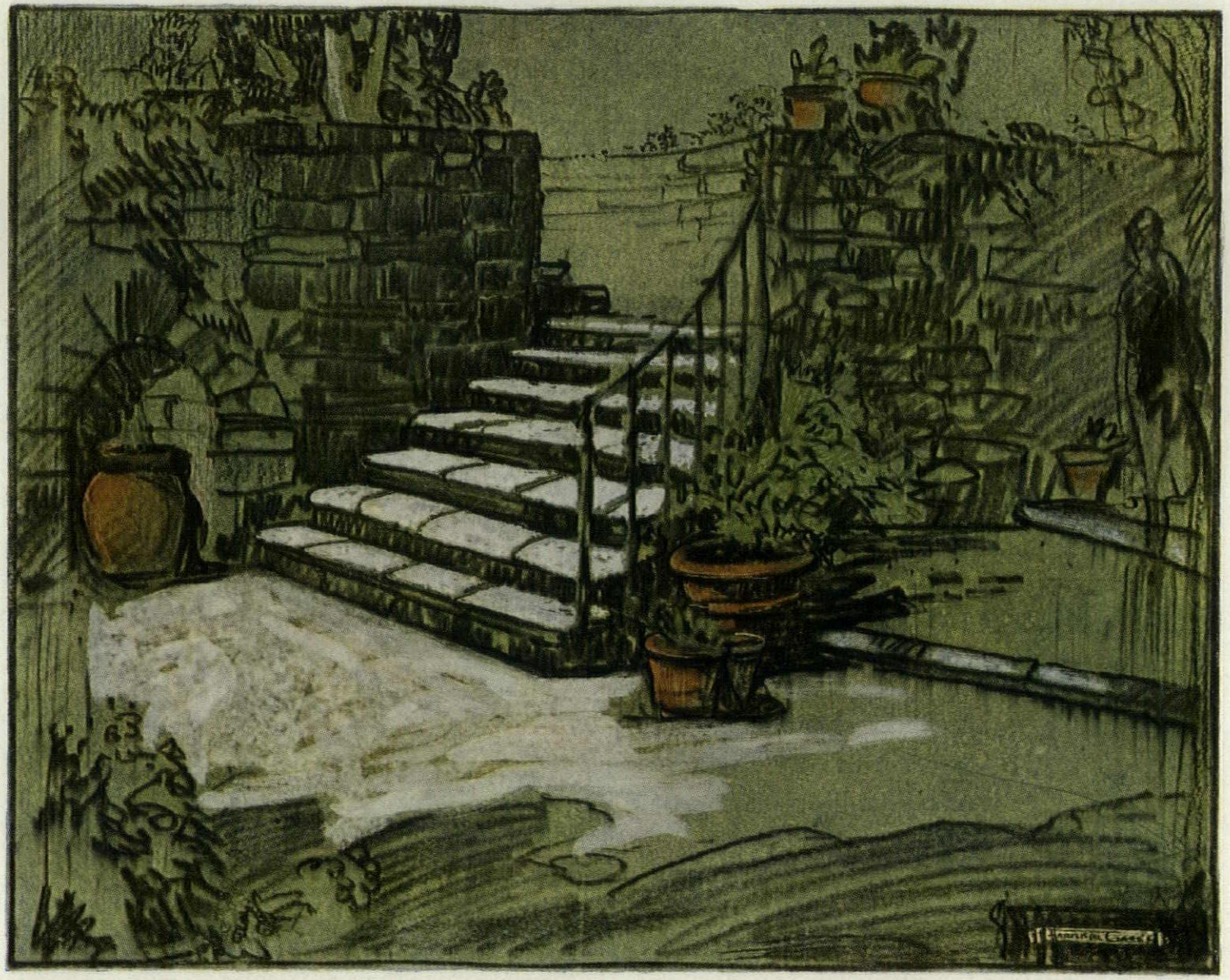




SKETCHES BY HARRISON CLARKE FOR FLORENCE YOCH AND LUCILLE COUNCIL, LANDSCAPE ARCHITECTS

BOTANIC GARDEN FOR B. F. JOHNSTON, ESQ., UNITED SUGAR COMPANIES, LOS MOCHIS, SINALOA, MEXICO—TRIAL GARDEN FOR CITRUS FRUITS AND GARDEN GATEWAY

These drawings, both of which measure 10" x 15", were made on white illustrators' board. The one at the left was done with a yellowish green wash, green and yellow crayon or pastel smeared, and lithographic crayon. The other was made with a green wash, litho crayon, and red and yellow crayon with touches of Chinese white.



GARDEN AT W. K. KELLOGG RANCH, POMONA, CALIFORNIA—FLORENCE YOCH AND LUCILLE COUNCIL, LANDSCAPE ARCHITECTS

FROM A DRAWING IN COLOR BY HARRISON CLARKE

PENCIL POINTS
(August, 1931)

Pencil Points Series of Color Plates

This sketch rendering shows a portion of the garden treatment for the W. K. Kellogg Arabian Horse Ranch at Pomona, California. The drawing, which measures 30" x 24" in the original, was blocked out lightly on white illustrators' board with grease pencil. A wash of transparent water color of a green tone was run over the whole sheet after which the drawing was completed with a soft black grease pencil. Chinese white and orange water color were used to provide highlights and accents. This method of preparing a quick sketch is simple but effective.

HASTINGS HOUSE, BEVERLY HILLS, CALIFORNIA—A. C. ZIMMERMAN AND ROBERT D. MURRAY, ASSOCIATE ARCHITECTS

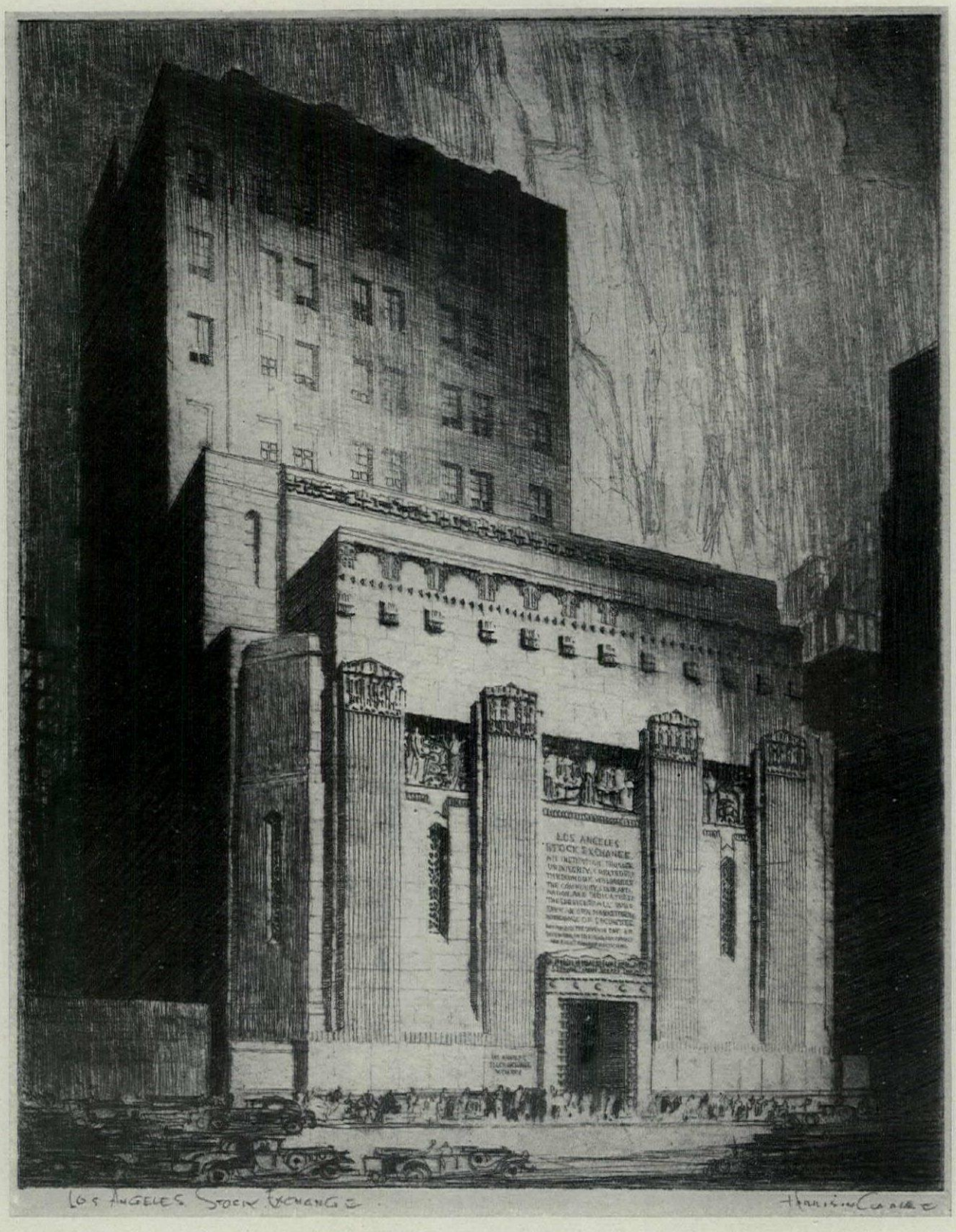
FROM A COLOR RENDERING BY HARRISON CLARKE

Pencil Points Series of Color Plates

This striking rendering was made in 1925 by Harrison Clarke on a small sheet of heavy buff linen illustration board with a textured surface. The drawing measured 18″ x 12″. It was done very freely, over a light pencil layout, with India ink applied with brush and pen. The color was added with poster paint used thinly but with freedom. Clarke could get extremely fresh and individual effects, as in this drawing, with comparatively simple means.

SKETCH BY HARRISON CLARKE OF PROPOSED WORK BY GORDON KAUFMANN, ARCHITECT

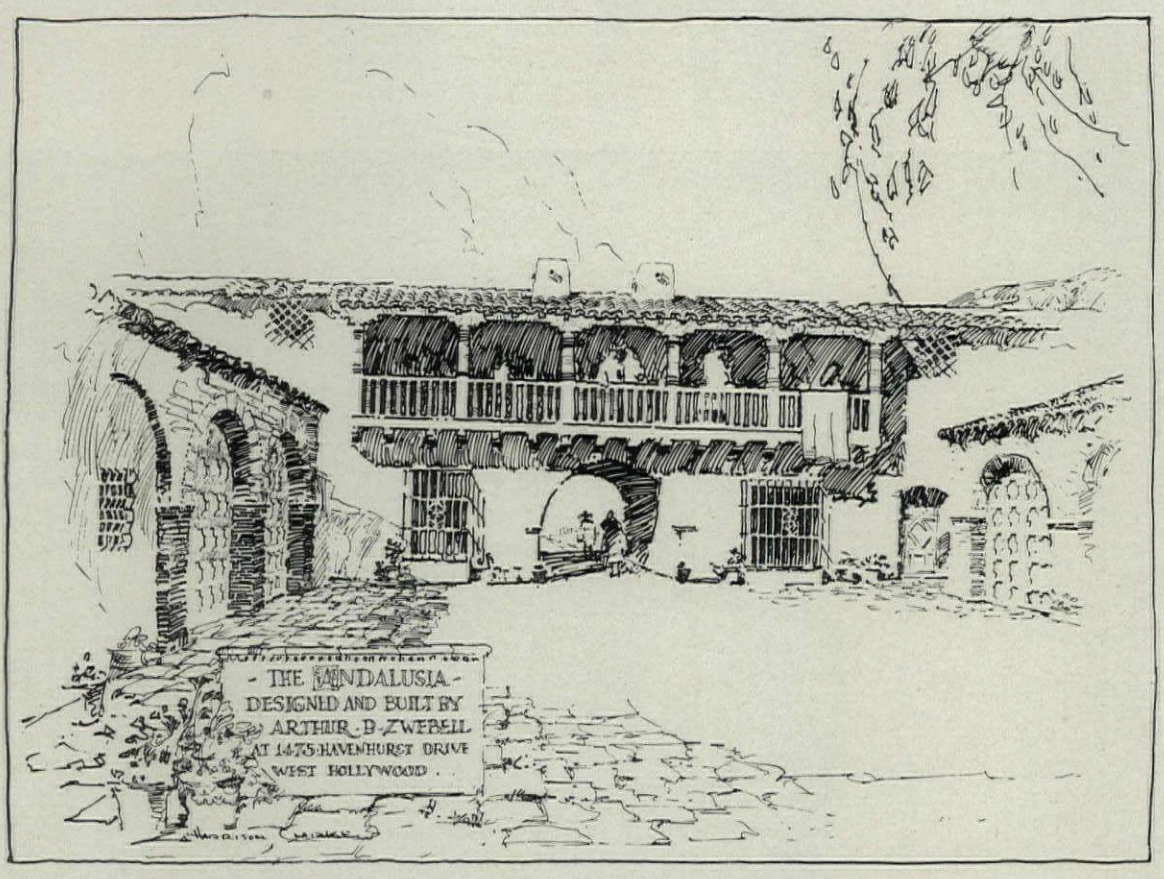
DRAWN WITH OPAQUE WATER COLOR ON TINTED PAPER



LOS ANGELES STOCK EXCHANGE, FROM AN ETCHING BY HARRISON CLARKE

JOHN AND DONALD B. PARKINSON, ARCHITECTS—SAMUEL LUNDEEN, ASSOCIATE ARCHITECT

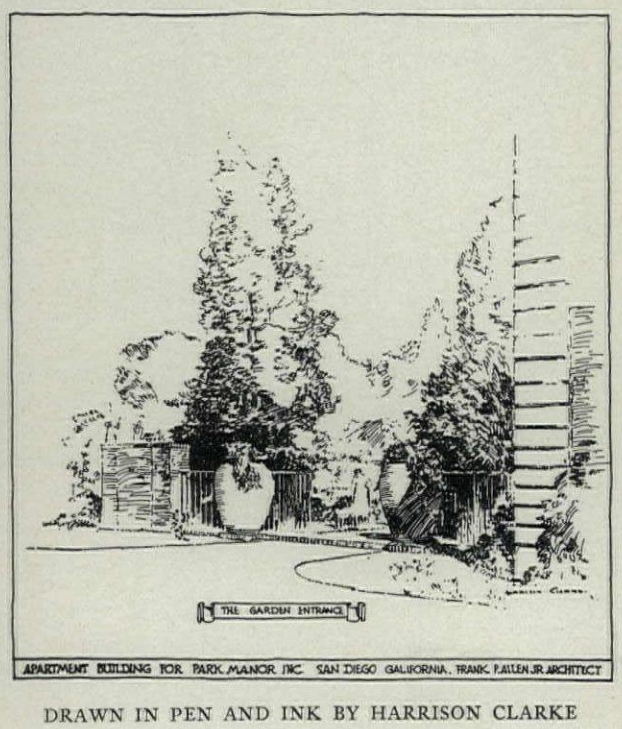
Size of original, 8" x 10"



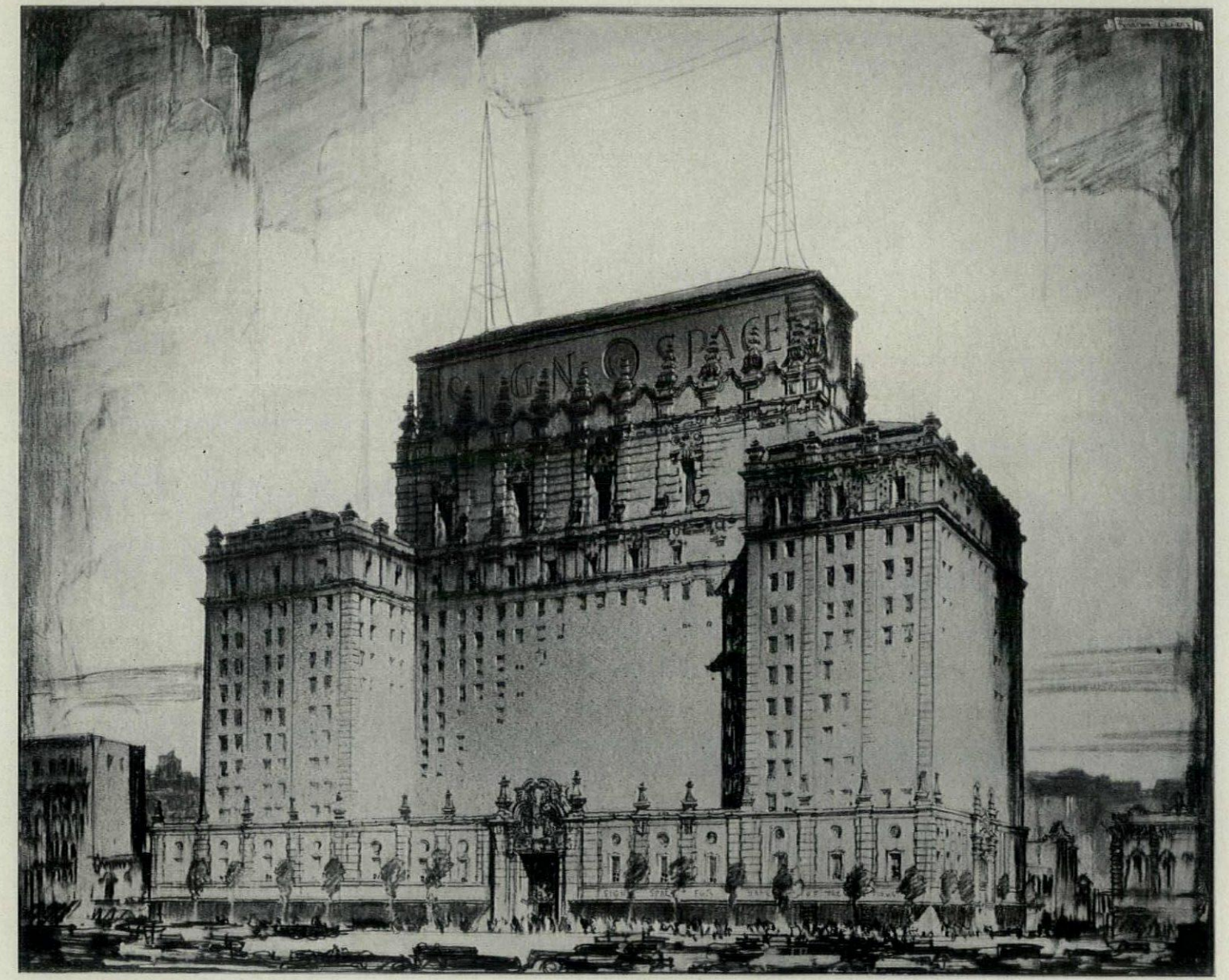
PEN-AND-INK DRAWING BY HARRISON CLARKE

knowledge on drawing lines, I mentioned in a rash moment the name of a certain popular illustrator. Whereupon my lecturer was thrown into a paroxysm of anger and absolute annoyance, and in his anguish he literally tore his hair (fortunately there was an abundant supply of artistic locks). He paced up and down the floor like a fastidious wildcat placed too close to the monkey cage, crying in a hoarse voice: "Why did you mention that man's name? You've spoiled my whole day," and words to that effect. I was completely stampeded, and fearing lest he might even surpass that famous hero of the stairs, Father William, in "drop-kicking" I backed my way out of the room and retreated under the nearest table or possibly the fire-escape, I don't remember now; anyway it was a close call, and a complete rout for both sides.

In a remarkably short time Clarke developed into an excellent etcher. It was only in the last few years that he became interested in etching. He was devoting most of his time to this phase of his work when the end came. He accepted all the limitations of his medium without affected knowledge. Yet there is subtle refinement and a regard for pattern and design as well. His later etchings have a charming, spontaneous and open-air look. In some way he managed to get a great amount of apparent color into his etchings, as well as vision combined with excellent technique for an artist so comparatively new at this particular work. He seldom drew the human figure but he seems to compensate for this by the interest he took in other objects or the almost apparent personality of trees. In his more recent etchings he increased in technical assurance without losing the romance or romantic mood which inspired his earlier plates. This assurance reveals itself in a clean and crisp line, and in the judicious economy of its use. Clarke seemed to direct his efforts towards obtain-



DRAWN IN PEN AND INK BY HARRISON CLARKE

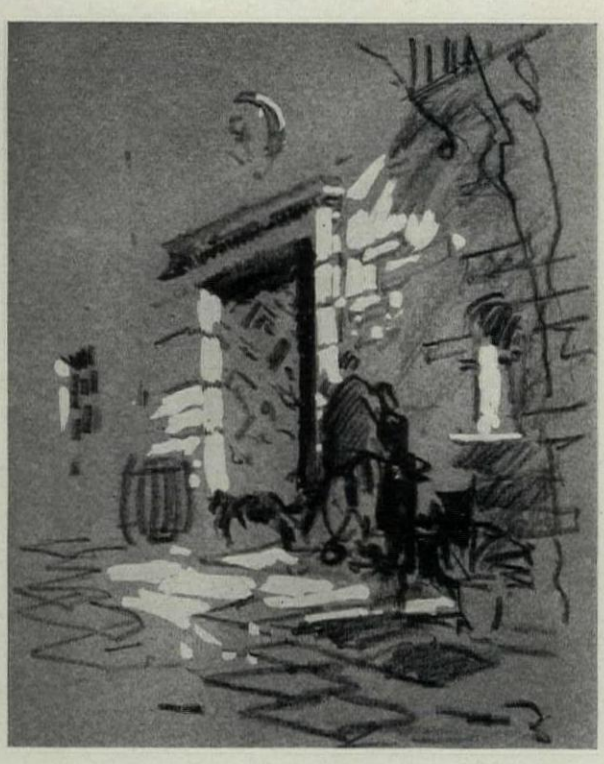


FROM A DRAWING IN OPAQUE COLOR AND LITHOGRAPH PENCIL BY HARRISON CLARKE

THE LOS ANGELES TIMES BUILDING—GORDON B. KAUFMANN, ARCHITECT

ing simplicity and breadth of design. His etchings are "refreshingly free from all subterfuge and surface brilliance; there is no striving for mere effects, except for such as nature herself deliberately offers in her steady moods" to use the words of a worthy critic.

When Clarke first became interested in etching, the California Etchers Association said of him: "Harrison Clarke, one of our younger artists, holds tremendous promise and will certainly be heard from in the etching world. Mr. Clarke, born in Spokane, Washington, spent the years from 1912 to 1917 studying with the late Willis Polk. After serving in France in the army during the Great War, he toured the entire country and most of Europe making sketches of interesting bits of the Old World. He also studied and graduated with high honors at the Ecole des Beaux Arts at Toulouse, France. After returning to this country, Mr. Clarke devoted his attention to architectural renderings, doing a great deal of work for Myron Hunt and other well known architects in Los Angeles, San Francisco, Chicago, and New York. Mr. Clarke has taken many prizes with his work, the most recent being the National Better Homes Competition for 1929, in which Mr. Clarke took second prize out of many hundreds of contestants. Having had a remarkably fine background of architectural design he is now devoting his entire time to the creation of etchings and drypoints of architectural subjects. We know of no one better equipped to build a real name for himself along these lines than Harrison Clarke."



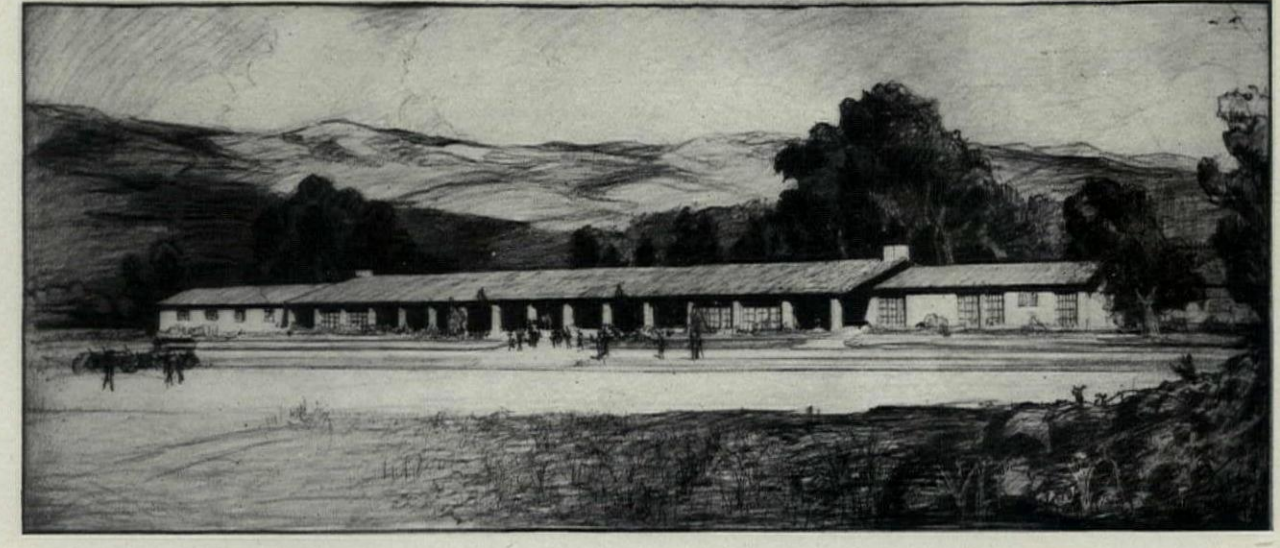
SKETCH BY HARRISON CLARKE ON TINTED BOARD

DOORWAY OF RECTORY—NEWTON AND MURRAY, ARCHITECTS

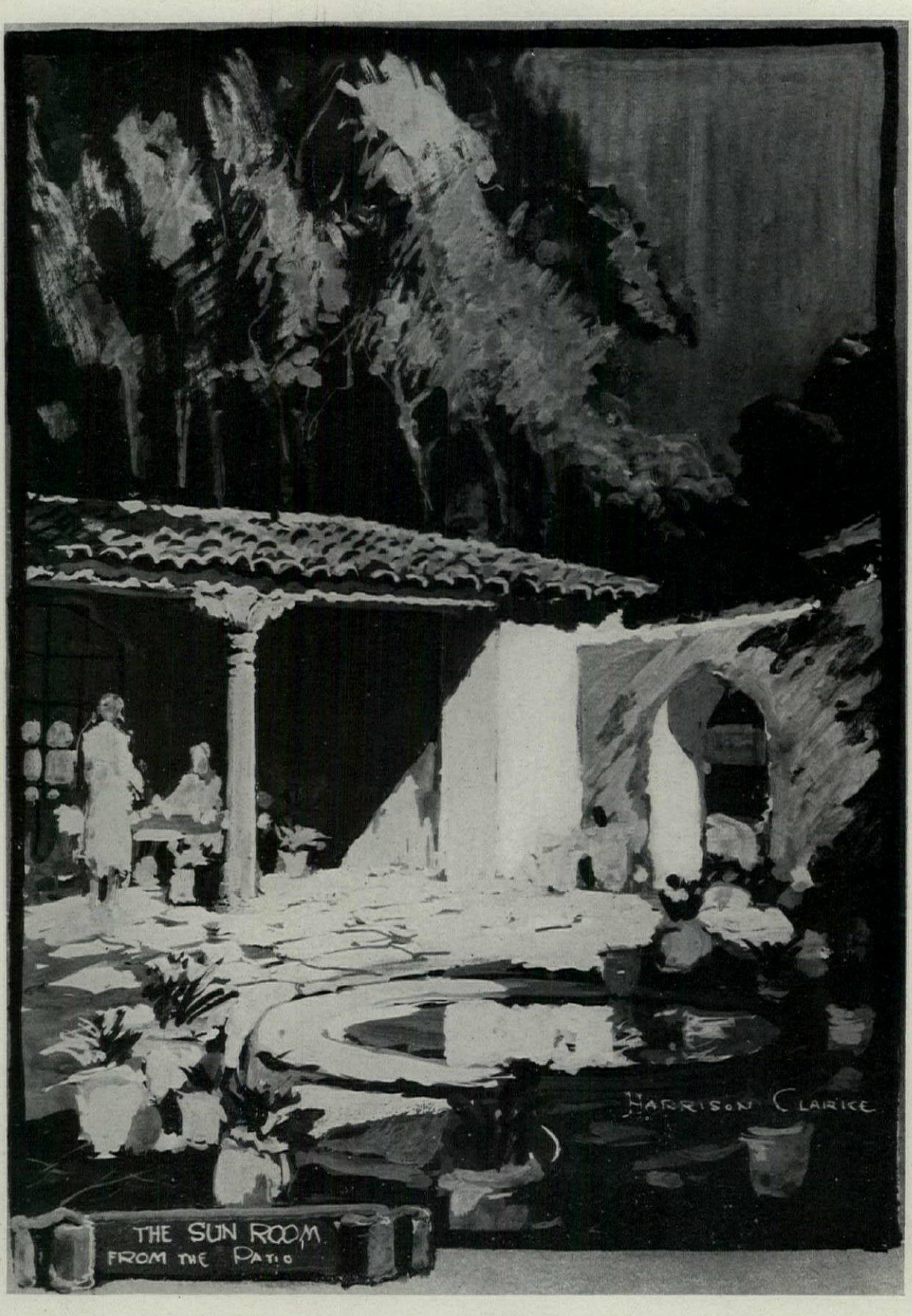
All of my humble criticisms may sound a bit trite perhaps; as indeed they are. They are the sort of things that are said of most good work. The principles which are invariably followed by successful draftsmen and artists. It is difficult to say them, without becoming too dramatic, and yet convey the idea that an artist may be something more than a mere beauty monger or at best a sentimentalizer.

Clarke had a great deal of natural ability for architecture as well as an architectural background; by "background" I mean good architectural training, office training in good offices especially.

I remember arguing with an architect (or perhaps I should say I remember "pleading") to design a certain large monumental building, or pile, with its various ramifications, such as "ramps, terraces, and shaded walks" as well as numerous arcades, lesser buildings, and all those little pleasantries that go to make up a complicated problem; as the original sketches suggested. He thought that he would. Clarke had made the original sketches. However, this certain architect who incidentally was a friend of mine (I had merely dropped in to argue) could not resist the



HOTEL AT BISHOP, CALIFORNIA—MYRON HUNT, ARCHITECT—PENCIL RENDERING BY HARRISON CLARKE



SKETCH BY HARRISON CLARKE OF PROPOSED WORK BY GORDON KAUFMANN, ARCHITECT

DRAWN WITH OPAQUE WATER COLOR ON TINTED PAPER

temptation of twisting the scheme around a bit; he pulled a wing out here and shoved something back in another place. Eventually he succeeded in killing the unity of the whole composition; massacred the repose of the entire design and followed suggestions of everybody and his brother. I met him after the thing had been built and in my best "I-told-you-so" manner, asked him if he wasn't sorry that he had not followed Clarke's original sketch. He had a feeble alibi or so, but finally confessed his guilt and threw himself upon the mercy of the cold relentless critics.

Without attempting to rob anyone of credit, I believe I am safe in saying that his talent as an architectural designer had much to do with the success of the Pasadena Public Library, Hunt and Chambers, Architects. His ability in handling a plan problem should not be underestimated either. He had much to do with the success of many creditable architectural achievements.

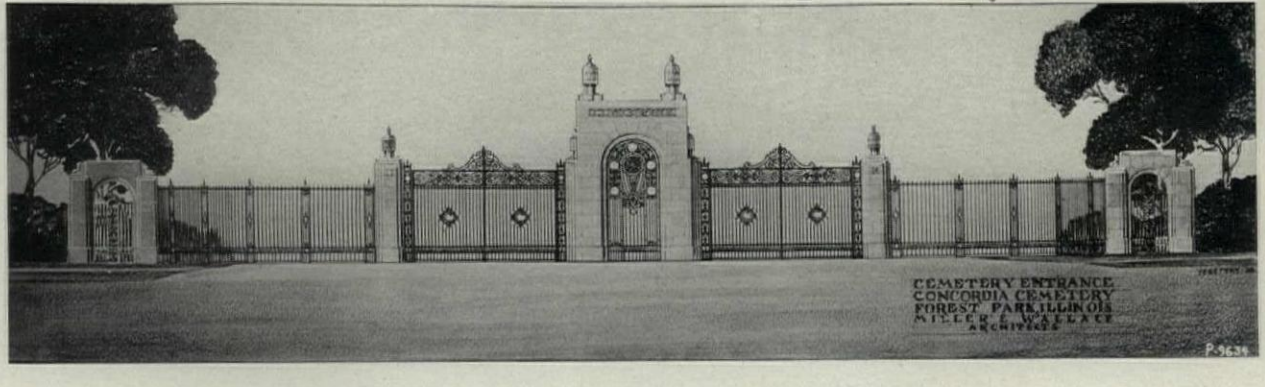
He was a sympathetic critic, and gave generously of his time in helping some of his less talented professional brethren. There is a certain type of architectural critic who feels that he must distort his face with a hideous grin and with a great amount of sneering explanation throw his victim into a state of near panic and utter abjection before he can accomplish his purpose. One is almost willing to do exactly the wrong thing in order to counteract the effect of such an unpleasant experience, that is, by attempting to do the wrong thing in such a logical way that the critic will appear to have been mistaken. Clarke never gave one the impression of a critic "showing-off." If there is any person that one would like to strangle to death with one's bare hands it is a critic "showing-off."

Clarke won many competitions, in fact, I can remember but few competitions which he entered in which he did not place. It is not remarkable that he should have when his beautiful draftsmanship and excellent judgment and ability as an architectural designer are considered. A well meaning salesman of a large plumbing manufacturing company requested me to announce that Mr. Clarke won a prize in a recent bathroom competition. I believe it was one of the last things he did. The prize was quite a modest one, in fact, I won the same amount in the same competition. For the benefit of anyone who may see the publication of the competition I might add that both of us had either transcended above or ebbed below the level of Chic Sale. We must have been built for better things than bathrooms.

His work was not influenced by the modernistic trend (or whatever I should call it). It seems to have soured the work of many capable men, who have started with certain theories and suddenly decided to chuck everything overboard and start anew with a set of certain other theories, or none at all. His theory was apparently realism; form, color, and tone simultaneously expressed what he saw. Pattern alone did not govern his work. The beauty of color grew out of the significant expression of form and not out of its pleasing aspects as design and decoration.

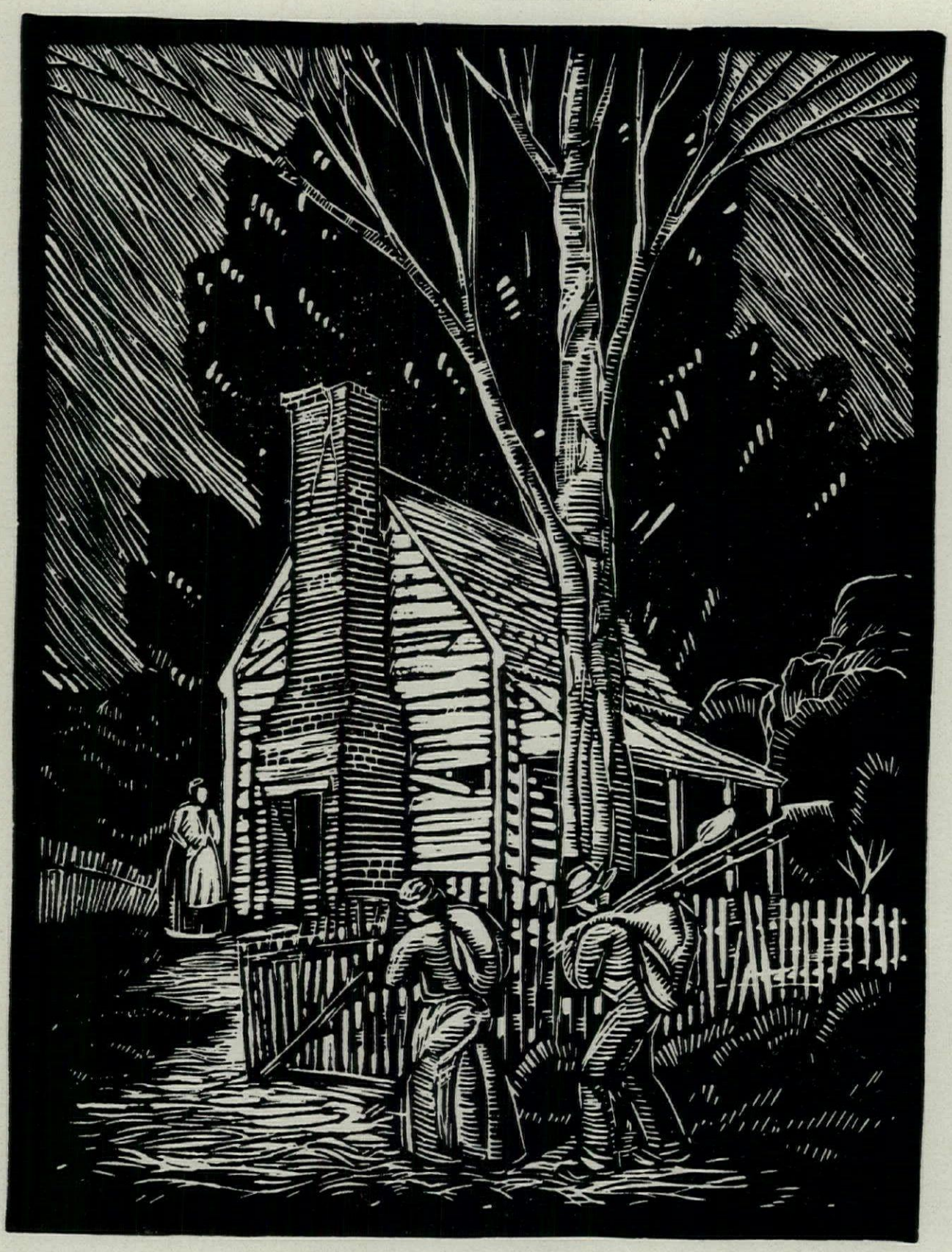
To Mrs. Harrison Clarke he owed much of his opportunity to develop. She did more than merely keep the home fires burning. Her previous artistic training gave her the ability to help him sympathetically and constructively with his work. She was with him in everything. He also left a daughter and two sons (and from present indications some university football team will have the start of a good backfield if both the young men have an inclination in that direction).

He was an inspiration to many and his talent will continue to be an inspiration. I am too poor a critic to compare him to great illustrators, living or dead. However, in my own poor judgment, he can be compared to Piranesi, perhaps the greatest architectural draftsman of all times.



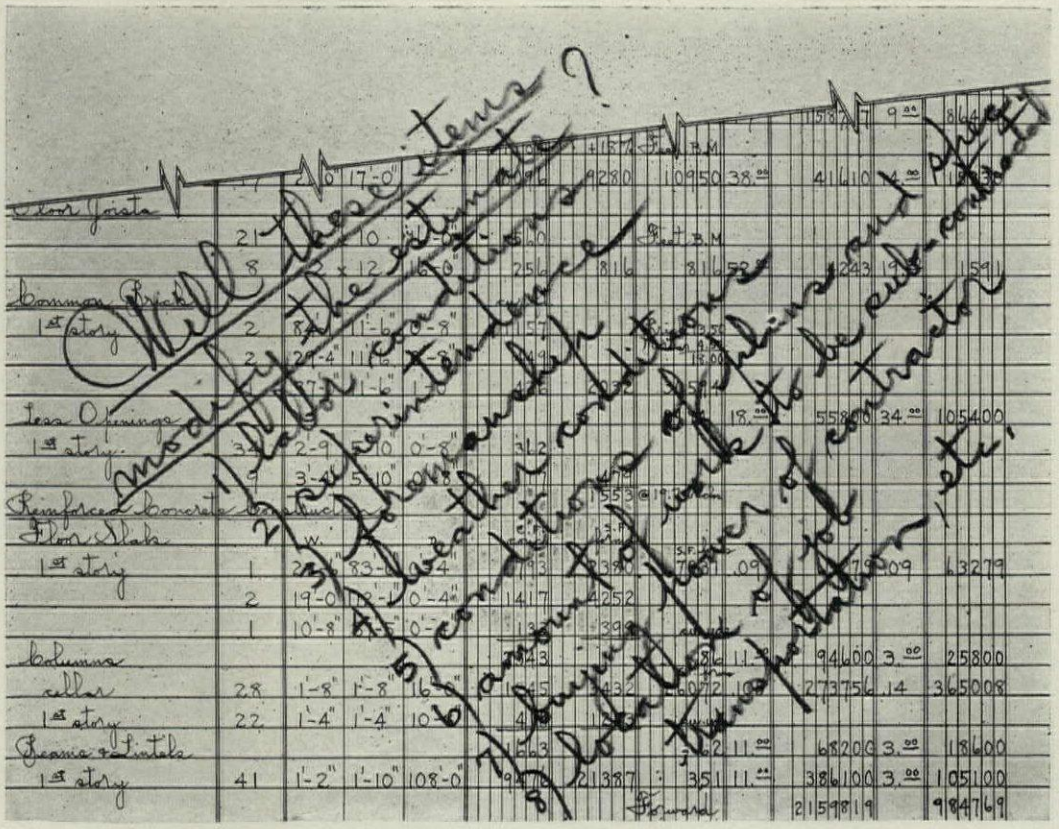
ENTRANCE TO CONCORDIA CEMETERY, FOREST PARK, ILLINOIS

MILLER AND WALLACE, ARCHITECTS



LINOLEUM BLOCK PRINT BY LOUIS W. BALLOU

"A NEGRO SHACK IN VIRGINIA"



Estimating is More Than Figures

By H. Vandervoort Walsh* and Alexander T. Saxe†

It is quite a blow to any project when the architect and client have been talking in terms of $50,000 and the estimates come in at from $75,000 to $100,000. Of course, the architect is not supposed to guarantee any price on his design for a building, yet there are few jobs, nowadays, which do not bring in the discussion of costs. There are few architects who can carelessly wave aside the question of price as a thing of no importance. A glance through their libraries reveals their intense interest in this mysterious subject of estimating, for at least three or four books with catchy titles, dealing with all phases of the problem, will be seen. Secretly or openly many have tried out their skill at estimating with the "dope" they have purchased between cloth covers. Somehow or other the estimates which they make, after carefully calculating the total quantities of materials and labor, never seem to check up with the bids which come in from the builders. Suffering defeat many times, they have been known to settle back and classify the process of estimating building costs one of the black arts, and call in "friend Contractor" and leave it up to him.

Why can't the architect figure the cost of a building by using the handbooks, when he can figure how big a beam or girder should be by getting his information from a similar source? Well, he might, after a long struggle, get to the point of learning how to get the right quantities of materials and the right number of labor hours, but these figures do not give him the answer he wants. Estimating is more than multiplication and addition of numbers. To make the figures talk a real background of the knowledge of the general conditions which affect prices is necessary. The books do not mention these matters, which are, after all, quite simple and can be summed up into eight items.

1

To know what factors influence the figures in estimating is the beginning of all sound knowledge in estimating structural values. One of the first things to realize is that no book listing of labor costs is worth anything, other than to be an interesting example of what happened on a certain building in a certain city a year or two before the book was published. To multiply the estimated number of "labor hours" by labor prices quoted in any book is a nice problem in arithmetic but, when you are through, nothing has been learned, except that later on you will discover

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that the cost so estimated is far from being what it actually is. The old law of supply and demand keeps at work changing the wage scale in every locality, regardless of published lists. Labor is a commodity in the building line, just as are eggs and butter in the restaurant business. The price of labor is a variable, but fortunately the quantity of work done by labor is fairly constant when expressed in terms of "labor hours." It is possible to calculate accurately the latter, based somewhat upon the law of averages. Once having established the total labor hours, an estimate of labor costs which is accurate can be made, if a first-hand knowledge of current labor prices is obtained. It is a strange thing that prospective owners often know more about these than the architects, a circumstance which does not help the authority of the profession in the minds of the public. After all, this information is quite simple to obtain from contractors, local gossip, and material supply dealers. Contrary to the belief among many architects, the matter of current prices of labor and materials is not a secret, but quite an open book.

When building work is scarce and labor is looking for work, wages go down in spite of all union regulations. It is not uncommon, today, to see strong union men hide their cards and accept work at very much lower wages than those laid down by the unions. The wages that are actually being paid and those which are officially reported are two different things. In marked contrast to present conditions were those of three or four years ago, when the building boom was on and labor was at a premium. Labor unions kept down the numbers and demanded high wages. However, in many cases the actual wages paid were much higher than those officially recognized by the unions themselves. For example, carpenters in New York City were not only earning the full union wage scale of $12 for an eight-hour day but in one specific instance which we can recall were earning $36 a day—$12 on straight time and $24 on eight hours overtime. Yet in spite of all this, the cost of labor in other localities within fifty-mile radius where work was not so pressing was very low. For example, on Long Island, only twenty-two miles from New York City, where union power was weak, the carpenters were only getting an average of $8 a day. Also down in Lakehurst, New Jersey, on account of scarcity of work, carpenters were available at $4 a day. If such varied conditions as these can exist within fifty miles of each other, how utterly foolish it is to expect that labor prices quoted in any book can be of much value in getting at the actual cost of an operation. Without some appreciation of these basic labor conditions, and a little gumption to get at the real facts, no estimates can possibly be made by architects obtaining their data from printed lists.

2

Weather conditions now also affect the total cost of building in ways that differ from those of seven or eight years ago. At this period the seasonal shut-down on winter construction was so customary that labor usually decided to turn its efforts into some other direction. We knew a number of plasterers capable of earning, at that time, $13 a day, who would throw down their tools as winter approached and put on fine uniforms and become doormen on Park Ave. at $25 a week until March 15. The mechanic in those days could count on working six or seven months of a total of eight months of the open season for construction. But now things are quite different. Due to the improved methods of work, the seasonal shut-down on construction is no longer the custom in most cities. The plasterer now cannot afford to take a vacation in a uniform, but must work at his trade all winter, if he hopes to average seven or eight months work in a year. This condition in a building depression results in creating a market condition for labor worse than that which was possible under the old order. Labor in a winter like the one just past, therefore, can be obtained at unprecedented low figures. A condition of this kind materially affects the total cost of any building operation, yet anyone attempting to estimate the cost of a building would get well off the track, if he were not conversant with these facts, which certainly would not appear in books. The ideal situation in normal times has been to start construction early enough in the fall to get the building enclosed before the worst weather sets in. By this method, some advantage can be taken of the slack in the labor market. It is bad planning to devise a schedule where bricklaying or stone masonry, sheet-metal work, roofing, glazing, or painting will have to be done in cold days, for the interference will then be so serious that costs will mount. So if, in estimating the cost of any structure, no consideration is given to planning how that structure will be built during unseasonal weather, a serious error in calculations can be made.

3

The intelligence of the builder's superintending force has a lot to do with cost. Many an estimate can be completely thrown out by incompetency in this branch of the builder's organization. In the first place the chief superintendent must be capable of organizing the job, so that trades interlock properly. The progress of the work must not be stopped by delays caused by different trades coming onto the building at the wrong time. For example, as soon as the steel men are working on the second floor, the concrete arch contractor should be building his forms for the first floor, the electrical contractor establishing a temporary meter in the street and starting basement ceiling conduits, the plumber getting his street connections made, the heating contractors setting up the boiler, and the mason's supplies should be coming on the delivery trucks. Think of it, on a seven million dollar operation, the monthly interest on the investment is $35,000 or $1,300 for each working day. If the superintendent does not make all the parts of the job click, the lost days pile up and so do the interest charges, thereby increasing the cost of the building.

The superintendent who is careless in checking up on the work of the subcontractors can easily run up the cost. Especially is this true with the "Unit-price Contract" which is becoming more and

more common. With this type of contract, the cost of doing work is based on some agreed upon price for a unit. This price includes the cost of material, labor, breakage, transportation, profit, overhead, and all incidentals. In other words it is an average cost of doing work per unit. In common brick work, the unit price would be quoted on the basis of the cost per cubic foot, but on face brick work it would be the square foot per unit thickness. Plastering contracts would be let on so much per square yard, while heating would be computed on so much per square foot of radiation and plumbing on so much per fixture above a basic figure. This type of contract is becoming popular, because it is flexible. Any additions or changes can be figured without disputes. But, as said before, unless the superintendent is careful to check up on the actual number of units put into the building, the subcontractors will be tempted to "pad" their bills. Indeed, shrewd subcontractors are known to size up the thoroughness and capabilities of the superintendent and make out their statements accordingly. For example, a well known practice is to agree to an average cost per square foot for block partitions, then if the superintendent is judged to be easy, the bills are submitted for the total number of square feet of partitions, without openings deducted. The cost per linear foot of a railing might be agreed upon, but the bill might be submitted without deducting for gate openings and yet an extra charge be made for the gate itself. In other words, a very rough and generous allowance for units may be submitted to the easy-going superintendent by all subcontractors and the cost of the whole operation, thereby, greatly increased. How can anyone estimate the real cost without considering these facts?

The care used by the superintendent in checking quantities of materials shipped to the job when the general contractor is doing his own work is another factor influencing the ultimate cost. Short shipments are more likely to happen when it is known that they will not be noticed.

The superintendent's real knowledge of construction and his ability to get along with the various foremen has a great deal to do with the cost. When the real leadership of the superintendent is questioned by the workmen, the morale on the job slumps, but when it is recognized that he knows his construction, the spirit of the workers goes up and economies entail.

4

The type of foremen also influences the costs. Each one must be the absolute master of his trade. If he is not, he will quickly be found out and the workmen will slack in their efforts. For example, an experienced plasterer's foreman knows how much a man can do in a day and can lay out the job for each workman in the morning and get a good day's result, but if he is inexperienced and doles out a little job here and there to each one, on the basis that he will give them more when he comes around again, the men will stall as soon as he gets out of sight. On a large job where he can only see the men twice a day he may return to find his men puttering over a small patch which might have been finished up in an hour. It is the ability of the foreman to lay out a full day's work that makes for economy.

5

The plans and specifications of the architect have a lot to do with the cost of a structure. Ambiguous conditions in the specifications, unstudied portions of the design, and actual omissions can easily run up the cost. The contractor's estimator can only figure upon what the plans show. If the architect has the reputation of leaving his artistic design for the builder to find out how to put together, the estimator tacks on the extra cost to compensate for the unknown factors in building. Actual omissions of important items from the specifications, of course, is the failing of some architects more than others, and these mean extras. On the other hand, too complicated plans have a psychological effect on the estimator. They frighten him, and so he adds to his estimate according to his fear. A very successful builder estimated the cost of a structure by the weight of the specifications. He said that he figured long specifications indicated a fussy, "old-woman" architect or else a youngster who would try to show off his professional authority on the job. In both cases, he needed to add to his estimate to allow for unreasonable demands on his time.

6

The location of the site of any structure affects its cost. The transportation facilities of the men who must work on the job have much more to do with the cost than is generally believed. When a job is out of town, traveling time is considered by the unions as part of the day's work. In the delivery of materials, the condition of the roads, the time of the year and the hilly character of the country affect the cost. If the roads are bad and the building is at the top of a hill, so that trucks cannot reach the site, the cost of material delivery becomes a serious factor. New real estate developments where the roads are not completed also present problems of this kind. Any estimator who does not consider these facts can get off on the wrong track.

7

The shopping ability of the contractor has a lot to do with the cost. The estimator must be thoroughly familiar with the contractor's buying powers. Has he a natural cleverness in making a bargain? Is his reputation large enough to bring him low prices? The more construction work a builder has at one time, the stronger is his pocketbook to purchase materials, because the salesmen of the manufacturers are like sheep, flocking to him to sell him their goods, and so they build up a highly competitive market between themselves which permits the contractor to play one against the other for low prices. Large building companies can, as a rule, get better bargains than small ones. On the other hand, the new and inexperienced builder will pay topnotch prices because of his inability to build up a competitive market, even to the point of

not knowing a low price when it is handed to him. What estimate would be worth anything if the personal factors such as these were not considered.

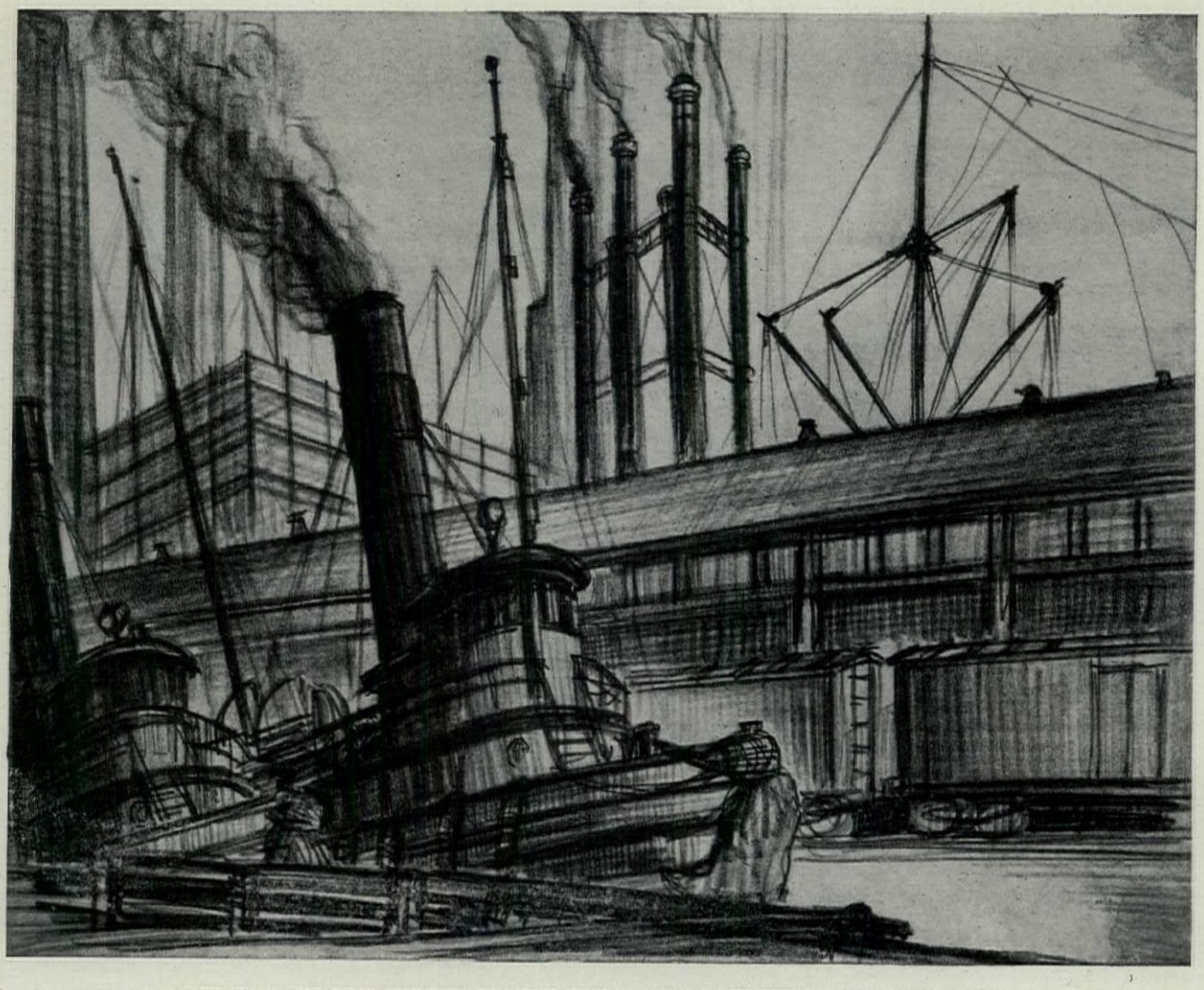
8

Finally, the number of subcontractors on the job influences the cost. If the general contractor is merely a broker who lets out all his work to subcontractors, then, to the profit expected by them, he adds his own profits. On the other hand, if the general contractor does most of his own work, except the mechanical trades, there is no doubling of profits. Of course there are exceptions to these conditions. The clever general contractor can often get efficient subcontractors to do the work better than he can himself and at a lower price, and then when the two profits are added together, the cost is not increased over the single contract price. In general, however, the broker type of builder who exacts his profits over and above those expected by the "subs" runs up the cost of the structure.

It can be seen, then, from the above conditions, that one's judgment in estimating must be tempered by the knowledge of other things than merely the total quantity of materials and labor required to do the job. They explain why so many theoretical estimates of the construction go wrong. The beginning of wisdom, then, in making estimates, is to recognize these influences and to have them constantly in mind. We repeat them in the following list:—

FACTORS WHICH MODIFY CONSTRUCTION COSTS

1. Actual wages paid to labor and the conditions of the labor market.
2. The time schedule of the building and its relation to the season.
3. Is the builder's superintending force capable?
4. Are the subcontractor's foremen well versed in their trade?
5. Do the plans and specifications of the architect cover everything in a clear and simple manner?
6. What are the conditions of transportation to the site?
7. What is the buying power of the contractor?
8. Is the general contractor merely a broker or does he do most of the work himself, through his own organization?



FROM A CRAYON SKETCH BY SHELDON K. VIELE—WATERFRONT, NEW YORK

The Geometry of Architectural Drafting

18—More Geomathematics

By Ernest Irving Freese

Editor's Note:—*This article, which is copyrighted, 1931, by the author, continues the series begun in August, 1929.*

With Part 18, herewith, the analytical "detour" started in Part 17 becomes successfully negotiated: these two Parts, together with the isolated and special dimensioning data occasionally recorded in later Parts, cover every practicable case of *dimensioning of circular arcs* that is likely to come up in the architect's drafting room. And you will find this data—particularly the data presented herewith—*nowhere else*. In its entirety, it is an original and a much-needed development that furnishes the *missing pages* of every so-called "handbook" heretofore published. After finishing with these two parenthetical Parts, you will have become—possibly—"a sadder but a *wiser*" draftsman. But cheer up! In the immediately following Parts of this heterodox geometry I'm going to show you some *fun*—with the compass. A regular "circus" is marked up *on the boards*. At the crack of the geometric whip, circles will loop their loops. And *then* what? Well, after that, some *other* curves will do as they're told. Meanwhile:

As in Part 17, I shall here, also, present some exceedingly valuable and time-saving ready-to-use diagrams and dimensioning data relative to *particular* cases, before recording the *general* formulas by means of which can be found the required but unknown dimensions having to do with any circular curve of the types here discussed and portrayed. Wherefore, as before, though the formulas herein made available have been reduced to their simplest terms, they need be resorted to only in uncommon cases. With the knowledge conveyed by the detailed instructions and illustrated examples heretofore fully worked out in Part 17, the methods of utilizing the mass of reference data *here* presented will become almost — possibly entirely—obvious. So we shall just "wade right in."

Figures 160, 161, 162, 163:

No formulas need here be solved. The *work* has all been performed. At Figures 160, 161, 162, any unknown dimension you need is obtained merely by multiplying the known SPAN by the recorded fraction corresponding with the dimension wanted; while at Figure 163, the dimensions of the ogeed curves are given in terms of the WIDTH: said "span" and "width" being designated on the Diagrams as unity, or 1. The nineteen worked-out examples presented in these four Figures are a remarkable outcome of the fact, stated in Part 17, that there exists an *unlimited* number of circular arcs—simple, combined or compound—having dimensions expressible in *rational* numbers, that is, in exact and commensurable numerical terms. You "doubting Thomases" can, if you are so constituted as to be so compelled, prove the truth of this assertion by means of the absolutely *general* formulas hereinafter set down for each type of circular arc illustrated in these Diagrams. In the case of Diagrams "1" and "3," of Figure 161, the decimalized designation for the intermediate radius was *resorted to* merely because the two integral terms of the *exact*

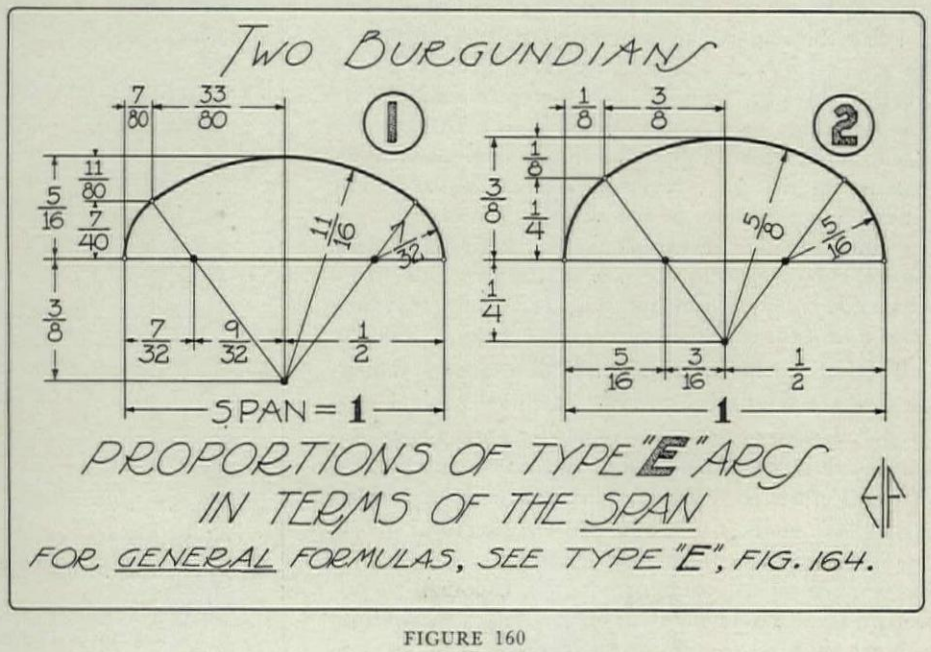


FIGURE 160

common fraction became too big to handle. In the case of Diagram "10," Figure 162, however, the particular laid-down conditions of this combination operate to make the two decimally-recorded dimensions *in*commensurable, since they here unavoidably become *the square roots of imperfect squares*—hence, irrational numbers, interminate decimals. In all nineteen Diagrams, making up the four Figures named, every dimension recorded in common fractions is *exact*—astonishing as it may appear. Diagrams "J" and "K," of Figure 163, are especially striking examples of *4-centered compound ogees* having every required dimension *exactly* determinate as there recorded. And TABLE 7 gives two others that are immediately *usable*.

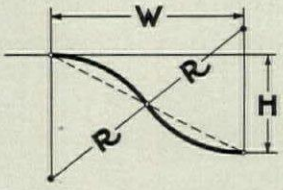
Tables 6 and 7:

TABLE 6, herewith, makes available, by mere inspection, a large number of two-centered equal-radius ogeed simple circular arcs—the "*cymas*"—whose three related dimensions, the **W**idth, **H**eight, and **R**adius, are expressible in rational numbers. The fourth column of this Table contains the value of the width-divided-by-the-height, or the "**W** over **H**" ratio as there formulated. This convenient value enables the user of the Table to quickly "pick out" any ogee of this particular type having either the *desired* proportions or proportions closely approaching those that were assumed for the purpose of determining the *exact* dimensions. The use of TABLE 6 is entirely analogous to the use of TABLE 5 given in Part 17, which latter Table has been fully discussed in the Part mentioned. In case both the width-dimension and height-dimension of this particular kind of an ogee are unchangeably *fixed*—either by design or structure—and in case TABLE 6 does not contain the required value of "**W** over **H**," then the radius-dimension corresponding with the fixed width and height will have to be found by solving the *formula* for same given at the head of this Table. This formula tells you that the required radius, **R**, is equal to the sum of the squared **W**idth and squared **H**eight, divided by **4** times the **H**eight. This is not a *general* formula, since it is applicable only to the special case here instanced in which the radii of the two simple component arcs, making up the total reversed arc, are *equal*. The general formulas are to follow later herein, and you will discover that Formula 3, of Type "G" arcs, Figure 166, will yield the *sum* of the two radii, from which, *any* desired *ratio* of radii can easily be transformed into the actual required *dimensions*.

TABLE 7, herewith, records all necessary dimensions, *in terms of the width* **W**, of three usable 4-centered reversed *compound* circular arcs of Type "J." One of these has already been illustrated at Diagram "J" of Figure 163, and another can be seen at Diagram "4" of Figure 169. In architectural work, these 4-centered circular curves are used mainly in the familiar split pediments of the Colonial period, though their employment is by no means *peculiar* to such features. Wherefore, the *general* formulas per-

TABLE 6

EXACT PROPORTIONATE DIMENSIONS OF 2-CENTERED EQUAL-RADIUS OGEED CIRCULAR ARCS IN COMMENSURABLE TERMS



$$R = \frac{W^2 + H^2}{4 \times H}$$

Width	Height	Radius	$\frac{W}{H}$
34	2	145	17
30	2	113	15
26	2	85	13
48	4	145	12
22	2	61	11
40	4	101	10
18	2	41	9
32	4	65	8
14	2	25	7
24	4	37	6
88	16	125	5-1/2
10	2	13	5
72	16	85	4-1/2
78	18	89	4-1/3
16	4	17	4
66	18	65	3-2/3
56	16	53	3-1/2
120	36	109	3-1/3
6	2	5	3
176	64	137	2-3/4
96	36	73	2-2/3
130	50	97	2-3/5
40	16	29	2-1/2
42	18	29	2-1/3
144	64	97	2-1/4
110	50	73	2-1/5
210	98	137	2-1/7
8	4	5	2
182	98	109	1-6/7
90	50	53	1-4/5
112	64	65	1-3/4
30	18	17	1-2/3
160	100	89	1-3/5
154	98	85	1-4/7
24	16	13	1-1/2
234	162	125	1-4/9
70	50	37	1-2/5
48	36	25	1-1/3
126	98	65	1-2/7
80	64	41	1-1/4
198	162	101	1-2/9
120	100	61	1-1/5
286	242	145	1-2/11
168	144	85	1-1/6
224	196	113	1-1/7
288	256	145	1-1/8
2	2	1	1

General formulas for dimensioning *all* types of reversed simple and compound circular arcs are given in Figures 166 and 167, herewith.

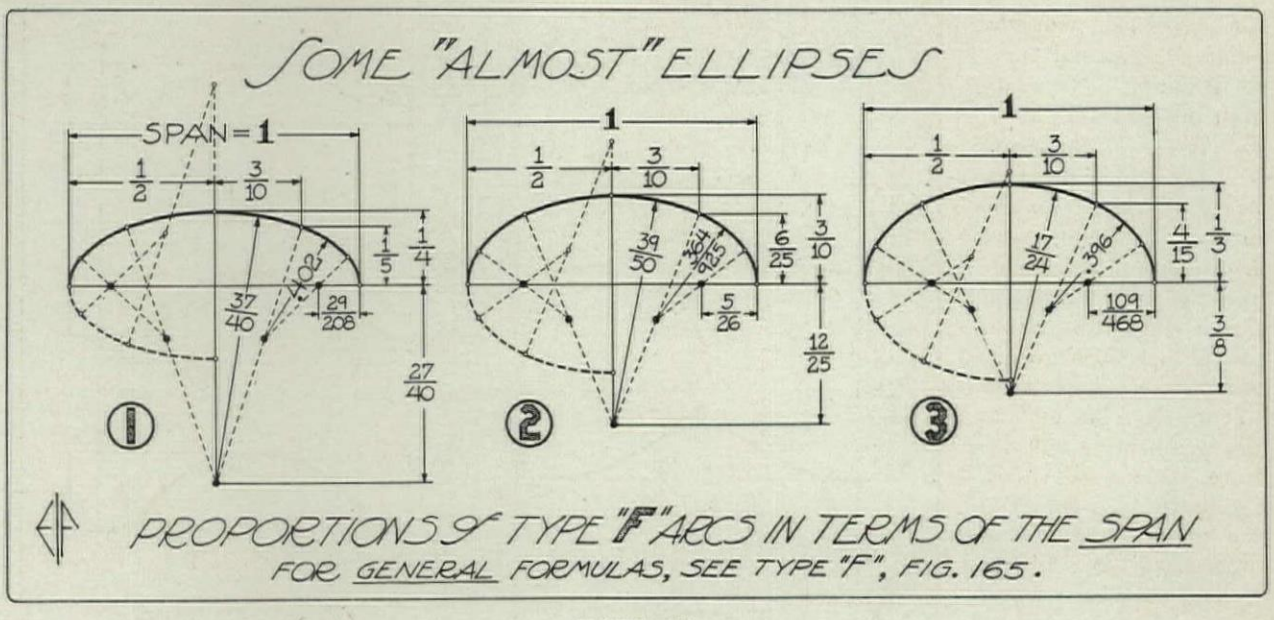


FIGURE 161

taining to the dimensioning of *all* such curves will also hereinafter be set down.

Formulas for Type "E" Arcs, Figure 164:

The two haunch centers of these 3-centered pseudo elliptic arcs are located on the horizontal spring line, and the one crown center is located on the vertical axis of the compound curve anywhere *below* the spring line, as indicated by the typical Diagram. The words "horizontal," "vertical," and "below" are here used as purely *relative* terms. The height H, and the half-span W, are usually given. The next thing to do is to establish, *by scaling*, one or another of the radii—say the haunch radius r—which then becomes a "known" dimension. Formulas 1 and 2 will then yield the corresponding distance L, and the length of the crown radius R. The exact point of change in curvature is fixed by the rectangular coordinates A and B which are very easily determined by means of Formulas *3* and *4*, though these dimensions are not, ordinarily, considered as "required" ones. The next four Formulas, 5, 6, 7, 8, determine the coordinate spans and heights of the component arcs making up the full compound curve. If, instead of assuming or scaling the haunch radius r, the crown radius R is similarly fixed and thus made a "known" dimension, then Formulas 9 and 10 must be used to determine the other corresponding "unknown" values of L and r. But if you assume or fix *both* radii as "known" dimensions, then, most assuredly, for a given value of W, the "unknown" dimensions L and H are solely dependent upon the solutions of Formulas 11 and 12. So, you see, every condition likely to arise is taken care of by this group of a dozen formulas, though possibly the only ones you'll be called on to use *repeatedly* are Formulas 1 and 2. As in Part 17, the *heavily-drawn* reference letters here and hereinafter occurring on the explanatory *diagrams* are indicative of the dimensions that are ordinarily "known," or *made* known by assumption or scaling, while the letters likewise made emphatic in the *equations* are representative of the usual "unknown" dimensions that must be determined by a solution of the formula equated thereto. Thus, eventually, *all* required dimensions become *known* ones.

Formulas for Type "F" Arcs, Figure 165:

Here, the "problem" of the 5-centered pseudo elliptic arch becomes "solved" for all time. Nothing is assumed. Nothing is laid out "by trial" and then revamped. Nothing is "guessed at." Every dimen-

TABLE 7

PROPORTIONS OF 4-CENTERED REVERSED COMPOUND CIRCULAR ARCS IN TERMS OF THE WIDTH

(For *reference diagram* and *general formulas*, see Type "J," Figure 167.)

W	H	R	A	B	G	U	V	E	g	r
* 1	4/7	5/7	1/7	3/7	1-1/14	3/14	9/14	6/7	5/7	5/14
** 1	5/8	5/8	1/8	3/8	1-1/4	3/8	13/16	1	15/16	5/16
1	7/8	5/8	1/4	1/2	1-1/24	1/6	7/16	1	25/48	5/16

* See Diagram "4" of Figure 169 for a curve of these proportions.

** See Diagram "J" of Figure 163 for a curve of these proportions.

sion associated with this complex compound curve is definitely determined from the given height H, and the given half-span W—from the semi-axes, *only*, of the required curve. Moreover, since these formulas emanate from the basic equation of a true ellipse, the closest possible approximation to that desirable shape is the only result. No amount of experimenting will disprove these assertions. Figure 165 is a contribution to the "literature of engineering" that fills the "aching voids" left where the five-centered arch *should* have been. Furthermore, in a later Part, I shall show you a ridiculously simple and direct exact geometrical construction for this 5-centered curve so that you can not only *draw* it with no trouble whatsoever and thus produce an exact "picture" of how it will look, but also so that you will thereby have an accurate check on your "figgerin."*

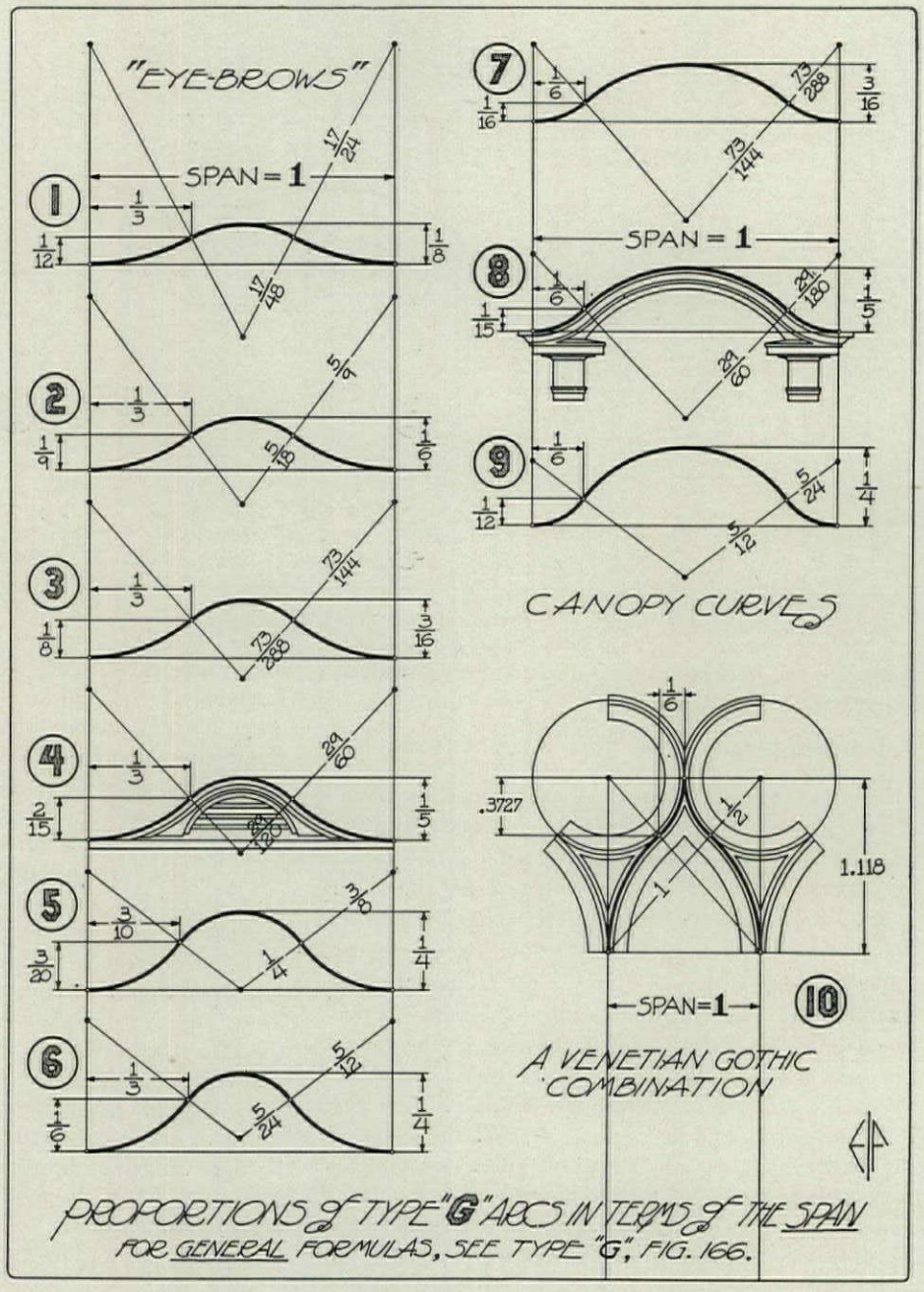


FIGURE 162

As Figure 165 shows, the only required "known" dimensions are the height and half-span. From these two values, all required "unknown" dimensions are successively and successfully determined. Formulas 1 to 5, inclusive, are *very* simple, and they at once materialize the required dimensions for the haunch radius r, the crown radius R, the distance L of the crown center below the spring line, and the rectangular coordinate dimensions F and G fixing the extremity of the crown arc as well as the exact "line of centers" upon which the intermediate radius X is to be laid off. To determine the intermediate radius X, the values of the coordinates P and Q are necessary, these being determined by Formulas 6 and 7. The thus-made-known values of P and Q are then inserted in Formula 8, the resultant solution then yielding the required length of the intermediate radius X. This completes the set of eight dimensions required to lay out the curve on the job; namely, H, W, r, R, L, F, G, X. *These are the essential ones that must be marked on the working drawings.* However, it is convenient, and always desirable, to also have the intermediate arc-center definitely located by the dimensioned rectangular coordinates T and U. For a slight mental effort on your part, Formulas 9 and 10 will compensate you with these two desirable dimensions. Formulas 11 and 12 unquestionably fix the crucial point where the haunch and intermediate arcs meet tangentially, that is, they definitely fix the extremity of the "line of centers" of these two arcs by the coordinates A and B, as shown. For wide-span arches, or for arched ceilings and vaults, or for plan-curves of this 5-centered type—stairways, halls, lobbies, arenas, pools, etc.—every

*Trautwine flatly "passes up" both the dimensioning and layout of the 5-centered arch with these words: " . . . . but the finding of these centers is quite as troublesome as to draw the correct ellipse." Kidder gives no data on dimensioning, but shows a graphical layout that " . . . . works well for nearly all ellipses."

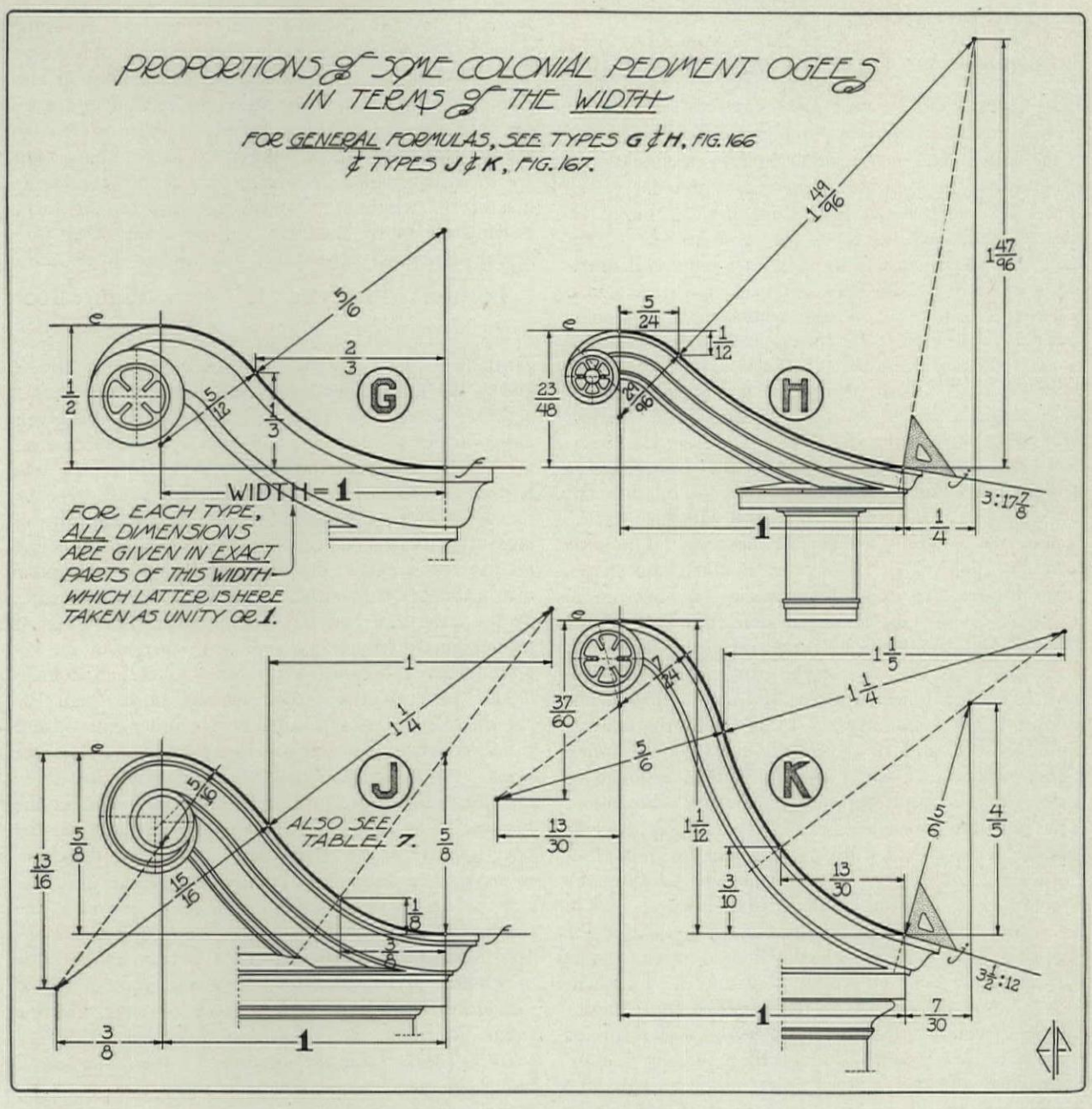


FIGURE 163

dimension yielded by Formulas 1, 2, 3, 4, 5, 8, 9, 10, 11, and 12 should be *recorded on the plans*. They are not all "necessary," but the unnecessary ones afford a valuable check and avoid the otherwise-required projection of the "lines of centers" *on the job*. The projection—or prolongation of such lines—is an easy matter on the drafting board, but a full-size layout on the job is quite *different*. Formulas 13 to 18, inclusive, determine the coordinate spans and heights of the various simple arcs making up the total compound curve. These dimensions will be found of use in many ways. Occasionally, the crown radius of one of these "almost" ellipses may become so great that its arc may have to be *plotted* on the job instead of swung from what has there become its inaccessible center. In this case, a separate detailed drawing of half the crown arc becomes necessary, said drawing fixing, *by coordinate dimensions*, various points along the line of the arc. The dimensions *D* and *N* then become essential; and the ordinates locating intermediate points can then be determined in accordance with the method that has been heretofore shown at Figure 152 in Part 17. Before leaving these graceful and interesting "almost" ellipses, it is instructive to note that there are an *unlimited* number of them whose every dimension given by Formulas 1 to 12, inclusive, will result in a *rational number*. Three of these have been shown at Figure 161, although, as has been said, the fractional part of said rational number may sometimes become of too great a denominator to handle—in which case, it is more convenient to resort to a more manageable though approximate *decimal*. For the following ratios of height to SPAN, or "**H** over **2W**," every value yielded by Formulas 1 to 12, inclusive, becomes *exactly* expressible in finite numbers: 3/26, 3/22, 3/20, 1/6, 3/17, 3/16, 1/5, 3/14, 3/13, 1/4, 3/11, 3/10,

1/3, 3/8, 3/7, and *then* some.

Formulas for Type "G" Arcs, Figure 166:

In Cases I and II, these two-centered "ogees" tangentially connect any two *parallel* straight lines, *e* and *f*, the latter lines being either real or imaginary: in other words, that portion of the two-centered reversed curve occurring between the rectangular limits *W* and *H*, *starts and finishes in the same direction.* Instances occurring in architectural and structural drafting are: eyebrow dormers, canopies, hoods, Colonial pediments, rafters of a bay window roof or of a pavilion roof, corbels, brackets, gooseneck easements or offsets from one level to another paralleling level, large "cymas," Gothic tracery of the "perpendicular" style, "ogee" arches of the Venetian-Gothic period, and walks, driveways, etc., etc. In Case III, however, the one simple arc tangentially connecting a straight line *e* and a given arc or circle *g*, is, correctly, an "easement"; but it is here grouped with the "ogees" because the resultant sweep is of this type. The same formulas apply to all *three* cases as noted and shown in the Figure. In using the formulas—for any one of the three cases—take *particular* note, however, of the location and significance of the reference letters on the explanatory *diagram* of the case under consideration. In Case I, for instance, *W* is the *width*, while in Case II, *W* is the *height*. In all Cases, the limiting dimensions *W* and *H* are usually the "known" ones. Either radius, in Cases I and II, is then assumed or scaled, and so, also, becomes a "known" dimension. The remaining *unknown* radius, *r* or *R*, as the case may be, is then yielded by a solution of Formula 1 or Formula 2. However, if a certain *ratio* between the two radii is desired or required, then Formula 3 will give, without any prior assumptions, the *sum* of the required radii, from which the desired proportionate dimensions of each can readily be deduced. Formulas 4 and 5 find especial use in the dimensioning of automobile driveways: the two radii being *pre*determined from a proper consideration of the "turning radius" of the car. If the distance apart of the two parallel straight portions of the driveway is fixed, then Formula 4 will give the minimum *length*, *W*, required for the car to negotiate the reversed curve. On the other hand, if this length is limited by the limitations of the site, then Formula 5 will give the necessary *distance apart*, *H*, for any assumed radii of turning. In using these Formulas for driveway dimensioning it is expedient to first determine the *center-line* radius of the turn, and then use this one value for both *R* and *r*, as has been done in the dimensioning problem set out at Figure 169, Diagram 9, herein. The bounding radii are then determined therefrom by a proper consideration of the width of driveway required on the turn. Formulas 6 to 13, inclusive, will yield any other particular dimension desired for any arc of Type "G."

Formulas for Type "H" Arcs, Figure 166:

Type "H" arcs are two-centered ogees that tangentially connect any two *non*parallel straight lines *e* and *j*, the latter lines being either real or imaginary: in other words, the reversed curve starts in a given direction but finishes in a *different* given direction, as the typical Diagram indicates. Wherefore, the difference in direction, or the "angle," must here be reckoned with. Seldom, however, on working drawings of building construction, is the slope of one line relative to another designated in degrees—angular measurement—but, rather, in terms of the steel square. In the latter case, the slope of the given line *j* (or of the imaginary straight tangent at the *origin* of the required curve) becomes expressed as a certain definite lineal "rise" *b* in a certain definite lineal "run" *a*: the direction of *run* paralleling the other line *e*, and the direction of *rise* being perpendicular to *e*; or vice versa. All conditions, however, are taken care of in the notations, diagram, and formulas recorded in the Figure. The numerical value of *S* is the *slope* of the line *j* relative to the other line *e*. Assuming the curve to have been satisfactorily drawn—so that it "looks right"—and having established its limits *w* and *h*, the process of determining its unknown required dimensions is simplified as follows: First, determine the value of *S*, either as *b*-divided-by-*a*, or as the trigonometrical tangent of the "angle"; then, *with the scale*, find the radius *R*; then, *R* and *S* thus becoming "known," solve Formula 1 for the distance *X*; then Formula 2 will yield the corresponding coordinate dimension *Y*; then Formula 3 will determine the *other* radius *r*; and, finally, Formulas 4 and 5 can be solved for the coordinate dimensions *P* and *Q* which definitely locate the exact point of inflection, or reverse curvature. As an alternate trigonometrical method of determining the

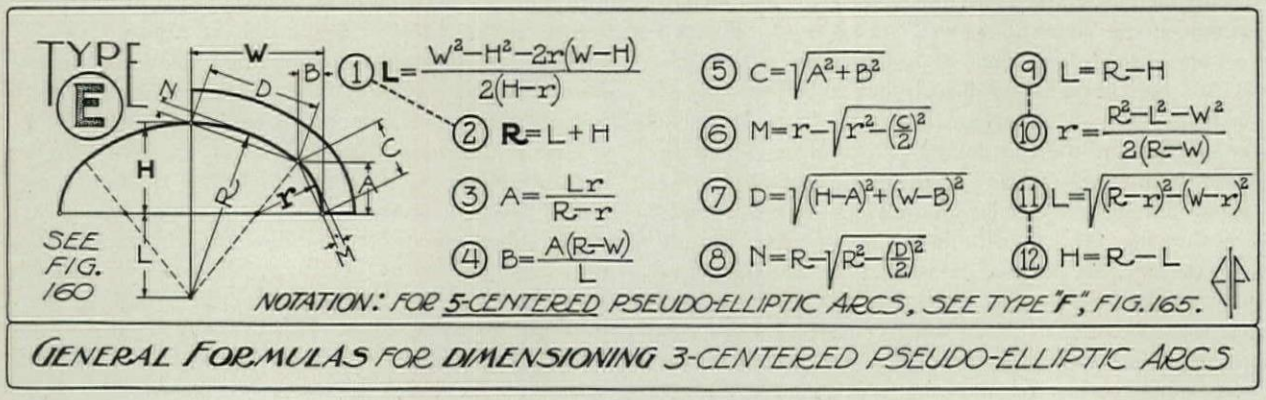


FIGURE 164

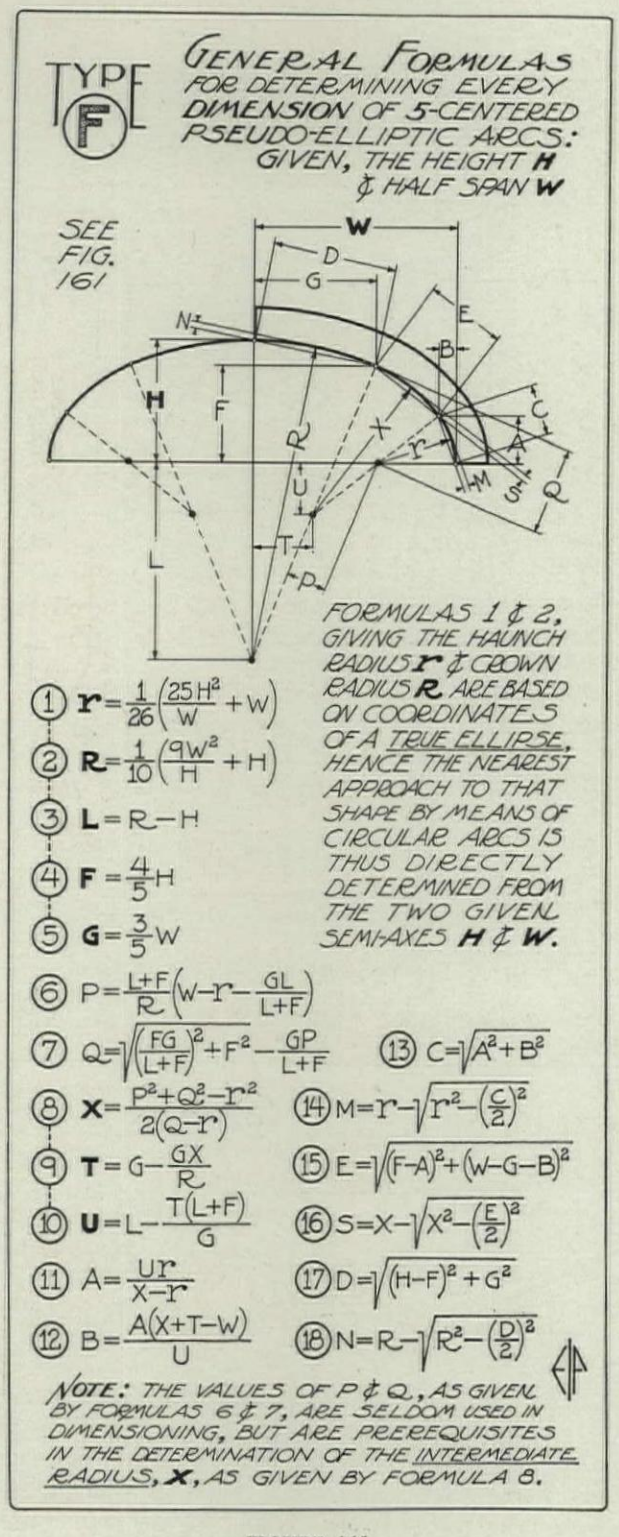


FIGURE 165

dimensions X and Y—provided the "angle" is known—you could make X equal to the product of R and the *cosine* of the "angle," while the corresponding value of Y would be equal to the product of R and the *sine* of the "angle." These alternate solutions for X and Y are recorded and formulated at Figure 167 for Type "K" arcs, but they are likewise applicable to the Type "H" arcs under consideration. Two examples of Type "H" arcs are illustrated in this Part: one having already been shown at Diagram "H" of Figure 163 (a pediment curve), and the other (the curve of a gooseneck stair-rail ramp) is utilized as a practical problem in dimensioning at Diagram 6 of Figure 169.

Formulas for Type "J" Arcs, Figure 167:

A Type "J" arc is a *four-centered* ogee tangentially joining any two real or imaginary parallel straight lines *e* and *f*, as shown by the typical Diagram. Curves of this four-centered type should be employed in all cases where a two-centered Type "G" arc would be productive of such an abrupt change in curvature as to offend the sensitive "eye." Like most multiple-centered curves, not *all* of its required dimensions can be determined mathematically. The simplest and most satisfactory method is as follows, assuming, of course, that the desired line of the curve has been *graphically* settled, and that H and W are thereby also determined upon: First, *scale* the dimensions R, B, G, E, and g, directly from the drawing, *but scale no others;* then, determine the "unknown" *dependent* dimensions, A, U, V, r, by solving Formulas 1, 2, 3, 4. One actual example of a curve of this type has been illustrated at Diagram "J" of Figure 163, while another appears as a problem in dimensioning at Diagram 4 of Figure 169: the exact relative proportions of these two curves, as well as one other, also having been tabulated in TABLE 7, hereinbefore cited.

Formulas for Type "K" Arcs, Figure 167:

A Type "K" arc is also a four-centered ogee, but, instead of tangentially joining two *parallel* lines, it so connects two *non*parallel lines *e* and *j*, as the typical Diagram indicates. Here, then, as in Type "H" arcs, the resultant "angle" enters into the calculations. And it is taken care of in precisely the same manner as has already been explained for said Type "H." As in all typical Diagrams, the one accompanying Type "K," under discussion, indicates, by the heavily-drawn letters, the dimensions that are given, assumed, or determined directly by *scaling*—thus becoming, by one or another of these direct methods, the definitely "known" values—from which, the required *unknown* dimensions, X, Y, C, U, V, and r, *must* be determined by the Formulas 1 to 6, inclusive. However, the solution of these six equations is no great task: while some of them are "lengthy," the indicated operations are mostly *elemental*—plain arithmetical addition and subtraction—with a little diversion now and then in the way of multiplication and division—and with a few squares and a square root or two just "thrown in" for good measure. Anyhow—they're simple things—to *solve*. But not quite so simple—to *derive*. A Colonial pediment curve of Type "K" has heretofore been "pictured," and its Bertillion measurements recorded, at Diagram "K" of Figure 163. Mayhap you can use *that* one—somebody did, once—help yourself. I'm done with OGEES—they've all been *"roped, thrown, and branded."* They've all been geomathematically ogeeometried! O!GEE! Now for a clean "sweep":—

Formulas for Type "L" and Type "M" Arcs, Figure 168:

Ramps, easements, and sweeps. The formulas recorded for each Type take care of the required dimensioning of any case that may arise. Note that in Type "L" the "known" values are the distance K, and the slope of one tangent relative to the other; while, in Type "M," the "known" values are the rectangular dimensions W and H, and the slope of the *one* tangent relative to the direction in which the dimension W is taken. Two cases are illustrated for each type, one of each being merely a reversal of the other. Hence, since, on the *diagrams*, the reference-letter locations are accordingly also reversed, the *formulas* recorded for each type, apply equally well to each *case* of each type. By means of these formulas, any required or desired "unknown" dimension is made readily determinable, chief of which is, of course, the radius R. Finally, it may be well to note that the Formulas numbered 2 and 3, given in Figure 168 for Type "M" arcs, are also directly applicable to Type "B" arcs of Figure 158 in Part 17, provided, as these Formulas demand, that the numerical values of W, H, and R are known or assumed.

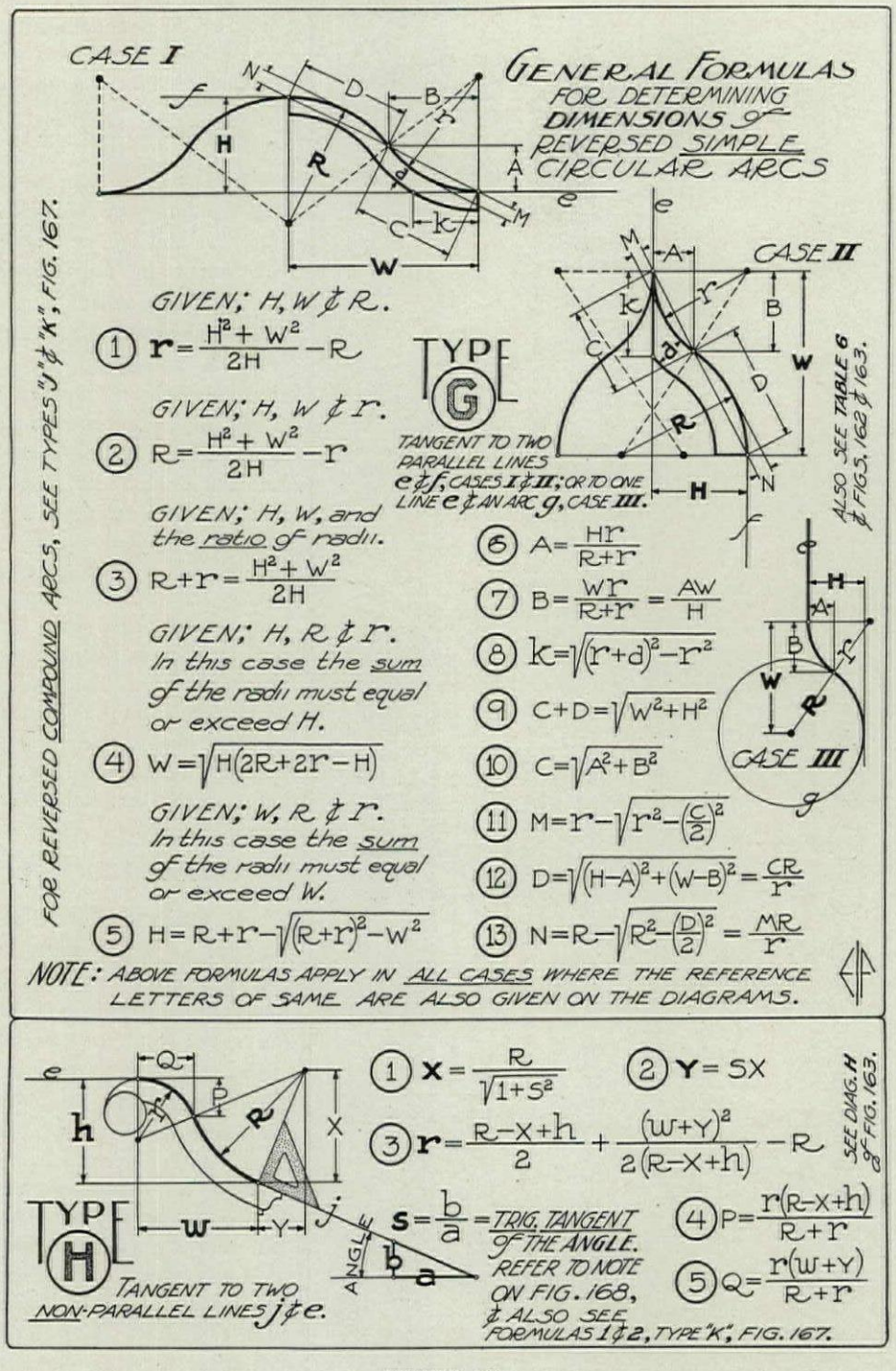


FIGURE 166

Figure 169:

Here is another opportunity to test your ability as a *draftsmatician*. Work out every "questioned" dimension so indicated on the various Diagrams of this Figure. Like the problems propounded at Figure 159, Part 17, those of Figure 169, herewith are intensely practical and pertinent *drafting-room problems in dimensioning*. Every required "unknown" dimension of the various examples set out in Figure 169, can be determined solely from the information conveyed in this Part. Get acquainted! Part 19 contains all answers to the questions asked in Figure 169. And now let's see how close you came to getting the correct answers to those of *Figure 159, Part 17*. Here *they* are:—

Answers to the Dimensioning Problems of PART 17

Problem 1 (Figure 159, Part 17):

The given dimensions fix the radius of the extrados at 53", and they also fix the point P at the *vertical* distance of 45" above the spring line of the arch. Using these known values in the solution of the Formula referred to, gives 28", exactly, as the *horizontal* distance of point P

from the center line of the arch. Deducting this from the given dimension of 6′-0″, the *width of the gallery* becomes 3′-8″ exactly.

Problem 2 (Figure 159, Part 17):

From the given conditions, the circumference of the line of travel equals 200″. Using this known value in the solution of the Formula referred to, the *radius of the line of travel* is found to be 31.83″. Now, for a safe and comfortable stairway, the normal distance of the line of travel from the center line of the handrail should be neither less than 18″ nor appreciably greater than 20″. Call it 19.83″, thus making the center-line-radius of the rail exactly 12″. It is this *latter* dimension that should go on the plans, rather than the radius of the theoretical "line of travel" by means of which the proper hand-rail-radius was arrived at.

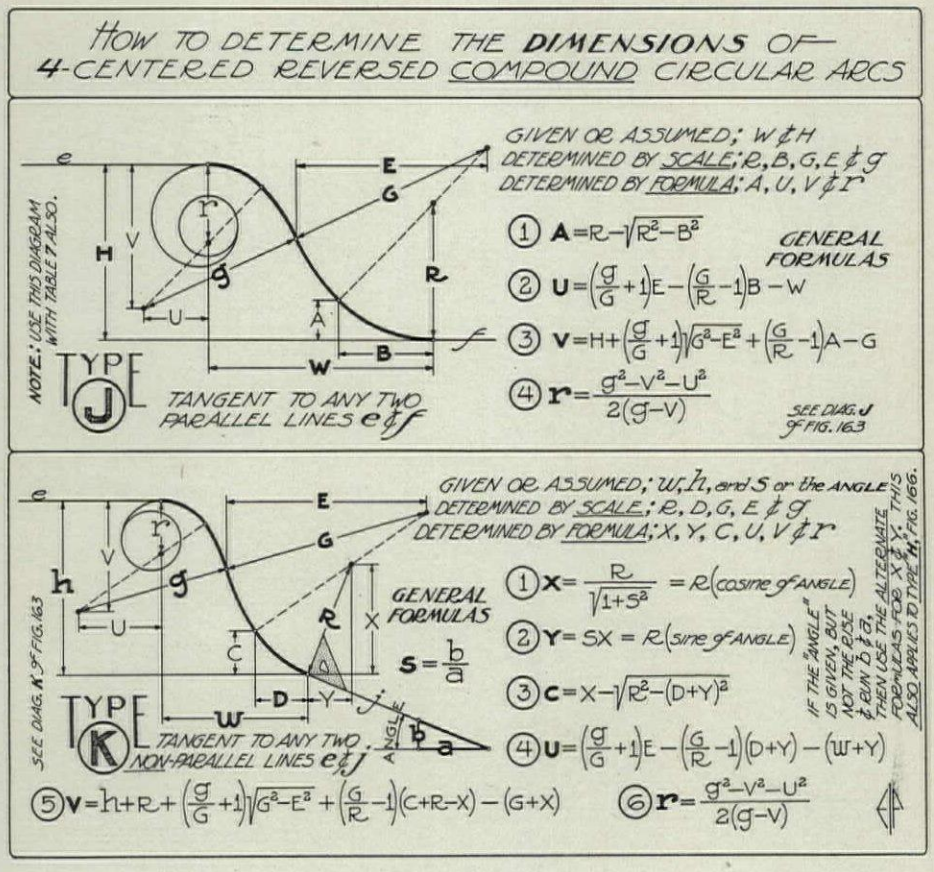


FIGURE 167

Problem 3 (Figure 159, Part 17):

Evidently, the length of the circular arc of travel is 91″; and the angle subtended thereby is 73.5 *degrees*. Using these known values in the solution of the Formula referred to, makes the *radius of the line of travel* equal 70.93″. Deducting, say, 19.93″ from this theoretical dimension, leaves just 4′-3″ as the actual center-line-radius of the *inner* handrail. Then, adding, say, 20.07″ to the same theoretical dimension, makes the actual center-line-radius of the *outer* rail equal exactly 7′-7″. Thus, the normal width of the curved flight, center to center of rails, becomes 3′-4″. And this is as it *should* be; for, if *both* rails of a

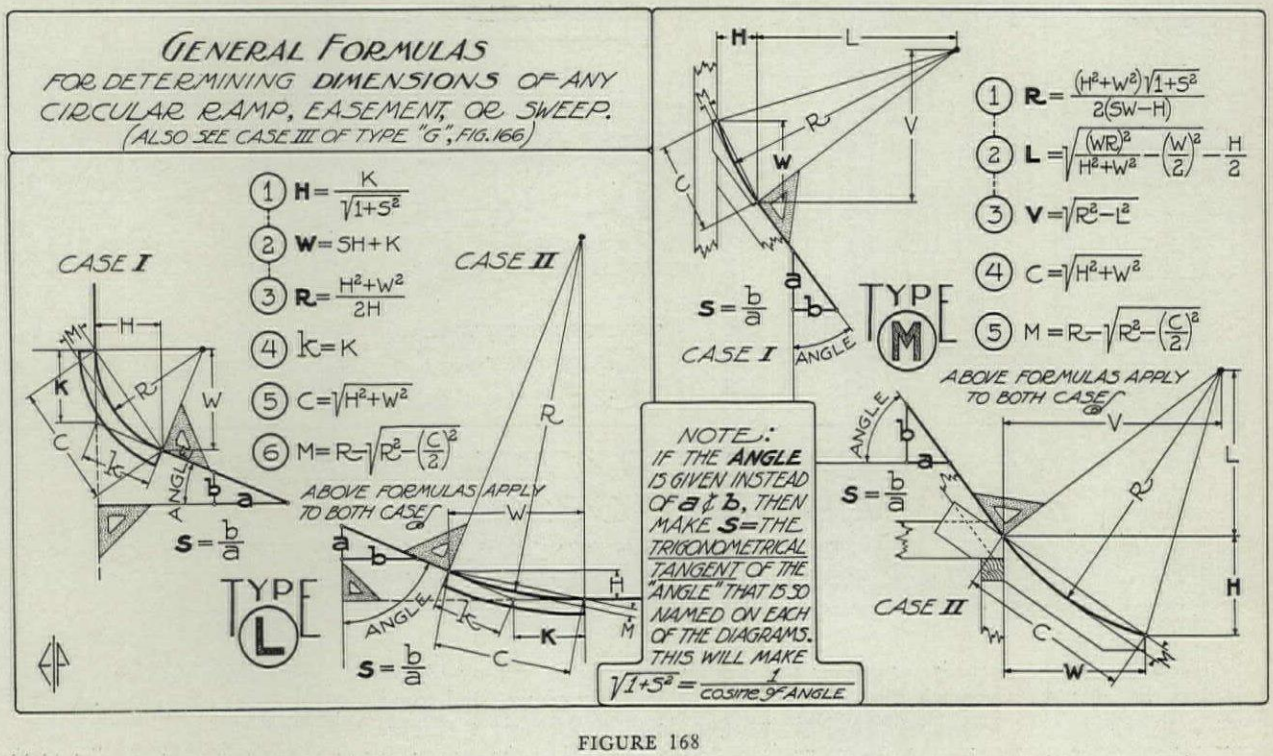


FIGURE 168

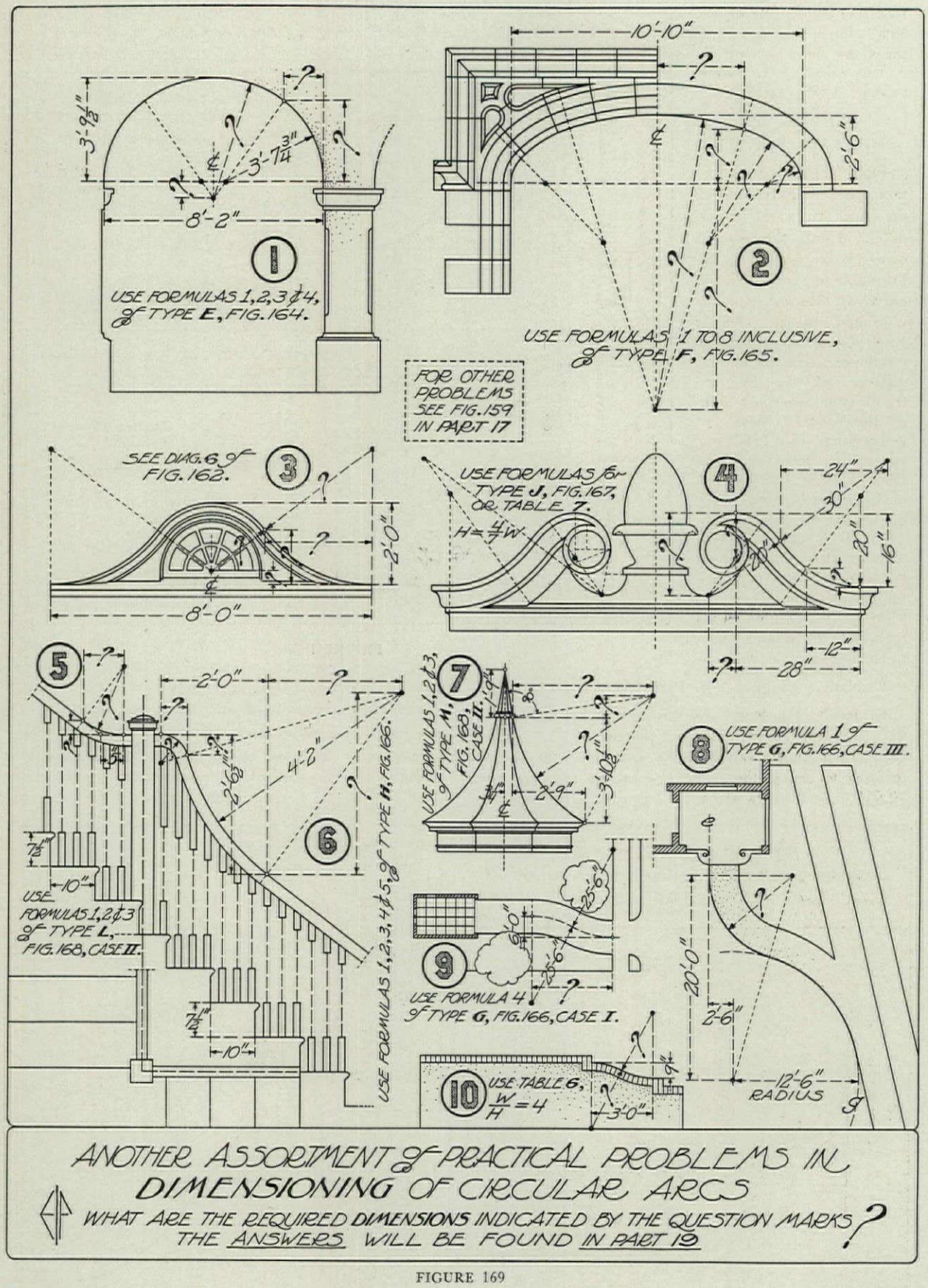


FIGURE 169

circular flight are to be equally usable, for ascent as well as descent, they should never much exceed twice twenty inches center to center. For a *straight* flight, this mandate does not control, since all portions then are of uniform "pitch." But a *two-railed curved flight* wider than this becomes *dangerous*—and grand!

Problem 4 (Figure 159, Part 17):

Half the span of this arch is certainly 36". The height

above the spring line is 48". Substituting these numerical values for the letters representing them in the Formula referred to, makes it possible to prove that the *radius of the arch* is exactly 50", or 4'-2". Also, using this radius-dimension and the 14-inch dimension marked on the drawing, the solution of the other Formula there referred to will yield 2", exactly, for the projection of the "horse-shoe" ends from the respective vertical jamb lines.

Problem 5 (Figure 159, Part 17):

The Span of the *lower* arc is 50'. The Height is 5'. Wherefore, the S over H value is 10. For this value, TABLE 5, Part 17, lists the corresponding *radius* as 13 times the height, which makes the radius 65' exactly.

For the *upper* arc, the span is *also* 50', but the height is 11'. Using this latter height, and also the half-span of 25', in the solution of the Formula referred to, you get 33 10/11' as the exact *radius of the upper arc* of the truss. Converted to rule measurement, this becomes 33'-10 29/32".

Now to find the arc length between panel points of the upper curve. The radius of the upper arc is now known, and so also is its half-span. Hence, the *sine* of the angle subtended by half the arc—the sine of *a*—is found by means of the first of the two designated Formulas to be .7372 which, by inspection of a trigonometrical table, is then found to correspond to the sine of 47 degrees 30 minutes to the number of decimal places here used. Using this thus-found value of *a*—47.5—along with the known value of the radius, and solving thereby the other Formula designated, the length of half the total upper arc is discovered. And 1/5th of this is the length required, or the circular distance along the upper arc between the equally-spaced panel points of same. It's 5'-7 15/32", on the mechanic's rule—and he will have to "split" a sixteenth by eye to produce it.

Problem 6 (Figure 159, Part 17):

The radius of a 60-degree arc is always the same as its span. The height is always equal to .134 of the span. For the case set down: the radius becomes 3'-8"; the height becomes 5 29/32".

Problem 7 (Figure 159, Part 17):

By the first Formula referred to, the *radius of the intrados*, *r*, is found to be 3'-4 15/32" exactly. And the distance *l* is merely *r* minus *h*, or 12 15/32" exactly. And by the third Formula designated, the distance *a*—which is here the *distance between the spring lines* of the intrados and extrados—becomes 6 51/704" which, converted to foot-rule terms, is 6 1/16". It is equal to the product of *l* and *b*, divided by *w*. The numerical value of *b* is half of the pier width, or 18¾", while the numerical value of *w* is 38½" or half the span of the arch.

Problem 8 (Figure 159, Part 17):

By the dimensions here given, the value of the half-span, *W*, of the Gothic extrados, is half the span of the segmental intrados plus half the width of the pier; and *H* equals 2'-4" plus 2'-2" minus *a*; and *a* has been discovered in Problem 7. Whence, the use of the first Formula there referred to (under Problem 8) yields the "unknown" value *L* as 24.563" or, in *our* language, 24 9/16". From this, subtract *a*, and you get the dimension required to locate the *extrados* centers below the *intrados* spring line, which said required dimension—*L* minus *a*—amounts to 18½". Then, by solving the second Formula referred to, the *radius of the extrados* is unveiled —6'-1 15/32".

Problem 9 (Figure 159, Part 17):

Half the length of the lot-line arc is 30.076'. The radius of this arc is given as 70.05'. Hence, using these given values in the solution of the first Formula referred to, results in discovering the magnitude of the "unknown" angle *a*—half the angle subtended by the total arc ACB—24.5999 degrees. Practically, this amounts to 24.6 degrees, or 24 degrees 36 minutes. From a "trig" table, the *cosine* of said angle appears listed as .9092361. By subtracting this ratio from unity, or from 1.0000000, you get .0907639 which is, naturally, the value of 1 minus the cosine of *a*. Substituting this numerical value, in the second Formula designated, and multiplying it by the length of radius, gives 6.358'—which is 6'-4 5/16"—as the required *height* or "rise" of the given arc, or as the offset distances *AE* and *BD* square with the chord of the arc. The line *ED*, chalk-lined on the site, then becomes the laid-down datum line from which ordinates square with same can be laid off and the required lot-line arc thus staked out on the job: the conditions existing at the site rendering it impossible to swing this arc with the tape or a string. The required lengths of ordinates are determined at Problem 10.

Problem 10 (Figure 159, Part 17):

With the radius given, and with the spacing of ordinates assumed at 5', the Formula referred to yields, successively, the required *lengths* of these ordinates as follows: ordinate 1 is 2 5/16"; ordinate 2 is 8⅝"; ordinate 3 is 1'-7½"; ordinate 4 is 2'-11"; and ordinate 5 is 4'-7 11/32". The maximum offset, *DB* or *EA* was determined at Problem 9. It is the "height" of the arc. In this case, the "span" *DE* need not necessarily be dimensioned, since it is already established on the site by the surveyor's existing stakes at *B* and *A*. In other words, the datum line *DE* is merely the offset existing chord of the required arc, as shown at Problem 9.

Problem 11 (Figure 159, Part 17):

Six courses, at 2⅞" each, sum up to 17¼". Subtracting therefrom 8¼"—the width of the arch ring—leaves 9" as the given rise of the intrados. The Span is 45". The Height, or "rise," is 9". So, S over H equals 5. For this value, TABLE 5, Part 17, indicates at once that the required Radius is 29/8ths of the Span. Presto!—*radius* equals 32⅝", *exactly*.

Problem 12 (Figure 159, Part 17):

The required dimensions are as follows: distance of crown center below spring line, 4'-7 5/32"; haunch radius, 1'-6 1/16"; vertical distance between crown points of the ring, 8 1/16".

Problem 13 (Figure 159, Part 17):

Required radius, 67 3/5" exactly, or, by our peculiar system of measurement, 5'-7 19/32" approximately. Span of interior arc of bay, 6'-10 9/16".

Problem 14 (Figure 159, Part 17):

The dimensions here given establish the span of the arched *sash* as 2'-0", and the radius of its head as 3'-10". By the Formula referred to, the *distance from spring line to point of sash* works out as 2'-6 31/32". Adding the given dimension of 4'-2½" to this, makes the *total height of the sash* 6'-9 15/32".

* * * * *

Now tackle the set of problems at Figure 169, herewith, and get them *all* right this time. Check your answers with those given in Part 19. This is the kind of "figgerin" that *pays*. But our "geomathematical" excursion is come to an end. In Part 19, we shall get back on the "main line." *Reach for your compass!*

WHY BE AN ARCHITECT?

BECAUSE there is keen satisfaction in creating something useful:—is it a hospital, you have helped someone in pain:—is it a school, you have helped to form a good mind:—is it a church, you have helped someone to understand what life is all about.

BECAUSE there is keen satisfaction in creating something beautiful:—a beautiful building brings to yourself and every one who sees it a lasting joy.

BECAUSE you have the satisfaction of seeing the thing you have created in your imagination grow day by day, part fitting to part, story rising upon story, until your dream becomes a reality.

BECAUSE you are an adviser, a counselor, which takes you from the market place, and lets you into the house of friendship, for you have nothing to sell but good services and you have nothing to buy but good will.

BECAUSE you are a leader, and leadership brings to you privilege and obligation, power and responsibility, and the opportunity of great service.

BECAUSE the practice of your profession is a liberal education in a thousand interesting things.

BECAUSE the fraternity of architecture has in its membership such a lot of good fellows.

BECAUSE by entering the profession of architecture you acknowledge that the accumulation of money is not the most desirable or most worthy aim of life; rather through usefulness and through joy in beauty you are looking for the worthwhile things.

WILLIAM ORR LUDLOW.

PENCIL POINTS
(August, 1931)

Lazarus and Dives

An Indian Summer Idyll

By Howard B. Burton*

Editor's Note:—*This article discusses the same problem treated in our recent symposium; namely, means of securing better cooperation between architect and material man. It is immediately followed by additional contributions to the symposium which came to us too late for inclusion in the June issue.*

Probably as few remember who Lazarus and Dives were as ever knew what Indian Summer really was. And, unless known, the point is useless. So here is a little Early American; for Indian Summer is *not* metropolitan reporterese for fine Autumn weather.

Summer—that is, Summer *Homus Vulgarus*—is the time when the farmer who loves his native land gathers his grain. But to Lo, the poor Indian, summer was just more time to smoke his pipe.

So Lo smoked and smoked. There being no cars he never coughed—just smoked. Autumn came, with heap big talk from squaw, no grub; still he smoked. Finally a flurry of snow—winter—his ungarnered crops. It was now too cold to work.

But hold—a few days of tolerable weather. Whereupon Lo—Mrs. Lo's augmented urging possibly rendering sitting temporarily inconvenient—at last gets out and gets in his crop—what the rats, moles and snow hadn't spoiled. It is Indian Summer.

As to Lazarus and Dives, any adjacent Sunday School teacher will correct the impression that they may be partners; even in the practice of architecture. Dives, however, does work for an architect. His name is Legion.

Mr. B. Cumming Legion's office took on Dives as an office boy years ago. He has now become its son-in-law, even as Legion in his turn well served *his* professional father-in-law.

Men with impractical notions have come and gone—whose only impulse, seemingly, was to disturb the orderly and proven course of things—whose experience out in the field had ruined their appreciation of the finer things in architectural practice.

Dives himself has put in fully seven weeks of practical superintendence during the nineteen years. He still relates getting mortar on his shoes, and stoving in a brand new derby hat as tokens of complete familiarity with the building game.

As to Lazarus, he has just entered the outer office. His briefcase is a dead give-away to the attendant who, too, knows her stuff.

Mr. L. presents his card, and a brief greeting of explanation. The female monkey-wrench steps through a door, and presently returns. She has been to the water cooler. Her chance has come.

"Sorry, but the Clience Building isn't to have any roof. No, Mr. Dives can't see you next week either for he is a very busy man. Why *no*; Mr. Legion *never* sees tradesmen."

Truly a marvelous structure, the Clience edifice, ponders Lazarus. But he performs a smile undetectable from the genuine, turns, and departs.

Under the secondary tutelage of Mr. Dives, the lady mentioned outpoints her master. For while to Dives it merely hurts to think, she actually believes that their buildings are roofed with nothing possibly obtainable in the market: that they generate spontaneously from the specifications. The foundations are private formulæ. The walls are intangible, laid in helium; the floor construction, the nebular system; heating, pipeless vacuum; partitions, shadowproof; elevators, educated yeast cakes. The balance, covered by allowances—if somebody thinks in time.

"What!" exclaims Dives with irrefutable logic. "Me see all those salesmen? When would I get time to do my own work?"

Rastus interrupts the answer by starting to post yesterday's scores. "Who's got the Cubs?" he shouts. "They got fourteen runs off Cincinnati!"

Chorus of howls. It lessens into useful speculation on possibilities for the week. Finally the group around the score sheet breaks up as the less hopeful decide to go to work.

Dives starts to work too. A letter has come: He is writing out his reply longhand. When completed he will go outside and read it to the stenographer, have her read it back to him, then tell her to type it on a plain sheet of paper first so he can correct it.

And Lazarus? In the elapsed hour and a half he has gotten his stuff specified on jobs for which his commissions alone will top Dive's salary for the next eight months.

Now, why the Dives-Lazarus reaction between two elements of one man's affairs? For the Client's money is paying for what both have to give.

All industry has the same problem—that of appraising outside offerings for inside profit.

One answer is that in "industry" buyer and seller are on a commercial level—both business men. On the other hand, the architect simply does *not* buy brick and biscuit with the same brain cells. One is his own, the other his client's affair. All the high pressure sales managership in the world cannot change this fundamental, involving as it does professional ethics.

And how few manufacturers heed with comprehension this totally different "buying" point of view of the architect. Nor is merchandising counsel likely to emphasize such principles, since their remuneration is usually set by the cost of publicity, rather than its returns. And, again, architectural "returns" ill lend themselves to tabulations.

Hence, wrongly advised solicitors, often bearing messages of high importance may, and do, annoy. But do they justify procrastination—the Indian Summer of our title?

"Tell him I'm not ready to take that up now. When I am I will send for anything I may need to know." With such familiar and decisive sounding words Dives evades

* *Registered Architect and Secretary, Stained Glass Association.*

realizing that when he could refresh his contacts he will not; later, when he must, he can't.

For the instant digestion of the principle or application or economy of new materials, processes, or devices, is impossible. And they are constantly entering the building field in these days of organized research. Their imperfect adaptation is unjust to promoter and building owner alike.

Dives may thus satisfy his Boss, but he is not serving him; nor the Boss's client. He is only applying tallow to the ways for one more job to be reported thus:—

APARTMENT HOTEL $3,000,000
(OWNER) J. SAURMANN HOLDING CORP.
(ARCHT.) (PLANS ONLY) B. C. LEGION
(G. C.) (OWNER BUILDS)

What went in the atelier, is undermining prestige. Instead of a carefully ordered contract involving property, what does Indian summer activity too often produce for the client?

An old spess is brought out. Change So Jam drains to Sam Browns; bushwhack instead of 6-cut; Babbit's roof or equal; as approved, to be selected, satisfactory to the architect, whether so shown or not; contractor shall verify everything, be held strictly accountable for more than that, and if he hollers or laughs out loud he shall be forthwith removed from the premises and the spot so treated that no trace shall remain of the use to which it was put, sulpmegahd!

This, with fifty pages of store general conditions, in a blue cover typed in underscored caps that nobody can read, and a set of busy appearing drawings, are issued to outwardly deferential contractors to guess at.

Of the later, one throws up his hands, cubes it and adds 50% to escape. Another makes it a straight 20% so as not to be stuck if the others drop out.

Finally comes one wiser than the others. He gambles on the superintendence from the evidence—and is awarded the contract.

The figures ran from $89,102.40 to $175,000 flat. "I saved my client nearly $86,000 on the general contract," boasts Mr. Legion. And Mr. Dives knows *he* did it too.

Of course, proposal variations of considerable size can legitimately obtain. Yet wise sounding bromides cost clients just so much per each. In or out, he pays. Contractors do not erect buildings for the satisfaction of duty done.

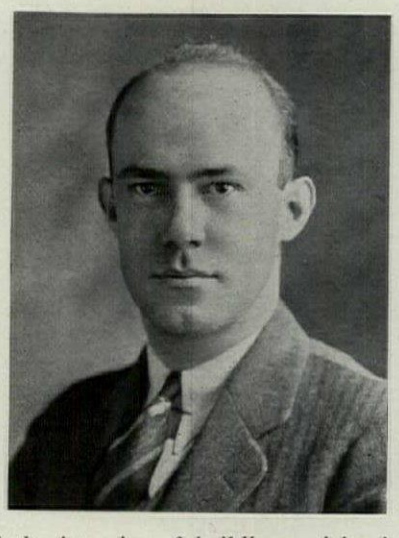
Indian Summer? Is an architectural office functioning which capitulates on acquiring technical information as a nuisance, instead of an opportunity? Which has not evolved a system for filtering presented data, thereby placing a premium on its proper presentation?

A Lazarus-Dives misunderstanding will not attain it. It may require an oversize architectural squaw to render box scores less engaging during the harvest season and avoid the Indian Summer gathering of half chewed stubble.

Additional Letters

Discussing Means of Securing Better Cooperation Between Architect and Material Man

ERNEST R. GILBERT, *Chief Draftsman with Louis Philippe Smithey, Architect, Roanoke, Va., Says:*



"A fair gauge of the intensity of building activity is found in the number of sales representatives that visit an architect—unfortunately for both parties, the architect is usually besieged by callers when conditions are prosperous, and is compelled to be very careful in his division of time.

"It has been my observation that the time consumed by a representative is usually in inverse ratio to the quality and prominence of his material, and the inexperienced representative, especially if he has a product of questionable value, is a problem requiring great tact. In my experience the majority of representatives interviewed have apparently been well qualified to represent their products.

"Lost motion, in my opinion, is due chiefly to inefficiency in the architect's organization in distributing valuable information.

"The architect, specification writer, designer, and chief draftsman should all keep abreast of innovations in the building material industry, and when any one of these becomes familiar with a new development it naturally involves lost motion to transmit this knowledge to his associates, unless the information is of a printed nature. As much of the information received from the representative is not of immediate use to the architect, printed material, preferably diagrammatic, is quite important, and is easily accessible when filed properly for future use.

"Architects should be cautious in their choice of new materials because of the obligation which they owe their client, and this should be well considered by the manufacturers, who should have facts, proven by extensive tests, supporting their products. This would aid the architect in using discretion, as it would be a superhuman task to

(Continued on page 52, Advertising Section)

The Builder's Estimator's Problems

By Vernon Jarboe*

Editor's Note:—*This is one of a series of talks given before the Junior League of the New York Society of Architects once a month at the Murray Hill Hotel. They are given under the direction of Mr. Louis E. Jallade. Admission is free to draftsmen and architectural students. Subsequent talks will be on: "Supervision of the work in the field," "Technique of writing specifications," "Office administration and cost of producing drawings," "Selling and promoting of architectural services," "Selection of building materials," and "Legal questions pertaining to the architectural profession."*

Estimating, as it applies to contracting, consists of computing quantities, together with the application of prices based on knowledge of prevailing or contemplated market rates.

There are several kinds of estimates. The budget estimate is made for the purpose of enabling the designer to keep within the appropriation. This differs materially from the estimate made for contract purposes, which is usually made from fully developed plans and specifications. The budget estimates are prepared from sketches which do not provide sufficient data to go into detail, and the usual method is to compute the cubical contents and apply a price per cubic foot consistent with the operation.

Another method of computing a budget estimate is to determine approximately the cost of such trades as masonry, carpentry, steel, stone, etc., where sufficient data is available, and add thereto prices for the remaining trades, which prices may be based on cost of past operations of similar size and character. In this way, a good check on the cube basis estimate may be obtained.

For contract purposes, immediately upon receipt of the plans and specifications they are carefully analyzed and Subcontractors are requested to submit estimates for their respective branches of the work. The General Contractor prepares estimates on the cost of the overhead, consisting in general of such items as Superintendents, Foremen, Time and Material Clerks, Watchmen, Surveying, Inspectors, Expeditors, Photos, Telephone, Insurance, etc. Before beginning to arrive at the cost for these items, it is well to prepare first a tentative time schedule. This schedule makes it easier to determine the time to allow for foreman, timekeeper, etc., and multiply this time by the respective rates of wages. Insurance is computed by costs of various kinds of labor times the respective rates therefor; and telephone and photos at so much per month for the duration of the job. Temporary items, such as fences, protection of adjoining property, guard rails, convenience for workmen, heat, light, water, etc., must also be included. The time of the year at which the operation is to be conducted must also be taken into consideration, and proper allowance made for protection against the elements if winter weather is to be encountered. This would involve the use of tarpaulins or other protection, salamanders, fuel, etc. Very often too little thought is given to these items, particularly temporary heat and light, and when the anticipated cost is compared with the actual cost, it is with a great deal of grief to the Contractor.

In most cases, particularly in the Metropolitan District, the General Contractor performs the masonry and very often the carpentry work. His Estimating Department takes off these quantities, and applies prices according to the job conditions. When the bids are received from the Subcontractors, they should be very carefully checked to make certain that everything required is included. Many Subcontractors have the habit of only bidding on certain portions of the work, excluding items which for some reason or other may not exactly appeal to them at the time of bidding. Also, a Subcontractor very often qualifies his bid to the extent of omitting certain portions of the work particularly specified under his trade heading. Take for example, Cut Stone Work. Anchors, materials for setting, protection, setting of isolated stones, etc., are usually specified under "Cut Stone Work," but seldom, if ever, included by the Subcontractor therefor. Frequently an item pertaining to one trade is provided for in the specifications of another trade. Such items are generally excluded by the Subcontractor for the work under which it is specified, and not included by the Subcontractor under whose jurisdiction the work is to be executed. For instance, I quote the following from the specification for cut stone work for a certain building in New York:

"Underlay all stone copings with 16 oz. cold rolled copper, furnished and set under this heading.

"Underlay all other faces where exposed on top to the weather, full length with one thickness of approved grade of three-ply Ready Roofing the full width of the wall below."

Not one Stone Contractor estimating on this job included this work, as they never have occasion to engage sheet metal or waterproofing mechanics, and they did not even qualify their estimate to exclude same. Nor did the Roofing and Sheet Metal Contractors include this work in their estimates as it was not specified under their trade. It cannot be expected of them to read the entire specification when they are figuring the roofing work only.

You can readily see that unless the General Contractor carefully studies the specifications, such items are lost.

Architects in preparing specifications should be very careful to include all the work of each trade in the specifications for that portion of the work so that material will be furnished and mechanics of that trade execute it. In this way a great deal of trouble would be avoided for the Architect, Builder, and Subcontractor, and at a saving to the Owner.

Another thing to which the estimator must pay particular attention is where materials of a certain manufacture are especially mentioned, even though qualified by "or other approved equal." If the Contractor uses an estimate obtained for a less expensive article, it is doubtful if he will be able to obtain the Architect's approval therefor, and will eventually have to pay more for the article specified. For example, the specification may provide for windows to be "Blank and Company's Type 26-M, or other equal or approved." Nearly all the metal window

* *Treasurer, Cauldwell Wingate Co., Builders.*

manufacturers will take the liberty of submitting bids, and quite a few of them are apt to be considerably lower than the Blank and Company's figure. If, in the Architect's opinion, these windows are not equal to the type specified, the Builder is out of luck in case he has used one of these lower estimates in his figure.

Another example would be where Texas Pink Granite is specified. Many granite concerns will submit estimates based on Deer Island or some other granite contrary to the specification requirements.

No two jobs are alike, and these are only a few of the stumbling blocks the estimator encounters in the preparation of his bid.

It must also be kept in mind that 90% of the sub-bids are not received until the morning of the day the bid is due, which does not allow any too much time for the estimator to take all these details into consideration.

Finally, the total cost of the favorable sub-bids is added to the items previously mentioned, and the total estimated cost is thus arrived at.

One unaccustomed to estimating would naturally come to the conclusion that the only thing left for the General Contractor to do would be to add an amount sufficient to cover office overhead, plus an allowance for profit. If the Contractor were to do this I fear he would not get very far in competition. There are many things to which he must pay particular attention, and it is in the general summing up that he derives the most benefit from his knowledge of the prevailing market and trade conditions.

The main point is how much may be saved in buying. I am of the opinion that some Contractors simply take the total of all work to be sublet and discount that amount by a certain percentage. This is very bad practice as conditions vary considerably, and if a job is well figured before the contract is awarded, very often, particularly in times like the present when every one is hungry for work, the work cannot be bought for less than the low figure received.

Sometimes mistakes are made by the low bidders, and not only will they refuse to consider lower prices, but will welcome the opportunity to slide from under.

The Subcontractors have numerous ways of finding out how they stand in the bidding from sources other than the Contractor to whom the job is awarded. The less reliable Subcontractor upon finding out he is exceptionally low, goes over his estimate, finds out he has made a mistake, and has no hesitancy whatsoever in recalling his figure and refusing to take the job for the price quoted.

Our recent speculative boom has created a great many irresponsible Subcontractors and General Contractors who are not qualified for the legitimate field, and frequently bids are received much lower in price than the work could be executed for. The better class Builder would not award a contract to such a Subcontractor for fear he would be unable to complete the work, and also it is doubtful if the Architect would give his approval of the Subcontractor.

Attention must also be paid to the financial standing of the Subcontractor. A good many today are only too willing to take work at any price so they can go to their banks for further credit. It is only a question of time before this sort of Subcontractor will be forced to the wall, in which case the General Contractor would be left to carry the bag.

With the incompetent and irresponsible Subcontractors sending out these exceptionally low estimates, it is impossible for the Class A Builder to compete against the less considerate competitor who is more concerned about getting the work than the manner in which it is to be executed. For this reason I am very strongly of the opinion that the Owner should be every bit as considerate in the selection of a Contractor as he is in the selection of an Architect, and not award the contract strictly on the basis of the figures received.

Sometimes a Contractor, before submitting his proposal, will elect to trade with one particular Subcontractor in each of the more important branches of the work, and provided they bring their estimates to an amount under the other bids received, they will tie up—or in other words, the General Contractor agrees to award the work to these Subcontractors, provided he receives the contract.

Architects, in their form of bid, frequently request the Contractor to accompany his bid with a list of Subcontractors used in the forming of the figure. This, in my opinion, is detrimental to both the Owner and the Builder. It indicates lack of confidence at the very beginning. A good contractor is less desirous of having inferior subcontractors than the Architect or Owner, as it not only reflects against the quality of his work but causes no end of needless trouble, delay, and expense. I have previously stated that if the Builder limits himself to the bids received from Class A Subcontractors only, it is not likely he would ever be in the running. I have also pointed out the fact that the Builder must derive some benefit in buying—how much is problematical and can only be determined after no end of interviewing and trading. It is unreasonable to expect that this can be accomplished in the limited time allowed for the preparation of the estimate. Even the largest and best Subcontractors cannot be expected to figure all jobs before the General Contract is awarded, and so, by declaring beforehand the Subcontractor to be used, based on bids received, many acceptable Subs are automatically eliminated. Therefore, by so limiting the buying range, you are decreasing the Builder's opportunity, and so increasing the estimated amount. This must be a known fact to the Architect, otherwise he would limit the field to a selected list of Subcontractors and mention this [illegible] in the specifications for the various branches of the w[illegible]

Very [illegible]n, in cases where it is necessary to award the contract [illegible]fore the plans have been fully developed, estimates [illegible]e taken on a cost plus basis. The project is described i[illegible]detail, together with an approximated cost, and the Con[illegible]tors submit their propositions, defining what is to be in[illegible]led in the "Cost" and what is included in the amount [illegible]y request for their services, either in percentage or a sti[illegible]lated amount. There are various kinds of this form of [illegible]ontract, such as—

Strai[illegible]t cost plus percentage.

Strai[illegible]t cost plus fixed fee.

Cost [illegible]us percentage or fixed fee, with guaranteed limit. The l[illegible]r sometimes carries provision for an equitable divisio[illegible]of the savings between the Owner and Contractor.

In p[illegible]paring an estimate on this basis, careful consideration m[illegible]st be given to what is intended to be included in the fe[illegible] and what is to be charged for as part of the cost of the [illegible]peration. Usually the fee is intended to cover the co[illegible]t of the Contractor's entire main office organization, including the services of Executives; Estimators; the clerical force engaged in receiving, segregating and distributing plans and details; receiving and making out all Change Orders; Accounting, including applications for payment, checking bills of subcontractors and making payments to them; typing, etc. Some contractors engage a field organization to take care of the major portion of the above described work and charge for it as part of the cost of the job. If the Form of Bid is such as to permit the

Contractor to increase his field organization to take care of this clerical work as part of the cost, the fee may be proportionately reduced but the cost will automatically become greater.

After a contract is awarded it is a good plan to prepare in advance a Buying Budget, setting up against each trade a maximum amount. These amounts are determined only after consideration is given the estimates received and the prevailing market conditions.

The subcontracts should be awarded according to the order in which the work is needed at the building, keeping in mind the time required for listing, detailing, fabricating, etc. For example, if there are buildings on the site, the first contract to be awarded would be for Demolition, followed by Excavation, Steel Foundations, Stone, etc.

The manufacture of materials in certain trades is very largely dependent upon information obtained from other subcontractors. Therefore, it is essential that contracts for the trades from which this information is obtained be awarded in sufficient time to procure this information without delaying the work of the trade requiring same, regardless of when the material may be needed at the building. For example, hardware is not generally required at the building until the operation is nearing completion, but Interior Partitions cannot be erected economically until the Metal Door Frames are set in place and the frames cannot be manufactured until receipt of hardware templates, etc.

In purchasing, it is well to avoid, as far as possible, any divided responsibility. Where a guarantee required from a certain trade is contingent somewhat upon the work of another trade, it is best to incorporate both trades under one contract. For example, take roofing and sheet metal work. If the waterproofing and sheet metal work are sublet under separate contracts and a leak develops there is a probability that the sheet metal contractor will lay it to the waterproofing man and *vice versa.*

It is also a good precautionary measure to make certain all details are well developed before awarding contracts. The architects' and subcontractors' conception of what is intended or required by work not fully detailed is always at great variance and invariably leads to no end of squabbling amongst the architects and contractors. No matter how the situation may be compromised, it generally leaves a bad taste in the mouths of all concerned.

A well developed, fully detailed set of drawings, together with a clearly defined specification, free of ambiguities, will obtain the lowest and closest estimates and make it possible for the work to be executed rapidly and with the least amount of friction.

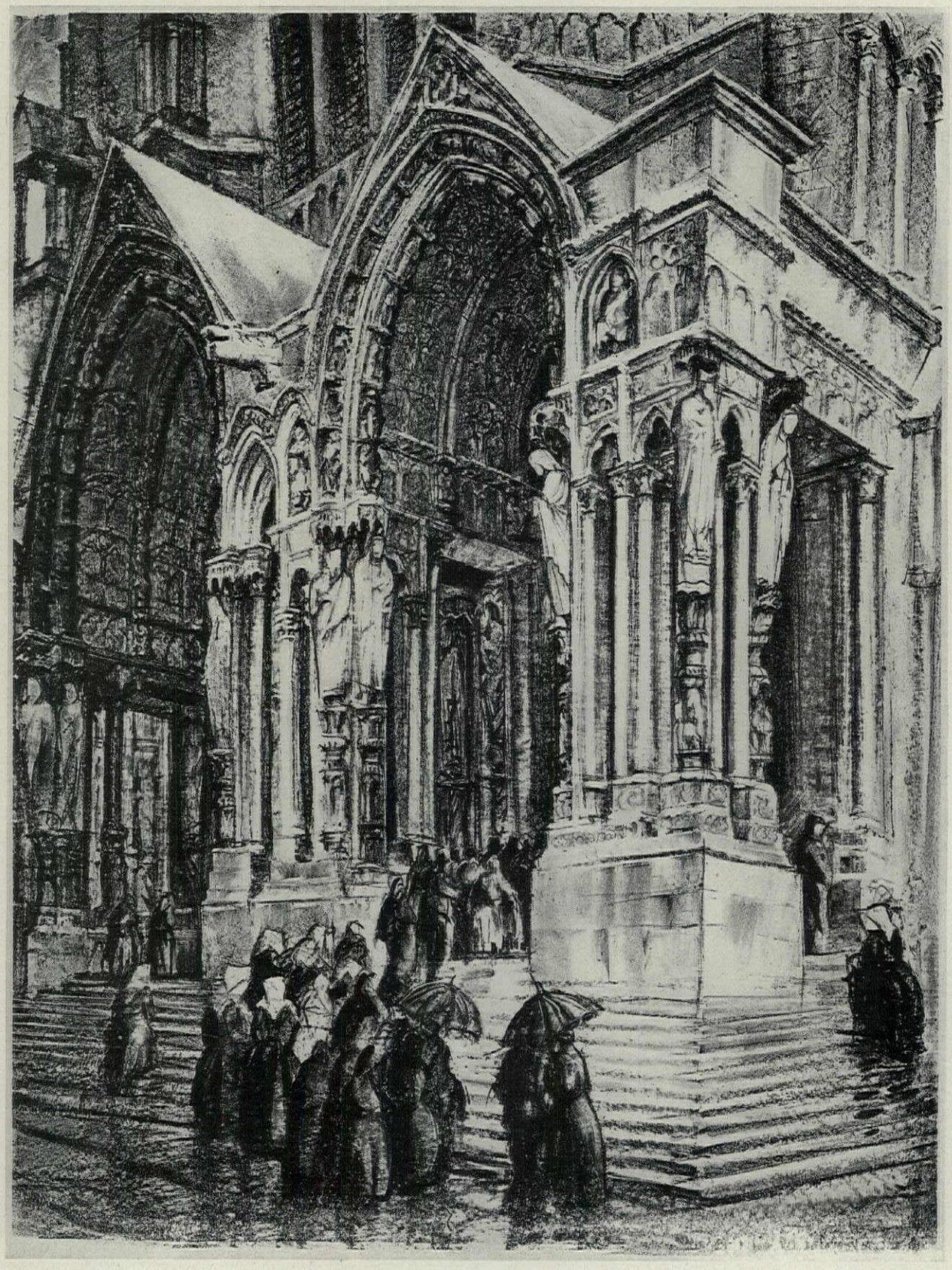
Comments of Louis E. Jallade following Mr. Jarboe's talk before the Junior League of the New York Society of Architects on March 17, 1931

There are many reasons why building costs in normal times are high. One of them is due to the manner of taking estimates. It is a vicious habit to ask continually for estimates from any bidder who wishes to bid. I do not know how much money is wasted yearly by our general bidding system but it would be sufficient to say that it is about 5% of the cost of the building contracts. On a $45,000 building that came through my office some time ago, semipublic in character, we had to have, because of the desire of the owner, 16 bidders for the general work. It surely cost each of these general contractors $200 to prepare the estimates, and I figured that there were 62 subcontractors that estimated. The cost to each of the subcontractors was at least $50 which brought the cost to 15% of that particular job, plus 16 sets of plans which cost about $15 each. In the final analysis the job was settled somewhat like this: There were differences of a few hundred dollars between the low bidders, the committee went around and looked at the buildings of the low bidders and finally selected the one that had the best reputation. The difference between the low bidders and a bidder with a very good reputation was $800. The first-class man got the job.

The money spent by all these bidders must be made up some place, and so it is added to the overhead and the general building business pays for it. On the job mentioned above we would have been better off if we had selected three bidders of good reputation.

Mr. Jarboe in his talk makes it very clear that in order to obtain close estimates from contractors, it is necessary that the architect know what he wants. The plans need not be steel engravings but there must be shown intelligently and specified clearly what is expected in the building. On any job where the estimates have a variation of 15% between the low and high bid, there is something that is not clear. Close estimates mean a good set of plans and specifications.

A question was asked as to why an architect cannot do his own building. The answer to that is that each man must stick to his own trade. A builder earns everything that he makes on a job if he is a good administrator and a good buyer and can supplement the architect. It is my idea that a great preacher cannot be a great janitor, and so an architect, while he may be a good administrator, cannot get himself down to a perfection in his profession so that he is able to know everything about the purchasing and operation as well as a general contractor would know it. Of course, some architects can build, just as we know from experience that not all builders can build. Some builders are just brokers. An architect might be a broker, but dreaming, designing, and directing the construction of a building is a very different proposition from that of a builder.



FROM A LITHOGRAPH BY C. A. ALBRIZIO—"CHARTRES"
Size of original, 18½" x 24¼"

Misadventures of a Draftsman

By George H. Allen

Editor's Note:—*The writer of this article, which is the first of a series, is a draftsman in a New York architectural office. He was inspired by the series "Adventures of An Architect," by Rossel E. Mitchell, that appeared in our pages during 1929-1930, to attempt to record in the same way a group of episodes in the life of a draftsman. Further installments will appear in future issues.*

America is becoming "Architecturally-minded." Extended verticals, fire tower stairs, three-form motifs, or chrome nickel steel mullions—that were once dared to be discussed and chewed over by only the initiate—are now confidentially dealt with in conversation over the breakfast table by "the butcher, the baker, and the candlestick maker." The public is gradually acquiring a taste that discriminates between good design with conservative treatment, and atrocities that are being put up by the "cloak and suiters" or builders with their own "design staff." The Architect, who once was a hazy conception in the mind of the average person, the unknown quantity in the construction of a new building, and a man who "tinkered with those fancy fronts," now finds himself becoming a reality. He is associated with these towering cathedrals of commerce, his design is becoming more personal, his mark is stamped on his edifice, and a large proportion of average men on the street know the author of a beautiful structure before the project is completed. The Architect is a finished product—a seasoned man of many years' experience, he has acquired that *savoir-faire* through a straight and not too narrow apprenticeship. His is the goal strived for—the Elysian fields that beckon forever onward to the red-blooded sons of Vignola and Palladio. Those who sharpen their pencils and make the leaves on a Corinthian capital become a reality—they are the Draftsmen—Architects in embryo.

I.

I was born in a medium-sized town of 50,000 inhabitants and four practicing architects (practicing, usually, how to pick the right entrance from the "Curtis" catalogue to fit the current job). Our skyline was typical of the hundreds of small towns in the United States, jagged and spotty. There were two good banks and one excellent office building (executed by a firm in a large city). There was a good average of work done there, although as a builder put it, an architect hadn't a chance unless he belonged to the Morris Guards, was a lodge member, and bowled every Friday night.

As early as I can remember I had no qualms in seeing the first light of day there—and eventually I went to the local High School.

Fortunately, I took a technical course, though I hadn't decided what to go in for, but having a flair for drawing, I went out for Art Editor on the school magazine. One day—I still remember it—we went to the library and I, as usual, made for the magazine rack. I found all the popular ones busy, so, disgruntled, I picked up one of the "technical" variety, and retired into a far corner of the room.

"Fortunatas Providium"—it was an architectural magazine and my chagrin changed to mild pleasure. Here was art in a different form. I admired those clean-cut renderings, pictures of new construction, and the homes with "touches" that defined real design. I was even interested in the advertisements—Jenkins' Valves and all. That was my introduction to Design I.

So I entered College in September, arriving in the city in the late afternoon (a large town about 60 miles away from my home). Boarding a trolley I jounced and rattled diagonally across town to where the staid and ivy-covered institution stood. It was drizzling and there was a sharp tang in the air that foreboded a winter to come. I got off the tram and sloshed through puddles of black, muddy water until I arrived at the large archway.

This pile of brick and limestone—seared with the ravages of time, and dripping dully under the mantle of incessant rain—was to be the realization and fulfillment of my dreams. Its famous sons of the past were emblematic in carrying on its banner of achievements. But my spirits were at a low ebb. This mass of masonry somehow didn't beckon to a foundling with an invitation to make himself secure in its cradle creating great structures that seemed more than ever like mirages that floated over grey clouds—but, pulling my hat down over my eyes, I disappeared into its cavernous entrance.

* * * * *

It was spring, and, sitting in Design B, I was watching the afternoon sunlight cut golden swaths through the dust in the great drafting room. It spread itself over my table, bringing the color of the washes out until they shone in golds, vermilions, and carmines. I was patiently brushing down a sky on a sheet of Whatman's "double elephant" stretched tight as a drum over a board. I was using some "stump" ink that I had ground up in a saucer (and what an elaborate process I would make of it!) The room was outwardly sleeping, but there was a droning undertone suggestive of a beehive.

The smoke from my pipe curled thinly up to join the general grey pall of smoke that moved sluggishly whenever disturbed. I was at peace with the world. My *rendu* hadn't caused me any trouble and had all the brilliance of an old master to me. How different the last few months had been!

I had become acclimated to my new surroundings. Where once I was homesick and strange, I had found several close friends and enjoyed myself immensely. "Skeeter" Miller and "Rabbit" Parker were my confidants and friends in need. They had nicknamed me "Dozy," because I usually dozed through Math.

We were hurrying to finish our renderings because the Prof. was to come around that afternoon and inspect the culmination of three weeks' work. I kept a glass of clear water at the top of the drawing board, to wash out my brushes now and then so the colors would retain their brilliancy. However, it was muddy now, through so much use, and as I was reaching for something I knocked the glass over. I made a hasty scramble—but too late—my pride was now a streaked and muddy mess of color. Dazed I stood there and felt a rising surge of despair.

"Here, here, what is this?" It was the Prof. at my side. "Ah, an accident, yes? Now, my young man, you will learn to be more careful. No, don't destroy it—it looks very much like a 'modern' now—save it for the

next exhibition," and with a twinkle in his eye he walked away.

In fact, the first year in school I will always think of as a pleasant memory—a new environment that I had to adapt myself to, of course—but things seemed to progress along in the even tenor of their way. The Sophomore year was the one of riots, rowbottoms, roughhouse, and all-night bull sessions, usually in Skeeter Miller's room in the tower.

It was during that year that I made a Fraternity that had gone national a few years back and was progressing very rapidly. We had a nice large house with some new furniture and a large bronze plate at the entrance, which was kept polished until it shone like old gold. Our pride was a smooth dance floor, "7/8-inch clear oak laid over double flooring, blindnailed, sanded, and polished."

All the fellows were friends worthy to have and we had many good times together. Very often we would throw a house party and dance, and I am reminded of one in particular. On the second Friday in April we were to have our Spring Dance, which wasn't very fortunate for me, as I had an exam in Math II the next morning at 9. I already had a condition in it and had done hardly any studying.

The music was provided by a good band we had tried out the previous year, and they were liberal with their intermissions, which gave us a chance to go out in the air and cool off. I liked it out on the veranda, and it was fascinating to see someone strike a match, momentarily lighting up his or her features, only to have it die out leaving the red glow of a cigarette in the dark. The infectious laughter, the gay conversation and the contrast of the white evening gowns with the black dress suits, still come to mind as part of those pleasant memories of college years.

After the dance we all piled into the "Blue Lantern." It was a basement rendezvous with sawdust on the floor, initial-scarred tables, and sketches on the walls, in charcoal or Conté crayon, that had been donated by some in lieu of sufficient money to cover their checks—or more often none at all. It was the hangout and abiding place for the aspiring young "Architects" (we never called ourselves draftsmen in those days). Neighborhood gossip had labeled it the "Nut Club"—and appropriately, too.

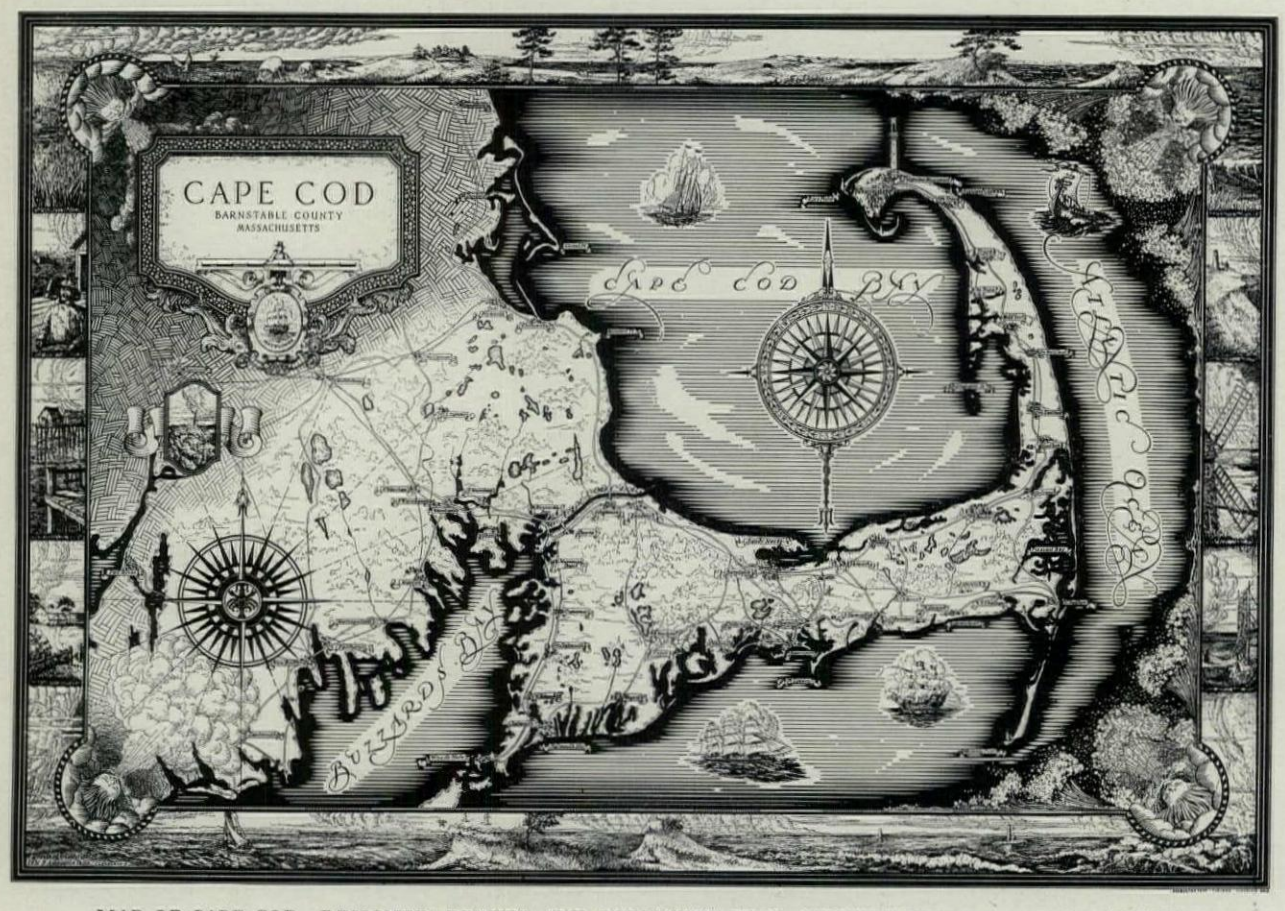
We had quite a noisy time there, then I suddenly realized the exam was in the morning, and 9 o'clock sharp—emphatically! I tried to get several of my "in gear" friends to go, but they promptly turned down my invitation, so with my lady-in-waiting, I went outside and hailed a Yellow. It was still dark when I got back to my room, and, throwing my coat on a nearby chair, I fell exhausted upon the bed and almost immediately went to sleep.

I must have slept for an interminable time, because I finally awoke with a start. My head was throbbing slightly and the dress suit would need quite a bit of repairing to bring it back to resemble anything of its former self.

My eyes wandered over to the clock on the mantel—it was 11:30—just two and a half hours late for the exam!

* * * * *

The morning sunlight was streaming through the casement—and a gentle wind, heavily laden with lilac, carried with it also the sound of cheerful voices—someone was whistling a lively air—feminine laughter sounded. Despairingly, I turned over and pulled a rebellious blanket up over me . . . . . .



MAP OF CAPE COD—DESIGNED, DRAWN, AND PUBLISHED BY D. ASHBURTON TRIPP, OF CLEVELAND
Size of original, 34¼" x 23¼"

PRINCETON PRIZES IN ARCHITECTURE AWARDED

The Princeton Prizes in Architecture for 1931-32 were awarded to Richard H. Grannelli, of New York, and Joseph E. Trudeau, of Los Angeles, California, as the result of a ten-day competition in Architectural Design held from May 22nd to June 1st. The winners will each receive $800 to enable them to spend the next academic year in advanced study at the Princeton School of Architecture. They are entitled to residence at the Graduate College, and exempt from tuition fees.

From over one hundred applicants, about fifty men were selected on their records for admission to the competition. Thirty-seven of these submitted drawings.

The jury met on June 10th, 1931, and consisted of Chester H. Aldrich, of New York, William Pope Barney, of Philadelphia, and Ralph T. Walker, of New York, representing the architectural profession, together with Professors Jean Labatut and Sherley W. Morgan representing the Princeton School of Architecture.

The high standard of the work submitted made the selection of the winners very difficult, but after careful deliberation it was decided to award the prizes to Messrs. Grannelli and Trudeau, and to appoint four alternates, each of whom was awarded an "honorable mention." These were Messrs. Onnie H. Mankhi, Cleveland Heights, Ohio; John R. Stencken, Jersey City, N. J.; Joseph H. Blew, Jr., Lansdowne, Pa.; and Lloyd H. Malkus, Camden, N. J.

In commenting on the *projets* the jury agreed that Mr. Trudeau's solution was the best in its disposition of elements to take advantage of the site, and to provide for the functioning of school, theatre, and auditorium either independently or together. The circulation was direct and ample, both to the City and to the University campus. The individual buildings were so placed as to function most effectively, and at the same time to profit fully by the wooded hillside and the view over the lake. While the school building itself was somewhat complicated in plan, the isolation of the practice rooms from the rest of the group was commended.

While it was felt that Mr. Grannelli's *parti* was a little over-formal, and stressed too much the importance of the Court of Honor connecting the buildings, the individual units were well studied and correctly placed, the elevation was charmingly composed, and the character of the whole *projet* excellent.

Considering the short time allowed for study, the jury wishes to commend all the contestants on the general high level of the solutions presented.

The program was as follows:

A DEPARTMENT OF MUSICAL ART IN A UNIVERSITY

An American University, situated outside the suburbs of a large city, has decided to add a new element to those already established for the teaching of the Fine Arts. This new undertaking is in the realm of music, and it is contemplated that approximately 80 students will be given a broad education in this subject. To house the enterprise it is proposed to construct three new buildings. The first will provide for administration and teaching; the second will be an auditorium; and the third an outdoor theatre for musical spectacles.

The privileged situation of the University permits the construction of this department outside the campus proper, in the midst of a beautiful wooded tract which overlooks a lake. The terrain descends towards the southeast to the lakeside. The campus proper is to the northwest of the property.

This department will include:

1. *The school building*, which shall not exceed 150′ in any dimension, and shall contain rooms for: (a) General administration, 1,000 sq. ft.; (b) Four classrooms of 600 sq. ft. each; (c) Twenty practice rooms of 200 sq. ft. each; (d) Four faculty offices of 300 sq. ft. each; (e) Necessary services, toilets, etc.

2. *The Auditorium*, which shall be a separate unit, and which shall contain seating accommodations for 800 persons; adequate lobbies, dressing rooms, toilets, etc., for both performers and public.

3. *The Open-air Theatre*, which shall seat 5000 people, and shall be agreeably arranged in the landscape. The stage shall have the simplest of permanent treatments.

The two winning drawings are shown on page 610.

HARVARD SPECIAL STUDENT SCHOLARSHIPS AWARDED, 1931-1932

These Scholarships are the result of a competition held each year for men who have had at least three years of training in architects' offices, and who are at least twenty-one years old and graduates of high schools.

This year the subject of the program was:

A STAIR HALL FOR A WORLD COURT BUILDING

The majesty and dignity of this monument, or ensemble of buildings, is to be reflected no less in one important feature, like a monumental, centrally placed, straight staircase, than in the assembly room, committee rooms, supreme world court hall, etc. Therefore the approach to and the upper landing of the staircase have their own importance and must be in keeping with the monumental aspect of the stairs.

In a centrally located spot in the main building, an emplacement of 80′ x 120′ is to accommodate the stair hall and the galleries, circulations, or vestibules surrounding it, comprising also a monumental landing at the head of the flight (second floor) of the staircase. Galleries, circulations, and vestibules shall open (on the second floor) onto the main court room, rooms for special commissions, committee rooms, etc. The height of the first story, from ground floor level to second floor level, shall be 15 ft.

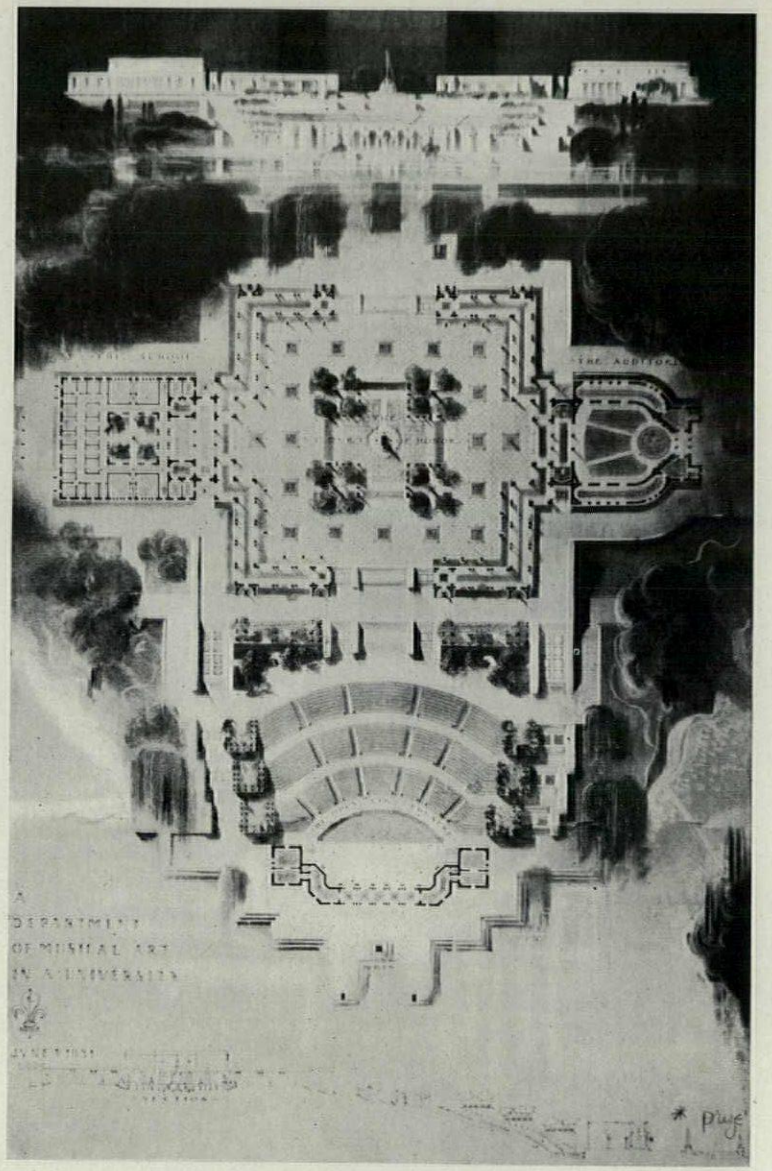
The decorative treatment of the stair hall itself, severe and monumental in appearance, may be one of wall treatment with openings, or colonnade, or solid wall with niche (or niches) and statuary. The height of the second floor is left free for the student to choose. The plan shall comprise the whole composition within the limits of 80′ x 120′, showing the relation of the stair hall itself to the landing and adjoining circulations, galleries, or vestibules. According to the decorative treatment, the stair hall may receive light either from the sides or from above only, or from a combination of both.

As announced last month the winners are J. Henderson Barr, Mario Joseph Ciampi, and Joseph Earl Trudeau. The three winning designs are shown on page 611.

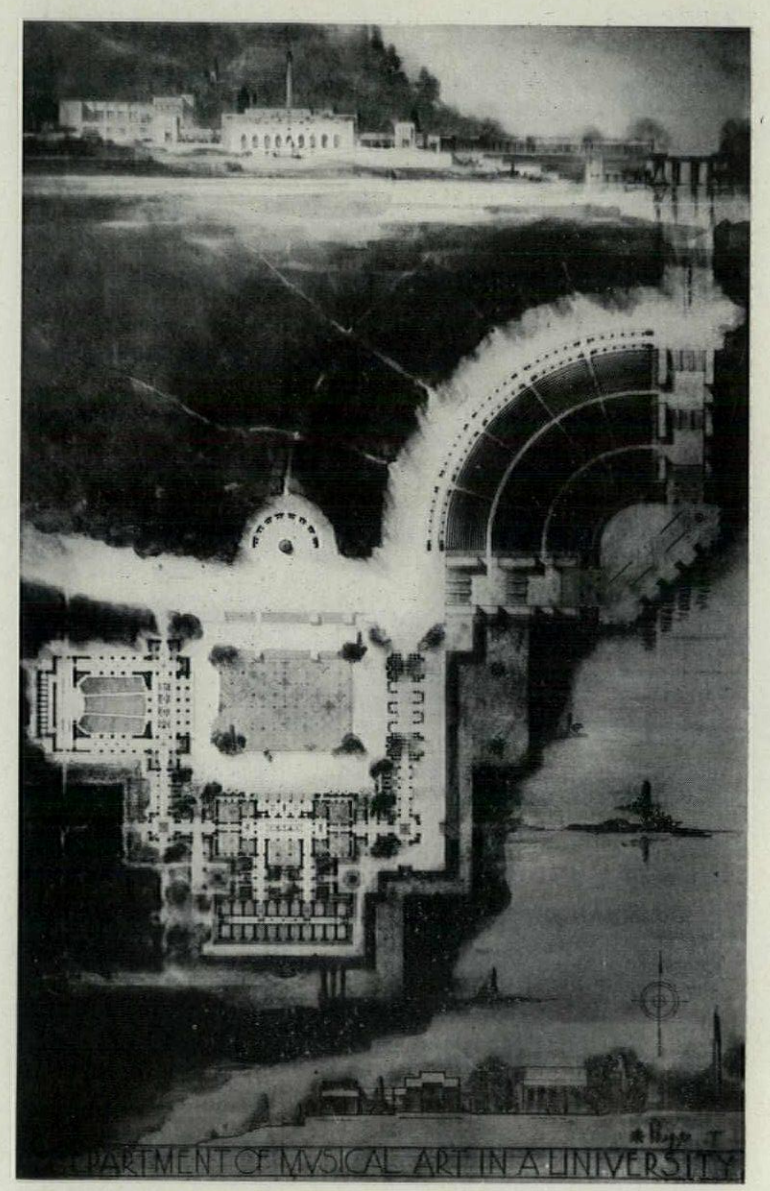
J. Henderson Barr, of Birmingham, Mich., twenty-two years old, graduated from Northern High School and spent two years at Antioch College and a year at the University of Pennsylvania. He studied drawing at the Wicker School of Fine Arts in Detroit before attending Antioch and Pennsylvania. He has had experience working in the office of Wallace Frost, in Birmingham, Mich. This is his second year in the Harvard School of Architecture.

Mario Joseph Ciampi, of San Francisco, Cal., twenty-four years old, graduated from high school in California and worked for three years at the San Francisco Architectural Club. He has worked in the offices of A. A. Cantin and Dodge A. Riedy, of San Francisco. He entered the Harvard School of Architecture in the fall of 1930 as the winner of this same Competition that year. This is therefore his second year in the School and also the second year he has held a Special Student Scholarship.

Joseph Earl Trudeau, of Los Angeles, Cal., twenty-three years old, graduated from high school in Los Angeles and has since then worked with several architectural firms—among them George May & Son of Los Angeles and J. Weston and E. Weston, also of Los Angeles. He attended the Los Angeles Ateliers and Ateliers Licht and Hirons, taking Beaux-Arts Institute of Design projects in Class B and Class A. He has worked also for Delano & Aldrich, F. C. Hirons, and Trowbridge & Livingston—all of New York City.

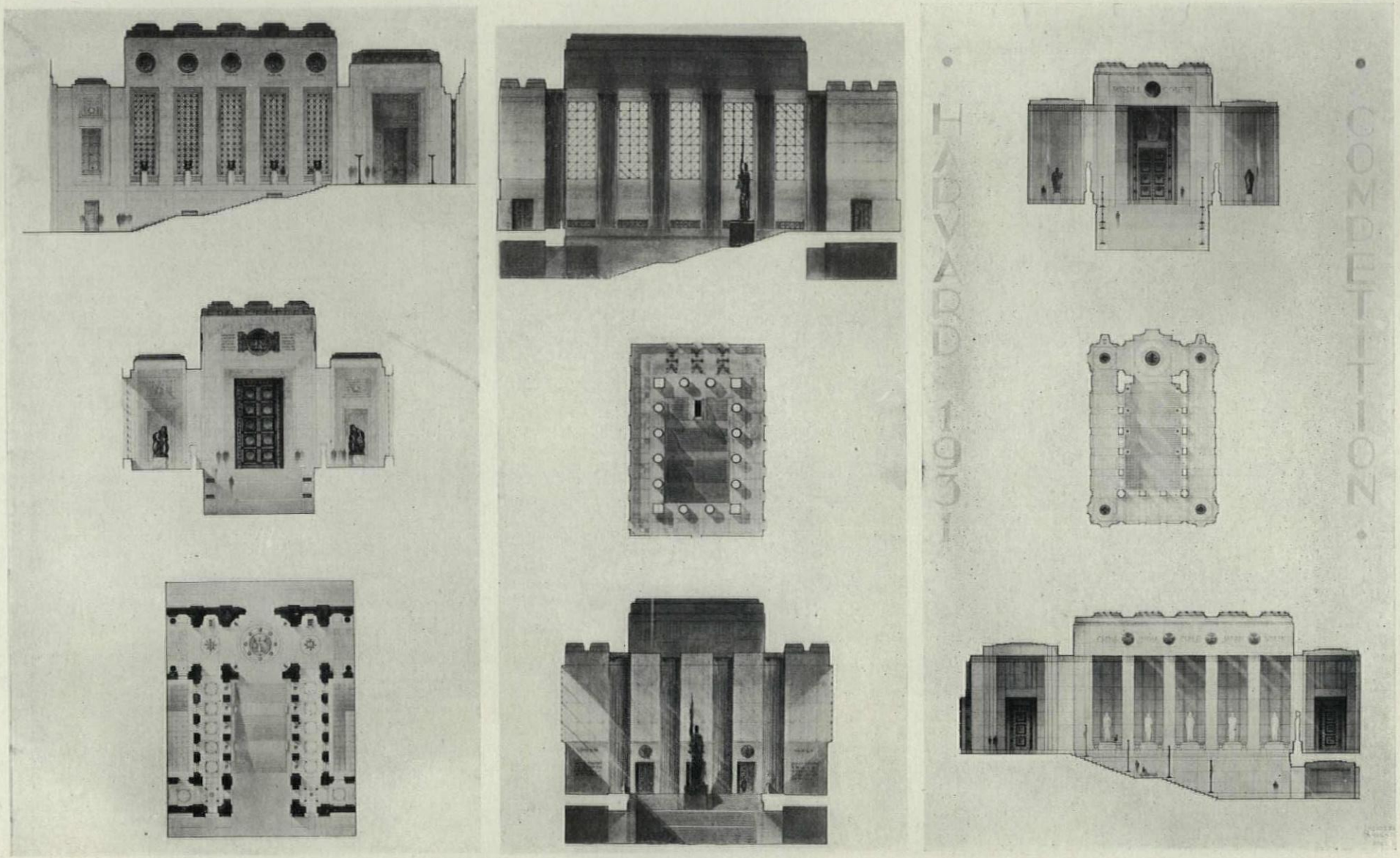


BY RICHARD H. GRANNELLI



BY JOSEPH E. TRUDEAU

WINNING DESIGNS FOR "A DEPARTMENT OF MUSICAL ART IN A UNIVERSITY"—COMPETITION FOR THE PRINCETON PRIZES IN ARCHITECTURE, 1931-32

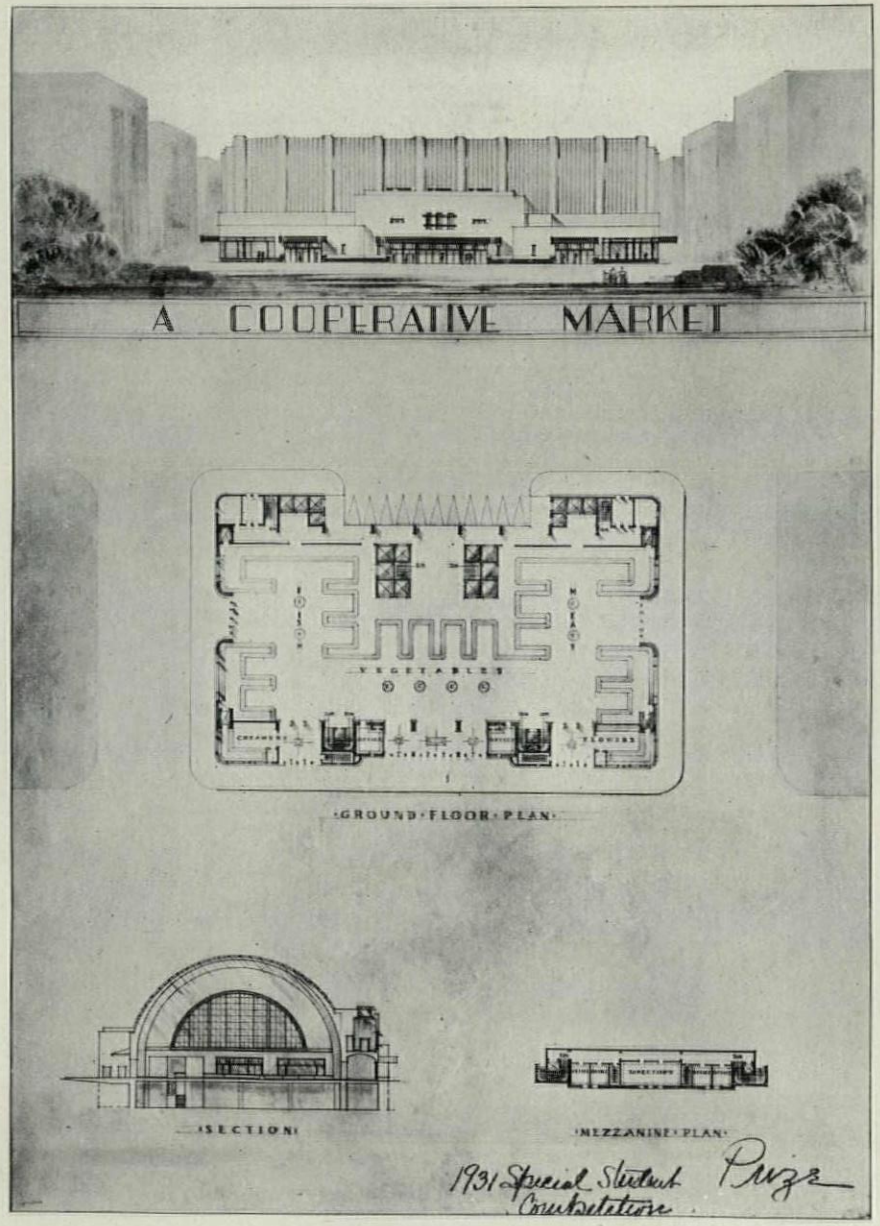


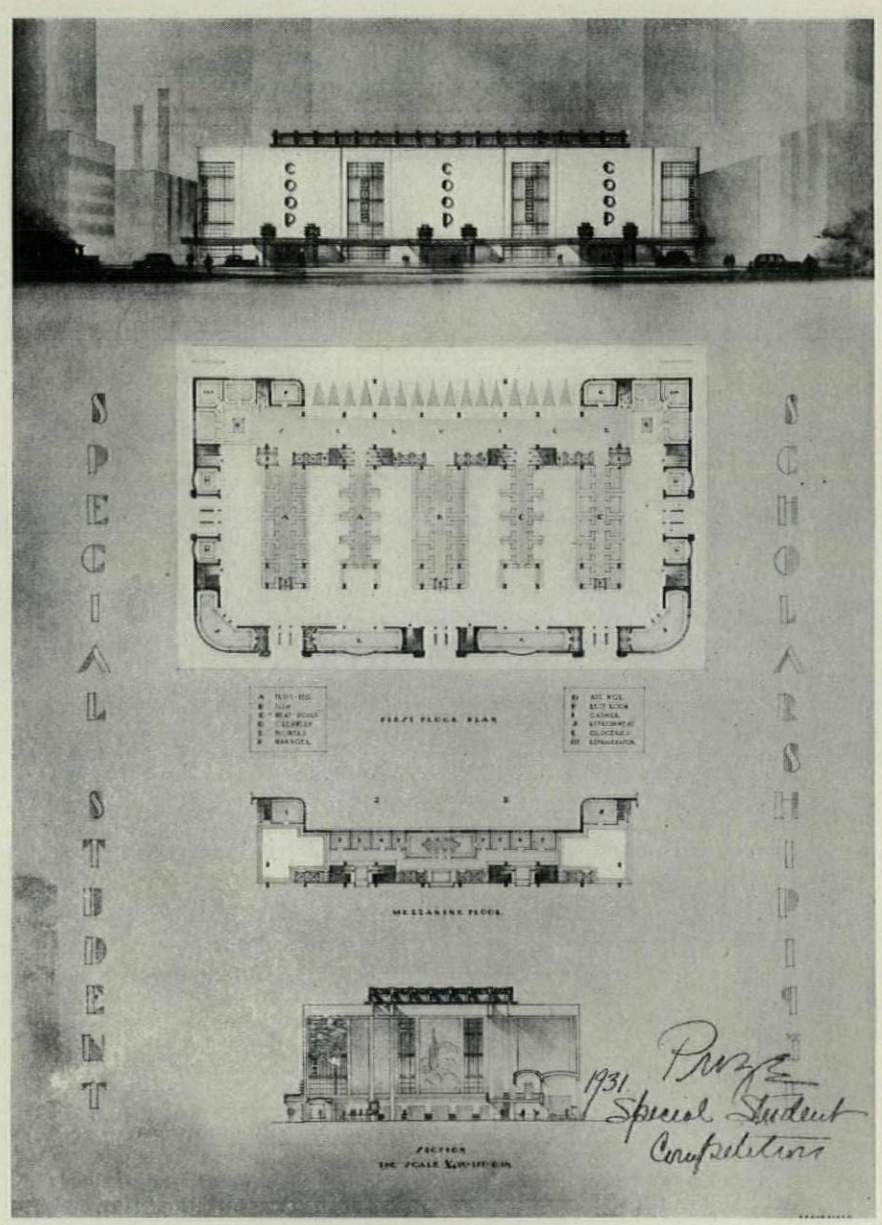
BY MARIO J. CIAMPI

BY JOSEPH E. TRUDEAU

BY J. HENDERSON BARR

WINNING DESIGNS FOR "A STAIR HALL FOR A WORLD COURT BUILDING"—
COMPETITION FOR THE SPECIAL STUDENT SCHOLARSHIPS FOR HARVARD SCHOOL OF ARCHITECTURE, 1931-32





WINNING DESIGNS FOR "A COOPERATIVE SOCIETY MARKET," BY E. J. WHELAN, LEFT, AND J. FAIRFIELD

SPECIAL STUDENT SCHOLARSHIP COMPETITION, 1931—32, MASSACHUSETTS INSTITUTE OF TECHNOLOGY

M.I.T. SPECIAL STUDENT SCHOLARSHIPS

As announced last month, the M.I.T. Special Student Scholarships for the next school year were awarded to Ernest J. Whelan of East Boston, Mass., and John Fairfield of Boston, Mass. Their designs are printed on the facing page. The program, which was for *A Cooperative Society Market*, follows:

Cooperative societies are organized to give their members the benefits of buying material at wholesale. After deducting the sums necessary to cover interest charges on capital and cost of management the profits are divided among the members in proportion to the amount of their purchases.

A Cooperative Society has secured a location for a market in a large city which will serve both the local and suburban trade of the general public as well as that of its own members. This market will be devoted primarily to the sale of meats and poultry, fish, fruits and vegetables, and to a lesser degree, creamery products, flowers and shrubs.

PROBLEM

The requirements are:

1. *The Market proper,* to be arranged for the effective display and handling of the products. The creamery and flower products are each to be in a small separate store from the main market but easily accessible.
2. *Cashiers' offices,* conveniently located. The customer receives a check from the clerk upon making his purchase which he pays at the cashier's office and returns the check to the clerk to obtain his purchase.
3. *Administration offices.* In a mezzanine story over any part of the building is to be arranged a large office for the directors and several smaller offices for the general administration. Also two small toilet rooms. On the first floor is to be provided two offices for the manager and assistant manager.
4. *A Service Court,* partially covered, around which must be arranged the necessary spaces for receiving supplies and delivery of purchases by trucks.
5. *The basement* will be devoted to cold and general storage purposes. Ample service must be provided by means of stairways and elevators for handling material between the basement and the market and service court. In the basement will be located also toilets, locker rooms, and other necessary services.

The lot measures 150 ft. x 240 ft. and is isolated by streets on all sides. One of the streets on the long side of the lot is a principal thoroughfare.

PARIS PRIZE COMPETITION RESULTS

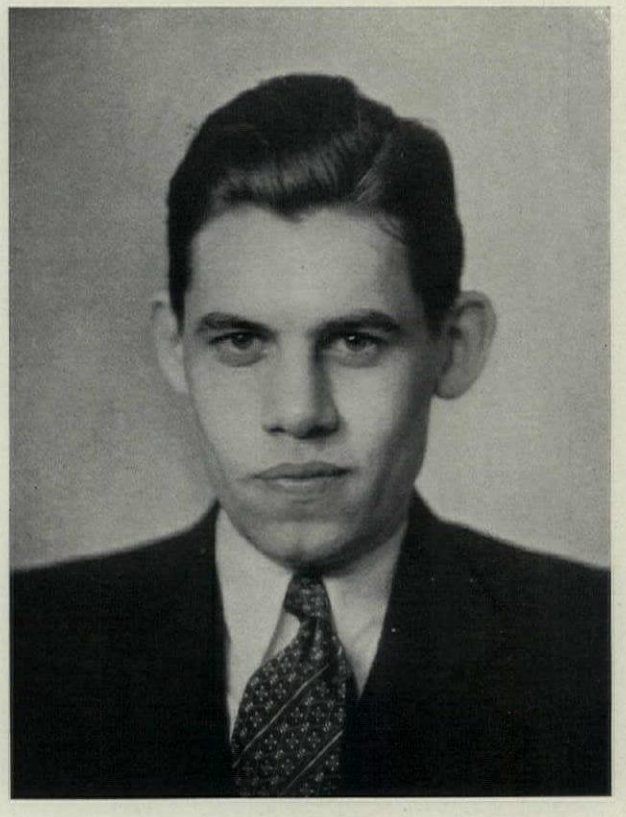
The Twenty-fourth Paris Prize Competition in Architecture of the Society of Beaux Arts Architects resulted this year in placing Carl F. Guenther of the Cleveland School of Architecture first with a First Medal. There were three other competitors in the final competition: Herschel Elarth of Omaha, Nebraska, who placed second; Pierre Bézy of Columbia University, who placed third; and Charles F. Schillinger of Cornell University, who was placed H.C.

The Jury of Award consisted of: Joseph H. Freedlander, Chairman; Chester Aldrich, Harvey Wiley Corbett, Philip A. Cusachs, John W. Cross, John V. Van Pelt, William Adams Delano, and Egerton Swartwout.

The subject of the program for the competition was *A National Pantheon.* The designs placed first, second, and third will be published in the September issue of PENCIL POINTS.

ADDRESSES WANTED

The Beaux Arts Institute of Design is anxious to secure the present addresses of Arthur Wheelwright and Thornton F. Turner, Architects *Diplomé par le Gouvernment Français.* Anyone knowing where these men may be reached is requested to inform C. B. Rother, Assistant Secretary, Beaux Arts Institute of Design, 304 East 44th Street, New York.



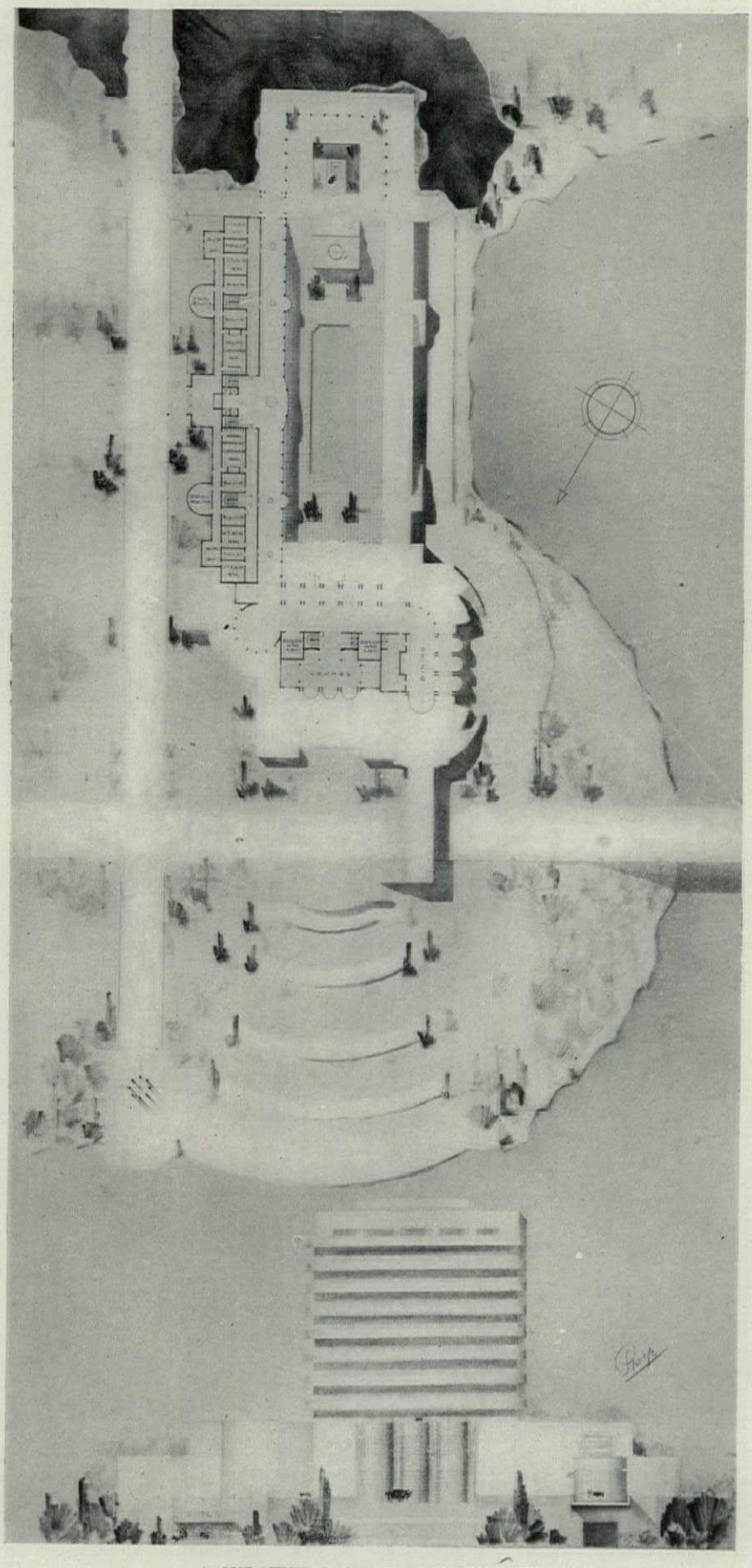
CARL F. GUENTHER

Carl F. Guenther, who placed first in this year's Paris Prize Competition in Architecture, was born in Cleveland in 1909. Upon graduation from high school he was awarded a four-year scholarship at the Cleveland School of Architecture at Western Reserve University. While in this school he won various prizes, including the Cleveland-Fontainebleau Scholarship, which he was awarded upon his graduation in June, 1930, with the Degree of B. Arch. During the summer of 1930 he attended the Fontainebleau School of Fine Arts and returned to W.R.U. for graduate work in design during the past school year.

Mr. Guenther wishes to express his appreciation for the kind assistance and guidance of Mr. Abram Garfield and for the constant interest taken in his work by Dean Francis R. Bacon of the Cleveland School of Architecture. He also expresses thanks to his Patron, Rudolph Stanley-Brown, and Messrs. John E. Miller and Arthur J. Kelsey for their helpful criticism and training in the course of the competition.

PROFESSOR HEBRARD GOES TO MICHIGAN

The University of Michigan, College of Architecture, announces the appointment of Jean Hebrard as successor to Professor Albert J. Rousseau, who died last April. Professor Hebrard, who will be Professor of Architectural Design, has for the past five years held a similar chair at the University of Pennsylvania and was at one time a Professor of Architectural Design at Cornell University. He holds the Diploma of the *Ecole Nationale des Beaux Arts* in Paris. Readers of PENCIL POINTS will be interested to know that we expect to publish an article on Professor Hebrard's work at some time about the beginning of next year.



A CURATIVE BATH ESTABLISHMENT

WINNING DESIGN BY ALBERT J. DE LONG

Competition for the Chicago Architectural Sketch Club Scholarship

ALBERT J. DE LONG

Albert J. De Long, winner of the Chicago Architectural Sketch Club Scholarship, was born in Chicago in 1909. After graduating from the Englewood High School, he enrolled in the Armour Institute of Technology to study architecture. He became an outstanding scholar during his term and won several prizes. He received his bachelor's degree in June, 1931. He is a member of the Scarab and Tau Beta Pi Fraternities. Mr. De Long has worked in the offices of W. F. McCaughey and Eugene Fuhrer.

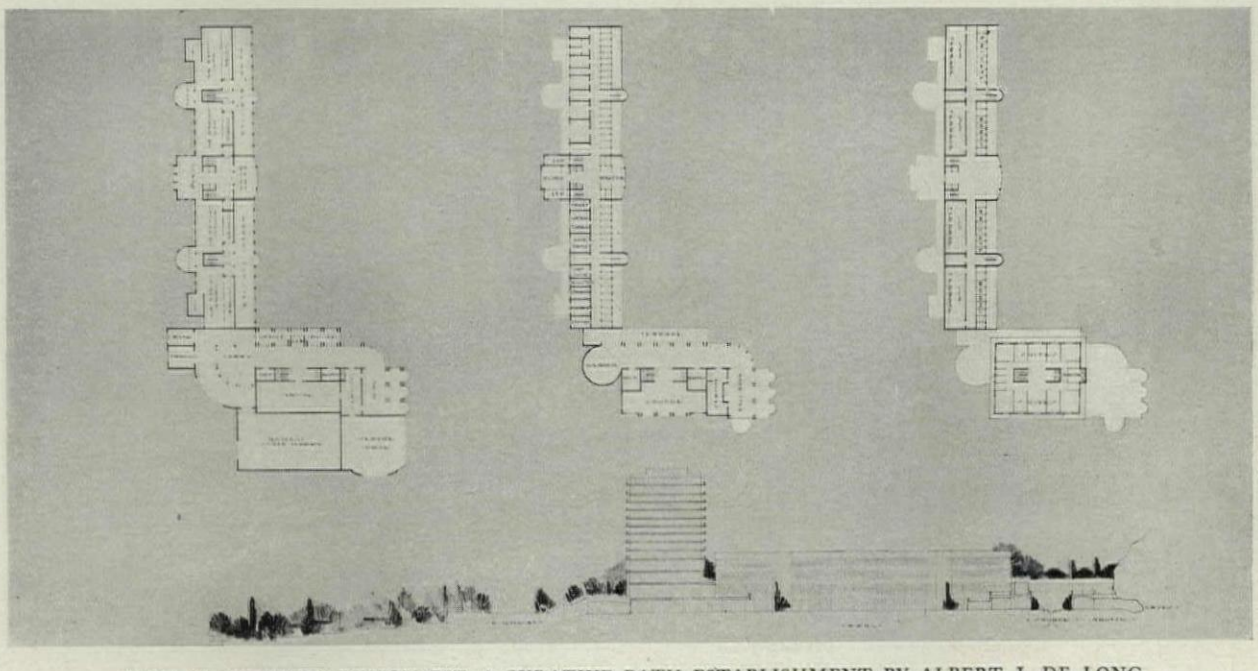
CHICAGO ARCHITECTURAL SKETCH CLUB SCHOLARSHIP

The Thirty-first Foreign Travel Scholarship Competition of the Chicago Architectural Sketch Club was awarded to Albert J. De Long. The prize of $1,200 was donated by William K. Fellows, F.A.I.A. Mr. Fellows is a member of the architectural firm of Hamilton, Fellows, and Nedved, Chicago. He is a graduate of Columbia University and has always been interested in the education of the young men of the profession. He subscribed as donor of the prize when he learned that the depression was interfering with the scholarship this year. Mr. Fellows is also an Honorary Member of the Sketch Club.

The problem was the design of *A Curative-Bath Establishment*, similar to the Spas in Europe. The building provided departments for all known treatments of physiotherapeutics, quarters for medical directors, and a hotel for the domicile of patients and guests. As the idle hours at the Spas develop into social gatherings, provisions were made for dinners, dances, teas, concerts, and soirées. The site was beautifully situated in the foothills of a mountain range with deposits of radio-active earths and a mineral spring. It bordered on a river and was connected to a large city by a boulevard and park.

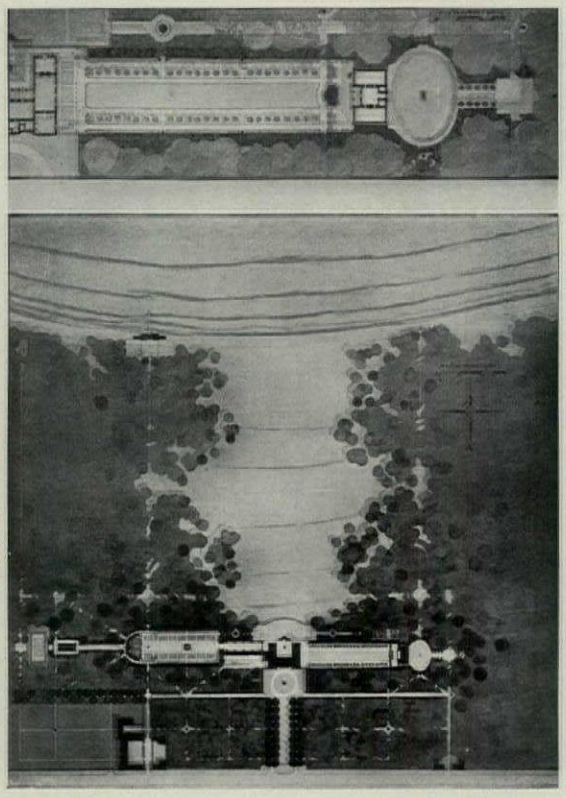
Mr. De Long's scheme, reproduced opposite, shows great imagination and a very intelligent conception of the subject. The hotel is well related to the baths so that it is easily accessible without going out of doors. The entrances to the hotel and baths are well handled and although certain liberties were taken with the handling of the river, the jury felt it was the best solution of the problem. The jury of awards consisted of five architects: Rudolph J. Nedved, chairman; Philip Maher, David W. Carlson, Ernest A. Grunsfeld, Jr., and Carl A. Erickson.

Thomas A. Carter's design was given second place and honorable mentions were given to F. F. Polito, Wallace Miles, and Gosta Sjolin.

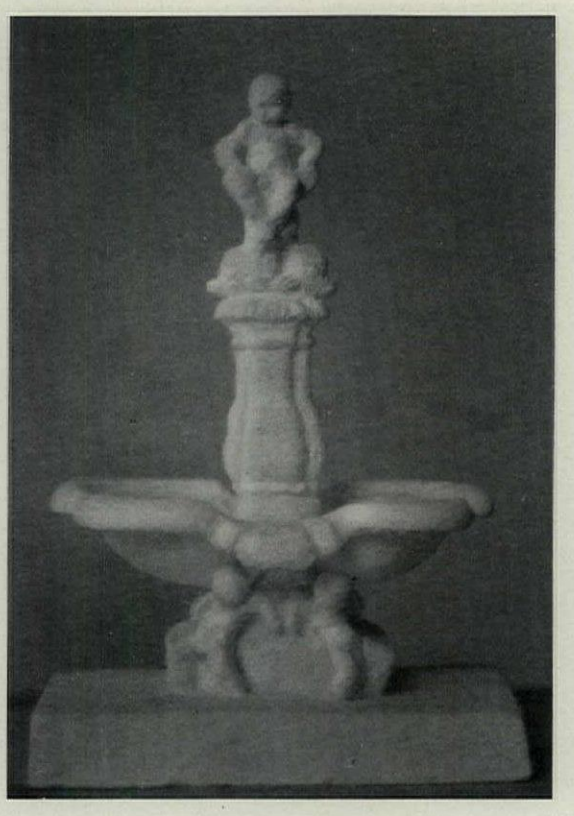


PLAN OF WINNING DESIGN FOR A CURATIVE BATH ESTABLISHMENT BY ALBERT J. DE LONG

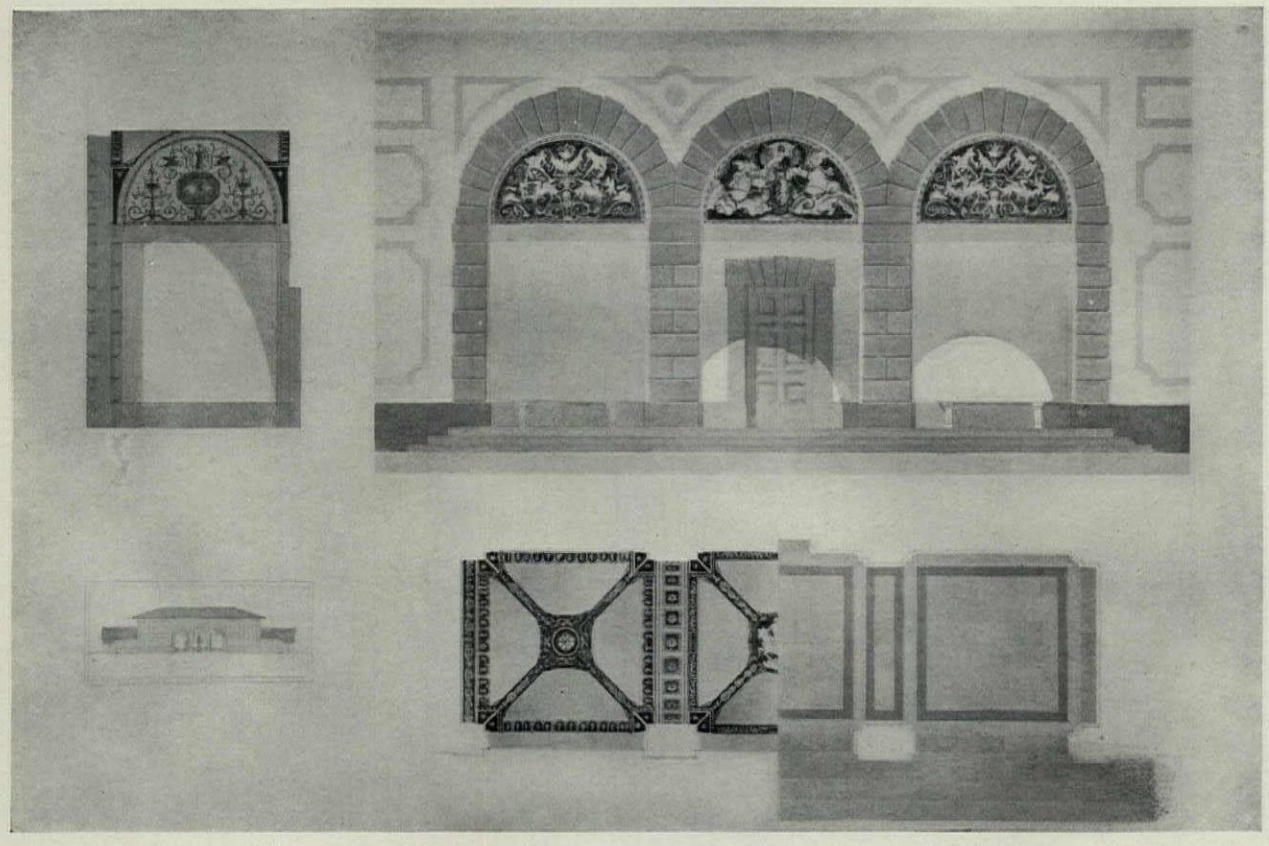
COMPETITION FOR THE CHICAGO ARCHITECTURAL SKETCH CLUB SCHOLARSHIP



CHARLES R. SUTTON, LANDSCAPE ARCHITECT



DAVID K. RUBINS, SCULPTOR



B. KENNETH JOHNSON, ARCHITECT; SALVATORE DE MAIO, PAINTER

WINNING DESIGN FOR "A SMALL MUSEUM ON A PRIVATE ESTATE"—
COLLABORATIVE PROBLEM OF THE AMERICAN ACADEMY IN ROME

AMERICAN ACADEMY IN ROME

COLLABORATIVE PROBLEM FOR 1931

The subject of the collaborative problem for 1931 was *A Small Museum on a Private Estate*. The program was as follows:

A SMALL MUSEUM ON A PRIVATE ESTATE

A wealthy art collector has a fine old estate in a beautiful undulating country in a temperate climate. Upon the high part of the land is situated an extensive house or villa of pure Classical type with outbuildings, etc.

The gentleman has acquired a celebrated collection of Classical and Renaissance sculpture and he proposes to build a small museum in which to house these works of art. This building is to be placed at the west end of a formal garden which will be on axis of his existing house. He wishes the public to have access to the museum without going through his house or garden.

The entrance to the museum is through a portico or loggia, and in relation to this loggia on the axis from the house is to be a fountain. The collaborative problem consists in having the three elements, the loggia, the painted decoration of the wall of the loggia and the fountain in perfect relation, one to the other, and to the garden.

The teams competing were composed of:

TEAM A

B. Kenneth Johnson, Architect; Salvatore de Maio, Painter; David K. Rubins, Sculptor; and Charles R. Sutton, Landscape Architect.

TEAM B

Cecil Briggs, Architect; John Sitton, Painter; William Marks Simpson, Jr., Sculptor; Richard E. Murdock, Landscape Architect.

TEAM C

Walter Reichardt, Architect; Donald M. Mattison, Painter; Sidney B. Waugh, Sculptor; Thomas D. Price, Landscape Architect.

The drawings were judged by a Jury consisting of Charles A. Platt, Architect; Wm. Mitchell Kendall, Architect; Gilmore D. Clarke, Landscape Architect; Barry Faulkner, Painter; John Gregory, Sculptor.

The solution to the problem submitted by Team A was placed first. The jury criticized this design:

ARCHITECTURE: The relation of the openings to the wall surface in this building is not good. The design of the sgraffito in relation to the opening in the stone work lacks study.

The plan of the building would have been better had there been one opening to each of the large exhibition rooms instead of two, as it is always desirable in galleries to have a central access to exhibitions of important works of art.

The scale of the building and the relation of the loggia to the fountain and garden is good.

PAINTING: The lunettes are excellent in color and vibration. In conception they show a richer and more enthusiastic approach to the problem than the other sketches. The ceiling while adequate is on the dull side.

SCULPTURE: This fountain is of excellent proportions and is made up of interesting motives. It is well placed in relation to the building.

More robust forms supporting the basin would have been more satisfactory.

LANDSCAPE ARCHITECTURE: The general treatment is good. More extensive views might have been obtained by opening up foliage masses each side of the main large open view.

The visitors' entrance drive is too narrow and arrival court west of the museum is too small. The detailed development of this court in its relation to the oval area and museum is not carefully worked out. The walks are undoubtedly too indirect and inadequate and show lack of imagination in disposition.

The winning drawings and sculpture are shown opposite.

ATELIER RECTAGON OF BUFFALO

The Atelier Rectagon of Buffalo entertained the Atelier Thirteen of Rochester, Saturday, June 13th, in their newly decorated clubrooms. The Rochester boys came to Buffalo on Saturday afternoon all primed up for a big time. After a bit of lunch we went out to one of Buffalo's public parks and played a rip-roaring game of softball. After about fifteen innings of play, the score became so high, that mere mortal could not add it, so the game was declared a draw.

Following the game we returned to the Atelier and made fast work of some real Italian cooked spaghetti. The spaghetti, mixed with a little special private formula concoction of our fellows, put everybody in good spirits and soon the table was humming with stories, speeches, and general good cheer.

The Rochester delegation left in the wee, sma' hours of the morning, none the worse for wear. Everybody voted the party a real success and are looking forward to our next meeting.

The Rectagon would like to get in touch with any Atelier that is interested in holding joint meetings, parties, or what have you. We want to see a more fraternal spirit developed among architectural men in the various offices in the country. The atelier is located at 75 West Eagle Street, Rear. Richard A. Polland is the Chairman of the Social Committee.

HANDS ACROSS THE SEA

A Letter from Jan T. Byhouwer

Landscape Architect, City Planning Board, Rotterdam

The one faithful reader of PENCIL POINTS in Holland was startled out of his Dutch somnolescence by an article in the May issue. Is it true? Would really a great number of architects come to inspect Dutch buildings? And if so, what would they want to see?

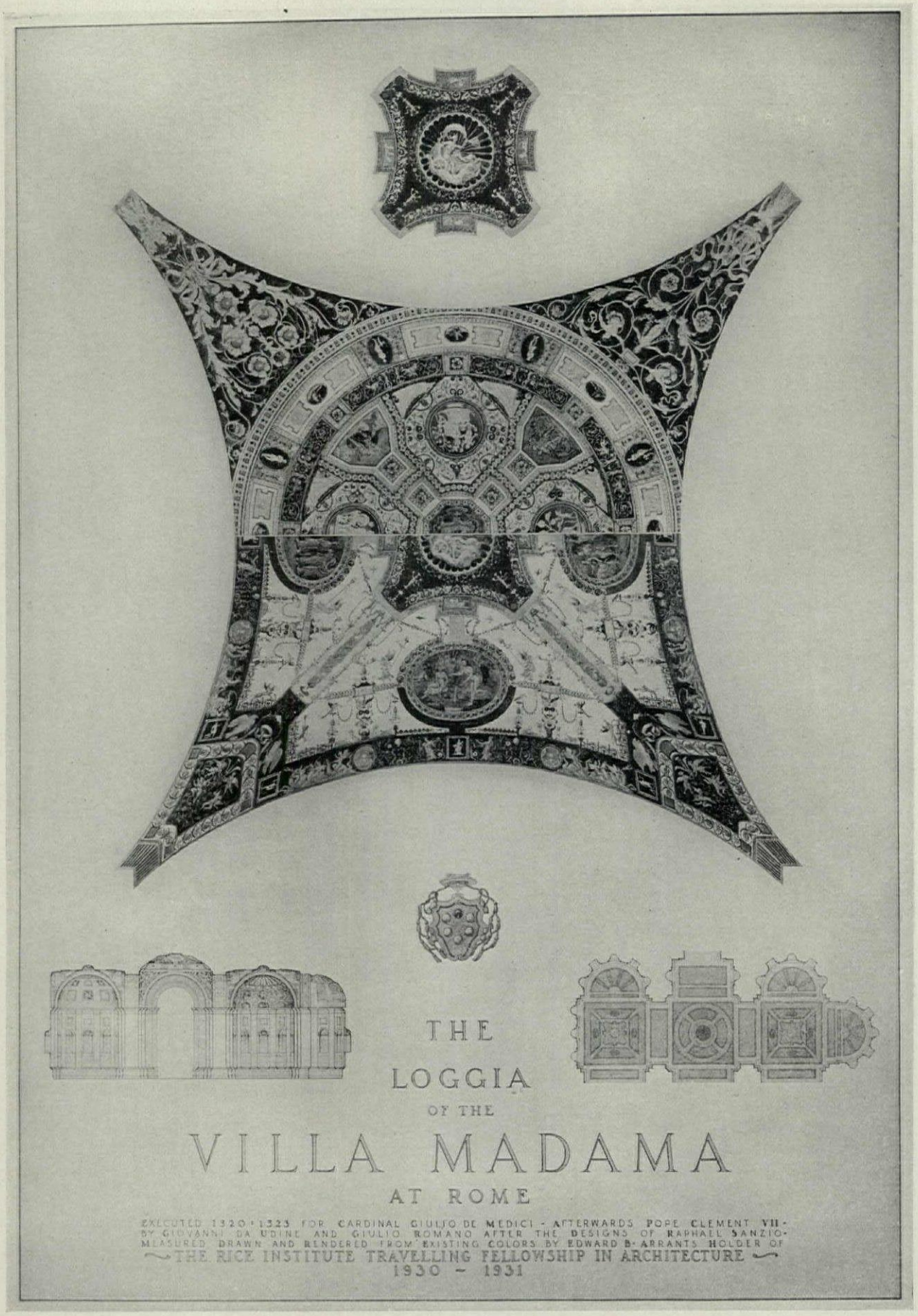
The article by Mr. Morse gives them some information, especially about the more flagrantly modernistic buildings. But there is considerably more to be seen. Those who are interested in brick construction will find scores of excellent examples of accomplished workmanship. The students of the city apartment house will see whole neighborhoods, even quarters of cities, where the design of the buildings and the entire outlay are one harmonious plan, worked out in detail by one architect or one group of architects. Designers of suburban homes will discover that "Dutch Colonial" does not exist in Holland, but that thousands of charming homes have been designed with the five widely varying Dutch rural styles as a foundation. Housing maniacs can visit garden cities, the like of which England cannot boast until they exclaim like one visitor last year: "Your workmen are far better and more beautifully housed than the wealthier people!"

Is the Dutch PENCIL POINTS addict exaggerating the importance of his small and soggy country? Not at all—chauvinism is far from him; he deplores the many shortcomings of Dutch architecture, and he is convinced that the technique of American builders is much further developed.

But—there is a close relationship between Americans and Hollanders. In both countries the population is a mixture of various Northern European strains; in both, education is the highest cherished good; in both business and industry have accomplished remarkable feats, often to the extent of "beating the Dutch!" That is why the architecture of the two countries will profit by a closer acquaintance.

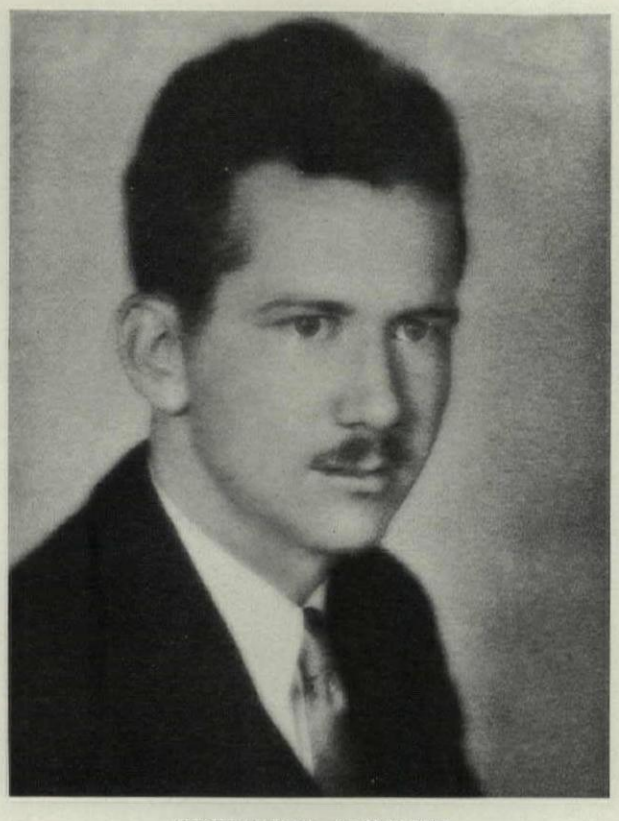
Technically America is ahead, especially in steel con-

(Continued on page 619)



MEASURED DRAWING BY EDWARD B. ARRANTS, 1930 RICE INSTITUTE TRAVELING FELLOW IN ARCHITECTURE

THE LOGGIA OF THE VILLA MADAMA AT ROME



EDWARD B. ARRANTS

Edward B. Arrants recently returned from abroad as holder of the Rice Institute Traveling Fellowship. His architectural experiences throughout Europe lead him to believe that the older architectures there offer a cultural background, beyond the range of eclecticism, which should not be disregarded by the modern designer. Their beauty and magnificence of conception challenge equaling, more so in face of the crudity and ugliness of the present modern manifestations. Architecture, if it is to be more than engineering, should be a co-result, both of the function it performs and an effort on the part of the designer to create something beautiful.

Mr. Arrants was the 1930-1931 holder of the Rice Institute Traveling Scholarship in Architecture and received his academic and architectural training at that institution. His major interest in Europe was color, and his envoi work consisted of a definite color study of the Renaissance decorations at the Villa Madama near Rome (which is reproduced on the opposite page). His attempt at the reproduction of the colors was made, not from an archæological viewpoint, but with the idea of presenting the colors as they exist with the mellowness and softness which the "patina" of age has given them; insomuch as the present-day criteria of color includes these qualities which lend for harmony and beauty.

Mr. Arrants traveled through Holland, Belgium, Germany, France, and Italy, spending three months of this time in Rome and completing his drawings at the American Academy. He recently returned to America and is located in Chicago.

HANDS ACROSS THE SEA

(Continued from page 617)

struction, interior arrangement of buildings, heating, ventilating and similar achievements. Architecturally, Holland has its strong points; it has escaped from classical deadliness, it will never accept the cold rationalism of ultra-modern German styles. Every trend in the surrounding countries has influenced its architecture, without being copied. Always Dutch stubbornness—or do you want to call it genius?—has adapted the new movement to local conditions, and has incorporated it in the old traditions. The result is a far stronger unity than any American city can show—the new departures, the modern structures, fit into the picture and do not clash like a gleaming white skyscraper among old brownstone houses.

This harmony of the city is one of the many things which American architects will be looking for in Europe. They will find it in mediæval towns like Rothenburg, or in cities like London, where even now the Greek and Roman orders flourish on every prominent building. In Germany and France they will be startled by the discord between old and new; in Holland they will find a modernism far more acceptable to the American mind. The private house has developed in this country into a modern "dwelling machine," without losing its home qualities. A similar trend is to be found in America; both countries are ready to take over any good points which have been tested by the more impulsive nations, and to incorporate them into their style.

So, as one man from Missouri to another, why should we not help each other?

The staff of the city planning board in Rotterdam will be pleased to help any American architect who plans to visit Holland. Whatever his special interest, the country can offer him many delightful excursions. On arrival in Rotterdam, any taxicab will bring him to the office at 17 Middensteiger, where his route will be discussed and where he will receive introductions to many a specialist in his own field. Of course this will supply him with far better and more reliable information than his travel bureau can furnish.

I hope to see many of you this summer,—let us shake hands now across the sea.

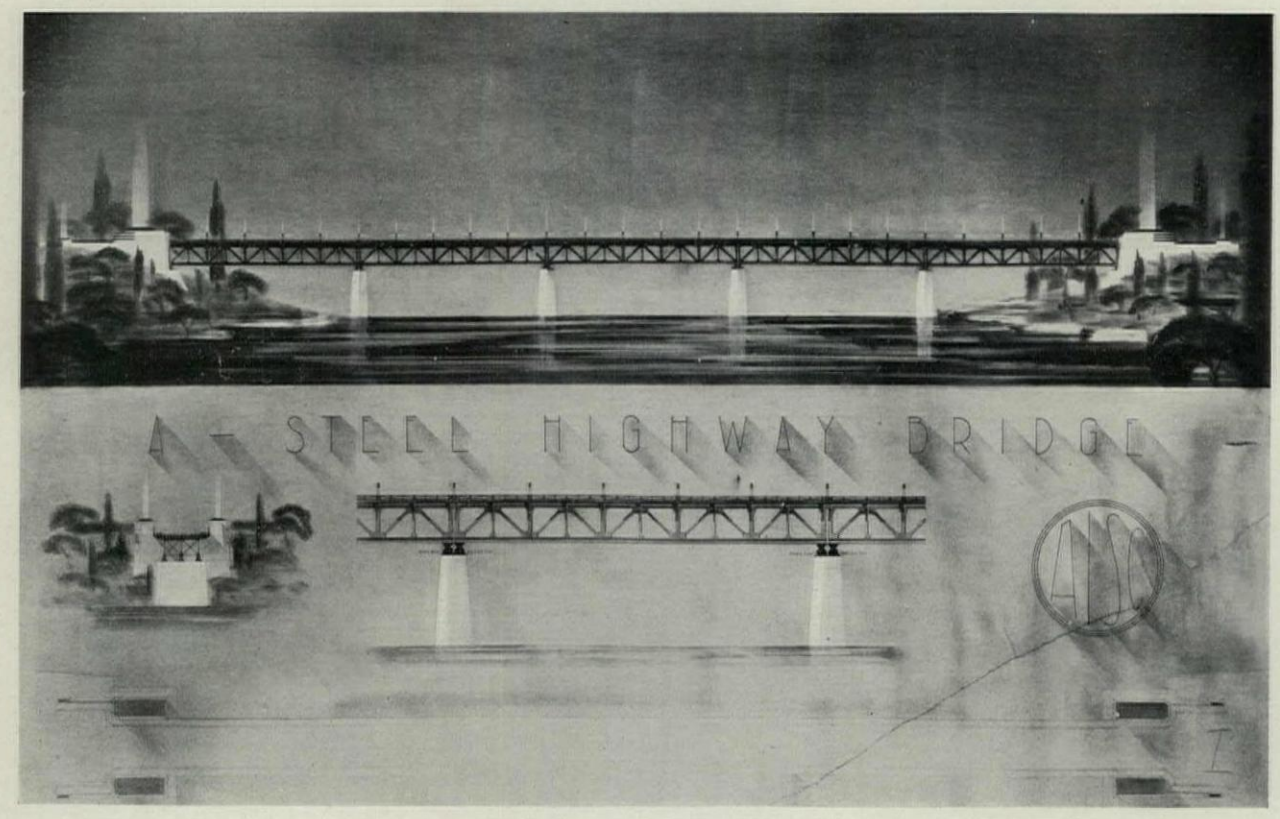
A LETTER FROM CHARLES R. LAMB

"I read with interest the appreciation, as published in the May number, of Manly N. Cutter, the oldest Fellow of the American Institute of Architects, who passed away recently. I wish to add my word of personal indebtedness, for it was under him in the early days of his coming to New York that I received my first instruction in the science, as well as art, of his profession, Architecture. It was my privilege to receive his sound advice as to the underlying principle that made for good construction and harmonious proportion, never mind in what 'style' the design was to be developed. That I had this in my formative years was to my advantage, so that as styles came and passed I never lost sight of the early advice that good proportions and harmonious lines persist in spite of the vagaries of the fads and fancies of popular thought.

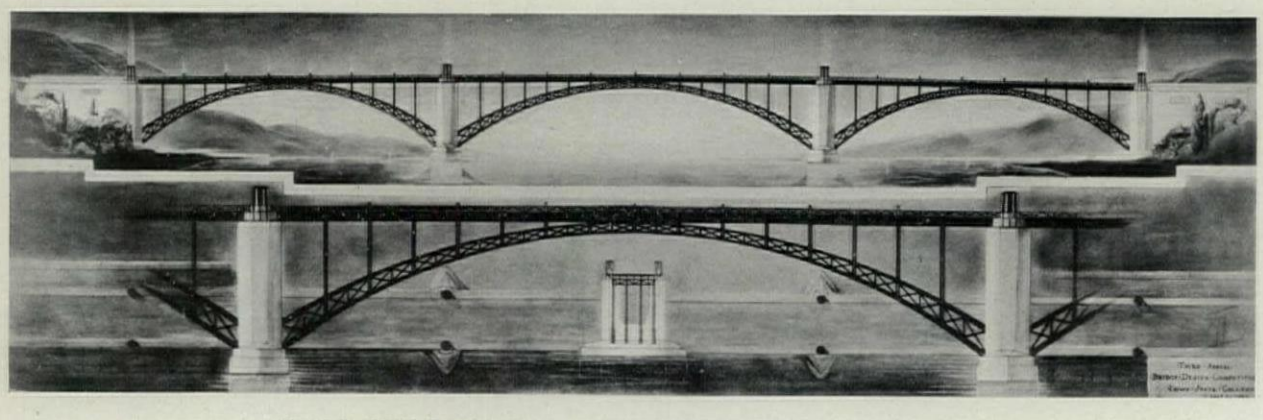
"The clear sanity of Mr. Cutter's mind was shown in his plan of living. Endowed with a wonderful physique, his athletic training, which could easily have been developed professionally, was only used to produce a clean body for a clear head—clean thinking and straightforward action was his.

"Those who knew him and appreciated his kindly character can apply to him the old English thought, professionally and personally, that in truth he was a Gentleman."

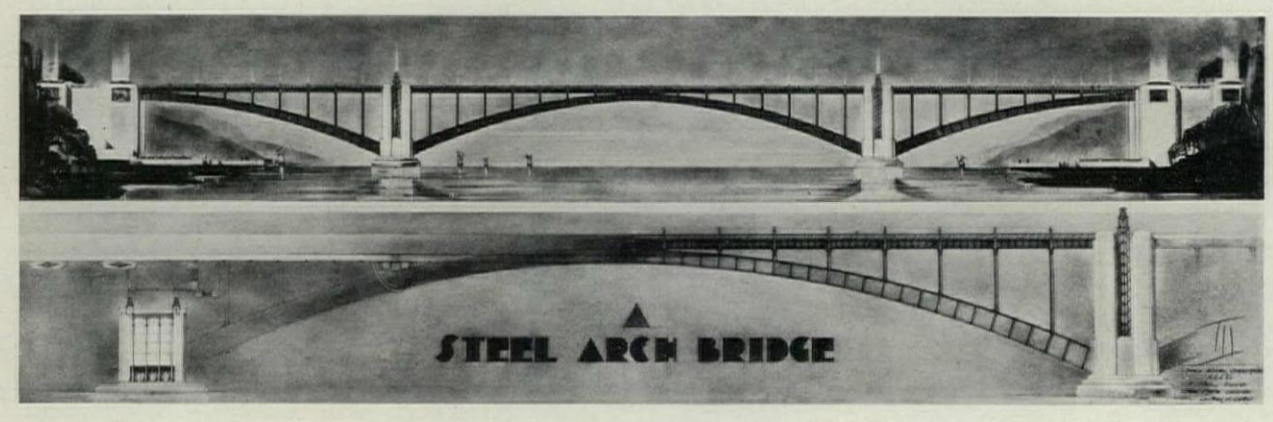
CHARLES R. LAMB.



FIRST PRIZE DESIGN BY R. F. WEBER, ATELIER ADAMS NELSON, CHICAGO



SECOND PRIZE DESIGN BY GLENN E. CRIPPEN, IOWA STATE COLLEGE



THIRD PRIZE DESIGN BY LESTER W. CASEY, IOWA STATE COLLEGE

COMPETITION SPONSORED BY AMERICAN INSTITUTE OF STEEL CONSTRUCTION—
ARCHITECTURAL STUDENT DESIGNS FOR A STEEL BRIDGE

(See page 460, June Issue, for Announcement of Other Awards)

WINNING DESIGN FOR "A MEMORIAL PARK"
by Neil Hamilton Park.

COMPETITION FOR THE ROME PRIZE IN LANDSCAPE ARCHITECTURE

ROME PRIZE IN LANDSCAPE ARCHITECTURE

The American Academy in Rome has announced the award of the Kate Lancaster Brewster Fellowship in Landscape Architecture to Neil Hamilton Park of Parkin, Arkansas. The subject of the competition for this year was *A Memorial Park* and the winning design is shown herewith.

Mr. Park was born in Lansing, Michigan, on May 12th, 1904. He was graduated from Little Rock College in 1924, with the Degree of A.B., and from Cornell University in 1928, with the Degree of B.L.A. During his senior year in college he was editor of the yearbook and was valedictorian of his class. He has been in the employ of A. F. Brinckerhoff of New York and Bryant Fleming of Ithaca. During the past year he has done professional work in St. Louis.

There were thirty-one competitors in the preliminary competition from among whom five were chosen to compete in the final. In addition to Mr. Park these were Stanley William Abbott, Cornell, 1930; Arthur S. Berger, University of Kansas and Harvard, 1928; Hodge Jackson Hansen, University of Illinois, 1928; and Frederick Wallace Short of Cornell, 1931.

The problem of the final competition was the same as that for the preliminary competition, the program for which read in part as follows:

PROGRAM

The friends of a distinguished philanthropist, recently dead, have subscribed a large sum of money for a park which shall be a memorial to him.

The problem for the competitor is to create a design for this park.

The philanthropist in question was a man of wide vision and broad interests, a patriotic citizen of exalted and fine character. For relaxation he was devoted to outdoor life, with a keen knowledge and a deep appreciation of nature.

The park is to have within itself a serene, compelling and arresting atmosphere. The land, an area of some forty-one acres in extent, has been purchased. It is forty miles outside the city of Philadelphia and adjoins an existing county park system. Naturally the ground purchased is beautiful with beautiful trees which are precisely indicated by the survey. Much of it is an abrupt hillside generally facing to the east. There is a continuous and strong flow of water in the stream. The state highway runs through the lower portion of the property, and just below the highway is an abandoned railroad which may be removed.

The careful placing of architectural units is left to the wisdom of the competitor.

Some part of the park is to be developed as a bird sanctuary and some part as a pinetum.

Visitors' vehicles may be allowed to penetrate part way up the hillsides, but narrow service drives for maintenance are to encircle much of the property. Pedestrian paths and trails are required.

Space for parking two hundred motor cars simultaneously is to be included. The necessary shelters and comfort stations are essential.

A CHANCE TO SELL BOOKS

The Boston Architectural Club offers an opportunity to unemployed draftsmen in different parts of the country to sell its 1929 and 1930 Yearbooks on a 40% commission basis. Anyone interested should communicate with Bert C. Buffey, Executive Secretary, Boston Architectural Club, 16 Somerset Street, Boston.

The 1929 Yearbook was on the subject of *Modern Architecture in the United States* and contains ninety-eight pages of illustrations, including general and detail photographs and working drawings of exteriors and interiors. The 1930 book was *Examples of Metal Work* and contained one hundred and eight pages of illustrations. Each of the books was published to sell for $5.00 a copy.

NEGRO SHACK, LOS ANGELES
FROM A LINOLEUM BLOCK PRINT BY CARYL F. WILLIAMS

Courtesy Weyhe Gallery

Timothy Cole

FROM A WOOD ENGRAVING BY TIMOTHY COLE
"THE CORNFIELD," REPRODUCED AT THE SIZE OF THE ORIGINAL

ARCHITECTURAL COLLEGE INCLUDES MODERN DESIGN IN ITS PROGRAM

Realizing that a knowledge of modern design is required of the architectural draftsman of today the Los Angeles College of Architecture and Engineering located at 2256 Venice Boulevard, Los Angeles, California, has completed arrangements with Mr. Richard J. Neutra, A.I.A., Z.V., to direct the department of architecture in its institution, and merge his own school with the college.

Mr. Neutra has just completed a lecture tour around the globe addressing architectural and art associations as well as representatives of industry and manufacture in Japan, Asia, and Europe. He was American delegate to *Les Congres Internationaux d'Architecture Moderne*, which met last November in Brussels and his report was one of the four main topics of the Congress. On his return to the United States Mr. Neutra was invited to speak before the New School of Social Research, the Roerich Museum, the Art Center of New York, the Association of Art and Industry of Chicago, and the University at Ann Arbor.

The works of Mr. Neutra have been published in many international magazines. Particularly his all steel and shot concrete residence in Los Angeles, with a suspended swimming tank, open-air theatre, gymnasium courts, etc., and which was quoted in *Cahiers d'Art*, Paris, as "America's contribution to the world movement in new architecture."

The inclusion of modern architectural design and planning in its curriculum assures the students of the Los Angeles College of Architecture and Engineering the most up-to-date and practical training available.

No attempt is made to specialize in any one particular phase of the subject of architecture. Instruction in building construction details, history and theory of architecture, drafting, structural engineering and specifications is given each in its particular sequence, so that at the end of the course a complete practical knowledge has been acquired.

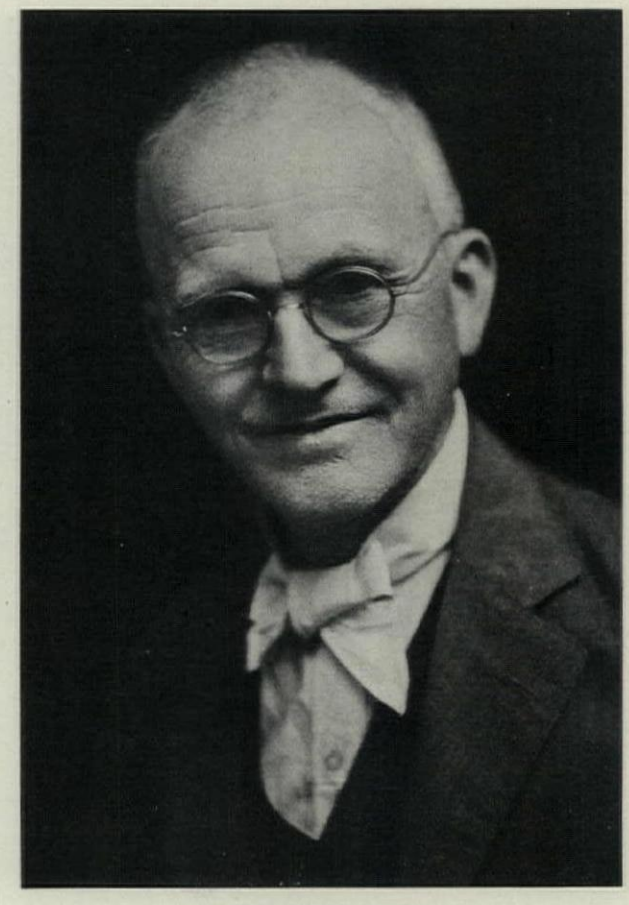
M. T. Cantell, F.R.I.B.A., Certified Architect and Certified Civil Engineer, who has had lifelong experience as a technical professor, is principal of the College.

The College, which was inaugurated in September, 1930, has a very satisfactory enrollment demonstrating the acceptance of its instruction policy by the student of modern days, and it is anticipated that the registration for the coming year, which commences in September, will more emphatically endorse this policy.

WESTCHESTER COUNTY SOCIETY OF ARCHITECTS

The Annual Golf Tournament of the Westchester Society of Architects was held on June 16th at Kings Ridge Golf Club, Rye, New York. Howard B. Peare won the prize for "low net" score and Arthur Peyser was awarded that for "low gross." A very lively meeting was held, but very little business was transacted except for the tournament. The meetings of the Society are discontinued until September.

The Secretary of the Society reports that the recent architectural exhibition held by the Society was quite successful and that several of its members reported having received from one to five commissions directly through their participation. Over 20,000 visitors attended the Home show and most of them appeared to take great interest in the architects' exhibit.



TIMOTHY COLE

1852—1931

Timothy Cole, long regarded by many as the foremost American master of wood engraving, died on May 17th, 1931, at his home in Poughkeepsie, New York. He was seventy-nine years old and had been ill since last November. His death brought to an end a career of sixty-five years devoted to art.

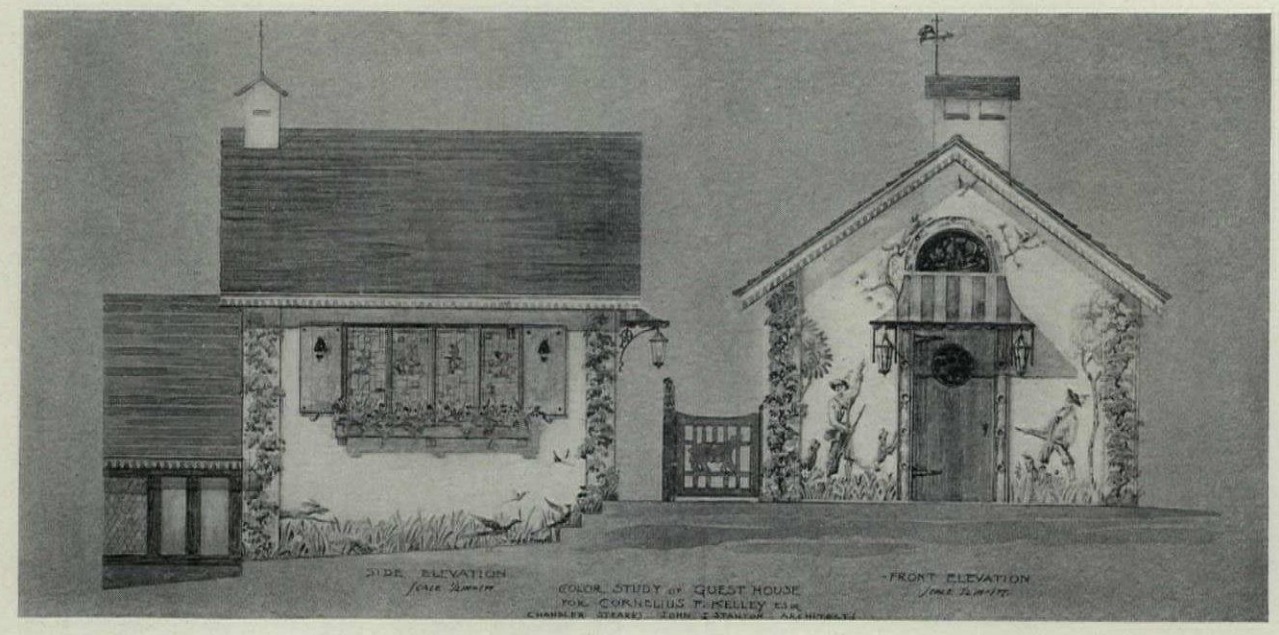
A generation ago nearly everyone knew of Mr. Cole and his work. There was general satisfaction when, in 1913, he was elevated to the American Academy of Arts and Letters to take position with the painters, John La Farge, Abbott Thayer, and Elihu Vedder, and with the sculptors, Augustus St. Gaudens and Daniel Chester French. Among the honors he won was the diploma of the Chicago Exposition in 1893, the first class gold medal of the Paris Exposition in 1900, and the grand prize for wood engraving at the St. Louis Exposition in 1904.

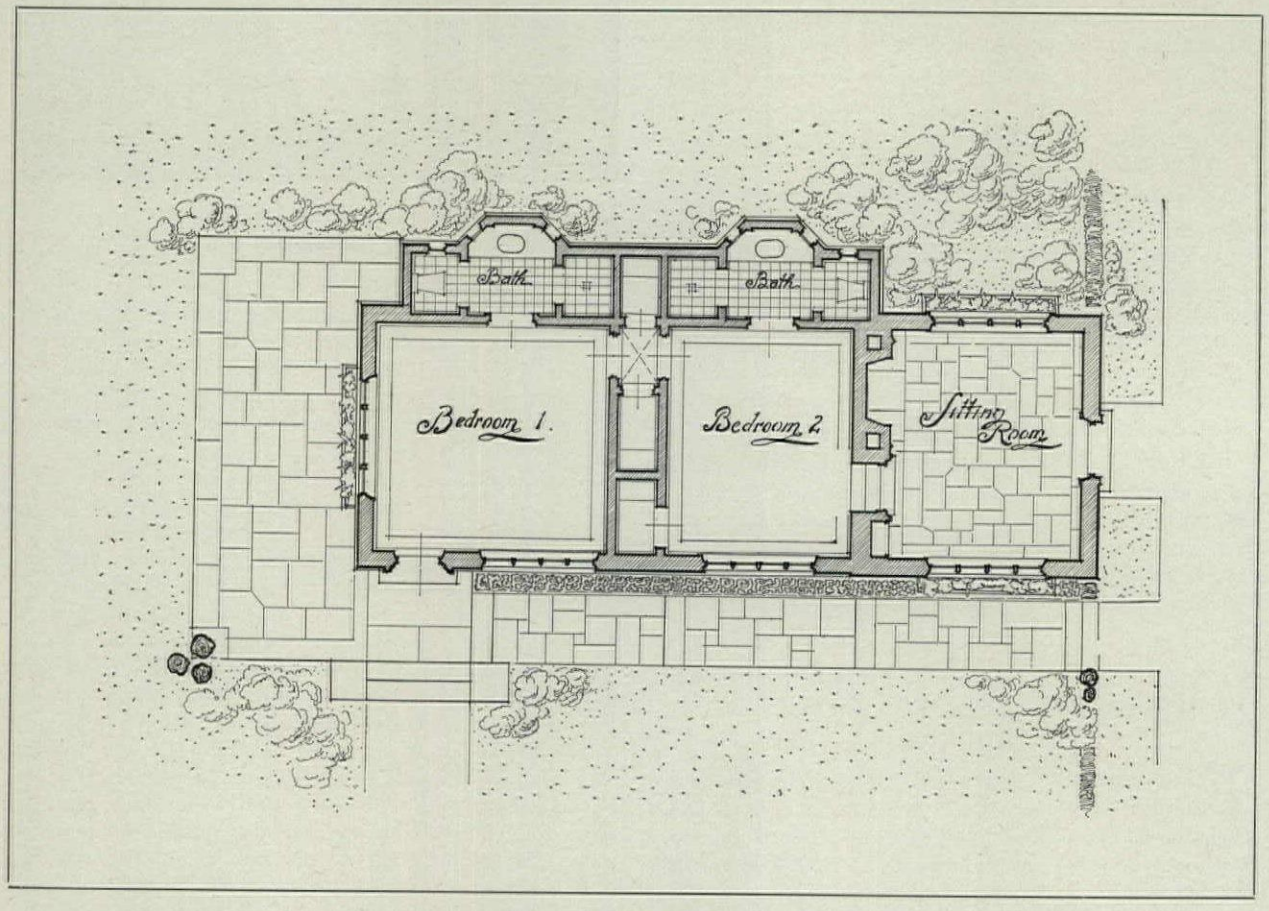
The American Academy of Arts and Letters held an exhibition of Mr. Cole's engravings in January, 1927. Dr. Nicholas Murray Butler presided at a luncheon given in his honor. One of the engraver's last notable works was to make a bookplate for President Coolidge.

Mr. Cole is survived by his wife, Annie Elizabeth Carter Cole, whom he married in Jersey City Heights in 1875, and by his three sons, Alphaeus P. Cole, the artist, of New York, and Lucius Cole and Percy Cole of Philadelphia.

PENCIL POINTS COMPETITION DRAWINGS

The selection of drawings submitted in our Competition for an eight-room house have wound up their exhibition tour and will be returned to their owners as soon as they reach here from Los Angeles.





GUEST COTTAGE—ESTATE OF CORNELIUS F. KELLEY, ESQ., NORTH HILLS, LONG ISLAND

CHANDLER STEARNS AND JOHN J. STANTON, ARCHITECTS—ALFRED E. FLOEGEL, PAINTER

It is interesting to note, in connection with the exterior decoration of this cottage, painted in oils on cement stucco properly sized, that a fox is shown "treed" by the hunters. When the building was completed a number of people scoffed at the idea of a fox climbing trees, claiming that this was contrary to nature. Shortly thereafter, however, the artist was vindicated by the publication, in a New York newspaper rotogravure section, of a photograph of a real fox similarly treed by some Carolina hunters.

CARLTON STRONG

1869—1931

Carlton Strong, nationally known architect, died June 25, 1931, at Pittsburgh, Pa., after an illness of about four weeks. Mr. Strong was born in Lockport, N. Y., 62 years ago and started practice in Buffalo in 1888, where he was a pioneer in the use of reinforced concrete. The Greystone Hotel in Buffalo, designed by Mr. Strong, was one of the first buildings to be built in this country of this type of construction after Mr. Ernest Ransome's original experiments made at Leland Stanford University.

In 1900 he moved his practice to New York City where his work consisted chiefly of hotel and apartment buildings. In 1906 he moved to Pittsburgh, Pa., to erect the Bellefield Dwellings, the first large apartment building to be built in Pittsburgh, closely followed by the Rittenhouse Hotel. After a period of several years of diversified practice, he gradually became interested in collegiate and ecclesiastical architecture and it was in this field that his genius found its true expression. He made three journeys to Europe to study the old churches and became most interested in the Norman Gothic style. He was a lifelong student of and had accumulated a vast knowledge of church liturgy before he died. Examples of his work around the Pittsburgh district are numerous, consisting mostly of schools, college buildings, convent buildings and many of the most beautiful churches in the district. But in the Sacred Heart Church, in Pittsburgh, which is only partially built and which is becoming nationally known as an outstanding example of church architecture in the United States, he erected his crowning achievement.

Mr. Strong was a member of the American Institute of Architects, a fellow of the Royal Society of Arts, a member of the American Society of Civil Engineers, the Engineers' Society of Western Pennsylvania, American Association for Advancement of Science, Pittsburgh Architectural Club, and Sons of the American Revolution.

HOUSE BEAUTIFUL COVER COMPETITION

Between twelve and thirteen hundred entries were received in the Ninth Annual Cover Competition conducted by the House Beautiful Magazine which closed last May, artists and students from every portion of the United States competing.

The prizes and honorable mentions were as follows:

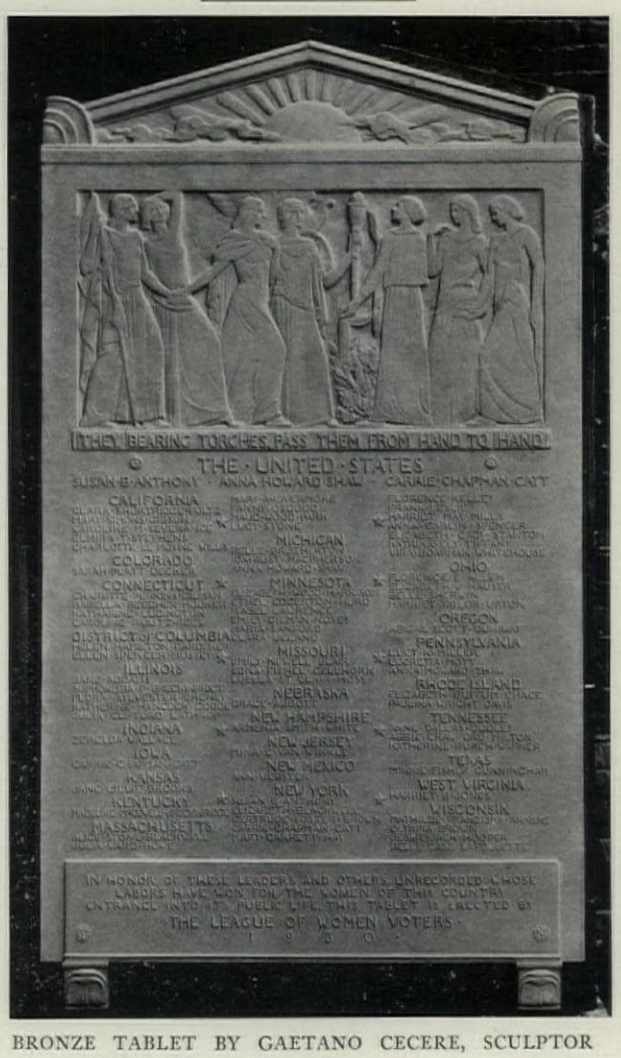
First Prize: Antonio Petruccelli, New York City.

Second Prize: Betty Paul, New York School of Design.

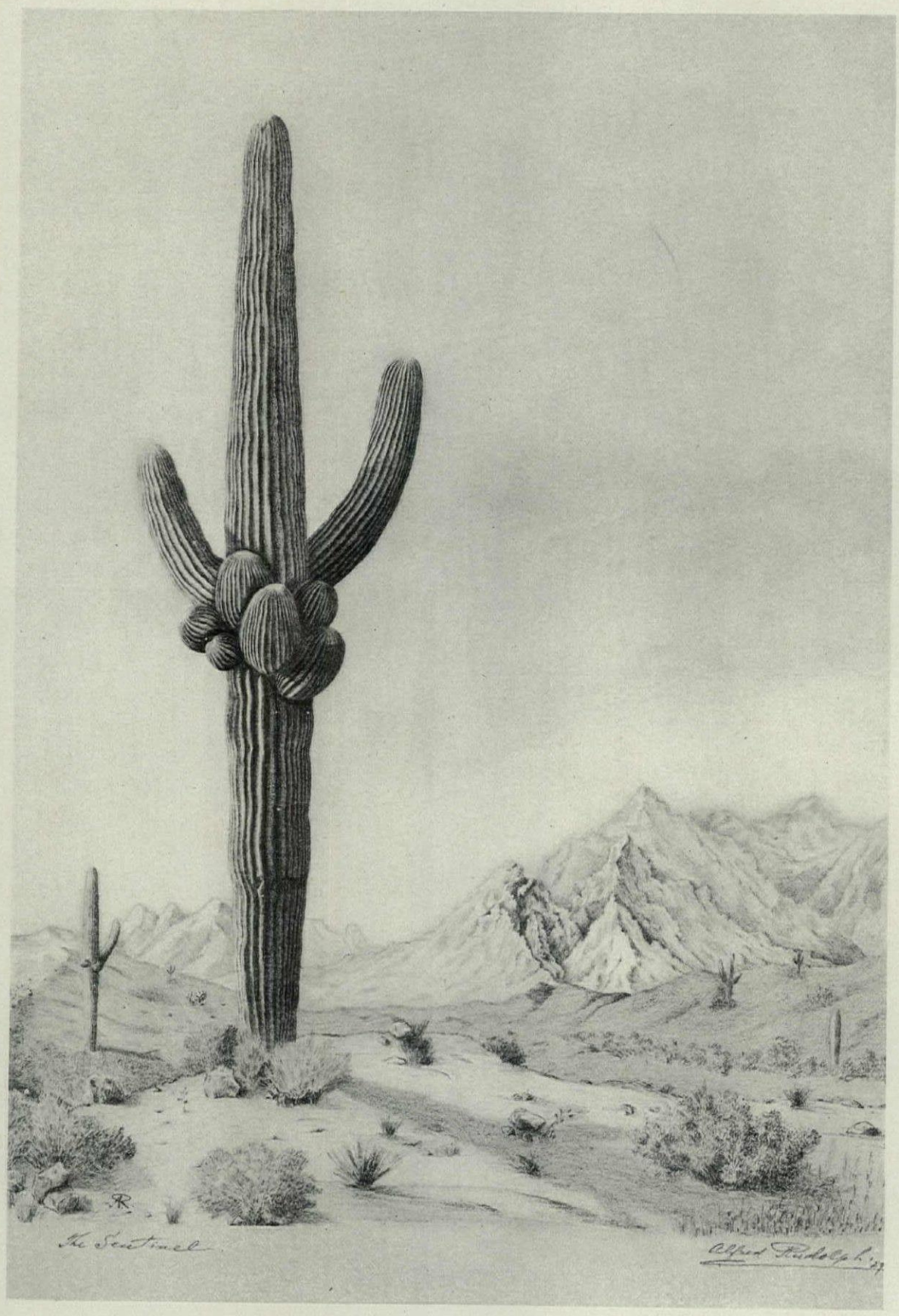
Honorable Mention: Christopher Murphy, Jr., Savannah, Georgia; Albert Richard Stockdale, Pasadena, California; Lauren W. Cook, New York City; Katherine G. Fisher, Columbus, Ohio; Heath Anderson, San Francisco; Margaret Masson, Penacook, New Hampshire; Marion Moran Cook, New York City, and Howard Weston Arnold, Yonkers, New York.

As a student design won the second prize, no special student prize was awarded this year.

The usual cover exhibit of one hundred designs selected from all those submitted will start its tour of the country next September and its itinerary will be printed from month to month in the *House Beautiful*.



BRONZE TABLET BY GAETANO CECERE, SCULPTOR
FOR NATIONAL LEAGUE OF WOMEN VOTERS, WASHINGTON
Size of original, 3' x 5'4"



FROM A PENCIL DRAWING BY ALFRED RUDOLPH
"THE SENTINEL"

FREESE'S CORNER

Editor's Note:—*As announced in June, Ernest Irving Freese will answer one inquiry a month on problems involving geometry or mathematics that have practical value to the draftsman or in one way or another to drafting room work.*

Address your problem to Freese's Corner, PENCIL POINTS, *419 Fourth Avenue, New York.*

Answering G. S. M., Montreal, Canada:

(1) Part 16 of the "Geometry" was published in the April, 1931, issue of PENCIL POINTS. It deals with "Circles Without Centers," that is, with the plotting of, and the graphical division of, and the laying off of given distances on, circular arcs of inaccessible or inconveniently remote centers.

(2) Both of your circular stair problems reduce to the prerequisite requirement of rectification of the plan-curves and the laying off of known distances therealong. The answer to all such problems will be found in Parts 14 and 15 of the "Geometry" entitled, respectively, "The Subjugation of the Circle" and "Applied Cyclometry," and published in PENCIL POINTS in the issues of January and February, 1931.

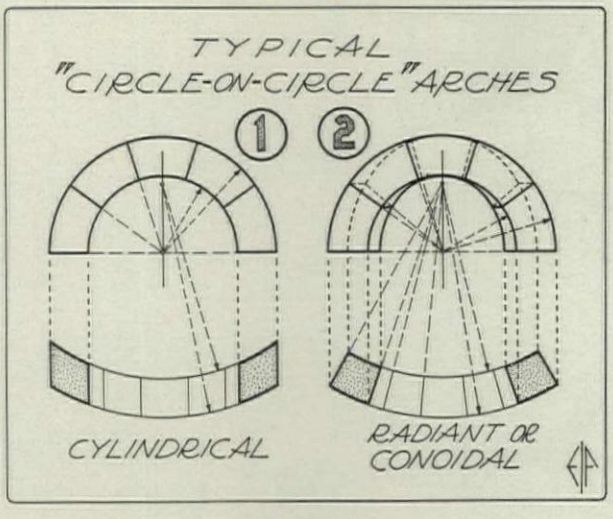


FIGURE 1

(3) The two basic types of "Circle-on-Circle" arches are illustrated herewith at Figure 1. Each type takes its name from the characteristic shape of the soffit. In the cylindrical arch, Diagram "1," the generating elements of the soffit are parallel with the axis of the intersecting cylinder that shapes the arch, hence, any right cross section of the soffit is a circular arc, though the faces of the arch are bent to the curves of the wall. In the radiant arch at Diagram "2," the generating elements of the intrados remain horizontal but radiate to that portion of the vertical axis of the circular wall that occurs between the spring line of the arch and its crown, hence, the true shape of the soffit is a portion of the warped surface of a conoid and, therefore, any right cross section of this surface is neither circular nor elliptical: the big end of the intersecting conoid that shapes the outer arris of the soffit is a circle *bent to the curve of the wall.* Obviously, the cylindrical arch is the easier one to construct.

(4) The development of the cylindrical arch will be shown in this "corner" in September.

(5) The development of the radiant arch will here appear in October. Freese's corner isn't big enough to write a book in every month—especially books on *stereotomy!* But if you get stuck—send another S. O. S.

Now for some more "Kindergarten Catechism." How many of you have graduated? Hunt up Part 2 of the "Geometry," PENCIL POINTS, Sept., 1929, for answers to the following batch of questions:—

1: Why should the arris on the working edge of a drafting board be *beveled off?*

2: How would you gauge the working edge of the board for absolute straightness, without recourse to a steel "straightedge"?

3: In what manner would you make sure whether or not the angles of your 30-60-degree triangle were correct, using no instruments except the T-square and another triangle?

4: How may a drafting-scale be used as a square?

5: Can you take any protractor and, in five minutes, discover whether it is one of two things: absolutely worthless or absolutely reliable?

Better dig out those back numbers of PENCIL POINTS. The third degree on Part 3 is next! And don't pass up those dimensioning problems in Part 18—somewhere in *this* issue—just around the "corner."

ALFRED RUDOLPH'S DRAWING

The remarkable pencil sketch shown opposite was done by Alfred Rudolph of Phoenix, Arizona. Although this artist is an etcher of note, he prefers pencil work and is frankly attempting to make pencil drawings popular again. This specimen of his work was reproduced through the courtesy of Mr. John King Reckford from whose collection it was borrowed. The original, which measures 8″ x 11″, was drawn on white paper of a fairly smooth texture, which permitted great delicacy of handling.

ST. LOUIS ARCHITECTURAL CLUB

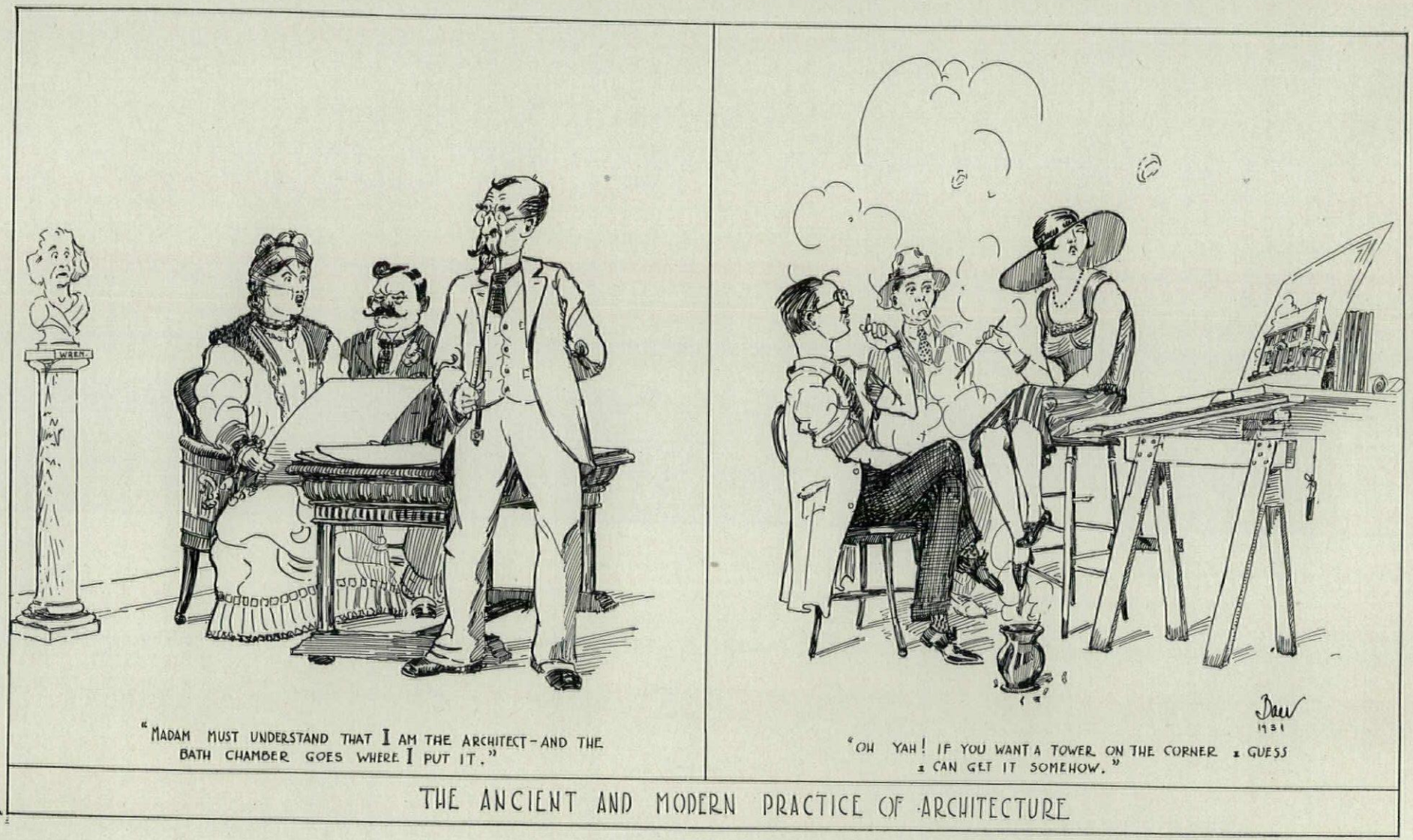
At a recent election, occurring at the last meeting before the summer recess, F. Ray Leimkuehler was elected President for the coming year of the St. Louis Architectural Club. The other officers of the Club carry over from last year. Mr. Leimkuehler was President of the Club nine years ago.

The only activity during the summer is that of the summer sketch class which meets every Saturday afternoon. A bumper crop of fine sketches in all mediums is expected to be the fruit of the summer's labors.

INDIANAPOLIS ARCHITECTURAL CLUB

At the regular Tuesday noon luncheon held on July 14th of the Indianapolis Architectural Club the members received copies of "Le-Projet," the second annual yearbook of the club. A large percentage of present and past members attended, and after the luncheon the annual golf tournament and picnic took place. Championship contests were held in tennis, horseshoe pitching, and "tiddlywinks."

The Club Yearbook contained illustrations of buildings awarded prizes at the Indiana Society Exhibit in 1930. The Gold Medal was awarded to the Scottish Rite Cathedral, Valley of Indianapolis, George F. Schrieber, Architect. The Public Award went to Bishop, Knowlton, and Carson for their Potawatomi Inn in Pokagon Park. The Commercial Award was given to Pierre and Wright for the Maco Market, and the Domestic Award to Pierre and Wright for the residence of Robert J. Clarke. The Third Church of Christ, Scientist, by Robert Frost Daggett won the Ecclesiastical Award. The Yearbook also contains a short history of the Indianapolis Architectural Club which was started in October, 1911.



THE ANCIENT AND MODERN PRACTICE OF ARCHITECTURE

A CARTOON BY ARTHUR F. BAER, CLEVELAND, OHIO

HERE AND THERE AND THIS AND THAT

This department conducts four competitions each month. A prize of $10.00 is awarded in each class as follows: Class 1, sketches or drawings in any medium; Class 2, poetry; Class 3, cartoons; Class 4, miscellaneous items not coming under the above headings. Everyone is eligible to enter material in any of these four divisions. Good Wrinkle Section: a prize of $10.00 is awarded for any suggestion as to how work in the drafting room may be facilitated. No matter how simple the scheme, if you have found it of help in making your work easier, send it in. Competitions close the fifteenth of each month so that contributions for a forthcoming issue must be received by the twelfth of the month preceding the publication date in order to be eligible for that month's competitions. Material received after the closing date is entered in the following month's competition.
The publishers reserve the right to publish any of the material, other than the prize winners, at any time, unless specifically requested not to do so by the contributor.

E.L.C. got away safely in a cloud of spray and is now in "Dear Old Lunnon," leaving me, Salvador Gloop, to run things with a free hand during her absence. One glorious month! Well, the first thing to do is to award prizes, so here goes:—

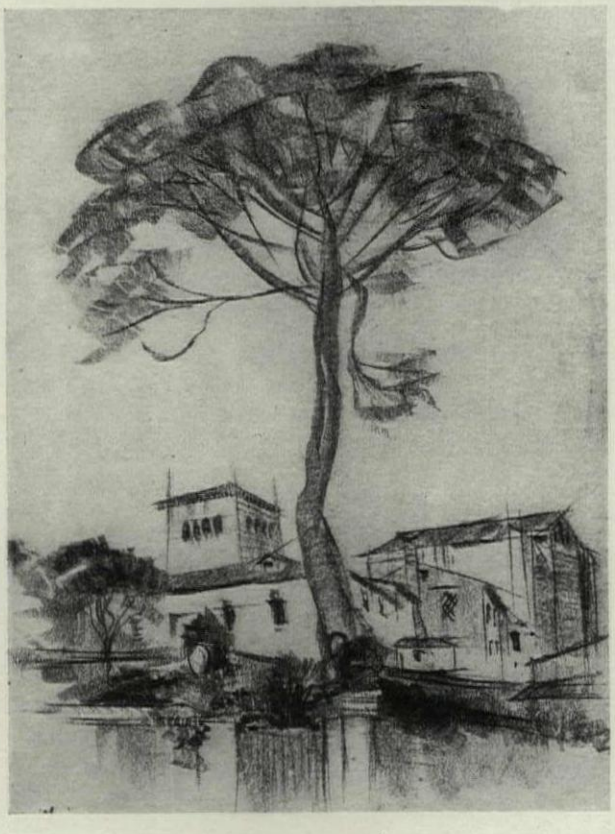
Class I—A. C. Williams, New York.
Class II—Edward R. Mueller, Forest Park, Ill.
Class III—No award.
Class IV—Robert Majors, Ontario, Cal.
Good Wrinkle—Harry Widman, Los Angeles, Cal.
and P. S. Thomson, Pittsburgh, Pa.

There, that's over! Do you know, we had quite a time deciding who was to get the lucky tenspots. Class I was easy but Class II offered difficulties. Our eyes got so clogged up with tears from reading Doc Mueller's effusion that we couldn't see to read the other poems submitted. What could we do but give him the prize for his class? Byron Laidlaw's epitaphs were too good to leave out though.

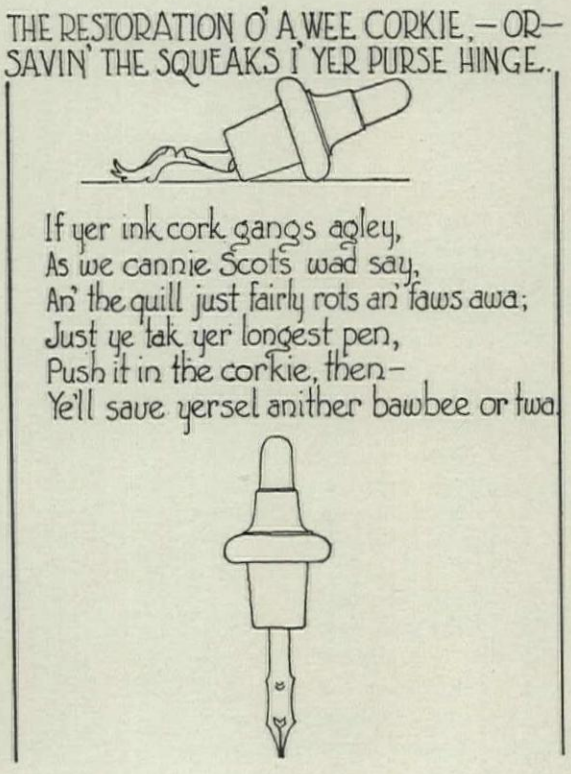
When we came to judge Class III, lo, and behold, there were no cartoons in the drawer. What's wrong? Isn't there anything funny any more?

In Class IV the linoleum print by Robert Majors walked away with the prize, but the good wrinkles made us stop and think and we finally awarded two prizes. We had ten dollars left over in this class from May.

Just before E.L.C. got away, she had to have a wisdom tooth extracted and oh, what a tooth it was, and with what anguish it left its socket! It's being kept as a souvenir but it occurs to good old Salvador that it should have a fitting receptacle. You know, way off in the town of Kandy, on the island of Ceylon, there's a very famous temple known as the Temple of the Tooth. In it reposes, probably on a nice soft red plush cushion, one of Buddha's original molars. Once a year it's taken out, placed in a most ornate palanquin, and paraded around the town while the faithful worshippers bow down before its passing. Now, why shouldn't



SKETCH IN RED CONTÉ CRAYON
SUBMITTED BY A. C. WILLIAMS OF NEW YORK
(PRIZE—*Class One—July Competition*)



SCOTCH WRINKLE BY P. S. THOMSON
OF PITTSBURGH
(PRIZE—*Good Wrinkle—July Competition*)

E.L.C.'s tooth have a palanquin of its own so that Here & There fans could parade it around the country every seventh year? Just to see what you think of the idea we'll offer a special extra prize of ten smackers ($10.00) for the best design for this palanquin sent in before September tenth. Really, it's too easy. Let's see what our leading designers can do.

THE JOBLESS AND BROKE

By Edward R. Mueller, Forest Park, Ill.

(PRIZE—*Class Two—July Competition*)

It's tough when you're through,
Your dreams don't come true,
You're one of the mob,
Kicked out of a job,
And you try to hold back
A tear and a sob.
You feel down and out
You're at the end of your route,
You'd like to come back
With a whoop and a shout,
But you can't, you're licked
And you're out.

You're hungry and broke
And life seems a joke,
'Til the blue of the sky
Seems covered with smoke.
The green of the trees,
The hum of the bees,
The babbling brook,
A cool shady nook,
The bird on the wing,
They don't mean a thing
When a fellow is hungry and broke.

I wouldn't say die
But let's make a try,
As we did in the war,
To come back once more.
Up in the line, remember the time,
It wasn't a cinch,
But you didn't flinch,
In the mud and the blood,
The dirt and the slime,
Why—you didn't sit
On the mourner's bench,
When holding your own,
In a lousy old trench.

Oh, it's easy to fight
The foe you can see,
But it's a different tune
When you face poverty.
On three squares or a lunch,
You can pack the old punch,
You can battle all day,
When you're getting your pay
And a cup of hot java,
And a cool, soothing smoke,
But it's hell, when you're jobless,
And broke.

LINOLEUM CUT BY ROBERT MAJORS OF ONTARIO, CAL.

(PRIZE—*Class Four—July Competition*)

HARRY WIDMAN of Los Angeles submits the following Good Wrinkle and wins the extra prize for this class.

"On your 45-degree triangle lay off lines in pencil radiating from Point A, on diagram, to sides B-C. These lines are to be made so that they form useful angles with the side A-C. Angles may be those such as 1 in 12, 2 in 12, 3 in 12, ... 11 in 12; 10°, 15°, 20°, 22°30′ . . . . 75°, etc. After these lines have been penciled in take the pair of dividers from the fellow who sits behind you, and with the point scratch a groove over each pencil line, stopping about 1/16″ short of point A and side B-C so that there will be no irregularities in the ruling edge. Also scratch in just above each groove the slope or angle that the groove makes with the horizontal A-C. Ink in all grooves and angle measurements with black ink.

"How to use it? Suppose that from point A you wish to draw a slope of a sill which is 2 in 12. Place corner of triangle on point A from which the slope originates. With